Occurred: 2000-01-05 04:15:00 Local
Location: Summerfield, (approx.1/2 mile west of), IL, USA
Shape: Changing
Duration: approx.4-5 minutes
No of observers: 4
Reported: 2000-01-05 00:00:00 Pacific
Posted: 2000-01-07 00:00:00
Characteristics: Lights on object, Aura or haze around object

After being dispatched to the north side of Lebanon, I saw two large, very bright white lights that changed into one, then when I got closer, it changed into a cigar shape, then when it flew almost directly over me, it was triangular. It made no noise as it flew overhead. I last saw it heading south-west towards Shiloh, and advised the dispatcher to let them know. A total of four police officers saw this. Myself (Lebanon PD), Shiloh, Millstadt, and Dupo,. All are in Illinois.

At 0415, I was dispatched to the north side of Lebanon, Illinois, in reference to a call received by the St. Clair County Sheriff's Dept. about an object that was described to be as big as a two story house with bright lights flying around the northern end of Lebanon. While heading east on Widicus Road, I saw what looked like two big, very bright white lights, very close together,in a stationary position,over the town of Summerfield. I called this in to the dispatcher,and advised that I was going over there to check on it. I also told them it definitely wasn't the moon or a star. While heading south on Rt. 4, it changed shape, and looked like the two lights merged into one big one before my eyes. After getting into the town of Lebanon, I turned eastbound onto Rt.50. While traveling eastbound, I watched it change into what looked like an elongated cigar. It was to the south-east of me at this time. There were a few cars on the road, so I turned on my overhead emergency lights, I was going approx.75-80 mph while heading in the direction of the object. When I turned onto old Rt.50, it started moving slowly north-east. I stopped my squad car, turned off the overhead lights ,and turned off the car. It then headed south-west at a very high rate of speed. It looked like it was somewhere around 2000 ft above the ground.It passed just south of my position, approx. 150-200 feet away from me. When I began to tell the dispatcher, it then accelerated, and headed south-west, towards Shiloh, before I could finish what I was going to tell the dispatcher, it looked like it was over Shiloh's south-east side. I told the dispatcher that if a Shiloh officer would look up, he should see it. Right after the end of my transmission, Shiloh advised he could see it, and that it was still heading south-west at a high rate of speed.Soon after that,the Millstadt officer told the dispatcher that he could see it. The next reporting agency was the Dupo police Dept., who said he was watching it through his field glasses. I couldn't discern what shape it was until it flew almost overhead. When it did,it looked like a large, narrow triangle, with the sides being longer than the base. It had three large, very bright white lights in what appeared to be the three corners. The lights were pointing straight down, with no oscilation. There was one red light that blinked near the base, just in front of, and in between, the large white lights. When it was moving away from me,the back end looked long and narrow,with white light coming from it. The light looked like it was one long unit. There

were multi-colored lights spaning the length of the back. I could tell there was more than one color,but not sure which ones because they seemed to blend together. Total length of observation was approx. 4-5 minutes. Also, when it flew past me, it made no noise. I've drawn a total of five pictures of what I saw, and the Shiloh officer has drawn one. The Millstadt officer said he was able to take a picture of it, but that it turned out fuzzy due to the cold.

MUFON Case Management System - VIEW

Robert Powell [Section 13] (Field Investigator) [EDIT MY PROFILE] [LOGOUT] MAIN MENU SEARCH ADD

Source:	MUFON-WUFOD
Report Assigned To (Primary Investigator):	Field Investigator Walter Sheets - Field Investigator
Report Assigned To (Secondary Investigator):	-
Report Completed By:	Walter Sheets - Field Investigator
Report Approved By:	Walter Sheets - Field Investigator
Investigation Status:	Completed
State Director comments to the FI assigned:	
Case Disposition:	Unknown - Other
Case Number:	1473
Log Number:	
WUFOD ID:	I..1-658
Case Type: (Vallee Classification)	CE1 ?
Case Category:	
Dispatch Notes:	

FOR MUFON USE ONLY

Temperature (Farenheit):	F
Wind Direction:	Unk
Wind Speed (Mph):	Mph
Ceiling:	CAVU

SUBMITTED BY

Title:	
Name:	
Country:	UNITED STATES
State (USA)	Georgia
Province (Canada):	
County:	Carroll
Street Address:	
City:	Whitesburg
Zip/Postal Code:	30185
Phone - Home:	
Phone - Work:	
Cellphone:	
Email - Primary:	
Email - Secondary:	
Anonymous:	

EVENT

Country:	UNITED STATES
State (USA)	Georgia
Province (Canada):	
County:	Carroll
(Nearest) City:	Whitesburg
Date of Event:	2001-06-15 -
Time of Event (Local Time):	22:30:00 -
Duration of Event:	00:30:00
Area/Site:	Farmland
Area/Terrain:	Fields

Area/Technical:	Power Station
Sky:	Clear
Weather Factors:	None,Unknown
Short Description of UFO Event:	Multiple Glowing Oblong Objects
Detailed Description of the UFO Event:	
WITNESSES	
Witness Release Agreement:	
Total Number of Witnesses:	5
Location:	Grouped
Agreement:	All Witnesses Agree
Witness A - Name:	
Witness A - Country:	UNITED STATES
Witness A - State (USA)	Georgia
Witness A - Province (Canada):	
Witness A - County:	Carroll
Witness A - Street Address:	
Witness A - City:	Whitesburg
Witness A - Zip/Postal Code:	
Witness A - Phone - Home:	
Witness A - Phone - Work:	
Witness A - Cellphone:	
Witness A - Email - Primary:	
Witness A - Email - Secondary:	
Witness A - Anonymous:	Yes
Witness A - Birth Date:	1962-06-15
Witness A - Gender:	Male
Witness A - Occupation:	Technician
Witness A - Educational Level:	High School
Witness A - Educational Degree:	
Witness A - Vision:	Good
Witness A - Colorblind:	
Witness A - Eyeglasses/Contacts:	
Witness A - Hearing:	Good
Witness A - Uses Hearing Aid:	
Witness A - Health (During Sighting):	Good
Witness A - Health (After Sighting):	Good
Witness B - Name:	
Witness B - Country:	UNITED STATES
Witness B - State (USA)	Georgia
Witness B - Province (Canada):	
Witness B - County:	Catoosa
Witness B - Street Address:	
Witness B - City:	Whitesburg
Witness B - Zip/Postal Code:	30185
Witness B - Phone - Home:	
Witness B - Phone - Work:	
Witness B - Cellphone:	
Witness B - Email - Primary:	
Witness B - Email - Secondary:	
Witness B - Anonymous:	Yes
Witness B - Birth Date:	1964-06-15

Witness B - Gender:	Female
Witness B - Occupation:	Homemaker
Witness B - Educational Level:	High School
Witness B - Educational Degree:	
Witness B - Vision:	
Witness B - Colorblind:	
Witness B - Eyeglasses/Contacts:	
Witness B - Hearing:	
Witness B - Uses Hearing Aid:	
Witness B - Health (During Sighting):	Good
Witness B - Health (After Sighting):	Good
Witness C - Name:	
Witness C - Country:	UNITED STATES
Witness C - State (USA)	Georgia
Witness C - Province (Canada):	
Witness C - County:	Catoosa
Witness C - Street Address:	
Witness C - City:	Whitesburg
Witness C - Zip/Postal Code:	30185
Witness C - Phone - Home:	
Witness C - Phone - Work:	
Witness C - Cellphone:	
Witness C - Email - Primary:	
Witness C - Email - Secondary:	
Witness C - Anonymous:	
Witness C - Birth Date:	1983-06-15
Witness C - Gender:	Male
Witness C - Occupation:	Student
Witness C - Educational Level:	High School
Witness C - Educational Degree:	
Witness C - Vision:	Good
Witness C - Colorblind:	
Witness C - Eyeglasses/Contacts:	
Witness C - Hearing:	Good
Witness C - Uses Hearing Aid:	
Witness C - Health (During Sighting):	Good
Witness C - Health (After Sighting):	Good
Witness D - Name:	
Witness D - Country:	UNITED STATES
Witness D - State (USA)	Georgia
Witness D - Province (Canada):	
Witness D - County:	Carroll
Witness D - Street Address:	
Witness D - City:	Whiteburg
Witness D - Zip/Postal Code:	30185
Witness D - Phone - Home:	
Witness D - Phone - Work:	
Witness D - Cellphone:	
Witness D - Email - Primary:	
Witness D - Email - Secondary:	
Witness D - Anonymous:	Yes

Witness D - Birth Date:	
Witness D - Gender:	
Witness D - Occupation:	
Witness D - Educational Level:	Unknown
Witness D - Educational Degree:	
Witness D - Vision:	Good
Witness D - Colorblind:	
Witness D - Eyeglasses/Contacts:	
Witness D - Hearing:	Good
Witness D - Uses Hearing Aid:	
Witness D - Health (During Sighting):	Good
Witness D - Health (After Sighting):	Good
Witness(es): (Education, profession, experience summary)	Adult witnesses relatively smart HS graduates with other non-accredited schooling and occupational training. Well read and up to date on current issues. Two siblings still being schooled at time of event, but appeared forthright and honest.....obviously well raised.

ANOMALOUS LIGHTS OR OBJECTS

Observed:	Object(s)
Number Observed:	6-10
Viewed From:	Outdoors
Viewed Through:	Binoculars
Elevation:	Degrees above horizon when nearest to witness: 70 Various
Lowest Altitude:	
Distance From Witness:	101-500 ft
Flight:	Path with directional change,Path then hovering
Direction First Observed:	NE
Direction Last Observed:	N
Shape:	Oval
Surface:	Glowing
Structural Features:	
Apparent Size:	Aspirin,Penny
Actual Size:	11-30 ft
Prominent Colors:	White: Exterior Lights Grey/Lead: Surface Red: Exterior Lights
Exterior Light Characteristics:	Flashed Sequentially
Emission:	
Sound:	None
Also in Area:	
Did the Object(s) or Light(s):	Change Direction,Turn Abruptly,Hover,Descend,Appear Solid
Description:	

ELECTRICAL-MAGNETIC EFFECTS

Device Affected:	None
Type of Effect - Signal:	
Type of Effect - Lights:	
Type of Effect - Engine:	
Type of Effect - Auto:	
Type of Effect - Instrument:	
Type of Effect - Surroundings:	
Description:	

ANIMAL REACTION

Species:
Reaction Type:
Description:

PSYCHOLOGICAL / PHYSIOLOGICAL EFFECTS

Psychological: Other: After Event
Physiological: Fatigue: After Event Lethargy: After Event
Description: Witness B seemingly fatigued or lethargic day after event. Unknown if from close proximity of objects or from being up late.

LANDING

Observation:
Site / Material:
Soil/Vegetation Samples: Unknown
Description:

ENTITY

Type: None
Height:
Apparel: Unknown
Apparel - Color:
Apparel - Features: Other
Description:

ADDITIONAL EVIDENCE

Photographic: None
Audio:
Radar Track:

Description:

Investigation Report text: STATEMENT OF SOLUTION---SIGHTING BACKGROUND

On 8Sept01 at about 8:45PM, this writer, SD Tom Sheets, received a phone call from a previous highly reliable source in Chatsworth Georgia. Source indicated that he had been contacted by a neighbor who stated that his brother and family had witnessed several suspected UFO type objects during the first part of the summer. Source indicated that he also knew the witness, and as far as he knew, both brothers had always been dependable types. This writer then telephoned the source's neighbor and ascertained that his brother, the primary witness in this case, lived in Carroll County

Georgia, near the town of Whitesburg, which is about 33 miles SW of Atlanta. Additionally that his brother and family had witnessed this suspected UFO event at their home earlier in the summer, but had not reported it to any agency or investigative group. This SD then contacted the primary witness (PW) and received a thumbnail description of the event. A meeting was scheduled for 15Sept01 to further this investigation. Witness was asked to complete sketches of what he had observed and have them ready for the meeting. 10Sept01, 10:11PM, two days after the initial contact with PW and five days before the previously scheduled formal sit-down, he phoned this writer at home and stated that he thought the objects had returned, but were MUCH farther away and he was trying to watch them through binoculars. This writer proceeded to the home of PW, travel to that location taking about 1 hour+. Upon arrival, PW stated that the objects/lights had eventually traveled off into the distance and disappeared before my arrival. This writer surveilled the area until about 3AM with negative results.

SIGHTING ACCOUNT (Event location is a 500+ acre tract of land consisting of woods and fields with the Chattahoochee River as the eastern boundary of the tract {the Hootch is a major river that runs generally SW from Atlanta to the Alabama state line}. Home of PW is an antebellum southern plantation house in excellent condition; in fact this tract was once a large plantation before and during the War of Northern Aggression and is currently preserved in a natural state for deer hunting. The home sits on a prominent rise overlooking the tract to the N, NE and E).

The interview of 15Sept01 took place at the witness home, with other family members also present for a debriefing. MUFONGA FIT George Lainhart of Fairburn Georgia was also present and assisting this inquiry. PW indicated that during the first half of June, exact date unknown, his 18YOA son came into the house one night at about 10:30PM EDT and woke him up saying there was a strange craft over the property that had lit up the area and house (clear, mild weather). PW went outside into his front yard and observed what appeared to him to be a glowing oblong object off to the NE or ENE hovering just over the trees near the river at what he estimated to be about 500 yards away. (From what later happened, PW described this location as the 2 o'clock position). PW stated that he got out his binoculars and looked and rather than seeing a glowing object, under magnification it appeared to have a ring of red and white lights around a center line, the white lights very bright, with the red lights seeming to blink in sequence around the object. PW stated that at this 2 o'clock position, the object was about 1/2 inch long/wide AAL, and also appeared to illuminate the tree tops in that vicinity. At this point, the other family members were also outside. PW then took up his large high candlepower spotlight used for night fishing and shined the beam on the object and received a

dramatic reaction. The object immediately flew SW at INCREDIBLE speed closer to the PW and his house and hovered over a large lone tree in front of the house in the adjacent pasture or field. PW described this burst of speed as unbelievably fast. He described the object in this closer location as being at the 10 o'clock position, and that it was about 2 inches long/wide AAL at that time. (The PW recreated his estimations of AAL size using a ruler provided by this FI). PW stated that he was then able to see that there was actually a solid structure behind the lights, and it appeared to be a dull gray or very much like brushed stainless steel, similar to a DeLorean sports car or Greyhound bus coloration. Shortly there after, six additional similar objects appeared and began flying and zipping around the tract of land, moving faster, then slower, but never again with the incredible speed described above when Object #1 went from the 2 o'clock to the 10 o'clock position. PW stated that at one time, three objects were stacked up in a hover, one above the other. These events went on with no sound or other unusual affects and at relatively low altitude for about 30 minutes, then suddenly all of the objects simultaneously vanished.

This writer SEPARATELY interviewed the 18 YOA son who first spotted the craft and alerted his father. He said that a bright light on the field first drew his attention outside and he went inside to rouse his dad. His account was similar to his fathers, adding that they zipped around, going off, coming back, no sound, and that he noticed four of the objects side by side in a sort of formation right before they vanished.

Also interviewed was the 14 YOA son, whose description was similar, however the lights earlier described as being red appeared more orangish to him. Along with his father, he also provided a sketch. The wife of PW had similar descriptions, but said she was more aware of the bright lights on the objects mid-line than anythng else, and that she was VERY upset about the event, having never experienced anything like it before. She added she was very tired or weak the next day, but said it might be from just being up late. Daughter-in-law of PW, the fifth witness, was not available for interview.

The PW was also perplexed by an event occurring a week or more earlier than that described above. He indicated that a close friend had visited for an overnight stay and had camped out on a remote part of the property. The next morning prior to departing, he asked the PW if he had pulled a joke on him during the night, asking if the PW had sneaked down to his camp and shined the night fishing spotlight on the wall of his tent. The PW said no that he had not done that. His friend indicated that during the night an extremely bright light had shown through his tent wall, and he had thought it might have been the PW doing it. This individual was not available for interview, but was described as amale, 36 YOA, an advertising executive and

licensed pilot.

OTHER FINDINGS AT EVENT SITE--FIT George Lainhart is a police SWAT rifle marksman and worked for this SD before my retirement as Chief of Police in College Park Georgia. Lainhart still serves in this SWAT capacity, and brought along some of his laser range finding equipment used in his tactical enforcement duties. George zeroed the trees indicated as being illuminated by the first object at the 2 o'clock position and found the range to be 336 yards from the front of the house (PW had estimated 500 yards). Next he zeroed the lone tree in the front field at the 10 o'clock position to which the object moved at blazing speed to then once again hover, and found the range to be 74 yards. Lainhart then proceeded to check on foot and ATV as much of the property as he could reach, with nothing of any importance found.

These FIs also made photos of the areas described by the PW.

INTERVIEW--These debriefings took place at the home of the PW, the home which is described above. The PW is a 39 YOA acoustical technician, married with 2 children. Besides his employment with a major acoustical company, he lives on this former plantation as a caretaker,living in the historic house and looking after the grounds. The home and property actually belong to a nationally known political and corporate CEO family and was in fact a working antebellum plantation in the 1850s and 1860s. This location was also written up in at least one published historical account dealing with the end of the War of Northern Aggression. The general appearance of the property is very archaic.....almost like stepping back through time if the parked vehicles and garage can be overlooked. The home interior is still original, and was clean, orderly and well kept. There were signs of Native American and other traditional crafts and artifacts inside, reflecting someone truly interested in the land and our culture, and with the intent of passing this type of knowledge on to his offspring. Upon more detailed discussions with the PW, it was found that he spent a good many of his formative years living in College Park Georgia, adjacent the Hartsfield International Airport, the same city where this writer served 25 years in law enforcement. We knew some of the same citizens from that area, and he described past events from that period in a concise and correct manner. Numerous events I was familiar with from serving many years in the Detective Division at CPPD. I do not recall any serious troubles involving this PW when hewas going through the pains of coming of age (while not recalling the PW specifically from those times, I knew of his family, and would no doubt recall anything of a serious criminal nature involving same, and I recall nothing). Having grown up within sight of Hartsfield Airport, this PW certainly knows what should and should not be in the sky, and the various appearances aircraft might take in their flight. Discussions with him about aviation in

general proved this out. I found the PW seemingly forthright, with a good grasp on reality and with no visible or obvious problems with any type of substance abuse. He seemed to be working hard to maintain a proper home environment in which to finish raising his 14 YOA son.

ADDITIONAL WITNESS CHECK--About 3:30AM on 11Sept01, upon leaving my night surveillance at the event site,I located Officer Josh Hobbs of the Whitesburg Police Department out on Hwy Alt.27 (Officer Hobbs patrol zone includes the event site area). I found that Hobbs also serves as a Carroll County Deputy Sheriff, patrolling the whole county when not working in Whitesburg. He was made aware of this investigation, but had no information regarding UFO reports earlier in the summer. He did advise me that he would check with his associates and call me if he gained any information. On 15Sept01, after the formal sit-down with the PW, this writer checked at the local convenience store on the main highway near the event site. I spoke to the night clerk who did not recall any customers coming in late and talking about unusual sightings during the summer. She agreed to check with her relief clerk and let me know if anything was found. 15Sept01, this writer also proceeded to the nearby Newnan Georgia State Patrol Post and inquired with Trooper/DeskSgt Rossen about any reports from citizens on UFOs or even squad-room talk of same among his associates. He replied in the negative, but agreed to check with the Post Commander the next regular business day.

A unique feature of this case is that there is a LARGE Georgia Power Company generating plant about 1 mile south of the event site, Plant Yates. While not a nuclear plant, it is a large facility. My efforts to enter and speak with the security personnel on 15Sept01 were in vain due to the high level security lock-down brought about by the WTC/Pentagon terrorist attacks on 11Sept01, four days before my field investigation. Later efforts to gain info via phone proved negative.

NATURAL PHENOMENA CHECK--N/A in this case.

MAN-MADE OBJECT CHECK--The PW and his family had the perfect viewing stand to experience this event.....absolute quiet, small hill overlooking the property, good weather conditions, binoculars, about 30 minutes of observation time, and a low level, relatively up close experience. Outside of some sort of super advanced, highly technological, super secret man-made craft Ufologists know nothing about, this did not appear to be a man-made object(s). No sound; object moving from a hover to absolutely blinding speed from the aforementioned 2 o'clock position to the 10 o'clock position and then another hover; intricate joint maneuvering when other objects appeared; all vanishing simultaneously as if a light switch was turned off. Of course to be ridiculous, standard aircraft from Hartsfield International or Dobbins AFB might be considered because their approach

patterns can be seen MANY miles away to the N and NE.....tiny pin point lights with which the PW was intimately familiar.....he pointed them out to me during my night surveillance of 10-11Sept01. PW witness even knew which way they would turn as we watched.....when they would go a little brighter in turning, then dim and dissappear. No way that any of that could be mistaken for what was reported by the PW. Not even classified military aerial training maneuvers with helicopters or other aircraft fit the event description.

OTHER POSSIBILITIES--The PW could be lying.....a complete hoax being perpetrated. He could have persuaded his whole family to lie about what they were reporting and further instructed them on how to put slight variations into their accounts so as to not appear like it was memorized or that they had 'gotten their story together'. PW could have even persuaded his 14 YOA son to render a hoaxed sketch(even though all visible indications are that the PW is working hard to insure a wholesome and learning family lifestyle in their home). The PW could have told his family to look the FI in the eyes and not to fidget when giving their statement. All of that is possible, but.....indications from the original source and the PW's brother is that the witnesses have been stewing and agitated about this event since it occurred, not knowing anyone in 'officialdom' with whom to file a report or hold a discussion. What motive to hoax?.....no indications that the tabloids had been contacted ($$$).....though I do not read them. Upon first meeting the PW and while discussing things in general about his life on the former plantation, he indicated that he was working hard to do everything right regarding his property caretaker position i.e. it was the best thing that had happened to his family in a long while, a sweetheart deal. Furthermore, there was a local resident who was jealous of his position, this person being a real jerk who would do anything to foul things up for him (the PW) just because he (the jerk) lost out on contracting for that caretaker position now held by the PW. During a subsequent conversation a few weeks later, the PW told George Lainhart that this jerk had apparently found out (probably from kids talking) that UFO investigators had been out scouring the tract of land and had been 'messing up' the preparations for coming deer season. PW indicated this was totally ridiculous, but that the 'jerk' would try to hold it over his head. Knowing ahead of time about the ways of this jerk, the PW would truly be afool to fabricate a UFO hoax and endanger his sweetheart deal, as he calls his duties on the old plantation.

WITNESS BACKGROUND CHECK--While it is sometimes difficult to properly check the background of a witness who wishes to remain completely unknown, certain factors are usually obvious to an alert and competent FI. Factors and circumstances that indicate whether a witness is who or what he/she claims to be; home and contents, vehicle(s) and contents, the general

environment and home lifestyle, personal library, witness wardrobe and personal appearance, manner of conversation, level of education, etc., etc. This writer found nothing during this inquiry that would indicate the PW was anything other than a hard working middle class acoustical technician/engineer, with a sideline as a rural property caretaker. Conversations with the PW revealed that he seemed very familiar with many aspects of lite construction, interior maintenance and repair, and the use of farm type vehicles for mowing, bushhogging and other land conservation methods. Vehicles and items therein were likewise consistant. As indicated previously, this FI could recall no major problems in College Park regarding the PW during his younger years. Anything of major substance would have registered clearly and caused this writer to recall him specifically, which is not the case here. In fact, the PWs family was close neighbors of a senior member of the College Park City Council (who was an associate of this writer), living in a long established and well maintained College Park neighborhood.

SIGHTING EVALUATION--The account of each witness in this case seem to be similar enough to indicate the event occurred as described; certain differences were noticed and considered normal for such witness accounts.....no one observes exactly the same thing or perceives it in the same way, even within a close group. This FI would be highly suspicious if each personal account WAS identical. The conditions for these witnesses to observe this occurrence were near perfect as described in other parts of this document. The information regarding the approximate size of these objects seems to also corroborate the account of the PW; 1st object was observed at what was described as the 2 o'clock position, seeming to illuminate the treetops. Lainhart's laser device indicated these tree tops were 336 yards distant (1008 feet). 1st object then flew to the 10 o'clock position to hover over the top of a lone tree in the front pasture. Lainhart determined this was 74 yards distant (222 feet).Using the mathematical process of computing appx. width of object AAL, length of arm/hand from eye, and distance to object, and then applying these measurements, the approximate size of object #1 was determined as; 1st position at range of 1008 feet- 18.66 feet wide (long); 2nd position at range of 222 feet- 16.44 feet wide (long)This is only a difference of 2.22 feet in size as estimated by the PW when he viewed it from 1008 feet, then again from 222 feet. Not much of a difference for someone observing a totally bewildering phenomena at night, and please note.....someone not accustomed to the quick methods Ufologists use to size a distant objects when caught unawares. The close to matching size estimation at 1008 feet and 222 feet (2.22 feet difference) tends to demonstrate the PW is being TRUTHFUL in his account and his estimation of appx. size AAL at both locations. If he was being deceitful, the PW had no time when asked these questions, to figure out what to say in order to keep everything approximately

consistant in size. I do not feel that a man-made object or other normal celestial or atmospheric occurrence was responsible for this event.I classify this case as SIGNIFICANT.

DETAILED BACK UP--Form #1, Exhibit A- Sketch by PW- Object moving from 2 to 10 oclock position. Exhibit B- Sketch by PW- View of object with mid-line lights, elongated profile, lens shaped. Exhibit C- Sketch by PW- Three objects hovering one over the other, stacked, elongated profile, lens shaped with mid-line lights. Exhibit D- Sketch by 14 YOA son of PW- Disc shaped object, tilted down at slight angle, with mid-line indicated by wavy lines. This young witness stated the wavy lines represented the lights he observed. Four Yahoo! maps of event site; Photographs of event site; Diagram of event site

NOTE: This investigator's narrative and other areas of the report were re-edited on 29Sept07 in order to correct minor mistakes that were generated when this report was transferred from the MUFON's old WUFOD system to the newer CMS.

Classification- 'Unknown'.

Please note that specific weather data is missing due to the exact date being unknown in June of 2001.

Tom Sheets, SD MUFONGA--George Lainhart, Georgia Police Officer, 29Sept07

MULTIMEDIA ATTACHMENTS BY SUBMITTER

--- NO DATA ---

FILE ATTACHMENTS TO INVESTIGATION REPORT

--- NO DATA ---

PHOTO ANALYSIS OF REPORT

Photo Disposition:

Photo Analyst's Notes:

BACK

GA
US0315-2002-0001

GA-1-852

SHEET 1 OF 2

MUFON

UFO SIGHTING QUESTIONNAIRE · GENERAL CASES (FORM 1)

PLACE OF SIGHTING

GEORGIA (STATE/PROVINCE) FAYETTE (COUNTY) FAYETTEVILLE (CITY/TOWN) USA (COUNTRY)

SIGHTING TIME

6:00 PM X AM ( ) ZONE: EST

DURATION: 2-3 SEC ( ) MIN X HRS ( )

DATE OF SIGHTING

15 (DAY) MARCH (MONTH) 02 (YEAR)

PLEASE COMPLETE THIS FORM (Print) AND RETURN TO INVESTIGATOR (For MUFON Use)

NAME OF INVESTIGATOR: WALTER T. SHEETS

STREET ADDRESS: 245 HUNTCLIFF CT. PHONE: A/C 770-460 8447

TOWN/CITY: FAYETTEVILLE STATE: GA. ZIP CODE: 30214 COUNTRY: USA

DRAW A SIMPLE SKETCH OF THE OBJECT. (Label any lights, colors, protrusions)

SKETCH PREPARED BY WITNESS PRIOR TO INTERVIEW DATE.

SEE EXHIBITS A, B, AND C.

(On a separate sheet, please sketch a simple map of the area showing your position and the object's position. Include an arrow denoting the direction of North. Indicate direction that the object was moving.)

TRAINING REPORT

PERSONAL ACCOUNT

PLEASE DESCRIBE THE INCIDENT AS IT HAPPENED. BE SURE THAT YOUR NARRATIVE INCLUDES THE FOLLOWING:

1. WHERE WERE YOU AND WHAT WERE YOU DOING AT THE TIME?
2. WHAT MADE YOU FIRST NOTICE THE OBJECT?
3. WHAT DID YOU THINK THE OBJECT WAS WHEN YOU FIRST NOTICED IT?
4. DESCRIBE YOUR REACTIONS AND ACTIONS, DURING AND AFTER SIGHTING THE OBJECT.
5. DESCRIBE THE OBJECT AND ITS ACTIONS.
6. HOW DID YOU LOSE SIGHT OF THE OBJECT?

WRITTEN ACCOUNT PREPARED BY WITNESS PRIOR TO INTERVIEW DATE.

SEE EXHIBIT D.

(Continue narrative on reverse side)

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GA-1-852

MUFON

UFO SIGHTING QUESTIONNAIRE - GENERAL CASES (FORM 1)

FOR MUFON USE
TEMPERATURE: 65°
WIND DIRECTION: N.E.
WIND SPEED: 6-7mph
VISIBILITY: CAVU
CEILING: CAVU

EDUCATION: BILLY SOL ESTES H.S.
DEGREE: — MAJOR: —
SPECIAL TRAINING: COSMETOLOGY SCHOOL
VISION: 20/30 COLORBLIND? ( ) EYEGLASSES? (X)
HEARING: GOOD? (X) FAIR? ( ) POOR? ( ) USE AID? ( )
HEALTH: DURING SIGHTING? GOOD AFTER? GOOD

WITNESS' NAME: MANDIE MAE MALLOXX AGE: 55
STREET: 123 BUBBANA DR.
TOWN/CITY: FAYETTEVILLE PHONE: 770-444-1234
PROVINCE: GA. COUNTRY: USA
OCCUPATION: BEAUTICIAN
EMPLOYED BY: OWNER-MANDIE MAE'S HOUSE OF BEAUTY RETIRED FROM HOOTERS

ENVIRONMENTAL SITUATION (Check/Fill In As Applicable)

VIEWED FROM: OUTDOORS(X) INDOORS( ) CAR( ) AIRCRAFT( ) BOAT( ) OTHER ______

VIEWED THROUGH: GLASSES(X) WINDOW( ) SCREEN( ) BINOCULARS( ) TELESCOPE( ) STILL CAMERA( ) MOVIE CAMERA( ) THEODOLITE( ) RADAR( ) OTHER ______

AREA/LOCATION CITY( ) SUBURBAN(X) RURAL( ) INDUSTRIAL( ) COMMERCIAL( ) RESIDENTIAL(X)

AREA/TERRAIN FIELDS( ) WOODS(X) HILLS( ) MOUNTAINS( ) RIVER( ) POND( ) LAKE( )

AREA/TECHNICAL: AIRPORT( ) POWERLINES(X) POWER STATION( ) RAILROAD TRACKS( ) OTHER ______

SKY CONDITION: CLEAR(X) PARTLY CLOUDY( ) OVERCAST( ) FOGGY( ) HEAVY( ) MEDIUM( ) LIGHT( )

PRECIPITATION: NONE(X) RAIN( ) FOG( ) SLEET( ) SNOW( ) HEAVY( ) MEDIUM( ) LIGHT( )

UFO DIRECTION: FIRST SEEN IN SE LAST SEEN IN W IT MOVED FROM SE TO NW

UFO ELEVATION:
(FIRST SEEN - 1/4( ) 1/2(X) TO 3/4(X) OF THE WAY UP HORIZON; OVERHEAD( ) OTHER ___
(LAST SEEN - 1/4( ) 1/2( ) 3/4( ) OF THE WAY UP HORIZON; OVERHEAD(X) OTHER ___

UFO DISTANCE: WHEN CLOSEST TO ME 100 FT **UFO ALTITUDE:** WHEN CLOSEST TO THE GROUND 100FT.

UFO PASSED:
(IN-FRONT-OF ______ WHICH WAS ______ IN DISTANCE FROM THE WITNESS
(BEHIND TREES-WOODS WHICH WAS 100-150 FT IN DISTANCE FROM THE WITNESS

ALSO IN AREA: AIRPLANE( ) HELICOPTER( ) BALLOON( ) SEARCHLIGHT( ) OTHER ______
BEFORE WITNESS SIGHTED UFO( ) DURING UFO SIGHTING( ) AFTER UFO SIGHTING( )

OBJECT DESCRIPTION (Check/Fill In As Applicable)

W/RED AND WHITE LIGHTS

OBSERVED:
(AN OBJECT (✓) NUMBER OF 1 SHAPE OF DOMED SAUCER COLOR(s) GRAY METALLIC
ORB (A LIGHT (✓) NUMBER OF 1 SHAPE OF BASKETBALL COLOR(s) RED GLOW

DESCRIBE: SOUND HUMMING SMELL ______ SPEED SLOW-FAST EXIT

REAL SIZE:
(LARGER ( ) SMALLER ( ) SAME SIZE (X) AS THE OBJECT LISTED BELOW
(BASKETBALL ( ) COMPACT CAR ( ) STANDARD CAR ( ) HOUSE (X) OTHER ______

APPARENT SIZE:
(HOW MANY TIMES LARGER ( ) OR SMALLER ( ) IF PUT IN THE SKY BESIDE OBJECT BELOW?
(______ TIMES THE SIZE OF A STAR MANY TIMES THE SIZE OF A FULL MOON

BRIGHT AS: A STAR ( ) THE MOON ( ) OR A ______ LIGHT IF PLACED AT SAME DISTANCE AWAY

DID THE OBJECT(s) OR LIGHT(s): (Please elaborate on items checked below by using a separate sheet)

CHANGE DIRECTION?	(✓)	HOVER?	(✓)	AFFECT RADIO/TV? (SET OF ALARMS)	(✓)	FLUTTER?	( )
TURN ABRUPTLY?	( )	DESCEND?	( )	AFFECT ELECTRICITY?	( )	SPIN?	( )
FALL LIKE A LEAF?	( )	ASCEND?	(✓)	AFFECT MAGNETISM?	( )	BLINK?	(X)
ABSORB OBJECT(s)?	(✓)	OVER POWERLINES?	( )	AFFECT TIMEPIECE?	( )	PULSATE?	( )
EJECT OBJECT(s)?	( )	OVER A BUILDING?	( )	AFFECT ENGINE?	( )	APPEAR SOLID?	(X)
CHANGE SHAPE?	( )	LAND ON GROUND?	( )	AFFECT VEHICLE?	( )	HAVE FUZZY EDGES?	( )
CAST SHADOW?	( )	LAND IN WATER?	( )	AFFECT ANIMAL? (CAT HID)	(X)	HAVE OUTLINE?	(X)
CAST LIGHT?	( )	CARRY OCCUPANTS?	( )	AFFECT HUMAN?	( )	~~[struck]~~ TILTED	(X)
REFLECT LIGHT?	( )	COMMUNICATE?	( )	AFFECT WATER?	( )	VIBRATE?	( )
LEAVE A TRAIL?	( )	GIVE OFF HEAT?	( )	AFFECT GROUND?	( )	GLOW?	( )
DISINTEGRATE?	( )	LEAVE RESIDUE?	( )	AFFECT VEGETATION?	( )	APPEAR TRANSPARENT?	( )

TRAINING REPORT

HOW MANY OTHER WITNESSES? 0/ DID ANY OTHER AGENCY CONTACT YOU? 0

PLEASE PROVIDE THE NAMES/ADDRESSES/PHONE NUMBERS OF OTHER WITNESSES AND/OR INVESTIGATORS OR AGENCIES ON SEPARATE SHEET IF APPLICABLE AND KNOWN.

X Mandie Mae Malloxx
SIGNATURE OF OBSERVER

YOU MAY ( ) MAY NOT (X) USE MY NAME

DATE THIS FORM SIGNED 18 MARCH 03

GA-1-852

MUFON

UFO SIGHTING QUESTIONNAIRE-ELECTRICAL/MAGNETIC CASES (FORM 3)

INTER-FORM CROSS REFERENCE DATA

SIGHTING DATE 15 MARCH 02 PLACE FAYETTEVILLE, GA.

TIME THAT EFFECTS STARTED APPX 6:00PM STOPPED APPX 6:05PM

WITNESS' NAME MANDIE MAE MALLOXX

INVESTIGATOR'S NAME E.I. TOM SHEETS

PERSONAL ACCOUNT (Include on Form 1)

Describe the exact chronological order of Electrical/Magnetic events as they occurred.

RADIO/RADAR EQUIPMENT

TYPE OF EQUIPMENT: FIXED ( ) MOBILE ( ) PORTABLE ( ) RECEIVER (X) TRANSMITTER ( )

MANUFACTURER: NAME GE MODEL TX-12 YEAR UNK.

POWER SOURCE: AC (X) DC ( ) LINE ( ) GENERATOR ( ) BATTERY ( ) OTHER

POWER VOLTAGE: 120v (X) 12v ( ) 9v ( ) OTHER

OPERATING MODE: AM (X) FM (X) VHF ( ) UHF ( ) STATION FREQUENCY

ANTENNA LOCATION: INTERNAL (X) EXTERNAL ( ) DESCRIBE CLOCK RADIO

INTERFERENCE/TYPE: STATIC ( ) HUM ( ) OSCILLATION ( ) OTHER ALARM ACTIVATED

INTERFERENCE/EXTENT: PARTIAL ( ) INTERMITTENT ( ) COMPLETE ( ) OTHER ALARM ACTIVATED

OPERATING CONDITION: PRIOR UFO SIGHTING? AOK DURING? ACTIVATED AFTER UFO SIGHTING? AOK.

VEHICLE

MANUFACTURER: NAME MODEL YEAR

OWNERSHIP: PRIVATE ( ) COMMERCIAL ( ) GOVERNMENT ( ) OTHER

ENGINE TYPE: REGULAR ( ) DIESEL ( ) ELECTRIC ( ) PROPELLER ( ) JET ( ) OTHER

ENGINE DATA: NUMBER/CYLINDERS? WATER-COOLED ( ) AIR-COOLED ( ) OTHER

IGNITION/ELECTRICAL: STANDARD ( ) ELECTRONIC ( ) ALTERNATOR ( ) GENERATOR ( ) OTHER

IGNITION SWITCH ------ DURING EVENT - ON ( ) OFF ( ) COULD RE-START ( ) COULD NOT RE-START ( )
AFTER EVENT - ON ( ) OFF ( ) COULD RE-START ( ) COULD NOT RE-START ( )

EFFECTS NOTED: ------- NUMBER SEQUENTIALLY IN-ORDER-OF OCCURANCE IF MORE THAN ONE EVENT TOOK PLACE:

(EXTERIOR LIGHTS)---- DURING EVENT - ON ( ) OFF ( ) DIMMED ( ) PULSATED ( ) OTHER
AFTER EVENT - ON ( ) OFF ( ) DIMMED ( ) PULSATED ( ) OTHER

(INTERIOR LIGHTS)---- DURING EVENT - ON ( ) OFF ( ) DIMMED ( ) PULSATED ( ) OTHER
AFTER EVENT - ON ( ) OFF ( ) DIMMED ( ) PULSATED ( ) OTHER

(INDICATOR LIGHTS)--- DURING EVENT - ON ( ) OFF ( ) DIMMED ( ) PULSATED ( ) OTHER
AFTER EVENT - ON ( ) OFF ( ) DIMMED ( ) PULSATED ( ) OTHER

(ENGINE PERFORMANCE)- DURING EVENT - GOOD ( ) OTHER
AFTER EVENT - GOOD ( ) OTHER

(BATTERY CONDITION)-- BEFORE EVENT - GOOD ( ) FAIR ( ) POOR ( ) OTHER
AFTER EVENT - GOOD ( ) FAIR ( ) POOR ( ) OTHER

TRAINING REPORT

IDENTIFICATION OF ITEM(s) AFFECTED.

RADIO (X) TELEVISION (X) RADAR ( ) TELEPHONE ( ) HEARING AID ( ) LIGHTS ( )

CIRCUIT-BREAKER ( ) FUSE ( ) WIRE ( ) COMPASS ( ) CLOCK (X) WATCH ( )

AUTOMOBILE ( ) MOTORCYCLE ( ) PLANE ( ) HELICOPTER ( ) OTHER

COMMENTS: EVENT CAUSED CLOCK RADIOS TO GO OFF, ALARMS SOUNDING ..... TV ALSO TURNED ON AUTOMATICALLY.

OTHER AFFECTED ITEMS

(Check and Describe in detail on reverse side of this sheet)

CIRCUIT BREAKER ( ) FUSE ( ) HOUSE LIGHTS ( ) YARD LIGHTS ( ) STREET LIGHTS ( ) COMPASS ( )

HEARING AID ( ) WIRES HEATED ( ) WIRES MELTED ( ) ELECTRIC SHOCK ( ) STATIC ELECTRICITY ( )

METAL MAGNETIZED ( ) TIMEPIECE STOPPED ( ) AIR GLOWED ( ) TELEPHONE ( ) OTHER 19" T.V.-SONY

COMMENTS TV OFF BEFORE EVENT, AUTOMATICALLY TURNED ON, APPARENTLY BY THE EVENT.

MAY ( ) MAY NOT (X) USE MY NAME X Mandie Mae Malloxx 18 MARCH 02

SIGNATURE OF WITNESS DAY MONTH YEAR

E-mail message

From: MUFONGA@webtv.net (Walter Sheets)
Date: Sat, May 4, 2002, 3:48pm
To: mufonga@webtv.net
Cc: mufonga@webtv.ne
Subject: Commentary on Training Case and Report

FIs/FITs,

As I've indicated in the opening segment of our video presentation, it was intended to be very basic, specifically for those that had NEVER experienced any sort of field investigation. The whole package, which includes the written report and file, takes the concept a little further, being applicable to those FIs/FITs with a little more experience i.e. providing an example for future reference.

Please note that SOME case files with the FI's report might be much shorter. Others MIGHT be much longer. It all depends on the nature of the event(s).

We enjoyed putting together this particular FICTITIOUS TRAINING CASE. It includes elements from several different REAL past cases and witnesses. I tried to put as much into it as possible, without making it too cluttered, so that the FI's WUFOD report would illustrate a lot of the actual steps that MIGHT be taken if the case was REAL. Please note that the described actions taken in the WUFOD report reflect only a few of the many things that we have had to do in REAL cases.

One comment I would like to make here may or may not be appreciated, but since I'm not politically correct, I really don't care;

Note that a proper MUFON investigation does not read like a chapter in the latest UFO book from one of those so called 'foremost UFO researchers and authors'. You know the ones I'm referring to.....those smoothies that will write most anything (read that as fabrication) in their chapters just to falsely promote their 'expertise' and to make the book dramatic for reasons of greed. There are so many of these idiots writing pure pap that a score card is needed to keep up with who is the most greedy money grubber. One thing I've learned is that the meticulous descriptions they provide in their books to document their 'careful' work is mostly BS. Some of these hucksters have NEVER investigated a case to proper standards. They do it in such a way as to make it easy to twist the facts to their liking. What I'm getting at here is that there is NO REASON for any FI or FIT in MUFONGA to belittle their own personal effort because of what Professor So and So is doing or perhaps what Researcher/Writer/Lecturer Dr. Ego von Plagiarist is promoting. What you do in the field IS important, whether it is establishing a craft as an IFO, or piling up evidence that something is an actual UFO. Both realities are equally important, IFO and UFO. Do not become depressed by the UFO charlatans out to exploit this field AND beware of those that earn most, or all, of their livelihood in Ufology as it is today. (Please note that there are also some great researchers and specialists in Ufology whose books and work we promote via our recommended reading list). Enough said here.

Now for some notations regarding the MANDIE MAE MALLOXX case!

Form #1- Only one was made covering Mandie Mae's account. Her husband JJ's account was similar, so fits in with what she claimed. His slightly different description

is further clarified in the FI's report.

The third witness at the County Dump was interviewed and IF he had been a more open witness, rather than a frightened religious fundamentalist that wanted no further discussion of the event, a Form #1 would have been completed in his case. As related, he did not want to discuss it further, though he did see something, so thus no Form #1.....only a recap of his verbal account in the FI's report. Also including other information from the Deputy Sheriff that indicated that this third witness was an honest person.

A Form # 3 for Electrical/Magnetic effects was also completed due to what occurred in the Malloxx household during the event. Please note that no matter what type of case is under investigation, the Form #1 is always completed either completely or as much that applies, THEN the other forms are also completed if they apply.

In this case, when Mandie Mae was contacted by phone to arrange the interview, she was asked to prepare a written account and sketches and have them ready on the date of the sit-down. This saves time and allows a truly concerned witness to provide more detail (or a hoaxer to get more elaborate!). It is also good to have this for review during, or moments before, the actual interview. When the time frame has permitted, I've asked past witnesses to mail the account and sketch to me before the interview.

The MMM written account provides more info than you might get from most witnesses. Others might give more, perhaps something approaching a legal brief.....it all depends on the background of the witness. Some are just horrible at writing such an account, but you take what you can get, and try to make up for it in the interview.

The MMM sketches are pretty elaborate and seldom will you get something as well drawn or illustrated. Again, you take what you can get and if it's a bad sketch, try to make it more clear by the questions of your interview.

Please note that the County Dump witness, while not wanting to provide an interview or much else, MIGHT have agreed only to a simple quick sketch.....but he did not.

Note that the ONLY other witness to ANYTHING was the Nosey Neighbor mentioned by MMM. While she SAW nothing, what she described IS in fact important to this case. She has no cat to disturb her birds, she's had them for 5 years, and they have NEVER acted in such manner. Also noteworthy is that they acted up at 6:00PM, about the same time described by MMM. Mrs. Nosey Neighbor thinks it was on the critical day, 15March, but also said it could have been the day before; she does not remember specifically, because her afternoon schedule is the same, day after day. (Hey, some of the pieces JUST never fit perfectly.....get accustomed to that!!!!)

There are 2 site diagrams; a rough draft made on the day of the sit-down; then the 'official' more formal diagram. It was made using graph paper. The small squares help in making the layout. These diagrams do not have to be to scale, but try to keep them more or less in proportion. Those with artistic ability or drafting skills will no doubt do an even better job than what I've provided as an example.

The maps in the file illustrate the general location of the event oriented toward; 1) the neighborhood; 2) the county/city; 3) the event vicinity in relation to the larger state.

The report from the Sheriff's Department is made in this case to reflect a competent law enforcement officer interested in getting the citizen's complaint properly documented no matter what the subject matter. This might also reflect the internal policies of the overall Sheriff's Department i.e. that good reports will be made on ALL citizen complaints, major or minor. Other officers or perhaps a more 'busy' or slack agency might not document non-criminal episodes to this extent. Perhaps the officer only jotting a few

lines on the dispatch card at the station or even just a word or two on his personal call sheet in his patrol unit. Since the recent computerization of many LE agencies, the report functions have dramatically improved.

The situation posed in this TRAINING CASE is unique in that the Deputy KNOWS the three witnesses in these events. This was a boon to MUFONGA in establishing their credibility and background, something that is sometime hard to do when witnesses insist on remaining unknown. IF THERE WAS NO SUCH DEPUTY INVOLVED, the FI would have to depend on other means to establish credibility and background. I've emphasized so much the art of interviewing for the reason that it can go a long way toward establishing SOME credibility. A skilled interviewer can most times zero right in on inconsistencies, a stressed (possibly deceitful) witness, or a witness that is withholding certain information. Another important factor is to do the sit-down in the witness home. Those Sherlockian methods I'm so hot about can really come into play here. The home, it's contents, the outside, the vehicles and contents, the witness dress etc. can go a long way toward verifying that the witness is what he or she claims. What's in the book cases? What photos in the room? What magazines? Kitchen? Bathroom (if you need some relief)? Trashcan (if you need to dispose of your bubblegum)? Small talk about life in general, hobbies, the neighborhood, occupation.....all of this before or after the interview can help the FI along.

Some interviews just cannot be conducted in the home. You might have only one shot at a witness.....in their office, or perhaps in the case of a solo female FI, meeting an unknown male witness in a restaurant or a library. Some cases might even require that the witness meet the FI at the event site.....say a public park or along a highway or country road.....and other than subsequent phone calls, this might be your only shot at a sit-down. I've done interviews in my Jeep at the event site, along deserted roads, in front yards sitting under the trees, and once in the Fox-5 TV news conference room (once, a very credible witness took time out from her food canning duties to give me an interview in her elaborate kitchen.....BUT on the condition that I tighten the lids on her 25 Mason jars before I left.....she had a bad case of arthritis.....her peaches were delicious too!). You take it when and where you can get it.....adapt and overcome!

Please note that each page in the sample case file is marked with the Issue (case) number that is later automatically assigned by WUFOD. This is always necessary as MUFON HQs deals with many hundreds of file pages, and the possibility of misplacement is high. A complete copy of your file should be made for your own use, and the original mailed to me. I will thereafter send it to MUFON HQs..

Along with your training file copy, I am including a blank copy of each MUFON form for you to photocopy. These are larger than the copies in the Manual which some have been copying. Included are both a male and female body diagrams for use in abduction investigations.....BUT PLEASE NOTE.....due to the tenuous but highly unusual nature of the abduction experience, we do not NORMALLY conduct abduction investigations in Georgia.

Also included is a copy of Computer Form #2. THIS DOCUMENT DOES NOT REPLACE THE FORM #1. Form #2 can be used by the FI, filled out, then used as a quick reference when completing the FI report on WUFOD. (In some cases where we are dealing with a seemingly GOOD AND CREDIBLE witness in a distant area with no FI at hand, I MIGHT mail this Form #2 AND a Form #1 to the witness in lieu of the witness using the on-line WUFOD mechanism).

In closing these comments, I want to say that all the talking and lecturing one can do will only go so far in training and orientation. Seeing how a UFO investigation in which you participate translates to a report and the case file is what puts you over the top. Since there is a lack of GOOD cases that would put EVERY FIT into the field with an

old salt, we did the next best thing.....using a role playing scenario and following it up with the paperwork.

Hopefully, we will continue in this manner with an entity investigation and a landing trace case.

As I've mentioned, that Malloxx family seems to be a magnet for high strangeness as well as being connoisseurs in the eating of FRIED PORK SKINS!

Final thoughts.....what you will be reading is ONE way, based on Chapter IX in our Manual. The next case might read differently, be shorter or longer, or the individual FI/FIT may have a whole different writing style.....BUT as long as the report outline/guideline in Chapter IX is followed as I've illustrated, we are doing our job. Please also keep in mind that due to the wide variety of things that might come up during our inquiries, that it is perfectly OK to create and insert additional catagories between the mandatory sections. As an example, suppose that the FI encounters 'other' investigators surveilling the event site, and they appear to be in a plain 'government' type van. Conversation with them proves they are noncommittal and shortly thereafter, they leave in a hurry. This might be illustrated in the FI's report by creating a new catagory such as 'Presence of Unknown Investigators' which describes the encounter. It could be inserted right after 'Additional Witnesses' or right before 'Sighting Evaluation' or where ever it best fits.

After reviewing all that I've sent you, please contact me with any questions you might have, or if you spot any mistakes I've made.

Stay tuned.

Best

Tom Sheets, SD MUFONGA

(1) GA-1-852

MY NAME IS MANDIE MAE MALLOXX. I AM ~~45~~ (mm) 55 YEARS OLD AND LIVE AT 123 BUBBINA DR. FAYETTEVILLE, GA. 30214 (WITH MY HUSBAND J.J.).

I AM WRITING THIS BECAUSE OF WHAT WE SAW AND BECAUSE MR. SHEEDS OF MUFON ASKED ME TO WRITE IT OUT BEFORE WE MET TO DISCUSS IT. I ALSO DREW 2 SKETCHES

IT WAS ON FRIDAY MARCH 15TH THAT IT ALL HAPPENED. I RECEIVED MY SHIPMENT OF FACIAL CREAMS AND HAIR DYE THAT MORNING AND HAD SPENT ALL DAY PUTTING IT IN MY DISPENSERS AND MOVING IT OUT INTO THE SHOP WHICH USED TO BE OUR GARAGE OFF OF THE KITCHEN.

WHILE I WAS SORTING AT THE KITCHEN TABLE I NOTICED A GLOW THROUGH THE WINDOW WHICH FACES THE POOL OUT BACK. THIS WAS IN THE LATE AFTERNOON TOWARD DUSK, BUT STILL LIGHT OUT THERE. I WENT TO THE WINDOW AND SAW A RED BALL OF LIGHT JUST FLOAT-

Transcribed Report

(2) GA-1-852

OVER THE SWIMMING POOL, IT WAS MOVING A LITTLE BIT SIDE TO SIDE, UP AND DOWN, BUT MOSTLY STANDING STILL. THIS RED THING WAS SHAPED LIKE, AND ABOUT THE SIZE OF, A BASKET BALL. I SAW THE WATER ON TOP OF THE POOL COVER RIPPLING JUST LIKE WHEN YOU BLOW HOT COFFEE. I SAID TO MYSELF, ITS A UFO JUST LIKE ON THE DISCOVERY CHANNEL!

I RAN TO THE DEN AND GOT J.J.'S .45 PISTOL BUT THEN REMEMBERED THE SHERIFF GOT MAD THE LAST TIME I SHOT IN THE YARD, SO I RAN BACK AND GOT OUR VIDEO CAMERA. I WENT ONTO THE PATIO AND IT WAS STILL THERE. JUST THEN J.J. HAD GOTTEN HOME FROM WORK AND CAME OUT THERE.

THEN WE HEARD A HUMMING AND SAW A BIG ROUND UFO FLY FROM OUR NEIGHBORS WOODS AND HOVER OVER OUR YARD, WAY UP OVER THE POOL. IT WAS AS HIGH UP AS THE TREETOPS, AND MOVED REAL SLOW.

TRAINING REPORT

(3) GA-1-852

THE BIGGER UFO LOOKED AS BIG AS A HOUSE AND HAD RED AND WHITE BLINKING LIGHTS AROUND THE EDGE. THE RED BALL THEN SHOT UP INTO THE BOTTOM OF THE BIG ONE REAL, REAL FAST. THERE WAS THIS GRILL LOOKING DESIGN ON THE BOTTOM OF THE BIG ONE, I GUESS LIKE A TRAP DOOR.

THE BIG UFO THEN SORT OF LEANED OVER ON IT'S EDGE AND MOVED REAL SLOW OVER TOWARD THE WOODS NEAR J.J.'S BURNING PILE. WE SAW A HUMP LIKE THING ON IT'S TOP.

THE HUMMING GOT REAL LOUD AND THE BIG UFO TOOK OFF UP INTO THE SKY AT AN ANGLE SO FAST I COULD BARELY KEEP UP WITH IT, AND IT WAS GONE. J.J. SAID HE TRIED TO FILM IT, BUT THE CAMERA BATTERIES WENT DEAD. THEY WORKED FINE WHEN WE CAME BACK IN. ALL THE CLOCKS WERE BUZZING, SO I CALLED THE SHERIFF'S OFFICE. A DEPUTY CAME OVER AND SAID SOMEBODY AT THE COUNTY DUMP SAW A UFO, SO

RAINS REPORT

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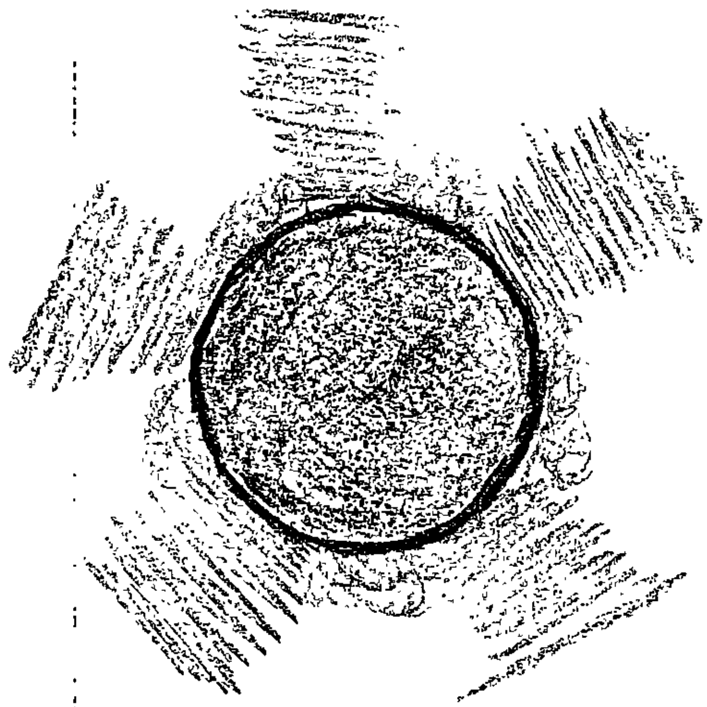
HE WAS GOING OVER TO TALK TO THEM. I DON'T KNOW WHAT THEY TOLD HIM. I DON'T KNOW IF HE BELIEVED US OR NOT.

YOU MIGHT THINK WE ARE CRAZY, BUT THIS IS THE TRUTH, AND EXACTLY WHAT HAPPENED. I WAS NOT DRINKING AND DO NOT IMAGINE THIS. I RETIRED FROM HOOTER'S YEARS AGO, SO I DON'T DRINK AND NEVER HAVE. THIS IS THE HONEST TRUTH. J.J. WAS NOT DRINKING EITHER.

Mandie Mae Malloy
MARCH 18, 2002

Transcript Report

SMALL UFO LIKE THIS........



TRAINING REPORT

BASKETBALL SIZE
RED GLOWING OBJECT

NO SOUND

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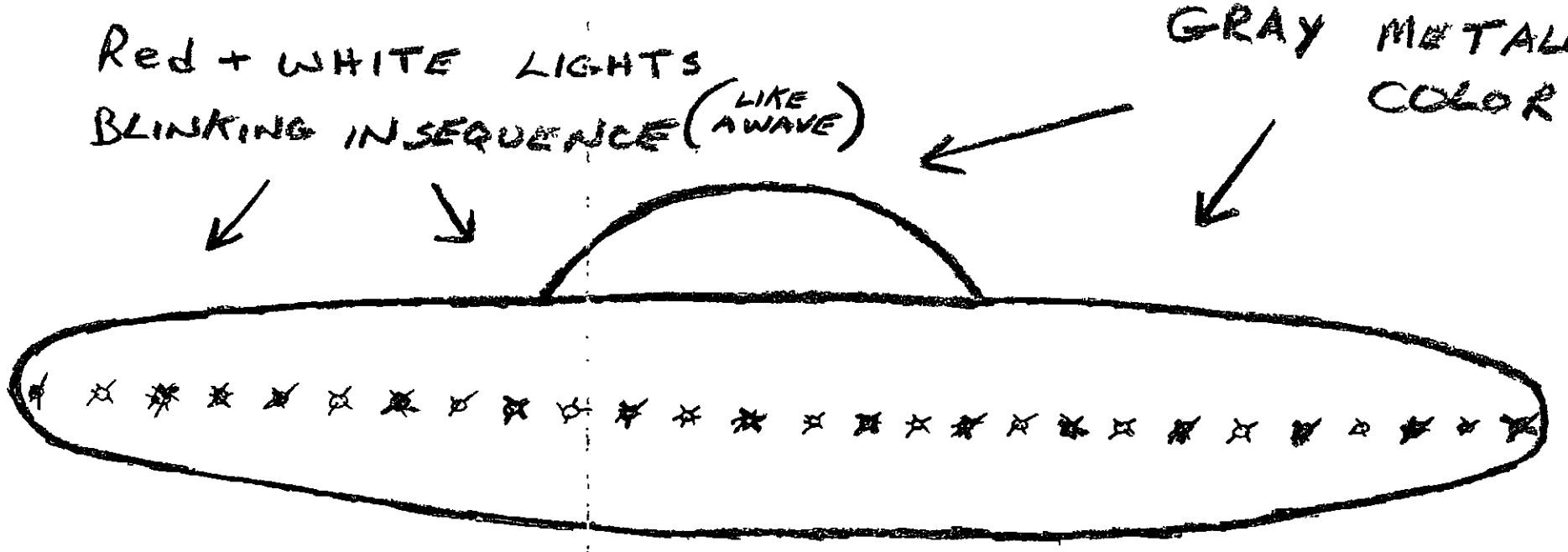
Mondie Mae Malbyx
MARCH 18, 2002

Rc'd By Tom Sheets
18MAR02

BIG
UFO SHAPED LIKE THIS. WE SAW TOP
WHEN IT TILTED DOWN A LITTLE BIT.



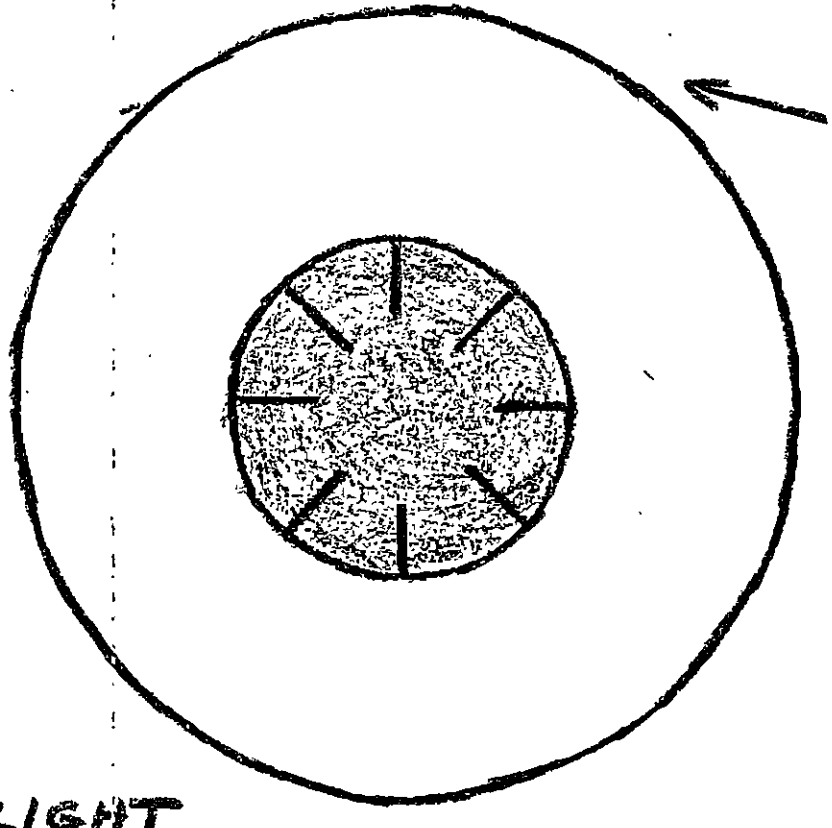
GA-1-852

THIS THING MADE A HUMMING SOUND.
ABOUT THE SIZE OF OUR HOUSE.

Mandie Mae Mallory
MARCH 19, 2002

Rec'd By Tom SHEETS
3MAR02.

BOTTOM OF UFO LOOKED LIKE THIS.



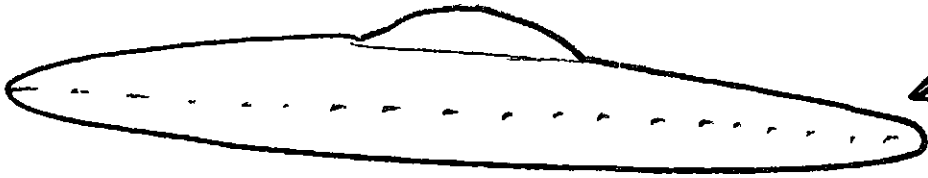
RED BALL OF LIGHT
SHOT UPWARDS INTO
THE THING THAT LOOKS
LIKE THE EYE OF A STOVE.
(OR WAS SUCKED UP)

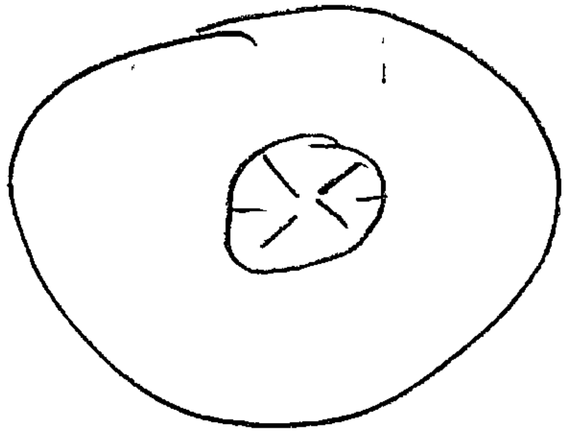
GA-1-852

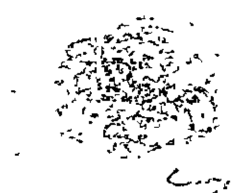
Mandi Mae Mallory
March 18, 2002.

Rec'd by
Tom Sheets
18 MAR 02

J.J. Malloy
March 18, 2002







Rc'd from witness
18MAR02 - (LSB)

GA-1-852

SA | AGENCY ID (ORI) GA 0602400

INCIDENT REPORT

GA-1-852

CASE NUMBER 02-14952

EVENT

INCIDENT TYPE: INFORMATION FOR OFFICER | COUNTS: 2 | INCIDENT CODE:

PREMISE TYPE: 1 HIGHWAY | 2 SVC STATION | 3 CONVENIENCE STORE | 4 BANK | X COMMERCIAL | X RESIDENCE | 7 SCHOOL/CAMPUS | 8 ALL OTHER

INCIDENT LOCATION: 123 BUBBINA DRIVE, FAYETTEVILLE | LOC CODE:

WEAPON TYPE: 1 GUN | 2 KNIFE CUTTING TOOL | 3 HANDS/FIST ETC | 4 OTHER

INCIDENT DATE: 031502 | TIME: 1800 | TO DATE: | TIME: | STRANGER TO STRANGER: YES ☐ NO ☐ UNK ☐

COMPLAINANT: MANDIE MAE MALLOXX | ADDRESS: 123 BUBBINA DR. F'VL | PHONE NUMBER: RES 461-1234

VICTIM

VICTIMS NAME: MANDIE MAE MALLOXX | RACE: W | SEX: F | AGE: 55 | RESIDENCE PHONE: RES 461-1234 | BUSINESS PHONE: SAME

ADDRESS: 123 BUBBINA DR. FAYETTEVILLE | CENSUS TRACT: | EMPLOYER OR OCCUPATION: BEAUTICIAN

STUDENT? ☐ YES ☒ NO | IF YES NAME VICTIM S SCHOOL

OFFENDER

NAME | RACE | SEX | DATE OF BIRTH | AGE

WANTED ☐ | ADDRESS | CENSUS TRACT | HEIGHT | WEIGHT | HAIR | EYES

WARRANT ☐ | ARREST ☐ | CHARGES: TRAINING REPORT | COUNTS | OFFENSE CODE | OFFENSE/ARREST | JURIS (1 CITY, 2 COUNTY, 3 STATE, 4 OUT OF STATE, 5 UNKNOWN)

TOTAL NUMBER ARRESTED | ARREST AT OR NEAR OFFENSE SCENE: YES ☐ NO ☐ | DATE OF OFFENSE

VEHICLE

☐ STOLEN ☐ RECOVD ☐ SUSPECTS | TAG NUMBER | STATE | YEAR | VIN | PLATE ONLY ☐ | VIN PLATE ONLY ☐

YEAR | MAKE | MODEL | STYLE | COLOR

MOTOR SIZE (CID) | TRANS: AUTO ☐ MAN ☐ SPD ☐ | INSURED BY

WITNESS

NAMES	ADDRESS	PHONE NUMBER
J.J. MALLOXX	123 BUBBINA DR. F'VL	RES 461-1234
O.M. SANFORD	COUNTY DUMP RD. F'VL	N/A

PROPERTY

	VEHICLES	CURRENCY NOTES ETC	JEWELRY PREC METALS	FURS
STOLEN				
RECOVERED				

	CLOTHING	OFFICE EQUIP	TV, RADIO ETC	HOUSEHOLD GOODS
STOLEN				
RECOVERED				

	FIREARMS	CONSUMABLE GOODS	LIVESTOCK	OTHER	TOTAL
STOLEN					
RECOVERED					

PROPERTY RECOVERY INFO ONLY: THEFT/RECOVERY ☐ ☐ | DATE OF THEFT | JURISDICTION CODES (1 CITY, 2 COUNTY, 3 STATE, 4 OUT OF STATE, 5 UNKNOWN)

ADM

GCIC ENTRY ☐ WARRANT ☐ MISSING PERSONS ☐ VEHICLE ☐ ARTICLE ☐ BOAT ☐ GUN ☐ SECURITIES ☐

DRUG

DID INVESTIGATION INDICATE THAT THIS INCIDENT WAS DRUG-RELATED? ☐ YES ☒ NO

IF YES PLEASE INDICATE THE TYPE OF DRUG(S) USED BY OFFENDER

☐ 1 AMPHETAMINE ☐ 2 BARBITURATE ☐ 3 COCAINE ☐ 4 HALLUCINOGEN ☐ 5 HEROIN
☐ 6 - MARIJUANA ☐ 7 METHAMPHETAMINE ☐ 8 OPIUM ☐ 9 SYNTHETIC NARCOTIC ☐ U UNKNOWN

CLEAR

REQUIRED DATA FIELDS FOR CLEARANCE REPORT | ☐ CLEARED BY ARREST | ☒ EXCEPTIONALLY CLEARED | ☐ UNFOUNDED | REPORT DATE: 031502

DATE OF CLEARANCE: 031502 | ☐ ADULT | ☐ JUVENILE

NARRATIVE

ON THE ABOVE DATE AND TIME, THIS DEPUTY RECEIVED A CALL TO THE MALLOXX RESIDENCE AND THEREAFTER INTERVIEWED THE MR. AND MRS. AS RELATED ON PAGES 2+3.

REPORTING OFFICER: JONES, BARNARD A. | NUMBER: SGT. | APPROVING OFFICER: WINGATE, DALLAS R. | NUMBER: CAPT.

AGENCY ID. GA 0600100

GA-1-852

SUPPLEMENTAL REPORT

CASE NUMBER 02+14252

☒ ORIGINAL REPORT ☐ SUPPLEMENTAL REPORT PAGE 2 OF 3

UPON ARRIVAL, WAS MET BY J.J. AND MANDIE MAE MALLOXX. THIS COUPLE RELATED THAT MRS. MALLOXX HAD NOTICED A RED GLOW FROM HER KITCHEN WINDOW AND UPON CLOSER EXAMINATION OBSERVED A RED GLOWING BALL OF LIGHT (OR AN OBJECT) HOVERING OVER THEIR SWIMMING POOL COVER. SHE WENT OUTSIDE AND TRIED TO VIDEOTAPE THE LIGHT. AT THAT TIME, MR. MALLOXX ARRIVED HOME FROM WORK TO EAT AND FOUND HER OUT BACK ON THE PATIO. HE TOO OBSERVED THE LIGHT OR OBJECT. AT THAT POINT, THEY HEARD A HUMMING SOUND AND SAW A GIGANTIC SAUCER SHAPED TYPE CRAFT COME OVER THE PINE TREES FROM THE S.E. AND HOVER OVER THE BACK YARD. THE RED GLOWING OBJECT THEN FLEW UP INTO THE BOTTOM OF THE SAUCER. THE SAUCER THEN MOVED TO THE WEST SIDE OF THE YARD AND TOOK OFF UPWARDS VERY QUICKLY, DISAPPEARING INTO THE SKY. MRS. MALLOXX SAID ALL OF THEIR ALARMS ON THE CLOCK RADIOS WERE BUZZING WHEN THEY COME BACK INSIDE.

THIS DEPUTY ADVISED THEM TO CONTACT A UFO RESEARCH ORGANIZATION. TRAINING REPORT

INFO ON THIRD WITNESS - AS THIS DEPUTY ARRIVED AT THE MALLOXX HOME, THE 911 CENTER RADIOED THAT

CASE STATUS: ☐ ACTIVE ☐ CLEARED BY ARREST ☒ EX. CLEARED ☐ UNFOUNDED 03/15/02

REPORTING OFFICER JONES, BARNARD A. NUMBER 567 APPROVING OFFICER [illegible] NUMBER CAPT.

PD-SP

GA-1-852

AGENCY ID. GA 0 6 0 0 1 0 0

SUPPLEMENTAL REPORT

CASE NUMBER 02 14952

[X] ORIGINAL REPORT [ ] SUPPLEMENTAL REPORT PAGE 3 OF 3

THE GATEKEEPER/WATCHMAN AT THE COUNTY DUMP HAD TELEPHONED FOR A SHERIFF'S UNIT, EXCITEDLY DESCRIBING A FLYING SAUCER. THIS DEPUTY PROCEEDED TO THE COUNTY DUMP AFTER LEAVING THE MALLOXX HOME. THE GATEKEEPER, O.M. SANFORD, 82 YOA, WAS IN HIS SMALL GATE HUT AND SEEMED TO BE FRIGHTENED. HE SAID HE WAS LOCKING THE GATE A FEW MINUTES AFTER 6:00 Pm AND SAW A BIG FLYING SAUCER COME STRAIGHT DOWN OUT OF THE SKY AND HOVER OVER THE FAR END OF THE DUMP. IT THEN SHOT BACK UP LIKE A BULLET AND WAS GONE. HE DID NOT APPEAR TO BE DRINKING.

MALLOXX DESCRIPTION: #1 - RED GLOWING LIGHT OR OBJECT - LIKE A BASKETBALL

#2 - VERY LARGE SAUCER LIKE OBJECT WITH A DOME, LIGHTS AROUND THE EDGE, DULL SILVER-GRAY BODY.

SANFORD DESCRIPTION: SAUCER SHAPED OBJECT, VERY LARGE, HUMP ON TOP, SOME SORT OF RED BLINKING LIGHTS ON BODY.

TRAINING REPORT

CASE STATUS: [ ] ACTIVE [ ] CLEARED BY ARREST [X] EX. CLEARED [ ] UNFOUNDED 031502

REPORTING OFFICER: JONES, BERNARD A. NUMBER: SGT APPROVING OFFICER: WINGATE, DALLAS R NUMBER:

PD-SP

E-mail message

From: daemon@unix02.services4all.com
Date: Fri, Apr 19, 2002, 1:34pm
To: Mufonvtsky@aol.com, TPDeuley@aol.com, geekology@worldnet.att.net, mausmus@mindspring.com, mufonga@webtv.net, schuessler@mho.net, webmaster@mufon.com, wrban@worldnet.att.net
Subject: INV-WUFOD-I..1-852-GA

From razor Fri Apr 19 13:34:03 2002
Received: (from razor@localhost)
by unix02.services4all.com (8.9.3+Sun/8.9.1) id NAA03874;
Fri, 19 Apr 2002 13:34:03 -0400 (EDT)
Date: Fri, 19 Apr 2002 13:34:03 -0400 (EDT)
From: Razor Account <razor>
Message-Id: <200204191734.NAA03874@unix02.services4all.com>
To: ufomail
Subject: Issue I..1-852 has been modified.
Content-Length: 21449

By: inv
When: Fri Apr 19 13:34

TRAINING REPORT

---- THE FORMATTED ISSUE FOLLOWS ----

Issue: I..1-852
Version: 1.4
Last changed: 2002/04/19,13:33:58

PROMOTION STATUS

Promoted to: Submitted On: 2002/04/19,02:19:15 By: inv
Promoted to: Investigate On: 2002/04/19,11:55:45 By: inv

CURRENT ATTRIBUTES

ABSTRACT: TRAINING REPORT-Red Orb Absorbed by Larger Saucer
Object
LOG_#:
CASE_TYPE: MA1
SVP_RATING: 444
MONTH: 03
DAY: 15
YEAR: 2002
HOUR: 18
MINUTE: 00
DURATION: 1-5_minutes
LATITUDE:
LONGITUDE:
COUNTRY: USA
STATE_PROVINCE: GA

COUNTY: Fayette
NEAR_TOWN_OR_CITY: Fayetteville
SITE: suburb, town, woods
SKY: clear
CLOUD_COVER: CLOUD_COVER
WEATHER_FACTORS:
TOTAL_WITNESSES: 3
MUFON_REPORTEES: 2
WITNESS_LOCATION: separated
WITNESS_AGREEMENT: yes
WITNESS1_AGE_GROUP: adult
WITNESS1_EXACT_AGE: 55
WITNESS1_GENDER: female
WITNESS1_OCCUPATION: other
WITNESS2_AGE_GROUP: adult
WITNESS2_EXACT_AGE: 56
WITNESS2_GENDER: male
WITNESS2_OCCUPATION: technician
WITNESS3_AGE_GROUP: adult
WITNESS3_EXACT_AGE: 82
WITNESS3_GENDER: male
WITNESS3_OCCUPATION: other
NUMBER_OBSERVED: 2
ELEVATION: varied
LOWEST_ALTITUDE: treetop
DISTANCE: 21-100_feet
FLIGHT: path_with_direction_change, hovering, other
DIRECT_FIRST_OBSVED: SE
DIRECT_LAST_OBSVED: W
SHAPE: saucer
SURFACE: dull
STRUCTURE: dome, other
APPARENT_SIZE: larger
ACTUAL_SIZE: 31-100_feet
SURFACE_COLOR: grey_lead_silver
EXT_LIGHTS: flashed_sequentially
EXT_LIGHTS_COLOR: white, red
CHANGE_COLOR: CHANGE_COLOR
EMISSION:
SOUND: hum
DEVICE_AFFECTED: TV_or_VCR, radio, clock_or_watch, other
SIGNAL:
LIGHTS:
ENGINE:
VEHICLE:
INSTRUMENT_OR_DEVICE
SURROUNDINGS:
SPECIES: cat
REACTION_TYPE: fear, other
PSYCH_DURING_EVENT: fear
PSYCH_AFTER_EVENT: elation
PHYSIO_DURING_EVENT:
PHYSIO_AFTER_EVENT:
OBSERVATION:

TRAWING REPORT

LANDING_EFFECT:
ENTITY_TYPE:
HEIGHT:
APPAREL:
APPAREL_COLOR:
APPAREL_FEATURES:
SOIL_SAMPLES:
VEGETATION_SAMPLES:
PHOTOGRAPHIC:
AUDIO:
RADAR_TRACK:
TRACE:
WITNESS1_IDENTITY: secure
WITNESS1_PHONE: secure
WITNESS1_EMAIL: secure
WITNESS1_ANON_y/n: yes
WITNESS2_IDENTITY: secure
WITNESS2_PHONE: secure
WITNESS2_EMAIL: secure
WITNESS2_ANON_y/n: yes
WITNESS3_IDENTITY: secure
WITNESS3_PHONE: secure
WITNESS3_EMAIL: secure
WITNESS3_ANON_y/n: yes
INVESTIGATOR1_NAME: Tom Sheets
INVESTIGATOR1_PHONE: 770-461-8447
INVESTIGATOR1_EMAIL: mufonga@webtv.net
INVESTIGATOR2_NAME:
INVESTIGATOR2_PHONE:
INVESTIGATOR2_EMAIL:

TRAINING REPORT

STATEMENT OF PROBLEM

TRAINING REPORT-TRAINING REPORT-TRAINING REPORT ←

NOTE TO ALL MUFON MEMBERS.....IF YOU BRING UP THIS REPORT ON WUFOD PRIOR TO IT'S SCHEDULED REMOVAL, IT IS NOT AN ACTUAL CASE INVESTIGATION.....PLEASE SEE PARAGRAPH IMMEDIATELY BELOW;

This report and the following case narrative is a TRAINING CASE REPORT that is intended to be used in conjunction with a training video, 'Introduction to Field Investigation', that was viewed by MUFONGA investigators on 13April02 during a training session in Georgia. Do not MISTAKE it for the real McCoy!!

AGAIN, THIS IS NOT A REAL CASE FILE, THOUGH IT IS BASED ON ASPECTS OF SEVERAL DIFFERENT CASES.....IT'S ONLY INTENDED FOR TRAINING PURPOSES WITH OUR GEORGIA PERSONNEL!!

Thanks, Tom Sheets, SD MUFONGA

STATEMENT OF SOLUTION

SIGHTING BACKGROUND

On the evening of 16March02, the Georgia State Director phoned this writer and stated that she had received a call from the Primary Witness (PW) in this case, a female resident of Fayetteville Georgia. PW indicated to the SD that she and her husband had observed two UFOs over their backyard on the evening of 15March02, and had thereafter phoned the Fayette County Sheriff's Department. Upon arrival, the Deputy had advised them to contact a UFO research organization. The SD provided the contact info for the PW to this FI. This writer phoned the PW and she agreed to a meeting at her home for the afternoon of 18March02. This FI explained the Mission Statement and G & O's of MUFON and requested that she prepare a written account and sketches of what she had observed and hold it for our 18March02 meeting. PW agreed.

SIGHTING ACCOUNT

PW was home alone on 15March02, doing some administrative work at her kitchen table. About 6:00PM, she noticed a red glow out of her kitchen window which overlooks the swimming pool. She looked closer and noticed a round glowing red light or orb, later described as basketball size. This light was hovering over the pool cover about ten feet up and it's presence upset the PW. She ran to the patio door and it was still there. Out of fear she then went and got her husband's pistol, then thought better of doing that, and got their videocam and went back out onto the patio. She tried to video the red orb, but the camera would not work. At that moment, her husband (PW2) arrived home via the front door. She called him out back at which time he also observed the red orb and he too became incredulous. PW2 then took the camera and tried to video, but he could not get it working either, indicating to the PW that the battery was dead. PW was stunned because the battery was fully charged a little earlier. PW indicated that slight ripples could be seen in the water on top of the winter pool cover, seeming to originate directly under the hovering red orb.

TRAINING REPORT

At that time, PW and PW2 heard a humming sound and looking to the SE into/over the woods behind their neighbor's home, they saw a large object through/over the pine tree tops. They observed it slowly moving toward their backyard just slightly higher than the tree tops. This object then hovered over their backyard, more or less centered on the covered pool. PW, and later PW2, described it as being a saucer shaped object, dull gray-silver, with red and white sequencing lights around the edge, having a 'grill' or oven-top looking 'burner' like device on the bottom, glowing red within. Saucer size was described about like a medium house. Suddenly the red orb quickly flew up into the 'grill' on the bottom of the saucer and vanished from view (PW thought it was sucked up). The larger object then moved over toward the west side of the yard, and in doing so, tipped up on it's edge a little, clearly revealing a dome on top. The humming sound got higher and the saucer then shot off at an upward angle to the west at an INCREDIBLE speed. PW and PW2 both indicated that the event occurred ALMOST directly overhead, no more than 100 or so upward feet from them. They suffered no later ill effects, but after coming back inside to call the Sheriff's Dept., the videocam began working, all of the clock radio alarms were ringing, the TV had turned on by itself, and one of their cats was in hiding,
not to reappear for many hours.

The Deputy arrived within 10-15 minutes and after listening to their account, advised PW and PW2 that as he arrived at their home, he had gotten a radio call about someone else wanting to report a UFO at the nearby county dump. After interviewing the PWs, the Deputy left, stating he was going to the dump to check it out.

WITNESS INTERVIEW

This writer conducted the interview of the PW in her home, arriving at 5:45PM on 18March02. Session was both video and audio taped. PW is a 55 YOA wife and mother of two boys and a daughter and now a grandmother. She is a former retail clerk from her
teenaged years, also worked in a restaurant chain and presently a beautician, now operating a neighborhood salon in her former garage. PW appeared to be an astute observer, in spite of being a rather humorous, slightly eccentric person and an outgoing personality. During various recounting of her story, details of the event remained consistant throughout. Her husband, PW2, 56 YOA, is long employed as a manager at a local southern food processing company. He was at work the evening of my field investigation, but this FI interviewed him in his Fayetteville office. His account was very much like that of his wife, except that he noticed a more orangish tint to the red sequencing lights, and a more yellowish tint to their white companions. PW2 also described a sort of pulsating or quivering sound in the humming that PW did not mention.....as if it got stronger then slightly weaker, repeating over and over. PW2 also provided sketches of his observation. The home
surroundings of these PW's seem to indicate a relatively well-off middle class couple, typical hard working southern folks. Evidence of extensive reading of military history and crime mysteries was in abundance, as was a home with a nice, suitable
'lived in' look. PW2, a former truck driver in younger years, served 4 years in the U.S. Navy, and was a Gunner's Mate on riverine patrol boats in S. Vietnam's Mekong Delta. He was decorated with the Bronze Star during his combat service, which decoration was displayed in his office at the food processing company. Neither of these witnesses displayed any signs of stress or other indications of deceit during the interview or afterwards. The PW did not initially want to give her true age of 55 years, and did not want to describe having worked at _____ Restaurant
in earlier years (a national restaurant chain employing buxom female staff). She was at first a _____'s Girl, then later promoted to a sort of _____'s Momma position, a supervisory position overseeing the female staff (see video taped interview). I attribute this hesitation to discuss her true age and the past _____'s employment as a typcial southern female trait i.e. no REAL intentional deceit intended.

TRAINING REPORT

ADDITIONAL WITNESS CHECK

This FI established that the responding Fayette County Sheriff's Deputy was Sgt. Barnard A. Jones, supervisor of the Patrol Zone which includes the PW's neighborhood. Sgt. Jones is also the SWAT sharpshooter for the FCSD's tactical team. I phoned Sgt. Jones at the Sheriff's Dept. on 20March02 and spoke with him about these events. He stated that he had filed a three page report on the incident(s) due to the fact that two separate events had been reported, and more so because the PW, while being a humorous and 'earthy' woman, was a straight shooter, honest and well thought of all over town, samey-same with her husband (PW2). Sgt. Jones stated he personally saw or noticed nothing directly related to the incident, but he DID believe the stories of PW, PW2, and PW3, the county dump employee, i.e. that THEY SAW something dramatic and unknown. He recounted what PW and PW2 had related to him, and it was similar to the accounts they gave this FI. Sgt. Jones agreed to mail me a copy of his report to save me a trip down to the Sheriff's Dept. Records Division. Briefly regarding the county dump.....Sgt. Jones indicated that he left the PW's home and drove to the county dump where he located one of the lone employees that had been locking up the facility that evening. The employee said that a few minutes after 6:00PM, he was at the gate and saw a large saucer shaped object, with a bulge on the top and
some red blinking lights, hovering over the far end of the dump which is about 200+ yards away. The craft then shot straight up into the sky at a blinding speed and was gone, all of this occurring in about 20 seconds. Sgt. Jones added that the employee, while 82 YOA, and a more or
less part-time caretaker, was in good health and a good person, though he was excited to

the point of hyperventilating upon Sgt. Jones' arrival.

On 22March02 this FI, using Sgt. Jones information, located PW3 at the adjacent county dump office and vehicle shed. He was found to be a long time Fayette County resident, and stated he had been waiting for someone like me to come see him just like on the Discovery Channel TV shows. He stated that he had been praying ever since that day and no longer wanted to discuss "it" with anyone, that he and the LORD would work it out. Upon this FI asking for at least a description of what he saw, he only replied for me to "go watch that movie with Michael Renney where the earth stood still and the robot came out". No doubt he was referring to the 1950's scifi classic "The Day the Earth Stood Still", which depicts a large saucer like craft. PW3 would discuss the case no further, nor give any other information.

Also on 22March02, this FI stopped at the local Fayette County airport, 'Pappy Boyington Field' and spoke with the facility manager. He had not heard of the 15March02 events, but agreed to poll the various pilots that used the field and notify me if anything turned up.

23March02, this FI located the woman described by PW as being the rather inquisitive "sees everything" member of the neighborhood. She resides in a rear cottage directly across the street from the PW. This elderly lady recalled only that her canaries became upset on an early evening during the week in question.....wildly chirping, flying around their cages and crashing into the bars, feathers flying everywhere, she'd never seen anything like it. She added that she was really concerned about it, but it was over in minutes, though she did not recall if it was on the 14th or the 15th of March. It was however at about 6:OOPM because she was getting ready to turn on the 11 Alive News, which she was delayed in doing by the birds strange conduct. She added that her TV had no problems when later turned on, nor were there any other unusual sounds or electrical glitches.

TRAINING REPORT

23March02, this FI faxed a request for an audio and radar tape information search to the FAA ATC Quality Assurance Center in Atlanta. Rhonda Phillips of the FAA later phoned me and stated that a member of the Regional Administrator's staff would be in touch with me later to apprise me of the search results. (10April02, info from FAA indicated negative results on the records search).

NATURAL PHENOMENA CHECK

N/A in this case.

MANMADE OBJECT CHECK

The accounts of PW, PW2, PW3 and Sgt.Jones indicate that something large and substantial was in fact observed at two Fayette County locations on 15March02. The details of what occurred were such that there is little chance that there was a 'mistake' in what was seen. While earlier speaking to the manager of 'Pappy Boyington Field' (a retired FAA ATC supervisor), he indicated that he was ALWAYS notified when the Goodyear, Fuji or Budweiser blimps or any other large unusual civilian aircraft would be operating anywhere in the Metro Atlanta area.....and he had received no such notification regarding the week of 15March02. The up-close nature of the PW and PW2 event rules out any sort of known man made craft; the similar description by PW3 to Sgt. Jones corroborates PW and PW2. I rule out any standard man made craft and seriously doubt any secret or classified government craft would normally and openly operate so low in such a populated area during hours of daylight. The speed and other described conduct of the objects also seem to rule out man made craft.

OTHER POSSIBILITIES

This FI feels that there is little or no chance for a hoax in this matter. As stated, PW3's

description to Sgt. Jones (and to a lesser extent, his abrupt comments to me) corroborate PW and PW2. The other neighborhood witness' 'never before seen' canary conduct is PROBABLY related to this event. Sgt. Jones has also personally vouched for the veracity of PW, PW2 and PW3, each of whom he has known for many years. While the PW related a possible 'psychic' episode from many years before i.e. seeing her dead aunt, she indicated that she was not prone to such experiences. Her husband, PW2, stated the same.

WITNESS BACKGROUND CHECK

While it is VERY DIFFICULT to check into the background of a witness that wishes to remain totally unknown, luck is with MUFONGA in this particular case. Sgt. Jones has known the PW and PW2 for many years. He described PW2 as a good hard working family man, a Navy veteran who won the Bronze Star in S. Vietnam for holding off a VC ambush from his boat's machinegun turret down in the Mekong Delta (which decoration and certificate is displayed in PW2's office). Sgt. Jones was rather light hearted in describing the PW. While he stated she was known locally as a very humorous and earthy woman, she was a tirelss worker in the various county charities, especially as a volunteer in the joint Sheriff's Dept./USMCR 'Toys for Tots' Xmas project. She also runs a week long 'Beauty Boutique' at the annual Fayette County Fair, giving all of the proceeds to the March of Dimes.
That Sgt. Jones' opinion of the PW's integrity is correct, is backed by this FI's observations and experiences with them. No major contradictions were found, no high stress levels or other nervousness was noticed during the interview(s), everything checked out.
The home and it's contents were consistant with who the PWs said they were and what they claimed to be. Credible witnesses in this FI's opinion.

TRAINING REPORT

PW3 at the county dump was ascertained to be an elderly recluse, employed along with a group of other similar retirees to maintain the lite operations of that facility (logging the customers in and out, paper work, locking up etc.). Sgt. Jones indicated PW3 was a God fearing man, a former deacon and known in the community all of his life for his stoic nature.....hence his abrupt, but probably accurate, statement to this FI.

SIGHTING EVALUATION

This case has proven to be very easy to investigate due to cooperative and credible witnesses, the aforementioned witness accounts and a police report. All are CORROBORATIVE in nature. No major disagreements were discovered during the course of this inquiry, only the normally found minor details such as slight coloration difference, tone of sound etc. The time elements from the PW/PW2 event to the PW3 event are consistant, the descriptions similar; even the possible secondary event with the neighbor's canaries on either the 14th or 15th of March at about 6:00PM fits in (this FI feels the canary event WAS in fact on 15March02, the date in question). The negative findings by the FAA do not concern me overmuch. This FI trusts the word of the FAA about as much as Joseph Goebbels speeches could be trusted before WW II. This writer has even caught local FAA personnel in lies during past investigations and other operations. It should also be noted from past research that other LARGE and SUBSTANTIAL unknown objects have been observed by NUMEROUS witnesses without giving ANY radar returns. Due to the facts related earlier in this WUFOD report, in the supporting case file documents and in this recap, I judge this event to be an UNKNOWN and VERY SIGNIFICANT.

SPECIAL NOTE REGARDING EVENT LOCATIONS

The initial event site involving PW/PW2 is located in the vicinity of the northern city

limits of Fayetteville Georgia near State Hwy 85. This incident occurred at about 6:00PM as near as the PW can judge, and lasted about 2-3 minutes. Sheriff's Dept. 911 records indicate that the call from PW/PW2 came in at 6:06PM

The second event site at the newly established Fayette County dump is about 5.8 direct miles in a general WSW direction from Site #1. PW3 indicated to Sgt. Jones that he observed his event at the dump a few minutes after 6:00PM. Sheriff's Dept. 911 records indicate his phone call came in at 6:10PM.

Given the approximate times from witnesses, the distance, and compensating for a minute or so of difference in the various clocks involved, the object reported by both PW/PW2 and PW3 traveled at least 5.8 miles and appeared at it's second location (the dump) within about 3-4 minutes. No other sighting reports have been received about this in the Fayetteville area, so it is unknown if there was any 'loiter' time while it moved between the two locations. While two identical objects COULD have been involved, this FI feels that both objects were one and the same. Please note that this newly opened dump and it's access road does not appear on any Fayette County maps, but is located about 3 miles west of Fayetteville Square along Hwy 54. (See FI's diagram).

DETAILED BACKUP (CONTAINED IN THE HARD COPY OF THIS INVESTIGATIVE FILE)

1- Print out of this WUFOD report

2- Form #1 (General) and Form #3 (Electrical-Magnetic Case)

3- Hand written witness account from PW (seperate from Form #1)

4- Three object sketches from PW (seperate from Form #1)

5- FI's diagram of event site

6- Fayette County maps illustrating location of event site

7- Fax request to FAA Atlanta ATC Quality Assurance Center

8- Fayette County Sheriff's Dept. report filed by Sgt. Barnard A. Jones, Case # 02-14952

9- Videotape and audiotape of interview with PW

10- Audio tape of interview with PW2, along with PW2 sketch

11- Videotape of event site, with commentary by PW

12- Polaroid photos illustrating event site

13- Diagram of new Fayette dump

14- Various field notes

TRAINING REPORT

YAHOO! Maps

[redacted]

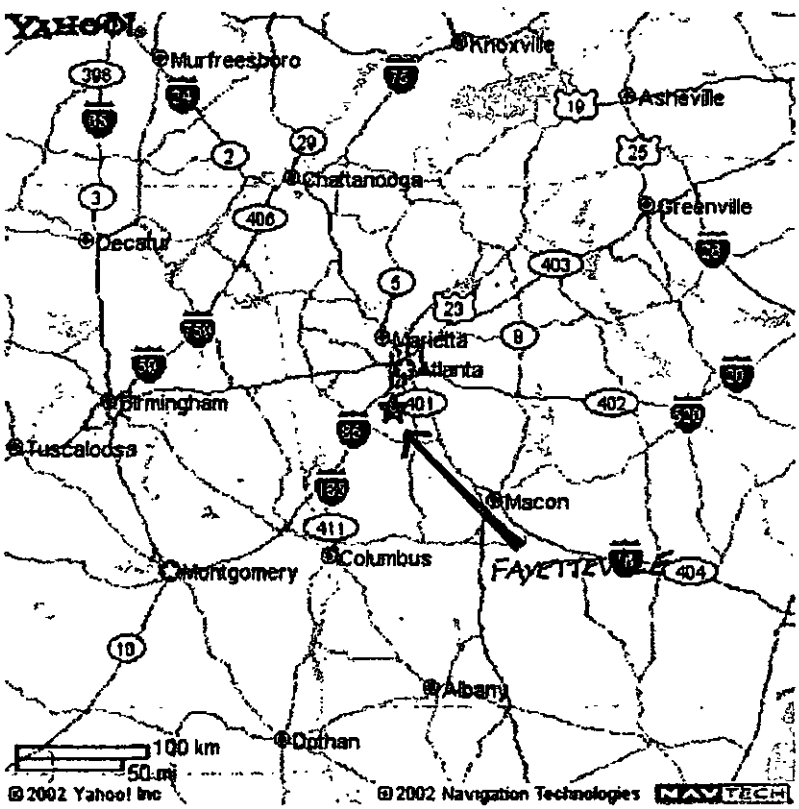
Welcome, Guest User

Yahoo! Maps

TRAINING REPORT

★ 123 Bubbina Dr., Fayetteville, GA 30214

Save This Address



Zoom In
[1]
[2]
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7
[8]
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Zoom Out

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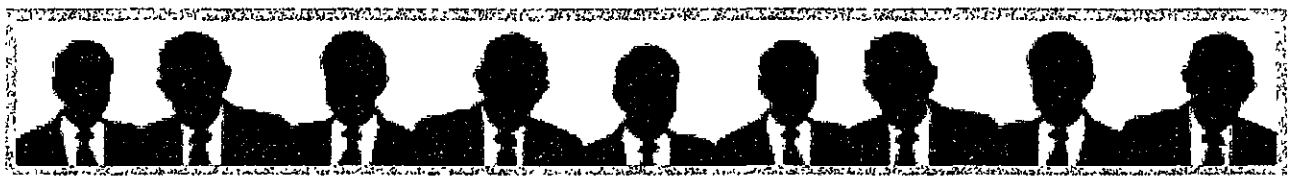

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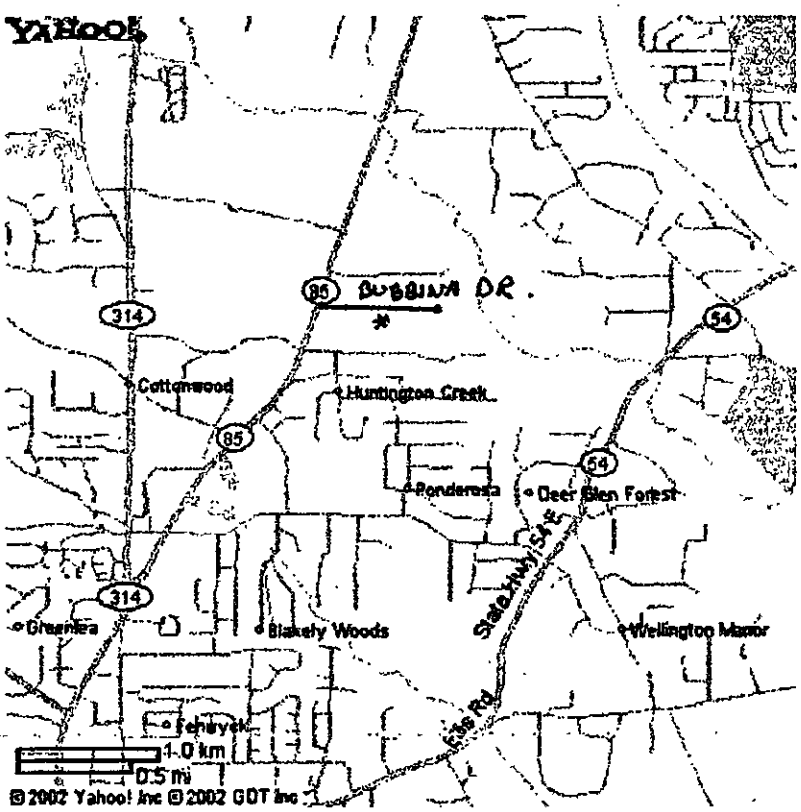

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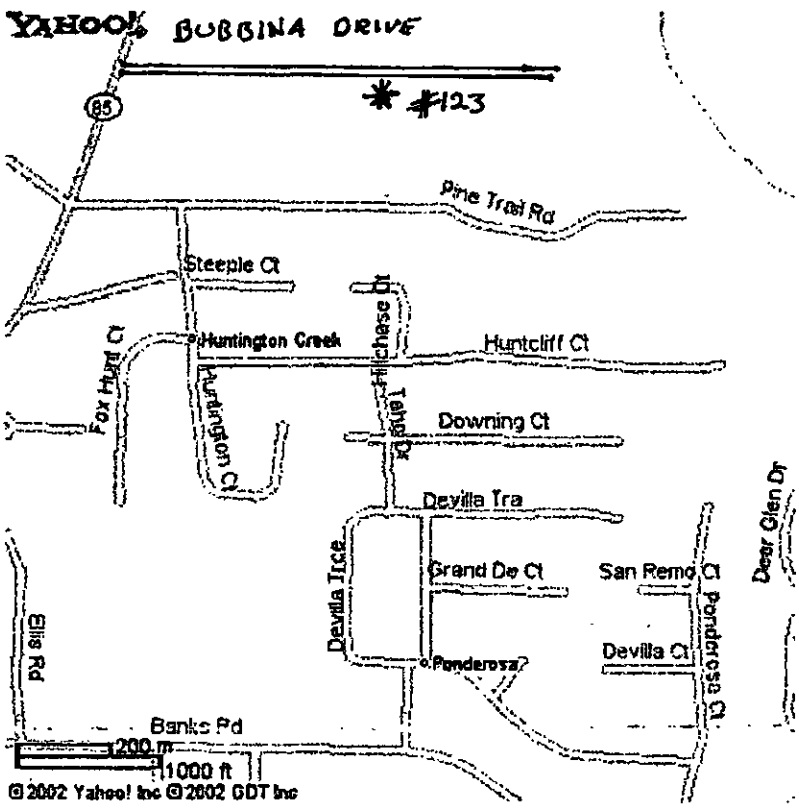

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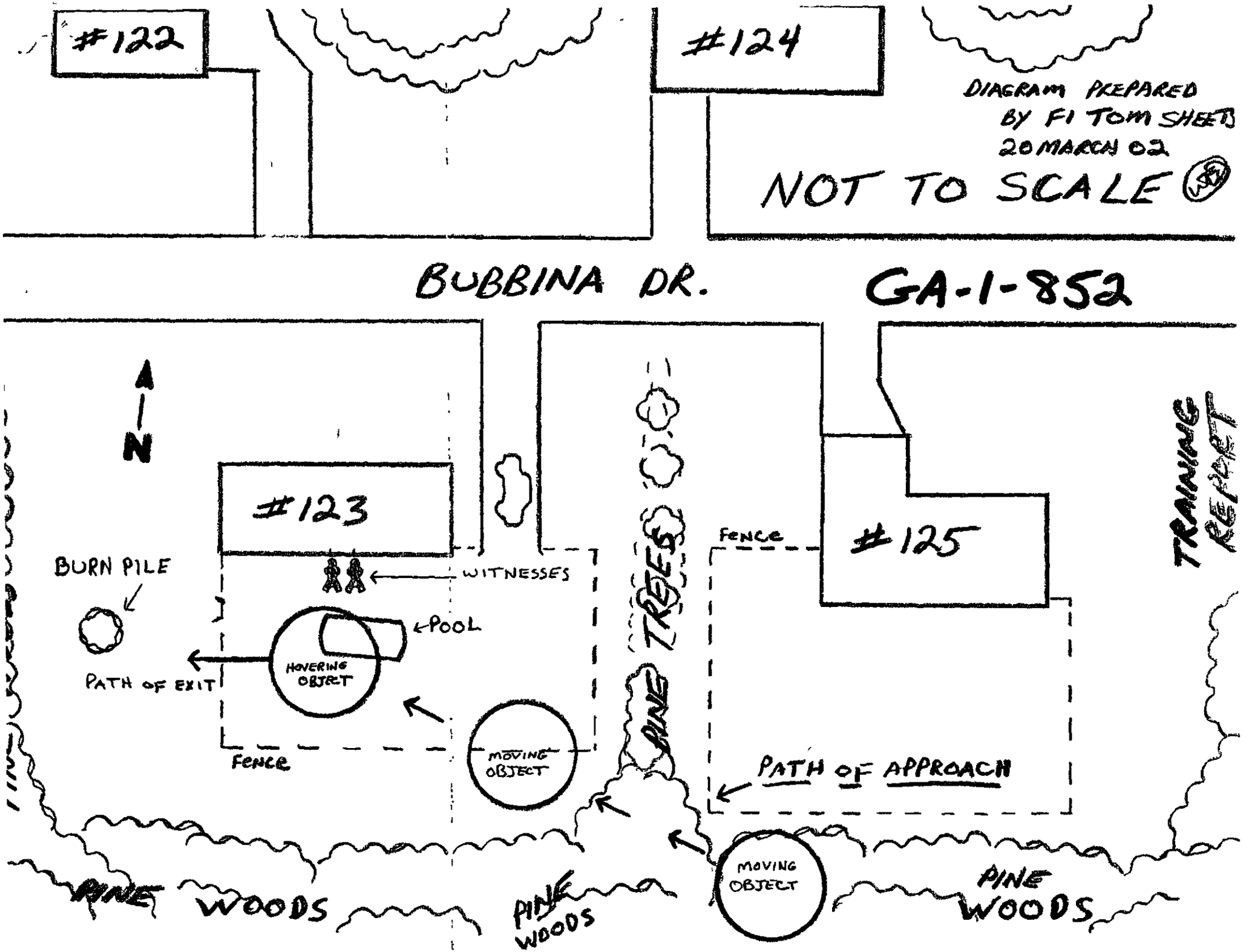
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DIAGRAM PREPARED BY FI TOM SHEETS 20 MARCH 02
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BURN PILE
WITNESSES
POOL
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PATH OF EXIT
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OFFICIAL MAPS DO NOT ILLUSTRATE COUNTY DUMP.
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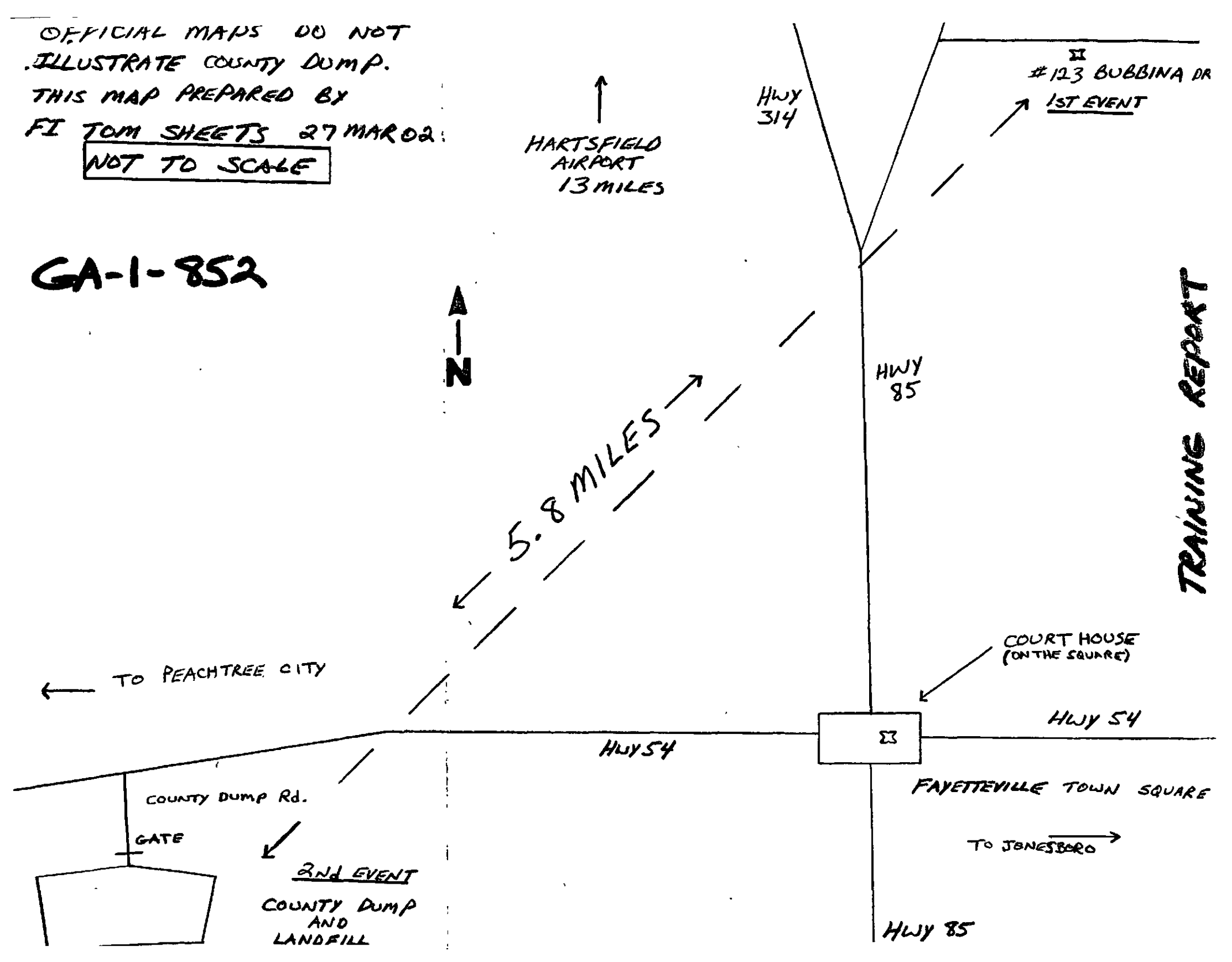
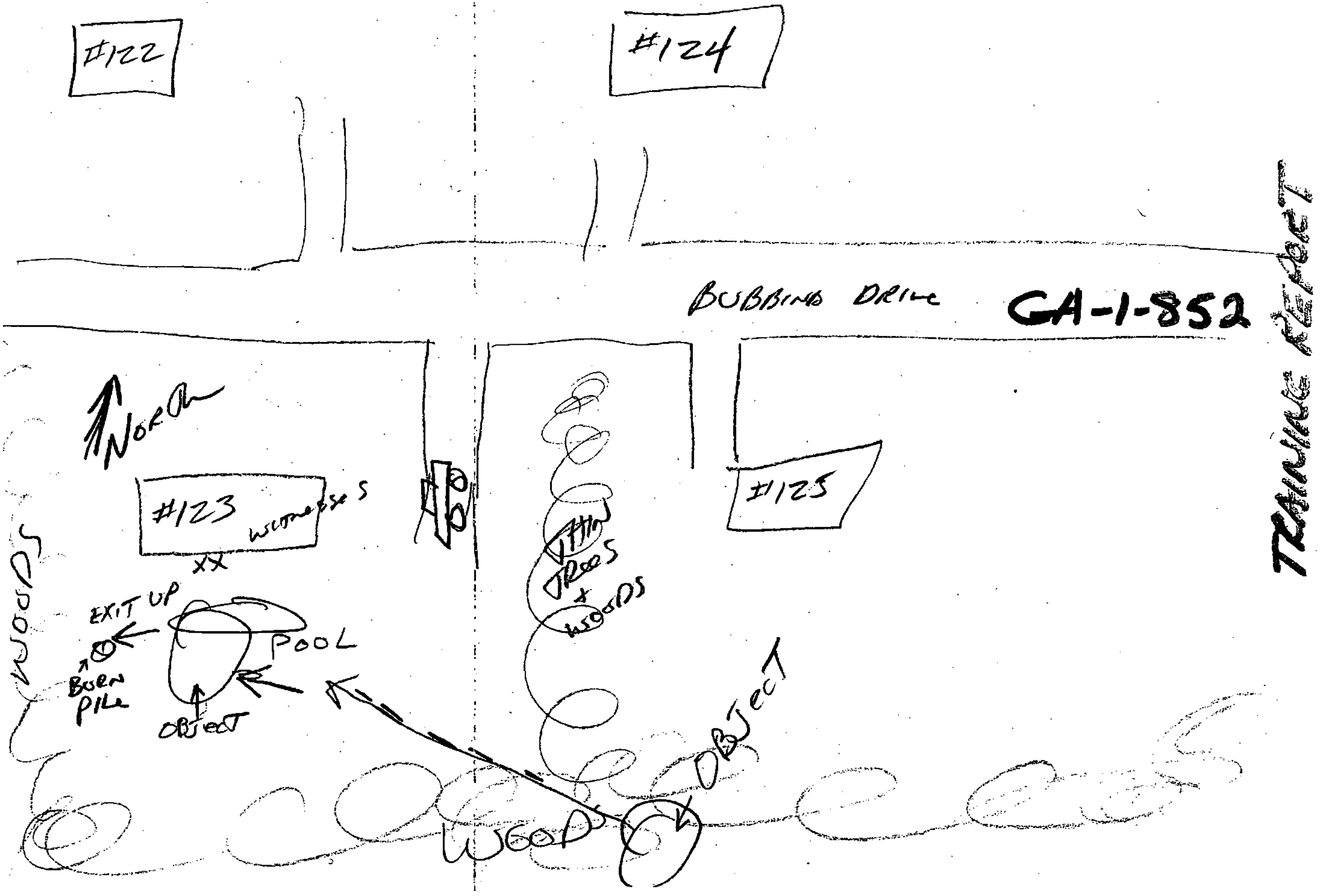


ROUGH DRAFT - 18MAR02 - EventSite -
maidie mae malloxx



E-mail message

From: MUFONGA@webtv.net (Walter Sheets)
Date: Sun, May 5, 2002, 8:58pm
To: mufonga@webtv.net
Cc: mufonga@webtv.ne
Subject: FAX REQUEST FOR RECORDS; TO FAA ATC QUALITY ASSURANCE CENTER-ATLANTA

FROM: Tom Sheets, Field Investigator MUFON of Georgia, Fayetteville

TO: Rhonda Phillips, FAA ATC Quality Assurance Center, Atlanta

SUBJ: Requesting records check for data related to event(s) of 15March02 over Fayetteville Georgia

REQUEST: (VIA FAX) The MUFON organization has received a report from credible witnesses and a law enforcement agency regarding close visual observation of a large round metallic craft of unknown origin. Said event occurred over Bubbina Dr. in Fayetteville Georgia at extreme low level. Craft exited the area at high speed upwards toward altitudes that WOULD ALLOW FOR RADAR RETURNS FROM HARTSFIELD AIRPORT OR PERHAPS VISUAL SIGHTING BY COMMERCIAL PILOTS IN THE HARTSFIELD APPROACH. Said event occurred between 5:45PM and 6:15PM on Friday 15March02 and was subsequently reported to local law enforcement authorities, Fayette County Sheriff's Dept. Case # 02-14952. These authorities thereafter made a referral to MUFON for further investigation.

We are requesting a check of all ATC and other FAA records, both audio and radar, for the above described time period. Please notify this investigator if any records of aircraft, both known and unknown, or radio transmissions regarding same, are located. We will then make further arrangements with FAA supervisors for release of this data per the FOIA.

Fayetteville Georgia is located at;

33.4149N and 84.4928W

TRAINING REPORT

The subject location is exactly 13 air miles directly south of the Hartsfield Tower.

Again the time frame is from 5:45PM to 6:15PM (1745Hrs-1815Hrs) on Friday 15March02.

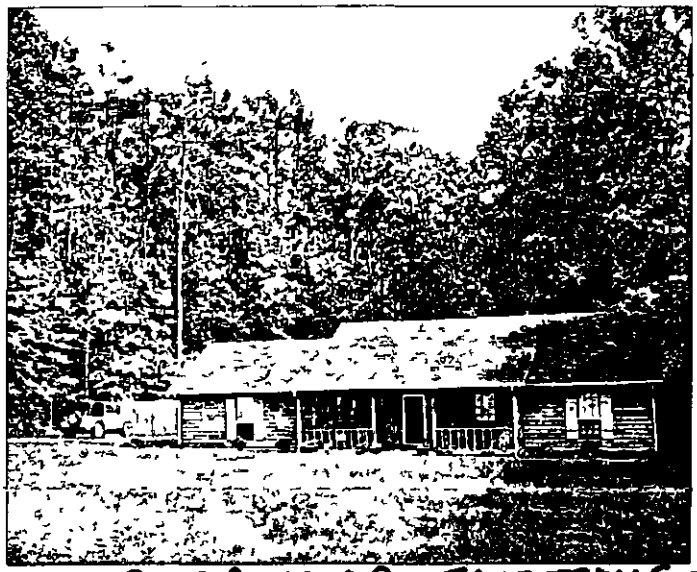
Best Regards,

Tom Sheets-Field Investigator MUFON of Georgia, 245 Huntcliff Court, Fayetteville Georgia, 30214 (Phone and Fax 770-460-8447)

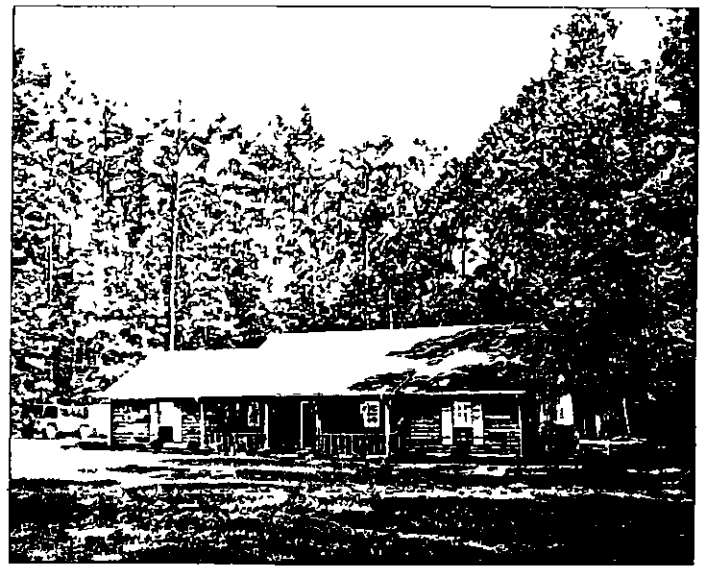
GA-1-852

GA-1-852
VIEW TO WEST

GA-1-852
VIEW NORTH OVER POOL WHERE RED CRB HOVERED.



123 BUBBINA DR. FAYETTEVILLE, GA
LEFT SIDE IS VIEW TO SE.....i.e.
PATH OF LARGE UFO APPROACH.
GA-1-852



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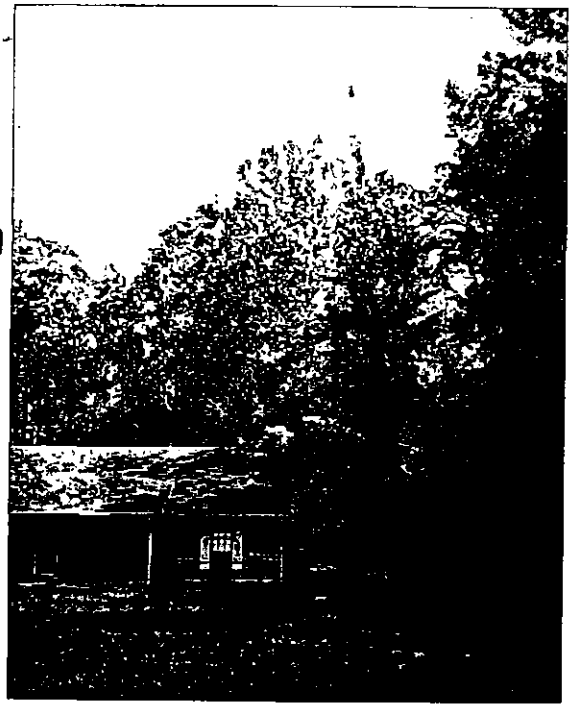
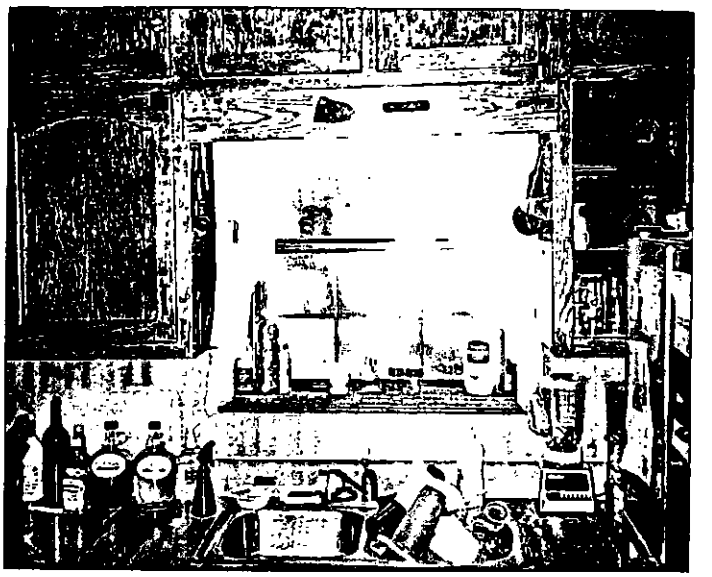
123 BUBBINA DR. FAYETTEVILLE, GA.
VIEW TO SOUTH.



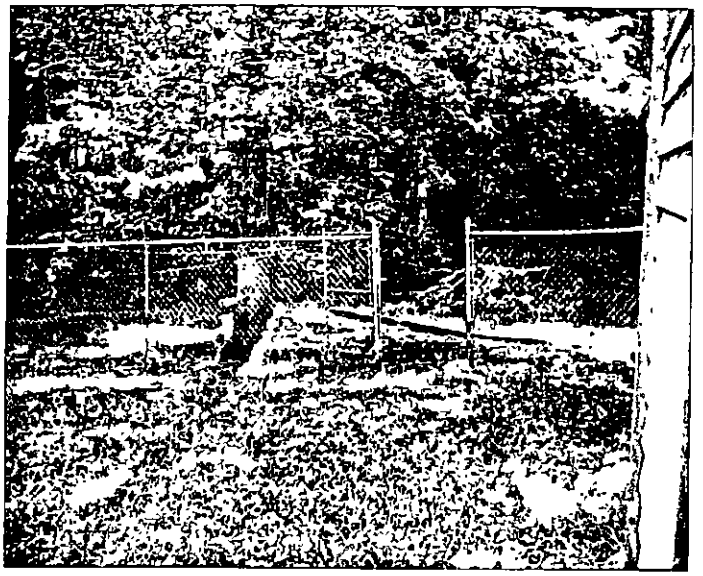
GA-1-852
VIEW SOUTH - LARGE OAK MAKE EXIT FROM OVER TREES.



GA-1-852
VIEW OUT KITCHEN WINDOW TO SOUTH, OVER POOL.

GA-1-862
VIEW TO SOUTH FROM KITCHEN WINDOW - OVER POOL.

GA-1-852
VIEW OUT PATIO DOOR TO SOUTH.



GA-1-862
VIEW TO WEST - BURNPILE

GA-1-862
VIEW TO EAST FROM BURN PILE
WITNESS LOCATION NEXT TO CHIMNEY.

GA-1-852
VIEW TO SOUTH - OVER POOL.

GA-1-852
VIEW OF BURN PILE FROM
FRONT YARD - SOUTH

GA-1-852
VIEW TO S.E.....FROM FRONT OF HOUSE. - LARGE UFO APPROACH.

GA-1-852
OVERHEAD OF POOL. TO SOUTH

GA-1-852
VIEW TO S.E. BACKYARD

GA-1-852
OVERHEAD VIEW TO WEST WHERE LARGE UFO MADE EXIT.

SEMPER FIDELIS
USMC

WALTER T. SHEETS, FSA SCOT
Chief of Police - Retired

COLLEGE PARK POLICE DEPARTMENT
"Quo Primus Jugales"

245 Huntcliff Court
Fayetteville, Georgia 30214
(770) 460-8447 or tangosix@webtv.net

Member: Georgia Association of Chiefs of Police
National Law Enforcement Alliance
Scottish-American Military Society

MUFON

Mutual UFO Network
SCIENTIFIC INVESTIGATION OF
UNIDENTIFIED FLYING OBJECTS

Walter T. Sheets, FSA Scot
CHIEF OF POLICE - RETIRED
INVESTIGATIVE AND THERAPEUTIC HYPNOTIST
STATE DIRECTOR - MUFON OF GEORGIA
To File a UFO Report Online: www.mufon.com

245 Huntcliff Ct.
Fayetteville, GA 30214

Pager - 24 Hours
770-917-4419
E-Mail - mufonga@webtv.net

LAW ENFORCEMENT ALLIANCE OF AMERICA

Walter T. Sheets

Member

7700 Leesburg Pike, Suite 421 • Falls Church, VA 22043
(703) 847-COPS (2677) • (800) 766-8578
Law Enforcement, Victims and Citizens United for Justice

OR
USO829-2003-0001

Unidentified Flying Object Report

Date of incident: 29 Aug 2003
Time of incident: 22:30 to 22:40 Pacific Daylight Time
Atmospheric conditions: clear sky, moderate temperature, near 60° F

Investigator: Tom Bowden, MUFON OR State Director, and Field Investigator

Summary:

A large black triangular object with lights near the corners was seen flying slowly over a residential neighborhood. Two known independent witnesses appear to have observed the same object. Additional witnesses were seen by the first witness, but these witnesses were never located.

Witness #1 viewed the object from multiple directions while driving, and also saw other individuals who appeared to be looking at the same object, but since no one has been able to locate these additional witnesses, their observations cannot be verified.

Witness #2 viewed the same type of object on the same date and at the same time, but from a location a few blocks from one of the observation points of witness #1. The descriptions of the object and angles of observation strongly indicate that both witnesses were viewing the same object.

Witness #1 and #2 are not known to one another, and have never met. I have not provided either witness with any specific information about the identity of the other witness. Both witnesses seem credible, and I could find no reason to suspect a hoax or collusion between them.

Narrative – Witness #1

This narrative is based on the witness' original account, with corrections and clarifications based on subsequent interviews with the investigator.

Witness #1 was driving west on Division St. in Gresham when he noticed what he first thought were bright landing lights on an aircraft, including one white light and one red light. By the time he approached the corner of N. Main St. and Division St., he noticed that the lighted object did not appear to behave like a conventional aircraft, because it appeared to be stationary in the air.

As the witness continued driving west on Division St., he continued trying to observe the lighted object to the left of his direction of travel. He could not maintain continuous visual observation due to watching his driving, and due to tall trees in the area. As he reached the proximity of NW Wallula Ave. he could see that the object was nearly directly to his left and partially hidden by the tops of the tall fir trees in the residential neighborhood along the south side of Division St. Knowing he had a digital camera in the car with him, he decided to try to get closer to the object in a place where he could stop and photograph it.

He turned left (south) on NW Angeline Ave., where he turned off his radio and fan, and rolled down all the car windows to see if he could hear any sound. He could hear no sound from the object at this point. He proceeded to SW 5th St and turned left (east), where he had a very clear view of the object directly ahead through his windshield, unobstructed by the tall fir trees in the area. This street runs due east.

In this quiet residential block, he slowed down to take a good look He saw a triangular shape with bright white lights on the bottom side at the three corners. When asked about the red light initially observed, the witness said that he could not explain why the red light was no longer visible from this vantage point. (Note: This detail does not agree with his original statement.) Between the lights, the witness could discern a dark gray or black object with straight edges forming the sides of the triangle shape. The witness noticed that the body of the object seemed solid because it eclipsed stars that were behind it. The object hovered completely silently and very steadily, with no wobbling or drifting motion. The witness tried to compare the object with a known type of airplane or helicopter but found that it did not look or behave anything like any known conventional aircraft.

At this time he noticed other people who also appeared to be looking at the object. Two men on NW 5th Street had stopped what they were doing and were looking up at the object. Two girls were running down the street, yelling and pointing toward the object, and a man driving in the direction of the object was sticking his head out of the open window of his car, looking up at the object. None of these other potential witnesses have been located.

From this location, the witness observed the object hovering for 10 to 15 seconds. He stated that he had a clock on the dashboard of his car to help him judge the elapsed time. Based on the reference of NW 5th Street, which runs due east, the witness states that the object was almost exactly due east of his position, or just slightly to the left (north) of due east.

The witness was about to reach for his camera and get out of his car to take a photograph, when the object began to execute a slight lateral rotation without banking or wobbling, then began accelerating off toward the northwest. He then decided to follow it. He proceeded to NW Towle Ave., and turned left. He had to slow down for several speed bumps on that street, and by the time he reached Division St. again, the object was receding in the distance toward the northwest. He turned left on Division St., drove a block or two west to a place where he had a clear view to the north and nortwest. From this location, he observed two white lights at the tail of the object as it glided rapidly off toward the northwestern horizon and disappeared in the distance within a few seconds. (Note: In his original narrative, the witness incorrectly stated this direction as northeast. He realized that mistake afterward and wants the correction noted.)

At this time, after losing sight of the object, the witness proceeded to drive home and write notes to himself about the incident. He later contacted the National UFO Reporting Center (Peter Davenport) via their website to report his experience.

Narrative -- Witness #2

Witness #2 contacted me in response to flyers I posted in the vicinity of NW Towle Ave. and NW 5th Street. These flyers depicted a wire-frame style drawing of the object made by witness #1, and gave the time and date of the initial report. A copy of this flyer is enclosed. The witness claims she and her sister (also a witness, but declined to be interviewed) had an immediate strong reaction to the picture because it looked just like what they had seen. Although they were initially not sure about the date, I questioned her about what she was doing the night of the sighting, thus establishing associations with other events in the time frame from which they were able to verify the date of the sighting.

Witness #2 was sitting in the front yard of her duplex apartment, smoking a cigarette and talking to her sister, when she noticed a bright light above her illuminating some objects around her. She looked up and saw large object with three brilliant white lights arranged in a triangular pattern moving from behind the branches of a large Douglas fir tree. She notice that the apparent body of the object was dark and apparently non-reflective, and that it eclipsed stars as it moved across the sky. The witness reported that no sound was heard coming from the object.

The object glided smoothly toward the north for about 3 seconds, then stopped and hovered for about 2 to 4 seconds in a position toward the northeast, above a medium size tree. During this time the witness, who wears a pacemaker, states that she felt a disturbance in her chest similar to the effect of a magnetometer (metal detector) on her pacemaker.

Next, the witness states the object executed a slight lateral rotation without banking or wobbling, and then quickly moved out of sight behind the treetops toward the north. She is really not certain if the object moved away quickly, or if it simply vanished, but she seemed to believe that it just moved quickly out of sight behind the trees.

When asked what time the sighting occurred, the witness said that she spent about five more minutes outdoors, watching the sky, and that when she went indoors it was 10:45 p.m.

During further questioning about the presence of conventional aircraft in the area, this witness also stated that between one and five minutes after the departure of the triangular object, she saw and heard a large airliner fly over her location on a general heading toward the north, probably on approach to Portland International Airport (PDX). The witness easily and accurately described the characteristic lighting configuration of the airliner and pointed out that the triangular object's lights were nothing at all like the airliner's lights.

Analysis

I interviewed witness #1 at his home on September 9, collecting background information, and reviewing and clarifying his original statements. On September 16th, I conducted a walk-thru of the sighting with witness #1, visiting the locations where the observations were made. While the witness raised his arm to indicate the angular elevation of the sighting, I measured the estimated angles using a tiltmeter. Compass directions were provided separately by the witness based on a compass in his car. I added the correction of 17 degrees for the local magnetic deviation from true north. The due east-west orientation of NW 5th St. was verified on a map, and measured with my own compass.

I interviewed witness #2 on September 28 at her home and measured angular observations from her front yard, where the sighting occurred. She identified two trees and a utility pole as landmarks to help her remember where she observed the object. The trees and the pole were nearby and distinctive, so there was no way they could have been confused with other similar landmarks.

Observational data from Witness #1:

The estimated angular elevation of object from NW Division and Main St. was 8 to 10 degrees above the horizon, as seen through the windshield of his automobile from the driver's seat.

The estimated angular elevation of object from NW 5th St. was about 30 to 40 degrees above the horizon, as seen through the windshield of his automobile from the driver's seat.

Total duration of sighting was about 8 minutes from beginning to end of the narrative. Duration of the observation on NW 5th St. was estimated at about 10 to 15 seconds.

The estimated angular size of the object as seen by witness #1 from NW 5th St. was about 2 inches at 16 inches from the eyes.

Observational Data from Witness #2:

The object was observed from a few feet outside the front door of her apartment, approximately 975 feet from the location of witness #1 at point B. (Please see attached charts.) The total duration of the sighting was estimated at about 8 seconds. The moment when the object seemed to hover lasted an estimated 2 to 4 seconds.

Estimated angles for initial observation of object:

direction - 40 to 42 degrees
elevation - 30 to 35 degrees
apparent angular size – 3.5 to 4 inches at 18 inches from eyes.

Estimated angles for observation of hovering object:

direction - 30 to 37 degrees
elevation – 15 to 20 degrees
apparent angular size – 1.5 to 2 inches at 18 inches from eyes.
(Note: angular size is especially difficult to estimate from memory)

Estimated angle for observation of departing object:

direction – 27 to 30 degrees
elevation – 15 to 20 degrees

Air Traffic in the Vicinity:

Eric Byler of Oregon UFO Research obtained an air traffic map from Jerry Gerspach of the Port of Portland Airport Noise Abatement department. A caption on the map says it shows "all aircraft operations over the Gresham area between 10:30 and 10:40 PM." To be precise, it shows only commercial aircraft equipped with air traffic control transponders. A copy of this map is enclosed. It gives altitude, airspeed and aircraft type information for all known flights. It also displays a date and time stamp of "Fri Aug 29 22:28:09 2004".

The large asterisk on this map marks witness #1's closest sighting location at NW 5th St. and Angeline Ave. Concentric circles around this mark depict the distance in 5-mile increments. Mr. Gerspach added a comment saying, "This would be my guess," indicating his opinion that witness #1 saw the aircraft B763 (a Boeing 767).

The following aircraft are marked on the report:

DH8D (De Havilland Dash 8 Turboprop) has departed PDX and is turning northeast over Vancouver, Washington, at airspeed 231, and altitude 5666. This aircraft is out of the observational area and can safely be excluded as a cause for the sighting.

B734 (a Boeing 737-400) is on final approach to PDX, at 1486 feet and a speed of 163. This aircraft would have been far to the north and traveling on a west-northwesterly approach path, with the landing lights aimed toward the west. Also, it would have landed by the time of the sighting. This aircraft can also be safely excluded as a cause for the sighting.

MD80 (an MD-80) is approaching from 10 miles to the south at 4961 feet and at a speed of 274. The path of this aircraft would have taken it over the sighting location during the time in question. It would have covered the 10-mile distance in about 2 to 3 minutes. This aircraft must be considered as a possible cause for the sighting. The chart shows its path passing nearly directly over the vicinity of the sighting.

B763 (a Boeing 767-300) is approaching from 14 miles to the west at 6998 feet and at a speed of 231. The path of this aircraft would have taken it over the sighting location during the time in question. It would have covered the 14-mile distance in roughly 3 to 4 minutes. The chart shows its path passing about one mile east of the sighting location. This aircraft must also be considered as a possible cause for the sighting.

Conclusion:

Both witnesses claim to have seen and heard many aircraft in the Gresham area at various times of any given day or night. The Gresham area is a busy air corridor with a lot of traffic to and from Portland International Airport and Troutdale Airport. Both witnesses were able to easily describe typical aircraft lighting configurations, and both witnesses stated that when they first saw the object, they compared it to a conventional aircraft in an attempt to rationalize what they saw, but then concluded that it was not a normal aircraft.

Witness #2 remembered seeing a commercial jetliner heading north about one to five minutes after the sighting of the triangular object. There is not enough information to definitively identify which aircraft she saw, but she described the aircraft lighting configuration as clearly different from the unknown object, and also stated that she could hear the aircraft, and that it was quite loud.

Although witness #2 stated that the hovering UFO seemed to cause a fluttering feeling in her chest, it is not possible to determine whether this was in fact a physical effect upon her pacemaker. It is also possible that she experienced a startled feeling upon realizing that the object was performing a maneuver not possible for any conventional aircraft she knew about.

At the time of the closest observation by witness #1, he describes maneuvers and an estimated altitude on the part of the object that would be totally inconsistent with any known commercial aircraft. He estimated the altitude at 500 to 800 feet, which would have been well below the altitude permitted for a commercial aircraft over the area in question.

At this time, I maintain the opinion that both witnesses saw the same unidentified flying object. Both witnesses claim to have seen a dark gray or black object of a nearly equilateral triangular shape. Both said the object blocked the stars which were otherwise visible in the sky. Both witnesses agreed that the object had three bright white lights at or near the corners, and these lights pointed down toward the ground. Both sightings fell within the same time period, from 10:30 to 10:40 p.m.

The two witnesses disagree about the length of time the object hovered steadily. Witness #1 claimed it hovered for 10 to 15 seconds, but he was driving south and turning east during part of this time. After turning east, he was heading directly toward the object and slowing to a stop. This is where he had the best, most unobstructed view of the object, and saw that it was motionless for several seconds. Witness #2 was sitting still and estimated that the object hovered about 2 to 4 seconds.

Both witnesses agree that, after hovering, the object executed a slight lateral rotation just before leaving rapidly. This was described as a rapid, flat, steady rotation without banking or wobbling, with the near-side corner moving from left to right. Both witnesses agree upon the details of this maneuver. Witness #2 could not actually see the object depart rapidly, but said it seemed to move suddenly to the north and then disappear. The loss of visual contact was probably at least partially due to the many tall fir trees in the neighborhood, especially to the north, where the object seemed to disappear.

When witness #1 was traveling west on Division St., he said he saw an apparently stationary light at about 8 to 10 degrees above the horizon. There is a strong possibility that at that time, he saw the 767 aircraft approaching from the west. When this was suggested to the witness, he admitted that it is possible. However, as he proceeded to drive west on Division St., he was not able to keep the object under observation constantly. By the time he had turned south on NW Angeline Ave., and then east on NW 5th St., he could clearly see that the object he was looking at was not a conventional aircraft. At this point, he was facing east. Both the MD80 and the 767, if they were within a half mile to a mile, could have been heard easily. Also, both aircraft would have been heading north, across the field of vision of witness #1. He would have clearly seen the aircraft flying from his right to his left, not hovering steady in the air.

When witness #1 says he drove back to Division St. and watched the object leaving toward the northwest, again it is possible he saw one of the aircraft approaching the airport; however this is very unlikely since aircraft approaching Portland International Airport usually turn along an approach path from the east-southeast, along the Columbia River (please see attached air traffic chart). When seen from the area of the sighting, aircraft on final approach to PDX appear farther to the north, and appear to be flying from right to left, not directly away from one's vantage point. It would be very unusual for a commercial airliner to approach PDX from the direction and low altitude described by witness #1. Even so, it cannot be positively ruled out that he observed one of the aircraft during this part of the sighting.

Another problem is that witness #1 claims he never saw nor heard the two airliners that flew over during this time. It seems that he should have seen or heard at least one of them during this time. His explanation is that he was so focused on observing the unusual object, that he tuned out the sound of the other aircraft. I can find no explanation for this inconsistency; however I still maintain that the composite information in the case indicates that the two witnesses both observed an unconventional object with strikingly similar characteristics, suggesting that they were both observing the same unidentified object.

The point at which both witness observations agree would have been at about 10:35 p.m., according to the timing data provided by witness #1. This is the moment when the object appeared to hover motionless for some seconds and then execute a rotation before accelerating rapidly in a northerly or northwesterly direction. At this moment, witness #1 was about 975 feet north of witness #2. We can base a triangulation estimate on the supposition that witness #1 was seeing the object due east at 30 to 40 degrees elevation, while witness #2 was seeing the object at 30 to 37 degrees from north, and at about 15 to 20 degrees angular elevation.

The estimates above allow the calculation of the approximate distance from witness #1 to the hovering object (see illustration):

distance = 975 × tangent of 30 degrees = 562 feet
distance = 975 × tangent of 37 degrees = 734 feet

This estimate places the object about 1.5 to 2 blocks away from witness #1.

The angular elevation of 30 to 40 degrees observed by witness #1 gives the following estimated altitude of the object (see illustration):

height = 562 × sine of 30 degrees = 281 feet
height = 562 × sine of 40 degrees = 361 feet
height = 734 × sine of 30 degrees = 367 feet
height = 734 × sine of 40 degrees = 472 feet

The approximate distance from witness #2 to the hovering object can be calculated as follows:

distance = 975 ÷ cosine of 30 degrees = 1126 feet
distance = 975 ÷ cosine of 37 degrees = 1221 feet

This estimate places the object about 3 to 4 blocks from witness #2.

The angular elevation of 15 to 20 degrees gives a range of calculations as follows:

height = 1126 × sine of 15 degrees = 291 feet
height = 1221 × sine of 15 degrees = 316 feet
height = 1126 × sine of 20 degrees = 385 feet
height = 1221 × sine of 20 degrees = 417 feet

All these calculations are based upon compass directions and estimated angular elevations gathered after the fact from memory, so the results of the calculations are estimates. The only verifiable measurement is the distance from witness #1's location to that of witness #2. Given that these calculations are based on estimates, the range of altitude estimates are consistently within the range of about 300 to 500 feet, well below the FAA mandated limit of 1,000 feet for fixed-wing aircraft over a populated area.

The triangulation places the hovering object approximately over NW Wallula Avenue, between NW 6th St. and NW 4th St. This is all a residential area. It is possible that further investigation might turn up additional witnesses, or people who experienced some physical effects upon their televisions, computers, etc., however to date, no additional witnesses to any related phenomena have been located.

The aircraft explanation might explain some of the observations of witness #1, but it does not fit all the observations of the two witnesses. In particular, witness #2 observed both the object and one of the aircraft a short while later. She clearly described the difference in appearance. She also described the aircraft noise as distinguished from the silence of the hovering triangle. The

air traffic report shows that the MD80 and the 767 would have passed the vicinity of NW 5th St. and Angeline on a northerly route, moving at somewhere between 160 and 200 miles per hour. This is inconsistent with both witnesses' observation of an object hovering still in the air for several seconds.

Acknowledgments

Peter Davenport of the National UFO Reporting Center initially received and posted this report and some of the follow-up communications on the NUFORC website.

Eric Byler of Oregon UFO Research initially referred this case to me. Eric also investigated the possibility of the misidentification of a commercial airliner, and has published his opinion that the sighting of witness #1 can be attributed to a misidentification of one of the aircraft.

Jerry Gerspach of the Port of Portland Airport Noise Abatement office provided the chart of air traffic in the vicinity of the sighting.

Exhibits:

A. MUFON Form 1 for witness #1. (Excluded from some distributions.)

B. MUFON Form 1 for witness #2. (Excluded from some distributions.)

C. Statement of Witness #1 posted on the National UFO Reporting Center website.

D. Computer graphic wire-frame rendering of object drawn by witness #1.

E. Port of Portland aircraft operations chart.

F. Street map of sighting vicinity, showing observation points for both witnesses.

G. Flyer posted by investigator, featuring wire-frame rendering drawn by witness #1.

H. Triangulation diagram for distance of object from the two witnesses.

I. Triangulation diagram for the elevation of the object as observed by witness #1.

J. Triangulation diagram for the elevation of the object as observed by witness #2.

K. Freehand sketch of the object submitted by witness #2.

MUFON

UFO SIGHTING QUESTIONNAIRE - GENERAL CASES (FORM 1)

PLACE OF SIGHTING

Oregon (STATE/PROVINCE) Multnomah (COUNTY) Gresham (CITY/TOWN) USA (COUNTRY)

SIGHTING TIME

10:30 PM (X) AM ( ) ZONE: PDT

DURATION: 7 ~~HRS~~ MIN (X) HRS ( )

DATE OF SIGHTING

29 (DAY) Aug (MONTH) 2003 (YEAR)

PLEASE COMPLETE THIS FORM (Print) AND RETURN TO INVESTIGATOR (For MUFON Use)

NAME OF INVESTIGATOR: Tom Bowden

STREET ADDRESS: 1975 S.W. Myers Pl. PHONE: A/C ____/____

TOWN/CITY: Gresham STATE: OR ZIP CODE: 97080 COUNTRY: USA

DRAW A SIMPLE SKETCH OF THE OBJECT. (Label any lights, colors, protrusions)

(On a separate sheet, please sketch a simple map of the area showing your position and the object's position. Include an arrow denoting the direction of North. Indicate direction that the object was moving.)

PERSONAL ACCOUNT

PLEASE DESCRIBE THE INCIDENT AS IT HAPPENED. BE SURE THAT YOUR NARRATIVE INCLUDES THE FOLLOWING:

1. WHERE WERE YOU AND WHAT WERE YOU DOING AT THE TIME?
2. WHAT MADE YOU FIRST NOTICE THE OBJECT?
3. WHAT DID YOU THINK THE OBJECT WAS WHEN YOU FIRST NOTICED IT?
4. DESCRIBE YOUR REACTIONS AND ACTIONS, DURING AND AFTER SIGHTING THE OBJECT.
5. DESCRIBE THE OBJECT AND ITS ACTIONS.
6. HOW DID YOU LOSE SIGHT OF THE OBJECT?

~~[illegible]~~ Attached

(Continue narrative on reverse side)

MUFON

UFO SIGHTING QUESTIONNAIRE - GENERAL CASES (FORM 1)

FOR MUFON USE

TEMPERATURE: _____ WIND DIRECTION: _____ WIND SPEED: _____ VISIBILITY: unltd. CEILING: unltd.

EDUCATION: 2½ yrs. College DEGREE: No MAJOR: TV prod. SPECIAL TRAINING: computer animation VISION: 20/25 COLORBLIND? (N) EYEGLASSES? (N) HEARING: GOOD? (✓) FAIR? ( ) POOR? ( ) USE AID? ( ) HEALTH: DURING SIGHTING? good AFTER? good

WITNESS' NAME: Vince Backeberg AGE: 43 STREET: 15715 S.E Division TOWN/CITY: Portland OR PHONE: 503 762 0776 PROVINCE: Oregon COUNTRY: USA OCCUPATION: 3D graphics animator EMPLOYED BY: Self

ENVIRONMENTAL SITUATION (Check/Fill In As Applicable)

VIEWED FROM: OUTDOORS( ) INDOORS( ) CAR(✓) AIRCRAFT( ) BOAT( ) OTHER _____

VIEWED THROUGH: (GLASSES( ) WINDOW(Auto-windshield) SCREEN( ) BINOCULARS( ) TELESCOPE( ) STILL CAMERA( )
(MOVIE CAMERA( ) THEODOLITE( ) RADAR( ) OTHER _____

AREA/LOCATION: CITY(✓) SUBURBAN(✓) RURAL( ) INDUSTRIAL( ) COMMERCIAL( ) RESIDENTIAL( )

AREA/TERRAIN: FIELDS( ) WOODS( ) HILLS( ) MOUNTAINS( ) RIVER( ) POND( ) LAKE( )

AREA/TECHNICAL: AIRPORT( ) POWERLINES(✓) POWER STATION( ) RAILROAD TRACKS( ) OTHER _____

SKY CONDITION: CLEAR(✓) PARTLY CLOUDY( ) OVERCAST( ) FOGGY( ) HEAVY( ) MEDIUM( ) LIGHT( )

PRECIPITATION: NONE(✓) RAIN( ) FOG( ) SLEET( ) SNOW( ) HEAVY( ) MEDIUM( ) LIGHT( )

UFO DIRECTION: FIRST SEEN IN West LAST SEEN IN N.W - IT MOVED FROM _____ TO _____

UFO ELEVATION: (FIRST SEEN - 1/4( ) 1/2( ) 3/4( ) OF THE WAY UP HORIZON; OVERHEAD( ) OTHER _____ (25°-30°)
(LAST SEEN - 1/4(✓) 1/2( ) 3/4( ) OF THE WAY UP HORIZON; OVERHEAD( ) OTHER _____ (45°-50°)

UFO DISTANCE: WHEN CLOSEST TO ME _____ UFO ALTITUDE: WHEN CLOSEST TO THE GROUND _____

UFO PASSED: (IN-FRONT-OF _____ WHICH WAS _____ IN DISTANCE FROM THE WITNESS
(BEHIND Trees WHICH WAS _____ IN DISTANCE FROM THE WITNESS

ALSO IN AREA: AIRPLANE( ) HELICOPTER( ) BALLOON( ) SEARCHLIGHT( ) OTHER _____
None Noticed
BEFORE WITNESS SIGHTED UFO( ) DURING UFO SIGHTING( ) AFTER UFO SIGHTING( )

OBJECT DESCRIPTION (Check/Fill In As Applicable)

OBSERVED: (AN OBJECT (✓) NUMBER OF 1 SHAPE OF Triangle COLOR(s) Dark gray?
(A LIGHT (✓) NUMBER OF 3 on object SHAPE OF round, brilliant COLOR(s) white + red

DESCRIBE: SOUND None SMELL None SPEED hover to 100 or 100 mph.

REAL SIZE: (LARGER ( ) SMALLER ( ) SAME SIZE ( ) AS THE OBJECT LISTED BELOW est. med.-large Aircraft
(BASKETBALL ( ) COMPACT CAR ( ) STANDARD CAR ( ) HOUSE ( ) OTHER

APPARENT SIZE: (HOW MANY TIMES LARGER ( ) OR SMALLER ( ) IF PUT IN THE SKY BESIDE OBJECT BELOW?
(2 to 2.5 m. at arms length
(~~TIMES THE SIZE~~ OF A STAR _____ TIMES THE SIZE OF A FULL MOON

BRIGHT AS: A STAR ( ) THE MOON ( ) OR A high-beam headlights LIGHT IF PLACED AT SAME DISTANCE AWAY

DID THE OBJECT(s) OR LIGHT(s): (Please elaborate on items checked below by using a separate sheet)

CHANGE DIRECTION?	(Y)	HOVER?	(Y)	AFFECT RADIO/TV?	(N)	FLUTTER?	NO
TURN ABRUPTLY?	(NO)	DESCEND?	(NO)	AFFECT ELECTRICITY?	(NO)	SPIN?	NO
FALL LIKE A LEAF?	(NO)	ASCEND?	(NO)	AFFECT MAGNETISM?	(NO)	BLINK?	NO
ABSORB OBJECT(s)?	(N)	OVER POWERLINES?	(?)	AFFECT TIMEPIECE?	(N)	PULSATE?	Red light blinking
EJECT OBJECT(s)?	(N)	OVER A BUILDING?	(Y) homes	AFFECT ENGINE?	(N)	APPEAR SOLID?	(Y)
CHANGE SHAPE?	(N)	LAND ON GROUND?	(N)	AFFECT VEHICLE?	(N)	HAVE FUZZY EDGES?	(N)
CAST SHADOW?	(NO)	LAND IN WATER?	(N)	AFFECT ANIMAL?	(N)	HAVE OUTLINE?	(Y)
CAST LIGHT?	(?)	CARRY OCCUPANTS?	(N)	AFFECT HUMAN?	? ( )	WOBBLE?	(N)
REFLECT LIGHT?	(?)	COMMUNICATE?	(N)	AFFECT WATER?	(N)	VIBRATE?	(N)
LEAVE A TRAIL?	(N)	GIVE OFF HEAT?	(N)	AFFECT GROUND?	(N)	GLOW?	(N)
DISINTEGRATE?	(N)	LEAVE RESIDUE?	(N)	AFFECT VEGETATION?	(N)	APPEAR TRANSPARENT?	(N)

HOW MANY OTHER WITNESSES? 5 DID ANY OTHER AGENCY CONTACT YOU? Yes See Full Report

PLEASE PROVIDE THE NAMES/ADDRESSES/PHONE NUMBERS OF OTHER WITNESSES AND/OR INVESTIGATORS OR AGENCIES ON SEPARATE SHEET IF APPLICABLE AND KNOWN.

Unknown

Vincent C Backeberg
SIGNATURE OF OBSERVER

YOU MAY (✓) MAY NOT ( ) USE MY NAME

DATE THIS FORM SIGNED 09 (DAY) 09 (MONTH) 2003 (YEAR)

MUFON

UFO SIGHTING QUESTIONNAIRE - GENERAL CASES (FORM 1)

PLEASE COMPLETE THIS FORM (Print) AND RETURN TO INVESTIGATOR (For MUFON Use)

NAME OF INVESTIGATOR: Tom Bowden

STREET ADDRESS: 1975 S.W. Myers Pl. PHONE: A/C 503, 618-7019

TOWN/CITY: Gresham STATE: OR ZIP CODE: 97080 COUNTRY: USA

PLACE OF SIGHTING

OREGON (STATE/PROVINCE) Multnomah (COUNTY) Gresham (CITY/TOWN) USA (COUNTRY)

DRAW A SIMPLE SKETCH OF THE OBJECT. (Label any lights, colors, protrusions)

See attached

(On a separate sheet, please sketch a simple map of the area showing your position and the object's position. Include an arrow denoting the direction of North. Indicate direction that the object was moving.)

SIGHTING TIME

10:30? PM (✓) AM ( ) ZONE: PDT

DURATION: 8 SEC (✓) MIN ( ) HRS ( )

DATE OF SIGHTING

29 (DAY) Aug (MONTH) 2003 (YEAR)

PERSONAL ACCOUNT

PLEASE DESCRIBE THE INCIDENT AS IT HAPPENED. BE SURE THAT YOUR NARRATIVE INCLUDES THE FOLLOWING:

1. WHERE WERE YOU AND WHAT WERE YOU DOING AT THE TIME?
2. WHAT MADE YOU FIRST NOTICE THE OBJECT?
3. WHAT DID YOU THINK THE OBJECT WAS WHEN YOU FIRST NOTICED IT?
4. DESCRIBE YOUR REACTIONS AND ACTIONS, DURING AND AFTER SIGHTING THE OBJECT.
5. DESCRIBE THE OBJECT AND ITS ACTIONS.
6. HOW DID YOU LOSE SIGHT OF THE OBJECT?

Witness was outdoors smoking and talking to Fawn (sister), Facing Northeast. Noticed lights partly behind trees. Object was moving slowly from behind trees. One triangular shape with 3 bright white light. After 3 or 4 seconds of hovering ~~it seemed to vanish~~ it seemed to Vanish.

Came indoors at 10:45

MUFON

UFO SIGHTING QUESTIONNAIRE - GENERAL CASES (FORM 1)

FOR MUFON USE

TEMPERATURE: 60-70
WIND DIRECTION: None
WIND SPEED: Lt. → None
VISIBILITY: clear
CEILING: unlimited

EDUCATION: High School + c.c. classes
DEGREE: H.S. MAJOR:
SPECIAL TRAINING:
VISION: COLORBLIND? ( ) EYEGLASSES? (X)
HEARING: GOOD? ( ) FAIR? (X) POOR? ( ) USE AID? ( )
HEALTH: DURING SIGHTING? AFTER?

WITNESS' NAME: LaShelle Haider AGE: 52
STREET: 1582 N.W. 1st St. PHONE: 761-4078
TOWN/CITY: Gresham
PROVINCE: OR COUNTRY: USA
OCCUPATION: Unemployed Legal Secty
EMPLOYED BY:

ENVIRONMENTAL SITUATION (Check/Fill In As Applicable)

VIEWED FROM: OUTDOORS(X) INDOORS( ) CAR( ) AIRCRAFT( ) BOAT( ) OTHER____

VIEWED THROUGH: (GLASSES(X) WINDOW( ) SCREEN( ) BINOCULARS( ) TELESCOPE( ) STILL CAMERA( )
(MOVIE CAMERA( ) THEODOLITE( ) RADAR( ) OTHER____

AREA/LOCATION: CITY( ) SUBURBAN(X) RURAL( ) INDUSTRIAL( ) COMMERCIAL( ) RESIDENTIAL( )

AREA/TERRAIN: FIELDS( ) WOODS( ) HILLS( ) MOUNTAINS( ) RIVER( ) POND( ) LAKE( )

AREA/TECHNICAL: AIRPORT( ) POWERLINES(X) POWER STATION( ) RAILROAD TRACKS( ) OTHER____

SKY CONDITION: CLEAR(X) PARTLY CLOUDY( ) OVERCAST( ) FOGGY( ) HEAVY( ) MEDIUM( ) LIGHT( )

PRECIPITATION: NONE(X) RAIN( ) FOG( ) SLEET( ) SNOW( ) HEAVY( ) MEDIUM( ) LIGHT( )

UFO DIRECTION: FIRST SEEN IN ____ LAST SEEN IN ____ IT MOVED FROM ____ TO ____

UFO ELEVATION: (FIRST SEEN - 1/4( ) 1/2( ) 3/4( ) OF THE WAY UP HORIZON; OVERHEAD( ) OTHER____
(LAST SEEN - 1/4( ) 1/2( ) 3/4( ) OF THE WAY UP HORIZON; OVERHEAD( ) OTHER____

UFO DISTANCE: WHEN CLOSEST TO ME____ UFO ALTITUDE: WHEN CLOSEST TO THE GROUND____

UFO PASSED: (IN-FRONT-OF____ WHICH WAS ____ IN DISTANCE FROM THE WITNESS
(BEHIND____ WHICH WAS ____ IN DISTANCE FROM THE WITNESS

ALSO IN AREA: AIRPLANE( ) HELICOPTER( ) BALLOON( ) SEARCHLIGHT( ) OTHER____
BEFORE WITNESS SIGHTED UFO( ) DURING UFO SIGHTING( ) AFTER UFO SIGHTING( )

OBJECT DESCRIPTION (Check/Fill In As Applicable)

OBSERVED: (AN OBJECT (X) NUMBER OF 1 SHAPE OF Triangle COLOR(s)____
(A LIGHT (X) NUMBER OF 3 SHAPE OF round COLOR(s) white

DESCRIBE: SOUND None SMELL None SPEED undetermine

REAL SIZE: (LARGER ( ) SMALLER ( ) SAME SIZE (X) AS THE OBJECT LISTED BELOW
(BASKETBALL ( ) COMPACT CAR ( ) STANDARD CAR ( ) HOUSE ( ) OTHER Med. Aircraft

APPARENT SIZE: (HOW MANY TIMES LARGER ( ) OR SMALLER ( ) IF PUT IN THE SKY BESIDE OBJECT BELOW?
(____ TIMES THE SIZE OF A STAR ____ TIMES THE SIZE OF A FULL MOON

BRIGHT AS: A STAR ( ) THE MOON (X) OR A surgeon's LIGHT IF PLACED AT SAME DISTANCE AWAY

DID THE OBJECT(s) OR LIGHT(s): (Please elaborate on items checked below by using a separate sheet)

CHANGE DIRECTION?	( )	HOVER?	Y (X)	AFFECT RADIO/TV?	(N)	FLUTTER?	(N)
TURN ABRUPTLY?	(N)	DESCEND?	(N)	AFFECT ELECTRICITY?	(N)	SPIN?	(N)
FALL LIKE A LEAF?	(N)	ASCEND?	(N)	AFFECT MAGNETISM?	Note	BLINK?	(N)
ABSORB OBJECT(s)?	(N)	OVER POWERLINES?	(Y)	AFFECT TIMEPIECE?	clock stopped	PULSATE?	(N)
EJECT OBJECT(s)?	(N)	OVER A BUILDING?	(Y)	AFFECT ENGINE?	(N)	APPEAR SOLID?	(Y)
CHANGE SHAPE?	(N)	LAND ON GROUND?	(N)	AFFECT VEHICLE?	(N)	HAVE FUZZY EDGES?	(N)
CAST SHADOW?	Y	LAND IN WATER?	(N)	AFFECT ANIMAL?	Neighbor's dog? ( )	HAVE OUTLINE?	(Y)
CAST LIGHT?	(Y)	CARRY OCCUPANTS?	(N)	AFFECT HUMAN?	(N)	WOBBLE?	(N)
REFLECT LIGHT?	(N)	COMMUNICATE?	(N)	AFFECT WATER?	(N)	VIBRATE?	(N)
LEAVE A TRAIL?	(N)	GIVE OFF HEAT?	(N)	AFFECT GROUND?	(N)	GLOW?	(Y)
DISINTEGRATE?	(N)	LEAVE RESIDUE?	(N)	AFFECT VEGETATION?	(N)	APPEAR TRANSPARENT?	(N)

HOW MANY OTHER WITNESSES? 1 DID ANY OTHER AGENCY CONTACT YOU? No

PLEASE PROVIDE THE NAMES/ADDRESSES/PHONE NUMBERS OF OTHER WITNESSES AND/OR INVESTIGATORS OR AGENCIES ON SEPARATE SHEET IF APPLICABLE AND KNOWN.

LaShelle Haider
SIGNATURE OF OBSERVER

YOU MAY (X) MAY NOT ( ) USE MY NAME

DATE THIS FORM SIGNED 29 SEPT. 2003
DAY MONTH YEAR

Figure 1B

Exhibit C

NUFORC Home Page
Web Report Indexes : by Event Date | by Location | by Shape | by Posting Date

National UFO Reporting Center

Sighting Report

Occurred : 8/29/2003 22:30 (Entered as : 08/29/03 22:30-37)
Reported: 8/31/2003 11:55:11 AM 11:55
Posted: 9/4/2003
Location: Portland, OR
Shape: Triangle
Duration:7 minutes

Silent Triangle over Gresham/Portland Oregon remains motionless over hill then rapidly accellerates away.

On August 29, 2003 at 10:30 PM I was traveling east to west on SE Division St. in Gresham Oregon, towards Portland. The sky was clear and cloudless At the corner of Hogan and Division I noticed an unusually bright light to the west. At first I thought it might be an airplane, but it was not traveling on a flight path that would have taken it to or from the Portland International Airport.

Continuing on Division St. I noted that the light had not moved, and what I first took for a plane was actually stationary. I could now see that in addition to the bright white light, a smaller blinking red light was visible parallel to the white light. Was it a helicopter hovering? I live about three miles from where this light was and am familiar with the area, and I knew that there was no antennae tower of any kind on this hill that would account for a stationary light.

On August 29, 2003 at 10:30 PM I was traveling east to west on SE Division St. in Gresham Oregon, towards Portland. At the corner of Hogan and Division I noticed an unusually bright light to the west. At first I thought it might be an airplane, but it was not traveling on a flight path that would have taken it to or from the Portland International Airport.

Continuing on Division St. I noted that the light had not moved, and what I first took for a plane was actually stationary. I could now see that in addition to the bright white light, a smaller blinking red light was visible parallel to the white light. Was it a helicopter hovering? I live about three miles from where this light was and am familiar with the area, and I knew that there was no antennae tower of any kind on this hill that would account for a stationary light.

The closer I got to the light I could definitely tell it was not moving at all. I decided to find the first turn to the left (south) to see how close I could get. I had my digital camera with me and it was my intention to photograph. I turned from Division onto NW Angeline St. (southbound) The street was lined with many tall fir trees and I could still see the light intermittently through the trees. Hoping to hear if what I was seeing was just a hovering helicopter, I turned off the radio and fan, and rolled down all of the car windows. I contiuned south on Angeline until I came to NW 5th where I then turned left (east).

Now I had a very clear view of the object. I could now see that it was triangular in shape with two bright lights on two of the corners and the red light was on the third corner. Luckily I wasn't the only one.to see this thing.

Two men who were standing on the left side of the street (NW 5th) were looking up at the object. Further down the street, a car was slowly moving toward the object with the driver looking up towards the triangle. Two girls, who were running down the street behind the car, were also looking up and pointing.

With the windows rolled down, I tried to hear what, if any sound the object was making. It was absolutely silent. Over the years I have seen Police, News, and Rescue helicopters flying all over the Portland area. If this were a helicopter hovering over a quiet residential neighborhood it would have been terrifically loud at its altitude. The most striking thing besides the silence, was the incredible stability of the object. It sat so still you would think it was affixed to the top of a tower. Helicopters hovering have a bit of wobble and drift, however slight. This was rock solid. I can't stress this point enough.

I have seen pictures of the Phoenix lights, the Belgium Triangle, Lubbock lights, etc, and this was very similar. While it was not possible from my point of view to discern surface details, it appeared to be very large (fifty to one hundred feet or more across) and an equilateral triangle. Since I was looking up at the object, it was not

possible to estimate the height or thickness of the triangle.

As I moved further east on NW 5th, the triangle suddenly started to move. It may have been a reaction to so many people all moving towards it at once. But it may have been a coincidence. It pivoted on its center to face to the Northeast. As is turned it began to accelerate. Again, it was absolutely silent. And what was the most striking was the weirdly perfect precision of the turn. Not like a helicopter that will wobble slightly while turning, then tilt forward to accelerate. This move reminded me of the too precise way a computer simulation can be. (If done wrong) In film and television computer animation, an animator will intentionally add small bumps, tilts, or wobbles to make the animation seem more "real" or lifelike. This thing turned and began moving in one smooth perfect motion. If an animator produced a motion like this, it would be rejected as too smooth and fake looking.

I tried to follow it by taking the next available left turn (onto Towle Rd) and continued north. The street was lined with fir trees and it was rapidly moving to the NE making it difficult to see. Towle road has numerous speed bumps, so it was not possible to keep up. As I reached Division St. (the street I was originally travelling on when I first sighted the object) I could see two bright white lights of the back of the triangle. The red light was no longer visible, so I assumed it was either off, or that it was on the corner pointed away from me. (Was it the 'front'?) I turned left on Division St. and was now traveling east to west again. As there are houses and trees along this part of Division it was difficult to keep track of the triangle. As I approached the intersection of Birdsdale and Division I could see that it was now what appeared to be two to four miles away moving faster to the NE. If it continued in that direction it would have come very close to Portland International Airport and the Air National Guard. Within a few seconds it was gone from sight. It was now 10:37.

I am certain it was not a plane or helicopter. The complete lack of any sound would rule those out as possibilities. A Harrier Jet might be able to stay relatively still and then accelerate something like this did, but not stay completely motionless. Plus the Harrier is quite loud hovering.

Was it a blimp or some sort of balloon? Even blimps and balloons hovering make some movement. This was sitting rock steady in one spot. And the speed at which it accelerated would have required some sort of jet or prop engine. This was silent. Absolutely, completely silent.

((FOLLOW-UP COMMUNICATION FROM WITNESS))

Peter,

Feel free to pass my report along to ((investigator)). ((Name #2 deleted)) was correct, I am working on a graphic as well as computer animation of my sighting.

My background is in animation. I started professionally as a "claymator" at ((name deleted)) Studios in the late 80's. They were best known for the California Raisins. I went on to computer animation and have worked on a variety of pc games and cartoons.

A few years back I did some graphics work for ((Name #2)). If you wish you can see it at:

((URL deleted))

At the time I built that particular 3D computer model, I didn't realize from where ((Name #2 deleted)) got the drawings. (he provided me with .jpg's of some sketches) Originally I was making something a bit different, but still in keeping with the eyewitness accounts. That image had been online for a number of years when ((Name #3 deleted)) happened upon it and was quite upset at the time. But I explained how I arrived at that design and had not in fact seen the model kit until afterwards. He was very understanding and I posted the appropriate credit to him.

I also made a FLASH interactive guide to famous UFO cases for ((name #2 deleted)). It is posted at:

((URL deleted))

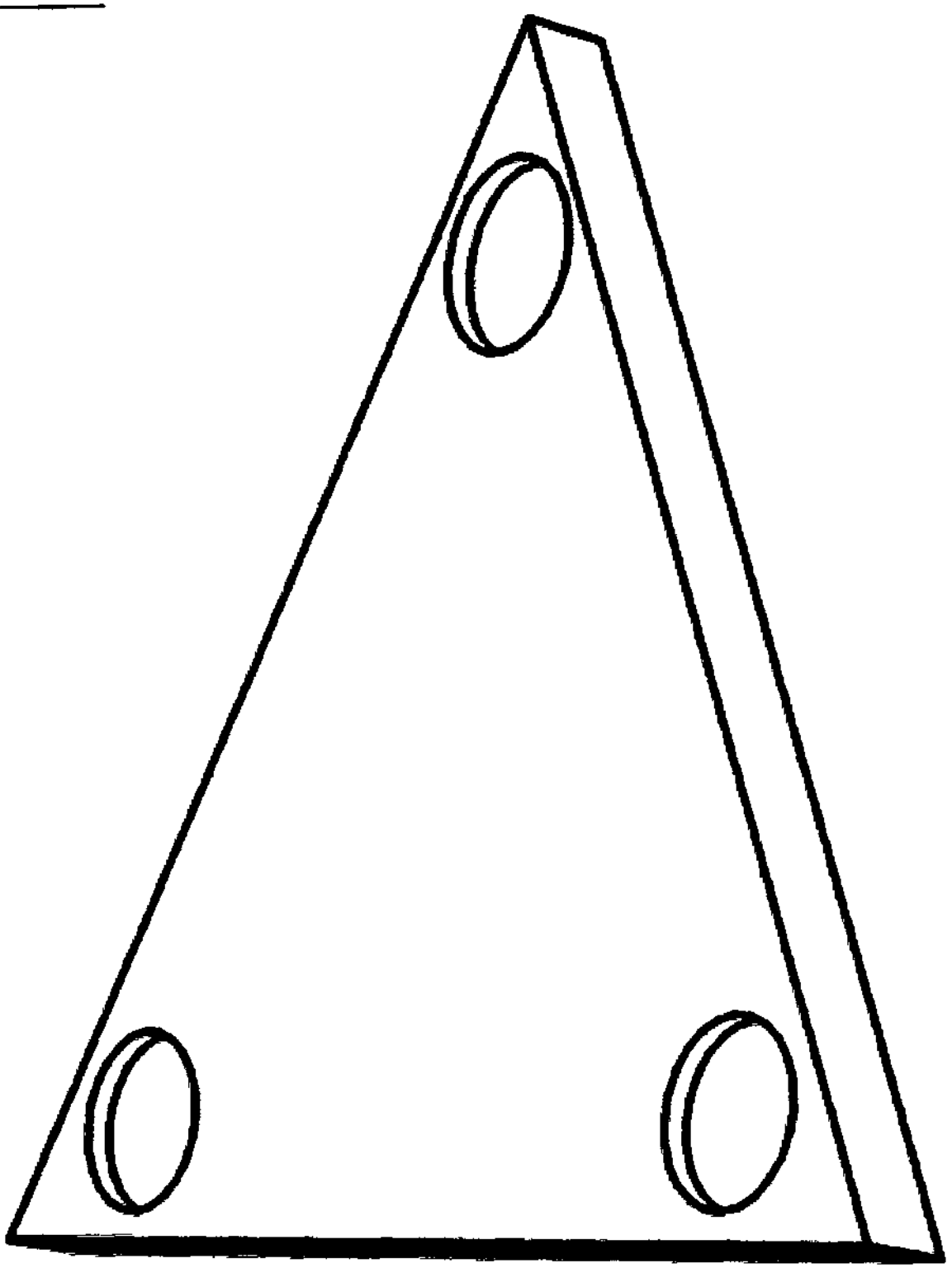
Thanks for you time. I will let you know when I have finished the graphics of my sighting.

((name deleted))

((end of communication))

((END COMMUNICATION))

Exhibit D.



Witness #1 Computer graphic rendering

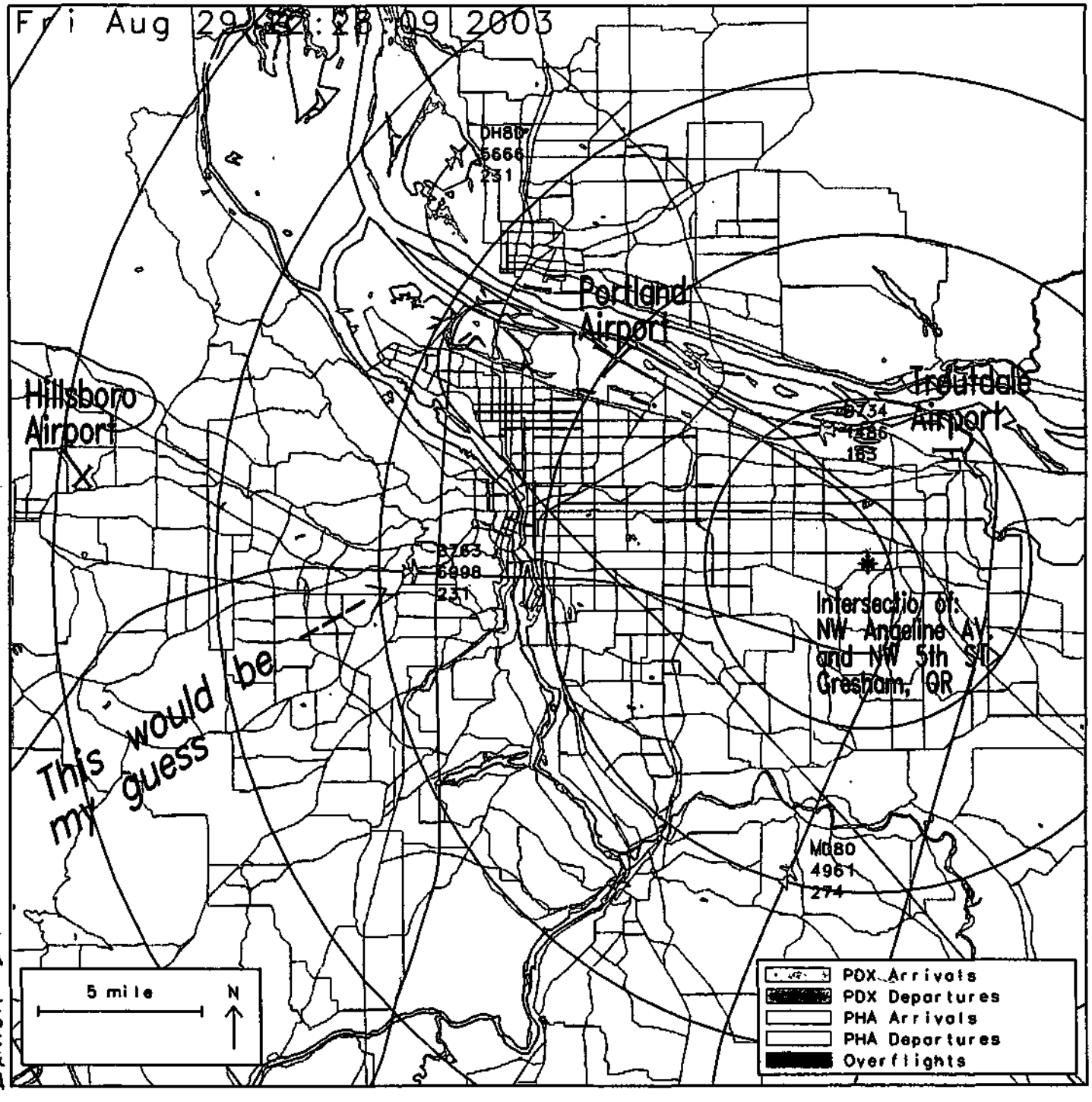


Exhibit E.

PORT OF PORTLAND

August 29, 2003
Between 22:30-22:40

All aircraft operations over the Gresham area between 10:30 and 10:40 PM.

*The circles are 5 miles apart.

Jerry Gerspach
503.460.4072

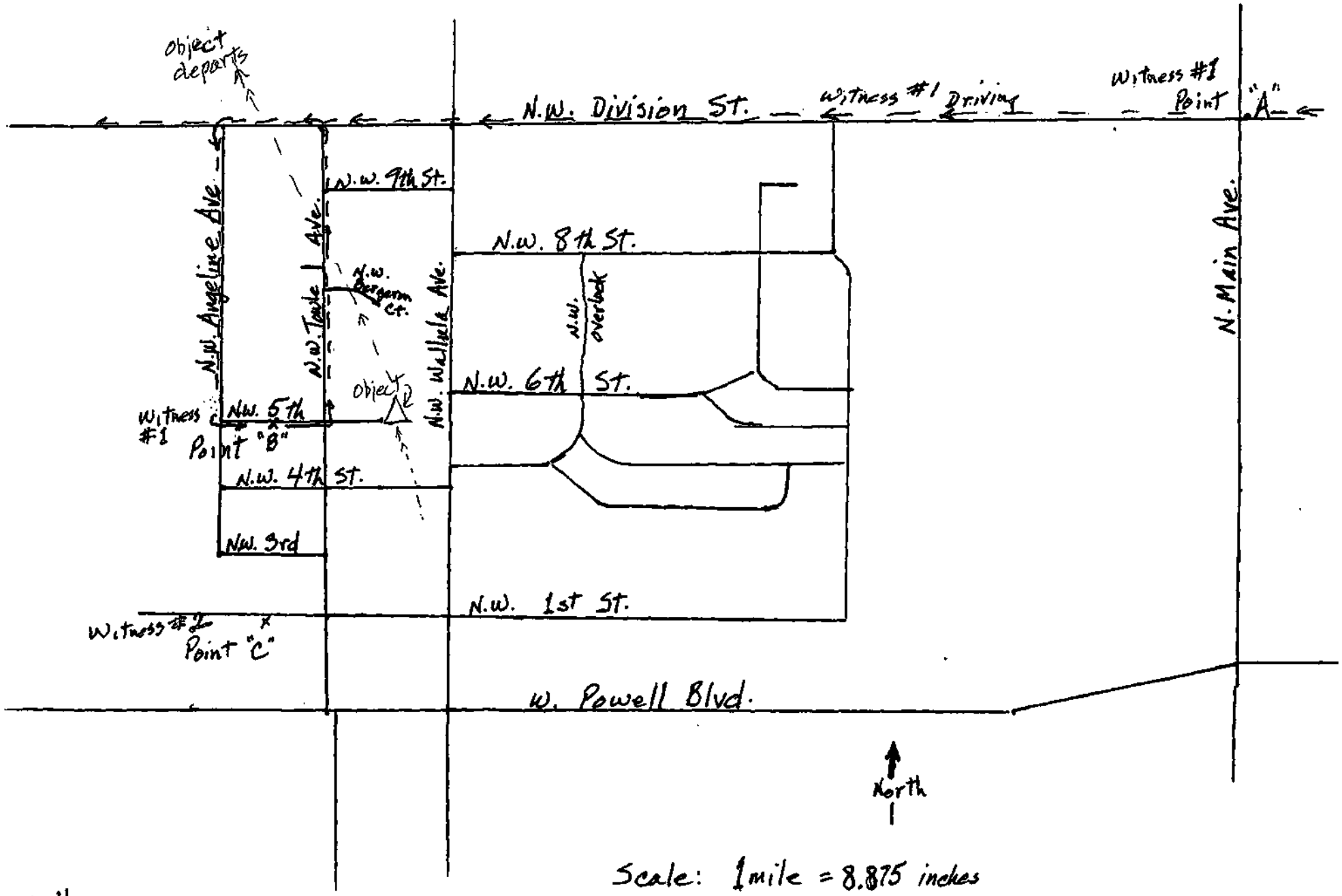
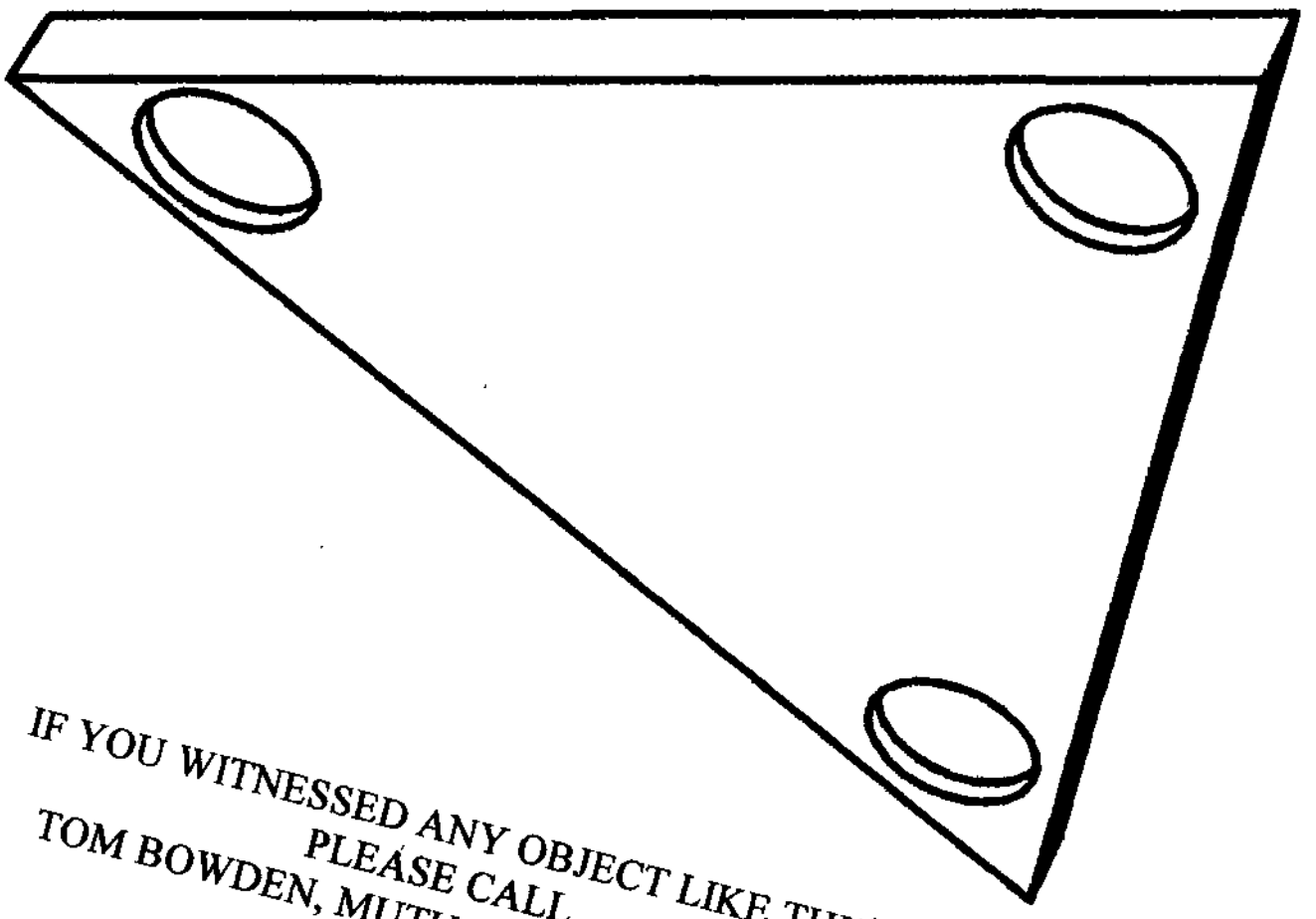

object departs
N.W. Division St.
Witness #1 Driving
Witness #1 Point "A"
N.W. Angeline Ave.
N.W. 9th St.
N.W. Taylor Ave.
N.W. Bergers Ct.
N.W. 8th St.
N.W. Overlook
N.W. Wallula Ave.
N. Main Ave.
object
N.W. 6th St.
Witness #1
NW. 5th
Point "B"
N.W. 4th St.
NW. 3rd
N.W. 1st St.
Witness #2
Point "C"
W. Powell Blvd.
North
Scale: 1 mile = 8.875 inches

Exhibit F.

Exhibit G

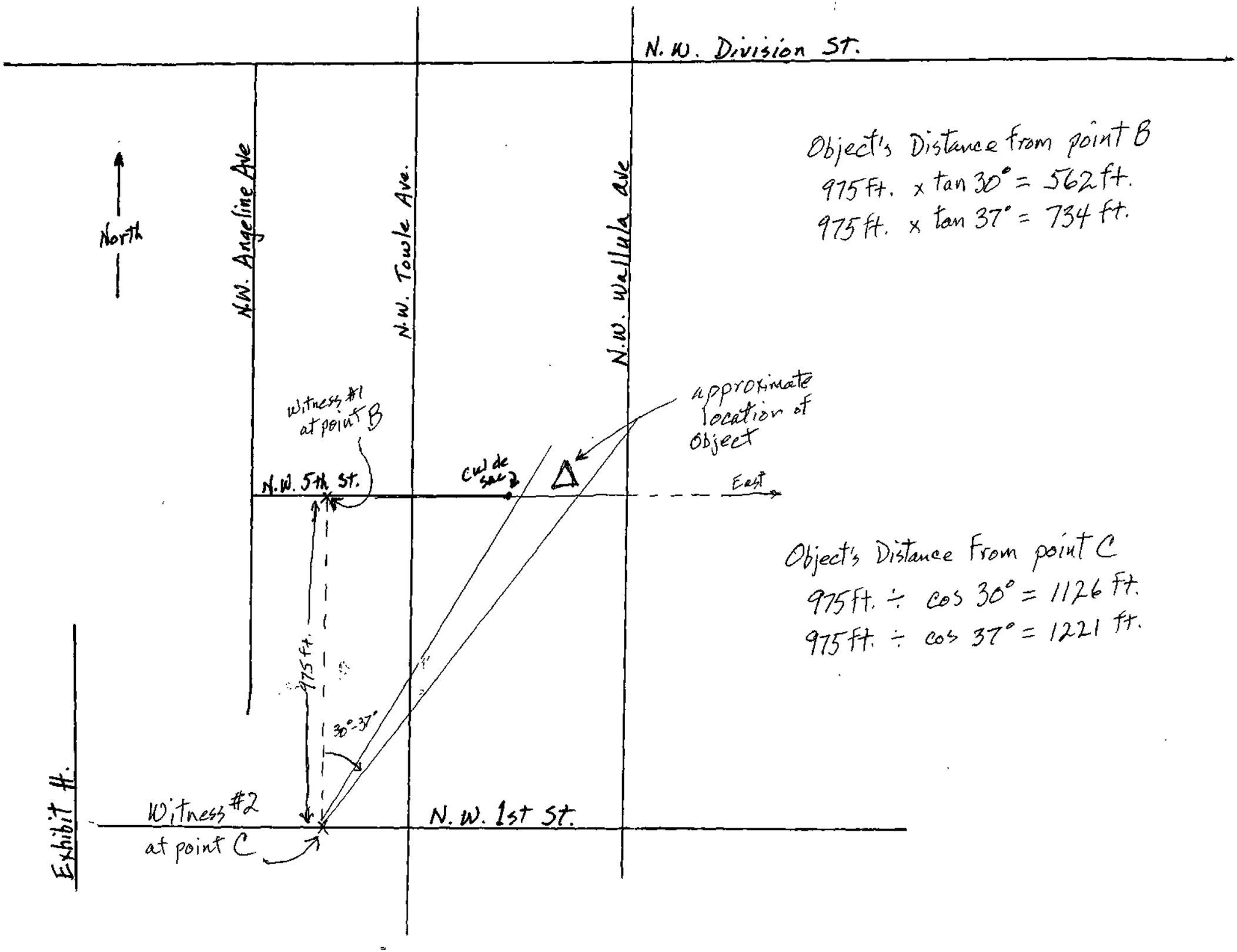
WANTED

INFORMATION ABOUT AN UNUSUAL FLYING CRAFT
NOT A NORMAL AIRCRAFT
SEEN AUGUST 29, 2003, ABOUT 10:30 P.M.
IN THE VICINITY OF
NW TOWLE AVENUE AND NW FIFTH STREET.



IF YOU WITNESSED ANY OBJECT LIKE THIS
PLEASE CALL
TOM BOWDEN, MUTUAL UFO NETWORK
(503) 618-7029

MUFON
Mutual UFO Network



Object's Distance from point B

975 ft. x tan 30° = 562 ft.

975 ft. x tan 37° = 734 ft.

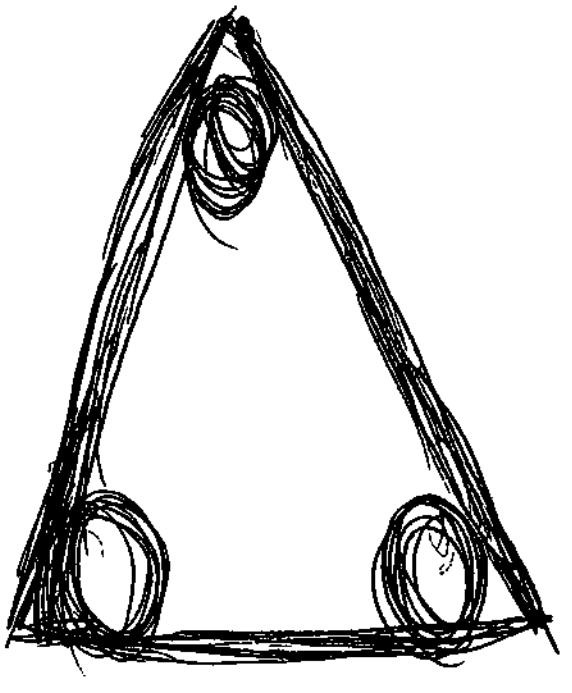
Object's Distance From point C

975 ft. ÷ cos 30° = 1126 ft.

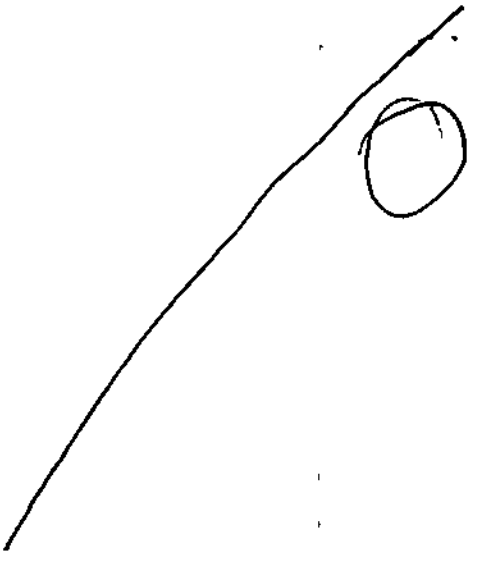
975 ft. ÷ cos 37° = 1221 ft.

Exhibit K.

Top



Witness #2 drawing



verizon my verizon online

Print E-Mail

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From: "v3d" <v3d@comcast.net> Block Sender | Block Domain
Date: 2004/06/30 Wed PM 12:08:37 CDT
To: "Tom Bowden" <tomr.bowden@verizon.net>
Subject: final report

Tom,

I read through the report and I only have a couple of points.

As we discussed before, while I didn't have the object in view 100% of the time, I am sure I was seeing the same object, even when accounting for the few seconds I lost it behind trees. I was very focused on the object, and noted how when I was sure it wasn't a plane, my second thought was maybe is was a tower with a light on it as it was so completely motionless.

I only conceded that it was within the realm of possibility that it 'might' be an airplane since it was near the flight path of PDX. However, that's not to say I believe(d) it was a plane. Unfortunately, Eric seized upon that concession to come to his conclusion.

Another point would be the very rapid speed at which it accelerated to the northwest. It was gone in a matter of a few seconds and if you see planes on final approach to PDX from that location, they take several minutes. This might sound like nit picking, but I would characterize the objects departure as more of a steady and rapid acceleration than "glided rapidly off". It might be a distinction without a difference, but 'glided' doesn't seem quite right.

As to why I didn't notice any of the other aircraft in the sky is really not to hard to explain. It was such an unusual sight that it was what I was focused on. And since I had a camera with me, what I was intent on photographing the object. If someone saw, say a bald Eagle flying through their residential neighborhood (a rare and unusual sight) they probably wouldn't notice they usual crows, robins or bluejays that they can see every day.

The last point I'd like to see "on the record" is the Eric came to his conclusion after only talking to one of the witnesses for less than an hour and never once visited the location to see for himself how easy it is to identify the variety of planes that fly over that area. Having been there yourself, you know that you can easily see wings, tail logos, landing gear, etc.

I know we've been over this before, but I feel that since he didn't even do this most basic of research, (i.e, talk to Witness #2 and visit the location of the sighting) his opinion is of little value.

-Vince

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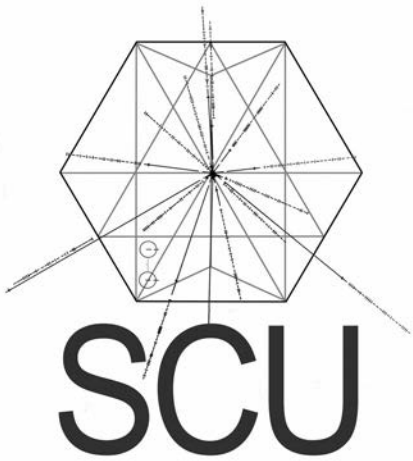
A Forensic Analysis of Navy Carrier Strike Group Eleven's Encounter with an Anomalous Aerial Vehicle



ANALYSIS OF EVIDENCE AND RESULTING CONCLUSIONS

BY THE SCIENTIFIC COALITION FOR UFOLOGY

March 2019

A Forensic Analysis of Navy Carrier Strike Group Eleven's Encounter with an Anomalous Aerial Vehicle

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ABSTRACT

On November 14th of 2004, the U.S. Navy's Carrier Strike Group Eleven (CSG 11), including the USS *Nimitz* nuclear aircraft carrier and the USS *Princeton* missile cruiser, were conducting a training exercise off the coast of southern California when the Navy's radar systems detected as many as 20 anomalous aerial vehicles (AAV). These AAVs were deemed a safety hazard to an upcoming air exercise and the Captain of the USS *Princeton* ordered an interception with two F/A-18F Navy jets. This paper examines the publicly available subset of these data: Eyewitness information from the pilots and radar operators; Freedom of Information Act releases of four navy documents; and a Defense Intelligence Agency released video taken by an F/A-18F jet using an AN/ASQ-228 Advanced Targeting Forward Looking Infrared (ATFLIR). Analytical calculations based on radar notes, testimony from the pilots, and the ATFLIR video are used to derive the velocity, acceleration and estimated power demonstrated by the AAV maneuvers. Calculated AAV accelerations ranged from 40 g-forces to hundreds of g-forces and estimated power based on a weight of one ton ranged from one to nine gigawatts. None of the navy witnesses reported having ever previously seen military or civilian vehicles with these maneuvering abilities. Manned aircraft such as the F-22 and F-35 are limited to nine g-forces[27] and the F-35 has maintained structural integrity up to 13.5 g-forces.[28] Our results suggest that given the available information the AAV's capabilities are beyond any known technology. The public release of all navy records associated with this incident to enable a full, scientific and open investigation is strongly recommended.

1 Introduction

Military reports of aerial objects that appear to be intelligently controlled and with aerodynamic capabilities surpassing any known aircraft are littered throughout our military history beginning with the Second World War. Investigations of these incidents have been initiated by the U.S. Air Force several times, with Project Blue Book (1953-1969) being the most well-known. The conclusions drawn by the Air Force have been that these objects pose no threat to our national security and that any continued study by the Air Force would not promote any increase in scientific knowledge.[1] Nonetheless, military reports of sightings of these objects continues to this day as does the investigation of such incidences by the military.[2]

The event involving CSG 11 is one of several well-documented AAV incidents that include military radar data. One of the earliest well documented incidents involved an Air Force airborne early warning aircraft, an RB-47, in July 1957. The jet was equipped with electronic countermeasures (ECM) gear and manned by six officers. The aircraft was followed for over 700 miles by an intensely luminous light that was seen by the cockpit crew and detected on ECM monitoring gear and by ground-radar.[3] Seven years later in November of 1964 a Navy exercise involving the destroyer USS *Gyatt* off the coast of Puerto Rico detected unknowns on radar for a period of three days. An F-8 jet attempted to intercept the unknown and made both visual and radar contact with a delta shaped craft. The craft accelerated away from the F-8 and was detected by the *Gyatt* radar at speeds up to 1,500 knots. Photographic copies of the Navy radar screen were captured and provided to the Air Force.[4] One of the best documented cases occurred at an ICBM site four years later: Minot AFB, North Dakota, on October 24, 1968. This incident involved 16 Air Force witnesses on the ground and the seven-man crew of a B-52 bomber that witnessed the object from the air. The object was detected on both ground radar and the B-52's radar. Photographs of the radar screens were kept and an extensive interview of all the Air Force officers in the B-52 and enlisted men on the ground was conducted.[4,5] The Air Force Project Blue Book file concluded that perhaps the cause was a combination of the stars Sirius, Vega, and some sort of plasma. Forty years later, on January 8, 2008, the first case with extensive civilian radar coverage from the FAA (Federal Aviation Administration) occurred. Over 20 witnesses saw unidentified lights over a four hour period that covered two counties in north central Texas. The raw digital data from five different radar sites was obtained from the FAA. The information provided showed that the radar detected F-16s on a training mission that night as well as an object in the same location and time as described by the local constable. The constable described an object to the south of his home that was stationary to slow moving and then suddenly moved to the northeast at a very high rate of speed. The radar showed a slow moving object to the south of the constable's home that suddenly accelerated to the northeast at over 1,900 mph.[6] Five years later, on April 25, 2013, in the same area as the 1964 *Gyatt* incident, a Homeland Security patrol aircraft took Infrared (IR) video of an unknown object that approached Puerto Rico from the northwest at night. The object was about four to five feet in length and was traveling just above treetop height during the night at around 80 mph. The strangest portion of the video was when the object entered the ocean with little to no impact, no change in speed, traveled underwater for a few seconds, and upon exiting the water it split into two equally sized objects as the original (Powell et al., 2015).[7]

The event involving Carrier Strike Group Eleven is similar to these other cases because of the existence of electronic data and it involved the military. This case was chosen for analysis because of the quality and number of witnesses involved, the extended period of time the object was sighted over different locations and time periods, the availability of radar data, and the existence of an IR video. This forms the motivation for our report.

2 Supporting Data and Limitations

2.1 Witnesses

The strength of this report lies predominantly in the quality and quantity of military witnesses. There are five primary witnesses, four of whom have been interviewed by our team, twenty secondary witnesses that have made public statements in various forums, and four

anonymous witnesses whose statements support those of the other witnesses. All of the witnesses are service men and women either in the U.S. Navy or the U.S. Marines. Their ranks vary from Junior Seamen to Commanders and Lieutenant Colonels. Audios of the interviews that were conducted by the authors of this report have been made available on the SCU website at: http://www.explorescu.org/. The recordings have been screened for any personal information. Any information taken from interviews made by news people or others are so noted in this paper. Details on all primary witnesses (defined as direct witnesses to the event that have been willing to be interviewed), secondary witnesses (defined as witnesses who have provided information but have not been willing to be interviewed), and anonymous witnesses (defined as witnesses wishing to protect their identity and whose testimony has been cross referenced for accuracy by the authors of this report) can be found in Appendix L.

The testimonies that have been provided are of an event that occurred 14 years ago. It is expected that memories change over time and that witness testimonies will differ. Furthermore, once testimonies become public then they can contaminate other witness's memories of an event. The authors of this report have taken this into consideration by examining when statements were made and have sought to determine the facts that lie in congruence across the memories of multiple witnesses.

The authors weighted the testimony based on experience of the witnesses. The Commander of the F/A-18 squadron and his Lieutenant Commander, both graduates of the U.S. Naval Academy, were considered the most reliable witnesses based on their rank, experience, and their matter-of-fact statements during our interviews and in past testimony. The next most valuable witness was the Senior Chief who was responsible for the radar operators aboard the USS *Princeton*. Appendix L provides the background and qualifications of all the primary witnesses used in this paper.

The authors believe the testimonies and electronic evidence are sufficient to establish that the event occurred and that the object encountered displayed properties unexplainable within our current understanding of physics. It should be noted that although this case has recently been made famous in the public media, much of the research in this paper was conducted prior to the *New York Times* media release of December 17, 2017.

2.2 Freedom of Information Act Requests and Other Documents

A total of 26 Freedom of Information Act (FOIA) requests and appeals were made to the U.S. Navy, U.S. Marines, NORAD, and the Defense Intelligence Agency to obtain information on the event that involved Carrier Strike Group Eleven (CSG 11). Requests were made for radar data, written logs, communication logs, videos, and intelligence reports. The amount of written information received was limited. Not a single government document was received that indicated this event ever occurred although a string of emails was provided that indicated several Marine officers aboard the USS *Nimitz* were aware of the event and an indication that information on the event should be available in Navy archives. The full documents are in Appendix B. Marine Lieutenant Colonel Robert A. Tomlinson stated in an email released by FOIA and redacted by the Navy on March 7, 2017:

> "I am definitely aware of the flying tic tac! We were aboard the USS *Nimitz* attached to CVW-11. The CO of VFA-41, CDR Fravor had the video footage on his ATFLIR and several pilots in VMFA-232 saw the video. I personally did not see the video, but I heard all about it. I believe our CO at the time, Lt Col Kurth

> (retired) observed the tic tac, and I believe Lt Col [redacted], Lt Col [redacted](retired), Lt Col [redacted](retired), and several others also observed the video footage. Another good reference might be current Rear Admiral Dell Bull as he was the VFA-41 Executive Officer at the time.*"*

A deck log for the USS *Nimitz* was received that helped corroborate the location of the exercise as stated by the various witnesses. Detailed information on the specific FOIA requests and the replies received are available in Appendix B.

The other documents referenced in this paper are of two types. One type includes compilations of witness testimonies based on interviews made by the authors from January 2018 to April 2018 and compilations of witness testimonies from interviews made by various media sources from February 2018 to June 2018. The second type are documents that have been used to assist with building a timeline of events. These documents have been cross referenced against each other and against witness testimonies for accuracy of information. In Appendix C each document is supplied and is discussed in relation to its origin and accuracy.

2.3 ATFLIR AN/ASQ-228 Thermal Imaging Camera

A pod mounted, AN/ASQ-228 Advanced Targeting Forward-Looking Infrared (ATFLIR), camera took a 76-second video of an AAV two hours after an AAV was engaged by a separate F/A-18F piloted by Commander (CDR) Fravor. A copy of this video can be viewed at https://www.explorescu.org/papers/nimitz_strike_group_2004. CDR Fravor and LCDR Slaight, commanders of the two jets involved in the engagement, agreed that the object that was filmed two hours after their engagement was the same type of object they had engaged.[8,9] While most technical specifications for the ATFLIR camera are still highly classified, some broad outlines of its capability are available. Publicly available information reveals that the AN/ASQ-228 Advanced Targeting Forward-Looking Infrared (ATFLIR) is a multi-sensor, electro-optical targeting pod incorporating an infrared camera, a low-light television camera, a target laser rangefinder/laser designator, and a laser spot tracker developed and manufactured by Raytheon. It is used to provide navigation and targeting for military aircraft in adverse weather conditions using precision-guided munitions such as laser-guided bombs. More detailed information on this system is available in Appendix D as well as help in reading the outputs on the video display.

2.4 Data Limitations

The limitations in witness testimony and available documents have been discussed in 2.1 and 2.2. The other limitation to analysis is in the available military data. According to the *New York Times* this IR video was released to them by the government.[2] Most of the witnesses have stated that the video released is of lower quality, shorter duration, and some of the information such as latitude and longitude have been removed.[8-12] Detailed information on the provenance of the video is available in Appendix E. Other important data that would have been collected (radar data, electromagnetic (EM) data, and intelligence reports) by the Navy's Carrier Strike Group (CSG) could provide information such as speed, acceleration, manuevers, and size of the AAV. It is believed this information may exist based on military witnesses who have indicated that representatives of a U.S. government agency took control of the data that was on the USS

Princeton. (This is discussed in section 2.5.) FOIA requests to the Navy for this information were met with replies that the information did not exist. Background information on the CSG and its data collection capabilities is detailed in Appendix F.

An exceptional amount of detailed analysis could be done with access to the radar and EM data taken by CSG 11. Unlike conventional radar, the USS *Princeton's* SPY-1 radar system does not rotate to send out radar pulses but instead sends out continuous pulses in all directions and pulses as short as 6.5 microseconds. It consists of a large array of small solid state radiating transmitter/receiver elements that can send EMF waves at different phase delays to focus and direct the radar beam without the traditional mechanical rotation of an antenna. The same elements can then be used as receivers of the reflected signals. This is known as a synthetic aperture phased array radar. With the information this system provides, the exact size, speed and acceleration of the object in question could be determined as well as its maneuverability. With multiple radar frequencies used by the various ship and planes, it might also be possible to identify the materials making up the AAV based on their absorption characteristics in the 3-6 GHz range. There may have also been valuable information that was garnered from any EM emissions detected by CSG 11.

One method to help obtain this information is if there is a sufficient groundswell of public opinion to cause Congress to request release of information from the military and intelligence agencies.

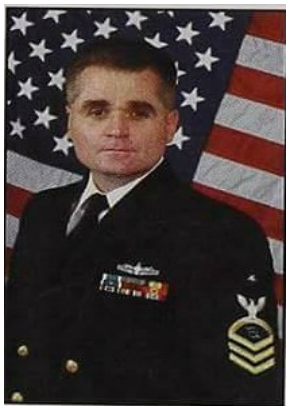
Despite the limitations placed on available information, we have been able to develop a strong case that the F/A-18 engagement that occurred on November 14, 2004 was with an aerial device intelligently controlled, either directly or remotely, and performing maneuvers well beyond the capabilities of any technology in the public domain or in the military witness' experiences.

2.5 Chronological Occurance of Events

We have broken the event into a seven different periods of time and some of those times have multiple witness locations. This section will follow the timeline, with descriptions of the relevant witness(s) and their perspective of the events.

Nov.10-13, 2004: Pre-event Information

The incident analyzed in this paper began on November 10, 2004, and involved Carrier Strike Group Eleven led by the USS *Nimitz*. The strike group was conducting training exercises prior to deployment to the Middle East. The exercises varied in distance from 50-120 miles south-southwest to southwest of San Diego. The assets in the strike group that were known to be involved in the event were the USS *Nimitz*, USS *Princeton*, VMFA-232 (Marine F/A-18C "Hornets"), VFA-41 (Navy F/A-18F "Super Hornets"), and VAW-117 (E-2 Hawkeye early warning aircraft).[10,13]



Senior Chief Kevin Day, USS Princeton Cruise Book, 2003

The key asset in the group was the USS *Princeton* whose role was air defense protection for the strike group. It had the best radar and best situational awareness of all aerial objects and it was the unit that would direct aircraft to a target. Its Captain was James L.T. "Red" Smith.[10,14]

The major event occurred on November 14, but for several days prior to that date AAVs (Anomalous Aerial Vehicles—the Navy's term for a UFO at the time; these terms are often used interchangeably by Navy

personnel) would appear on radar in waves of 8-20 AAVs. There were multiple witnesses to this including the Operations Specialist Senior Chief Kevin Day who was over radar, the Fire Controlman Senior Chief, and the Fire Controlman Petty Officer Gary Voorhis.[10,11,15] The AAVs were first noticed over the Catalina Islands and traveled south at 80,000+ feet at about 100 knots.

The Senior Chief as well as the Fire Controlman Petty Officer, Gary Voorhis, responsible for the CEC (Cooperative Engagement Capability) checked the radar systems for the possibility of false returns. They re-calibrated systems, checked with other vessels and found no indication of errors. The USS *Nimitz* also detected the unknowns as did a E-2 Hawkeye airborne early warning aircraft equipped with the AN/APS-145 radar system.[10,13,15,16] The knowledge of these radar detections of AAVs was prevalent among many of the crew of the USS *Nimitz* and the USS *Princeton*. Despite this, no actions were initially taken as the AAVs did not appear to be a threat.

Petty Officer Gary Voorhis, USS *Princeton Cruise Book, 2003*

<u>November 14, 2004, 11 a.m. to 1 p.m. local time: Decision to Intercept</u>

The late morning of November 14, 2004 consisted of clear skies, no wind, and very calm water in the area of Carrier Strike Group 11.[8,15,18,19] The *Nimitz* Deck Log indicates the ship was located at 31º12.3'N 117º52.2'W at 1130 hours local time. This matches well with the CVW-11 Event Summary document (see Appendix C) that shows the USS *Nimitz* located at 31º29.3'N 117º52.8'W at 1410 hours.[20] The USS *Princeton* was nearby while the USS *Higgins* was docked in San Diego and the USS *Chafee* was 1/3 of the way back on its journey from Pearl Harbor to the Southern California Operating Area.[21,22] The location of the nuclear attack submarine, USS *Louisville*, is not known for the time period of November 10-14.

Sometime in the late morning Senior Chief Day estimated he saw 14 AAVs show up on *Princeton's* SPY-1 radar again. They were the highest track quality rating on the system and were spread out uniformly across about 100 miles.[10] The AAVs were also picked up by the *Nimitz*.[10,16] An airborne early warning aircraft from VAW-117 was able to detect the nearest AAV with their radar once they tightened their radar beam on the coordinates provided by the USS *Princeton*.[10,13,15] All of the radar data from these varied sources were combined by the CEC system and integrated into one picture. The varied radar sources from different locations, different angular lines of transmission, and different operating frequencies made it highly unlikely that the targets being tracked by CSG 11 were atmospheric inversions or other false reflections that might fool a single radar system.

Senior Chief Day was concerned and the following paraphrasing of his testimony explains why. The AAVs, originally at 80,000+ feet, were observed to descend in as little as 0.78 second to various altitudes from 28,000 feet to as low as just 50 feet or less above the ocean surface.[10,11,15] (See Appendix G for estimated speed, acceleration, and g-force calculations.) In only a few hours an air defense exercise was scheduled to commence which would involve the launch of as many as 30 aircraft from the USS *Nimitz* as well as from Marine Corps Air Station Miramar in San Diego. The AAVs, at the very least, would be a hazard to air navigation at these lower altitudes. When Captain Smith came down to the Combat Information Center (CIC), Senior Chief Day briefed him on the radar contacts and recommended that the closest target be intercepted. The Captain agreed and authorized the interception.[10] The USS *Princeton* took

control of the intercepting aircraft from the E-2 Hawkeye since its CEC system provided the best radar track of the AAVs.[10,13,15]

Approximately 2 p.m.: Lt Colonel Douglas Kurth First Jet to Investigate

The time was now roughly 1400 hrs. (This is supported by the *Nimitz* Deck Log which showed planes that departed at 1332 hrs, the CVW-11 Event Summary, and CDR Fravor's own recollection.)[17,20,23] Lt. Colonel Douglas Kurth's F/A-18C "Hornet" had departed the USS *Nimitz* at about 1110 hrs to complete a post-maintenance check flight.[13,17] Although his fuel level was low, he was not far away so his was the first aircraft directed by Operations Specialist Don Oktabinski of the USS *Princeton* to intercept the AAV. Kurth, who was the Commanding Officer of Marine Hornet squadron VMFA-232, was asked a strange question by the *Princeton*. He was asked if he had ordinance on board. He replied, *"*None.*"* He was the first to reach the target displayed on *Princeton's* radar. The exact location of that target is not known for certain but it was within 60 miles of the *Nimitz* and was southwest of the ship. As the Commander neared the radar-vectored location of the AAV, *Princeton* advised him to abort his instructions, as "Super Hornets" from VFA-41 were approaching the target. Kurth's radar picked up the two approaching F/A-18Fs but no other contacts. Before departing Kurth saw a disturbance on the calm and glassy ocean surface. He described it as a circular area that was 50-100 meters in size and had the appearance of "white water" similar to what a sinking ship might create.[13,15]

2:10 p.m. to 2:40 p.m.: CDR David Fravor and LCDR Jim Slaight Encounter the AAV

VFA-41 Squadron Commanding Officer Dave Fravor and Lieutenant Commander Jim Slaight were the "First Cycle" launched at 1332 hours[17] for the air defense exercise conducted in an area spread 80-150 miles SSW of San Diego, California. They were flying F/A-18F "Super Hornets" and their call signs were "FastEagle01" and "FastEagle02." Both planes had a pilot and a Weapons Systems Officer (WSO) aboard. LCDR Slaight, call sign "Clean", was the WSO and his plane was acting as the wingman for CDR Fravor. The wingman was the "mutual support" protector of the lead plane. LCDR Slaight was also one of the department heads within the VFA-41 Squadron at the time of the event. The pilot of Slaight's plane was a junior officer. Both CDR Fravor and LCDR Slaight have kept confidential the names of the other pilots. [8,9,24]

CDR Fravor and his wingman were headed to their Hold Point, also known as their Combat Air Patrol (CAP) coordinates where they would conduct training exercises. The CAP coordinates consist of four predetermined latitude, longitude, altitude points where fighter aircraft station themselves to protect an asset, in this case the Carrier Strike Group. The CAP coordinates were only known to the pilots and those on board ship with a need to know. This understanding of CAP coordinates will become important later in the discussion.[8,9,15,23]

About 30 minutes after takeoff, "FastEagle01" and "FastEagle02" were contacted by the USS *Princeton* and told they were being redirected to a "real world situation;" a radar target that was not part of the exercise. They were ordered to a heading of 270 degrees (due west) at a range of about 60 miles and were given intercept coordinates at 20,000 feet. They proceeded with their APG-73 radar set to an envelope extending 20 miles in all directions.[8] They also received the same question as Commander Kurth. Did they have ordinance on board? They gave a negative response. They only had practice missiles that could not be launched.[8,23,24] (It is not known if this incident caused the air defense exercise to be canceled for the day. David Fravor and Kevin Day indicated that it was, while the leaked Navy Event Document tends to indicate that it was only delayed.)

Approximately 60-80 miles southwest of the Nimitz, the intercept coordinate was achieved and *Princeton* showed they had merged with the target on radar in what is known as a "merge-plot." This is the point in space where two targets are so close together at a given range that the radar system cannot distinguish them from each other.[8,10,24] When asked the distance between two targets that would result in a "merge-plot" Senior Chief Day, responsible for radar, properly declined to give a detailed answer as that could be considered confidential military information. He indicated that it was some value less than a mile.[10] (Based on experience analyzing FAA radar, one of the authors of this report knows that FAA radar cannot distinguish targets at 50-70 miles distance that are separated by less than ½ mile. The SPY-1 radar is far superior to FAA radar. We suspect that the "FastEagles" were within ½ mile of their target when the "merge-plot" occurred on radar.)

Although the *Princeton* indicated that the "FastEagles" were at the same location as the aerial target, nothing was seen on radar by the "FastEagles" so the pilots began to visually scan the area.[8,9] LCDR Slaight indicated that his jet was equipped with APG-73 radar and although he could not detect the target, he stated that he had no indication from his radar that his system was being "electronically jammed."[15,24] The *Princeton* did not detect any jamming either. Senior Chief Day stated that the ship had an electronic warfare sweep operator and that no jamming or any other electronic signals were coming from the AAV. The Chief stated that if the F/A-18Fs were being jammed then the only way the *Princeton* would not have detected the jamming would have been if a narrow beam was directed only against the planes.[10]

Looking down, Fravor and Slaight saw a disturbance in the water. They did not know the cause. Fravor thought possibly a downed aircraft as he estimated that the disturbance might be caused by an object about the size of a 737 (about 120 feet in length) roughly 10-15 feet under the surface of the ocean and causing a disturbance of the calm water above it as the water broke over the object.[8,24] LCDR Slaight thought the disturbance in the water with the frothing and bubbling on the surface might be a submarine but this was later dismissed after determining that there were no submarines in their immediate area at that time. This was verified during LCDR Slaight's debriefing by the ship's Intelligence Officer following his return to the USS *Nimitz*.[24] Details on the ocean surface would have been apparent to the pilots in the two "FastEagles." A 120 ft object at 20,000 ft distance would be 0.34 degrees in size or slightly smaller than a full moon. (See Appendix H for calculations related to angular size, distance, and actual size.) Witness testimonies referring to sonar contacts of any underwater objects were negative with one exception. Petty Officer Gary Voorhis in the CEC indicated that an underwater object was tracked at 500 knots. No additional confirmation confirming sonar contacts has been obtained.[11]

As the "FastEagles" continued to observe the water disturbance from an altitude of 20,000 feet, all four pilots saw an additional anomaly. CDR Fravor described a white "Tic-Tac" shaped object, with perhaps two small appendages hanging below its belly, moving just above the water disturbance. The object had no wings or exhaust and its movement had no observable effect on the calm ocean surface such as that of a rotor wash from a helicopter. CDR Fravor estimated the object to be 50 feet above the water and he described its movement as follows: "It's almost like a ping pong ball. So when it goes right it can stop instantly, and it goes back left, it goes straight forward, it is randomly moving around, very erratic." (See Figure 1.) Fravor's estimate of the object's distance from the water was based on experience and his estimate of the object's size. Using Fravor's estimate of the "Tic-Tac" being the size of his plane, an object 50-60 feet in size at 20,000 ft would take up 0.14 - 0.17 angular degree of sky or about a third the size of the full moon—sufficiently large to visually pick up details. If the object had

been much smaller then it would have been difficult for the pilots to have observed much detail at that altitude. (See Appendix H for calculations related to angular size, distance, and actual size.) It did not need to slow down to make a change in direction; its directional change was instantaneous. Furthermore, the object was moving in a random and erratic motion below him in left, right, forward, and backward directions.[8,15,23,24]

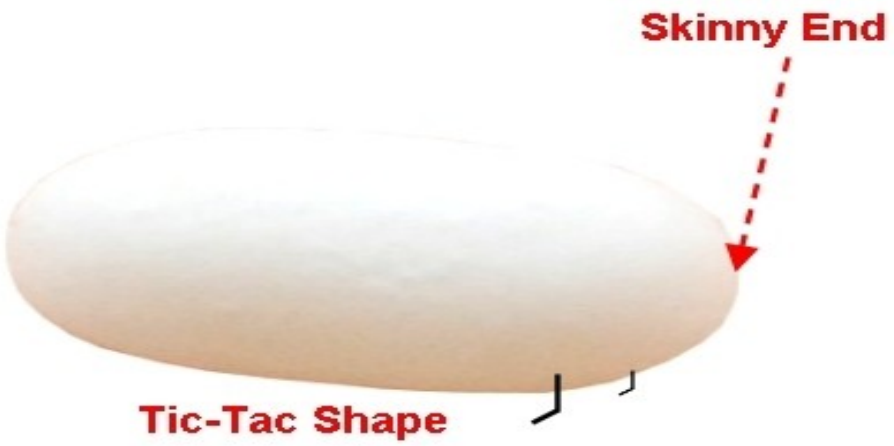


Figure 1: "Tic-Tac" Shape

CDR Fravor decided to descend towards the object to investigate and he informed his WSO in his back seat they were headed down. Fravor dropped to about 12,000 to 16,000 feet.[8,15] His wingman, which included LCDR Slaight as the WSO, remained at 20,000 feet and were able to observe both Fravor's aircraft and the "Tic-Tac" during their engagement.[8,9,15,16,23]

CDR Fravor describes his engagement with the "Tic-Tac" (See Figure 2 on the following page as a visual aid):

> "So we passed through about the twelve o'clock position and we're descending. It [The "Tic-Tac"] kind of recognizes that we're there and it starts to mirror us. [The same thought went through the wingman pilot's mind who stated, 'The UFO turned on them as if it knew or somehow anticipated what they were going to do."[23]] So now, think of it at the six o'clock position, we're at the twelve o'clock position. We're coming down and it starts coming up. So it's going towards nine o'clock and we're going towards three o'clock. And we do this all the way around until I get all the way back towards about the nine o'clock position. So I'm still coming down nice and easy and I'm watching this thing. Because it's just kind of watching us and following. And I'm like, 'That's kind of weird.' So now there's probably about, let me think, 2,500, it's probably about maybe 3,000 feet below us and about a mile across the circle. It's about the size of an F-18. So you know 47 feet long. But it has no wings. I don't see any exhaust plume, you know, like an older airplane would have smoke. There's none of that.

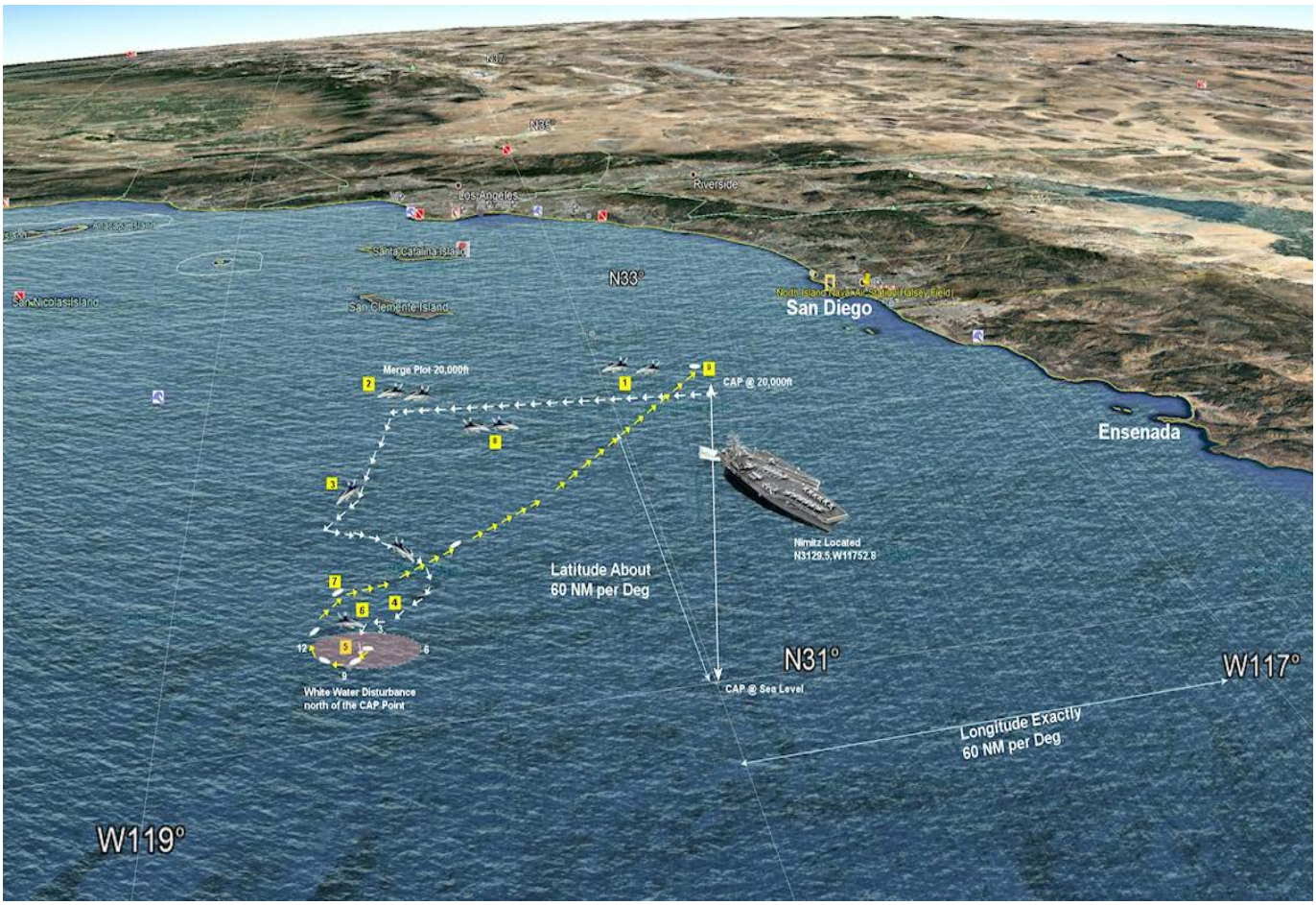


Figure 2: CMD FRAVOR'S ENGAGEMENT WITH THE "TIC-TAC"

1. CDR Fravor and his wingman are somewhere north of the CAP point and are vectored by The USS *Princeton* to go ~60 NM west.
2. At the "merge-plot" Fravor decides to investigate and descends towards the unknown object, while the wingman stays at altitude.
3. As Fravor descends from the twelve to the nine o'clock position moving clockwise, the "Tic-Tac" apparently notices him and starts to move from the center of the white water disturbance and moves clockwise, mirroring his movements.
4. As Fravor descends to the right at the three o'clock position the "Tic-Tac" begins to ascend toward the nine o'clock position.
5. The clockwise movement continues until Fravor again reaches the nine o'clock position and the "Tic-Tac" is heading toward the three o'clock position.
6. Fravor decides to cut across and dive to the three o'clock position for an intercept.
7. The "Tic-Tac" shoots up across Fravor's nose and instantaneously heads south at an inclined angle.
8. Fravor and his wingman no longer see any white water activity and decide to return to the CAP point to complete their exercises.
9. USS *Princeton* notifies Fravor, as they decide to return to the CAP point, that the "Tic-Tac" is there. The "Tic-Tac" has traveled 60 NM in a couple of minutes or less.

> "So as I come across, I'm a little above him. He's at the three o'clock position and I go, 'Well, the only way I might get this is to do an aggressive out-of-play maneuver." So I dump the nose and I go from the nine o'clock through the vertical down, to go across to the three o'clock. So he's over here and I go like this [motions cutting across the circle]. So as I get down to about, I'm probably about 60 degrees nose low a little, pulling through the bottom. It starts to accelerate. It has an incredible rate of acceleration. And it takes off and it goes south. And it takes off like nothing I've ever seen. It literally is one minute it's there and the next minute it's like, poof, and it's gone." [19]

Fravor, to put it in perspective,described how even a jet at Mach 3 can be seen for at least 10-15 seconds before it fades from sight. In CDR Fravor's own words, *"*This thing disappeared in a second; it was just gone.*"*[25] (This sudden acceleration is discussed further in this report and in Appendix I.)

Since the "Tic-Tac" had now departed, CDR Fravor decided to reverse direction and returned to the object that he had seen under the water. Five minutes had gone by during the engagement and the water disturbance was no longer there.

The jets were on their way back to the *Nimitz* when CDR Fravor received a call back from the *Princeton* to tell him that, "You will not believe this but the "Tic-Tac" is back at your CAP.*"*[10,15,16,24] The surprise reaction from the *Princeton* was because the CAP point was a secret coordinate location that was a precise latitude, longitude, and altitude. The strangeness of this observation was later noted by Senior Chief Day when he stated in his interview:

> *"*They [the "Tic-Tac"] shouldn't have known where it was. And that was the bizzareness of it. How the hell did it know where the CAP station was? I mean it was right on it. Directly on it. Not close by, but on it. On that point in space.*"*[10]

The two "FastEagles" returned to the *Nimitz*. Despite Fravor's interest in the "Tic-Tac," he no longer had sufficient fuel to pursue it further.[15,23]

2:10 p.m. to 2:40 p.m.: LCDR Slaight's View of CDR Fravor's Engagement from Above

LCDR Jim Slaight described the object that CDR Fravor engaged. He also recounted that the object resembled a giant "Tic-Tac," 40 to 50 feet long, 10 to 15 feet wide, off-white in color, no audible noise or sound, no markings, fins, vents or exhaust type of ports. Slaight said the object had *"*defined edges*"* but along those defined edges there appeared to be a *"*fuzzy or wavy looking border around the entire surfaces of the object." Around the surface of the object he said, "it looked like what the heat waves would look like coming off a hot paved road or what the carrier deck looked like if you looked across it when in the Gulf in the Mid-East.*"* This was noted on the edges of the entire object. None of LCDR Slaight's jet instrumentation was affected by the encounter.[24]

As CDR Fravor headed down towards the "Tic-Tac," LCDR Slaight observed that the object had now started on a direct path towards CDR Fravor's jet but then changed course and started to circle around the Commander's plane. Before completely circling CDR Fravor's plane, the object then stopped and hovered for a second or two and then darted off horizontally at a

slight upwardly inclined angle. LCDR Slaight's description of the object's ability to suddenly greatly accelerate was similar to CDR Fravor's. In Slaight's own words:

> *"*It was there….then it rifled off, out of sight in a split second. It was as if the object was shot out of a rifle. There was no gradual acceleration or spooling up period, it just shot out of sight immediately. I have never seen anything like it before or since. No human could have withstood that kind of acceleration.*"* [24]
> [See Appendix I for acceleration details.]

LCDR Slaight believes the object was either autonomous in control or was externally controlled. He feels it was under some type of *"*intelligent control.*"* He is not aware of any technology that could maneuver or accelerate in the fashion that this object did on November 14, 2004.[24]

2:10 p.m. to 2:40 p.m.: The *Princeton's* View of CDR Fravor's Engagement

In the modern Navy's Command Information Center the radar information, electronic data, and the voices of the combatants are provided real time over the CIC's speaker system. (The photograph to the right is the *Princeton's* CIC.) While CDR Fravor was engaging the "Tic-Tac," the event was monitored in the USS *Princeton's* CIC as Fravor's Weapons System Officer was broadcasting the real-time events of the intercept to the ship.[10,15] Five radar operators were present on the *Princeton* as the composite radar imagery from all the fleet's ships was displayed. The excitement in the CIC was very high and Senior Chief Day remembers it well. At the time of intercept, *"*Pilots are screaming and everyone on the radio is screaming.*"* He remembered CDR Fravor's comment being, *"*I'm engaged! I'm engaged! Oh, shit!*"* The Senior Chief goes on to indicate that at the time of the interception the other 14 radar targets on the *Princeton's* radar screen began to drop from altitude towards the ocean. This activity caused a lot of consternation in the CIC.

USS *Princeton Command Information Center, 2009. Courtesy of L. Klees.*

Another witness in the CIC was Petty Officer Voorhis. He stated:

> *"*At a certain point there ended up being multiple objects that we were tracking. That was towards the end of the encounter and they all generally zoomed around at ridiculous speeds, and angles, and trajectories and then eventually they all bugged out faster than our radars. We were getting what we call 'spot radar sightings' where it would just catch a glimpse of it as it was moving so it was moving faster than our radar could register. And then they were gone.*"* [11]

The engagement ended as abruptly as it began. The time elapsed was 5-7 minutes from the beginning of the "FastEagle" engagement based on the time of "merge-plot," when the plane and the AAV appeared as one target on radar. Once the engagement ended the two aircraft returned to the *Nimitz* and the radar targets that were near the ocean surface ascended and

returned to their original altitudes of 80,000+ feet in less than a second and began to track together to the south at 100 knots.[10]

In addition to the witnesses in the CIC, the authors have identified 18 of the crew that saw the IR video that was widely circulated via email on the ship during the next 24 hours using the SIPRNet (Secret Internet Protocol Router Network), which provides controlled and classified access to internet communications between ships and aircraft. Four of those crew members have been identified and they have indicated they have seen the IR video. All four crew members have been verified as servicemen aboard the USS *Princeton*. One crew member, Jason Turner, has been interviewed. The other three crew members who watched the video were Joe Wolschon, Chris Guilford, and Karson Kammerzell. Copies of their comments are available in Appendix L.

2:50 p.m. to 3:10 p.m.: Return to the USS *Nimitz*

CDR Fravor's and LCDR Slaight's planes returned to the USS *Nimitz*. The *Nimitz* log showed a landing/departure cycle at 1504 hours that would have included the two FastEagles based on the timeline constructed from testimonies.[15,17] A second pair of aircraft also departed at that time. Neither the identity of the second pair of departing pilots or their mission is known. A third pair of aircraft and their crew were on deck when CDR Fravor landed.[24] The Commander requested that the crew of the third cycle try and take a video of the object using their ATFLIR.[8] This is the pair of aircraft that took the IR video, which is discussed later in this report. The identity of the pilot and the WSO that took the video are known by SCU, but their privacy will be honored and their names not published.

CDR Fravor indicated that once he returned to the *Nimitz* there was a lot of playful "UFO" banter from his colleagues that was done in jest. Fravor took most of this in stride except for a joke played by an intelligence officer who told them that there was going to be a big investigation of the incident. CDR Fravor stated, *"*When I determined that was not true, *we had a little talk."* Fravor's interviews give the impression that he believed the incident had not been taken seriously and that it was not properly investigated. He stated that to his knowledge no official investigation of the incident occurred. He clarified this by pointing out that since he was a commanding officer and among the 20 highest placed individuals of the 5,500 crew members on the *Nimitz* that had there been an investigation then he would have known about it.[8,25]

LCDR Slaight, second in command to Fravor of the entire squadron, stated that he was debriefed within an hour of landing as is standard protocol for a returning mission. He was debriefed in the normal manner by a junior intelligence officer. Slaight asked the intelligence officer whether there was a submarine in the area where there appeared to be a submersed object. The intelligence officer said that he would check and did so immediately after the debriefing. He told LCDR Slaight that there was no submarine in the area where the water disturbance was observed.[24]

Additional information from onboard the USS *Nimitz* comes from Marine officers mentioned in FOIA documents and one radar operator who wishes to remain anonymous. The authors of this report have determined the identity of the radar operator, his rank on the *Nimitz* in 2003, and that he was part of the Combat Detection Center on the *Nimitz*. The importance of the *Nimitz* radar operator is that he confirmed that he also detected the unknowns on the *Nimitz* radar system.

Other individuals who may have seen the ATFLIR video while onboard the USS *Nimitz* were identified through FOIAs dated August 13, 2017 and October 10, 2017. These included Lt. Col. Doug Kurth (retired 2006), Lt. Col. Ryan McCaskill (serving with US Northern Command),

Lt. Col. Justin Knox (retired 2016), Lt. Col. John Schares (retired 2013), VFA-41 XO Dell Bull (currently Rear Admiral), and Major Richard Behrmann (current XO of VMA-232). These are available in Appendix B.

4:20 p.m.: Launch of a Pair of Jets with an ATFLIR Pod

The information on this third pair of jets comes primarily from the March 14, 2015 *FighterSweep* article,[15] the May 18, 2018 document titled the Executive Summary,[13] two media interviews made by CDR Fravor in June of 2018,[8,25] and the authors' interview of LCDR Slaight on February 22, 2018.[9] The *Nimitz* log indicates a landing/departure cycle at 1620 hours. CDR Fravor had requested that the crew with the ATFLIR pod obtain a video of the object should they encounter it.[17]

The two F/A-18Fs launched under the control of the E-2 Hawkeye airborne radar plane, which would be responsible for radar monitoring and communications with the F/A-18Fs. The planes separated after their initial rendezvous, with one heading to the southern CAP point where the "Tic-Tac" was last seen.[13,15]

The plane that headed south picked up a radar contact in the RWS (Range While Search) scan mode at about 33 miles to its south. The WSO attempted several STT (Single Target Track) locks on the target without success.[13,15] CDR Fravor stated that, after watching the video many times, jamming was the cause of the failure of the radar to obtain a range reading on the object.[8] The *FighterSweep* article also indicates that jamming occurred.[15] However, the Executive Summary (a document released in 2018 and available in Appendix C) indicates that there were no jamming cues.[13]

November 14 to November 15, 2004: Missing Data

As previously noted, much of the witness testimony for the next 24 hours after the event involved crew members aboard the *Princeton* and *Nimitz* that looked at the IR video through the SIPRNet. During this time, as reported by three witnesses interviewed by our team, the communication logs, the radar data, and other associated electronic information was removed from the USS *Princeton* and a copy of the video from the USS *Nimitz*. There are three incidents reported by three different witnesses which when taken together support a contention that there was a government agency that collected and removed the available data and information regarding the AAVs.

The first incident of missing data that we will mention is considered to be the most minor of the three and occurred aboard the USS *Nimitz*. After viewing the IR video CDR Fravor obtained two new Hi8 tapes (an 8mm magnetic video recording medium used during the turn of the 21st century), made a copy of it, wrapped it up, and put it in a shared safe with a note on them. He returned to his locker at some later time and found that the tapes were gone. Fravor thought that perhaps someone needed a tape since they were in limited supply on the ship.[8] If this had been the only incident then the accidental reuse of a tape that had been put in a shared safe is a reasonable hypothesis.

The second incident occurred aboard the USS *Princeton*. The morning after the event, Senior Chief Kevin Day went to get a copy of the communication logs so that he could do an After Action report on the events of Nov 14, 2004. He found that all the communications data had been erased; only the date and time stamps remained. This was highly unusual and the Senior Chief had thought this could not be done and he explained why this was not an equipment malfunction. All of the communications between the *Princeton* and other ships and aircraft were

copied onto multiple optical disks to ensure that the communication logs are not lost. This was performed automatically by computer, which placed a date and time stamp by every communication. The reason for this duplication was in case an event occurred, such as a ship collision, man overboard, lost aircraft, etc., an investigation could be conducted to determine what happened.[10] Senior Chief Day's statement of the disappearance of the communication logs for November 14 is also supported by then Cryptologic Technician Petty Officer Third Class Karson Kammerzell of the USS *Princeton* who sarcastically stated that the "watch logs rewrote themselves like the event never happened".[26]

Petty Officer Jason Turner, USS Princeton Cruise Book, 2003

The third event also occurred aboard the USS *Princeton*. Petty Officer Voorhis was in charge of the Aegis computer suite's Cooperative Engagement Capability system. He recalls that within twelve hours of the AAV event a helicopter landed on board. He was approached by non-uniformed personnel who asked him to relinquish all of the CEC information including radar data, electronics information, data recordings, communications—everything that was not required for the ship's operation and navigation. He requested their ID but this was refused. He told the men that the Captain's permission would be required and subsequently the Petty Officer received orders from the Captain to relinquish the information to the gentlemen and he did so. He turned over all the information which was stored on magnetic tapes. He also erased all other magnetic tapes that were backups. Petty Officer Voorhis stated, *"*As far as my Captain was concerned, you do everything they say period; *or you go to jail."* Two days later the ship arrived at Puerto Vallarta. Again, non-uniformed individuals came on board the Princeton and all the non-critical information in their drives was also deleted.[11] This is also supported by Petty Officer Jason Turner who was in Supply and had a security clearance. He recalls that as soon as the ship docked in Puerto Vallarta individuals came on board because he had watch duty the following day and he looked at the logbook. He does not recall if there was a name of the government agency with which they were associated. When asked if it was NORAD, he replied *"*No.*"*[12] The evidential value of the information retrieved from the *Princeton* was made clear by Petty Officer Voorhis who stated:

> *"*...you could literally plot the entire course of the object, you could extract the densities, the speeds, the way that it moved, the way it displaced the air, its radar cross-section, how much of the radar itself was reflected off its surface. I mean you could pretty much recreate the entire event with the CEC data.*"*

Witnesses indicate that a U.S. government authority has acquired the information. Access to the large and diverse amount of data that went missing shortly after these AAV encounters would enhance our team's ability to further examine and characterize this incident and report on it in the public domain.

3 Analysis

3.1 Performance Characteristics Based on Statements from Radar Witnesses

Speed, acceleration, and power characteristics can be calculated based on statements from two navy personnel who observed the radar tracks of the "Tic-Tacs" in real time. The Senior Chief in charge of radar took notes while observing the radar in the CIC area, and noted that his equipment indicated that the object moved from 80,000+ feet to 20,000 feet in 0.78 second. A second man, the Petty Officer stationed in the same room at the same time as the Senior Chief, characterized the erratic movements of the objects from stationary at 80,000 feet to stationary at 20,000 feet on radar as "as fast as a thought." Calculations based on these observations, 60,000 vertical feet in 0.78 second and an initial and final velocity of zero, and assuming a constant acceleration (linear velocity) changing to a deceleration midway, yield a maximum velocity of 104,895 mph at the midway point, and an acceleration of 12,250 g-forces (see Appendix G). If one of the navy's jets of a similar size (F/A-18F at 18 tons) accelerated at this rate, it would need 90 gigawatts of power.

These numbers are nonsensical to any known aircraft; one would expect to see a fireball due to air friction at those speeds and one would not anticipate any known aircraft to remain structurally intact with such large g-forces. We examine these characteristics from a second and third set of data to compare with the above results. This is done in Sections 3.2 and 3.3

3.2 Performance Characteristics Based on Statements from Pilots

Two experienced Navy pilots in separate jets were vectored by the USS *Princeton* to the location of one of the objects mentioned in the previous paragraph. Upon arriving at the coordinates provided by the *Princeton* they simultaneously viewed the object from separate altitudes and angles. During the engagement with the "Tic-Tac," it accelerated from stationary to "out of sight" within one second according to one pilot, and "like a bullet shot from a rifle" according to the other pilot. Both pilots estimated the length of the "Tic-Tac" to be 40-60 feet along its major axis, and about 15 feet along its minor axis. The limit of a human's visual acuity is one arc minute, and can be used to calculate a distance at which an object is no longer resolvable. In a transparent medium, a 60 foot diameter object will reach the limit of human perception at 39.1 miles. Using a time to disappearance of one second results in a peak velocity of 281,520 mph and a maximum constant acceleration equivalent to 12,823 g-forces. Taking the lower bounds by using a 15 foot diameter object, the limit of human perception is 9.8 miles. Using a longer time to disappearance of two seconds results in a peak velocity of 35,280 mph and a minimum constant acceleration equivalent to 803 g-forces. Appendix I contains tables that show the calculated g-force based on various sizes of the object, time frames, and levels of visual acuity.

The resulting speed and acceleration derived from the pilots' testimony is consistent with that derived from the ship-board radar operators' reports.

3.3 Performance Characteristics Based on an IR Video

A third method to measure the performance characteristics of the "Tic-Tac" is to use information in the IR video itself. There is sufficient information to determine the g-forces generated depending on the size and distance of the object. The specific portion of the video analyzed is when the object appears to move rapidly to the left at the end of the video. Once the F/A-18's video system has locked onto a target, that target normally remains in the center of the

video frame.[29] A Canadian Air Force serviceman, with thousands of hours using the ASQ-228, stated to one of the authors of this report that only once did he experience the system losing lock and that was when they had the system in a vehicle and hit a jarring bump in the road. He stated that the breaking of the servo lock on an object in the video is most unusual. He further indicated that he used the ASQ-228 to video missile launches and never once did it lose lock during the high acceleration of a missile launch.

The only other aircraft in the area of operation were other F/A-18s and an E2 Hawkeye early warning radar aircraft. This is based on statements from the pilots who indicated that a Carrier Strike Group exercise has complete control of its airspace and no other aircraft are allowed into the area. It is very unlikely that the object in the video is an aircraft from outside CSG 11 for this reason; however, there is always the possibility that the plane taking the video took a video of another F/A-18 and this possibility is examined in detail in Appendix J. That appendix also shows calculations that determine the distance that an F/A-18 would be from the camera in order to create an image of the same size as seen in the video. The distance calculated is 17 to 22 miles away. Based on statements from CDR Fravor and a Canadian Air Force user, both with extensive use of the ASQ-228, the wings and outline of an F/A-18 should have been visible on a clear day at that distance. Furthermore, the resulting g-forces calculated are 40 times earth's gravity which is well beyond the capability of an F/A-18 or the ability of a pilot to survive such an acceleration.

The work done in Appendix J shows that the identity of the "Tic-Tac" based on its size, estimated distance and lack of aerodynamic details in the ATFLIR image, and by calculating its average velocity and acceleration, along with the power requirements to perform these maneuvers—it is well beyond the capabilities of any technology in the public domain.

Additional work from another author-analyst is shown in Appendix K. The acceleration values are calculated by a different method than in Appendix J but the results are similar. Appendix K also looks at the acceleration rates of an earlier portion of the video that shows movement across only three video frames.

4 Discussion

Three independent sets of information were used to evaluate the object's speed and acceleration. In all three instances the acceleration values calculated were a minimum of 40 g-forces. First was the observed radar data movements of the objects provided by two highly trained first hand witnesses who were primarily responsible for the evaluation of the radar data aboard the USS *Princeton* and the rest of CSG-11. Second was a time estimate of the object's ability to accelerate and disappear from sight based on the testimony of two senior Navy pilots, each with thousands of hours of flight experience. Third was a calculation of an object's movement displayed on an ATFLIR video and the resulting acceleration necessary to accomplish this. All three methods resulted in acceleration values that are not survivable by a pilot or any known structured aircraft. Had there only been one piece of information indicating high acceleration rates then perhaps it could be overlooked as some unknown anomaly in the radar data affecting multiple systems, unusual movements for the ATFLIR pod, or errant memories with two very experienced pilots. But this is not the case as three independent pieces of information indicate an object traveled at unheard of accelerations for an aircraft. We have no reasonable explanation for the accelerations demonstrated by the object.

It is worth discussing that if the object(s) had been traveling at the speeds calculated then there should have been other characteristics observed that were not reported. There was never an indication of noise from the sound barrier being broken. Even more unusual is that the resulting friction from the speeds obtained in the atmosphere should have created an intense fireball and destructive shock-wave as the object moved through the sky. None of the four pilots that witnessed the object's sudden acceleration reported any heating that would be expected at the speeds noted in sections 3.1 and 3.2 of this paper. The only comment associated with heat came from one of the pilots who stated that the air around the object had a wavy appearance similar to what is seen on a road during a hot summer day.

These unusual characteristics bring into question whether the object seen existed as a physical mass. Arguments that the object possessed mass include:

(1) The "Tic-Tac" or AAV was opaque, had clearly defined edges and appeared to the pilots as a physical object.
(2) CDR Fravor engaged with the visual object and it reacted with complex manuevers that included moving upwards towards his jet, responding to his jet's movements, and finally accelerating away from the encounter when CDR Fravor attempted to intercept the object.
(3) The object was detected on at least three radar units on different Navy assets operating at different radar frequencies. It was seen in the visible spectrum as well as the 3-5 micron range of the ATFLIR camera.

Arguments that the object lacked mass include:

(1) The extreme accelerations that were exhibited.
(2) The instantaneous directional changes seen by CDR Fravor when first encountering the object.
(3) The lack of any obvious interaction with the atmosphere during movement.

The radar information that was acquired by the USS *Princeton*, the USS *Nimitz,* and the E-2 Hawkeye early warning aircraft could shed a lot of light on this incident. The radar data would provide exact time and distance measurements so that precise speeds and accelerations could be determined. The actual size of the object might be available in the radar data. The sudden movement of all the AAVs—was it synchronous? How did the other AAVs on radar react when the F/A-18s intercepted the one AAV? Did all the AAVs seen on radar travel at the same speed and altitude? Did the time required for the AAVs to travel different distances change as would be expected? And data from three different systems operating at three different frequencies would also provide information on the AAV's surface absorption and reflection characteristics.

The complete and original ATFLIR video could also provide valuable information. A better image of the object might be able to be ascertained with higher quality video information in both the visible and IR spectra. Information on the details of the ASQ-228's operation could allow for a more detailed determination of the AAV's acceleration on the video as well as whether there may have been any EM interference detected in the video.

There might also be information in the communication logs that provides useful information. Even the radio transmissions and other EM signals monitored by equipment on the *Princeton* might be use in helping to resolve exactly what happened that day.

5 Conclusions

In three separate instances we have calculated acceleration rates based on testimonies of military witnesses with years of experience and knowledge related to military aircraft characteristics and capabilities. These witnesses include two United States Naval Academy graduates, one with the rank of commander and the other a lieutenant commander. The accelerations demonstrated by the AAVs are beyond the capabilities of any known aircraft in the public domain. We do not know the origin of the AAVs nor do we have any information on their means of propulsion. We do believe that sufficient information has been provided in this paper to justify the release of all information related to this incident so that a complete scientific investigation can be conducted.

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We also thank the Navy servicemen who were willing to trust us with their stories and provide the needed information that initiated this investigation. So a special thanks goes out to veterans Kevin Day, James Slaight, Gary Voorhis, and Jason Turner.

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APPENDIX A

GLOSSARY/ACRONYMS

AEGIS Combat System (ACS) – (also referred to as AEGIS Weapons System (AWS) this is an integrated United States (US) Navy phased radar-based combat system produced by Lockheed Martin. It uses a powerful computer and radar technology to track and guide weapons to destroy enemy targets. The AN/SPY 1 Radar, MK 99 Fire Control System, Weapons Control System (WCS), the Command Decision Suite, and the SM-2 Standard Missile family of weapons are all part of the AEGIS Combat System.

Anomalous Aerial Vehicle (AAV) – a term used for an aerial phenomena for which there is no conventional or prosaic explanation for it. (See UFO)

Advanced Targeting Forward Looking Infrared Radar (ATFLIR) – a military grade thermal imaging camera that is mounted to the wing or fuselage to aircraft. Besides capturing thermal imagery, it can readily identify, lock on and direct missiles towards an intended target.

AN/SPY 1 – Military Designation (S=Ship, P=Portable Radar, Y=Targeting, Fire Control) for a 3D radar which is part of the Aegis Combat System. Each ship in the Carrier Group has a version of this radar which is interconnected to provide a 360 degree picture of any and all objects at a classified distance. It is part of the AEGIS Combat System. (See AEGIS Combat System).

AN/APS-145 – a radar used aboard an E-2 Hawkeye airborne Early Warning System aircraft. It is capable of tracking more than two thousand targets at the same time and controlling forty hostile targets. It has a range of greater than three hundred and forty miles.

AN/ASQ-228 – Military Designation for the Advanced Targeting Forward Looking Radar (ATFLIR) – See definition above.

Carrier Strike Group (CSG) – a naval group of ships led by an aircraft carrier that are sent to various parts of the world for defense purposes. These ships and a submarines are fully equipped with all weapons systems necessary to protect and defend US interests.

Combat Air Patrol Point (CAP Point) – the classified location where fighters will fly a tactical pattern around or screening a defended target while looking for incoming attackers. Flights may include and designate a specified altitude (low or high) to shorten the response times.

Commander (CDR) – the highest ranking officer in military command, organization, or military group. In the US Navy it is the rank between Lieutenant Commander and Captain, but it can also be a “positional rank” such as in “Commander, Carrier Strike Group Eleven”. You will often see them referred to as the “CO” or Commanding Officer.

Command Information Center (CIC) – a designated area on a navy ship considered to be the hub for all decisions by Commanders and are the central location for all of the data and information from all information and communications systems.

Composite Training Unit Exercise (COMPUTEX) – a naval combat exercise in which either new ships or crew have the opportunity to conduct military missions to aid in learning.

Cooperative Engagement Capability (CEC) – a sensor/radar network that is integrated with fire control. It combines data from various sensors and radar systems located on aircraft and ships, into a single, real-time composite picture for military decision making. It works in conjunction with the AEGIS radars of guided missile cruisers and destroyers. Because multiple ships and aircraft are all integrated, the CEC helps to eliminate false targets and helps to improve accuracy of a target or multiple targets which the enemy is using.

Carrier Air Wing (CVW) – a US Navy aircraft carrier air wing based a Naval Air Station Lemoore, California and attached to the USS *Nimitz* aircraft carrier. (e.g., CVW – 11).

E-2 Hawkeye Airborne Early Warning System (EWS) – a specialized aircraft developed by Northrop Grumman that is equipped with advanced radar systems and other gear that is data linked to the cooperative engagement capability (CEC) and part of the overall AEGIS system (see AEGIS and CEC definitions). They play a critical role in surveillance missions.

Electronic Counter Measures (ECM) – the use of electronic means to thwart or counter an enemies use of electronics to attack you (e.g., use of a jamming system which in essence blocks a signal from use.)

Executive Officer (XO) – is the "Second in Command", under the Captain. Executive Officers may hold various officer ranks from Ensign all the way up to Captain in the navy. Much of the operational aspects of a squadron or unit usually falls under their responsibilities and they do assist in supporting the Commanding Officer of that particular unit or squadron.

Fast Eagle (1&2 Blue) – Code Designations for each of the F/A-18 E/F Super Hornets in use on the USS *Nimitz* in the First Cycle of the military exercise on the day of the report incident.

Federal Aviation Administration (FAA) – a federal organization which is responsible for regulating solely commercial airspace within the US. It has no responsibilities for military aircraft. Besides regulations, it provides training, pilot certifications and now has responsibilities extended to drones.

First Cycle – In a military exercise such as that of this report, there are repeatable sets of two Fighters being sent from the USS *Nimitz*, each of these sets of two aircraft with one being

referred to as a Wingman which lags behind the lead Fighter is considered a cycle. The successive sets are referred to as the Second Cycle and Third Cycle and so on.

Forward Looking Infrared Radar (FLIR) – this is a term for a company which has products and services that it develops using the infrared part of the spectrum. The products are cameras that can discriminate the heat signatures of objects and have both government and commercial uses.

Freedom of Information Act (FOIA) – this is a federal law that seeks to provide public access to documents, records and other media in use by the US Government. Through specified procedures, anyone can make a written request for these documents. The government can deny this request based upon exemptions that have been specified in the Act.

Hornet – a McDonnell Douglas F/A-18 Hornet is a twin-engine, supersonic, all-weather, carrier-capable, multi-role combat jet, designed as both a fighter and an attack aircraft (hence the F/A designation).

Infrared (IR) – a portion of the electromagnetic spectrum with wavelengths beyond the visible range of humans and less than microwaves. The wavelength ranges from 700 nanometers to 1 millimeter.

Inter-Continental Ballistic Missile (ICBM) – a guided ballistic missile with a minimum range of five thousand five hundred kilometers or three thousand four hundred miles. It is designed for nuclear weapons delivery.

Lieutenant Commander (LCDR) – the second highest ranking officer in the US Navy and can also be referenced as a "Commander". (See Commander above)

Merge-Plot (MP) – this is the point at which an object and an aircraft cannot be discriminated any longer as two separate objects.

North American Aerospace Defense Command (NORAD) – a United States and Canada bi-national organization charged with the missions of aerospace warning, aerospace control and maritime warning for North America.

Operations Specialist (OS) – is a US Navy and US Coast Guard occupational rating. These individuals work in the combat information center (CIC) tactical nerve center of the ship. They are responsible for the collection, processing display and competent evaluation and dissemination of pertinent tactical information to command and control stations, for which crucial decisions are made.

Petty Officer (PO) – is a non-commissioned naval officer equivalent to a corporal or a sergeant in comparison to other branches of service.

Range While Search (RWS) – a radar scans for targets and gives you the range to them.

Senior Chief Petty Officer – (see Petty Officer above) – a naval officer. There are three senior grades (chief petty officer, senior chief petty officer and master chief petty officer).

Scientific Coalition for Ufology (SCU) – a coalition or group of cooperative people who seek to apply scientific principles and methods to the use of studying the anomalous phenomena being reported around our world referred to as Unidentified Flying Objects (UFOs), Unidentified Submerged Objects (USOs), Unidentified Aerial Phenomena (UAP) and Unidentified Anomalous Vehicles (UAVs).

Secret Internet Protocol Router Network (SIPRNet) – a secret classified network that is used solely in the US military to share data and information that is of national security interests and is restricted to those with clearances at that classification level or higher.

Single Target Track (STT) – also referred to as a "lock". The radar locks onto a single target and all other targets disappear from the radar scope.

Super Hornet - a McDonnell Douglas F/A-18E/F Super Hornet is a twin-engine, supersonic, all-weather, carrier-capable, multi-role combat jet, designed as both a fighter and an attack aircraft (hence the F/A designation). The distinction between a Hornet and a Super Hornet is the more advancements made with performance and overall equipment and designs. The maneuverability with these designs were improved.

Tic-Tac – there is no technical reference for this term. It was coined by a pilot who stated that the shape of the unknown object being seen looked like a piece of candy which is available in stores and is called a "Tic-Tac."

Track While Scan (TWS) – the radar can capture multiple targets and track them all simultaneously. This setting on radar also displays altitude as well as direction of the target.

Unidentified Flying Object (UFO) – an unidentified aerial object that is observed by a witness(s), reported and after an investigation is completed and still remains unknown or unexplained is the accepted definition of a UFO. Most witnesses who merely cannot identify the object consider it a UFO, but these could be identifiable objects like birds, aircraft, and astronomical phenomena. It requires an investigation to rule these out and only after all natural or conventional hypotheses are eliminated, the UFO or "Unknown" is classified as such.

Weapons Systems Officer (WSO) – on military aircraft with two persons aboard, one person, usually seated behind the pilot is responsible for the radar, any infrared thermal imaging cameras, and the targeting and delivery of any bombs, missiles and other weapons onboard allowing the pilot to strictly navigate the aircraft as needed.

VAW - Marine Fighter Squadron (Designation, not an acronym) – the Marine Corp refers to their Fighter aircraft squadrons with the designation shown along with a number (e.g., VAW-117 also called the "Wallbangers" which is an E-2 Hawkeye Early Warning Aircraft – see definition above)

VFA - US Navy Fighter Squadron (Designation, not an acronym) - the Marine Corp refers to their Fighter aircraft squadrons with the designation shown along with a number (e.g. VFA-41 also known as the Black Aces, a group of F/A-18 Super Hornet aircraft).

VFMA - Marine Fighter Attack Squadron (Designation, not an acronym) – the Marine Corps refers to their Fighter Attack aircraft squadrons with the designation shown along with a number (e.g., VFMA – 232 is composed of F/A-18 Hornet aircraft)

APPENDIX B

FREEDOM OF INFORMATION ACT (FOIA) REQUESTS AND REPLIES

by Robert Powell

Freedom of Information Act Request

The first FOIA requests were made on December 30, 2016. These requests were made based on information obtained in a Navy blog written on March 14, 2015 by ex-Navy fighter pilot Paco Chierici. This blog was encountered by happenstance. The article contained detailed information about a U.S. Navy encounter with an unidentified flying object. It appeared to be a legitimate story that used naval terminology and the article indicated there were multiple high-quality witnesses to the encounter that occurred on November 14, 2004.

The FOIAs were submitted by one of the authors of this report and executive member of the Scientific Coalition for Ufology (SCU), Robert Powell, who has 10 years experience in submission of over 100 FOIA requests to various government organizations. There were a total of 26 FOIA requests and appeals submitted regarding this specific incident. The following documents the extensive efforts made by the SCU to examine and analyze this incident in detail.

FOIA requests were sent to the Department of the U.S. Navy, Chief of Naval Operations, Commander of Naval Surface Forces U.S. Pacific Fleet, Office of Naval Research, the U.S. Pacific Fleet, Office of Naval Intelligence, U.S. Marines Pacific, Naval Air Warfare Center Aircraft Division, Naval Facilities Engineering Command, Naval Sea Systems Command, Navy Chief of Operations, Office of Naval Inspector General, Naval History and Heritage Command, North American Air Defense Command (NORAD), Department of Defense, and the Defense Intelligence Agency. A few of these requests are still outstanding. The majority have been answered and in almost every case the first response was that the specific naval organization had no information on any of the multiple naval assets at sea on that day. A few FOIA requests and appeals did provide some useful information. A copy of the FOIAs and FOIA appeal responses is available at the end of this appendix.

Sometimes a government or military agency actually has the information requested and simply states that they do not have it. This is the case in two of the FOIAs that were submitted. One of the most valuable documents that was received only occurred after an appeal was submitted after a denial of an original request. On April 5, 2017, the US Marines denied any available information related to the November 2004 event. Both FOIA denials were appealed in early July of 2017 to the Navy's JAG (Judge Advocate General) attorneys. Copied on the appeal were the requestor's U.S. Senator, Congressman, and the late John McCain (Chairman of the Senate Armed Services Committee). Perhaps copying congress had an effect as this time a more positive response was received on August 31. But before you see the responses (note that the responses were emails from servicemen in early March of 2017)---realize that these responses existed and were in the hands of the Navy even though they denied having any information in their letters of April 2017 with their original claim of "no records available"!

The response to this appeal provided the information that the event that occurred on November 14, 2004, was well known within the Navy and that even more documents existed. The full documents are in the appendix but here is the key information provided, first from Lieutenant Colonel Robert A. Tomlinson in an email statement on March 7, 2017:

> "I am definitely aware of the "flying tic tac! We were aboard the USS *Nimitz* attached to CVW-11. The CO of VFA-41, CDR Fravor had the video footage on his ATFLIR and several pilots in VMFA-232 saw the video. I personally did not see the video, but I heard all about it. I believe our CO at the time, Lt Col Kurth (retired) observed the tic

tac, and I believe Lt Col [redacted], Lt Col [redacted](retired), Lt Col [redacted](retired), and several others also observed the video footage. Another good reference might be current Rear Admiral Dell Bull as he was the VFA-41 Executive Officer at the time.*"*

More information likely exists but it will likely require a forceful inquiry such as from a congressional subcommittee investigation in order to pry loose radar data, communication logs, Navy Intelligence reports, and other information on this case.

In addition to the above mentioned success, the deck logs for the USS *Nimitz* were obtained seven months after the original submission. They are referenced in this report. However, the Navy stated that the deck logs for the USS *Princeton* "could not be found". The FOIA officer involved in the search stated that the FOIA logs for October and December were available but not November. The same FOIA officer said that such a situation was very unusual and that either the deck logs were lost or they had been classified. We suspect the latter.

It is worth noting a positive response was received from the Navy indicating that documents had been identified related to Naval Air Station Lemoore, which is the home land base for CO Fravor's F18 squadron, the VFA-41. Within three weeks a response came back from the Navy indicating that they had incorrectly stated that they had found documents at Lemoore. These examples are presented to indicate the difficulty the SCU has had obtaining information for this report, due to the culture of excessive over classification of all information as being secret. The reluctance to release it to civilians is a result of all information as being perceived as a threat to national security and seems to be pervasive within many of our military and government structures.

FREEDOM OF INFORMATION DOCUMENTS
SENT TO: DEPT OF NAVY, CHIEF OF NAVAL OPERATIONS
DOCUMENT I.D. DON-NAVY-2017-002231 AND APPEAL

This message is to confirm your request submission to the FOIA online application: Request information is as follows:

- Tracking Number: DON-NAVY-2017-002231
- Requester Name: Robert Powell
- Date Submitted: 12/30/2016
- Request Status: Submitted
- Description: I am requesting all communications, log books, radar data, FLIR video, and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004. The information to be queried would be related to the U.S.S. *Nimitz*, the U.S.S. *Princeton*, Marine Hornet squadron VMFA-32, E-2C Hawkeye VAW-117, and the F-18 squadron VFA-41. To help in your search, I provide you the following information: Approximately 80 miles southwest of San Diego on 11-14-2004, an unknown object was detected on radar by the USS *Princeton*. Aircraft from the VMFA-32 and the VFA-41 were vectored to the area of contact. Radar contact was made by the *Princeton* and the VFA-41. The object observed was a white oval shape with no obvious means of propulsion. A FLIR video was taken of the object. I am confident the information exists and am asking for official copies to be provided me through the FOIA system. Any information that provides sensitive information on the operation of radar systems may be redacted but I am requesting copies of the radar data either in photographic or digital form as well as all other information related to this event as previously described. If there is any other information that you need please let me know. I appreciate your help.

  Robert Powell

NAVY REPLY REGARDING LOGS, RADAR DATA, VIDEO, AND COMMUNICATIONS FOR USS *PRINCETON*

DEPARTMENT OF THE NAVY
COMMANDER
NAVAL SURFACE FORCE
U.S. PACIFIC FLEET
2841 RENDOVA ROAD
SAN DIEGO, CALIFORNIA 92155-5490

5720
N00J/
February 16, 2017

Mr. Robert Powell
[redacted]

Dear Mr. Powell,

This letter is in reference to your Freedom of Information Act (FOIA) 5 U.S.C. § 552 request submitted to Commander, U.S. Pacific Fleet and referred to this office on February 2, 2017, and assigned tracking number 2017-14. You are seeking copies of "all communications, log books, radar data, FLIR video, and all other recorded information regarding the events surrounding any anomalous aerial vehicles, unidentified airborne contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004."

A search has been conducted of the USS PRINCETON responsive departments, as well as outside agencies: Naval Heritage and History Command (NHHC) and Office of Naval Intelligence (ONI). It has been determined that such records do not exist. With any adverse determination, you have the right to seek dispute resolution from the Department of the Navy FOIA Public Liaison by contacting Mr. Christopher Julka at christopher.a.julka@navy.mil or (703) 697-0031.

This office considers this FOIA request completed and closed. If you have any questions, you may contact Mr. Juan Lopez, Command FOIA Coordinator, at (619) 437-2206 or juan.r.lopez@navy.mil. Please be sure to refer to the case number shown above in all correspondence about this case.

Sincerely,

D. T. JONES
Captain, U.S. Navy
Force Judge Advocate
By Direction of the Commander

NAVY ACKNOWLEDGEMENT OF APPEAL FOR LACK OF INFORMATION RELEASED ON USS *PRINCETON*

DEPARTMENT OF THE NAVY

OFFICE OF THE JUDGE ADVOCATE GENERAL
1322 PATTERSON AVENUE SE SUITE 3000
WASHINGTON NAVY YARD DC 20374

IN REPLY REFER TO:
5720
Ser 14/294
May 23, 2017

Mr. Robert Powell
[redacted]
e-mail:robertmaxpowell@gmail.com

SUBJECT: FREEDOM OF INFORMATION ACT (FOIA) REQUEST DON-NAVY-2017-002231; FOIA APPEAL DON-NAVY-2017-006392

This letter acknowledges receipt of your correspondence regarding your Freedom of Information Act (FOIA) appeal that was received in our office on May 22, 2017. Your case has been assigned file number DON-NAVY-2017-006392. Please refer to that file number for any future questions or correspondence concerning your appeal.

In fairness to all requesters, we process all appeals in the order in which they are received. Processing times may be affected by the number and complexity of pending appeals. For that reason, we are unable to provide an estimated completion date at this time. Your rights to judicial review will not be prejudiced by waiting for a substantive determination regarding your appeal. We will work as expeditiously as possible, however, to respond to your request within 20 working days as outlined in the FOIA regulations.

You may contact me at 202-685-5446 or wendy.winston@navy.mil if you have any questions concerning the processing of your appeal. Please provide your last name and the above assigned file number in any correspondence.

Sincerely,

Wendy A. Winston
Legal Administrative Specialist
General Litigation Division

APPEAL FOR INFORMATION ON USS PRINCETON IS DENIED

DEPARTMENT OF THE NAVY
OFFICE OF THE JUDGE ADVOCATE GENERAL
1322 PATTERSON AVENUE SE SUITE 3000
WASHINGTON NAVY YARD DC 20374

IN REPLY REFER TO:
5720
Ser 14/340
June 19, 2017

Mr. Robert Powell
[redacted]
[redacted]
e-mail:robertmaxpowell@gmail.com

SUBJECT: FREEDOM OF INFORMATION ACT (FOIA) REQUEST DON-NAVY-2017-002231; FOIA APPEAL DON-NAVY-2017-006392

This letter responds to your FOIA appeal received in this office on May 22, 2017. You initially requested "all communications, log books, radar data, FLIR video, and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004."

As you note in your appeal, your original FOIA request was referred to two separate commands. You are appealing the February 16, 2017, response from Commander, Naval Surface Force, U.S. Pacific Fleet, which was assigned tracking number 2017-14. In its response, that command noted that searches were conducted on USS PRINCETON, Naval History and Heritage Command, and the Office of Naval Intelligence; however, no responsive records were found. In your appeal, you challenge the adequacy of the search conducted and request "a more thorough examination to find these records and if these records cannot be found then provide all of the records from the USS [PRINCETON] on Nov. 14, 2004 to establish that the records were thoroughly researched." To support your challenge, you also attached two documents to your appeal that you state "lend credence to the belief that there are documents in the possession of Commander, U.S. Pacific Fleet related to the incident involving an unknown aircraft on Nov. 14, 2004."

Your appeal is a request for a final determination under the FOIA. For the reasons set forth below, your appeal is denied.

The adequacy of an agency's search for information requested under the FOIA is determined by a "reasonableness" test. *Meeropol v. Meese*, 790 F.2d 942, 956 (D.C. Cir. 1986); *Weisberg v. United States Dep't of Justice*, 705 F.2d 1344, 1350-51 (D.C. Cir. 1983). As a general rule, an agency must undertake a search that is reasonably calculated to locate the requested information. *Kowalczyk v. Department of Justice*, 73 F.3d 386,

388 (D.C. Cir. 1996). Courts have found agencies satisfy the "reasonableness" test when they properly determine where responsive records are likely to be found and search those locations. *Lechliter v. Rumsfeld*, 182 F. App'x 113, 115 (3d Cir. 2006) (concluding that agency fulfilled duty to conduct a reasonable search when it searched two offices that it "determined to be the only ones likely to possess responsive documents" (citing *Oglesby v. U.S. Dep't of the Army*, 920 F.2d 57, 68 (D.C. Cir. 1990)); *McKinley v. Bd. of Governors of the Fed. Reserve Sys.*, 849 F. Supp. 2d 47, 55-56 (D.D.C. 2012) (concluding that agency's search was reasonable because agency determined that all responsive records were located in a particular location created for express purpose of collecting records related to subject of request and searched that location). Moreover, courts have found that an agency's inability to locate a responsive record does not undermine an otherwise reasonable search. *Moore v. FBI*, 366 F. App'x 659, 661 (7th Cir. 2010) (noting that although agency had years earlier destroyed some potentially responsive records, that fact does not invalidate the search).

Following receipt of your appeal, my staff contacted Commander, Naval Surface Force, U.S. Pacific Fleet, which provided additional information on the searches conducted. Specifically, Naval Surface Force staff searched external back-up hard drives for any records related to the incident using the search terms "PRINCETON," "UFO," and "Unidentified," and searched the command's filing cabinets for responsive information; however, no responsive information was found. USS PRINCETON searched all safes in Combat Systems Maintenance Central, Combat Information Center watch logs, bridge deck logs, recorded Aegis combat system SPY radar data, and recorded video data; however, no responsive information was found. Naval History and Heritage Command searched for PRINCETON deck logs for November and December 2004; however Naval History and Heritage Command does not have PRINCETON's deck logs for those two months. The Office of Naval Intelligence also conducted a search, but did not have the deck logs from PRINCETON and did not find any responsive information pertaining to the incident or to unidentified flying objects.

Based on these facts, I find the searches conducted by Naval Surface Force, U.S. Pacific Fleet; USS PRINCETON; Naval History and Heritage Command; and the Office of Naval Intelligence were adequately and reasonably tailored to retrieve responsive information. Moreover, as the 7th Circuit said in *Moore*, an agency's inability to locate a responsive record does not undermine an otherwise reasonable search – even where the agency had years earlier destroyed some potentially responsive records. You do not indicate where you obtained the two documents you submitted in support of your appeal; however, neither document undermines the adequacy of the searches conducted. Accordingly, your appeal is denied.

5720
Ser 14/340
June 19, 2017

As the Department of the Navy's designated adjudication official for this FOIA appeal, I am responsible for the denial of this appeal. You may seek judicial review of this decision by filing a complaint in an appropriate U.S. District Court. My office represents the U.S. government and is therefore unable to assist you in this process.

If you would like to seek dispute resolution services, you have the right to contact the Department of the Navy's FOIA public liaison, Mr. Chris Julka, at christopher.a.julka@navy.mil or (703) 697-0031.

If you have further questions or concerns for my office, my point of contact is LCDR Adam Yost, JAGC, USN, who may be reached at adam.yost@navy.mil or (202) 685-5398.

Sincerely,

G. E. LATTIN
Director
General Litigation Division

Copy to:
COMNAVSURFOR
DNS-36
DON CIO

DOCUMENT I.D. DON-NAVY-2017-002364 AND APPEALS
SENT TO: NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION

This message is to confirm your request submission to the FOIA online application: Request information is as follows:

- Tracking Number: DON-NAVY-2017-002364
- Requester Name: Robert Powell
- Date Submitted: 01/03/2017
- Request Status: Submitted
- Description: This is a request under the Freedom of Information Request for which I am willing to pay up to $50, otherwise contact me if the cost is greater. I am requesting all communications, log books, radar data, FLIR video, and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004. The information to be queried would be related to the E-2C Hawkeye VAW-117, and the F-18 squadron VFA-41. To help in your search, I can provide you the following information: Approximately 80 miles southwest of San Diego on 11-14-2004, an unknown aircraft was detected on radar by the USS *Princeton*. Aircraft from the USS *Nimitz* (the VFA-41) were vectored to the area of contact. Radar contact was made by the *Princeton* and the VFA-41. The object observed by the F-18s from the VFA-41 was a white oval shape with no obvious means of propulsion. A FLIR video was taken of the object. I am confident the information exists and am asking for official copies to be provided me through the FOIA system. Any information that provides sensitive information on the operation of radar systems may be redacted but I am requesting copies of the radar data either in photographic or digital form as well as videos and all other information related to this event as previously described. If there is any other information that you need please let me know. I may be contacted by email or at my home address: Robert Powell [redacted] I appreciate your help. Thanks,
- Robert Powell

NAVY REPLY THAT INFORMATION IS AVAILABLE FROM NAVAL AIR STATION LEMOORE, SAN DIEGO

DEPARTMENT OF THE NAVY
NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION
OFFICE OF COUNSEL
47076 LILJENCRANTZ ROAD
PATUXENT RIVER, MD 20670-1127

5720.9b
11.7AD/2017-002364
30 March 2017

VIA SAME DAY E-MAIL
Mr. Robert Powell
[redacted]

SUBJECT: FOIA CASE DON-NAVY-2017-002364

Dear Mr. Powell,

This letter responds to your Freedom of Information Act (FOIA) request entered into FOIA online on 3 January 2017.

During our search for records responsive to your request, we identified documents that originated with Naval Air Station Lemoore (CNIC). We have referred this request to them for a release determination/direct response to you.

If you have any questions regarding your request, please contact me on 301-995-3193 or by email at Brittany.l.smith2@navy.mil.

Sincerely,

Brittany L. Smith
Brittany L. Smith
Paralegal Specialist

cc: **Commander, Navy Installations Command (CNIC)**

NAVY REPLY CHANGED TO "NO INFORMATION IS AVAILABLE"

DEPARTMENT OF THE NAVY
COMMANDER NAVAL AIR FORCE PACIFIC
BOX 357051
SAN DIEGO, CALIFORNIA 92135-7051

5720
Ser N01J/016
27 Apr 17

Mr. Robert Powell
[redacted]

Dear Mr. Powell:

Your January 3, 2017 request under the Freedom of Information Act (FOIA) for, "communications, log books, radar data, FLIR video and all other recorded information" relating to, "any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft" encountered by aircraft from VAW-117 and VFA-41 on November 14, 2014 was received in this office on January 5, 2017. Your request was assigned FOIA #2017-002364.

Our search for responsive records included those maintained by Commander, Strike Fighter Wing, Pacific; Strike Fighter Squadron FOUR ONE (VFA-41); and, Commander, Airborne Command and Control Logistics Wing, Pacific, but none were found.

Because no responsive documents were found, you are advised of your right to appeal the adequacy of this search in writing to the Office of the Judge Advocate General, Code 14, 1322 Patterson Avenue SE, Suite 3000, Washington Navy Yard D.C. 20374-5066. Any appeal must be received within 60 calendar days from the date of this letter in order to be considered, and a copy of this letter should be attached along with a statement regarding why your appeal should be granted. It is recommended that the letter of appeal and the envelope both bear the notation, "Freedom of Information Act Appeal."

My point of contact in this matter is LCDR Matt Tucker, Judge Advocate General's Corps, U.S. Navy. Please do not hesitate to contact him if you have any further questions regarding this matter. He may be reached at (619) 545-2796.

Sincerely,

J. M. NILSEN
Captain
Judge Advocate General's Corps
U.S. Navy
By direction of
the Commander

APPEAL TO NAVY DENIAL OF INFORMATION AT NAVAL AIRSTATION LEMOORE, SAN DIEGO

Robert Powell
[redacted]
July 26, 2017

Department of the Navy
Office of the Judge Advocate General
Code 14
1322 Patterson Avenue SE
Suite 3000
Washington Navy Yard, DC 20374-5066

Re: FOIA APPEAL Request of 2017-002364 and 2017-002564

Dear Sir or Madam:

This letter is in reference to the Freedom of Information Act, 5 U.S.C.§552 (a)(6)(A)(i)(III)(aa), which allows a minimum of 90 days to appeal a FOIA determination. The FOIA request being appealed was originally initiated with the Naval Air Warfare Center Aircraft Division (NAWCAD) on December 31, 2016, and filed as 2017-002364. On January 18, 2017, the Navy opened a sister case with the Commander, Naval Air Force, Pacific, and identified as 2017-002564. Both FOIA requests were denied on April 27, 2017 using the same letter. A copy of the original FOIA requests and denial are attached.

This appeal is a request for a more thorough searching of naval records based on two reasons.

The first reason is because communications with the Navy indicated records existed. Based on a letter dated March 30, 2017, the Navy indicated records exist at Naval Air Station Lemoore. This letter made sense since the VFA-41 squadron is supported at NAS Lemoore. The letter stated, "During our search for records responsive to your request, we identified documents that originated with Naval Air Station Lemoore." A copy of that letter is attached. The letter clearly indicates that records were found at NAS Lemoore yet four weeks later a letter dated April 27, 2017, stated that no responsive records were found for either the VFA-41 Lemoore squadron or the airborne early warning aircraft from VAW-117. I would like a copy of the records related to VFA-41 for the date of November 14, 2004, from NAS Lemoore.

The second reason for a more thorough search is because the denials for information on the day of November 14, 2004 has now affected five different Navy components (the USS *Princeton*, USS *Nimitz*, VMFA-232, VFA-41, and VAW-117). The denial of a similar request for information (FOIA request 2017-002231) related to the USS *Princeton* (letter dated Feb.16, 2017 from Commander Naval Surface Force Fleet) and a denial of information (FOIA request 2017-003339) related to the Marine Hornet group VMFA-232 provides an argument that it is no longer reasonable to believe that a thorough search was made for the records of each of these independent naval

components and in 5 of 5 cases, no records were found. This lack of information drives home the question, “So exactly what happened on November 14, 2004?”

I have also attached two supporting files that lend credence to the belief that an incident involving an unknown aircraft on Nov. 14, 2004 did occur. The document labeled " There I Was: The X-Files Edition" was written by a former Navy ROTC pilot and provides a detailed account of the event that transpired on November 14, 2004. This story is written on a respectable naval blog site known as FighterSweep and the article can be found here: https://fightersweep.com/1460/x-files-edition/ The document with the heading “CVW-11 Event Summary” appears to be a "Navy After Action" report that was released on the internet in February of 2007. There is no reason to doubt the authenticity of the statements made by these individuals.

I request that a more thorough search be made for the VFA-41 and VAW-117 records for November 14, 2004 (especially at NAS Lemoore).

Thank you for your time and consideration.

Sincerely,

Robert Powell
[redacted]

cc: Honorable Senator John McCain
Honorable Senator Ted Cruz
Honorable Congressman Roger Williams

NAVY ACKNOWLEDGEMENT OF APPEAL SUBMITTED REGARDING INFORMATION AT NAVAL AIR STATION LEMOORE, SAN DIEGO

DEPARTMENT OF THE NAVY

OFFICE OF THE JUDGE ADVOCATE GENERAL
1322 PATTERSON AVENUE SE SUITE 3000
WASHINGTON NAVY YARD DC 20374

IN REPLY REFER TO:
5720
Ser 14/415
Aug 4, 2017

Mr. Robert Powell
[redacted]
e-mail:robertmaxpowell@gmail.com

SUBJECT: FREEDOM OF INFORMATION ACT (FOIA) REQUEST DON-NAVY-2017-002364 (sister case number DON-NAVY-2017-002564); FOIA APPEAL DON-NAVY-2017-009164

This letter acknowledges receipt of your correspondence regarding your Freedom of Information Act (FOIA) appeal that was received in our office on Aug 3, 2017. Your case has been assigned file number DON-NAVY-2017-009164. Please refer to that file number for any future questions or correspondence concerning your appeal.

In fairness to all requesters, we process all appeals in the order in which they are received. Processing times may be affected by the number and complexity of pending appeals. For that reason, we are unable to provide an estimated completion date at this time. Your rights to judicial review will not be prejudiced by waiting for a substantive determination regarding your appeal. We will work as expeditiously as possible, however, to respond to your request within 20 working days as outlined in the FOIA regulations.

You may contact me at 202-685-5446 or wendy.winston@navy.mil if you have any questions concerning the processing of your appeal. Please provide your last name and the above assigned file number in any correspondence.

Sincerely,

Wendy A. Winston
Legal Administrative Specialist
General Litigation Division

NAVY DENIAL OF APPEAL FOR INFORMATION AT NAVAL AIR STATION LEMOORE, SAN DIEGO

DEPARTMENT OF THE NAVY
COMMANDER NAVAL AIR FORCE PACIFIC
BOX 357051
SAN DIEGO, CALIFORNIA 92135-7051

5720
Ser N01J/ 029
20 Sep 17

Mr. Robert Powell
[redacted]
E-mail: robertmaxpowell@gmail.com

SUBJECT: FREEDOM OF INFORMATION ACT (FOIA) REQUEST DON-NAVY-2017-002364 (SISTER CASE DON-NAVY-2017-002564); FOIA APPEAL DON-NAVY-2017-009164

On August 31, 2017, the Office of the Judge Advocate General remanded your subject FOIA request to Commander, Naval Air Force, Pacific (COMNAVAIRPAC) to coordinate contacting two Navy personnel to search for any responsive agency records those individuals may have in their possession, and to coordinate with the Naval Air Warfare Center Aircraft Division to address that command's search for responsive information and the referral of your request to Naval Air Station, Lemoore.

Mr. David Fravor, the now-retired Commanding Officer of VFA-41 in November, 2004, and Rear Admiral Dell Bull, USN, the executive officer of VFA-41 in November, 2004, were contacted to search for responsive information. Neither of these individuals have information responsive to your request, because neither retained records or information from VFA-41 pertaining to anomalous aerial vehicles, unidentified airborne contacts, or other unknown aircraft encountered by Navy and Marine Corps aircraft on November 14, 2004.

Additionally, enclosure 1 addresses the Naval Air Warfare Center Aircraft Division (NAVAIR) referral of your request to Naval Air Station, Lemoore and explains that the command's original response to you contained a clerical error; NAVAIR does not have any information or documents responsive to your FOIA request.

Because no responsive documents were found, you are advised of your right to appeal the adequacy of this search in writing to the Office of the Judge Advocate General, Code 14, 1322 Patterson Avenue SE, Suite 3000, Washington Navy Yard D.C. 20374-5066. Any appeal must be received within 90 calendar days from the date of this letter in order to be considered, and a copy of this letter should be attached along with a statement regarding why your appeal should be granted. It is recommended that the letter of appeal and the envelope both bear the notation, "Freedom of Information Act Appeal."

My point of contact in this matter is LCDR Matt Tucker, Judge Advocate General's Corps, U.S. Navy. Please do not hesitate to contact him if you have any further questions regarding this matter. He may be reached at (619) 545-2796.

Sincerely,

J. M. NILSEN
Captain
Judge Advocate General's Corps
U.S. Navy
FOIA Coordinator
By direction of
the Commander

Enclosures: 1. Naval Air Warfare Center Aircraft Divison ltr 5720.9b Ser 11.7AD/2017-002364 of 18 Sep 17

NAVY EXPLANATION OF ERROR IN SAYING INFORMATION WAS AVAILABLE AT NAVAL AIR STATION LEMOORE, SAN DIEGO

DEPARTMENT OF THE NAVY
NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION
OFFICE OF COUNSEL
47076 LILJENCRANTZ ROAD
PATUXENT RIVER, MD 20670-1127

5720.9b
11.7AD/2017-002364
18 September 2017

Mr. Robert Powell
[redacted]

SUBJECT: FOIA CASE DON-NAVY-2017-002364

Dear Mr. Powell,

My office previously sent you a response, dated 30 March 2017, to your subject FOIA request. In that response letter, my office incorrectly stated that NAVAIR had identified documents that originated with Naval Air Station Lemoore. The letter was created using a previous FOIA referral letter, and the language pertaining to documents was incorrectly retained and included in your response letter.

No responsive materials were ever located by NAVAIR, because NAVAIR's mission and record maintenance requirements pertain primarily to the acquisition lifecycle of Naval aircraft. The types of information you requested are not items that would be in NAVAIR's possession, because NAVAIR does not receive or retain information pertaining to events that specific units or squadrons encounter. Instead, we referred your request to Naval Air Station Lemoore (under the cognizance of CNIC), because we determined that CNIC would be the appropriate command to determine whether any responsive materials existed. I regret the clerical error in the letter of 30 March 2017. NAVAIR does not have any information or documents responsive to your FOIA request.

We apologize for any confusion and inconvenience this may have caused.

If you have any questions regarding your request, please contact me on 301-995-3193 or by email at Brittany.l.smith2@navy.mil.

Sincerely,

Brittany L. Smith
Brittany L. Smith
Paralegal Specialist

cc: **Commander, Navy Installations Command (CNIC)**

EMAIL TO NAVY JAG AS TO WHY APPEALS HAVE BEEN DENIED AND NOW THE NEW YORK TIMES RELEASES A VIDEO

From: Robert Powell [mailto:robertmaxpowell@gmail.com]
Sent: Sunday, December 17, 2017 11:49 PM
To: Winston, Wendy A CIV OJAG, CODE 14
Cc: Yost, Adam B LCDR OJAG, Code 14
Subject: [Non-DoD Source] Re: Acknowledgment letter ICO FOIA appeal DON-NAVY-2018-001475

Dear Madam and Sir,

As you know I currently have an appeal (2018-001475) regarding my FOIA requests for information on the *Nimitz/Princeton*/F-18 incident of Nov. 14, 2004.

Saturday morning I was somewhat happy and dismayed to see that the New York Times had an article that included Navy F-18 video footage released to them by the DoD of the same event that I have been requesting from the Navy in my FOIAs. Here is a link to the article: https://www.nytimes.com/2017/12/16/us/politics/pentagon-program-ufo-harry-reid.html

In light of this release of information in the New York Times, I hope that the documents requested in my appeal can be found in the Navy's archives. I'm sure that the Navy has better access to these documents than the DoD.

Sincerely,

Robert Powell

NAVY REPLY AS TO NEW YORK TIMES RELEASE AND THEIR FORWARDING OF INQUIRY TO THE DEFENSE INTELLIGENCE AGENCY

DEPARTMENT OF THE NAVY
OFFICE OF THE JUDGE ADVOCATE GENERAL
1322 PATTERSON AVENUE SE SUITE 3000
WASHINGTON NAVY YARD DC 20374

IN REPLY REFER TO:
5720
Ser 14/110
January 3, 2018

Mr. Robert Powell
[redacted]
e-mail: robertmaxpowell@gmail.com

SUBJECT: FREEDOM OF INFORMATION ACT (FOIA) REQUESTS DON-NAVY-2017-002364, DON-NAVY-2017-002564, ASSOCIATED FOIA APPEAL DON-NAVY-2017-009164; AND DON-USMC-2017-003339, ASSOCIATED FOIA APPEAL DON-NAVY-2017-008885; FINAL FOIA APPEAL DON-NAVY 2018-001475

This letter responds to your FOIA appeal received in this office on November 16, 2017. Your current appeal, 001475, relates to underlying requests 002364, 002564, 003339 and associated formerly adjudicated appeals 008885 and 009164. As previously addressed extensively, your underlying requests and associated appeals to Navy and Marine Corps commands relate to military action off the coast of California on November 14, 2004, including "all communications, log books, radar data, FLIR video, and all other record information." Your appeal asks for a more thorough search for records, including archived records, related to November 14, 2004. In a follow-up email to my staff on December 17, 2017, you referenced recent New York Times articles which you assert are related to your underlying FOIA requests.

Your appeal is a request for a final determination under the FOIA. For the reasons set forth below, your appeal challenging the adequacy of the Navy and Marine Corps search for records is denied. However, based on the information you provided via email, and the New York Times articles, in the interests of transparency under the FOIA, I am referring your underlying request for information relating to any potential incident on November 14, 2004, to the Defense Intelligence Agency's Freedom of Information Act Requester Service Center (DIA) so they may determine whether any records exist, and if so, whether they are releasable to you. The DIA FOIA Office may be reached at (301) 394-5587, via email at foia@dodiis.mil, or regular mail at:

Defense Intelligence Agency
ATTN: FAC2A1 (FOIA)
7400 Pentagon
Washington, DC 20301-7400

Please understand this referral neither confirms nor denies whether records responsive to your request exist.

The adequacy of an agency's search for information requested under the FOIA is determined by a "reasonableness" test. *Meeropol v. Meese*, 790 F.2d 942, 956 (D.C. Cir. 1986); *Weisberg v. United States Dep't of Justice*, 705 F.2d 1344, 1350-51 (D.C. Cir. 1983). As a general rule, an agency must undertake a search that is reasonably calculated to locate the requested information. *Kowalczyk v. Department of Justice*, 73 F.3d 386, 388 (D.C. Cir. 1996). Courts have found agencies satisfy the "reasonableness" test when they properly determine where responsive records are likely to be found and search those locations. *Lechliter v. Rumsfeld*, 182 F. App'x 113, 115 (3rd Cir. 2006) (concluding that agency fulfilled duty to conduct a reasonable search when it searched two offices that it determined to be the only ones likely to possess responsive documents (citing *Oglesby v. U.S. Dep't of the Army*, 920 F.2d 57, 68 (D.C. Cir. 1990)); *McKinley v. Bd. of Governors of the Fed. Reserve Sys.*, 849 F. Supp. 2d 47, 55-56 (D.D.C. 2012) (concluding that agency's search was reasonable because agency determined that all responsive records were located in a particular location created for express purpose of collecting records related to subject of request and searched that location).

Moreover, courts have found that an agency's inability to locate a responsive record does not undermine an otherwise reasonable search. *Moore v. FBI*, 366 F. App'x 659, 661 (7th Cir. 2010) (noting that although agency had years earlier destroyed some potentially responsive records, that fact does not invalidate the search). Additionally, the mere speculation that requested documents exist does not undermine the finding that the agency conducted a reasonable search. *Wilbur v. C.I.A.*, 355 F.3d 675, 678 (D.C. Cir. 2004) ("Likewise, the agency's failure to turn up a particular document, or mere speculation that as yet uncovered documents might exist, does not undermine the determination that the agency conducted an adequate search for the requested records.").

Your appeal is the latest in a series of multiple FOIA requests you submitted over the last several months to various commands within the Navy and Marine Corps for information and documents relating to an incident off the California coast on November 14, 2004. The appeal follows a remand my office previously made to the 3d Marine Aircraft Wing (3d MAW) and Commander, Naval Air Forces Pacific (CNAP) in a letter dated August 31, 2017. After consultation with 3d MAW and CNAP, no additional records were found responsive to your request at either command, information which was relayed to you. Additionally, by letter dated 18 Sep 2017, the Office of Counsel, Naval Air Warfare Center Aircraft Division informed you that prior correspondence indicating documents responsive to your request may be located at Naval Air Station Lemoore was an administrative error caused by using an unedited form letter from another unrelated

5720
Ser 14/110
January 3, 2018

FOIA request.

As the court said in *Moore*, an agency's inability to locate a responsive record does not undermine an otherwise reasonable search – even where the agency had years earlier potentially destroyed responsive records. Thus, 3d MAW and CNAP's failure to find responsive records does not undermine the otherwise wholly adequate search conducted by them and their respective subordinate commands. The overall thoroughness and adequacy of the search in your cases is further buttressed by the extensive FOIA appellate history (including remands for additional action) which occurred in the processing of your requests. Accordingly, your appeal is hereby denied. However, as previously indicated, in the interest of transparency under the FOIA, I am referring your request for information relating to November 14, 2004, to the DIA's FOIA office.

As the Department of the Navy's designated adjudication official for this FOIA appeal, I am responsible for the denial of this appeal. You may seek judicial review of this decision by filing a complaint in an appropriate U.S. District Court. My office represents the U.S. government and is therefore unable to assist you in this process.

If you would like to seek dispute resolution services, you have the right to contact the Marine Corps' FOIA public liaison, Ms. Sally Hughes, at hqmc@usmc.mil or (703) 614-4008, or the Department of the Navy's FOIA public liaison, Mr. Chris Julka, at christopher.a.julka@navy.mil or (703) 697-0031.

If you have further questions or concerns for my office, my point of contact is LCDR Adam Yost, JAGC, USN, who may be reached at adam.yost@navy.mil or (202) 685-5398.

Sincerely,

G. E. LATTIN
Director
General Litigation Division

Copy to:
DIA
CNAP
3d MAW
HQMC (ARSF)
DNS-36
DON CIO

DOCUMENT I.D. DON-NAVY-2017-002389

SENT TO: NAVAL SEA SYSTEMS COMMAND

(no response or transfer of FOIA ever received)

This message is to confirm your request submission to the FOIA online application: Request information is as follows:

- Tracking Number: DON-NAVY-2017-002389
- Requester Name: Robert Powell
- Date Submitted: 01/03/2017
- Request Status: Submitted
- Description: I am requesting all communications, log books, radar data, and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov 14, 20004. The information to be queried would be related to the USS *Nimitz* and the USS *Princeton*

Good Morning,

I will be transferring your request to NAVAIR and SURFACE FORCES. I apologize for the delay.

v/r

Rita La Prince
FOIA Specialist
Naval Sea Systems Command
Phone: 202-781-2612
E-mail: Rita.LaPrince@navy.mil

-----Original Message-----
From: Robert Powell [mailto:robertmaxpowell@gmail.com]
Sent: Tuesday, June 06, 2017 7:59 PM
To: Laprince, Rita C CIV SEA 00A
Subject: Re: [Non-DoD Source] Re: FOIA Request DON-NAVY-2017-002389 Submitted

Dear Rita,

Could you provide me a status update of FOIA 2017-002389 please. Either I have not received a letter from you that is referenced below or I have misplaced it.

Thanks,

Robert

On 4/25/17 9:26 AM, Laprince, Rita C CIV SEA 00A wrote:

Good Morning,

We conducted a thorough search and found out that your request needs to be transferred to NAVAIR Force Pacific and Surface Forces. I am in the process of preparing the letter to you and transferring the case to those commands

v/r

Rita

Rita La Prince
FOIA Specialist
Naval Sea Systems Command
Phone: 202-781-2612
E-mail: Rita.LaPrince@navy.mil

-----Original Message-----
From: Robert Powell [mailto:robertmaxpowell@gmail.com]
Sent: Tuesday, April 25, 2017 9:41 AM
To: Laprince, Rita C CIV SEA 00A
Cc: Hamlin, Donna M CIV NAVSEA, SEA 00A
Subject: Re: [Non-DoD Source] Re: FOIA Request DON-NAVY-2017-002389 Submitted

Could you provide me an update as to where my FOIA 2017-002389 is within your queue?

Thanks,

Robert Powell

DOCUMENT I.D. DON-NAVY-2017-002564

SENT TO: COMMANDER NAVAL AIR FORCE, U.S. PACIFIC FLEET

This message is to confirm your request submission to the FOIA online application: Request information is as follows:

- Tracking Number: DON-NAVY-2017-002564
- Requester Name: Robert Powell
- Date Submitted: 01/12/2017
- Request Status: Submitted
- Description: I am requesting all communications, log books, radar data, FLIR video, and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004. The information to be queried would be related to the U.S.S. *Nimitz*, the U.S.S. *Princeton*, Marine Hornet squadron VMFA-32, E-2C Hawkeye VAW-117, and the F-18 squadron VFA-41. To help in your search, I provide you the following information: Approximately 80 miles southwest of San Diego on 11-14-2004, an unknown object was detected on radar by the USS *Princeton*. Aircraft from the VMFA-32 and the VFA-41 were vectored to the area of contact. Radar contact was made by the *Princeton* and the VFA-41. The object observed was a white oval shape with no obvious means of propulsion. A FLIR video was taken of the object. I am confident the information exists and am asking for official copies to be provided me through the FOIA system. Any information that provides sensitive information on the operation of radar systems may be redacted but I am requesting copies of the radar data either in photographic or digital form as well as all other information related to this event as previously described. If there is any other information that you need please let me know. I appreciate your help.

  Robert Powell

REPLY FROM COMMANDER NAVAL AIR FORCES THAT THEY HAVE NO INFORMATION

DEPARTMENT OF THE NAVY
COMMANDER NAVAL AIR FORCE PACIFIC
BOX 357051
SAN DIEGO, CALIFORNIA 92135-7051

5720
Ser N01J/016
27 Apr 17

[redacted]

Dear Mr. Powell:

Your January 3, 2017 request under the Freedom of Information Act (FOIA) for, "communications, log books, radar data, FLIR video and all other recorded information" relating to, "any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft" encountered by aircraft from VAW-117 and VFA-41 on November 14, 2014 was received in this office on January 5, 2017. Your request was assigned FOIA #2017-002364.

Our search for responsive records included those maintained by Commander, Strike Fighter Wing, Pacific; Strike Fighter Squadron FOUR ONE (VFA-41); and, Commander, Airborne Command and Control Logistics Wing, Pacific, but none were found.

Because no responsive documents were found, you are advised of your right to appeal the adequacy of this search in writing to the Office of the Judge Advocate General, Code 14, 1322 Patterson Avenue SE, Suite 3000, Washington Navy Yard D.C. 20374-5066. Any appeal must be received within 60 calendar days from the date of this letter in order to be considered, and a copy of this letter should be attached along with a statement regarding why your appeal should be granted. It is recommended that the letter of appeal and the envelope both bear the notation, "Freedom of Information Act Appeal."

My point of contact in this matter is LCDR Matt Tucker, Judge Advocate General's Corps, U.S. Navy. Please do not hesitate to contact him if you have any further questions regarding this matter. He may be reached at (619) 545-2796.

Sincerely,

J. M. NILSEN
Captain
Judge Advocate General's Corps
U.S. Navy
By direction of
the Commander

DOCUMENT I.D. DON-NAVY-2017-002300

SENT TO: OFFICE OF NAVAL INTELLIGENCE

Dear Sir or Madam:

This is a request under the Freedom of Information Request for which I am willing to pay up to $50, otherwise contact me if the cost is greater.

I am requesting all communications, log books, radar data, FLIR video, and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004. The information to be queried would be related to the U.S.S. *Nimitz*, the U.S.S. *Princeton*, Marine Hornet squadron VMFA-32, E-2C Hawkeye VAW-117, and the F-18 squadron VFA-41.

To help in your search, I provide you the following information: Approximately 80 miles southwest of San Diego on 11-14-2004, an unknown object was detected on radar by the USS *Princeton*. Aircraft from the VMFA-32 and the VFA-41 were vectored to the area of contact. Radar contact was made by the *Princeton* and the VFA-41. The object observed was a white oval shape with no obvious means of propulsion. A FLIR video was taken of the object. I am confident the information exists and am asking for official copies to be provided me through the FOIA system. Any information that provides sensitive information on the operation of radar systems may be redacted but I am requesting copies of the radar data either in photographic or digital form as well as all other information related to this event as previously described. If there is any other information that you need please let me know.

I appreciate your help.

Thanks,

Robert Powell

REPLY FROM OFFICE OF NAVAL INTELLIGENCE THAT THEY HAVE NO INFORMATION

01/06/2017 01:10 PM
FOIA Request: DON-NAVY-2017-002300

This provides a final response to your above reference FOIA request for "all communications, log books, radar data, FLIR video, and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004. The information to be queried would be related to the U.S.S. Nimitz, the U.S.S. Princeton, Marine Hornet squadron VMFA-32, E-2C Hawkeye VAW-117, and the F-18 squadron VFA-41." You submitted your request to the Office of Naval Intelligence (ONI) via email on December 30, 2016. Your request was assigned the above referenced FOIA number.

ONI has no records responsive to your request as it is not within ONI's mission and functions. The information you have requested would more likely be under the purview of the Department of Air Force. To assist you in determining the types of records ONI may have the following information is provided.

ONI is an Echelon III, Department of Navy Command that reports directly to the Director of Naval Intelligence. ONI's mission is to produce meaningful maritime intelligence for key strategic, operational and tactical decision makers. ONI supports combat operations and provides vital Maritime Domain Awareness information for planning America's defense against maritime threats ONI's Echelon IV subordinate Commands are as follows:

a. The Farragut Technical Analysis Center (Farragut). Farragut's mission is to identify technical characteristics, capabilities and vulnerabilities of current and future foreign naval forces threatening U.S. interests. Farragut produces a variety of digital deliverables ingestible by research, development, testing and evaluation activities, acquisition program offices and advanced decision aides embedded in U.S. Navy systems. Farragut produces validated threat data and assessments to support the Department of Defense and navy long-range planning and acquisition programs. Farragut develops and sustains Acoustic Intelligence infrastructure and processes. Farragut's five departments are as follows: Acquisition Intelligence Integration Department; the Command, Control, Communication and Computer Intelligence Surveillance and Reconnaissance Department; the Naval Platforms Department; the Acoustic Intelligence Department; and the Naval Weapons Department.

b. The Kennedy Irregular Warfare Center (Kennedy). Kennedy's mission is to provide products and services to meet Department of Defense, National, Navy, Naval Special Warfare and the Navy Expeditionary Combat Command maritime irregular warfare intelligence requirements, and to perform such other functions and tasks as may be assigned by higher authority.[1] Kennedy's six departments are the Administrative Department; the Analysis Department; the Operations and Plans Department; the Logistic Support Department; the Communications Department; and the Training Department.

c. The Hopper Information Services Center (Hopper Hopper's mission is to deliver responsive and adaptable intelligence mission systems, applications and

to provide services support for sustained global maritime and joint intelligence operations. Hopper is the intelligence information services provider for ONI and its naval, joint, interagency and international customers supporting MDA intelligence requirements. Hopper's six departments are the Operations Department; the Protection Department; the Transformation Department; the Intergradation and Develop Department; the Control Department; and the Joint Deployable Intelligence Support Systems Department.

d. The Nimitz Operational Intelligence Center (Nimitz). Nimitz's mission is to provide Maritime Domaine Awareness intelligence for ONI's operational customers in the Department of Defense and Coast Guard. Nimitz's four departments are the Naval Warfare Department; the Fleet Support Department; the Transnational Threat Department; and the Fleet Imagery Support Department.

If you are unsatisfied with this response, you may contact the Navy FOIA Public Liaison at DONFOIAPublicLiaison@navy.mil or by telephone at 703-697-0031 <tel:(703)%20697-0031> . Please ensure you have your assigned FOIA number available. Alternatively, you are advised of your right to appeal this determination. To exercise this right refer to the above referenced FOIA number and send your appeal justification to the Judge Advocate General (Code 14), Department of the Navy, Building 33, Washington Navy Yard, 1322 Patterson Avenue, SE, Suite 3000, Washington, DC 20374-5066. Your appeal must be received by that office within 60 calendar days from the date of this email. A copy of this email should accompany your appeal statement and we recommend you label your letter and envelope with the notation "Freedom of Information Act Appeal."

I am the ONI FOIA Manager and the point of contact for your request. I can be reached at (301) 669-2048 <tel:(301)%20669-2048> or by email at jwatson@nmic.navy.mil.

Jeana Watson, ONI FOIA Manager

DOCUMENT I.D. DON-NAVY-2017-11

SENT TO: U.S. PACIFIC FLEET

Dear Ms Aguon:

This is a request under the Freedom of Information Request for which I am willing to pay up to $50, otherwise contact me if the cost is greater.

I am requesting all communications, log books, radar data, FLIR video, and and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004. The information to be queried would be related to the U.S.S. *Nimitz*, the U.S.S. *Princeton*, Marine Hornet squadron VMFA-32, E-2C Hawkeye VAW-117, and the F-18 squadron VFA-41.

To help in your search, I can provide you the following information: Approximately 80 miles southwest of San Diego on 11-14-2004, an unknown aircraft was detected on radar by the USS *Princeton*. Aircraft from the VMFA-32 and the VFA-41 were vectored to the area of contact. Radar contact was made by the *Princeton* and the VFA-41. The object observed by the F-18s from the VFA-41 was a white oval shape with no obvious means of propulsion. A FLIR video was taken of the object. I am confident the information exists and am asking for official copies to be provided me through the FOIA system. Any information that provides sensitive information on the operation of radar systems may be redacted but I am requesting copies of the radar data either in photographic or digital form as well as all other information related to this event as previously described. If there is any other information that you need please let me know.

I may be contacted by email or at my home address:

Robert Powell
[redacted]

I appreciate your help.

Thanks,

Robert Powell

REPLY FROM UNITED STATES PACIFIC FLEET THAT REQUEST FOR INFORMATION HAS BEEN SENT TO OTHER GROUPS

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5720
Ser N01J/1671
January 20, 2017

Mr. Robert Powell
[redacted]

Dear Mr. Powell:

SUBJECT: FREEDOM OF INFORMATION ACT 2017-11

This letter is in response to your Freedom of Information Act (FOIA) request for "all communications, log books, radar data, FLIR video, and all recorded information regarding the events surrounding any Anonymous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of November 14, 2004." Your request was received on January 3, 2017 and assigned FOIA case file number 2017-11.

Your request has been referred to the following agencies for action as a matter under their cognizance:

Commander, Naval Surface Force, U.S. Pacific Fleet
2841 Rendova Road
San Diego, CA 92155-5490

Commander, Naval Air Force, U.S. Pacific Fleet
P.O.B. 357051
San Diego, CA 92135-7051

Headquarters U.S. Marine Corps
Attn: FOIA/PA Section (ARSF) Rm 2B289
3000 Marine Corps Pentagon
Washington, DC 20350-3000

My point of contact is Ms. Lisa Aguon who may be contacted at (808) 474-6792 or via email at lisa.aguon@navy.mil.

Sincerely,

G. J. SMITH
By direction

DOCUMENT I.D. DON-NAVY-2017-00016

SENT TO: OFFICE OF NAVAL RESEARCH AND THEIR REPLY

Mr. Powell:

The Office of Naval Research (ONR) received your Freedom of Information Act (FOIA) request and gave it the number 17-016 in our system. However, ONR is not the appropriate command to release the information you requested. Your inquiries related to the USS Nimitz and the USS Princeton may be directed to the Department of the Navy, Naval Sea Systems Command (NAVSEA). Their FOIA office can be reached at NAVSEAFOIA@navy.mil. Your inquiries related to air squadrons may be directed to the Department of the Navy, Naval Air Systems Command (NAVAIR). Their FOIA office can be reached at NAWCADFOIA@navy.mil. In addition, records responsive to the subjects in your request may also be found at the Department of the Navy, Naval Facilities Engineering Command (NAVFAC). Their FOIA office can be contacted at:

Naval Facilities Engineering Command Washington (James Dixon)
1314 Harwood Street, SE
Washington Navy Yard, DC 20374-5018

We will close out your request on our end.

V/r,

Jason
Jason C. Towns
FOIA Analyst
Contractor Support to ONR Code BD042
Data Federal Corporation
Office of Naval Research
875 N. Randolph St
Arlington, VA 22203
703-696-5361
ONRFOIA@navy.mil

DOCUMENT I.D. DON-NAVY-2017-002611

SENT TO: NAVAL FACILITIES ENGINEERING COMMAND

(No reply received.)

Dear Sir or Madam:

This is a request under the Freedom of Information Request for which I am willing to pay up to $50, otherwise contact me if the cost is greater.

I am requesting all communications, log books, radar data, FLIR video, and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004. The information to be queried would be related to the U.S.S. *Nimitz*, the U.S.S. *Princeton*, Marine Hornet squadron VMFA-32, E-2C Hawkeye VAW-117, and the F-18 squadron VFA-41.

To help in your search, I provide you the following information: Approximately 80 miles southwest of San Diego on 11-14-2004, an unknown object was detected on radar by the USS *Princeton*. Aircraft from the VMFA-32 and the VFA-41 were vectored to the area of contact. Radar contact was made by the *Princeton* and the VFA-41. The object observed was a white oval shape with no obvious means of propulsion. A FLIR video was taken of the object. I am confident the information exists and am asking for official copies to be provided me through the FOIA system. Any information that provides sensitive information on the operation of radar systems may be redacted but I am requesting copies of the radar data either in photographic or digital form as well as all other information related to this event as previously described. If there is any other information that you need please let me know.

I appreciate your help.

Thanks,

Robert Powell

DOCUMENT I.D. DON-NAVY-2017-003339 AND APPEALS

SENT TO: U.S. MARINES, PACIFIC

You have been assigned to the FOIA request DON-USMC-2017-003339. Additional details for this request are as follows:

* Assigned By: Capt Lamberto E. Mathurin
* Referral Tracking Number: DON-USMC-2017-003339
* Due Date: 02/01/2017
* Requester: Robert Powell
* Request Track: Simple
* Short Description: N/A
* Long Description: All communications, log books, radar data, FLIR video, and and all other recorded information regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004. The information to be queried would be related to the U.S.S. Nimitz, the U.S.S. Princeton, Marine Hornet squadron VMFA-232 (Red Devils), E-2C Hawkeye VAW-117, and the F-18 squadron VFA-41.

REPLY FROM U.S. MARINES THAT THEY HAVE NO INFORMATION

UNITED STATES MARINE CORPS
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
P.O. BOX 452038
SAN DIEGO CA 92145-2038

IN REPLY REFER TO:
5720
SJA
5 Apr 17

From: Freedom of Information Act Coordinator, 3d Marine Aircraft Wing
To: Mr. Robert Powell

Subj: FREEDOM OF INFORMATION ACT REQUEST DON-USMC-2017-003339

1. This responds to the portion of your Freedom of Information Act (FOIA) request DON-USMC-2017-003339 for all communications, log books, radar data, FLIR video, and all other recorded information in the possession of Third Marine Aircraft Wing regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004,

2. In processing your request, we searched the files of VMFA-232, and the operations section of Marine Aircraft Group 11. Records from the time frame requested are not maintained locally. We also contacted the Aviation Corridor (Deputy Commandant-Aviation) in Virginia for any potential records pertaining to your request. No responsive records have been located and as such there are no responsive records to your request in Third Marine Aircraft Wing.

3. In view of the above, you may consider this to be an adverse determination that may be appealed to the Department of the Navy, Office of the General Counsel (ATTN: FOIA APPEALS), 1000 Navy Pentagon, Room 5A532, Washington, DC 20350-1000. Your appeal, if any, must be postmarked within 90 calendar days from the date of this letter and should include a copy of your initial request, a copy of this letter, and a statement indicating why you believe it should be granted. We recommend that your appeal and its envelope both bear the notation "Freedom of Information Act Appeal."

4. You also have the right to seek assistance and/or dispute resolution services from the Marine Corps FOIA Public Liaison, Ms. Sally Hughes, at hqmcfoia@usmc.mil or (703) 614-4008, and/or the Department of the Navy FOIA Public Liaison, Mr. Christopher Julka, at Christopher.a.julka@navy.mil or (703) 697-0031. You may also contact the Office of Government Information Services for assistance and/or dispute resolution at ogis@nara.gov or 1-877-684-6448. For more information online about services provided by OGIS, please visit their website at https://ogis.archives.gov.

Subj: FREEDOM OF INFORMATION ACT REQUEST DON-USMC-2017-003339

5. Please contact me at (858) 577-7345 or via email at lamberto.mathurin@usmc.mil if you have any questions or concerns.

L. E. MATHURIN

APPEAL TO NAVY REGARDING MARINES HAVING NO INFORMATION

Robert Powell
[redacted]

May 30, 2017

Department of the Navy
Office of the General Counsel
ATTN: FOIA APPEALS
1000 Navy Pentagon
Room 5A532
Washington, DC 20350-1000

Re: FOIA APPEAL Request of DON-USMC-2017-003339

Dear Sir or Madam:

This letter is in reference to the Freedom of Information Act, 5 U.S.C. § 552 (a)(6)(A)(i)(III)(aa), which allows a minimum of 90 days to appeal a FOIA determination. The FOIA request being appealed was originally initiated on December 30, 2016, filed as 2017-003339 and was denied on April 5, 2017 with the determination that "no records exist". A copy of the original appeal and denial are attached.

I have also attached two supporting files that lend credence to the belief that there are documents in the possession of the U.S. Marine Corps related to an incident involving an unknown aircraft on Nov. 14, 2004. The document labeled "Overview of Event of 14 November 2004" provides a detailed account of the event that transpired. I have highlighted in yellow the portions of the event that involved a Marine Harrier jet. I have removed the personal names of the commanders involved and have referred to them as Commanders Y and X. The document with the heading “CVW-11 Event Summary” appears to be a "Navy After Action" report that was released in 2007. There is no reason to doubt the authenticity of the statements made by these individuals.

I request that a more thorough search be made for the VMFA-232 records for November 14, 2004 based on the Department of the Navy Records Management Program 5210.1 revised May 2012. If these records cannot be found then please provide all of the records from the VMFA-232 on Nov. 14, 2004 to establish that the records were thoroughly researched. This information will establish what did happen on said date if there was truly no unknown aircraft involved.

Thank you for your time and consideration.

Sincerely,

Robert Powell

FAILURE OF NAVY TO ACT ON APPEAL REGARDING MARINES RESPONSE, WITH A COPY TO CONGRESSIONAL REPRESENTATIVES

Robert Powell
[redacted]
July 5, 2017

Department of the Navy
Office of the General Counsel
ATTN: FOIA APPEALS
1000 Navy Pentagon
Room 5A532
Washington, DC 20350-1000

Re: FOIA APPEAL Request of DON-USMC-2017-003339

Dear Sir or Madam:

On May 30, 2017, I sent an appeal regarding the denial of a FOIA request. I have received no confirmation of my appeal and it has been over 30 days. I am copying my U.S. Senator Ted Cruz as well as the Chairman of the Senate Armed Services Committee, Senator John McCain. I am asking for their support in the appeal of my FOIA request as well as their support in an answer to the original FOIA. A copy of that original letter is enclosed.

I have also attached two supporting documents that lend credence to the belief that there are documents in the possession of the U.S. Marine Corps and the U.S. Navy related to an incident involving an unknown aircraft on Nov. 14, 2004, in U.S. waters near San Diego, California.

Thank you for your time and consideration.

Sincerely,

Robert Powell

cc: Honorable Senator John McCain
Honorable Senator Ted Cruz

NAVY RESPONSE TO SECOND APPEAL

DEPARTMENT OF THE NAVY
OFFICE OF THE JUDGE ADVOCATE GENERAL
1322 PATTERSON AVENUE SE SUITE 3000
WASHINGTON NAVY YARD DC 20374

IN REPLY REFER TO:
5720
Ser 14/400
July 27, 2017

Mr. Rober Powell
[redacted]
e-mail:robertmaxpowell@gmail.com

SUBJECT: FREEDOM OF INFORMATION ACT (FOIA) REQUEST DON-USMC-2017-003339; FOIA APPEAL DON-NAVY-2017-008885

This letter acknowledges receipt of your correspondence regarding your Freedom of Information Act (FOIA) appeal that was received in our office on July 24, 2017. Your case has been assigned file number DON-NAVY-2017-008885. Please refer to that file number for any future questions or correspondence concerning your appeal.

In fairness to all requesters, we process all appeals in the order in which they are received. Processing times may be affected by the number and complexity of pending appeals. For that reason, we are unable to provide an estimated completion date at this time. Your rights to judicial review will not be prejudiced by waiting for a substantive determination regarding your appeal. We will work as expeditiously as possible, however, to respond to your request within 20 working days as outlined in the FOIA regulations.

You may contact me at 202-685-5446 or wendy.winston@navy.mil if you have any questions concerning the processing of your appeal. Please provide your last name and the above assigned file number in any correspondence.

Sincerely,

Wendy A. Winston
Legal Administrative Specialist
General Litigation Division

MARINES/NAVY PROVIDE A PARTIAL RESPONSE TO APPEAL AND PROVIDE MARINE STATEMENTS ON THE TIC-TAC INCIDENT

DEPARTMENT OF THE NAVY
OFFICE OF THE JUDGE ADVOCATE GENERAL
1322 PATTERSON AVENUE SE SUITE 3000
WASHINGTON NAVY YARD DC 20374

IN REPLY REFER TO:
5720
Ser 14/441
August 31, 2017

Mr. Robert Powell
[redacted]
e-mail: robertmaxpowell@gmail.com

SUBJECT: FREEDOM OF INFORMATION ACT (FOIA) REQUEST DON-USMC-2017-003339; FOIA APPEAL DON-NAVY-2017-008885 AND FREEDOM OF INFORMATION ACT (FOIA) REQUEST DON-NAVY-2017-002364 (SISTER CASE DON-NAVY-2017-002564); FOIA APPEAL DON-NAVY-2017-009164

This letter responds to your two subject FOIA appeals, received in this office on July 24, 2017, and August 3, 2017, respectively. Your appeals are requests for final determinations under the FOIA. For the reasons set forth below, your appeals are granted in part and denied in part.

I. FOIA Request DON-USMC-2017-003339; FOIA Appeal DON-NAVY-2017-008885

First, you appeal the April 5, 2017, response from 3d Marine Aircraft Wing (MAW) to your request for "all communications, log books, radar data, FLIR video, and all other recorded information in the possession of Third Marine Aircraft Wing regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of Nov. 14, 2004." In its response, 3d MAW noted that searches were conducted at Marine Fighter Attack Squadron 232 (VMFA-232) and the operations section of Marine Aircraft Group (MAG) 11; however, the search returned no responsive information because records from the 2004 timeframe of your request are no longer maintained at those commands.

In your appeal, you challenge the adequacy of the search conducted by the U.S. Marine Corps and request "a more thorough search be made for the VMFA-232 records for November 14, 2004 based on the Department of the Navy Records Management Program 5210.1 revised May 2012. If these records cannot be found then please provide all of the records from the VMFA-232 on Nov. 14, 2004 to establish that the records were thoroughly researched." To support your challenge, you also attached two documents to your appeal that you state "lend credence to the belief that there are documents in the possession of the U.S. Marine Corps related to an incident involving an unknown aircraft

on Nov. 14, 2004."

The adequacy of an agency's search for information requested under the FOIA is determined by a "reasonableness" test. *Meeropol v. Meese*, 790 F.2d 942, 956 (D.C. Cir. 1986); *Weisberg v. United States Dep't of Justice*, 705 F.2d 1344, 1350-51 (D.C. Cir. 1983). As a general rule, an agency must undertake a search that is reasonably calculated to locate the requested information. *Kowalczyk v. Department of Justice*, 73 F.3d 386, 388 (D.C. Cir. 1996). Courts have found agencies satisfy the "reasonableness" test when they properly determine where responsive records are likely to be found and search those locations. *Lechliter v. Rumsfeld*, 182 F. App'x 113, 115 (3d Cir. 2006) (concluding that agency fulfilled duty to conduct a reasonable search when it searched two offices that it "determined to be the only ones likely to possess responsive documents" (citing *Oglesby v. U.S. Dep't of the Army*, 920 F.2d 57, 68 (D.C. Cir. 1990)); *McKinley v. Bd. of Governors of the Fed. Reserve Sys.*, 849 F. Supp. 2d 47, 55-56 (D.D.C. 2012) (concluding that agency's search was reasonable because agency determined that all responsive records were located in a particular location created for express purpose of collecting records related to subject of request and searched that location). Moreover, courts have found that an agency's inability to locate a responsive record does not undermine an otherwise reasonable search. *Moore v. FBI*, 366 F. App'x 659, 661 (7th Cir. 2010) (noting that although agency had years earlier destroyed some potentially responsive records, that fact does not invalidate the search).

Following receipt of your appeal, my staff contacted 3d MAW, which provided additional information on the searches conducted. 3d MAW Headquarters staff do not maintain any files, systems, or archives where information responsive to your request could be found. VMFA-232 staff searched flight logs, flight schedules, the command's share drive, and classified storage hard drives for anything from 2004. VMFA-232 had no records or information from 2004, and no responsive information was found. MAG 11 also searched for responsive information; however, no responsive information was found because MAG 11 does not retain any of the kinds of records that could be responsive to your FOIA request.

Based on these facts, I find the searches conducted by 3d MAW, VMFA-232, and MAG 11 were adequately and reasonably tailored to retrieve responsive information. Moreover, as the 7th Circuit said in *Moore*, an agency's inability to locate a responsive record does not undermine an otherwise reasonable search – even where the agency had years earlier destroyed some potentially responsive records. You indicate that you obtained the two documents from the internet; however, neither document undermines the adequacy of the searches conducted. Accordingly, your appeal as it pertains to the searches conducted by 3d MAW, VMFA-232, and MAG 11, is denied.

However, in the course of the Marine Corps' search for information responsive to your request, a Marine Lieutenant Colonel provided an email noting that he is aware of the 2004 event and, although he did not witness the event or documentation of the event, he provided names of Navy and Marine Corps personnel who may have responsive information. This email appears to be responsive to your FOIA request; accordingly, a copy is attached at enclosure 1. The names of certain personnel, telephone numbers, and email address have been redacted pursuant to FOIA exemption (b)(6). FOIA exemption (b)(6) allows the Government to withhold information about individuals when the disclosure of such information would constitute a clearly unwarranted invasion of personal privacy. As it relates to FOIA exemption (b)(6), the disclosure of names can constitute an unwarranted invasion of personal privacy for certain personnel; however, other personnel names can be released due to the nature of their positions and duties. For DoD, in the interest of open government, ranks of all personnel and the names of office-director level DoD employees or those in the rank of O-6 (Navy captain or Marine Corps colonel) and above generally are not exempted under (b)(6). In this case, I have determined that there is a public interest in releasing the names of the personnel who have or are serving as commanding officers, as well as personnel above the rank of O-6, that outweighs the privacy interests of these individuals. However, I have also determined all of the service members in enclosure 1 have substantial privacy interests in their e-mail addresses and telephone numbers which outweighs public interest in release. Release of such information is not likely to shed any light on the agency's performance of its statutory duties. Rather, release of such information would raise privacy and security concerns. *See, e.g., George v. Internal Revenue Service, et al.*, 2007 U.S. Dist. LEXIS 36525 (N.D. Ca 2007); *Wilson v. United States Air Force,* 2009 U.S. Dist. LEXIS 114702 (E.D. Ky 2009); *Schoenman v. Federal Bureau of Investigation, et al.*, 575 F. Supp. 2d 136 (D.D.C. 2008).

By copy of this letter, I am remanding your request to 3d MAW for three reasons. First, I am directing that command to contact the Marine Corps personnel listed in enclosure 1 to search for any responsive agency records the listed individuals may have in their possession. Second, I am directing that 3d MAW coordinate with the office of the Deputy Commandant of the Marine Corps for Aviation to search for information that may be responsive to your request. Third, I am directing that 3d MAW coordinate with the Marine Corps' History Division to search for information in that Division that may be responsive to your request. 3d MAW will provide you with a response within 20 working days from the date of this letter. You retain the right to appeal the response to this office within 90 days of the date of the response. I caution you that remand to 3d MAW does not mean that additional records responsive to your FOIA request exist. Moreover, if such records exist, portions may still be withheld under applicable FOIA exemptions.

II. FOIA Request DON-NAVY-2017-002364; FOIA Appeal DON-NAVY-2017-009164

Second, you appeal the April 27, 2017, response from Commander, Naval Air Force Pacific (CNAP) to your request for "communications, log books, radar data, FLIR video, and all other recorded information" relating to "any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft" encountered by aircraft from Carrier Airborne Early Warning Squadron ONE ONE SEVEN (VAW-117) and Strike Fighter Squadron FOUR ONE (VFA-41) on November 14, 2004. In its response, Commander, Naval Air Force Pacific noted that searches were conducted by Commander, Strike Fighter Wing, Pacific; VFA-41; and Commander, Airborne Command and Control Logistics Wing, Pacific; however, no responsive records were found.

In your appeal, you challenge the adequacy of the searches conducted and request "a more thorough searching of naval records." To support your appeal, you note that you received a letter from the Naval Air Warfare Center Aircraft Division that indicated the Division's search for records responsive to your request identified documents that originated with Naval Air Station Lemoore, and that the FOIA request was referred to Naval Air Station Lemoore for a release determination and direct response to you. You therefore challenge CNAP's conclusion that no responsive records were found, and you request a copy of the records. You also attached two documents to your appeal that you state "lend credence to the belief that an incident involving an unknown aircraft on Nov. 14, 2004 did occur."

The adequacy of an agency's search for information requested under the FOIA is determined by a "reasonableness" test. *Meeropol v. Meese*, 790 F.2d 942, 956 (D.C. Cir. 1986); *Weisberg v. United States Dep't of Justice*, 705 F.2d 1344, 1350-51 (D.C. Cir. 1983). As a general rule, an agency must undertake a search that is reasonably calculated to locate the requested information. *Kowalczyk v. Department of Justice*, 73 F.3d 386, 388 (D.C. Cir. 1996). Courts have found agencies satisfy the "reasonableness" test when they properly determine where responsive records are likely to be found and search those locations. *Lechliter v. Rumsfeld*, 182 F. App'x 113, 115 (3d Cir. 2006) (concluding that agency fulfilled duty to conduct a reasonable search when it searched two offices that it "determined to be the only ones likely to possess responsive documents" (citing *Oglesby v. U.S. Dep't of the Army*, 920 F.2d 57, 68 (D.C. Cir. 1990)); *McKinley v. Bd. of Governors of the Fed. Reserve Sys.*, 849 F. Supp. 2d 47, 55-56 (D.D.C. 2012) (concluding that agency's search was reasonable because agency determined that all responsive records were located in a particular location created for express purpose of collecting records related to subject of request and searched that location). Moreover, courts have found that an agency's inability to locate a responsive record does not undermine an otherwise reasonable search. *Moore v. FBI*, 366 F. App'x 659, 661 (7th

Cir. 2010) (noting that although agency had years earlier destroyed some potentially responsive records, that fact does not invalidate the search).

Following receipt of your appeal, my staff contacted CNAP staff, which provided additional information on the searches conducted. VFA-41 conducted a search for responsive information; however, the squadron had no records of flight schedules or FLIR footage going back to 2004; therefore, no responsive information was found. Similarly, Commander, Strike Fighter Wing, Pacific, the Immediate Superior in Command of VFA-41, did not have records dating to 2004; therefore, no responsive information was found. Commander, Airborne Command and Control Logistics Wing, Pacific, the Immediate Superior in Command of VAW-117, stated that the squadron no longer has any records pertaining to the date in question, and the E-2C that would have been operating at the time did not have a flight data recorder that could have recorded information responsive to your request.

Based on these facts, I find the searches conducted by VFA-41; Commander, Strike Fighter Wing, Pacific; Commander, Airborne Command and Control Logistics Wing, Pacific; and VAW-117 were adequately and reasonably tailored to retrieve responsive information. Moreover, as the 7th Circuit said in *Moore*, an agency's inability to locate a responsive record does not undermine an otherwise reasonable search – even where the agency had years earlier destroyed some potentially responsive records. You indicate that you obtained the two documents from the internet; however, neither document undermines the adequacy of the searches conducted. Accordingly, your appeal as it pertains to the searches conducted by VFA-41; Commander, Strike Fighter Wing, Pacific; Commander, Airborne Command and Control Logistics Wing, Pacific; and VAW-117 is denied.

However, in its response to you, CNAP did not address the Naval Air Warfare Center Aircraft Division's search for responsive information or how the referral of your request to Naval Air Station Lemoore was resolved. Additionally, as noted above, in the course of the Marine Corps' search for information responsive to your request, a Marine Lieutenant Colonel provided an email noting that he is aware of the 2004 event and, although he did not witness the event or documentation of the event, he provided names of Navy and Marine Corps personnel who may have responsive information.

By copy of this letter, I am remanding your request to CNAP for two reasons. First, I am directing that CNAP coordinate contacting the Navy personnel listed in enclosure 1 to search for any responsive agency records those individuals may have in their possession. Second, I am directing that CNAP coordinate with the Naval Air Warfare Center Aircraft Division to address that command's search for responsive information and the referral of your request to Naval Air Station Lemoore. CNAP will provide you with a response

within 20 working days from the date of this letter. You retain the right to appeal the CNAP response to this office within 90 days of the date of the response. I caution you that remand to CNAP does not mean that additional records responsive to your FOIA request exist. Moreover, if such records exist, portions may still be withheld under applicable FOIA exemptions.

As the Department of the Navy's designated adjudication official for this FOIA appeal, I am responsible for the partial denials of your appeals. You may seek judicial review of this decision by filing a complaint in an appropriate U.S. District Court. My office represents the U.S. government and is therefore unable to assist you in this process.

If you would like to seek dispute resolution services, you have the right to contact the Marine Corps' FOIA public liaison, Ms. Sally Hughes, at hqmcfoia@usmc.mil or (703) 614-4008, or the Department of the Navy's FOIA public liaison, Mr. Chris Julka, at christopher.a.julka@navy.mil or (703) 697-0031.

If you have further questions or concerns for my office, my point of contact is LCDR Adam Inch, JAGC, USN, who may be reached at adam.inch@navy.mil or (202) 685-5452.

Sincerely,

G. E. LATTIN
Director
General Litigation Division

Enclosures:
1. Copy of responsive email

Copy to:
3d MAW
HQMC (ARSF)
CNAP
DNS-36
DON CIO

From: Tomlinson LtCol Robert A
To: (b) (6) Maj (b) ; Byrum LtCol Dustin J
Cc: (b) (6) Capt (b) (6) (b) LtCol (b)
Subject: RE: FOIA Request
Date: Tuesday, March 07, 2017 22:33:52

(b),

I am definitely aware of the "flying tic tac"! We were aboard the USS NIMITZ attached to CVW-11. The CO of VFA-41, CDR "Sex" Fravor (spelling?) had the video footage on his ATFLIR and several pilots in VMFA-232 saw the video. I personally did not see the video, but I heard all about it. I believe our CO at the time, LtCol "Cheeks" Kurth (retired) observed the tic tac, and I believe LtCol (b) (6), LtCol (b) (6) (retired), LtCol (b) (6) (retired), and several others also observed the video footage. Another good reference might be RADM Dell Bull (CNATRA) as he was the VFA-41 XO at the time.

S/F,

LtCol Rob "DAHIGI" Tomlinson
Commanding Officer
VMFA-323 "Death Rattlers"
(b) (6)

-----Original Message-----
From: (b) (6) Maj (b) (6)
Sent: Tuesday, March 07, 2017 6:27 PM
To: Byrum LtCol Dustin J; Tomlinson LtCol Robert A
Cc: (b) (6) Capt (b) (6) (b) LtCol (b) (6)
Subject: FW: FOIA Request

Good afternoon Gentlemen,

3d MAW received a FOIA request recently for any responsive records in regards to an unknown, white, oval-shaped aircraft without obvious means of propulsion that was detected approximately 80 miles from San Diego by the USS Princeton and FA-18s from VFA-41 and VMFA-232. (request is provided in the attached email). During the course of our search for records, you gentlemen were identified as Marines who may have knowledge pertaining to this request.

Please let me know if you can spread any light on the circumstances surrounding this FOIA request and
1. if you have any records responsive to this request
or
2. know of any people or commands which may be able to provide responsive records.

Please let me know if you have any questions and thank you for any help that

you can give.

V/r,

(b) (6)
Major, USMC
Deputy Staff Judge Advocate
3rd Marine Aircraft Wing

Office: (b) (6)

-----Original Message-----
From: (b) (6) Maj (b) (6)
Sent: Monday, March 06, 2017 10:20 AM
To: (b) (6) Capt (b) (6)
Subject: FOIA Request

Capt (b) (6),

All flight schedules from the timeframe outlined in the FOIA request have been archived, and we at the squadron no longer have access to them. MAG-11 Ops should have a POC at the archive to facilitate recovery of these files. The squadron also has no archived FLIR footage or radar data from that date, nor do we even use the same recording systems that were used at that time. Two individuals, LtCol "Warren" Byrum (CO VMFA-314), and LtCol "DAHIGI" Tomilinson (CO VMFA-323) were in VMFA-232 on the date in question, and may be able to provide further clarification should Mr. Powell desire to talk to them. Let me know what other questions you have.

S/F,

Maj (b) (6)
Executive Officer
VMFA-232 "Red Devils"

Office: (b) (6)
DSN: (b) (6)
Mobile: (b) (6)
BB: (b) (6)
(b) (6)
Time Zone: Z - 8 / Japan - 16 / Hawaii + 3

ADDITIONAL INFORMATION PROVIDED BY U.S. MARINE CORP

UNITED STATES MARINE CORPS
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
P.O. BOX 452038
SAN DIEGO CA 92145-2038

IN REPLY REFER TO:
5720
SJA
10 Oct 17

From: Freedom of Information Act Coordinator, 3d Marine Aircraft Wing
To: Mr. Robert Powell

Subj: REMAND RESPONSE FOR FREEDOM OF INFORMATION ACT REQUEST
DON-USMC-2017-003339

1. This letter is in response to the appeal you made regarding your Freedom of Information Act (FOIA) request DON-USMC-2017-003339 for all communications, log books, radar data, FLIR video, and all other recorded information in the possession of 3d Marine Aircraft Wing (MAW) regarding the events surrounding any Anomalous Aerial Vehicles, Unidentified Airborne Contacts, or other terminology used to describe unknown aircraft, on the date of 14 November 2004.

2. In processing your request, we further researched the files of VMFA-232 and the operations section of Marine Aircraft Group (MAG) 11, both physical and electronic, for any documentation from 2004 and none was found. Additionally, due diligence was taken to ensure all shared drives and physical files were searched within 3d MAW. No responsive records have been located. Moreover, an email from the MAG-11 operations officer, Lieutenant Colonel (LtCol) Stephen N. McClune is being sent to you via separate correspondence detailing the use of Forward Looking Infrared Radiometer (FLIR) footage.

3. In reference to personnel identified by LtCol Robert A. Tomlinson that may have witnessed then anomalous event, the following information is provided.

a. LtCol Doug Kurth: Retired in 2006.

b. LtCol Ryan McCaskill: Serving with United States Northern Command.

c. LtCol Justin Knox: Retired in 2016.

d. LtCol John Schares: Retired in 2013.

4. Because none of these Marines are under the purview of 3d MAW, they were not contacted to obtain information.

5. In view of the above, you may consider this to be an adverse determination that may be appealed to the Department of the Navy, Office of the General Counsel (ATTN: FOIA APPEALS), 1000 Navy Pentagon, Room 5A532, Washington, DC 20350-1000. Your appeal, if any, must be postmarked within 90 calendar days from the date of this letter and should include a copy of your initial request, a copy of this letter, and a statement indicating why you believe it should be granted. We recommend that your appeal and its envelope both bear the notation "Freedom of Information Act Appeal."

6. You also have the right to seek assistance and/or dispute resolution services from the Marine Corps FOIA Public Liaison, Ms. Sally Hughes, at hqmcfoia@usmc.mil or (703) 614-4008, and/or the Department of the Navy FOIA Public Liaison, Mr. Christopher Julka, at Christopher.a.julka@navy.mil or (703) 697-0031. You may also contact the Office of Government Information Services for assistance and/or dispute resolution at ogis@nara.gov or 1-877-

684-6448. For more information online about services provided by OGIS, please visit their website at https://ogis.archives.gov.

7. Please contact me at (858) 577-7345 or via email at lamberto.mathurin@usmc.mil if you have any questions or concerns.

L. E. MATHURIN

DOCUMENT I.D. DON-NAVY-2017-004661

SENT TO: NAVY CHIEF OF OPERATIONS

(copy of Navy retention records specification received)

This message is to confirm your request submission to the FOIA online application: Request information is as follows:

- Tracking Number: DON-NAVY-2017-004661
- Requester Name: Robert Powell
- Date Submitted: 03/20/2017
- Request Status: Submitted
- Description: This is a Freedom of Information Act request that should most likely be handled by either the Dept of the Navy Chief of Information or the Dept of the Navy Chief Information Officer. I am requesting the Records Management document(s) that describes the life cycle management process of records kept by Naval ships and aircraft whether in paper or electronic format. Such a document would discuss how video recordings, photos, logbooks, emails, etc. would be maintained and archived over time. I am also requesting the document(s) that define the storage locations for all records during the life cycle management process. Thank you. Robert Powell

DOCUMENT I.D. DON-NAVY-2017-007397

SENT TO: NAVY HISTORY AND HERITAGE COMMAND

SECOND REQUEST FOR USS *PRINCETON* LOGS

This message is to confirm your request submission to the FOIA online application: Request information is as follows:

- Tracking Number: DON-NAVY-2017-007397
- Requester Name: Robert Powell
- Date Submitted: 06/11/2017
- Request Status: Submitted
- Description: This is a FOIA request for information regarding the USS *Princeton* on the dates of November 9, 2014 through and including November 16, 2014. Please provide a copy of the Deck Log, CIC Watch Log, Radar Contact Logs, and messages sent to either CINCLANT or CINCPAC during this time period.

Good Morning Sir, I hope all is well.

My name is Ms. Thomas and I am the FOIA Coordinator for Naval History and Heritage Command. I am in receipt if your FOIA request for records pertaining to the USS PRINCETON for November 2004.

I spoke to Mr. Thompson when he inquired about similar records. As I stated to him, the only records we receive here at NHHC are the deck logs and the command operations reports (CORs); unfortunately, the USS PRINCETON did not submit deck logs for the months of November and December of 2004 or a COR for 2004. We searched all of the unclassified and classified holdings and no records were ever submitted by the ship. Additionally, the remaining records you are seeking are temporary files that remain onboard the ship and are destroyed after they reach their disposition date which could be two to six years in accordance with the Navy Records Management Program.

Unfortunately, due to this, you can either withdraw your request and resubmit if you come across other records or you can receive an official response from us on letterhead stating "no records". Please let me know how you wish to proceed or if you have any questions.

Have a great day!

Very Respectfully,

Ms. Flor Thomas
FOIA Coordinator
Naval History and Heritage Command
History and Archives Division (HAD)
805 Kidder Breese Street, SE
Washington Navy Yard, DC 20374
(202) 433-6908

DOCUMENT I.D. DON-NAVY-2017-008134

SENT TO: NAVY HISTORY AND HERITAGE COMMAND

(Copy of *Nimitz* Deck Logs received. Relevant portions available in Appendix C)

This message is to confirm your request submission to the FOIAonline application: Request information is as follows:

- Tracking Number: DON-NAVY-2017-008134
- Requester Name: Robert Powell
- Date Submitted: 07/04/2017
- Request Status: Submitted
- Description: This is a FOIA request for information regarding the USS *Nimitz* on the dates of November 9, 2014 through and including November 16, 2014. Please provide a copy of the Deck Log, CIC Watch Log, Radar Contact Logs, and messages sent to either CINCLANT or CINCPAC during this time period.

Dear Mr. Powell ,

I am reaching out to you with respect to your FOIA request referenced above. Our agency has been advised to no longer review on site, process or release documents for FOIA requests involving deck logs and command history reports of nuclear vessels due to possible disclosure of Naval Nuclear Propulsion Information (NNPI). NNPI is information that can be found in the deck logs as well as the command history that is considered restricted and oftentimes classified.

At the moment, we have been instructed to run all such records through Naval Reactors in order for them to review and make the determination on whether we can continue processing. Since this process is completely out of NHHC control, the time line for processing your request is uncertain. However, we will keep you updated if there are any developments regarding your request.

I am the designated point of contact for transferring records pertaining to your request to Naval Reactors for review and processing. Should you have any questions, do not hesitate to contact me at your earliest convenience.

Sincerely,
David Ajua
Government Information Specialist
Naval History and Heritage Command
805 Kidder Breese Street, Southeast
Washington Navy Yard, DC 20374
david.ajua@navy.mil
david.ajua@navy.smil.mil
(202) 685-0156

Dear David,

Since our last communication I did some research that indicated the release of deck logs on nuclear carriers has been a common practice. The USS Enterprise, since decommissioned, has years worth of deck logs available at the National Archives. The *Nimitz* deck logs were released with FOIA 2012F071337 with only 8 days between request and release. This again occurred with FOIA 2012F071343 with 18 days between request and release. The deck logs of the USS Eisenhower were released with FOIA 2011F061614 with only 2 days between request and release. The deck logs of the USS Carl Vinson were released with FOIA 2012F081493 with 17 days between request and release. There are more examples available. Please pass this information on to the appropriate party and request a release date. If they are not willing to supply a reasonable release date, please deny the FOIA request so that I can appeal it to JAG and my congressional representative.

I appreciate your help in this and realize that the delay is not under your control.

Best wishes,

Robert

On 12/12/2017 8:42 AM, Thomas, Flor J CIV NHHC HAD wrote:

Good Morning Mr. Powell, I hope all is well.

SUBJECT: FREEDOM OF INFORMATION ACT REQUEST CASE NUMBER DON-NAVY-2017-008134

This is in response to your Freedom of Information Act (FOIA) request dated July 4, 2017 in which you requested the deck logs from the USS NIMITZ (CVN 68) from November 9-16, 2014; Watch Logs; Radar Contact Logs; and messages sent to either CINCLANT or CINCPAC during this time period. Your request was modified on July 14, 2017 to the deck logs of the USS NIMITZ (CVN 68) from November 9-16, 2004. Your request was received by this office via FOIA online on July 4, 2017 with the case number DON-NAVY-2017-008134.

Your request has been processed in accordance with the Freedom of Information Act (5 U.S.C. § 552), Part 701 of Title 32 of the Code of Federal Regulations, and the Department of the Navy Freedom of Information Act Program (SECNAVINST 5720.42F).

The final release of the requested deck logs falls under the cognizance of Commander, Naval Air Force U.S. Pacific Fleet. We have referred these records to that command for review and a direct response to you.

For the purpose of assessing FOIA processing fees, you have been categorized as an "all other" requester. As such, you are entitled to two hours of search and 100 pages of duplication free of charge, but are responsible for the payment of any search and duplication fees exceeding your free entitlement. In this instance, since the fees do not exceed your free entitlement, there is no fee charge for the processing of your request by this office.

You may contact the analyst who processed your request, Mr. David Ajua at (202) 685-0156 or email: david.ajua@navy.mil, as well as our FOIA Public Liaison Ms. Robin Patterson at DONFOIA-PA@navy.mil for any further assistance and to discuss any aspect of your request.

If you are not satisfied with the response to this request, you may administratively appeal by writing to:

Department of the Navy
Office of the Judge Advocate General (Code 14)
1322 Patterson Avenue SE, Suite 3000
Washington Navy Yard, DC 20374-5066

Your appeal must be postmarked within 90 calendar days from the date of this letter to be considered. A statement as to why your appeal should be granted should be included and a copy of this letter should be attached. Both the appeal letter and the envelope should bear the notation, "Freedom of Information Act Appeal."

Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

Very Respectfully,

Ms. Flor Thomas
FOIA Coordinator
Naval History and Heritage Command
History and Archives Division (HAD)
805 Kidder Breese Street, SE
Washington Navy Yard, DC 20374
Bldg. 200
(202) 433-6908

DOCUMENT I.D. DON-NAVY-2018-000472

SENT TO: NAVY INSPECTOR GENERAL

REQUEST MADE FOR A REPORT ON THE *NIMITZ/PRINCETON* INCIDENT

This message is to confirm your request submission to the FOIAonline application: Request information is as follows:

- Tracking Number: DON-NAVY-2018-000472
- Requester Name: Robert Powell
- Date Submitted: 10/18/2017
- Request Status: Submitted
- Description: This is a FOIA request for a copy of the Naval Inspector General report that was made regarding a Navy incident that occurred on November 14, 2004. The incident involved a minimum of the USS *Nimitz*, the USS *Princeton*, an Airborne Early Warning Aircraft from VAW-117, a Marine F-18 from VMFA-232, and four F-18 SuperHornets from VFA-41 that included CO David Fravor (retired) and XO Dell Bull (now Rear Admiral, USN).

NAVY INSPECTOR GENERAL REPLY THAT NO REPORT EXISTS

DEPARTMENT OF THE NAVY
NAVAL INSPECTOR GENERAL
1254 9TH STREET SE
WASHINGTON NAVY YARD DC 20374-5006

IN REPLY REFER TO:
5720
Ser 00K2/17-1042
19 Dec 2017

Mr. Robert Powell
[redacted]
robertmaxpowell@gmail.com

Dear Mr. Powell:

This responds to your Freedom of Information Act (FOIA) request (DON-NAVY-2018-000472) of October 18, 2017, in which you requested "a copy of the Naval Inspector General report that was made regarding a Navy incident that occurred on November 14, 2004. The incident involved a minimum of the USS Nimitz, the USS Princeton, an Airborne Early Warning Aircraft from VAW-117, a Marine F-18 from VMFA-232, and four F-18 SuperHornets from VFA-41 that included CO David Fravor (retired) and XO Dell Bull (now Rear Admiral, USN)."

On December 17, 2017, you appealed our failure to make a timely response. The Office of the Judge Advocate General forwarded the matter to our office for a response on December 18, 2017. I apologize that our office did not timely respond to you. The delay is due to a temporary lack of FOIA program resources at the Office of the Naval Inspector General (NAVINSGEN).

A search of the Naval Inspector General investigation database for complaints received between 2004 and 2005 using the following search terms, "USS Nimitz," "USS Princeton," "Airborne Early Warning," "VAW-117," "VMFA-232," "VFA-41," "Fravor" and "Bull" failed to locate the requested records. Consequently, we have no records to provide you.

In view of the above, you may consider this to be an adverse determination that may be appealed. Any appeal should be submitted to:

OFFICE OF THE JUDGE ADVOCATE GENERAL
ATTN: FOIA APPEALS – CODE 14
1322 PATTERSON AVENUE SE SUITE 3000
WASHINGTON NAVY YARD DC 20374-5066

Your appeal, if any, must be postmarked within 90 calendar days from the date of this letter and should include a copy of your initial request and a copy of this letter. You are encouraged, but not required, to include a statement indicating why you believe your appeal should be granted. I recommend that your appeal and its envelope both bear the notation, "Freedom of Information Act Appeal." You may also submit an appeal using the "Create Appeal" link in FOIA ON-LINE.

You also have the right to seek assistance and/or dispute resolution services from Mr. Christopher Julka, Department of the Navy, FOIA Public Liaison officer. Mr. Julka may be

5720
Ser 00K2/17-1042
19 Dec 2017

contacted at: Christopher.a.julka@navy.mil or (703) 697-0031. You may also contact the Office of Government Information Services (OGIS) for assistance and/or dispute resolution at ogis@nara.gov or 1-877-684-6448. For more information online about services provided by OGIS, please visit their website at https://ogis.archives.gov.

I am responsible for this denial decision; if you have any questions concerning this matter, please contact me at (202) 433-4703.

Sincerely,

Lori S. Howard

Lori S. Howard
Associate Counsel

DOCUMENT I.D. DON-NAVY-2018-008449

SENT TO: NAVY HISTORY AND HERITAGE COMMAND

(USS *Chafee* Deck Logs received. Relevant portions available in Appendix C)

This message is to confirm your request submission to the FOIAonline application: Request information is as follows:

- Tracking Number: DON-NAVY-2018-008449
- Requester Name: Robert Powell
- Date Submitted: 06/12/2018
- Request Status: Submitted
- Description: This is a FOIA request for information regarding the USS *Chafee* on the dates of November 10, 2004 through and including November 16, 2004. Please provide a copy of the Deck Log, CIC Watch Log, Radar Contact Logs, and messages sent to either CINCLANT or CINCPAC during this time period.

Dear Mr. Powell:

SUBJECT: FREEDOM OF INFORMATION ACT REQUEST CASE NUMBER DON-NAVY-2018-008449 and DON-NAVY-2018-008450

This is in response to your Freedom of Information Act (FOIA) request of June 12, 2018 in which you requested a copy of the USS CHAFEE (DDG 90) and the USS HIGGINS (DDG 76) watch logs, CIC Watch Log, Radar Contact Logs, and messages sent to either CINCLANT or CINCPAC during November 10, 2004 through November 16, 2004. Your request was received by this office on June 12, 2018 via FOIA Online under case numbers DON-NAVY-2018-008449 and DON-NAVY-2018-008450.

Your request has been processed in accordance with the Freedom of Information Act (5 U.S.C. § 552), Part 701 of Title 32 of the Code of Federal Regulations, and the Department of the Navy Freedom of Information Act Program (SECNAVINST 5720.42F).

The release of the USS CHAFEE and USS HIGGINS deck logs falls under the cognizance of Commander, Naval Surface Force, U.S. Pacific. We have referred these records to that command for review and direct response to you. Please be advised that Naval History and Heritage Command does not maintain CIC Watch Log, Radar Contact Logs, or messages sent to either CINCLANT or CINCPAC during the requested time periods.

There are no fees associated with the processing of your request by this office.

You may contact me directly at (202) 433-0203 and at flor.thomas@navy.mil as well as our FOIA Public Liaison Ms. Robin Patterson at DONFOIA-PA@navy.mil for any further assistance and to discuss any aspect of your request.

If you are not satisfied with the response to this request, or believe that an adequate search was not conducted, you may administratively appeal by writing to:

Department of the Navy
Office of the Judge Advocate General (Code 14)
1322 Patterson Avenue SE, Suite 3000
Washington Navy Yard, DC 20374-5066

Your appeal must be postmarked within 90 calendar days from the date of this letter to be considered. A statement as to why your appeal should be granted should be included and a copy of this letter should be attached. Both the appeal letter and the envelope should bear the notation, “Freedom of Information Act Appeal.”

Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

Very Respectfully,

Ms. Flor Thomas
Senior Government Information Specialist

FOIA Coordinator
Naval History and Heritage Command
History and Archives Division (HAD)
805 Kidder Breese Street, SE
Washington Navy Yard, DC 20374
Bldg. 200
(202) 433-0203
flor.thomas@navy.mil
NHHC_FOIA@navy.mil

DOCUMENT I.D. DON-NAVY-2018-008450

SENT TO: NAVY HISTORY AND HERITAGE COMMAND

(USS Higgins Deck Logs received. Relevant portions available in Appendix C)

This message is to confirm your request submission to the FOIAonline application: Request information is as follows:

- Tracking Number: DON-NAVY-2018-008450
- Requester Name: Robert Powell
- Date Submitted: 06/12/2018
- Request Status: Submitted
- Description: This is a FOIA request for information regarding the USS *Higgins* on the dates of November 10, 2004 through and including November 16, 2004. Please provide a copy of the Deck Log, CIC Watch Log, Radar Contact Logs, and messages sent to either CINCLANT or CINCPAC during this time period.

DOCUMENT I.D. DON-NAVY-2018-008450

SENT TO: NAVY HISTORY AND HERITAGE COMMAND

(Request still outstanding.)

This message is to confirm your request submission to the FOIAonline application: Request information is as follows:

- Tracking Number: DON-NAVY-2018-008451
- Requester Name: Robert Powell
- Date Submitted: 06/12/2018
- Request Status: Submitted
- Description: This is a FOIA request for information regarding the USS *Louisville* on the dates of November 10, 2004 through and including November 16, 2004. Please provide a copy of the Deck Log, CIC Watch Log, Radar Contact Logs, and messages sent to either CINCLANT or CINCPAC during this time period.

DOCUMENT I.D. 18-R-072

SENT TO: NORAD

Dear Ms. Mayeux,

I have clarified my request below. Please let me know if the clarification is sufficient.

The records that I am seeking would consist of radar data from the San Clemente Island, California radar site also known in the Joint Surveillance System as J-36A and the Mount Laguna, California radar site known as in the Joint surveillance System as J-30. The time period being requested is 18:00 hrs Zulu to 21:00 hrs Zulu on November 14, 2004. Please send radar data on a CD in a text format with data including date, time, transponder code or lack of, range, azimuth, altitude, longitude, and latitude. If there are any fees for searching, reviewing, or copying the records, I will pay up to $50. If the cost is higher please let me know before processing the request.

If you have any questions about this request, you may contact me by phone at 512-921-1155 or my email at robertmaxpowell@gmail.com

Thank you for your time and consideration.

Sincerely,

Robert Powell

NORAD REPLY THAT THEY HAVE NO RADAR DATA

UNITED STATES NORTHERN COMMAND

JUL 31 2018

HQ USNORTHCOM/CS
250 Vandenberg Street, Suite B016
Peterson Air Force Base CO 80914-3801

Mr. Robert Powell
[redacted]

Dear Mr. Powell

We received your Freedom of Information Act (FOIA) request dated 05 July 2018. Your request was assigned USNORTHCOM FOIA case number 18-R-073. In your request letter you asked for the following: radar data from the San Clemente Island, California radar site also known in the Joint Surveillance System as J-36A and the Mount Laguna, California radar site known as in the Joint surveillance System as J-30. The time period being requested is 18:00 hrs Zulu to 21:00 hrs Zulu on November 14, 2004. Please send radar data on a CD in a text format with data including date, time, transponder code or lack of, range, azimuth, altitude, longitude, and latitude.

After performing a search of our system of records we found no responsive documents in USNORTHCOM system of records. NORAD as a bi-national organization is not subject to the FOIA.

As a requester in the "All Others" fee category, you received the first two hours and 100 pages of records at no cost; therefore, there are no assessable fees for processing your request. If you have any further questions concerning your request, please do not hesitate to contact our FOIA Request Service Center at the above address.

If you are not satisfied with this action, you have the right to appeal to the appellate authority, Ms. Joo Chung, Director of Oversight and Compliance (ODCMO), Office of the Secretary of Defense (OSD). The appellate address is: ODCMO Directorate for Oversight and Compliance, 4800 Mark Center Drive, ATTN: DPCLTD, FOIA Appeals, Mailbox #24, Alexandria, VA 22350-1700. As an alternative, you may use the OSD FOIA request portal to submit your appeal electronically at the following link: http://pal.whs.mil/palMain.aspx or email your appeal to OSD.FOIA-APPEAL@mail.mil. If you use email, please have the words "FOIA Appeal" in the subject of the email. Your appeal should cite our case number 18-R-073, be postmarked within 90 days of the date of this response, and be clearly marked "Freedom of Information Act Appeal" on the request. You also have the right to seek dispute resolution services from USNORTHCOM's FOIA Public Liaison, Mr. Jim Hogan at (571) 372-0462 or OSD.FOIALiaison@mail.mil. Additionally, you have the right to contact the Office of

DETER PREVENT DEFEAT

Government Information Services (OGIS) to inquire about the FOIA mediation services they offer. The contact information for OGIS is: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001; email at ogis@nara.gov; telephone at (202) 741-5770; toll free at 1-877-684-6448; or facsimile at (202) 741-5769.

RICHARD J. GALLANT
Major General, USA
Chief of Staff

DOCUMENT I.D. 18F-0373

SENT TO: DEPARTMENT OF DEFENSE

(Request is still outstanding.)

General Information	
*Request Type	FOIA
Requester Category	Educational or Non-Commercial Scientific
Shipping Address	
*Street1	[redacted]
Street2	
*City	
*State	Texas
*Country	United States
*Zip Code	[redacted]
Request Information	
Attachment	
*Description	I am requesting a copy of the two videos that the DoD supplied to the New York Times and was displayed at the NYT website and in the NY Time on Saturday, December 16, 2017. One of the videos was made by a F-18 SuperHornet on November 14, 2004. Since the DoD has already released these videos it should be straightforward to provide me a copy. I am also requesting a copy of the 400+ page document mentioned in the New York Times article. I am also requesting a copy of all other electronic and paper documents related to both these events. In the case of the event of Nov. 14, 2004, some of those specific documents include but are not limited to the deck logs of the USS Princeton and the USS Nimitz for the dates of Nov. 10-16, 2004; all information related to the E-2 Hawkeye of VAW-117 that was involved in tracking the unknown all radar information and radar contact logs from the USS Princeton related to the unknown object; all information related to the VFA-41 squadron; any note/information obtained related CO David Fravor of VFA-41; all information from VMFA-432 and inclusive of any notes/information obtained from Lt. Col Kurth; all CIC Watch Logs; ship to aircraft audio communication records; and messages sent to either CINCLANT or CINCPAC during this time period.
Date Range for Record Search	From 11/10/2004 To 11/16/2004
Fee Information	
Willing Amount	25

DEPARTMENT OF DEFENSE
OFFICE OF FREEDOM OF INFORMATION
1155 DEFENSE PENTAGON
WASHINGTON, DC 20301-1155

JAN 17 2018

Ref: 18-F-0373

Mr. Robert Max Powell
[redacted]

Dear Mr. Powell:

This is the final response to your enclosed January 2, 2018, Freedom of Information Act (FOIA) request, a copy of which is attached for your convenience. We received your request in this office on January 3, 2018 and assigned it FOIA case number 18-F-0373. We ask that you use this number when referring to your request.

However, please note that your request was misdirected to this office for processing. This FOIA office only processes requests for the Office of the Secretary of Defense (OSD) and the Joint Staff (JS). There is no central FOIA processing point for records for the entire Department of Defense (DoD). FOIA processing is decentralized and delegated to those officials of the Military Departments and various DoD Components who generate and/or maintain the records being sought or reviewed. In consideration of this fact, we have forwarded your request to the Defense Intelligence Agency (DIA) FOIA office for their direct response to you.

The DIA, which operates its own FOIA program, would have cognizance over the information you have requested. For your convenience, contact information for the DIA FOIA office is provided below:

Defense Intelligence Agency
7400 Pentagon
Attn: DLOC FAC2A1
Washington, DC 20301-7400

This action closes your request with this office, and there are no assessable fees associated with this response.

Sincerely,

for Adrienne L. Santos

Stephanie L. Carr
Chief

Enclosure:
As stated

DEFENSE INTELLIGENCE AGENCY

WASHINGTON, D.C. 20340-5100

U-18-4500/FAC-2A1 (FOIA)

JAN 31 2018

Mr. Robert Max Powell
[redacted]

Dear Mr. Powell:

This is an interim response to your Freedom of Information Act (FOIA) request dated January 10, 2018, requesting the following:

- ***A copy of the two videos that the DoD supplied to the New York Times and was displayed at the NYT website and in the NY Time on Saturday, December 16, 2017***
- ***Requesting a copy of the 400-page document mentioned in the New York Times article***
- ***Requesting a copy of all other electronic and paper documents related to both these events***
- ***All information related to the E-2 Hawkeye of VAW-117 that was involved in tracking the unknown and all radar information and radar contact logs from the USS Princeton related to the unknown object***
- ***All information related to the VFA-41 squadron; any notes/information obtained related CO David Fravor of VFA-41***
- ***All information from VMFA-432 and inclusive of any notes/information obtained from Lt. Col Kurth***
- ***All CIC Watch Logs; ship to aircraft audio communication records; and messages sent to either CINCLANT or CINCPAC during time period from 11/10/2004 to 11/16/2004***

We received your request on January 16, 2018 and assigned it case number FOIA-0119-2018. Please use this number in all future correspondence with us about this matter.

We will be unable to respond to your request within the FOIA's 20 day statutory time period due to unusual circumstances. These unusual circumstances could be: (a) the need to search for and collect records from a facility geographically separated from this office; (b) the potential volume of records responsive to your request; and (c) the need for consultation with one or more other agencies which have substantial interest in either the determination or the subject matter of the records. For these reasons, your request has been placed in our queue and will be worked in the order the request was received. Our current administrative workload is in excess of 1,139 requests.

We regret that there is currently a substantial delay in processing requests and solicit your patience and understanding. We assure you that we will process your request as soon as possible.

APPENDIX C

DOCUMENTS REFERENCED

by Robert Powell

The documents are listed chronologically based on date of origin, except for the FOIA Deck Logs documents, which are listed at the end of this appendix due to their larger size. Following the date is the name of the document as it will be referenced in this paper.

2007 February 13, CVW-11 Event Summary

An Event Summary of the 2004 event was posted on the site AboveTopSecret by an anonymous source under the pseudonym "Cometa2". The individual that posted the documented indicated that they were not the owner but it had been made available on their German site known as Vision Unlimited and that they were posting it based on permission from another anonymous source under the pseudonym "Final Theory".[1]

This CVW-11 Event Summary appears to be an actual Navy event summary. A copy of it was provided various Navy organizations as part of the FOIA requests. There was never a reply that this was not a Navy document. It has a lot of information that matches what has been stated by witnesses and that is contained in other documents. The location that the CVW-11 shows for the Nimitz at 2:10pm local time (31º29.3'N 117º52.8'W) matches well with the Deck Log of the USS Nimitz at 11:30am (31º12.3'N 117º52.2'W). The document also matches up with statements from CDR Fravor and LCDR Slaight in terms of the nicknames for the F-18 flights, the unknown object in the water, the engagement with the "Tic-Tac", and the lack of a radar lock from the F-18s.

There are some known discrepancies in the CVW-11 based on witness testimonies: the "Fast Eagles" were not vectored upon takeoff but after they had taken off on a training mission; none of the witnesses indicated that there was steam or smoke around the object in the water; and the event summary indication that the unknown object was 25-30 feet in size is smaller than the 40-60 feet in most other estimates. But these are not major discrepancies and can be addressed by examining all documents for supporting information. This document is usable in telling the story of this encounter when combined with other documents and witness statements.

CVW-11 EVENT SUMMARY
14 NOVEMBER 04
EVENT SUMMARY

EVENT 3

Event
Side
Narrative
ADEX
3A1,3C1,
3D2

1 *ATS: Above Top Secret*, "Fighter Jet UFO Footage: The Real Deal," http://www.abovetopsecret.com/forum/thread265835/pg1. Accessed August 05, 2018.

110/100, 303/305, 401
FAST EAGLES 110/100 UPON TAKE OFF WERE VECTORED BY PRINCETON AND BANGER (1410L) TO INTERCEPT UNID CONTACT AT 160@40NM (N3050.8 W11746.9) (NIMITZ N3129.3 W11752.8). PRINCETON INFORMED FAST EAGLES THAT THE CONTACT WAS MOVING AT 100 KTS @ 25KFT ASL.

FAST EAGLES (110/100) COULD NOT FIND UNID AIRBORNE CONTACT AT LOCATION GIVEN BY PRINCETON. WHILE SEARCHING FOR UNID AIR CONTACT, FAST EAGLES SPOTTED LARGE UNID OBJECT IN WATER AT 1430L. PILOTS SAW STEAM/ SMOKE/CHURNING AROUND OBJECT. PILOT DESCRIBES OBJECT INITIALLY AS RESEMBLING A DOWNED AIRLINER, ALSO STATED THAT IT WAS MUCH LARGER THAN A SUBMARINE.

WHILE DESCENDING FROM 24K FT TO GAIN A BETTER VIEW OF THE UNID CONTACT IN THE WATER, FAST EAGLE 110 SIGHTED AN AIRBORNE CONTACT WHICH APPEARED TO BE CAPSULE SHAPED (WINGLESS, MOBILE, WHITE, OBLONG PILL SHAPED, 25-30 FEET IN LENGTH, NO VISIBLE MARKINGS AND NO GLASS) 5NM WEST FROM POSITION OF UNID OBJECT IN WATER.

CAPSULE (ALT 4K FT AT COURSE 300) PASSED UNDER FAST EAGLE 110 (ALT 16KFT). FAST EAGLE 110 BEGAN TURN TO ACQUIRE CAPSULE. WHILE 110 WAS DESCENDING AND TURNING, CAPSULE BEGAN CLIMBING AND TURNED INSIDE OF FAST EAGLE'S TURN RADIUS. PILOT ESTIMATED THAT CAPSULE ACHIEVED 600-700 KTS. FAST EAGLE 110 COULD NOT KEEP UP WITH THE RATE OF TURN AND THE GAIN OF ALTITUDE BY THE CAPSULE. 110 LOST VISUAL ID OF CAPSULE IN HAZE. LAST VISUAL CONTACT HAD CAPSULE AT 14KFT HEADING DUE EAST.

NEITHER FAST EAGLES 110 OR 100 COULD ACHIEVE RADAR LOCK OR ANY OTHER MEANS OF POSITIVE ID. FAST EAGLE 100 WAS FLYING HIGH COVER AND SAW THE ENGAGEMENT BY FAST EAGLE 110. FAST EAGLE 100 CONFIRMS 110 VISUAL ID; 100 LOST CONTACT IN HAZE AS WELL.

CPA OF ACFT 110 FROM CONTACT 4000-5000 FT.

FAST EAGLES, DEVILS AND HOBOS PERFORMED ADEX IN MULLET AFTER VECTOR FROM PRINCETON TOWARD UNID CONTACT. EACH PERFORMED 1X RUN. FAST EAGLE VID 2X GROUPS:
1X SIM F8, WINGS CLEAN
1X SIM F8, WINGS CLEAN. RTB
BMB
3A2,3B1
105/106, 204/200
FAST EAGLES AND CAMELOTS PERFORMED BMB AT 2507. EACH DROPPED 4X MK-82. FAST EAGLES PERFORMED 3X RUNS; CAMELOTS 2X RUNS
SSC
2E2
503
RAVEN PERFORMED SSC AT NM/OK. 2X CONTACTS; NO PHOTO'S:
1- CHARTER FISHING BOAT N3126 E11714 COURSE 030 @ 10-15 KTS AT 1415L.
2- COMMERCIAL FISHING BOAT, N3111 E11803 COURSE 300 @ 5 KTS AT 1430L.
LOG/PG
2H1
616
INDIAN PERFORMED LOG (3X PACKAGE RUNS TO PRINCETON), DLQ'S ON PRINCETON AND PLANE GUARD IN VA.

TOTAL ORDNANCE EXPENDED: NONE

EVENT 4

Event
Side
Narrative
ADEX
4A1,4B1
4D1
111,212,
201,413
FAST EAGLES (BLUE), CAMELOTS (RED), AND HOBOS (BLUE) PERFORMED ADEX IN OPAREA MISR-1E, 2V2. ALL EXECUTED 3X RUNS.
BMB
4C1
310,311
DEVILS CONDUCTED BMB IN OPAREA 2507. EACH EXECUTED 2X RUNS AND BOTH EXPENDED 2X BLU-111 (TOTAL 4 X BLU-111).
TOTAL ORDNANCE EXPENDED: 4 X BLU-111

EVENT 5

Event
Side
Narrative
CSAR
5B1,5E1
5F1,5A1,
5H2
206,501,
106,613
CAMELOTS, BANGER, FAST EAGLES, INDIANS, AND RAVENS PERFORMED CSAR AT 090@17NM FROM NIMITZ. RAVENS JAMMED WHILE CAMELOTS EXECUTED RESCORT AT 12,000FT. BANGER CONTROLED EVENT 5 (CSAR). FAST EAGLE PERFORMED ROLE OF RMC. INDIANS REMAINED WITH CAMELOTS IN RESCORT.
AIC
5C1,5D1
5A2
303,305,
410,401,
102,100
FAST EAGLES, DEVILS, AND HOBOS PERFORMED AIC IN OPAREA MISR-1E. 305 DROPED OUT OF AIC, 2V3. HOBO AND DEVIL PERFORMED RED AIR, FAST EAGLES AND HOBO PERFORMED BLUE AIR.
TOTAL ORDNANCE EXPENDED: NONE

EVENT 6

Event

Side
Narrative
RTNK
6A1,6B1
105,211
CAMELOTS AND FAST EAGLES PERFORMED ROLE AS RTNK FOR EVENT 6 (AIC).
AIC
6B2,6C2
307,310,
201
CAMELOTS (RED) AND DEVILS (BLUE) PERFORMED AIC IN OPAREA MISR-1E. EACH EXCUTED 3X RUNS.
GANGPLANK
6C1
311
DEVIL PERFORMED GANGPLANK IN OPAREA PAPA-2. DEVIL SIMULATED 2 X MK-82.
NVG
6D1
402,403
HOBOS PERFORMED NVG OVHD. NSTR.
TOTAL ORDNANCE EXPENDED: NONE

2015 March 14, FighterSweep Article: "There I Was: The X-Files Edition"

This is the article that was found online in July of 2016 by Robert Powell. The value of the article is that it was written by a retired Navy pilot (Paco Chierici) and naval terminology is used throughout the article. Everything about the article hinted of a legitimate encounter between a Navy Carrier Group and UFOs.[2] Chierici indicated that the article was based on conversations with his friend, retired CDR David Fravor, and a report provided to him by a government agency that investigated the event. Chierici stated that the government agency had just visited David Fravor prior to Chierici's request for information from his friend.[3] This claim has also been supported by statements from David Fravor.[4] So some few weeks or months prior to March 2015 would be the time frame when Chierici was given a report and began writing his article. Based on information garnered in the SCU investigation of this incident, it is believed that the agency was most likely a group within the Defense Intelligence Agency known as AATIP (Advanced Aerial Threat Identification Program). The article matches very well the eye witness statements from CDR Fravor and LCDR Slaight as well as Lt. Colonel Kurth who stated that the article is 95% accurate.[5] The main sources for the FighterSweep article appear to be CDR Fravor, Lt. Colonel Kurth, and a report compiled by a government agency.

2 Paco Chierici, *Fighter Sweep*, "There I Was: The X-Files Edition" https://fightersweep.com/1460/x-files-edition/. March 14, 2015. Accessed August 08, 2018.
3 Paco Chierici, interview by Ken Arcigma, *Ken Arcigma's Manceptional Podcast*, "007: UFO's, Jets, Films & Books Oh My---Life of a US Navy Pilot with Paco Chierici," April 25, 2018.
4 David Fravor, interview by Linda Moulton Howe. KGRA radio, June 28, 2018.
5 Douglas Kurth, interview by Robert Klinn, telephone interview, November 09, 2017.

There I Was: The X-Files Edition

MARCH 14, 2015 PACO CHIERICI 0 COMMENTS NAVY

A good buddy of mine and former squadron mate, Dave “Sex” Fravor, has one of the most bizarre aviation stories of all time. It is a story that stretches credibility, so I’ll start off by building up Dave’s bona fides.

For what it’s worth, I know him personally — very well. We flew A-6s together for a cruise back in the Dark Ages before he matriculated into the Hornet world. He’s a funny guy. Smart and sharp witted, with a typical fighter pilot’s overestimation of his skills. (He’d read the SHB article and assured me his was way better than anything Nasty could do. I called B.S.–pretty standard.) In the air, though, Dave was all business, as professional as it gets.
It’s easy to get a sense of who and what he is because his squadron was featured on the 10-part miniseries Carrier that aired on PBS. You get an excellent and accurate impression of him from his screen time as Commanding Officer of VFA-41.

VFA-41 ‘Black Aces’ CAG jet on its takeoff roll at MCAS Miramar, heading out to perform of the many Centennial of Naval Aviation fly-by’s.

On the morning of 14 November 2004, Dave and his WSO launched into the clear blue Southern California sky about a hundred miles southwest of San Diego. Their Call Sign was FASTEAGLE 01. His wingman and WSO launched just after them in FASTEAGLE 02. They climbed overhead the ship and rendezvoused in normal fashion before setting off to their assigned work area in the open ocean south of USS Nimitz. Normal day, normal ops for the pre-deployment work up cycle they were in the middle of.

The *Nimitz* Carrier Strike Group had been on station for a few weeks already, working to integrate the operations of the carrier with her various support ships, including the Ticonderoga Class Guided Missile Cruiser, USS Princeton. As far as Dave was concerned, it was a standard day in a normal work up cycle. Another step in the long journey in preparing the ships of the Strike Group and the planes of the Air Wing to work harmoniously for their upcoming combat deployment.

What Dave didn't know was for the past several days, *Princeton* had been picking up some bizarre returns on their *Death Star*-worthy SPY-1 radar. On several occasions beginning 10 November, the Fire Control Officer and the extremely experienced Fire Control Senior Chief had detected multiple returns descending from far above the radar's scan volume–somewhere higher than 80,000 ft. The targets, dubbed Anomalous Aerial Vehicles (AAVs), would drop from above 80K to hover roughly 50 feet off the water in a matter of seconds.

Always over the same spot, a Lat/Long about 30NM off the coast of Baja, roughly 70nm southwest of Tijuana. At the time, the SPY-1 was the most sophisticated and powerful tactical radar on the planet. With it, they were able to track these AAVs while they descended, hovered and then zipped away at speeds, turn rates and accelerations faster than any known friendly or threat aircraft. *Impossibly fast*.

VFA-41 'Black Aces' CAG resting on the ramp after a sortie during Air Wing Fallon.

Once the Air Wing's planes arrived aboard *Nimitz*, the Fire Control team on *Princeton* saw an opportunity to use those assets and eyeballs to help solve the AAV mystery.

At the same time FASTEAGLE flight was wrapping up its scheduled training, the CO of Marine Hornet squadron VMFA-232, Lieutenant Colonel "Cheeks" Kurth, was completing a post-maintenance check flight not too far away. He was the first fast-mover contacted by *Princeton*. The communication was strange and intriguing. He was asked to investigate an unidentified airborne contact. This wasn't a terribly unusual request while a Strike Group was in transit or deployed far from home waters, but it was more than a little strange practically in sight of the San Diego Home port. To add to the unusual communications, he was queried as to what ordinance he had on board.

"None."

While *Princeton* was communicating with Cheeks, they were also attempting to hand off their AAV contact to the Air Wing's E-2C Hawkeye, also airborne at the time. The crew from VAW-117 had been providing intercept control for FASTEAGLE flight during their training. *Princeton* now wanted the E-2 to guide the Super Hornets to an intercept with the AAV contact, currently hovering over their favorite spot, but now about 20,000 feet over the ocean.

The AAV returns had not been strong enough to show up on the E-2's broad sweep, but once they focused their radar on the coordinates *Princeton* directed them towards, they managed a faint contact. The radar returns from the contact weren't enough to generate a target track however, so *Princeton* cut the E-2 from control and contacted FASTEAGLE directly. Though he was unable to lock up the AAVs, the E-2 controller remained on frequency and listened to the entire ensuing evolution.

As Cheeks approached the spot he was being vectored to, *Princeton* advised him to stay above 10K as the section of Super Hornets were approaching the target. His radar picked up the FASTEAGLE two-ship, but no other contacts. A moment later *Princeton* directed him to "skip it" and return to the ship. Since he was so close, he decided to fly over the action and sneak a peek.

The sea was calm, almost glassy smooth and it was late morning on a beautiful SoCal day. Perfect conditions. As Cheeks flew over the spot he saw a disturbance on the surface of the ocean. A round section of turbulent water about 50-100 meters in diameter. It was the only area and type of what he called, "whitewater" describing that it looked as if there was something below the surface like a shoal or what he'd heard a ship sinking rapidly would look like.

He overflew the disturbance and circled back in the direction of *Nimitz* without ever seeing what caused the water to froth. As he turned away, which happened to be the moment the Super Hornets converged on the location, the whitewater cleared and the ocean surface returned to its smooth state. The spot of the previous disturbance was completely indiscernible.

A few thousand feet below him, Dave had gone though the similar surreal experience of being asked by *Princeton* if the FASTEAGLE jets were carrying any ordnance. Dave's baffled WSO reported that all they had were two captive-carry training missiles. They were given bearing and range vectors to a set of coordinates and told to investigate an unknown aerial contact over that spot.

With no further information on the contact, they descended to the low 20s and scanned with radar, picking nothing up. Neither plane in this flight was carrying a FLIR pod, which limited the type of sensors they could search with; but, both planes were brand new–in Dave's words, "They still had that new car smell." The APG-73 radars were both new and had performed perfectly during the previous hour's training. Yet the screens from both planes were clean all the way to the point *Princeton* called "Merge plot!"

All four aircrew were eyes out from this point forward. The first unusual indication Dave picked up was the area of whitewater on the surface that Cheeks was looking at over his shoulder as he flew away. He remembers thinking it was about the size of a 737 and maybe the contact they had been vectored on had been an airliner that had just crashed. He maneuvered his F-18 lower to get a better look. As he was descending through about 20K he was startled by the sight of a white object that was moving about just over the frothing water. It was all white, featureless, oblong and making minor lateral movements while staying at a consistent low altitude over the disk of turbulent water.

Dave put FASTEAGLE 02 into high cover passing through about 15K and she and her WSO witnessed the events from a perfect vantage point. Dave continued his dive lower towards the object, now also attempting to slave the radar through his HMCS to achieve a short range lock. No luck. His intention was to pass the object close aboard at about 350 kts, but as he got closer he noticed that the AAV had oriented one of its skinny ends towards him, as if, in his words, "It had just noticed us" and it was now pointing at them.

The AAV then began to rise from its hover. The object, which he would later describe as a while tic-tac, rose in right 2-circle flow about a mile cross-circle from Dave's Hornet. BFM instincts took over and Dave dug nose-low to cut across the bottom of the circle. As he was looking at the AAV and pulling his nose up to bear, the tried again to slave his radar via the HMCS. Again, the APG-73 was unable to lock on the white, fighter-sized flying object now just a couple of thousand feet away and closing.

All through these maneuvers, Dave's WSO was broadcasting the real-time events of the intercept to *Princeton*. The radar operators in the E-2 listened on the secure net to what sounded like one of the hundreds of intercepts they had heard over the years. With the notable exception that the aircrew's voices were more stressed and the verbiage to ID the target was unlike anything they had heard before.

A Super Hornet from VFA-41 'Black Aces' sitting on the ramp at NAS Fallon.

In his debrief comments, Dave, his WSO and the two other crews stated the object had initially been hovering like a Harrier. They described it as uniformly white, about 46 feet long (roughly fighter-sized), having a discernible midline horizontal axis (like a fuselage) but having no visible windows, nacelles, wings or propulsion systems.

As Dave was pulling for nose-on and trying to get a dogfight lock with his radar, the AAV tightened its turn, "lift vector on, then aft" as Dave described, passed behind his tail and accelerated away at multi-Mach speed. Dave immediately queried *Princeton* for a snap-vector but the SPY-1 radar had also lost the contact. The first calls from *Princeton* were "picture clean." A few moments later *Princeton* came back with, "You're not going to believe this, it's at your CAP." Princeton had picked up the AAV hovering at 24K at the assigned Lat/Long Dave had used earlier during training as his orbiting point.

Though low on gas, the FASTEAGLE flight swung through the CAP position to try and pick up the AAV again. They saw nothing more on their way back to *Nimitz*. Even the 100 meter circle of turbulent ocean water had disappeared. That spot was now indistinguishable from the rest of the sea's surface. Asked later, Dave reported that he had not seen anything on or below the surface of the ocean that may have caused the turbulent circle of water. It had existed when they had first visually acquired the tic-tac, then was gone when they circled back a few minutes later.

Back on *Nimitz* after recovery, the four crew headed down to the paraloft to remove their gear. The next four crews from VFA-41 were getting dressed for their training mission to the same area, using the same assigned Lat/Longs as CAP points. Dave and his crewmembers passed on what they had seen to the new guys and reminded them to get tape if they could.

By the time the new crew launched, rendezvoused and checked in with the E-2 for control, it was early afternoon; 1500. The planes separated, with one heading to that same southern CAP location. They were cruising along at 20K and 300kts, max endurance. Again, the jet, radar and also, this time, the FLIR were spanking new and operating perfectly.

The WSO first picked up a contact on the radar around 30nm away while it was operating in the RWS scan mode. He checked the coordinates and it was indeed hovering at their precise CAP point. He attempted several STT locks, to no avail. Later, in the debrief, he explained that he had multiple telltale cues of EA.

The target aspect on the track file was turning through 360 degrees along with some other distinct jamming indications. In the less precise scan mode, the return indicated that the object was, in the WSO's words, "A few thousand feet below us. Around 15-20K– but hovering stationary." The only movement was generated by the closure of the fighter to the CAP location.

The WSO resorted to the FLIR pod on board, slaving it to the weak track the RWS mode had been able to generate. He recorded the following sequence to the on-board recorder. Using the IR mode, he was able to lock onto the AAV. It showed up on his screen and on tape as a white object in a black background hovering with no known means.

The IR camera did not detect roiling hot gasses blasting from below the AAV, as they would with a Harrier or a helicopter. It was simply hanging in midair. He switched to the TV mode and was able to again lock the FLIR onto the object while still trying, with no luck, to get a STT track on the radar. As he watched it, the AAV moved out of his screen to the left so suddenly it almost seemed to disappear. On the tape, when it is slowed down, the object accelerates out of the field of view with shocking speed. The WSO was not able to reacquire the AAV either in RWS or with the FLIR.

Somehow the tape made its way to YouTube. A few years after the incident, when first telling me the story, Dave pointed me to the link. It was unremarkable without the background information. But folded into context it was amazing, especially the slow-mo of the dot accelerating out of screen. For years I told the story to friends and showed them the video as punctuation.

However last month when I called Dave to refresh my memory before sitting down to write this bizarre encounter, he informed me that the video had been removed from YouTube. He told me that a government agency with a three letter identifier had recently conducted an investigation into the AAVs and had exhaustively interviewed all parties involved.

All of the seven flight crew, including 6 aircrew from VFA-41 and Cheeks from VMFA-232. The Fire Control Officer and Senior Chief from *Princeton*, and the radar operator on the E-2. They even queried the crew of the USS Louisville, a *Los Angeles*-class Fast-Attack submarine that was in the area as part of the *Nimitz* Carrier Strike Group who reported there were no unidentified sonar contacts or strange underwater noises on that day.

I'm not sure what to make of these events. I've loved the story since first listening because it is so crazy. I had never given aliens or UFOs much thought. It was a waste of my CPU power to mull a question like that. If they wanted to make contact, they would. If they wanted to observe from a distance, then they would be impossible to discern given the assumed high technology required to visit.

But now I was faced with credible witnesses. Not crackpots wearing foil hats but people I knew and people who were from my world. There were multiple, corroborating platforms that detected the AAVs using varied sensors. And, of course, the eight eyeballs that actually got a visual on the white tic-tac as Dave maneuvered to merge with it. He doesn't have to be a stranger to you either. Watch him on the PBS series, Carrier, and generate your own opinion of his professionalism and sanity.

Then send me your best design for an aluminum foil hat…

About the Author

Paco Chierici flew A-6E Intruders and F-14A Tomcats during his 10 year active duty career. He flew the F-5 Tiger II for a further 10 years as a Bandit concurrent with his employment as a commercial pilot. Paco is currently a 737 captain. Paco is also the creator and producer of the award winning naval aviation documentary Speed and Angels. Paco has written articles for various international and domestic magazines as well as regular contributions to FighterSweep. He is currently revising the first draft of his debut novel, a naval aviation thriller. Paco has the standard panoply of medals and ribbons but his proudest accomplishment is the Top Nugget award for landing grades from his first deployment.

https://fightersweep.com/1460/x-files-edition/

2017 September 7, "2004 USS *Nimitz* Pilot Report"

This document was first released on the *To The Stars Academy* (TTSA) web site.[6] The document is based on an interview with the pilot who was a Lieutenant and was CDR Fravor's Wingman. The witness, a junior pilot compared to Fravor and Slaight, describes the two FastEagles' encounter with the "Tic-Tac". In this document "Source" is Fravor's Wingman-Pilot, OK-1 is LCDR Slaight, OK-2 is CDR Fravor, OK-3 is Fravor's WSO, OK-4 is the pilot of the later flight that takes the FLIR video, and OK-5 is the WSO of OK-4. The main value of the document is additional confirmation of the activities of the FastEagles that day and as a primary witness to Fravor's engagement of the "Tic-Tac". This pilot also viewed the FLIR video.

The identity of the "Source" of this document as well as the identities of OK-3, OK-4, OK-5, and OK-6 are known. The document referenced is redacted but an unreadacted copy was leaked to the internet on August 6, 2018. The source of the inadvertent leak was a member of the TTSA group. SCU has a copy of this document. These ex-Navy pilots wish to remain anonymous and SCU will honor their right to privacy.

The document as relayed by the Source has several discrepancies as would be expected from memory of a 14-year old event: the radio operator that contacted the pilots was not female but a male by the name of Don Oktabinski; the aircraft did not proceed east to their contact but to the west; and the statement that CDR Fravor made a copy of the gun tape is not correct. Nonetheless, the bulk of this witness's statements match well with what has been relayed by the senior pilots involved, CDR Fravor and LCDR Slaight.[7,8]

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6 "2004 USS Nimitz Pilot Report" from *"Two The Stars Academy"*. https://coi.tothestarsacademy.com/nimitz-report Accessed July 05, 2018.

7 Jim Slaight, interview by retired Navy Captain Tim Thompson, telephone interview, February 19, 2018. (Some information unavailable on the recording due to a technical problem in the first 10 minutes of the interview.) Interview available at www.explorescu.org.

8 David Fravor, interview by Linda Moulton Howe. KGRA radio, June 28, 2018.

2004 USS NIMITZ PILOT REPORT (/nimitz-report/2017/12/13/xyefay39a1nmjp6kegxwvxz75topzg

This report was taken to obtain additional information regarding the 2004 USS Nimitz incident and the possible encounter of an unidentified aerial system while US fighter pilots were on an official training mission off the coast of San Diego. All personally identifiable information has been removed to protect sources and methods.

The "Source" of this report is a highly decorated and recognized expert in aviation and Navy combat flight operations with Top Secret clearance. There are also six "others knowledgable (OK)" that are referenced as being aware of the incident. OK-4 and OK-5, who were assigned to the follow-on cycle from the USS Nimitz on the same day, after the Source's encounter, reportedly saw the same object and were able to obtain brief FLIR footage. TTS Academy has obtained this footage, entitled "FLIR1," which you can watch here (/2004-nimitz-flir1-video) after reading this report.

Report Number: [redacted]

DATE/TIME OF INCIDENT: 14 November 2004; from approximately 1200 to 1300, EST (Field Comment – Source originally indicated a time period from approximately 1000 hours to 1400 hours, but later clarified that the precise time to be approximately 1200 as the mission was the first sortie from the aircraft carrier that day)

LOCATION OF INCIDENT: [redacted]

DATE/TIME OF REPORT: 7 September 2017; from approximately 1815 to 2130 hours.

LOCATION INFORMATION PROVIDED: [redacted]

SOURCE INFORMATION

[redacted]

OTHERS KNOWLEDGEABLE 1 (OK-1)

[redacted]

OTHERS KNOWLEDGEABLE 2 (OK-2)

[redacted]

OTHERS KNOWLEDGEABLE 3 (OK-3)

[redacted]

OTHERS KNOWLEDGEABLE 4 (OK-4)

[redacted]

OTHERS KNOWLEDGEABLE 5 (OK-5)

[redacted]

OTHERS KNOWLEDGEABLE 6 (OK-6)

[redacted]

NARRATIVE

On 7 September, 2017, at approximately 1815 hours, EST, Source was met in the [redacted]
(Field Comment - The meeting was pre- coordinated two days prior.) The purpose of the meeting was to obtain additional information regarding an incident Source encountered in 2004, involving a possible Unidentified Aerial System (UAS), while on an official training mission. (Field Comment - Source is an O-4, Active Duty Officer with the U.S. Navy and has maintained a Top Secret security clearance for the duration of their career. Source is also highly decorated and a recognized expert in aviation and Navy combat flight operations.)

In early July 2004, Source received their first military assignment as a pilot for the U.S. Navy's F-18 Super Hornet. Source conducted joint exercises as part of [redacted] at Eielson, Air Force Base, Denali, Alaska until August, 2004. After completing their initial training period, Source was assigned in October 2004 to support the U.S.S. Nimitz Carrier Battle Group, in San Diego, CA.

On 14 November 2004, the U.S.S. Nimitz Battle Group was conducting a training mission in U.S. Navy Operating Area [redacted] approximately 80 nautical miles (NM) west from the coast of San Diego. The purpose of the training was to practice carrier operations, launch and recovery, flight safety drills, and battle scenarios. The weather conditions for that day were exceptional with no cloud cover and a calm sea state. Visibility was unrestricted and skies were blue. Source, OK-1, OK-2, and OK-3 were identified as the first cycle of F-18s that day and as such, were designated first to be launched. OK-6 was located approximately 120 NM from the training location and was assigned as the radar operator for the E-2 Hawkeye radar aircraft serving as air traffic control.

At approximately 1200 hours EST, Source and OK-1 were launched from the U.S.S. Nimitz. Source was piloting the aircraft while OK-1 was

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assigned to the back seat as the designated Weapons Systems Officer (WSO). Upon launching, Source and OK-1 immediately rendezvoused with OK-2 and OK-3 and proceeded together to their designated training area. Source and OK-1 served as "wing" for OK-2 and OK-3. Upon reaching their designated training area, Source, OK-1, OK-2, and OK-3 engaged in "Red Air vs Blue Air" combat routines with OK-6 serving as air traffic controller. At approximately 1230 hours, during a mission "reset", an unidentified female voice from U.S.S. Princeton Missile Cruiser, CVL-23 interrupted their combat routines to announce an immediate [illegible]-vectoring. (Source Comment – The female voice was that

of a young woman and there was a sense of urgency in her tone.) Upon hearing the female controller's command, OK-2 realized the re-vectoring was in the opposite direction of the U.S.S. Nimitz. Although Source, OK-1, OK-2, and OK-3 were not particularly alarmed over the request, due to concerns of limited fuel, OK-2 requested another group of F-18s respond to the call. At this time, the female controller's voice became more directive in tone and ordered the two F-18s to the new operating area. (Source Comment – I became nervous when I heard the female controller for the second time, I could sense concern and urgency in her voice and I realized this was not a drill and that this was for real.)

Both F-18s assumed combat formation en route to the new location. Source and OK-1's aircraft was approximately .3 NM behind OK-2 and OK-3's aircraft and both F-18s proceeded east at an altitude of approximately 10,000 to 20,000 feet towards San Clemente Island. Source inquired to OK-1, "What do you think it is?" to which OK-1 responded, "It might be drug runners." Source then remarked to OK-1, "Bad ass!" (Source Comment – As a new pilot, the idea that we were being asked to intercept drug runners was exciting to me. I fully expected to see a low flying Cessna or helicopter coming from Mexico.)

As both F-18s approached the new operating area, the female controller announced, "Approaching merge plot". At this time, the female controller asked, "What is your load-out?" (Field Comment – The request for load-out refers to the quantity and type of ordinance the aircraft is armed with.) OK-2 responded to the female controller, "None, practice rounds only." (Source Comment – At this point I was frightened due to the fact that we were being asked if we had any weapons available. I became

concerned because we were in a situation that we may have to use our aircraft itself as weapon. I was thinking to myself that this could be another September 11th–style attack that we were being asked to intercept.) As both F-18s approached the target location, the female controller began to count down the anticipated intercept time, "Two minutes to merge plot," etc. Finally, the female controller indicated "merge plot" and announced, "You should have visual."

As Source looked down at the ocean from the cockpit, they noticed a small patch of water, approximately 60 feet wide by 80 feet in length that appeared choppy and turbulent amongst a calm sea. The disturbance was unusual in that there was no apparent cause. The area was generally the shape of an oval and appeared to be "roiling". Towards the center of the disturbance, the water appeared lighter color and smooth again as if an unknown object had recently submerged beneath the surface. Source opined they thought they were witnessing a crash, perhaps that of an unidentified aircraft, as they made the mental transition from intercept mission to search and rescue.

Approximately two seconds after noticing the unusual water disturbance, Source described witnessing a small, unidentified aerial system (UAS) cross over the turbulent area of water. The unidentified object was elongated, approximately 30 to 40 feet in length, white in color, and

described resembling a "tic-tac" candy mint. The object had no distinguishable control surfaces, was uniformly smooth, with no windows, doors, or lights visible. The object was opaque with a solid, definable edge. The object did not appear to emit any noticeable light or radiation from its surface nor did it have any noticeable exhaust trail. The object traveled from left to right over the disturbed water at an altitude of approximately 1000 to 3000 feet. The object appeared to travel at a speed of approximately 300 to 500 knots in a straight line. Source was unaware of the origin of the object or its destination but believed the disturbed water below could have been related in some way to the object. Source immediately became alarmed and initially thought that perhaps this was an unannounced, classified missile test by a U.S. Navy submarine. As such, they were concerned that the object could pose a threat, especially given the fact both F-18s were unarmed.

Upon noticing the object, OK-2 indicated over the radio, "I'm in!" in which

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Source replied, "I have high cover". (Source Comment – I was scared because I never encountered a situation like this before and I felt that the object had yet to be identified and we were about to pursue it.) OK-2 conducted an aggressive banking maneuver and dropped their aircraft while turning at the same time in order to catch up with the object. As OK-2 conducted the maneuver, Source noticed the object immediately respond to OK-2's change of direction. (Source Comment – The UFO turned on [redacted] as if it knew or somehow anticipated what they were going to do and even pointed towards them! I was worried for them because whatever this was, [redacted] didn't stand a chance against it! There is no way any aircraft or missile that I know of could conduct maneuvers like what we saw that day.) Source indicated that the object began to make deliberate changes in its altitude, attitude, and angle in response to OK-2's aircraft in a manner that seemed to defy the laws of flight physics. The object instantaneously - but in a controlled, intelligent manner - "tumbled" into nonsensical angles that made any engagement by the F-18 impossible. OK-2 and OK-3 were approximately 1000 to 3000 feet from the object when the object turned and "pointed at them." OK-2 conducted one or two evasive turns in their F-18 but the object appeared to maintain positive and dominant control of the airspace.

At no time during the incident did either F-18 have radar contact with the object; however, OK-6 and the female air controller confirmed radar contact. After approximately 8 to 10 seconds, both Source and OK-2 lost visual contact with the object. When Source looked back at the area where the ocean was disturbed, the water was again smooth and calm with no signs of anything submerging. (Field Comment – Source used a pen to describe how the object behaved when OK-2 and OK-3 approached it. Source also drew a picture of the incident, see attachment.)

Upon losing visual contact with the object, both F-18s were low on fuel and returned successfully to the U.S.S. Nimitz without further incident. Upon recovery of both aircraft, Source, OK-1, OK-2, and OK-3 arrived for their routine intelligence debriefing only to find that no debriefing official

was available. Furthermore, closed circuit television on-board the ship had movies involving aliens and paranormal activities playing. (Field

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Comment – Source was furious that colleagues on the ship were not taking the incident seriously and were playing the movies "Signs", "Men in Black", and "X-Files". Source believed it was a flight safety issue at a minimum, especially if they were deliberately vectored to a testing location of a blue-force weapon system.)

After not receiving an intelligence debriefing, Source, OK-1, OK-2, and OK-3 entered the Ready Room, where OK-2 slammed closed and secured both hatchways and began making an electronic copy of the gun tape from his F-18. During this time, Source made detailed written notes of the incident on available printer paper and mailed them to their Aunt with the notice "keep this because this is important stuff about some real X-files shit." (Field Comment – Source is unaware if copies of the gun tapes still exist but maintains an original copy of their notes and log book entry.)

According to Source, OK-4 and OK-5 also encountered the same object later the same day. OK-4 and OK-5 were assigned to the follow-on cycle from the U.S.S. Nimitz and obtained brief FLIR footage of the incident. When OK-4 and OK-5 later compared the video, Source identified the object affirmatively as being the same one they saw earlier. (Field Comment - The FLIR footage displays what appears to be a white "tic-tac" shaped object suddenly darting off the screen at high velocity when it is approached.)

No negative physiological or mental issues were experienced during the incident or afterwards. Source indicated they experienced some time dilation during the incident but believes it was due to their heightened state of excitement and adrenaline and not a result of their interaction with the object.

PARTICIPANTS (4): [redacted]

EXPENDITURES: [redacted]

ACTIONS TAKEN: [redacted]

REPORT PREPARED BY: [redacted]

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2018 May 18, "Executive Summary"

This redacted document was first published by George Knapp on KLAS-TV in Las Vegas. The document was not dated as to when it was written but it is suspected to have been developed under the auspices of a new government organization initiated by U.S Senator Harry Reid in 2007 to investigate aerospace threats under the Department of Defense and known as AATIP (Advanced Aerospace Threat and Identification Program).[9] The year 2007 is mentioned on the top of page 4 of the report, so it is likely this report was generated in 2008 or later. David Fravor states that it was originally written in 2009 and that it is an unofficial report.[10] It does not seem to be the document that Paco Chierici was provided to write his March 2015 blog article due to lack of similarities in any of the wording and minor discrepancies between the two reports. Based on the wording and phrasing used in the report, as a minimum it appears that the report is based on original interviews or earlier documents of those interviews. The individuals that appear to be the source of information for the report based solely on how the report is worded are: the Firecontrol Senior Chief of the *Princeton*, the Air Control Officer of the E-2 Hawkeye (VAW-117), the pilots (Fravor and wingman-pilot) and WSOs (Slaight and Fravor's WSO) of the initial VFA-41 flight, Lt. Col. Kurth, the pilot of the E2-Hawkeye airborne early warning aircraft, and the pilot and WSO of the plane that took the FLIR video.[11]

The Executive Summary report has been reviewed and the bulk of the summary match what has been told by other witnesses. David Fravor stated that this report had a few errors but was the most accurate summary of the events that he has seen.[12]

Under conditions of confidentiality to not reveal identifying information of personnel not otherwise in the public record, the SCU has obtained an un-redacted copy of the Executive Summary and have verified to our satisfaction that the report is a legitimate document that is based on the actual interview of the pilots and sailors involved. We made this determination by cross-checking the unredacted names against service member ranks and names of those who served during that time period along with comparisons of statements in the report against information that SCU obtained from witnesses not a part of this original Executive Summary.

A few comments should be made regarding errors or discrepancies within this report because of so much valuable information that contained in this report. These are the most noteworthy discrepancies:

1. The AAV altitude is listed as "60,000 feet and descending to 50 feet in seconds" on pages 1 and 3, while other reports have indicated either 80,000 or 80,000+ feet.
2. A comment is made on pages 1 and 6 that the AAV demonstrated the ability to "cloak". SCU has not found any clear evidence of this in any other reports or witness testimony. There is also nothing in the Executive Summary that support this conclusion. This seems to be an unsupported conclusion drawn by the author of the report.

9 Cooper, Blumenthal, Keane, "Glowing Auras and 'Black Money': The Pentagon's Mysterious U.F.O. Program," *New York Times*, December 16, 2017, front page.

10 David Fravor, interview by Linda Moulton Howe. KGRA radio, June 28, 2018.

11 Author Unknown, "Executive Summary." Released by George Knapp, *LasVegasNow*, May 18, 2018.Origination date of report estimated as 2008 or 2009.

12 David Fravor, interview by Jeremy Corbell, *Jeremy Corbell Radio Show*, internet radio, June 23, 2018.

3. A comment is also made on page 1 that "The AAV possibly demonstrated a highly advanced capability to operate undersea completely undetectable by our most advanced sensors." The SCU found no evidence of this within the Executive Report or from any other witness or document.
4. This report states on page 3 that "...the AAV exhibited Ballistic Missile Characteristics in reference to its appearance, velocity, and indications on radar." The SCU believes the appearance and movements described by the pilots and the slow/extreme speeds on radar are not indicative of a ballistic missile. None of the other documentation supports that the object had a ballistic missile characteristic.
5. The latitude and longitude coordinates of the AAV that are noted on page 5 of the report would place the AAV slightly to the north and to the east of the *Nimitz*. This does not match other information we have obtained which places the AAV either to the south or southwest of the *Nimitz*.

The report also references Wikipedia as a source for some of the characteristics of the aircraft and radar. Quoting Wikipedia doesn't mean the information is incorrect, and in this case it is correct, but that is somewhat of a surprise and is not good practice. Nonetheless, this paper has a lot of useful information that can be used in connection with witness statements and other reports.

Executive Summary

During the period of approximately 10-16 November 2004, the Nimitz Carrier Strike Group (CSG) was operating off the western coast of the United States in preparation for their deployment to the Arabian Sea. The USS Princeton on several occasions detected multiple Anomalous Aerial Vehicles (AAVs) operating in and around the vicinity of the CSG. The AAVs would descend "very rapidly" from approximately 60,000 feet down to approximately 50 feet in a matter of seconds. They would then hover or stay stationary on the radar for a short time and depart at high velocities and turn rates. On 14 November after again detecting the AAV, the USS Princeton took the opportunity of having a flight of two F/A-18Fs returning from a training mission to further investigate the AAV. The USS Princeton took over control of the F/A-18s from the E-2C Airborne Early Warning aircraft and vectored in the F/A-18s for intercept leading to visual contact approximately one mile away from the AAV, which was reported to be "an elongated egg or a 'Tic Tac' shape with a discernable midline horizontal axis". It was "solid white, smooth, with no edges. It was "uniformly colored with no nacelles, pylons, or wings." It was approximately 46 feet in length. The F/A-18Fs radar could not obtain a 'lock' on the AAV; however it could be tracked while stationary and at slower speeds with the Forward Looking Infrared (FLIR). The AAV did take evasive actions upon intercept by the F/A-18 demonstrating an advanced acceleration (G), aerodynamic, and propulsion capability. The AAV did not take any offensive action against the CSG; however, given its ability to operate unchallenged in close vicinity to the CSG it demonstrated the potential to conduct undetected reconnaissance leaving the CSG with a limited ability to detect, track, and/or engage the AAV.

Key Assessments

- The Anomalous Aerial Vehicle (AAV) was no known aircraft or air vehicle currently in the inventory of the United States or any foreign nation.
- The AAV exhibited advanced low observable characteristics at multiple radar bands rendering US radar based engagement capabilities ineffective.
- The AAV exhibited advanced aerodynamic performance with no visible control surfaces and no visible means to generate lift.
- The AAV exhibited advanced propulsion capability by demonstrating the ability to remain stationary with little to no variation in altitude transitioning to horizontal and/or vertical velocities far greater than any known aerial vehicle with little to no visible signature.
- The AAV possibly demonstrated the ability to 'cloak' or become invisible to the human eye or human observation.
- The AAV possibly demonstrated a highly advanced capability to operate undersea completely undetectable by our most advanced sensors.

Nimitz Carrier Strike Group (CSG-11)

The following events took place during deployment preparation of the Nimitz Carrier Strike Group (CSG) during the months of November and December 2004 in the SOCAL Operating Area off the coast of California and Mexico. The CSG was comprised of the following ships and submarine: USS Nimitz (CVN-68), USS Princeton (CG-59), USS Chafee (DDG-90), USS Higgins (DDG-76), and the USS Louisville (SSN-724). The Nimitz was home to Carrier Air Wing 11 (CVW-11) comprised of VMFA-232 (USMC F/A-18C), VFA-14 (F/A-18E), VFA-41 (F/A-18F), VFA-94 (F/A-18C), VAQ-135 (EA-6B), VAW-117 (E-2C), HS-6 (H-60), and VRC-30 Det 3 (C-2A). The only participants in the events surrounding the detection and intercept of the AAV are the USS Princeton, VAW-117, VMFA-232, and VFA-41.

USS Princeton (CG-59)

USS Princeton (CG-59) is a Ticonderoga-class cruiser guided-missile cruiser serving in the United States Navy. Armed with naval guns and anti-air, anti-surface, and anti-submarine missiles, plus other weapons, she is equipped for surface-to-air, surface-to-surface, and anti-submarine warfare. She also is the home of two Seahawk LAMPS III helicopters. The Princeton was the first Ticonderoga-class cruiser to carry the upgraded AN/SPY-1B radar system. [1]

AN/SPY-1

The AN/SPY-1 is an advanced, automatic detect and track, multifunctional phased-array radar. This high-powered (4 MW) radar is able to perform search, track and missile guidance functions simultaneously with a capability of over 100 targets. It is a multi-function phased-array radar capable of search, automatic detection, transition to track, tracking of air and surface targets, and missile engagement support. The computer-controlled phased array can concentrate energy where it is needed. The operator can boost the range and resolution in a particular direction without blinding the ship to threats from another side. The four fixed arrays of "SPY" send out beams of electromagnetic energy in all directions simultaneously, continuously providing a search and tracking capability for hundreds of target at the same time. The unique SPY-1 multi-function phased array radar system replaces numerous conventional independent sensors and is designed for the most challenging environments and missions, including long-range volume search, fire control-quality tracking and ballistic missile defense. SPY-1's S-band frequency range permits optimum performance in all-weather operations and the ability to perform all major radar functions while simultaneously providing proven S-band

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[1] http://en.wikipedia.org/wiki/USS_Princeton_(CG-59)

mid-course guidance for semi-active missiles, such as the Evolved Sea Sparrow Missile, SM-2 and SM-3.[2]

Anomalous Aerial Vehicle (AAV) Detection

The USS Princeton was part of the Nimitz Carrier Battle Group, during the period of approximately 10-16 November 2004 while completing Tailored Ships Training Availability (TSTA) in preparation for their deployment to the Arabian Sea. During COMPTUX, which is intermediate level training for elements of the Nimitz Carrier Strike Group (CSG) prior to the deployment, the Princeton on several occasions detected multiple AAVs operating in and around the vicinity of the location shown in Figure 1. The Fire Control Officer, [redacted] and his technician, FCCS [redacted], initially thought the contacts were part of the COMPTUX exercise. According to Senior Chief [redacted], the AAVs would descend from a very high altitude into the scan volume of the AN/SPY-1 at a high velocity. The top of the scan volume would put the AAVs at higher than 60,000 feet. The AAVs would descend "very rapidly" from approximately 60,000 feet down to approximately 50 feet in a matter of seconds. They would then hover for a short time and depart at high velocities and at turn rates demonstrating an advanced acceleration (G) capability. Senior Chief [redacted] added that based on his experience, which is 17 years as a Fire Control on Aegis cruisers, the AAV exhibited Ballistic Missile Characteristics in reference to its appearance, velocity, and indications on the radar. Since the radar was in the mode to handle Air Intercept of conventional aircraft it never obtained an accurate track of the AAVs and was quickly "dropped" by the radar meaning it was eliminated by the computer to reduce the amount of clutter on the radar, as any other false target is handled. If the radar were set up in a mode for Ballistic Missile tracking they likely would have had the capability to track the AAV. They were detected three separate times during the week operating off the western coast of the United States and Mexico. The Tactical Air Officer onboard the Princeton could not identify the radar contact and given the high speed and altitude was perplexed. The Meteorological Officer (METOC) onboard the Princeton provided a briefing that discussed a high altitude weather phenomena where ice crystals can form and be detected by the AN/SPY-1. On 14 November 2004, after again detecting an AAV took the opportunity of two F/A-18s airborne in the vicinity to task them for airborne reconnaissance of the AAV.

E-2C Hawkeye

The Grumman E-2 Hawkeye is an American all-weather, aircraft carrier-based tactical Airborne Early Warning (AEW) aircraft. The twin turboprop aircraft was designed and developed in the 1950s by Grumman for the United States Navy as a replacement for the E-1 Tracer. The United States Navy aircraft has been

[2] http://www.globalsecurity.org/military/systems/ship/systems/an-spy-1.htm

progressively updated with the latest variant, the E-2D, first flying in 2007. The Hawkeye provides all-weather airborne early warning and command and control functions for the carrier battle group. Additional missions include surface surveillance coordination, strike and interceptor control, search and rescue guidance and communications relay. An integral component of the carrier air wing, the E-2C uses computerized sensors to provide early warning, threat analysis and control of counteraction against air and surface targets. It is a high-wing aircraft with stacked antennae elements contained in a 24-foot (7.3 m) rotating dome above the fuselage.[3]

APS-145 Radar

The AN/APS-145 Airborne Surveillance Radar is the most reliable, cost-effective, high-power advanced early warning radar available. This sophisticated system is the latest in a long line of airborne early warning systems from Lockheed Martin. Over 100 E-2C's have been completing nearly 100 percent of their missions, day in and day out, for more than two decades. The AN/APS-145 carries on the tradition, adding several significant features found in no other airborne surveillance radar.[4]

- High-power UHF Doppler radar that utilizes a rotating antenna within a circular radome mounted atop the aircraft.
- Range is greater than any airborne surveillance radar in the world
- Will monitor and track more than 20,000 targets simultaneously
- Sophisticated jam avoidance and ECCM techniques assure unparalleled performance in dense EMI and jamming environments
- Adaptive signal processing provides superior target detection and tracking in complex target environments
- Adapts to dynamic operating conditions automatically over varied terrain with no operator intervention

Anomalous Aerial Vehicle (AAV) Detection

On 14 November 2004, LT [redacted], E-2C NFO, was in VAW-117 and airborne during the contact. Additionally, he was the squadron's avionics division officer and would be responsible for any and all RADAR recordings, etc... Unfortunately in the E-2C, it is not routine to have any kind of recording engaged unless it is pre coordinated which is typically only used during airborne testing of new capabilities, etc... There was no recording of this event.

LT [redacted] was flying as the Air Control Officer (ACO) on the mission where the AAV was observed by the flight of F/A-18s. He was controlling the F/A-18s that were

[3] http://en.wikipedia.org/wiki/E-2C
[4] http://www.lockheedmartin.com/products/APS145/index.html

flying as part of their work ups prior to deployment. He did not see the object on his radar (raw video) until the USS Princeton directed the contact and gave the E-2 the general direction to steer its radar. LT [redacted] initially thought the return was a wave because in a high sea state (4 or greater) the E-2C RADAR can actually detect the waves. Additionally, the target was so low and the return was so faint that without the inputs from the USS Princeton the return would have been missed/ignored. This was even more interesting because the USS Princeton initially reported the target to be at 15,000 – 20,000 feet MSL. Due to the intermittent radar return from the target, velocity was unavailable.

Although initially requested by the USS Princeton to attempt a track of the object, the USS Princeton took control of the F/A-18s and the E-2C remained Airborne but was no longer involved in the contact or control. The fighters were being controlled by the USS Princeton for the duration of the contact and intercept. The E-2 aircrew on board monitored the Air Defense Control (ADC) Net during the contact puzzled while listening to all of the merge calls coming over the net (typical of what you would hear during the Airborne Intercept of an enemy fighter). It was obvious there was something out there and the fighters were taking it seriously.

F/A-18 Airborne Reconnaissance of the AAV

This section provides the debrief of the F/A-18 pilots and weapon system operators (WSOs) from VFA-41 that were able to get both a visual and sensor contact with the AAV on 14 November 2004 at approximately N31 20' W117 10' about 70nm south of the U.S./Mexico Border 30 nm off the Baja Mexico Coast (Figure 1). Additionally the statement provided by the Commanding Officer (CO) of VMFA-232.

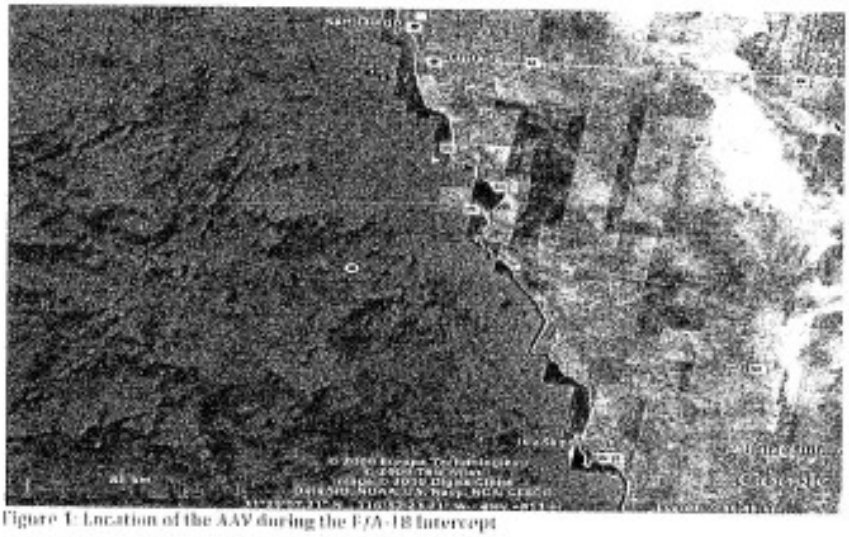

Figure 1: Location of the AAV during the F/A-18 Intercept

F/A-18C Tracking of the Water Disturbance

Pilot: Lt Col [redacted] USMC

Lt. Col [redacted], Commanding Officer VMFA-232, was flying a single-seat F/A-18C that launched from the USS Nimitz at approximately 1030L to conduct a Functional Check Flight of an aircraft that had recently completed significant maintenance. He noted the weather that day was blue skies, no clouds, and unlimited visibility. After 30 minutes into his flight he received a radio call from his air controller asking him to investigate an unidentified airborne contact. This was not a standard request. Additionally the controller asked if he had ordnance onboard, which was odd since no controller had ever asked that question during a situation of identifying an unknown contact over U.S. or International territory. He responded that he had no ordnance onboard. The controller provided vectors to the vicinity of figure 1. The object was reported to be at "slow speed and low altitude". While enroute at approximately 250 knots indicated/400 knots groundspeed at medium altitude (15-25,000 feet), he gained radar contact of what he believed to be two F/A-18Fs that were approaching the AAV from the west at low altitude (500-5,000 feet). There was no other traffic on the radar. The controller informed him to remain above 10,000 feet, as there was other fighter traffic at low altitude investigating the AAV. As he approached approximately 15nm from the AAV descending through approximately 15,000 feet, he could see a water disturbance in the ocean surface. He recalled that the sea state was low (calm). At approximately 5-10 nm away from the AAV, the controller told him to "skip it" and return to his operating area. Since he was close he elected to fly over the water disturbance to try and see what was causing it.

The disturbance appeared to be 50 to 100 meters in diameter and close to round. It was the only area and type of whitewater activity that could be seen and reminded him of images of something rapidly submerging from the surface like a submarine or ship sinking. It also looked like a possible area of shoal water where the swell was breaking over a barely submerged reef or island. He overflew the disturbance and turned back to the northwest. As he was flying away he could see the disturbance clearing and could no longer identify the place where it occurred. He did not see any object or vessel associated with the disturbance either above the surface, on the surface, or below the surface. He also never made visual contact with the other fighter aircraft that were vectored to the location or the AAV. It is possible that the disturbance was being caused by an AAV but that the AAV was 'cloaked' or invisible to the human eye.

Lt Col [redacted] recovered aboard the Nimitz at approximately 1200L. He reported to the Carrier Intelligence Center (CVIC) and was asked by his Intelligence Officer, 1stLt [redacted], if he saw the "supersonic Tic Tac"? We questioned now Capt. [redacted] to determine if he had any further information but based on his position in CVIC at the time he was not involved in any further discussions concerning the AAV.

F/A-18F Intercept and Visual Contact

FASTEAGLE 01
Pilot: CDR David 'Sex' Fravor, USN/WSO: LT [redacted], USN
FASTEAGLE 02
Pilot: LT [redacted], USN/WSO: LCDR [redacted], USN

CDR Fravor, Commanding Officer VFA-41, was the pilot of FastEagle 01. He and LT [redacted] were in the lead aircraft of the first F/A-18F section airborne that day from VFA-41, call sign FastEagle 01. The flight walked, started and launched with no issue. They completed their departure from the USS Nimitz and flew to the working area to conduct the training portion of the flight. After they completed their training the E-2C controller handed them off to the USS Princeton callsign 'Poison' where they received vectors via Bearing Range Altitude Aspect (BRAA) to an unknown contact flying into the working area from the south. Poison asked what ordnance they had on board. LT [redacted] told Poison control that they had two captive training AIM-9Ms (CATM-9) and no other ordnance.

The flight descended to between 20-24,000 feet and proceeded to the contact. CDR Fravor did not recall any indications via on-board sensor of the object. Their aircraft was not carrying a Forward Looking Infrared (FLIR) pod onboard. As CDR Fravor remembers it, the Radar Attack Display was clean (no targets). Their F/A-18F had an APG-73 radar and was set to the following parameters:

-Range While Search (RWS)
-Range Gated High
-80NM scale

CDR Fravor and LT [redacted] were attempting acquire the object visually as they heard "merge plot" from Poison. Situational awareness to the object was initially received via sporadic Link-16 tracks (Link-16 is a time division multiple access data-link) via an off-board sensor. Lt [redacted] assumed that the sensor providing the information was the USS Princeton's SPY-1 radar. According to CDR Fravor the first indication he had of the unknown contact was a visual of a disturbance on the water below the AAV. As he scanned the area he gained a visual on the object. It is important to note that when asked to describe the disturbance on the water he stated that it was localized underneath the object, did not appear as a trail or wake, and looked like frothy waves and foam almost as if the water was boiling.

At this point CDR Fravor detached FASTEAGLE02, which held at approximately 20,000 feet, and FASTEAGLE01 descended to between 12-16,000 feet. CDR Fravor attempted a "helmet lock" that was unsuccessful. It is important to note that CDR Fravor was using the Joint Helmet Mounted Cuing System which will cue the aircraft sensors such as the radar to 'lock on' to what the pilot is looking at and it also has a recording capability. It may have been useful in this situation but typically because of the large amount of head movement it is not practical. CDR Fravor stated that the

helmet's recording capability was rarely used therefore he did not think to use it that day.

LT [redacted] communicated what they were seeing with Poison control and said that he had a running dialogue on the interflight radio with FastEagle 02. CDR Fravor stated that the object was "holding like a Harrier." (Referring to the AV-8B jet aircraft, which is capable of hovering and Vertical/Short Takeoff and Landing (V/STOL) via thrust vectoring.) According to CDR Fravor, the object's shape was like an elongated egg or a 'Tic Tac' and had a discernable midline horizontal axis. However, the object was uniformly white across the entire body. It was approximately 46 feet in length. LT [redacted] described it as "solid white, smooth, with no edges. It was uniformly colored with no nacelles, pylons, or wings." When asked to describe the appearance, if it glowed or reflected sunlight he said, "neither, it looked like it had a white candy-coated shell, almost like a white board." His report differs from CDR Fravor in that he reported the object traveling level at approximately 500-1000 feet at approximately 500 knots.

The object was pointed in a north/south orientation and was moving both north & south and east & west. while maintaining a consistent altitude. These displacements, according to CDR Fravor, were minor. CDR Fravor stated he then began a descent with the intention to take a close aboard pass with the object in an attempt to visually identify it. They began the decent as they rolled in from about 10,000ft and approximately 350 knots to take the object close aboard. CDR Fravor pulled nose on and then pulled trail (aft) of the object. As they were maneuvering, the object appeared, according to CDR Fravor: "to recognize us." He assessed this from the fact the object "pointed" (realigned it's axis) in the direction of their aircraft. At this time, according to CDR Fravor, the disturbance on the water ceased.

As they completed this maneuver, the object ascended quickly and pulled lift vector on and aft of them at a supersonic speed. CDR Fravor commanded the radar through the Short Range radar set and asked for a picture from Poison. Poison initially reported that the "picture was clean" (no contact) but then stated "you're not going to believe this, its at your CAP" meaning that the AAV had flown to their training CAP, which was located in the southern end of the training area and had climbed to approximately 24,000 feet. CDR Fravor stated that the flight attempted to locate both the object and the disturbance with no success. CDR Fravor stated that nothing was seen on the surface or subsurface and that there were no indications of the previous disturbance.

Following the engagement, the flight rejoined and returned to the USS Nimitz. When asked how the jets functioned and if there was any indications of a system malfunction, he stated that- "the jets were brand new, less than 100 hrs on them. They were working perfectly." LT [redacted] when asked, said that all aircraft systems were functional. That there were no mission computer issues or avionics issues and that there was no radio or communication interference and that they had

entry into the Link-16 network. When asked LT [redacted] couldn't confirm any physiological or psychological feelings that were out of the ordinary.

The flight met up with LT [redacted] and LT [redacted]'s flight in the paraloft and passed what they had seen. The flight proceeded to CVIC. LT [redacted] noted that the sailors in CIVC had donned tin-foil caps and wanted to know about the "UFO flight." They reviewed the tapes and described to CIVC what they had seen and what the flight had done. He was not asked to sign any non-disclosure agreement and he is uncertain how far up the chain the reporting went past his commanding officer.

F/A-18F FLIR Tracking

Pilot: LT [redacted], USN/WSO: LT [redacted], USN

Lt [redacted] was a member of VFA-41 and was the Weapons and Sensors Officer (WSO) flying with LT [redacted]. They were a part of the second F/A-18F section airborne that day from VFA-41. Their flight launched following the FASTEAGLE flight. The crews spoke with each other in the paraloft. discussed the object and that the flights were scheduled for the same working area. FASTEAGLE flight told LT [redacted]'s flight what they saw and to try to see and record what they could.

The flight walked, started and launched. They completed their departure from the USS Nitmiz, climbed to altitude and separated to begin the training portion of the flight. According to LT [redacted] it was a clear day. There were no clouds and there was a discernable horizon. The time was approximately 1500L. The flight checked with the E-2C and separated. Their jet proceeded south to the southern cap. They flew at 20,000 feet and were flying a max endurance profile at approximately 300 knots ground speed.

All on board systems were functioning normally. The radar was in a standard search mode (RWS/ 80NM/ 4bar/ intr) and the FLIR was in L+S slave (the FLIR would point in direction of an L+S track). There was no radio or communication interference and they had entry into the Link-16 network. Initial awareness of an object came via the radar. According to the radar display, the initial tracks were at approximately 30-40 nm to the south of the aircraft. LT [redacted] was controlling the radar and FLIR and attempted multiple times to transition the radar to Single Target Track (STT) mode on the object. The radar could not take a lock, the b-sweep would raster around the hit, build an initial aspect vector (which never stabilized) and then would drop and continue normal RWS b-sweep. When asked, LT [redacted] stated that there were no jamming cues (strobe, champagne bubbles, "any normal EA indications"). It "just appeared as if the radar couldn't hack it." The radar couldn't receive enough information to create a single target track file. The FLIR, in L+S slave, pointed in direction of the initial track flies as the radar attempted lock. The FLIR showed an object at 0 ATA and approximately -5deg elevation (Figure 2). According to LT [redacted], "the target was best guess co-

altitude or a few thousand feet below," estimating the object to be between 15-20 thousand feet. The object, according to the FLIR, appeared stationary (Figure 3). There was no discernable movement from the object with the only closure being a result of the aircraft's movement. As LT [redacted] watched the object it began to move out of FLIR field of view to the left. LT [redacted] made no attempt to slew the FLIR and subsequently lost situational awareness to the object. The Flight continued with training mission with no further contact with object.

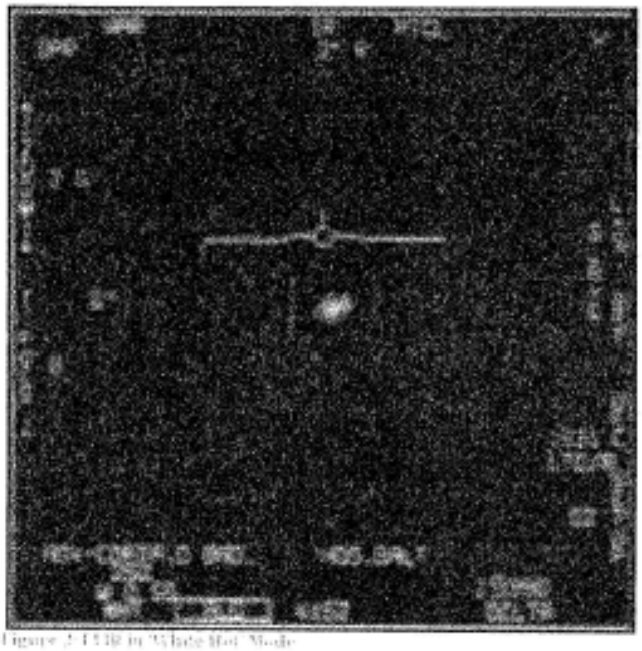

Figure 3 FLIR in White Hot Mode

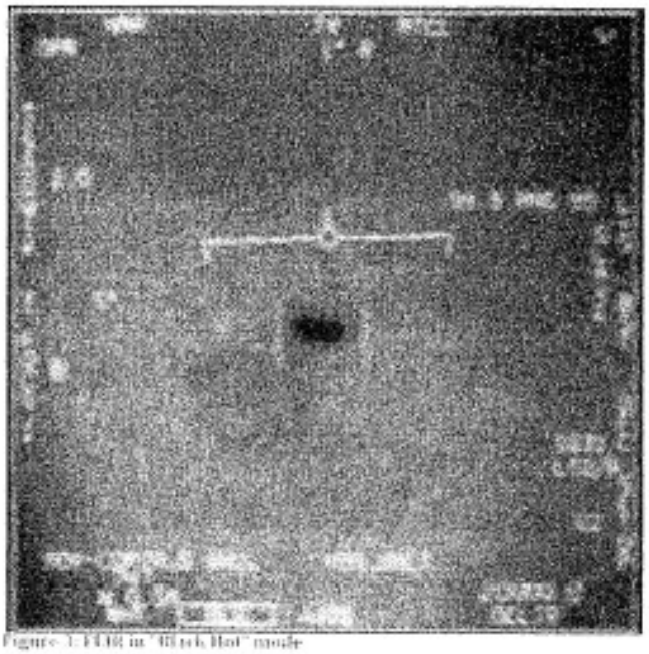

Figure 1: FLIR in "Black Hot" mode

LT [redacted] was clear in that he couldn't confirm that it was the same object as described by FASTEAGLE flight. He never had visual, only seeing the object via the FLIR. He reaffirmed that all systems were functional.

Following completion of the training portion, the section returned to the ship for a normal approach, landing and shutdown. The crew met in CVIC and debriefed. LT [redacted] said that the CIVC section attempted to collect his tapes but he refused. They proceeded to their ready room where they debriefed with CDR Fravor and his flight. Copies of the tapes were made with a set being turned into the intelligence section. LT [redacted] was not asked to sign any non-disclosure agreement and he is uncertain how far up the chain the reporting went past his commanding officer. When asked LT [redacted] couldn't confirm any physiological or psychological feelings that were out of the ordinary. He only expressed a feeling of confusion during the event.

USS Louisville (SSN-724)

The USS Louisville USS Louisville (SSN-724) is a Los Angeles-class nuclear fast attack submarine[5]. She was operating in the vicinity of the USS Nimitz as part of the

[5] http://en.wikipedia.org/wiki/USS_Louisville_(SSN-724)

CSG during the detection and intercept of the AAV. According to former LT [redacted] now a civilian working for the US Navy, who was a qualified Submarine Officer onboard the Louisville in November 2004 during the AAV activity there were no unidentified sonar contacts in the vicinity of the aerial sightings or at anytime during the operations off the coast of California. The former commander of the USS Louisville, CAPT [redacted], confirmed that there was no anomalous undersea activity during this period. There was a live fire exercise conducted by the USS Louisville during the period of and in the vicinity of the AAV sightings; however, the weapon in use did not match the flight profile or visible characteristics of the AAV. Additionally any live fire would have been coordinated throughout the CSG and all air traffic would have been well aware of the launch and operation of the weapon system. Aircraft would not have been vectored for the intercept of a US Weapon in-flight.

Based on the lack of detection of any unidentified sonar contacts it is highly unlikely that an AAV operated below the surface of the ocean; it is possible that the AAV demonstrated the ability to be cloaked or invisible to the human eye based on pilot reporting of the water disturbance with no visible craft. Based on the assessment of Mr. [redacted] if the AAV did operate underwater undetected it would represent a highly advanced capability given the advanced capability of our sensors.

Leadership and Reporting

Typically most if not all reporting on any CSG mission related air activity is completed in CVIC by the intelligence personnel. At least one pilot or aircrew member of each flight or aircraft will stop by CVIC to be debriefed by intelligence. Intelligence personnel will then take the information provided by the pilot or aircrew member and complete a mission report (MISREP). During contingency or wartime operations a MISREP is filed even if the aircrew had nothing significant to report (NSTR).

On 14 November following the intercept of the AAV, CDR Fravor reported to CVIC to debrief with Intelligence. He discussed the entire mission and AAV contact with LCDR [redacted], the Carrier Air Wing Intelligence Officer. According to LCDR [redacted], he "wasn't sure what to do". He also stated that they "didn't take it seriously" at first; however, they had absolutely no reason to question the report from a very experienced and well-respected F/A-18 squadron commanding officer. LCDR [redacted] added that they likely would have not given as much attention if it came from a lesser-experienced aviator. He reported it to the Commander of the Air Wing, CAPT [redacted], also a highly experienced aviator but he did not take it very serious. LCDR [redacted] completed an email based MISREP. It was submitted via email because the F/A-18s were on a training mission. The email-based report including the FLIR video was sent via a secure system to CAPT [redacted] at 3rd Fleet Intelligence, their higher echelon command. Finally, LCDR [redacted] admitted and detailed the high

level of ridicule that the aircrew experienced over the next few weeks. The following details were also confirmed with CAPT [redacted] the CSG-11 Senior Intelligence Officer (N2). Capt [redacted] confirmed that the CSG leadership asked him if any additional reporting was required and he advised that since they were in a training environment an email based MISREP to 3rd Fleet N2 was the only report required. When asked what he thought the AAV was he replied that he believed it was part of a counterdrug operation based on the area of operations.

3rd Fleet Intelligence (N2)

The 3rd Fleet N2 at the time of the event was CAPT [redacted]. CAPT [redacted] has since retired from the US Navy and could not be located; however, his deputy N2 was CAPT [redacted]. CAPT [redacted] confirmed that the MISREP was received via email on or about 14 November 2004. Since this MISREP was completed during training and preparation for deployment it was read and acknowledged by 3rd Fleet N2 but was not forwarded to anyone up the chain of command. Additionally CAPT [redacted] stated that it was not likely archived but deleted at some point later as there is no requirement to keep these reports and it was likely in file folder with all of the other training MISREPS sent in by the CSG during deployment preparation.

Commander Carrier Strike Group 11

The commander of the Nimitz Carrier Strike Group during the intercept was Rear Admiral D.C. Curtis now a Vice Admiral (VADM) and is commander of Naval Surface Forces and the Pacific Fleet's Naval Surface Force. All of the AAV activity was reported to VADM Curtis by the Commanding Officer, USS Princeton and Commanding Officer, VFA-41. Based on all of the conversation with those involved and among the leadership of the various combatants within the CSG. VADM Curtis was a well respected, competent, and thorough Naval Officer. There is no question in anyone's mind that he followed any and all regulations and guidance applicable to his command.

Capt [redacted] was the Director of Operations (N3) for CSG-11 at the time of the intercept. Capt [redacted] confirmed that other than the MISREP there was no other official report or statement from the CSG. He also stated that at no time did they consider the AAV a threat to the battle group. Additionally they had no advanced knowledge of live fire events, US Weapons Testing or any other experimental aircraft operating in the area. Finally, they had never seen anything like this before and never again.

Admiral Peter Daly assumed command of the CSG in January 2005 after the intercept and had no knowledge or involvement in this incident.

2004 November 14, Deck Logs from the *USS Nimitz*

The only original documents obtained and known to be created on the date of the event are the Deck Logs of the ships received through the Freedom of Information Act (FOIA). The Deck Logs to the USS *Nimitz,* USS *Chafee,* and the USS *Higgins* are referenced in the FOIA section of this report. They are original documents and are accurate. The Navy stated that they could not find the Deck Logs of the USS *Princeton*. The Navy indicated tha the Deck Logs of the USS *Louisville* existed but had been classified as exempt from disclosure. The FOIAs generated to obtain these documents are listed in Appendix B. The following pages consist in order the Deck Logs of the *Nimitz*, *Chafee,* and *Higgins.* These are pages for the information referenced. The entirety of the Deck Logs received for the time period of November 10-16, 2004 can be found on the SCU website.

The main purpose of the *Nimitz* Deck Logs was to establish the location of the *Nimitz* during the event and to establish when flights left and returned on deck. The main purpose of the *Chafee* and *Higgins* Deck Logs was to establish that those ships were not in the area at the time of the event.

There is one other event of note that was found in the Nimitz Deck Log, but is not necessarily related to the events described in the main report. At the latitude/longitude location of N31º31.1', W117º55.2' a "chem-light" was noted on the log at 0346 local time on November 14th. (A "chem-light" is carried by crew members so that should they fall overboard at night, they can be located.) The log indicates the captain was called. It was verified that there was no "manoverboard" but without calling for a muster roll. It is very unusual to not take more preventative action and check the muster roll unless it was clear that the light seen on the ocean was not a "chem-light". As an example, man-overboard drills were run on November 12th at 0205 and 0419 local time and in both cases it was noted that it was a drill. No conclusion can be drawn that this was related to the event that would occur later that morning. This is noted only to capture the information should it be useful in the future. (Although there is no reason to believe this occurred, the possibility of a prank by crew members cannot be ruled out.)

SHIP'S DECK LOG - TITLE PAGE
OPNAV 3100/98 (Rev. 7-84) S/N 0107-LF-000-7600

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FOR OFFICIAL USE ONLY

SHIP'S DECK LOG

OF THE

U.S.S. NIMITZ

CVN 68
(hull number)

ATTACHED TO
_____ DIVISION
_____ SQUADRON
CARRIER STRIKE GROUPE ELEVEN GROUP
COMMANDER THIRD FLEET

COMMENCING 2341 (+8U) 01 NOVEMBER 2004
(zone time and date)

AT 32 08.8' N 117 23.3' W SAN DEIGO OPAREA
(location)

ENDING 2338 (+8U) 30 NOVEMBER 2004
(zone time and date)

AT 30 26.7' N 118 14.0' W SAN DEIGO OPAREA
(location)

EXAMINED AND CERTIFIED TO BE CORRECT [redacted] CDR USN
(name, grade and signature) NAVIGATOR

APPROVED BY R. GILMAN, CAPT USN
(name, grade and signature) COMMANDING

TO BE COMPLETED FOLLOWING CHANGE OF COMMAND

DATE OF CHANGE OF COMMAND 23 NOV 04

APPROVED BY T.N. BRANCH, CAPT USN
(name, grade and signature of Relieving Commanding Officer) COMMANDING

FORWARD DIRECT TO THE CHIEF OF NAVAL OPERATIONS AT THE END OF EACH MONTH

REPORT SYMBOL OPNAV 3100-10

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OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0498

SHIP'S DECK LOG SHEET

NOFORN

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SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		USS	CLASS	HANDL
DA	CVN	06	11	U	14	E	NIMITZ	U	

AT / PASSAGE FROM SO CAL

TO OP AREA

POSITION 0800	ZONE	TIME
L ____		BY ____
λ ____		BY ____

POSITION 1200	ZONE	TIME
L ____		BY ____
λ ____		BY ____

POSITION 2000	ZONE	TIME
L ____		BY ____
λ ____		BY ____

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					0000-0400
2326					ASSUMED THE WATCH UNDERWAY AS BEFORE, STEAMING INDEPENDENTLY IN SO CAL OP AREA, ON A COURSE OF 330° AND A SPEED OF 5 KTS. SOPA IS RDML CURTIS. YOKE IS SET THROUGHOUT THE SHIP; DARKEN SHIP IS SET THROUGHOUT THE SHIP WITH THE EXCEPTION OF NORMAL UNDERWAY NAVIGATION LIGHTS. ENGINEERING STATUS IS AS FOLLOWS: (b) (3) (A), (b) (3) (B) [redacted]
					FDG's 1,2,3H ↑, STEERING UNITS 4 AND 1 ONLINE, 2 AND 3 ON STANDBY. CO IS OFF THE BRIDGE.
PL 2330					SET AND DRIFT IS ~~NEGLIG~~ NEGLIGIBLE
2356	AA2			050	RPM
0002	ASTOP			333	
					SET 096°T @ 0.1 KTS
0006	AA1			025	RPM
0048		330		310	DFGMC
*0030					SET 096°T @ 0.1 KTS
*0005					STARTED STEERING UNITS 2 AND 3, 1 AND 4 SECURED.
0108					SET 096°T @ 0.1 KTS
0130	L 30R				
					SET IS NEGLIGIBLE
	RMAN				
0142	L 30R				
0143	CL 180				
0150		180			ITC NEGMC
0200					SET 110°T AT .1 KTS
0237	0200				

NOFORN

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		SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		CLASS	HANDL
D	A	CVN	∅68	4	11	U	14	E	U	/
1	2	3 - 4	5 - 7	12	13 - 14	15	16 - 17	22	78	79

USS NIMITZ

AT / PASSAGE FROM SO CAL

TO OP AREA

POSITION 0800	ZONE	TIME	POSITION 1200	ZONE	TIME	POSITION 2000	ZONE	TIME
L	BY		L	BY		L	BY	
λ	BY		λ	BY		λ	BY	

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 38	37 - 40	41 — 77
					∅200 - ∅400 (CONT)
∅251	DB 1			999 RPM	
	SB 1			999 RPM	
	PA 1			999 RPM	
∅252	PA 2			999 RPM	
∅253	AA 2			∅40 RPM	
∅256	AA 2			∅10 RPM	
∅257	AA 1			∅25 RPM	
∅300				SET 078°T AT .3 KTS	
∅310	R 10 R				
∅314	R30R				
∅319	RAMID				
∅320	L30R				
∅323	R30R				
	AA 2			∅40 RPM	
∅328	AA 2			∅10 RPM	
∅330	AA 2			∅40 RPM	
				SET 0?A°T AT .1 KTS	
∅332	R10R				
∅336	RAMID				
∅337	AA 1			∅25 RPM	
	R30R				
∅339	RAMID				
∅340	L30R				
∅346				LTJG (b) (6) [redacted] HAS THE CONN	
				CHEM LIGHT SPOTTED AT 31° 31.1'N 117° 55.2'W REPORTED TO	
RC				CAPTAIN OOD VARIFIED NOTHING ATTACHED ON IN VACINITY OF	
				MAN OVER BOARD MUSTER NOT CALLED	
∅347	L 180				
		180		176 DEGMAG	
∅349				LTJG (b) (6) [redacted] HAS THE DECK	

REPORT SYMBOL
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		SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		CLASS	HANDL
D	A	C,V	0,6,8	4	1,1	U	1,4	E	U	/
1	2	3 - 4	5 - 7	12	13 - 14	15	16 - 17	22	78	79

USS NIMITZ

AT / ~~PASSAGE FROM~~ S. CAL

TO OP AREA

POSITION 0800	ZONE	TIME	POSITION 1200	ZONE	TIME	POSITION 2000	ZONE	TIME
L	BY		L	BY		L	BY	
λ	BY		λ	BY		λ	BY	

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME 18 - 21	ORDER 23 - 29	CSE 30 - 32	SPEED 33 - 36	DEPTH 37 - 40	RECORD OF ALL EVENTS OF THE DAY 41 - 77
					0000 - 0400 (CONT)
					X [redacted] LT
					X
					0400 - 0800
				ASSUMED THE WATCH UNDERWAY AS BEFORE	
0406				SET 11?°T AT .3 KTS	
0416	AA?			050 RPM	
0418	LO L10R				
0420	SC 160				
0421		160		150 DEGMC	
0424	R 170				
0426		170		166 DEGMC	
	ASTOP			333 RPM	
0427	AAZ			050 RPM	
0428	ABFE				
	RAMIA				
0430				SET 073°T AT .2 KTS	
0431	AASTOP			999 RPM	
0432	AAF			100 RPM	
	S 175				
0433		175		170 DEGMC	
0438	ASTOP			333 RPM	
	RAMID				
0440	AAFLK			171 RPM	
0442	SAM6	195°			
0443	AAZ			050	RPM
		195°		195	PFGMC
0447	RSR	220			
0457		220		219	PFGMC
0459				SET	151 AT .2KTS

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USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		CLASS	HANDL
D A	C J [redacted] 0 6 8	4	1 1	7	1 4	E	4	
1 2 3 - 4	5 - 7	12	13 - 14	15	16 - 17	22	78	79

USS NIMITZ

AT / PASSAGE FROM SD CAL

TO OP AREA

POSITION 0800	ZONE	TIME
L		BY
λ		BY

POSITION 1200	ZONE	TIME
L		BY
λ		BY

POSITION 2000	ZONE	TIME
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME 18 - 21	ORDER 23 - 28	CSE 30 - 32	SPEED 33 - 36	DEPTH 37 - 40	RECORD OF ALL EVENTS OF THE DAY 41 - 77
					0400- 0800 (ION)
0530				SET 089°T AT 2 KTS	
0531	L15R				
0532	L 1ES	1ES			
0600				SET 358°T AT 2KTS	
* 0555		125		112 DFGMC	
0610	AAS			075 RPM	
0617				OBSERVE SUNRISE ENERGIZED NAVIGATION LIGHTS	
0620	AA1			085 RPM	
0629	R15R				
0630				SET 061° AT 7 KTS	
0641				RECEIVED CHRONOMETER REPORT	
0642		170		167 DFGMC	
0647	R200				
0655		200		201 DFGMC	
0705	L15R				
0707	L15R				
0710	AA2			060 RPM	
0711	L130				
0713	AAS			075 RPM	
0714	ASTOP			333 RPM	
		130		117 DFGMC	
0715	AA2			090 RPM	
0717	AB FULL			999 RPM	
0719	ASTOP			999 RPM	
0724	AFULL			100 RPM	
	ASTOP			333 RPM	
0725	AAFLK			171 RPM	
0728		130		116 DFGMC	
NEB				LTJG [redacted] HAS THE DECK LTJG [redacted] HAS THE DECK	

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

*U.S. GPO: 2003-604-002/80079

IF CLASSIFIED STAMP SECURITY MARKING HERE

* LATE ENTRY

OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0496

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY
D A	C V [redacted] 06 [redacted]	4	11	W	14

E 22

USS NIMITZ

AT / PASSAGE FROM SD CAL

TO OP AREA

CLASS / HANDL: W / 78 79

POSITION 0800	ZONE	TIME
L		BY
λ		BY

POSITION 1200	ZONE	TIME
L		BY
λ		BY

POSITION 2000	ZONE	TIME
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME 18 - 21	ORDER 23 - 29	CSE 30 - 32	SPEED 33 - 36	DEPTH 37 - 40	RECORD OF ALL EVENTS OF THE DAY 41 - 77
					[redacted] (b) (6) CTJG
					0800-1200
0728					ASSUMED THE WATCH AS ~~OFFICER~~ UNDERWAY OFFICER
					LT [redacted] (b) (6) HAS THE CONN
0734					RECEIVED FUEL REPORT
0738					SET 033°T AT 2 KTS
0743	R10R				
0745	R30R				
0746	R230				
0747	AA2				040 RPM
					RECEIVED MAL TEMP REPORT
0748		230			226 DFGMC
0819	R20R				
					ONE SHORT BLAST
0824	L30R				
0825	RAM10				
	SAS6	~~170~~ 30			
0832	AA2				060 RPM
0850		310			295 DFGMC
0855	AA2				040 RPM
0903	AA5				065 RPM
0930					SET 251°T AT 1KTS
0933	R15R				
0936	R030				
0939		030			020 DFGMC
0941					RECEIVED MUSTER REPORT
	L10R				
0945	RAM10				
0946	L015				
		015			000 DFGMC

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

*U.S. GPO: 2003-604-002/80079

IF CLASSIFIED STAMP SECURITY MARKING HERE

S/N 0107-LF-031-0496

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		USS	CLASS	HANDL
DA	VN 065	4	11	4	14	E	NIMITZ		

AT / PASSAGE FROM SD CAL

TO OP AREA

POSITION 0800	ZONE	TIME	POSITION 1200	ZONE	TIME	POSITION 2000	ZONE	TIME
L		BY	L		BY	L		BY
λ		BY	λ		BY	λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					0800 - 1200 (CONT)
0958	AA2			040	RPM
0957					RECEIVED BOAT REPORT
1000					SET 103° AT 3 KTS
1032	R30R				
1033	AA2			060	RPM
1037	L30R				
	AMID				
	SAIL	140		127	DEGMC
1039	AA2			040	RPM
	AA1			025	RPM
1043	R150				
1045		150		138	DEGMC
1052					AMBER DECK
1054					RED DECK
	L30R				
	AA2			060	RPM
1059	RAMID				
					SET 253°T AT .2 KTS
1100	L010				
		010		357	DEGMC
1101					CO IS ON THE BRIDGE
	AA1			025	RPM
1104					CO IS OFF THE BRIDGE
1105					NAVIGATOR IS CDO UNDERWAY
1108					SET 051° AT .1 KTS
					AMBER DECK
1110					RED DECK
1123	AA1			035	RPM
1126					RECEIVED DRAFT REPORT DRAFT FWD 36FT 8IN
					DRAFT AFT 37FT 5IN. MEAN DRAFT 37FT 0IN DISPLACEMENT 99%

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

*U.S. GPO: 2003-604-002/80079

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/99 (Rev. 7-91)
S/N 0107-LF-031-0498

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		USS	CLASS	HANDL
DA	CVN	0,6,8	4	1,1	U	1,4	E	NIMITZ	U	
1 2 3-4		5-7	12 13-14		15 16-17		22		78 79

AT / PASSAGE FROM SOCAL

TO OP AREA

POSITION	ZONE	TIME
0800		
L		BY
λ		BY

POSITION	ZONE	TIME
1200		
L 31°12.3'N		BY Z
λ 117°52.2'W		BY Z

POSITION	ZONE	TIME
2000		
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18-21	22-29	30-32	33-36	37-40	41 77
					0800-1200 (CONT'D)
1130				LT [redacted]	HAS THE CONN
				SET	100°T @ 0.3 KTS
1135				LTJG [redacted]	HAS THE DECK
					x LTJG [redacted]
					y [redacted]
					1200 - 1600
1135					ASSUMED THE WATCH UNDERWAY AS BEFORE
1149	L15R				
1151	L340				
1152	AA1			035	RPM
1153				CO IS	ON THE BRIDGE
1156		340		319	DFGMC
1158				CO IS	OFF THE BRIDGE
1159				NAVIGATOR IS	CDO UNDERWAY
1200				SET	084°T AT 0.4 KTS
1204	L330				
1206				AMBER	DECK
	RAMID				
	L335				
1212		335		316	DFGMC
1224	AA1			035	RPM
1225	AA5			075	RPM
1228	AA1			025	RPM
1230				RED	DECK
				SET	106°T @ 0.2 KTS
1232	L5R				
	L330				
	L328				
1234		328		309	

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

*U.S. GPO: 2003-604-002/80079

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0498

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY	
DA	CVN	0,6,8	4	1,1	C	1,4	E

USS NIMITZ
AT / ~~PASSAGE FROM~~ SO CAL
TO OP AREA

CLASS: C HANDL:

POSITION 0800	ZONE	TIME
L		BY
λ		BY

POSITION 1200	ZONE	TIME
L		BY
λ		BY

POSITION 2000	ZONE	TIME
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					1200 - 1600 (CONT'D)
1240				LTJG (b) (6)	HAS THE CONN
1242				LT (b) (6)	HAS THE CONN
1244	AA1			025	RPM
1253				AMBER DECK	
				NAVIGATOR IS CDO UNDERWAY	
1300				SET	178°T @ 0.2 KTS
1301				REC DECK	
1312	AA1			035	RPM
1314	R15R			ONE SHORT BLAST	
1317	R30R				
1318	RAMID				
1319	SAVG	018			
* 1321		018		009	DFGMC
1323	AA2			056	RPM
1326				CO IS ON THE BRIDGE	
1328	AA2			061	RPM
1330	AAS			071	RPM
				SET 192° AT 0.2 KTS	
1332	LOIS				
				CREW DECK	
	AAS			067 RPM	
* 1320				LEAK IN NUMBER TWO SHAFT - RAILING STBD NUMBER 2	
1334		015		COSDFGMC	
1339		017		352	DFGMC
1351	AAS			071 RPM STBD ANSWERED STOP	
1355				066 RPM	
1357	AA2			060 RPM	
1407		010		358	DFGMC
	AAS			075	RPM
	AAF			090	RPM

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

U.S. GPO:1999-704-002/03003

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0498

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

DA	SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY	E
DA	CVN	068	4	11	U	14	E

USS NIMITZ

AT / ~~PASSAGE FROM~~ SO CAL

~~TO~~ OPAREA

CLASS: U HANDL:

POSITION 0800	ZONE	TIME
L		BY
λ		BY

POSITION 1200	ZONE	TIME
L		BY
λ		BY

POSITION 2000	ZONE	TIME
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					1200-1600 (CONT'D)
1404	LOOR				
	LOOL				
	AAF			100	RPM STBD ANSWERED STOP
				SET	097°T AT 0.4KTS
1405	LOO2				
	AAS			075	RPM
	AA1			025	RPM
1406				AMBER	DECK
1407		002		353	DFGMC
1408				RED	DECK
1410				CO IS	OFF THE BRIDGE
1411				NAVIGATOR IS	CDO UNDERWAY
1415	L30R				
	AA2			060	RPM
1425	RAMID				
1426	L15R				
	RAMID				
1427	L15R				
	SHIFTR				
	SAYG	064			
				CO IS	ON THE BRIDGE
1428				AMBER	DECK
1429	AA1			025	RPM
		064		053	DFGMC
	R30R				
1430				RED	DECK
	AA7			060	
1432	R180				
				SET	106°T AT 0.4KTS
1434	AAF			090	RPM

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

U.S. GPO:1999-704-002/00303

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0488

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		CLASS	HANDL
D A	C V [redacted]	0 6 8	4	1 1	U	1 4	E	U	

USS NIMITZ

AT ~~PASSAGE FROM~~ SOCAL

TO CO AREA

POSITION 0800	ZONE	TIME	POSITION 1200	ZONE	TIME	POSITION 2000	ZONE	TIME
L		BY	L		BY	L		BY
λ		BY	λ		BY	λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					1200-1600 (CONT'D)
1435					CO IS OFF THE BRIDGE
					NAVIGATOR IS CDO UNDERWAY
1436	LSR				
1438	L170				
1441		170		162	DFGHC
1444	AAF			110	RPM STBD ANSWERED STOP
1453	AA1			075	RPM STBD ANSWERED STOP
1455	LSR				TWO SHORT BLASTS
					CO IS ON THE BRIDGE
	RAHID				
1457	R10R				ONE SHORT BLASTS
1500	R30R				
	AA7				050 RPM STBD ANSWERED ~~SP~~ STOP
					SET 077°T AT 0.2 KTS
1504					GREEN DECK
	RAHID				
1505	R35O				
1506	AA+7				040 RPM STBD ANSWERED STOP
1508	SAYG	353			
1509		353		338	DFGHC
1523					LT [redacted] HAS THE CONN
1527					LT [redacted] HAS THE DECK
					LTJG [redacted]
					1600 - 2000
1527					ASSUMED THE ~~DE~~ WATCH UNDERWAY AS BEFORE
1533	R355				
					SET 068°T AT 0.3 KTS
1536	AA2			060	RPM

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

U.S. GPO:1995-704-002/00003

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0498

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		CLASS	HANGL
D A	C V N 0 6 8	4	1 1	U	1 4	E	U	
1 2 3 - 4	5 6 7	12	13 - 14	15	16 - 17	22	78	79

USS NIMITZ

AT ~~PASSAGE FROM~~ SO CAL

~~TO~~ OP AREA

POSITION	ZONE	TIME
0800		
L		BY
λ		BY

POSITION	ZONE	TIME
1200		
L		BY
λ		BY

POSITION	ZONE	TIME
2000		
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41 77
					1600 - 2000 (CONT)
1539	AA2			050	RPM STBD
				RED	DECK
	R30R			ONE	SHORT BLASTS
1543	AA2			060	RPM
1544	R170				
1545	AAF			110	RPM
1548		170		165	DFGMC
1549				AMBER	DECK
1551				RED	DECK
1553	AA5			075	RPM
	L160				
1557	L155				
1558				CO	IS OFF THE BRIDGE
1559		155		140	DEGMC
1600				SET	247°T AT 0.2KTS
1606				AMBER	DECK
1608				CO	IS ON THE BRIDGE
1610	AA5			065	RPM
1612	AA2			040	RPM
1613				RED	DECK
	L15R			TWO	SHORT BLASTS
	L10R				
1615	L30R				
1616	AA2			050	RPM
1618	L355				
1620	AA2			040	RPM
				GREEN	DECK
1621	AA2			050	RPM
1622		355		338	DFGMC
1623				ENERGIZED	NAV LIGHTS

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

U.S. GPO:1999-704-002/00083

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0498

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		USS	CLASS	HANDL
D A	C V N	0 6 8	4	1 1	U	1 4	E	NIMITZ	C

AT / PASSAGE FROM SO CAL

TO OP AREA

POSITION 0800	ZONE	TIME
L		BY
λ		BY

POSITION 1200	ZONE	TIME
L		BY
λ		BY

POSITION 2000	ZONE	TIME
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					1600 - 2000 (CONT)
1626	AAZ			ØØ4Ø	RPM
1627					ENERGIZED TASKING LIGHTS
1641	R35B				
	AAZ			ØØ5Ø	RPM
		358			
1642	RSR	359			
1643	AAZ			ØØ4Ø	RPM
		359			
1644	RØØØ				
1646	L354				
1649	RØØØ				
1659		ØØØ			
1653	L15R			RED	DECK
1654	AA1			ØØ3Ø	RPM
				CO	IS OFF THE BRIDLE
1655	L305				
	L3ØØ				
1701		3ØØ		286	DFGMC
* 1635					ASSUMED TALON OF USS PRINCETON,
					STATIONED AS PLANE GUARD.
1721					ENS. (b) (6) HAS THE CONN
1725	R15R				
1727	R30R				LT. (b) (6) HAS THE R DECK
					(b) (6) LT MK WVR
					(b) (6)
					1600 - 2000 (CONT.)
1727					ASSUMED THE WATCH UNDERWAY AS BEFORE
1729	AA1			ØØ3S	RPM
1730	R345			SET	Ø72°T AT Ø.1KTS

REPORT SYMBOL OPNAV 100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

U.S. GPO:1989-704-032/60303

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0499

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		CLASS	HANDL
D A	C V N	4	1	U	1 4	E	U	
1 2	3 4 5 6 7	12	13-14	15	16-17	22	78	79

USS NIMITZ

AT / PASSAGE FROM SO CAL

TO OP AREA

POSITION 0800	ZONE	TIME
L		BY
λ		BY

POSITION 1200	ZONE	TIME
L		BY
λ		BY

POSITION 2000	ZONE	TIME
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME 18-21	ORDER 23-29	CSE 30-32	SPEED 33-36	DEPTH 37-40	RECORD OF ALL EVENTS OF THE DAY 41-77
					1600-2000 (CONT)
1733				CO	IS ON THE BRIDGE
1734				GREEN	DECK
1735		345		376	PFGMC
1738	AA1			030	RPM
1744	L10R	342			
1746		342		321	DFGMC
1748	R344				
1749		344		321	DFGMC
RC 1752	AA2	~~046~~		040	RPM
1753	R346				
1754		346			
1755	R348				
1757		348		329	DFGMC
	R350				
1759	AA2			045	RPM
		350		331	DFGMC
1801	L349			SET	116°T AT 0.1 KTS
1802	L348				
1803		348		329	DFGMC
1805	AA2			050	RPM
1808	AA2			055	RPM
1810	AA2			060	RPM
1812				FOX	KORPEN IS 346° AT 10 KTS
1824	AA2			050	RPM
1637				RED	DECK
				AMBER	DECK
1841				RED	DECK
1842				CO	IS OFF THE BRIDGE
* 1830				SET	100°T AT 0.1 KTS
1854				CO	IS ON THE BRIDGE

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

U.S. GPO:1999-734-002/20003

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/59 (REV. 7-84)
S/N 0107-LF-031-0496

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		CLASS	HANDL
D A	CVN 68	4	11	U	14	E	U	

USS NIMITZ

AT / PASSAGE FROM SO CAL

TO OPAREA

POSITION 0800	ZONE	TIME
L		BY
λ		BY

POSITION 1200	ZONE	TIME
L		BY
λ		BY

POSITION 2000	ZONE	TIME
L 31° 45.7 N		BY 24
λ 117 56.5 W		BY 24

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41 — 77
					1600 - 2000 (CONT.)
1855					GREEN DECK
1901	AAZ			065	RPM
1902	RSR				
	LSR				
1905		345		328	PFGMC
1909				SET	088 AT 2KTS
1912	AAZ			055	RPM
1919	AAS			065	RPM
1923	AAZ			050	RPM
1925				LTJG	(b) (6) HAS THE CONN.
	AAZ			045	RPM
1926	R-348				
1927				LTJG	(b) (6) HAS THE DECK
					(b) (6) LT
					2000 - 2400
1927					ASSUMED THE WATCH, UNDERWAY AS BEFORE.
1928		348		330	PFGMC
1931	R-349				
1933		349		331	PFGMC
	R354				
1934		351		333	PFGMC
1935				SET	060°T @ 03KTS
1938	LSR				
1940		349			
	AAS			070	RPM
1949				RED	DECK DEENERGIZED) TAXI LIGHTS.
1955		320		303	PFGMC
1957	AAI			025	RPM

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

U.S. GPO:1989-704-002/60303

IF CLASSIFIED STAMP SECURITY MARKING HERE

SHIP'S DECK LOG - TITLE PAGE
OPNAV 3100/98 (Rev. 7-84) S/N 0107-LF-000-7600

IF CLASSIFIED STAMP SECURITY MARKING HERE

FOR OFFICIAL USE ONLY

SHIP'S DECK LOG

OF THE

U.S.S. CHAFEE

DDG-090
(hull number)

ATTACHED TO
_____ DIVISION
DESRON 31 SQUADRON
_____ GROUP
_____ FLEET

COMMENCING 31 OCT. 2340 +10W ,19 2004
(zone time and date)

AT NAVSTA PEARL HARBOR, HI
(location)

ENDING 30 NOV. 2350 +8U ,19 2004
(zone time and date)

AT INVSO SO-CAL OP AREA
(location)

EXAMINED AND CERTIFIED TO BE CORRECT (b)(6) LT (b)(6)
(name, grade and signature)

APPROVED BY JOHN W. AILES CDR [redacted] COMMANDING
(name, grade and signature)

TO BE COMPLETED FOLLOWING CHANGE OF COMMAND

DATE OF CHANGE OF COMMAND _____

APPROVED BY _____ COMMANDING
(name, grade and signature of Relieving Commanding Officer)

FORWARD DIRECT TO THE CHIEF OF NAVAL OPERATIONS AT THE END OF EACH MONTH

REPORT SYMBOL
OPNAV 3100-10

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U.S. Government Printing Office: 1985-505-789

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0496

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

	SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		CLASS	HANDL
D A	D D	0 9 0	4	1 1	W	1 4	E	U	
1 2	3 - 4	5 - 7	12	13 - 14	15	16 - 17	22	78	79

USS CHAFEE (DDG-90)

AT / PASSAGE FROM PEARL HARBOR

TO SOCAL OP AREA

POSITION 0800	ZONE	TIME
L ____ BY ____		
λ ____ BY ____		

POSITION 1200	ZONE	TIME
L ____ BY ____		
λ ____ BY ____		

POSITION 2000	ZONE	TIME
L ____ BY ____		
λ ____ BY ____		

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME 18 - 21	ORDER 23 - 29	CSE 30 - 32	SPEED 33 - 36	DEPTH 37 - 40	RECORD OF ALL EVENTS OF THE DAY 41 - 77
					0700-1200 (CONT)
0927	PAS		17		
	PAF		20		
0934					GREEN DECK
* 0932					COMMANDING OFFICER IS OFF THE BRIDGE
0938					GREEN DECK
0940					EZ RIDER 51 DEPARTED SHIP WITH 3 SOULS, FUEL STATE 3
					HOURS 10 MINUTES. ENROUTE ENROUTE DD's
1001	PA 2/3		10		
1023	PAF		20		
1038					GREEN DECK
1021					RECEIVED DAILY MAGAZINE TEMPERATURE REPORT
1051	~~CL~~ PA 1/3	~~PA 1/3~~	5		
1053	CL 066				
1054		066			037 PSTGC
1055	PAF		20		
1059					GREEN DECK
1100					SET = 046 T DRIFT - 0.6 KTS
1123					RECEIVED POSITION REPORT
1128					ENS (b) (6) [redacted] HAS THE CONN
1133	PA 1/3		10		
1135	CL 066				
1137		066			050 PSTGC
1140	PAS		17		
1145					LT (b) (6) [redacted] HAS THE DECK
					X (b) (6) [redacted]
					X
					1200-~~1600~~ 1700
1145					ASSUMED THE WATCH UNDERWAY AS BEFORE
1157	CL 265				

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

*U.S. GPO: 2003-604-002/60079

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OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0498

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

		SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY	
D	A	D.D.G.	Ø9.Ø	4	1.(	W	1.4	E
1	2	3 - 4	5 - 7	12	13 - 14	15	16 - 17	22

USS CHAFEE

AT / PASSAGE FROM PEARL HARBOR

TO OPAREA

CLASS: U | HANDL: / (78, 79)

POSITION 0800	ZONE	TIME
L		BY
λ		BY

POSITION 1200	ZONE	TIME
L		BY
λ		BY

POSITION 2000	ZONE	TIME
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME 18 - 21	ORDER 23 - 29	CSE 30 - 32	SPEED 33 - 36	DEPTH 37 - 40	RECORD OF ALL EVENTS OF THE DAY 41 — 77
					12ØØ - 17ØØ (CONT)
1159	L7R				
	S3ØØ				
12ØØ	AAY3		3		
12Ø1		3ØØ		289 PSTGC	
				SETS Ø46T DRIFT Ø.6KTS	
121Ø	PAF		2Ø		
	L3ØR				
	S255				
1213	CL215				
1215				MWOR STEERING CASUALTY	
	R15R				
	SØ3Ø				
1218	PAY2		5		
1219		Ø3Ø		Ø19 PSTGC	
1225	L5R				
	SØ15				
1226	L15R				
	SØ15				
1227	L30R				
	SØ15				
1228		Ø15		558 PSTGC	
1232				RED DECK	
1239	Ø45		16		
1241				SECURED FROM FLIGHT QUARTERS	
1242	L15R				
	SØ65				
		Ø65		Ø54 PSTGC	
1249				COMMANDING OFFICER IS OFF THE BRIDGE	
1251				SHIFTED AREA STEERING UNITS TO BRAVO UNITS	

REPORT SYMBOL
OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE
U.S. GPO: 2003-604-032/80073

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OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0496

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY	E
DA	DD6 09.0	4	11	W	14	E

USS CHAFEE

AT / PASSAGE FROM HAWAIIAN

TO OP AREA

CLASS / HANDL: C /

POSITION 0800	ZONE	TIME
L		BY
J		BY

POSITION 1200	ZONE	TIME
L		BY
J		BY

POSITION 2000	ZONE	TIME
L		BY
J		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					1200-1200 (CONT)
1200					SET = 046.4° DRIFT = 0.6 KTS
1305					COMMANDING OFFICER IS ON THE BRIDGE
1314	RSR				
	5020				
1315		070		059	PSTGC
					SET LOW ~~VISIBILITY~~ VISIBILITY DETAIL
1340					SECURED SET LOW VISIBILITY
1343					SECURED NAVIGATION LIGHTS
					SET = 214°T DRIFT = 1.3 KTS
1400					SET 214.3T DRIFT 1.3
1417					ENERGIZED NAVIGATION LIGHTS
1417					STATIONED LOW VISIBILITY DETAIL
1430					SET 217.8 DRIFT 1.3 KTS
1453	CL 069				
1454		069		058	PSTGC
1507	CL 067				
1508		065		056	PSTGC
1517	CL 055				
		055		045	PSTGC
1523					ENG (b) (6) HAS THE CONN
1525					TANK GROUP TO 1A SERVICES
1530					ENG (b) (6) HAS THE CONN
		055		054	PSTGC
					SET = 166°T DRIFT = 3.4 KTS
1538	CR				
	5071				
1539		071		061	PSTGC
					MINOR STEERING FAULT
1551	CL				
	5069				

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

*U.S. GPO: 2003-604-062/80079

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OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0496

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		USS	CLASS	HANDL
DA	DDG 098	4	11	W	14	E	CHAFEE		U

AT / PASSAGE FROM HAWAIIAN
TO SOCAL

POSITION 0800	ZONE	TIME	POSITION 1200	ZONE	TIME	POSITION 2000	ZONE	TIME
L ____ BY ____			L ____ BY ____			L ____ BY ____		
λ ____ BY ____			λ ____ BY ____			λ ____ BY ____		

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					1200-1700 (CONT)
1551		069		059	PSTGC
1600				SET 216.5T DRIFT 1.5	
1610	LISR				
	S066				
1611		066		06'6	PSTGC
SCR				~~ENTER~~ ENERGIZED NAVIGATION LIGHTS	
1623				COMMANDING OFFICER IS ON THE BRIDGE	
				COMMANDING OFFICER IS OFF THE BRIDGE	
1630	CL066				
				SET 224.5T DRIFT 1.8 KTS	
1643	PAS		17		
1648				LTJG (b) (6) HAS THE DECK	
				X (b) (6)	
				X	
					1700-2200
1648				ASSUMED THE DECK UNDERWAY AS BEFORE	
1649				ENS (b) (6) HAS THE CONN	
1653	R 065				
1654		065		055	PSTGC
1656	R 070				
1658		070		060	PSTGC
1700				SET = 228T DRIFT = 2-3 KT.	
				OBSERVED SUNSET	
1708				SECURED FOG SIGNALS VISIBILITY 5 NM	
1709	L 067				
1710		067		057	PSTGC
1730				SET: 227°T DRIFT: 2.1 KT.	
1733	L 065				
1735		065		055	PSTGC

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

*U.S. GPO: 2003-604-002/80079

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SHIP'S DECK LOG - TITLE PAGE
OPNAV 3100/58 (Rev. 7-84) S/N 0107-LF-000-7600

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FOR OFFICIAL USE ONLY

SHIP'S DECK LOG

OF THE

U.S.S. HIGGINS

DDG - 076
(hull number)

ATTACHED TO
_____ DIVISION
TWO - THREE SQUADRON
_____ GROUP
THIRD FLEET

COMMENCING +8U 2145 31 OCTOBER ,19 2004
(zone time and date)

AT PIER 3 NAVSTA SAN DIEGO
(location)

ENDING +8U 2209 30 NOVEMBER ,19 2004
(zone time and date)

AT 32° 41.2' N 118° 36.9' W SOCAL OPAREA
(location)

EXAMINED AND CERTIFIED TO BE CORRECT [redacted] LT, USN [redacted] OR
(name, grade and signature)

APPROVED BY R. I. KITCHENER, CDR, USN [redacted] COMMANDING
(name, grade and signature)

TO BE COMPLETED FOLLOWING CHANGE OF COMMAND

DATE OF CHANGE OF COMMAND
12 NOV 04

APPROVED BY J. A. WILSON, CDR, [redacted] COMMANDING
(name, grade and signature of Relieving Commanding Officer)

FORWARD DIRECT TO THE CHIEF OF NAVAL OPERATIONS AT THE END OF EACH MONTH

REPORT SYMBOL
OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

U.S. Government Printing Office: 1988-520-733

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OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0498

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		USS	AT / PASSAGE FROM	TO	CLASS	HANDL
D A	D.D.G. 076	4	1.1	U	1.3	E	HIGGINS DD676	NAVSTA SD	PIER 7	U	

POSITION 0000	ZONE	TIME	POSITION 1200	ZONE	TIME	POSITION 2000	ZONE	TIME
L ____ BY ____			L ____ BY ____			L ____ BY ____		
λ ____ BY ____			λ ____ BY ____			λ ____ BY ____		

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					2200 - FLOØ
2115					ASSUMED THE WATCH. MOORED STBD SIDE BOW OUT AT
					PIER 7 NAVSTA SAN DIEGO. ALL LINES DOUBLED EXCEPT
					AFT STANDARD CONFIGURATION. PIER SIDE IS
					USS TRIANA. THE ENGINEERING PLANT IS AS FOLLOWS:
					1 & 2 AC PLANT, 1 AND 3 SSD WATER SERVICE PUMPS ONLINE,
					3 F.O. 2 PUMP ONLINE, 1 REEFER ONLINE, 2 LOAD LINE,
					2 LOAD ONLINE, 1 GTG STBY. GEN. LDC IS LCDR (b) (6)
					THE CO. IS FOR LUNCH WHEN AND HE IS ABSENT.
2135					SOUNDING AND SECURITY REPORTS ALL SECURE.
2214					INTERNAL ROVER REPORTS. ALL SECURE.
2334					SOUNDING AND SECURITY REPORTS. ALL SECURE.
0030					ENGINEERING ROOM REPORTS ALL SECURE.
0045					SOUNDING AND SECURITY REPORTS. ALL SECURE.
0130					INTERNAL ROVER REPORTS ALL SECURE.
0145					WATCH PROPERLY RELIEVED BY PC'(SW) (b) (6)
					(b) (6) IT'
					(b) (6) IT'
~~0145~~					0200 - 0700
0145					ASSUMED THE WATCH MOORED AS BEFORE.
0320					SOUNDING AND SECURITY REPORTS ALL SECURE
0325					INTERNAL ROVER REPORTS ALL SECURE
0490					SOUNDING AND SECURITY REPORTS ALL SECURE
0444					INTERNAL ROVER REPORTS ALL SECURE
0533					SOUNDING AND SECURITY REPORTS ALL SECURE
0539					INTERNAL ROVER REPORTS ALL SECURE
0645					WATCH PROPERLY RELIEVED BY OS' (b) (6)
					(b) (6) AT PC'
					(b) (6) PC'

REPORT SYMBOL OPNAV 3100-10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

*U.S. GPO: 2001-704-002/40006

IF CLASSIFIED STAMP SECURITY MARKING HERE

OPNAV 3100/99 (Rev. 7-84)
S/N 0107-LF-031-0499

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE	HULL NUMBER	YEAR	MONTH	ZONE	DAY		CLASS	HANDL
DA	D.DG 076	4	11	U	14	E	U	

USS HIGGINS (DDG-76)

AT / PASSAGE FROM NAVSTA, SD

TO PIER 2

POSITION	ZONE	TIME
0800 L ____ BY ____		
λ ____ BY ____		

POSITION	ZONE	TIME
1200 L ____ BY ____		
λ ____ BY ____		

POSITION	ZONE	TIME
2000 L ____ BY ____		
λ ____ BY ____		

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
					0700 - 1200
0645					ASSUMED THE WATCH MOORED AS BEFORE
0800					OBSERVED MORNING COLORS
0810					RECIEVED DAILY BOAT REPORT, DRAFT REPORT, FUEL/WATER
					REPORT AND COMBAT SYSTEMS REPORT.
0910					RECIEVED DAILY MUSTER REPORT AND CHRONOMETER REPORT
1145					PROPERLY RELIEVED BY Bm'1(SW) (b) (6)
					X QS'1(SW) (b) (6)
					X (b) (6)
					1200 - 1700
1145					ASSUMED THE WATCH MOORED AS BEFORE.
1200					STRUCK 8 BELLS ON TIME.
1315					INTERNAL ROVER REPORTS ALL CONDITIONS NORMAL.
1645					PROPERLY RELIEVED BY IT' (b) (6)
					X Bm'(SW) (b) (6)
					X Bm'(SW) (b) (6)
					1700 - 2200
1645					ASSUMED THE WATCH MOORED AS BEFORE.
1648					OBSERVED EVENING COLORS.
1756					INTERNAL ROVER REPORTS ALL CONDITIONS NORMAL.
1832					INTERNAL ROVER REPORTS ALL CONDITIONS NORMAL.
1935					INTERNAL ROVER REPORTS ALL CONDITIONS NORMAL.
1959					XO ON BOARD.
2027					INTERNAL ROVER REPORTS ALL CONDITIONS NORMAL
2148					WATCH PROPERLY RELIEVED BY EC (b) (6)
					X (b) (6)
					X
					NEET

REPORT SYMBOL OPNAV 3100-10

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*U.S. GPO: 2001-764-802/40065

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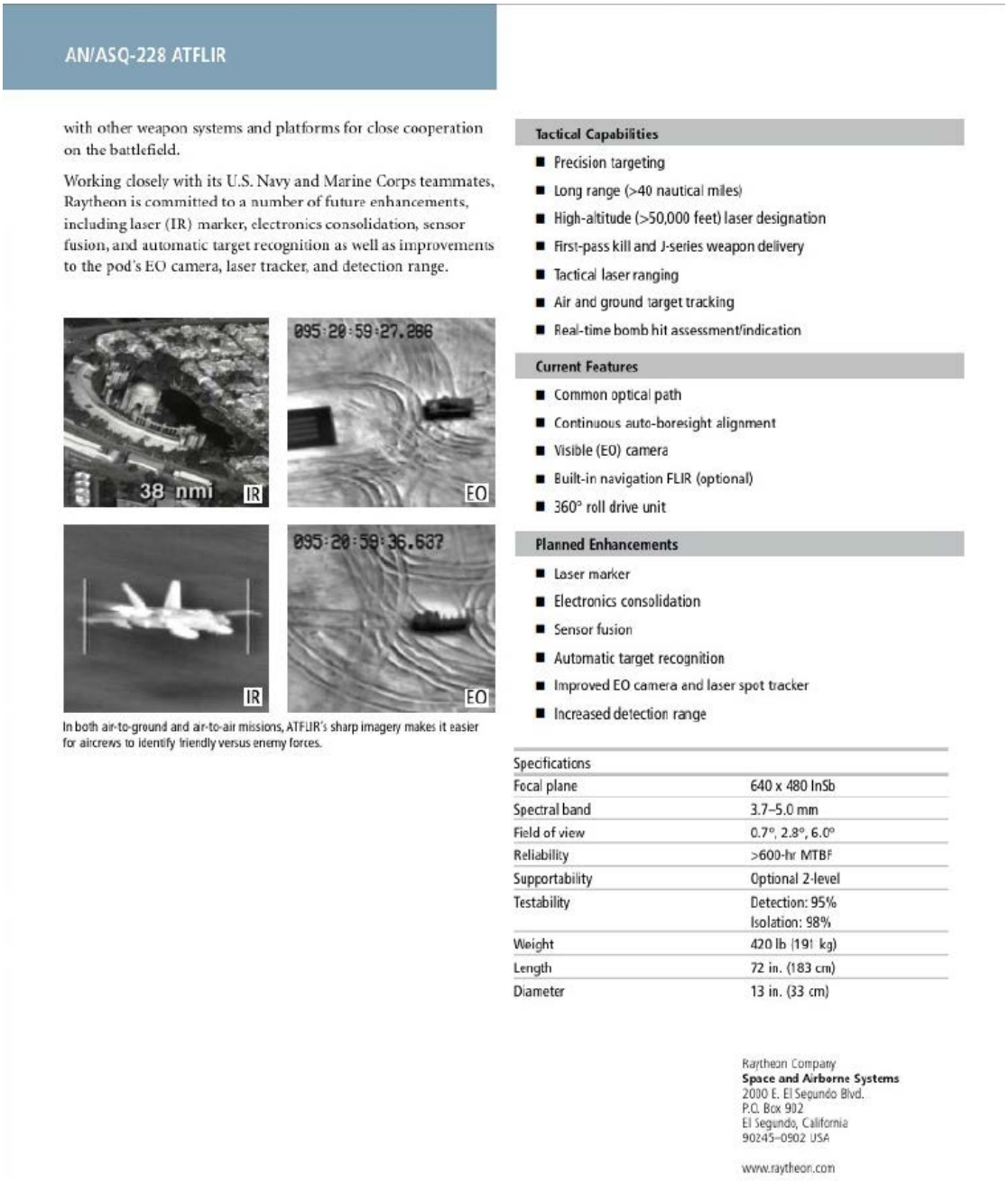
APPENDIX D

Advanced Targeting Forward Looking Infrared Radar (ATFLIR)
AN/ASQ-228

by Peter Reali

AN/ASQ-228 ATFLIR

The ATFLIR AN/ASQ-228 operates in the medium infrared portion of the spectrum, at 3.7-5.0 nanometer wavelengths and is self cooled by the F/A-18 “Super Hornet's” indigenous mechanics. It is not only passive, but contains a laser designator. It can also provide low-light television viewing in the visual range and for different applications, it can switch among 0.7°, 2.8° and 6.0° fields of view. Common optics and a mid-wave staring focal plane array support an infrared channel with 30x magnification and an electro-optical channel offering up to 60x magnification.[1]



AN/ASQ-228 ATFLIR

with other weapon systems and platforms for close cooperation on the battlefield.

Working closely with its U.S. Navy and Marine Corps teammates, Raytheon is committed to a number of future enhancements, including laser (IR) marker, electronics consolidation, sensor fusion, and automatic target recognition as well as improvements to the pod's EO camera, laser tracker, and detection range.

In both air-to-ground and air-to-air missions, ATFLIR's sharp imagery makes it easier for aircrews to identify friendly versus enemy forces.

Tactical Capabilities

- Precision targeting
- Long range (>40 nautical miles)
- High-altitude (>50,000 feet) laser designation
- First-pass kill and J-series weapon delivery
- Tactical laser ranging
- Air and ground target tracking
- Real-time bomb hit assessment/indication

Current Features

- Common optical path
- Continuous auto-boresight alignment
- Visible (EO) camera
- Built-in navigation FLIR (optional)
- 360° roll drive unit

Planned Enhancements

- Laser marker
- Electronics consolidation
- Sensor fusion
- Automatic target recognition
- Improved EO camera and laser spot tracker
- Increased detection range

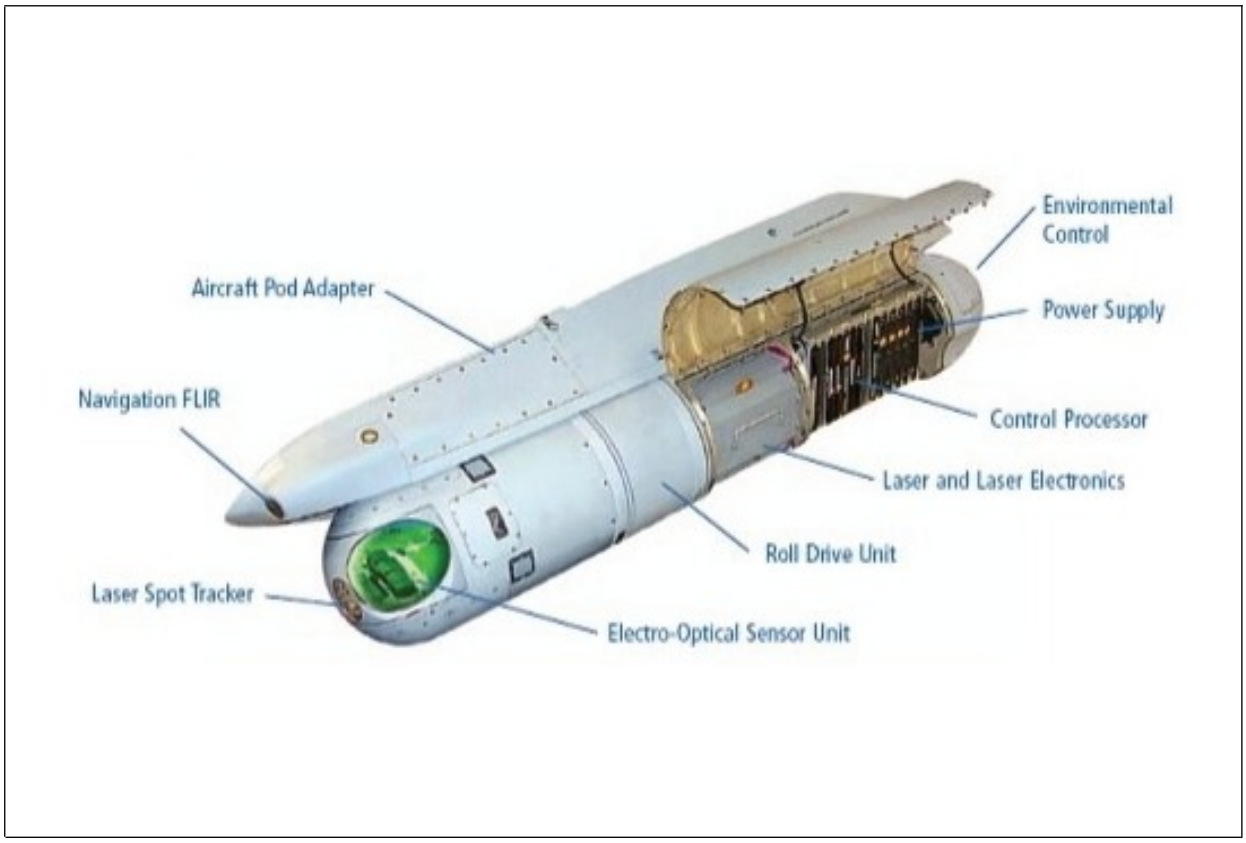
Specifications	
Focal plane	640 x 480 InSb
Spectral band	3.7–5.0 mm
Field of view	0.7°, 2.8°, 6.0°
Reliability	>600-hr MTBF
Supportability	Optional 2-level
Testability	Detection: 95% Isolation: 98%
Weight	420 lb (191 kg)
Length	72 in. (183 cm)
Diameter	13 in. (33 cm)

Raytheon Company
Space and Airborne Systems
2000 E. El Segundo Blvd.
P.O. Box 902
El Segundo, California
90245–0902 USA

www.raytheon.com

1 David Donald, “Proven in combat, Raytheon ASQ-228 gets upgraded,” *AIN Online*, December 12, 2006. https://www.ainonline.com/aviation-news/defense/2006-12-12/proven-combat-raytheon-asq-228-gets-upgraded. Accessed August 8, 2018.

The AN/ASQ-228 is 72 in (183 cm) long, weighs 420 lb (191 kg), and has a slant range of 40 mi (64.3 km), and is said to be useful at altitude of up to 50,000 ft (15,240 m). It has fewer parts than many previous systems, which it intended to improve. Crews indicate that it offers much greater target resolution and image accuracy than previous systems.

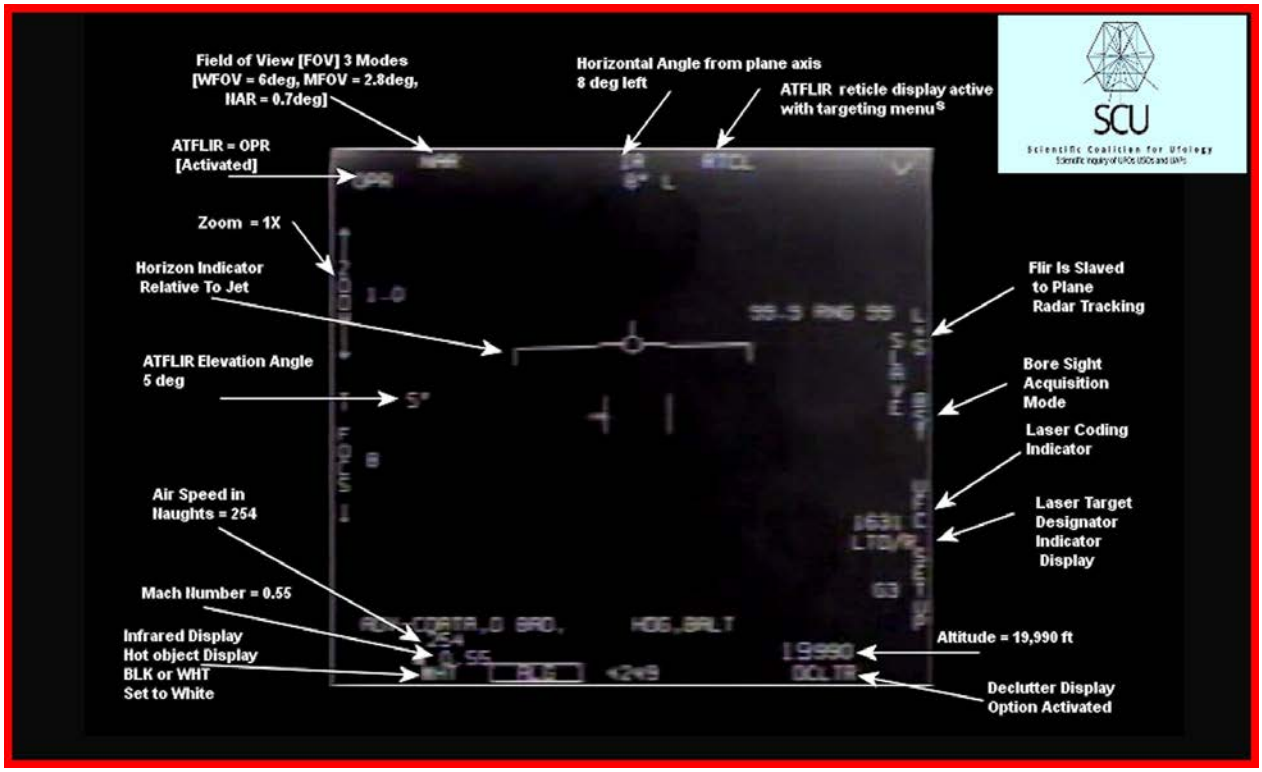


Courtesy of Thai Military and Asian Archives 2015[2]

ATFLIR presently is used only by the US Navy on the Boeing F/A-18E/F Super Hornet and the earlier F/A-18C/D and with Marine Corps F/A-18Cs when deployed onboard aircraft carriers. It is normally carried on one of the fuselage hard-points otherwise used for AIM-120 AMRAAM missiles.

The AN/ASQ-228 ATFLIR was the most advanced infrared optical system in 2004 and remains so today but it's greatest asset is the situational awareness it provides the pilot and target designator. To provide this capability an advanced visual cockpit display, as shown below, presents all the important information to a viewing screen to be accessed for necessary operational and targeting activities.

2 Thai Military and Asian Region, https://thaimilitaryandasianregion.wordpress.com/2015/10/30/f18-super- hornet/. October 30, 2015. Accessed August 8, 2018.



AN/ASQ-228 ATFLIR Cockpit Digital Display derived from the FLIR-1 Video described later - Copyright SCU [Scientific Coalition For Ufology]

As can be seen from the display above starting from the bottom left moving clockwise: The display can show, when viewed in the infrared camera, objects that are hotter than the spatial background as either White or Black and here it is set for White. The air speed in Nautical Miles/hr and Mach Number or % of the speed of sound at the local barometric pressure. Shown here as 254 N and 0.55M respectively. The elevation angle of the ATFLIR camera, as it tracks an object in degrees. Here shown as 5 deg above the Horizon. The horizon bar/ladder indicator showing the true angle of the horizon relative to the air-frame axis. The Zoom indication of 1X or 2X currently shown as 1X. The OPR indicating the ATFLIR is activated but it can be turned off in other conditions. The Field of view shown as NAR which is the narrowest field of view of 0.7deg but can be widened to either 2.8 or 6 degrees as needed. The horizontal angle of the ATFLIR optical gimbal as it rotates from the axis of the plane, shown here as 8 deg left of the long axis. RCTL displays that the reticle is active with the targeting information being displayed. Below it is the IR indicator showing it is in the Infrared Mode and not TV mode. The ATFLIR is slaved to the radar tracking system and that there are other options are available. It is in the bore site acquisition mode and other options may be used. A laser coding indicator that is classified information. The planes altitude shown as 19,990 ft and that a de-clutter display option is activated by the pilot; presumably to make the reading of critical information more efficient.

There have been more recent incidents showing these displays that differ somewhat from the above display but this is the display available in 2004 and current equipment is much more capable and has been enhanced greatly requiring the addition of additional displays not shown here. Some of the information is still classified or unknown by the authors and is not described here, although it appears on the screen.

APPENDIX E

VIDEO PROVENANCE

by Robert Powell

ATFLIR VIDEO TAKEN ON NOV. 14, 2004

The ATFLIR video is valuable to the extent that it supports the testimony that has been provided by the pilots and the individuals who had access to the radar systems onboard the USS *Princeton*. The source of the video will be discussed in this appendix.

The video first surfaced in the public on 2007 where it was hosted on a German website, *Vision Unlimited*, a company specializing in film and 3D Animations and Virtual Reality. It was released by two anonymous witnesses using the name "The Final Theory" and "Cometa" after they initiated discussions on February 4, 2007 on the forum site *Above Top Secret*. The discussions centered around accusations of a faked video.[1] The video was later removed from the internet sometime after May 18, 2008 but can still be found using the *Wayback Machine's* internet archival system.[2] For future reference we will refer to this video as 'F4.mpg'.

The next time that the video became public was when the *New York Times* broke their front page story of the F/A-18 encounter with a UFO on December 16, 2017.[3] This video was also released by the group To The Stars Academy (TTSA) on their website. For future reference we will refer to this video as 'FLIR1.mp4'.

The SCU has evaluated the two videos and does not find any difference in the videos other than changes to the format. The 2007 release, F4.mpg, is 352x240 while the TTSA version, FLIR1.mp4, is 1280x720. It appears that TTSA changed the format to 1280x720 when adding extensive commentary. Both videos were broken into individual frames. There is only one frame difference between the two with the FLIR1.mp4 version having 2287 frames as compared to 2288 frames on the earlier F4.mpg version. The F4.mpg version was judged to be the better quality video and is the one that will be used in the analysis. It is problematic that a leaked government video and an "officially" released government video are the same but that is not an issue related to the authenticity of the video which is the chief concern here.

There is no reason to doubt the authenticity of the video as there are witnesses who saw the video on the Navy's classified internet system known as SIPRNet. These witnesses viewed the video on either the USS *Princeton* and the USS *Nimitz* within hours of the actual event. They have confirmed that this is the same video that they saw in 2004 except that the quality is degraded and the video is shorter than the original.

Petty Officer Gary Voorhis, when asked about the original video that he saw vs the one released by the *New York Times*, stated, "It was edited. There is a lot of information on those videos that wasn't there. Latitude and longitude..." He was asked if the video that he saw was about the same length as the video in the *New York Times* release and he replied, "No. It was longer."[4]

Petty Officer Jason Turner had a similar but more detailed discussion when comparing the original video to the one recently released. Just after the 5 minute mark of his interview, he explains:

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1 *ATS: Above Top Secret*, "Fighter Jet UFO Footage: The Real Deal," http://www.abovetopsecret.com/forum/thread265835/pg9. Accessed 08/05/2018.

2 *Wayback Machine*, Accessed 08/08/2018. https://web.archive.org/web/20070217091957/http://www.vision-unlimited.de:80/extern f4.mpg

3 Cooper, Blumenthal, Keane, "Glowing Auras and 'Black Money': The Pentagon's Mysterious U.F.O. Program," *New York Times*, December 16, 2017, front page.

4 Gary Voorhis, interview by Robert Powell, telephone interview, April 6, 2018. Interview available at www.explorescu.org.

"A few days later [after the event] I had a friend who worked up in ceph? [word unclear], where the crytologic type missions work. I had a secret clearance so I was able to—he showed me the video after it happened so the video that you see is actually cut short. There is more video to it. Where that is, I don't know. It was quite a long video. The video doesn't show where this thing turned sideways and you can see it's elongated and how it turned and went in a different direction that they couldn't keep up with.

As soon as it surfaced again, I knew there was missing video. Where that missing video is or if someone cut it off when they uploaded it, who knows. But there is a lot more video on that particular one. The one that we see is really really grainy. The one that we saw, was not. The one that we're watching here, it looks like whatever that object is, it's a lot smoother than what we see on this video. It doesn't have a rough surface like this video has. It was very clear as to what the shape and dimensions of this thing was."[5]

The Senior Chief Kevin Day also confirms the videos are the same and recalls the original video to be longer. He states at about the 35th minute of his interview:

"That video that came out in the *New York Times*, our ship was in possession of that same video that day [of the event] or the next morning. It was emailed to my email account and I shared it with the team. The reason why I didn't take it with me myself, and believe me I wanted to, is because it resided on a secret computer system and unlike some people in government I hold secret stuff sacrosanrct and I don't take it home with me...

The one in the New York Times that was released was probably the exact same video that I had possession of immediately following the event. I think it was exactly the same video. The video on the New York Times was probably about, I would say maybe, a half to a third as long as the original one that I received."[6]

When LCDR Slaight was asked if the video that was released was the same one that he saw 14 years ago, he replied:

"You're talking about FLIR-1? Oh, yeah, yeah. That was our squadron's jet on the third cycle. I mean, I know the aircrew."

Slaight indicated that he did not know for certain if the length of the video was the same but he suspected that the original was longer. He explained his reasoning as follows:

5 Jason Turner, interview by Robert Powell, telephone interview, January 11, 2018. Interview available at www.explorescu.org.

6 Kevin Day, interview by Robert Powell, telephone interview, January 15, 2018 by Robert Powell. Interview available at www.explorescu.org.

> "My guess is it's a lot longer than that. Usually if you are on an engagement or something, you will throw your tapes on before you ever get there. That way you don't miss anything. In fact it's 'flights on—tapes on', so you don't forget."[7]

When asked about chain of custody and why hasn't the Department of Defense (DoD) officially indicated that they had released the video known as FLIR-1, retired CDR Fravor stated at the time of 46:49 on the recording:

> "I can't speak for DoD. When the airplane that took the video came back from their flight, the back-seater went into debrief and of course when he walks in one of the Petty Officers is sitting in there, one of the intel specialists, and goes, 'Oh, VFA-41 did you see any aliens?' He kind of laughed and he said, 'As a matter of fact they're on these tapes.' Then he threw the tapes down. So what happens with those tapes is—the targeting pod video that you've seen—they copy it off of the tape that we have—it's a Hi-8 tape that comes directly off the video feed to our displays so it's really not corrupted at all.
>
> In about 2007-2008 my WSO had sent me an email and said, 'Hey Skipper, does this look familiar?' It was actually the video that you have all seen now. Someone who had taken it off of the drive and did that [released it to the internet]."[8]

The video analyzed in this report, 'F4.mpg', is the same video as released by the New York Times except for formatting changes. Based on testimonies from multiple witnesses who saw the video on board ship in November of 2004, this is the same video. The only question is whether it is the same or a similar object as encountered by CDR Fravor and LCDR Slaight. Both pilots indicate that it is the same object.

7 Jim Slaight, interview by Robert Powell, telephone interview, February 22, 2018. Interview available at www.explorescu.org.

8 David Fravor, interview by Linda Moulton Howe. KGRA radio, June 28, 2018.

APPENDIX F

BACKGROUND INFORMATION ON CARRIER STRIKE GROUP ELEVEN (CSG 11)

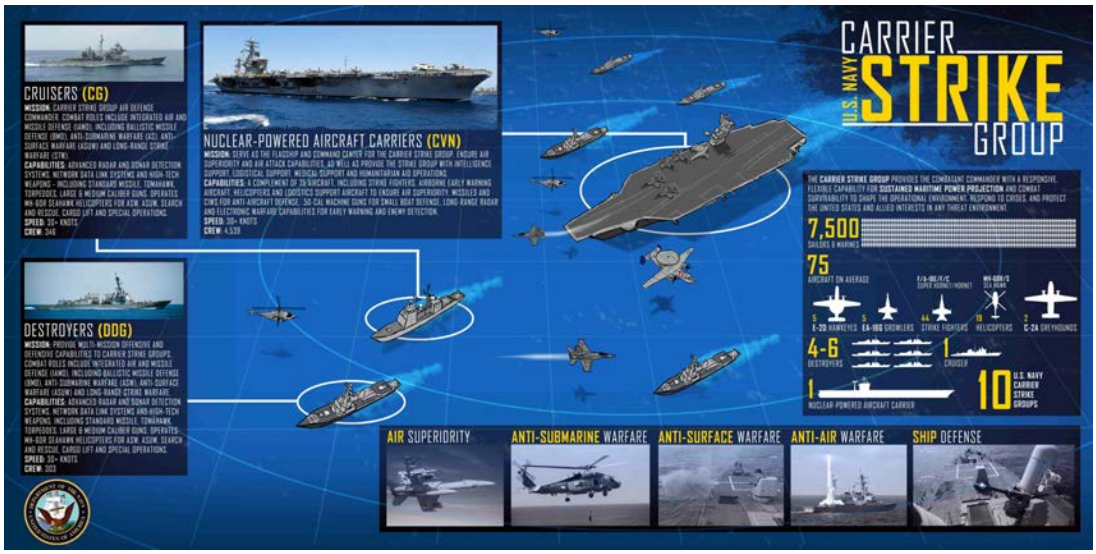
by Robert Powell

Carrier Strike Group

A U.S. Navy Carrier Strike Group (CSG) is one of the most imposing military projections of power on Earth. Consisting of over 6,000 sailors, a nuclear aircraft carrier, at least one missile cruiser, multiple destroyers, air wings, and at least one nuclear submarine, a CSG has global reach. As Rear Admiral Faller noted: "It is capable of conducting large force strikes against multiple targets for days without replenishment. It can launch precision weapons from carrier-based aircraft and Tomahawk Land Attack Missiles. Hitting a car-sized target from a thousand miles away is not fiction."[1]

One of the reasons for a CSG's lethal abilities is the AEGIS weapon system and its AN/SPY-1 radar. A conventional radar detects a target when the radar beam strikes that target once during each 360 degree rotation of the antenna. A separate tracking radar is then required to engage each target. By contrast, the computer-controlled AN/SPY-1 Phased Array Radar of the AEGIS system does this in one system. The four fixed hexagonal arrays send out beams of electromagnetic energy in all directions simultaneously, continuously providing a search and tracking capability for hundreds of target simultaneously. The system's capability was proved in the early 1990s during Operation Desert Storm, when the AEGIS-equipped cruiser Bunker Hill took over tactical control of 26 warships and more than 300 aircraft, directing attacks against Iraqi forces & coordinating the interception of enemy missiles.[1,2]

The Carrier Strike Group involved in the November 14, 2004, incident off the southwest coast of California was Carrier Strike Group Eleven and commanded by Rear Admiral D.C. Curtis. It was centered around the nuclear powered aircraft carrier USS *Nimitz*, missile cruiser USS *Princeton*, destroyers USS *Chafee* and USS *Higgins*, nuclear submarine USS *Louisville*, and Carrier Air Wing-11 (CVW-11) which consisted of VMFA-232, VFA-41,VAW-117, VFA-14, VFA-94, VAQ-135, VRC-30, and HS-6.[3]



An illustration by Austin Rooney for the United States Navy.

1 Rear Admiral Craig Faller, Commander, Carrier Strike Group Three. *Navy Blog: The Official Blog of the U.S. Navy*, "Value of a Carrier Strike Group," October 17, 2011. http://navylive.dodlive.mil/2011/10/17/value-of-a-carrier-strike-group/2147483647/. Accessed June 11, 2018.

2 *Lockheed Martin*, "Aegis, Shield of the Fleet." https://www.lockheedmartin.com/en-us/news/features/history/aegis.html Accessed June 5, 2018.

3 Source material from the U.S. Navy. http://www.pbs.org/weta/carrier/air_wing_11.htm Accessed June 5, 2018.

USS *Princeton*

USS Princeton, May 2003, U.S. Navy file photo

The USS *Princeton* is a *Ticonderoga* class cruiser and is identified as CG 59. She was commissioned in 1989 and has a crew of about 350 including 24 officers. In addition to the SPY-1B radar the ship was equipped at the time with the Raytheon SPS-49 air search radar, four Raytheon SPS-62 radar, the Lockheed SPQ-9A/B system, and surface search radar. The ship also had the SQS-53B sonar and the SQR-19 passive towed sonar. The *Princeton* also has a helicopter landing pad.[4]

It was the AEGIS-equipped cruiser *Princeton* that owned the tactical role in the USS *Nimitz* Carrier Strike Group Eleven during a naval exercise off the southwest coast of California in November of 2004. She was equipped with an upgraded version of the SPY-1 radar, the AN/SPY-1B. Its phased array radar operated in S-band varying from 3.1 to 3.5 GHz with an instantaneous bandwidth of 40 MHz, a peak power of 4-6 megawatts, and pulses with lengths as short as 6.4 microseconds.[5] It was the *Princeton* that had the most powerful radar system in the strike group and her computer systems coordinated radar returns from all the ships in the strike group including the E-2 Hawkeye an airborne early warning aircraft.

The *Princeton* coordinates and compiles radar information from all ships and aircraft in the strike group using the Cooperative Engagement Capability (CEC) system. CEC is a system of hardware and software that allows the sharing of multiple radar on air targets amongst CEC equipped units. Sensor data from individual units are transmitted to other units in the network real time. Each CEC equipped ship or plane uses identical sensor data processing algorithms resulting in each unit having the same display of radar tracks.[5] This approach requires sharing measurements from every sensor (unfiltered range, bearing, and elevation) among all units[ships & aircraft] while retaining the critical data characteristics of accuracy and timeliness. Thus the strike group can operate as a single, distributed, theater defensive system.[6] An educational video that explains the CEC system can be found here: https://www.youtube.com/watch?v=WumIk1MwVPM

The CEC system minimizes the possibility of false radar tracks as noted in the John Hopkins APL Technical Digest: "Design improvements have been made for some radar systems as part of the CEC integration process to ensure low false track rate on the net and yet high sensitivity for cueing. Generation of false tracks, e.g., due to clutter, at a rate tolerated on a single unit is often too high for a network of units, so further processing is provided in the CEP (Cooperative Engagement Processor)."[6]

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4 *Jane's All the World's Ships, 2004-2005.*

5 U.S. Navy Fact Sheet, "CEC - Cooperative Engagement Capability", http://www.navy.mil/navydata/fact_display.asp?cid=2100&tid=325&ct=2 Office of Corporate Communications, Naval Sea Systems Command (OOD), Washington, D.C. 20376. Last updated January 25, 2017. Accessed May 31, 2018.

6 "The Cooperative Engagement Capability," *John Hopkins APL Technical Digest,* Volume 16, No 4, 1995.

USS *Nimitz*

USS Nimitz, March 1996, US Navy file photo

USS *Nimitz* (CVN 68) is a nuclear-powered super carrier of the U.S. Navy, and the lead ship of her class. One of the largest warships in the world, she was commissioned on May 3, 1975. The ship is 1092 feet long, 252 feet wide, 24 stories high, has two nuclear power plants, holds about 5,000 sailors, and can carry about 75 aircraft. In 2004 the *Nimitz* had multiple radar systems including the ITT SPS-48E an air search radar operating at E/F bands, the Raytheon SPS49 air search radar at C/D bands, the Hughes Mark 23 target acquisition radar, and the Northrop Grumman SPS-64 navigational radar at G band.[4] The strength of a *Nimitz* class carrier is also in the aircraft that are carried, especially the F/A-18E/F Super-Hornets.

VFA-41 F/A-18F Super Hornet, Courtesy U.S. Navy

VFA-41

The F/A-18F crew consists of a pilot and a weapons system officer. It has two engines, is capable of speeds greater than Mach 1.8, a length of 60'3", a 44'9" wingspan, and a tactical range of 1275 nautical miles. In 2004 it was equipped with the APG-73 radar system, an all-digital, multi-mode radar for use in both air-to-air and air-to-ground combat missions. It is an all weather, coherent, multi-mode, multi-waveform search-and-track sensor. A Terrain Avoidance mode is used for low-level penetration missions, and an Air-to-Surface Ranging mode is available for the accurate delivery of both guided and unguided munitions. A specialized Sea Search mode will enable the system to acquire and track ship targets in any sea state. It operates at a frequency of 8-12 GHz and has a range of 60 nautical miles.[7]

The primary F/A-18F squadron that was involved in this incident was VFA-41, known as the Black Aces. With a history that extends back to 1945, the Black Aces became the first operational F/A-18F Super-Hornet squadron in 2001 and were first deployed in 2003. Their home port is NAS Lemoore in California. This squadron along with the USS *Nimitz* was most recently portrayed in their 2005 deployment to the Gulf during the Iraq war in the Public Broadcasting System (PBS) miniseries documentary "Carrier" in 2008.[8] The lead pilot in the interception of the "Tic-Tac" and the commanding officer of VFA-41, David Fravor, is also part of PBS's documentary "Carrier". CDR Fravor's command consisted of about 300 servicemen and 12 F/A-18F Super Hornets.

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7 *Airborne Electronics Forecast*, October 2007.

8 Official U.S. Navy website. "The Black Aces," http://www.vfa41.navy.mil/, Last updated August 15, 2013. Accessed June 11, 2018.

VAW-117 E-2 Hawkeye Airborne Early Warning Aircraft

E-2 Hawkeye, Courtesy of the U.S. Navy

The E-2 Hawkeye is the Navy's all-weather, carrier-based tactical battle management airborne early warning, command and control aircraft. The E-2 is a twin engine, five crew member, high-wing turboprop aircraft with a 24-foot diameter radar rotodome attached to the upper fuselage. The Hawkeye provides all-weather airborne early warning, airborne battle management and command and control functions for the CSG and Joint Force Commander. Additional missions may include surface surveillance coordination, air interdiction, offensive and defensive counter air control, close air support coordination, time critical strike coordination, search and rescue airborne coordination and communications relay. An integral component of the Carrier Strike Group air wing, the E-2 uses computerized radar, Identification Friend or Foe and electronic surveillance sensors to provide early warning, threat analysis against potentially hostile air and surface targets. It provided airborne command and control for successful operations during the first Arabian Gulf War.[9]

The VAW-117 squadron is known as "The Wallbangers". It is comprised of 150 officers and enlisted personnel. The Commander of VAW-117 in November of 2004 was current rear-Admiral Karl O. Thomas. They were the first fleet squadron to receive the updated E-2 Hawkeye HE-2K aircraft. The Hawkeye HE-2K also features the Cooperative Engagement Capability system (CEC). CEC is the Navy's most comprehensive sensor fusion system and drastically improves the Carrier Strike Group's situational awareness and self-defense capabilities.[10] The E-2 Hawkeye is equipped with the AN/APS-145 radar, which is capable of tracking more than 2000 targets and controlling the interception of 40 hostile targets. The radar is capable of detecting aircraft at ranges greater than 340 miles and each five second sweep covers six million cubic miles of air space.[11]

VMFA-232

Formed in 1925, VMFA-232 known as the "Red Devils" is the oldest and most decorated Marine Corps fighter squadron. Marine Fighter Attack Squadron 232 brought 204 crewmembers and nine F/A-18C aircraft on board the USS *Nimitz* for their November COMPTUEX. The commanding officer of the squadron was Lieutenant Colonel Douglas Kurth.[12]

The F/A-18C (single pilot) and D models (two-seater) is a block upgrade in 1987 incorporating provisions for employing updated missiles and jamming devices against enemy ordnance. Known as the "Hornet" it is a significantly different aircraft than the "Super Hornet". Its wingspan and length are

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9 Official U.S. Navy website. U.S. Navy Fact File. "E-2 Hawkeye Early Warning and Control Aircraft" http://www.navy.mil/navydata/fact_display.asp?cid=1100&tid=700&ct=1 Last updated January 5, 2018. Accessed June 12, 2018.

10 Official U.S. Navy website. "VAW-117 Wallbangers Squadron History," http://www.cacclw.navy.mil/vaw117/history.html Last updated February 9, 2107. Accessed June 12, 2018.

11 "E-2C / D Hawkeye Airborne Early Warning Aircraft," *Naval Technology.* https://www.naval-technology.com/projects/e2-hawkeye/ Accessed June 12, 2018.

12 Allen, Kris, "VMFA-232 Joins *Nimitz* CVW-11 Team," *Nimitz* vol 29, No.18, November 13, 2004, p.1.

shorter at 37.5 feet and 56 feet respectively. Its listed speed is comparable to the "Super Hornet" at Mach 1.7 but its range is shorter at 1089 nautical miles.[13]

The F/A-18C flown my Commanding Officer Lieutenant Colonel Kurth was the first aircraft that reached the intercept point of the "Tic-Tac" as provided by the USS *Princeton*.

USS *Chafee* and USS *Higgins*

Both the USS *Chafee* (DDG 90) and the USS *Higgins* (DDG 76) are *Arleigh Burke* Guided Missile Destroyers and are manned by 32 officers and 348 enlisted men. They were part of the Nimitz Strike Group and were equipped with SPS-73 navigational radar, SPS-67 surface search radar, the SPY-1D Phased-Array radar, and hull mounted Sonar. They were not in close proximity with the rest of the strike group at the time of the encounter with the "Tic-Tacs".[14]

USS *Louisville*

The USS *Louisville* is a Los Angeles class submarine and is designated as SSN 724. It is one of the most advanced attack submarines in the world. Launched in 1986, it is 360 feet long and operates with one nuclear reactor. It is equipped with several Sonars: IBM BQQ 5D/E for passive/active search, Ametek BQS 15 high frequency close range, and TB 23/29 passive towed array. There is very little detailed information available on this submarine's capabilities.[15]

USS Louisville, Naval History and Heritage Command

13 "F/A 18C/D Hornet", https://www.military.com/equipment/f-18c-d-hornet Accessed July 05, 2018.

14 Official U.S. Navy website. "America's Navy, USS *Chafee,*" http://www.public.navy.mil/surfor/ddg90/Pages/specs.aspx#.Wz5X7NUzqM8. Accessed August 07, 2018.

15 *Jane's All the World's Ships, 2004-2005.*

APPENDIX G

ACCELERATION, SPEED, AND POWER CALCULATIONS BASED ON RADAR OBSERVATIONS

Author: Peter Reali

This paper examines the reported 2004 *Nimitz* sightings of Anomalous Aerial Vehicles (AAVs) by Navy pilots and radar operators during a naval exercise off the San Diego coast in November 2004. These were dubbed by pilots as being “Tic-Tac” shaped. Calculations based on recalled measurements of their velocity result in very large accelerations.

This paper will focus on the reported ability of the "Tic-Tac"'s to hover at an altitude of 80,000 feet then descend in a matter of seconds to hover over the ocean at 20,000 feet and then reascend to 80,000 feet again in a matter of seconds. This has been verified by interviews conducted by the SCU of the personnel involved in the incident, both radar operators and pilots. This paper will focus on the kinematics of the reported objects and the required accelerations and power dissipation that would have to have been expended to perform these maneuvers. It is hoped that this paper will encourage the serious investigation of what these phenomena are by the current scientific community in the prospect that with proper instrumentation and study new theories and insights will be gained.

The author explores two approaches that would be used by conventional technology to try and estimate how this would be achieved. All calculations to be very conservative, assume a "Tic-Tac" modest weight of 2000lb. The Earth’s gravity is ignored as it too low to affect the outcome of the calculations. For ease of calculation it is assumed the trajectory is symmetrical about X_m (distance) and t_m (time). This in no way assumes that the "Tic-Tac"'s behave in this manner but is an attempt to estimate what it would take to perform a maneuver like this, which is similar to ones reported in the incident, by using current technology.

The first approach assumes a linear velocity increase from 0 to the maximum velocity at the halfway point of 50,000 ft. This requires a constant positive acceleration A(t) for $t_m/2$ seconds until V_m is achieved at $X_m/2$; it is instantly followed by an abrupt reversal of acceleration [negative acceleration] until the velocity is 0 at altitude X_m = 80,000ft. V_m, A(t) and the Maximum Power P(t)max required to perform these maneuvers, will be calculated. This approach is called the linear velocity approach. Figure A1 shows the relation in time between the velocity, acceleration and distance traveled for this type of trajectory. This approach has the disadvantage of having the maximum acceleration be constant abruptly starting at ground level followed by an enormous shock of an instantaneous reversal to negative constant acceleration until the final altitude is reached.

The second approach assumes a parabolic velocity, where the acceleration starts at a maximum value and linearly decreases as velocity increases until $X_m/2$ is reached where the acceleration is 0 and it reverses and linearly increases until X_m is reached then is turned off. This avoids the huge shock of the acceleration reversal that occurs in case 1 above. The relationship of velocity, acceleration and distance traveled is shown in figure A2 for this trajectory. As in case [1] V_m, A(t) and the Maximum Power P(t) max required to perform these maneuvers, will be calculated. This calculation is a little more complicated for case 2 compared to case 1.

The results are presented for t_m = 6 sec and 0.78 sec in Table 1 and the detailed calculations are available in Sub-appendix A. The time of 0.78 seconds is based on the Senior Chief’s notes of the time measured for the AAV to move from 80,000 ft to 20,000 ft. The time of 6 seconds is an arbitrary time chosen to reflect the resulting extreme accelerations even if the Chief’s notes had been significantly in error.

Trajectory Mode	V(t) = V_m Maximum Velocity	A(t) max acceleration	P(T) maximum power Dissipation
Linear Velocity t_m = 6 sec	20,000 ft/sec or 13,636.36 mph	6666.67 ft/sec^2 or 207.04 g's	8.28 x 10^9 ft-lb/sec or 11.3 Gigawatts
Parabolic Velocity t_m = 6 sec	15,000 ft/sec or 10,227.27 mph	10,000 ft/sec^2 or 310.56 g's	7.17 x 10^9 ft-lb/sec or 9.75 Gigawatts
Linear Velocity t_m = 0.78 sec	153,846 ft/sec or 104,895 mph	394,477 ft/sec^2 or 12,250 g's	3.7695 x 10^{12} ft-lb/sec or 5.1265 x 10^3 Gigawatts
Parabolic Velocity t_m = 0.78sec	115,000 ft/sec or 78,409 mph	592,000ft/sec^2 or 18,385 g's	3.26 x 10^{12} ft-lb/sec or 4.44 x 10^3 Gigawatts

Table 1:Velocity, acceleration, power

Conclusions:

[1] It is apparent from these results that no human could survive the accelerations required to perform these maneuvers. A 170 lb human would be subject to minimum forces of 17.6 tons with a 6 sec trajectory and for a 0.78 sec trajectory a maximum of 1,041.3 tons.

[2] From Table 1 above, for a 6 sec parabolic climb the power released is ~ 7.2 x 10^9 ft-lb/sec = 1.36 x 7.2 x 10^9 joules/sec or = 9.8 x 10^9 joules/sec or watts. A one megaton nuclear weapon releases releases the energy equivalent to 4.18 x 10^{15} joules[1]. For this argument I will assume it is released in one second. This is equivalent to 10^6 tons of TNT. We can then calculate how much TNT would need to be exploded each second to generate this much energy. For this we can use the ratio of [(9.8 x10^9 joules) / (4.18 x 10^{15} joules)] x 10^6 tons of TNT = (2.3 x 10^{-6}) x 10^6 tons of TNT or the equivalent energy of 2.3 Tons of TNT released each second. This is equivalent to 2.3 tons of TNT being detonated each second. For a 0.78 sec climb it would be a thousand times greater or (3.26/7.17) x 2.3 x 10^3 = 1.05 kilotons of TNT/sec. This is a small tactical nuclear weapon's type of output.

[3] The speed at maximum velocity would cause melting of most metals and would be equivalent to a meteorite entering the atmosphere from outer space. None of these effects were noticed by the personnel reporting this incident so one must conclude a technology outside of the current understanding of our sciences would have to be involved and this merits serious study by the scientific community.

1 http://www.atomicarchive.com/Effects/effects1.shtml

Sub-appendix A: Derivation of the Acceleration and Power Equations

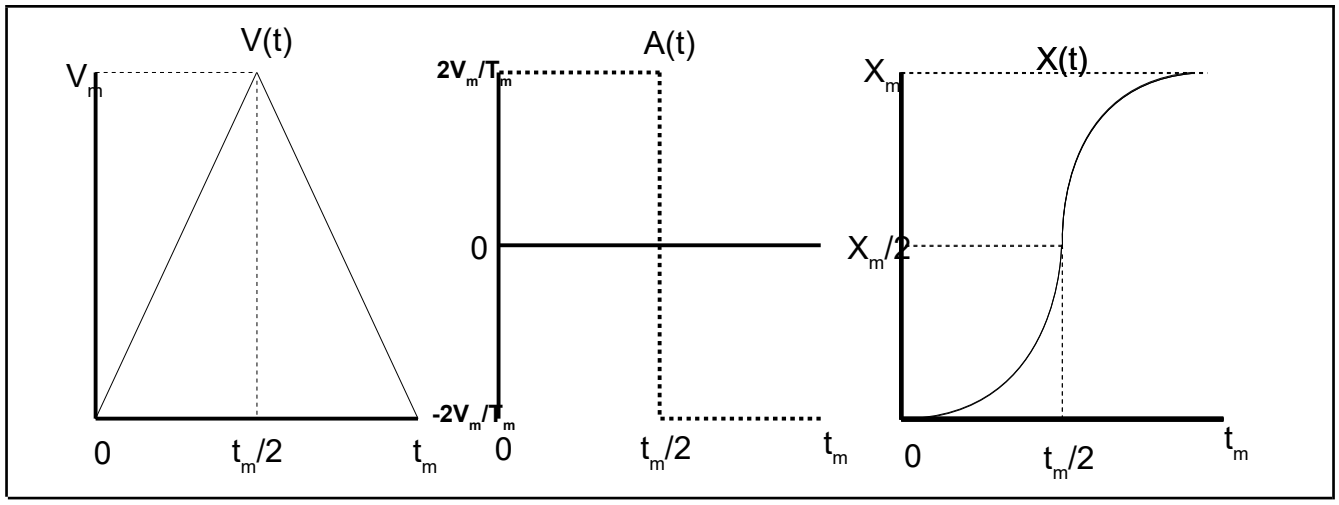


Figure A1: Linear Velocity Constant Acceleration [where X_m is defined as the distance traveled in time t_m, thus for any starting altitude, X_m always starts at $X_m = 0$. This is true for all subsequent calculations in this paper as well.]

The first analysis assumes a linear increase in speed from 20,000 ft location hover to halfway point of 50,000 ft, then the acceleration reverses for the next 30,000 feet and hovers at 80,000 ft. In figure A1 we can see that V(t) increases linearly until V_m the maximum speed at 50,000 feet then the speed linearly decreases until it hovers at 80,000 feet. Earth's gravity is ignored as it is negligible compared to the "Tic-Tac"'s acceleration. X_m = 60,000 ft the distance traveled in t_m seconds by the "Tic-Tac"'s. What needs to be determined is V_m and A(t) the acceleration of the vehicle at ground level only as the accelerations are constant with time and reverse at the 50,000 foot altitude. The details of the derivation are shown below for the interested reader.

The velocity is large but it is the acceleration that is phenomenal and from equation 8.0 below $A(t) = 4X_m / (t_m)^2$ so we can calculate A(t) = 4 x 60,000 ft / (6 sec)^2 as we are assuming a maximum t_m of 6 sec so we get A(t) = 6,666.67 ft/sec^2. Earth's gravity of 1g = 32.2 ft/sec^2 so this equates to 6,666.67 ft/sec^2 / 32.2 ft/sec^2 = 207.04 g's. If t_m = 0.78 sec (assuming a minimum t_m) we get A(t) = 4 x 60,000 ft / (.78 sec)^2 = 394,477 ft/sec^2 which equates to 12,250 g's.

One more interesting calculation that is easy to do because the acceleration is constant, and the top velocity can be calculated, is the maximum amount of power being used. I will assume this vehicle weighs one ton only to be conservative although it was described as being as large as an F/A-18 fighter jet. Since power is Force x Velocity, we get for t_m = 6 sec, P = Mass x Acceleration x Velocity. I will convert 2000lbs to mass in slugs = weight/gravity = 2000 / 32.2 = 62.11 slugs. Now the acceleration is

6,666.67 ft/sec^2 so from 7 below, $V_m = 2X_m / t_m = 2$ x 60,000 ft / 6 sec = 20,000 ft/sec, therefore we get P = 62.11 slugs x 6,666.67 ft/sec^2 x 20,000 ft/sec = 8.28 x 10^9 ft-lb/sec. The units are correct as power is energy/unit time so converting to Metric power = 1.36 watts/ft-lb/sec = 1.36 watts/ft-lb/sec x 8.28 x 10^9 ft-lb/sec = 1.13 x 10^{10} in watts, and in kilowatts = 1.13 x 10^7 kilowatts = 11,300 MW of power. Repeating for $t_m = 0.78$ sec, $P_{max} = 3.7695$ x 10^{12} ft-lb/sec = 5,126.5 gigawatts. For some idea of scale, very large power stations are on the order of 2000 MW so it's surprising that these did not show up with a lot of heat on the ATFLIR. The heat radiation from this would be comparable to a small nuclear weapon.

$$v(t) = 2V_m t / t_m \quad \text{for } t \leq t_m/2 \quad \text{and} \quad v(t) = 2V_m(1 - t/t_m) \quad \text{for } t > t_m/2 \qquad 1.0$$

$$A(t) = dV(t)/dt = 2V_m / t_m \quad \text{for } t \leq t_m/2 \quad \text{and} \quad A(t) = -2V_m / t_m \quad \text{for } t \geq t_m/2 \qquad 2.0$$

$$X(t) = \int V(t)dt + K1 = 2V_m \int (t / t_m)dt = V_m(t^2)/t_m + K1 \quad \text{for} \quad t \leq t_m/2 \qquad 3.0$$

$$X(t) = 2V_m \int (1 - t / t_m)dt = 2V_m [(t - t^2 / 2t_m)] + K2 \quad \text{for} \quad t \geq t_m/2 \qquad 4.0$$

Now from 3.0 solving for K1, since $X(t_m/2) = X_m/2$ we can write

$$X_m/2 = (V_m / t_m)*(t_m / 2)^2 + K1 \text{ therefore} \quad K1 = (2X_m - V_m t_m)/4 \qquad 5.0$$

Therefore $X(t) = V_m t^2 / t_m + (2X_m - V_m t_m)/4$ for $t \leq t_m/2$ 6.0

Now at t =0 $X(t) = 0$ Therefore $(2X_m - V_m t_m)/4 = 0$ so, $V_m = 2X_m / t_m$ 7.0

from 2.0 and 7.0 $A(t) = 2V_m / t_m = 2(2X_m / t_m)/ t_m = 4X_m / (t_m)^2$

$$A(t) = 4X_m / (t_m)^2 \qquad 8.0$$

now from 4.0 $X(t) = [2V_m[(t-(t^2 / 2t_m)] + K2$ for $t > t_m/2$ and $X(t_m) = X_m$ So

$X_m = 2V_m[t_m - (t_m)^2/2t_m] + K2 = V_m t_m + K2$ therefore $K2 = X_m - V_m t_m$

$$K2 = X_m - V_m t_m \qquad 9.0$$

$X(t) = [2V_m[(t-(t^2 / 2t_m)] + X_m - V_m t_m$ for $t > t_m/2$

from 7 above $V_m = 2X_m / t_m$

$$X(t) = [4X_m / t_m][(t-(t^2 / 2t_m)] - X_m \quad \text{for } t > t_m/2 \qquad 10.0$$

Figure A2: Derivation of the Linear Velocity Equations

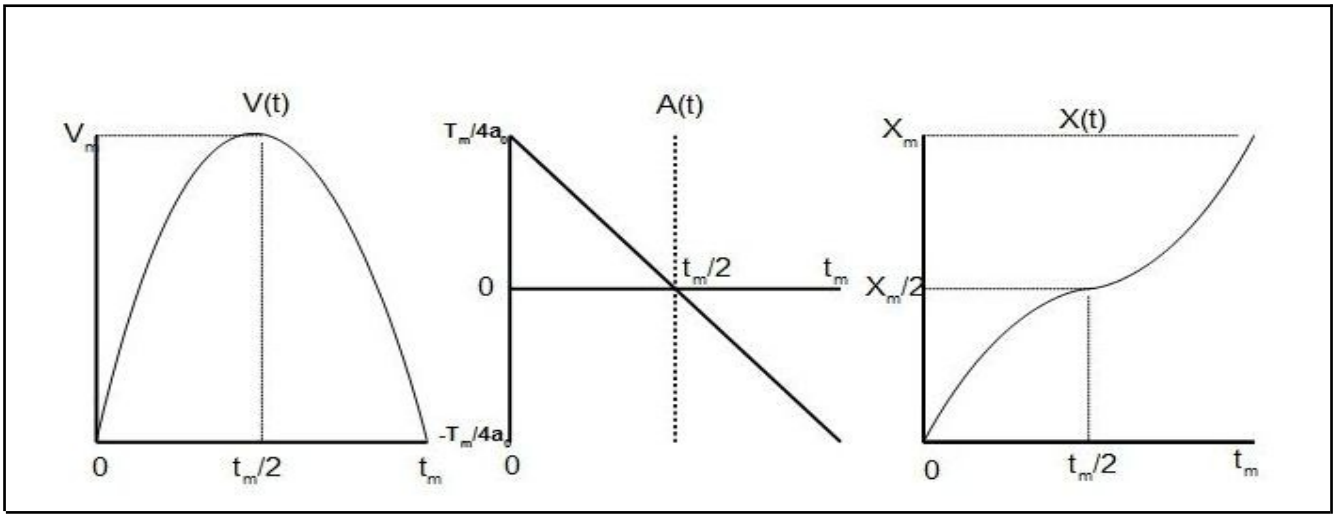


Figure A3: Parabolic Velocity-Linear Decreasing Acceleration

The second analysis tries to avoid the constant acceleration and trades off a larger initial acceleration that decreases to 0 at the halfway 50,000 ft point then reverses in direction and linearly increases until 80,000 ft and turns off and hovers with a velocity of 0. A parabolic velocity was chosen at it has these characteristics. A parabola needs three variables to determine its equation. The derivation is shown below. I had to dig into some old books on analytic geometry to figure this out and it took me a lot longer than it used to as the wheels are pretty rusty. From equation 1 the general equation for a parabola that opens downward we need three parameters, the intercepts with the X-axis and the constant a_0 note this is not acceleration but a constant of the parabola that determines the distance from the Vertex, V_m to its focal point and I won't get involved in discussing this. From the derivation below, equations 2 and 6 we get $A(t) = (1/2\ a_0)[\ t_m / 2 - t\ ]$ and $a_0 = (t_m)^3 / 24\ X_m$, so A(t) which is maximum at $t = 0$ and decreases linearly to zero at $t_m / 2$. Continuing $A(0) = 24\ X_m / (t_m)^3\ (\ t_m / 4) = 6\ X_m / (t_m)^2 = 6(60{,}000) / 36 = 10{,}000$ ft/sec^2 or 310.56 g's. $V_m = 3X_m / 2t_m$ for $t_m = 6$ sec and $X_m = 80{,}000$ ft.

$V_m = (180{,}000\ ) / 12 = 15{,}000$ ft/sec, $A(0)_{max} = 10{,}000$ ft/sec^2 or 310.56 g's

Power can be calculated as before with some simplifying assumptions: Since the work done along a time varying curved path is a vector quantity we assume for simplification a purely vertical rise so the force is always in line with the velocity and the vector dot product * can be assumed to be a scalar multiplication. This is justified since any deviation from a vertical climb would use even more energy, so this calculation is a minimum requirement.

$$W = \int F * dx = \int_{t1}^{t2} F(t) * v(t)\, dt = \int_{t1}^{t2} F(t)(dx/dt)\, dt = \int_{t1}^{t2} F(t) v(t)\, dt \quad [2]$$

Power is defined as: $dW/dt = d/dt\left(\int_{t1}^{t2} F(t) v(t)\, dt\right) = F(t) v(t) = mA(t) v(t)$

2 https://en.wikipedia.org/wiki/Work_(physics)

P(t) =m x A(t) x V(t) so from equations (2) and (1) below

$P(t) = m[-1/(4a_0)][t - t_m/2]^2 + V_m][(1/2a_0)(t_m/2 - t)] = (-1/8(a_0)^2)[(t - t_m/2)^3 + 4a_0 V_m]$ so

$P(t) = ABS[(-m/8(a_0)^2)[(t - t_m/2)^3 + 4a_0 V_m (t - t_m/2)]]$	A1

ABS is the absolute value as power is always positive even though the acceleration is negative for $t > t_m/2$, so finding the maximum power dissipation in the range between $[0 \leq t \leq t_m]$ we will take the derivative of P(t) and where $dP(t)/dt = 0$ and $d^2P(t)/d^2t < 0$ is a local maximum.

$$dP(t)/dt = (3m / 8(a_0)^2)[(t - t_m/2)^2 + (4a_0 V_{m)} /3)] = 0$$

so $(t - t_m/2)^2 = 4a_0 V_{m)}/3$, solving for t:

$$t = t_m/2 \pm (4a_0 V_{m)}/3)^{0.5} = t_m(1/2 \pm 1/2*\sqrt{(3)})$$

now finding $d^2P(t)/d^2t = (3/4(a_0)^2)[(t - t_m/2)]$ when $t = t_m(1/2 \pm 1/2*\sqrt{(3)})$ is < 0 for $t \leq t_m/2$ from Figure A4 below we see that for t = 1.2679, so $t = 0.5t_m \pm 0.2886\ t_m = 3 \pm 1.7321 = 1.2679$ or 4.7321

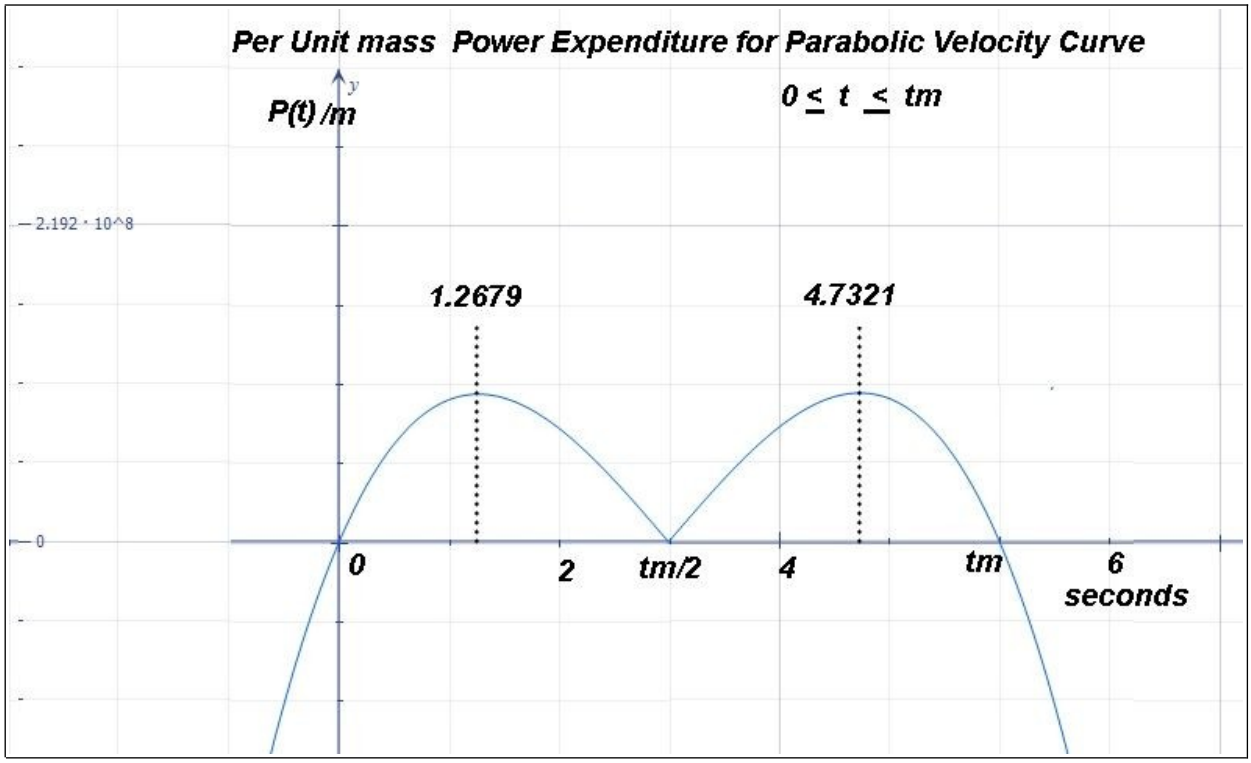


Figure A4: Power expenditure per unit mass as a function of time for t_m = 6 sec

calculating the maximum power from A1 above:

$$P(t) = ABS[(-m/8(a_0)^2)[(t - t_m/2)^3 + 4a_0 V_m (t - t_m/2)]]$$

$$P(t = 1.2679\ ) = ABS[(-m/8(a_0)^2\ )[\ (\ 1.2679 - 3)^3 + 4a_0\ V_m(\ 1.2679 - 3)\ ]]$$
$$= ABS[(-m/8(a_0)^2\ )[\ -5.1966 + 4a_0\ V_m(\ -1.7321)\ ]]$$

$a_0 = \ (t_m)^3$ / 24 X_m = 6*36 / 24*80000 = 9/60000 = 1.5 x 10^{-4} sec^3/ft and V_m = 15,000 ft/sec

m = 2000lb X_m = 60,000 ft and t_m = varied from 0.1 to 10 sec using an Excel spreadsheet we get Table 1 below and a plot Figure A5

Pmax = (2000/8x32.2x(1.5 x 10^{-4})^2) x (5.1966 + (1.7321) x (4x (1.5 x 10^{-4}) x (15,000)) = 7.169 x 10^9 ft-lb/sec = 1.36 watt/ft-lb/sec x 7.169 x 10^9 ft-lb/sec = 9.75 x 10^9 watts = 9.75 Gigawatts

Table 2 repeats the calculations for t_m from 0.1 sec to 10 sec using an excel spreadsheet. The yellow row agrees with the above calculation as an error check.

T_m sec total time to Xmax	Mg lb	Xmax Altitude ft	Ao	V_m ft/sec max velocity	A(t)max Accel ft/sec^2	T1 sec Time to Max Power	Pmax ft-lb/sec @T1	Pmax Gigawatts @T1	Log Pmax Gigawatts @T1
0.1	2000	60000	6.94E-10	9.00E+05	3.60E+07	0.021132	1.55E+15	2.11E+06	6.32
0.5	2000	60000	8.68E-08	1.80E+05	1.44E+06	0.105662	1.24E+13	1.69E+04	4.23
0.78	2000	60000	3.30E-07	1.15E+05	5.93E+05	0.164833	3.26E+12	4.44E+03	3.65
1	2000	60000	6.94E-07	9.00E+04	3.60E+05	0.211325	1.55E+12	2.11E+03	3.32
1.5	2000	60000	2.34E-06	6.00E+04	1.60E+05	0.316987	4.59E+11	6.24E+02	2.80
2.0	2000	60000	5.56E-06	4.50E+04	9.00E+04	0.42265	1.94E+11	2.63E+02	2.42
2.5	2000	60000	1.09E-05	3.60E+04	5.76E+04	0.528312	9.91E+10	1.35E+02	2.13
3.0	2000	60000	1.88E-05	3.00E+04	4.00E+04	0.633975	5.74E+10	7.80E+01	1.89
3.5	2000	60000	2.98E-05	2.57E+04	2.94E+04	0.739637	3.61E+10	4.91E+01	1.69
4.0	2000	60000	4.44E-05	2.25E+04	2.25E+04	0.845299	2.42E+10	3.29E+01	1.52
4.5	2000	60000	6.33E-05	2.00E+04	1.78E+04	0.950962	1.70E+10	2.31E+01	1.36
5.0	2000	60000	8.68E-05	1.80E+04	1.44E+04	1.056624	1.24E+10	1.69E+01	1.23
5.5	2000	60000	1.16E-04	1.64E+04	1.19E+04	1.162287	9.31E+09	1.27E+01	1.10
6.0	2000	60000	1.50E-04	1.50E+04	1.00E+04	1.267949	7.17E+09	9.75E+00	0.99
6.5	2000	60000	1.91E-04	1.38E+04	8.52E+03	1.373612	5.64E+09	7.67E+00	0.88
7.0	2000	60000	2.38E-04	1.29E+04	7.35E+03	1.479274	4.52E+09	6.14E+00	0.79
7.5	2000	60000	2.93E-04	1.20E+04	6.40E+03	1.584936	3.67E+09	4.99E+00	0.70
8.0	2000	60000	3.56E-04	1.13E+04	5.63E+03	1.690599	3.03E+09	4.11E+00	0.61
8.5	2000	60000	4.26E-04	1.06E+04	4.98E+03	1.796261	2.52E+09	3.43E+00	0.54
9.0	2000	60000	5.06E-04	1.00E+04	4.44E+03	1.901924	2.13E+09	2.89E+00	0.46
9.5	2000	60000	5.95E-04	9.47E+03	3.99E+03	2.007586	1.81E+09	2.46E+00	0.39
10	2000	60000	6.94E-04	9.00E+03	3.60E+03	2.113249	1.55E+09	2.11E+00	0.32

Table 2: Parabolic Velocity Showing Maximum Power Dissipation

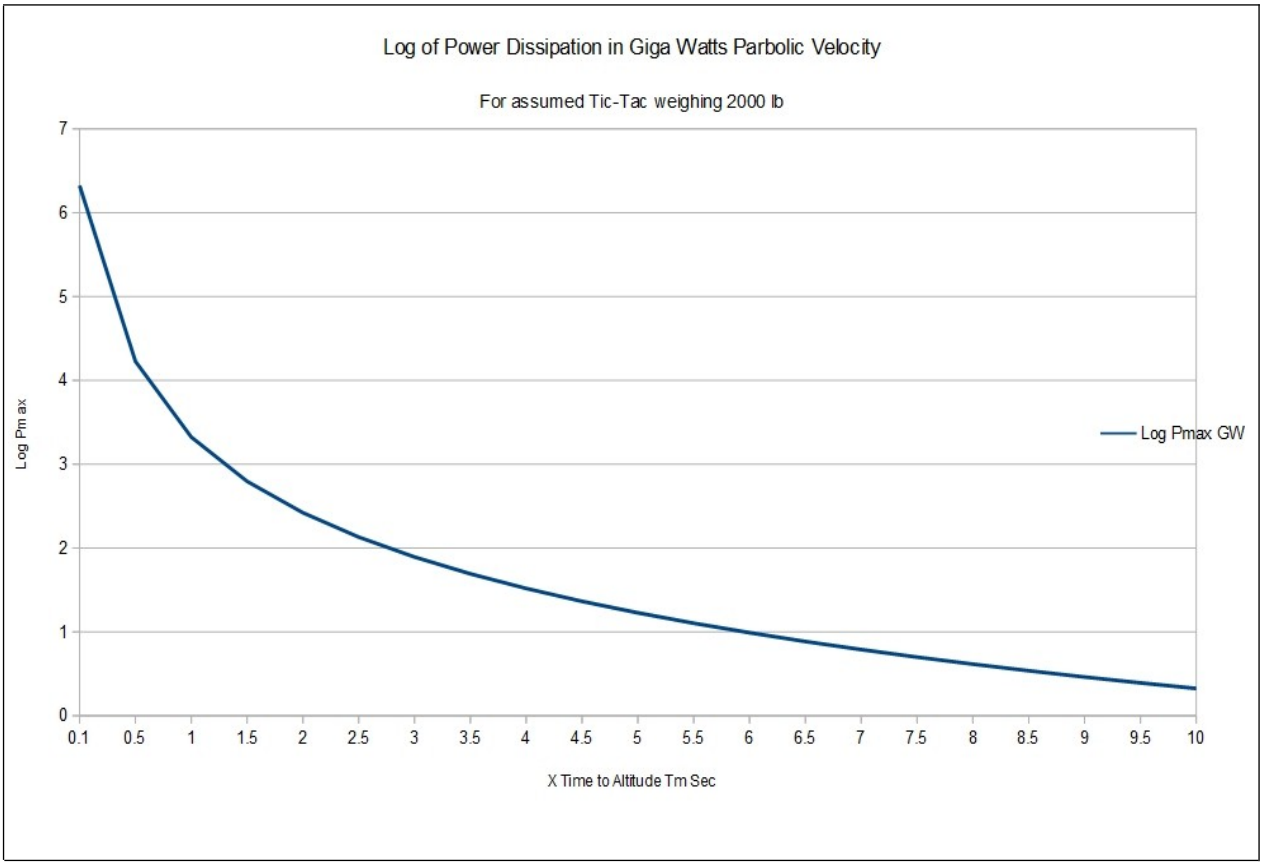


Figure A5: Power Dissipation for different ascent times

Derivation of the Parabolic Velocity equations:

$$V(t) = -(1/4\ a_0)(t - t_m/2)^2 + V_m \qquad 1.0$$

Now $A(t) = dV(t)/dt$ from 1.0 $dV(t)/dt = (1/2\ a_0)(t_m/2 - t)$ so

$$A(t) = (1/2\ a_0)(t_m/2 - t) \qquad 2.0$$

Also $V(t) = dX(t)/dt$ so $X(t) = -(1/4\ a_0)\int(t - t_m/2)^2\,dt + \int V_m\,dt + K$ integrating we get

$X(t) = -(1/4\ a_0)[(1/3)(t - t_m/2)^3] + V_m t + K$ solving for the integration constant K

at t=0 $X(0) = 0 = -(1/4\ a_0)[(1/3)(0 - t_m/2)^3] + V_m x\ (0) + K = 0$

so $K + t_m^3/96\ a_0 = 0$ so $K = -t_m^3/96\ a_0$ therefore

$$X(t) = -(1/4\ a_0)[(1/3)(t - t_m/2)^3] + V_m t - t_m^3/96\ a_0 \qquad 3.0$$

Now solving for V_m we know that at $t = t_m/2$ $X(t_m/2) = X_m/2$ and from 3

$X_m/2 = V_m\ t_m/2 - t_m^3/96\ a_0$ so $V_m\ t_m = X_m + t_m^3/48\ a_0$ so $V_m = (X_m/t_m + t_m^2/48\ a_0)$

$$V_m = (t_m^2/48\ a_0 + X_m/t_m) \quad 4.0$$

Since X_m and t_m are known quantities we wish to derive a_0 and V_m in terms of them

From 1 above we know that at $t = t_m$ that $V(t) = 0$ so we can write

$V(t_m) = -(1/4\ a_0)(t_m - t_m/2)^2 + V_m = -(1/4\ a_0)(t_m/2)^2 + V_m = 0$ so $V_m = t_m^2/16\ a_0$

$$V_m = t_m^2/16\ a_0 \quad 5.0$$

from 4 and 5 $t_m^2/16\ a_0 = t_m^2/48\ a_0 + X_m/t_m$ multiplying both side by $16\ a_0 t_m$

we get $t_m^3 = t_m^3/3 + (16\ a_0\ X_m)$ so we can write $16\ X_m$ and solving for a_0

we can write $a_0 = (2t_m^3/3)(1/16\ X_m) = t_m^3/24\ X_m$

$$a_0 = t_m^3/24\ X_m \quad 6.0$$

finally from 5 and 6 $V_m = (t_m^2/16)(24\ X_m/t_m^3) = 3X_m/2t_m$

$$V_m = 3X_m/2t_m \quad 7.0$$

Finally the maximum acceleration can be derived from 2.0 and 6.0

we get $A(t) = (1/2\ a_0)[t_m/2 - t]$ and $a_0 = (t_m)^3/24\ X_m$ so

A(t) which is maximum at $t = 0$ and decreases linearly to zero at $t_m/2$. Continuing

$$A(0) = [24\ X_m/(t_m)^3(t_m/4) = 6\ X_m/(t_m)^2$$

$$A_{max} = 6\ X_m/(t_m)^2 \quad 8.0$$

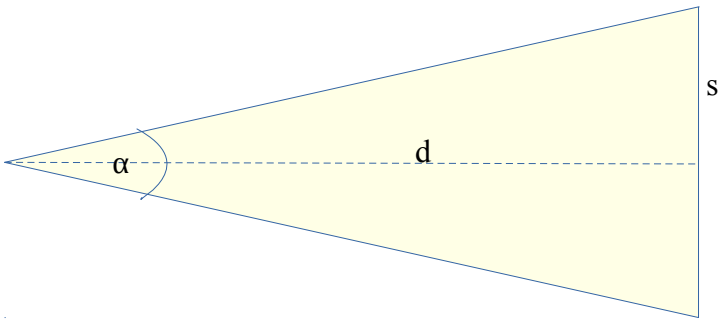
APPENDIX H

Calculations of size, distance, and angular size

by Robert Powell

Trigonometry is used to calculate either the size, distance, or angular size of an object whenever two of the three parameters are known. This is done using the trigonometric function for the relationship of the angle adjacent to the hypotenuse in a right triangle to its adjacent and opposite sides. In the diagram below, the tangent of angle α is equal to the opposite side divided by the adjacent side: tan α = s / d, where α represents the angular size of an object in the sky; d = distance to the object; and s = actual size of the object.

Formulas: s = 2d*tan(α/2) ; d = s/(2*tan(α/2)) ; α = 2*arctan(s/(2d))



Calculate Apparent Size of Object in Water from the F/A-18s

The size of the object was compared to that of a 737 or about 120 feet. s = 120 feet
The distance to the object is the altitude of the aircraft since the object was near the ocean surface. d = 20,000 feet
α = 2*arctan(s/(2d))
α = 2*arctan(120 ft / (2 * 20,000 ft))
α = 2*arctan(120 / 40,000))
α = 2*arctan(0.003)
α = 0.344

Calculate Apparent Size of "Tic-Tac" from the F/A-18s

The size of the object was compared to that of an F/A-18 which is 50-60 feet.
The distance to the object is the altitude of the aircraft since the object was near the ocean surface. d = 20,000 feet

α = 2*arctan(s/(2d))
α = 2*arctan(50 ft / (2 * 20,000 ft))
α = 2*arctan(50 / 40,000))
α = 2*arctan(0.00125)
α = 0.143

α = 2*arctan(s/(2d))
α = 2*arctan(60 ft / (2 * 20,000 ft))
α = 2*arctan(60 / 40,000))
α = 2*arctan(0.0015)
α = 0.172

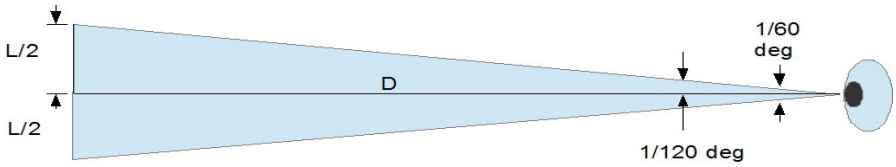
APPENDIX I

ACCELERATION, SPEED, AND POWER CALCULATIONS BASED ON BLIND POINT DISTANCE (BPD)

Author: Peter Reali

This paper discusses the calculated accelerations and power requirements for the "Tic-Tac" shaped object to accelerate out of sight (which will be referred to as the Blind Point Distance or BPD) as reported by the F/A-18 pilots, CDR Fravor and LCDR Slaight, during the 2004 Nimitz Strike Group encounter with an unidentified machine-like aerial object. It also considers the reported radar observation by Senior Chief Kevin Day that after the encounter by the pilots the "Tic-Tac" appeared at the CAP point, 40 miles away in what was a very short amount of time. Since all the objects appeared to be identical it is not known if the object was the same but the observers believed it to be so. It will thus be considered in the calculations as well.

We will determine the distance an object of a certain size must move away from an observer before it is no longer discernible by the human eye. It is well documented that the human eye cannot discern objects that have an angular resolution of less than 1/60 of a degree or 1 arc minute.[1] This determination is for conditions that are optimal to the human eye, but in our case, the pilots were staring into a bright clear sky. The ability to discern objects under these conditions is a very complex subject and beyond the scope of this study. To avoid having to analyze the neurophysiology of this type of capability the author will take a very conservative approach of widening the minimal angular resolution over the range of 1/60, 1/30 and 1/15 of a degree. This has the effect of moving the distance to where the object becomes invisible to a much closer distance. To further complicate the calculation the object was described as being shaped like a "Tic-Tac" candy with a 3:1 or 4:1 aspect ratio and as the object accelerated off into the distance we do not know if the wide or narrow dimension of the object was facing the observing pilots. The object was described as being about the size of an F/A-18 or about 60 ft at its widest dimension. So an additional variable will be added to the calculations using maximum observable diameters of 15, 30 and 60 ft for all the angles discussed above.



$\text{Tan}(1/120_{\text{deg}}) = (L/2) / D = L/2D$

$L = 2D \text{ Tan}(1/120_{\text{deg}})$

$L = 2 \times D \times .00014544 = 0.00029088 \text{ X } D$

$D = 3{,}438.79 \times L$

Figure 1: Relationship of object size to observable distance of an object

From Figure 1, as an example, we are assuming the visible angle is 1/60 of a degree to explain how we calculate the distance to the BPD under ideal conditions. We can see that for an object the size of a "Tic-Tac", described as being the size of an F/A-18 or about 60 ft. The distance to where it cannot be observed is D = 3,438.79 X 60 ft = 206,327.4 ft = 39.1 miles. The accounts by the pilots of how long it took to disappear vary from a second to the similarity of being shot from a gun. If we are very

1 Yanoff, Myron; Duker, Jay S. (2009). Ophthalmology 3rd Edition. MOSBY Elsevier. p. 54.

conservative we can say it took between 0.5[2] to 5 sec to disappear from sight or go 39 miles. We can then calculate the acceleration assuming a linear velocity increase with constant acceleration.

A second consideration is the possibility that the object went out of sight due to passing over the Earth's horizon. We can calculate this distance and compare it to the BPD distance for the human eye of 39.1 miles and if it is greater we can ignore it, and from the formula for the distance to the horizon as a function of altitude, it can be shown that the following equation applies[3]:

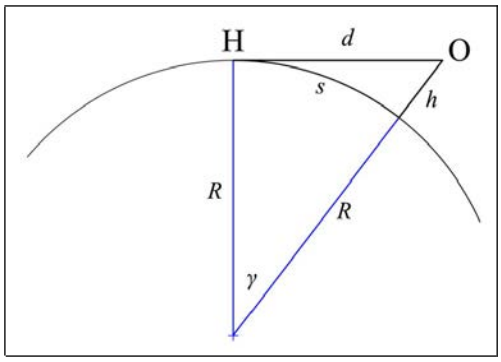


Figure 2: The relationship to d , h and R

A simple derivation using the Pythagorean Theorem gives the relationship where the altitude, h, is much less than the radius of the Earth, true in our case:

$$d = \sqrt{2\,h\,R}$$

From the encounter description in the main report, the F/A-18s were between 1,000 to 20,000 ft and using these two extreme values and the radius of the Earth as 3,959 miles, Table 1 has the distance to the horizon calculated for these values:

h height in feet	D distance to Horizon in miles
20000.00	173.18
18000.00	164.30
16000.00	154.90
14000.00	144.90
12000.00	134.15
10000.00	122.46
8000.00	109.53
6000.00	94.86
4000.00	77.45
2000.00	54.77
1000.00	38.72

Table 1 Distance to the horizon vs. Altitude

It can be seen that for all altitudes, except 1,000 ft the BPD is less than the point where vision of the object would be lost and 1,000 ft is below where the two F/A-18s were located, but regardless is very close to 39.1 miles so the BPD distance will be used in the calculations.

2 https://plato.stanford.edu/entries/consciousness-temporal/empirical-findings.html

3 https://web.archive.org/web/20031018020513/http://mintaka.sdsu.edu/GF/explain/atmos_refr/horizon.html

Case 1: The "Tic-Tac" accelerates off in an unknown direction until out of sight

For the case when the "Tic-Tac" may not be the same one as reported by Senior Chief Kevin Day and just leaves the area, it does not start slowing down at the halfway point, so the equations we can derive for velocity and acceleration are as follows:

$V(t) = V_m t / t_m$ as a linear increase in velocity until $t = t_m$ where $X(t_m) = X_m = 40$ miles.

$$V(t) = V_m t / t_m \text{ for } t \leq t_m \qquad 1.0$$

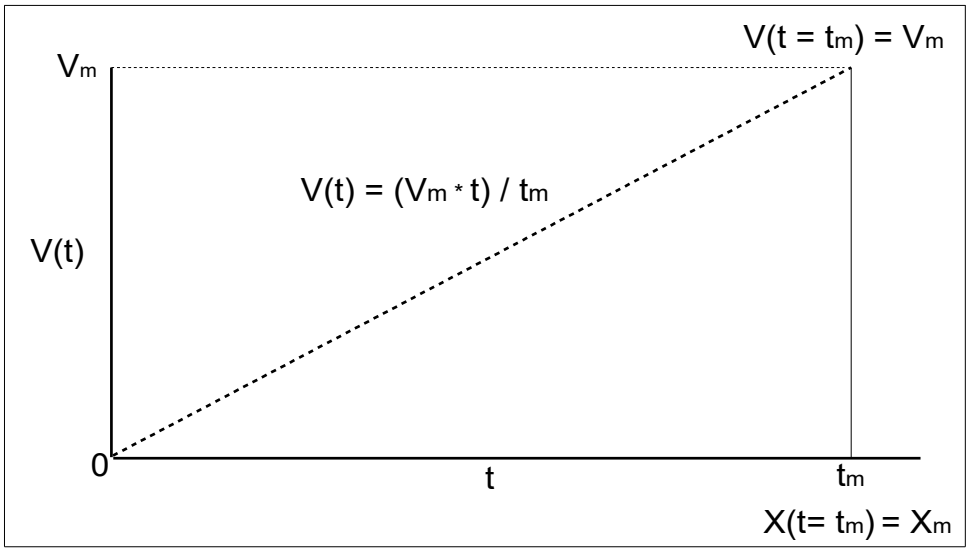


Figure 3: Linear Velocity Curve to BPD

We can then derive $A(t) = dv(t)/dt = V_m / T_m$ a constant acceleration. So we can write

$$A(t) = V_m / t_m \qquad 2.0$$

Further using 3.0 above $X(t) = \int V(t)\, dt + K$, $V(t) = V_m t / t_m$, so taking the anti-derivative,

$X(t) = \int (V_m t / t_m)\, dt + K = V_m t^2 / 2\, t_m + K$, solving for the integration constant

$X(t) = V_m t^2 / 2\, t_m + K$ at $X(t = t_m) = X_m$ or $X_m = V_m t_m / 2 + K$, solving for K we get

$K = (2X_m - V_m t_m) / 2$ so finally $X(t) = V_m t^2 / 2\, t_m + (2X_m - V_m t_m) / 2$

$$X(t) = V_m t^2 / 2\, t_m + (2X_m - V_m t_m) / 2 \qquad 3.0$$

solving for V_m at $t = 0$, $X(t = 0) = 0$ substituting into X(t) we get $(2X_m - V_m t_m) / 2 = 0$ so

$$V_m = 2X_m / t_m \qquad 4.0$$

so solving for the acceleration from 6.0 and 4.0 $A(t) = V_m/t_m = 2X_m/t_m^2$

$$A(t) = 2X_m/t_m^2 \qquad 5.0$$

From comparing 1.0 and 2.0 with 14.0 and 15.0 derived below, we can see that V_m is the same but the acceleration is half the value of the case where the "Tic-Tac" is the same.

T_{BPD} Secs	Size at 3 viewing angles in ft	BPD (Φ) Visual Acuity Angle deg	g*M Wt in lbs	BPD (Φ) In dec °	BPD ft	BPD Mi	Linear Vm ft/sec	Linear Vm Mph	Linear Vm Mi/sec	Linear A(t) ft/ sec2	Linear A(t) g's	Pmax ft-lb/sec T1	Pmax Gigawatt sT1	tons of Tnt
0.2	60	1/60 deg	2000	0.02	206,264.80	39.07	2,062,648.05	1,406,350.94	390.65	10,313,240.24	320,286.96	1.32E+15	1.80E+06	429,889.68
0.2	30	1/60 deg	2000	0.02	103,132.40	19.53	1,031,324.02	703,175.47	195.33	5,156,620.12	160,143.48	3.30E+14	4.49E+05	107,472.42
0.2	15	1/60 deg	2000	0.02	51,566.20	9.77	515,662.01	351,587.74	97.66	2,578,310.06	80,071.74	8.26E+13	1.12E+05	26,868.10
0.5	60	1/60 deg	2000	0.02	206,264.80	39.07	825,059.22	562,540.38	156.26	1,650,118.44	51,245.91	8.46E+13	1.15E+05	27,512.94
0.5	30	1/60 deg	2000	0.02	103,132.40	19.53	412,529.61	281,270.19	78.13	825,059.22	25,622.96	2.11E+13	2.88E+04	6,878.23
0.5	15	1/60 deg	2000	0.02	51,566.20	9.77	206,264.80	140,635.09	39.07	412,529.61	12,811.48	5.29E+12	7.19E+03	1,719.56
2.5	60	1/60 deg	2000	0.02	206,264.80	39.07	165,011.84	112,508.08	31.25	66,004.74	2,049.84	6.76E+11	9.20E+02	220.10
2.5	30	1/60 deg	2000	0.02	103,132.40	19.53	82,505.92	56,254.04	15.63	33,002.37	1,024.92	1.69E+11	2.30E+02	55.03
2.5	15	1/60 deg	2000	0.02	51,566.20	9.77	41,252.96	28,127.02	7.81	16,501.18	512.46	4.23E+10	5.75E+01	13.76
5	60	1/60 deg	2000	0.02	206,264.80	39.07	82,505.92	56,254.04	15.63	16,501.18	512.46	8.46E+10	1.15E+02	27.51
5	30	1/60 deg	2000	0.02	103,132.40	19.53	41,252.96	28,127.02	7.81	8,250.59	256.23	2.11E+10	2.88E+01	6.88
5	15	1/60 deg	2000	0.02	51,566.20	9.77	20,626.48	14,063.51	3.91	4,125.30	128.11	5.29E+09	7.19E+00	1.72
0.2	60	1/30 deg	2000	0.03	103,132.40	19.53	1,031,324.00	703,175.46	195.33	5,156,620.01	160,143.48	3.30E+14	4.49E+05	107,472.41
0.2	30	1/30 deg	2000	0.03	51,566.20	9.77	515,662.00	351,587.73	97.66	2,578,310.01	80,071.74	8.26E+13	1.12E+05	26,868.10
0.2	15	1/30 deg	2000	0.03	25,783.10	4.88	257,831.00	175,793.86	48.83	1,289,155.00	40,035.87	2.06E+13	2.81E+04	6,717.03
0.5	60	1/30 deg	2000	0.03	103,132.40	19.53	412,529.60	281,270.18	78.13	825,059.20	25,622.96	2.11E+13	2.88E+04	6,878.23
0.5	30	1/30 deg	2000	0.03	51,566.20	9.77	206,264.80	140,635.09	39.07	412,529.60	12,811.48	5.29E+12	7.19E+03	1,719.56
0.5	15	1/30 deg	2000	0.03	25,783.10	4.88	103,132.40	70,317.55	19.53	206,264.80	6,405.74	1.32E+12	1.80E+03	429.89
2.5	60	1/30 deg	2000	0.03	103,132.40	19.53	82,505.92	56,254.04	15.63	33,002.37	1,024.92	1.69E+11	2.30E+02	55.03
2.5	30	1/30 deg	2000	0.03	51,566.20	9.77	41,252.96	28,127.02	7.81	16,501.18	512.46	4.23E+10	5.75E+01	13.76
2.5	15	1/30 deg	2000	0.03	25,783.10	4.88	20,626.48	14,063.51	3.91	8,250.59	256.23	1.06E+10	1.44E+01	3.44
5	60	1/30 deg	2000	0.03	103,132.40	19.53	41,252.96	28,127.02	7.81	8,250.59	256.23	2.11E+10	2.88E+01	6.88
5	30	1/30 deg	2000	0.03	51,566.20	9.77	20,626.48	14,063.51	3.91	4,125.30	128.11	5.29E+09	7.19E+00	1.72
5	15	1/30 deg	2000	0.03	25,783.10	4.88	10,313.24	7,031.75	1.95	2,062.65	64.06	1.32E+09	1.80E+00	0.43
0.2	60	1/15 deg	2000	0.07	51,566.20	9.77	515,661.96	351,587.70	97.66	2,578,309.79	80,071.73	8.26E+13	1.12E+05	26,868.10
0.2	30	1/15 deg	2000	0.07	25,783.10	4.88	257,830.98	175,793.85	48.83	1,289,154.89	40,035.87	2.06E+13	2.81E+04	6,717.02
0.2	15	1/15 deg	2000	0.07	12,891.55	2.44	128,915.49	87,896.92	24.42	644,577.45	20,017.93	5.16E+12	7.02E+03	1,679.26
0.5	60	1/15 deg	2000	0.07	51,566.20	9.77	206,264.78	140,635.08	39.07	412,529.57	12,811.48	5.29E+12	7.19E+03	1,719.56
0.5	30	1/15 deg	2000	0.07	25,783.10	4.88	103,132.39	70,317.54	19.53	206,264.78	6,405.74	1.32E+12	1.80E+03	429.89
0.5	15	1/15 deg	2000	0.07	12,891.55	2.44	51,566.20	35,158.77	9.77	103,132.39	3,202.87	3.30E+11	4.49E+02	107.47
2.5	60	1/15 deg	2000	0.07	51,566.20	9.77	41,252.96	28,127.02	7.81	16,501.18	512.46	4.23E+10	5.75E+01	13.76
2.5	30	1/15 deg	2000	0.07	25,783.10	4.88	20,626.48	14,063.51	3.91	8,250.59	256.23	1.06E+10	1.44E+01	3.44
2.5	15	1/15 deg	2000	0.07	12,891.55	2.44	10,313.24	7,031.75	1.95	4,125.30	128.11	2.64E+09	3.59E+00	0.86
5	60	1/15 deg	2000	0.07	51,566.20	9.77	20,626.48	14,063.51	3.91	4,125.30	128.11	5.29E+09	7.19E+00	1.72
5	30	1/15 deg	2000	0.07	25,783.10	4.88	10,313.24	7,031.75	1.95	2,062.65	64.06	1.32E+09	1.80E+00	0.43
5	15	1/15 deg	2000	0.07	12,891.55	2.44	5,156.62	3,515.88	0.98	1,031.32	32.03	3.30E+08	4.49E-01	0.11

Table 2 Calculations for the Case with constant acceleration and visual acuity of 1/60°,1/30°, and 1/15°

Example of using the linear velocity equations for the BPD calculations above:

We will replicate the calculations for Row 1 of Table 2 for a sanity check:
T_{BPD} = 0.2 sec , Acuity angle = 1/60 deg, wt = 2000 lb, apparent size 60 ft:
From Figure 1, X_m = BPD = 60/2Tan(1/120deg) = **206,264.80 ft**
X_m = BPD in miles = 206,264.80 ft /5280 ft/mile = **39.06 miles**
$V_m = 2X_m/t_m$ equation 4 = (2 x BPD)/T_{BPD} = 2 x (206,264.80ft) / 0.20sec =**2,062,648.05 ft/sec**
$V_{m\text{-}mph}$ = (2,062,648.05 ft/sec) x 3600 sec/hr /5280ft/mi = **1,406,350.94 mi/hr**
$V_{m\text{-}mi/sec}$ = 1,406,350.94 mi/hr / 3600 sec/hr =**390.65 mi/sec**
A(t) from equation 2, A_{BPD} = A(t) = V_m/t_m = (2,062,648.05 ft/sec) /(.2sec) =**10,313,240.24ft/sec^2**
A_{BPD} = A(t) in g's = 10,313,240.24 ft/sec^2 / (1g/32.2ft/sec^2) = **320,286.96 g's**
P(t) =m A(t)V(t) [4] P_{max} =(2000lb/32.2 ft/sec^2) (10,313,240.24ft/sec^2)(2,062,648.05 ft/sec) =
P_{max} = **1.32 x 10^{15} ft-lb/sec**
$P_{max\text{-}GW}$ = (1.32 x 10^{15} ft-lb/sec) (1.36W/ft-lb/sec [5])(1GW/10^9 watts) = **1.80 x 10^6 GW**
$P_{max\ [Tons\ of\ TNT/sec]}$ = (1.80x10^6 GW)x(10^6 tons)x(10^6 Tons-TNT/4.18 /GW)=**429.89 tons-TNT/sec**

Case 2: The Tic-Tac is the same one reported by the pilots and the radar operator

The second consideration is that it was reported that the "Tic-Tac" after leaving the encounter, assuming it was the same object, traveled to the CAP point that was 40 miles away. At the CAP point it was hovering and continued moving south at around 100 mph. This means that it had to accelerate and decelerate to near zero velocity at the CAP point after traveling nearly 40 miles. Now if we observe Figure 4 we can see that when the BPD distance is less than halfway to the CAP point then the time to the CAP point $T_{CAP}/2 > T_{BPD\text{-}L}$ and further if the BPD distance is greater than halfway to the CAP point then $T_{CAP}/2 < T_{BPD\text{-}R}$. This is true because we can consider in Figure 3 that the curve represents a linear acceleration that occurs in Figure 4 as being before it reaches the halfway point to the CAP point; and for the BPD distance greater than the halfway point, we can take advantage of the symmetry around the halfway point of Figure 4 to simplify our calculations. We change notation to avoid confusion between between the two subscript m's meaning different things in Figure 3 and Figure 5. If we interpret Fig 3 as being the first part of Figure 4 [Small Blue Triangle top] before it gets to the point $t_{cap}/2$. We define this time as $T_{BPD\text{-}L}$. Now when the BPD is greater than 20 miles we define the time as $T_{BPD\text{-}R}$ [Large Blue Polygon bottom]. Further we know that the two accelerations are the same. So $A_{cap} = A_{BPD}$.

This leads to two cases that must be considered:

Case 2: 1.0 For the case where the BPD is reached prior to $t_c/2$, see Figure 4 on the next page:

To avoid confusion between the definitions of t_m between the equations for Case 1 and Case 2 we define $t_m = t_c$ and $X_m = X_c$ and $V_m = V_{mc}$.
For this case 2 we can use the fact that for a linear velocity trajectory, the case 1 equations can be used at time t_L since the object is still accelerating and has not reached the point of deceleration. We can see that the ratio of $V(t_L) = 2X_L/t_L = V_{mc}[t_L/(t_c/2)]$ from equations 4.0 and 1.0. Further from equation 14.0 of

4 https://en.wikipedia.org/wiki/Work_(physics)
5 https://www.traditionaloven.com/tutorials/power/convert-ft-lbf-per-seconds-to-watts-w.html

Case 2 $V_{mc} = 2X_c/t_c$. If follows we can write,

$2X_L/t_L = V_{mc}\,[t_L/(t_c/2)] = [2X_c/t_c\,][t_L/(t_c/2)] = (4X_c\,t_L)/\,t_c^2$ rearranging leads to

$$t_c^2 = 2\,t_L^2\,(X_c/X_L) \text{ therefore } tc = t_L\sqrt{2(X_m/X_L)}$$

$$tc = t_L\sqrt{2(X_m/X_L)} \qquad \textbf{E1}$$

from 14.0 $$V_{mc} = 2X_c / tc = 2X_c / t_L\sqrt{2(X_c/X_L)} = (1/t_L)\sqrt{2X_cX_L}$$

$$V_{mc} = (1/t_L)\sqrt{2X_cX_L} \qquad \textbf{E2}$$

from 15.0 $A(t) = 2V_{mc}/t_c$

$$A(t) = (2/t_L\,t_c)\sqrt{2X_cX_L} \qquad \textbf{E3}$$

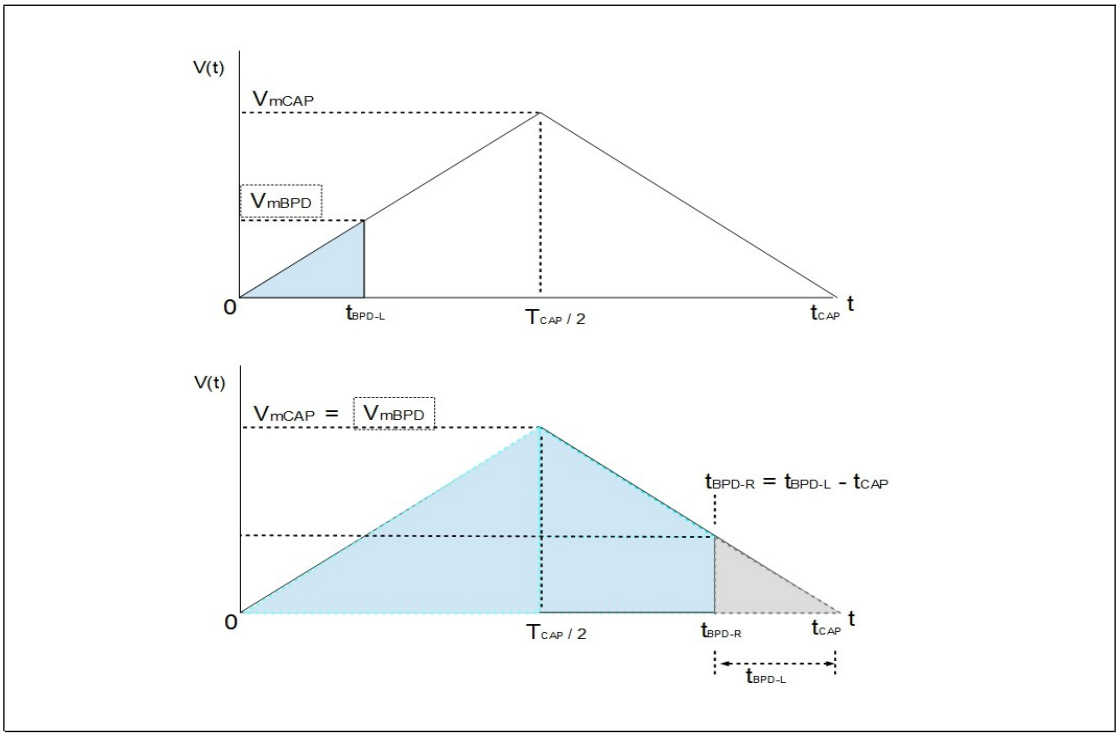


Figure 4: The relationship between the BPD trajectory and the CAP trajectory

It is interesting to note that in equations ***E2*** and ***E3*** that the form is similar to equations 4.0 and 5.0 above with the distances replaced by the geometric mean of the two distances of X_L and X_c which makes sense as the geometric mean weights the distances better than the arithmetic mean when the terms differ by orders of magnitude as is the case for the distances in these trajectories.

Table 3b on page 190 shows the BPD calculated for all the Case 1 entries and is highlighted in gray. As a sanity check for the equations an example will be calculated for row 2 which treats the case

where the BPD is X_L = 19.532652 miles and the t_L = 0.2 secs. X_c = *40miles*

From equation ***E1***: $t_c = 0.2\sqrt{(2*40/19.532652)} = 0.404757$ *sec [row 2 column 2]*

from ***E2***: $V_{mc} = (1/t_L)\sqrt{2*X_c X_L} = (1/0.2)\sqrt{2*40*19.532652} = 197.65$ *Mi/sec [row 2 column 11]*

from ***E3***: $A(t) = (2/t_L t_c)\sqrt{2*X_c X_L} = 2*(197.65/0.404757) = 976.63 Mi/sec^2 =$ *(976.63*5280)/32.2g's = 160,143.38 g's. [Row 2, column 13] The power and energy follow from these values and will be discussed later using equations* ***E11*** *and* ***E12****.*

Figure 5 is a graph from Microsoft Mathematics plot of equation 17 from Subappendix A. It shows that the calculated T_c = 0.404757 sec substituted into Equation 17 when plotted reproduces the proper T_L = 0.2 Mac and X_L =19.53 Miles. This result confirms that equations ***E1***, ***E2*** and ***E3*** are correct as ***E2*** and ***E3*** are based on ***E1***. Figure 5 displays a piece-wise function[6] composed of two parabolas separated by the regions $t \leq t_c/2$ for the blue parabola defining the ascent to the halfway point at $t_c/2$ and the green parabola for $t \geq t_c/2$ where the ascent acceleration is reversed and the object comes to rest at X_c, $t > t_c/2$. The white square is the region where the functions are defined. This reverse calculation uses the originally unknown time to get to the CAP point, T_c as an input constant and solves for the time when the BPD occurred T_L and it agrees with the original assumed value of 0.2 sec confirming the validity of the derived equations above.

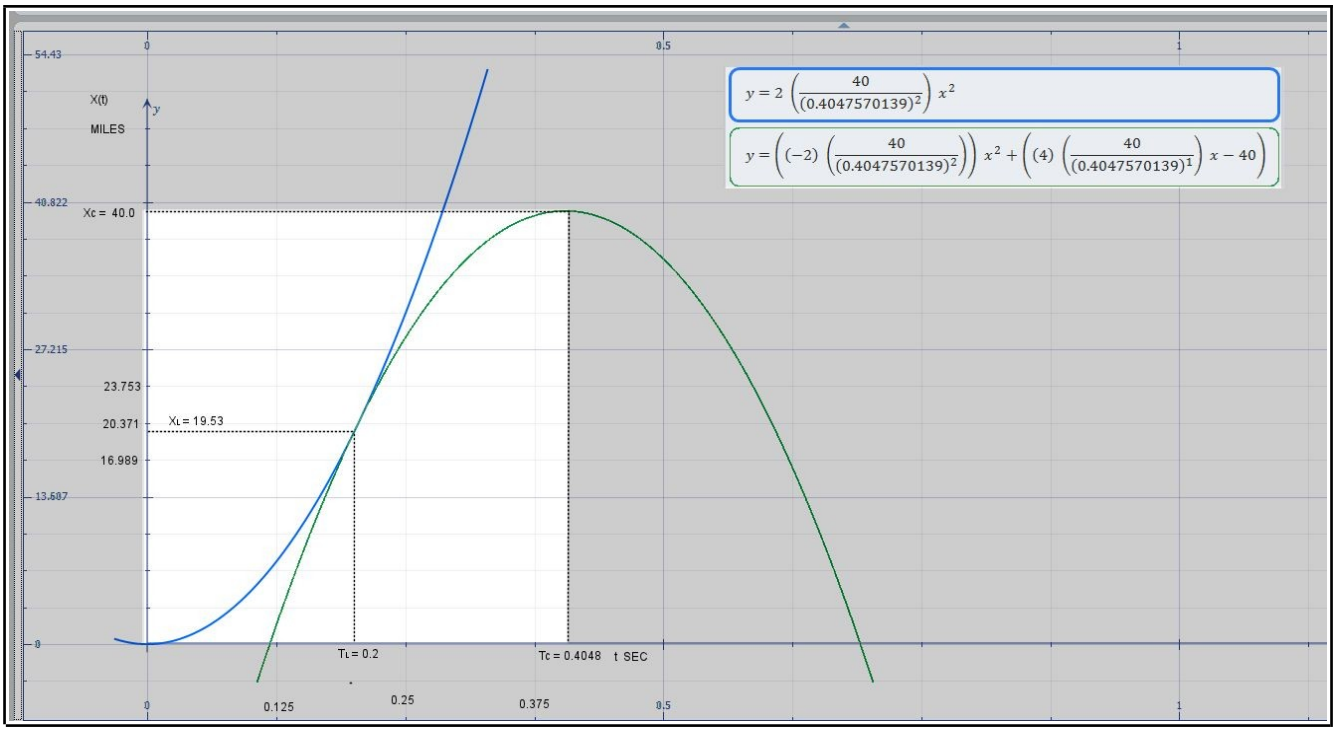


Figure 5: Case 1 BPD less than Tc/2 showing calculated T_c from T_L matches table values

6 https://en.wikipedia.org/wiki/Piecewise_linear_function

Case 2: 2.0 For the case where the BPD is reached after $t_c/2$:

We know that the CAP point was said to be 40 miles away so 20 miles is the halfway point or $T_{CAP}/2$ = 20 miles and $T_{BPD\text{-}L} < 20$ miles. If we examine Table 2 column 7 it contains the distance to the BPD in miles and only 4 entries are greater than 20 miles. For the case where $T_{CAP}/2 < T_{BPD\text{-}R}$ we don't know the acceleration or velocity values as the equations for the trajectory are not the same as 1 and 2 derived previously in Figure 3. For the trajectory to the right of $T_{CAP}/2$, we do know from the triangular derivation of the distance from Figure 1, the distance to the object and the assumed time to get there $T_{BPD\text{-}R}$. We can derive these however from equation 17 derived in Subappendix A on pages 193-194.

$X(t) = [4X_m / t_m] [(t-(t^2 / 2t_m)] - X_m$: for $t > t_m/2$; now to avoid confusion between two different definitions of X_m and T_m we will re-label them as $X_m = X_c$, the distance to the CAP point that is known, and $t_m = t_c = t$, the time to get to the CAP which is unknown, and $T_{BDR\_R} = t_R$, the time to travel the distance to the blind point which is assumed, and $X(t = t_R) = X_R$, the distance to the blind point that is calculated and known. We will solve the equation for t so rewriting

$X_R = [4 X_c / t] [t_R - (t_R^2/2t)] - X_c$ this can be rearranged into a quadratic equation as a function of t, the blind point distance:

$$(X_R + X_c) = (8 X_c t_R t – 4t_R^2 X_c)/ 2t^2 =>$$

$$2t^2(X_R + X_c) = 8 X_c t_R t – t_R^2 \mathbf{X_c} =>$$

$$t^2 - t [(4 X_c t_R / (X_R + X_c)] + \mathbf{X_c} t_R^2 /2(X_R + X_c) = 0$$

Solving for t using the well known quadratic formula [7] we can write:

$$t = t_c = [2 X_c t_R / (X_R + X_c)] \pm \sqrt{[(4 X_c^2 t_R^2)-2 \mathbf{X_c} t_R^2(X_R + X_c)]/(X_R + X_c)^2} \qquad \textbf{E4}$$

now for ease of spreadsheet calculations, we define the new constant

$$p = 2 X_c t_R / (X_R + X_c) \qquad \textbf{E5}$$

and we can write:

$$t_c = p \pm \sqrt{p(p – t_R)} \qquad \textbf{E6}$$

now we note this leads to two solutions, but only one is possible so we must determine which sign applies. For there to be a real solution $p(p – t_R) \geq 0$ since $p = 2 X_c t_R / (X_R + X_c)$ is always a positive quantity this leaves $(p - t_R) \geq 0$ or $p \geq t_R$ so examining the range values of X_c from figure 4 we can see that $X_c/2 \leq X_R \leq X_c$ and therefore substituting into ***E5*** the minimum and maximum values of X_R we get $p_{max} = 4t_R/3$ and $p_{min} = t_R$ now again from figure 3 we note that

$$t_c \geq t_R \qquad \textbf{E7}$$

7 https://en.wikipedia.org/wiki/Quadratic_formula

continuing by substituting pmax and pmin into ***E6*** we get,

pmax $tc = 4t_R/3 \pm \sqrt{4t_R/3(4t_R/3 - t_R)} = 4t_R/3 \pm 2t_R/3 = 2t_R/3$ for the negative sign which violates E4 thus the negative solution is not valid, while the positive sign gives $2t_R$ which is valid. Now for

pmin $tc = t_R \pm \sqrt{t_R(t_R - t_R)} = t_R$ for positive sign and 0 for the negative sign and the negative sign again violates relation ***E7***. So we have ruled out the negative sign for the solution and the final relationship is:

$$t_c = p + \sqrt{p(p - t_R)} \qquad \textbf{E8}$$

now applying equations 14 and 15 from Subappendix A

$$A(t = t_c/2) = 4X_c / (t_c)^2 \text{ and this is a constant value so}$$
$$A_c = 4X_c / (t_c)^2 \qquad \textbf{E9}$$

Now to calculate the power required for the blind point distance trajectories to continue to the CAP point, we need to know the value of t_c and equation ***E8*** provides us with this value, as the accelerations can now be calculated from ***E9***.

Using the formulas 14 and 15 derived in Subappendix A, we can write the following relationships for maximum velocity and acceleration assuming a mass based on a weight of 2000 lb and the maximum power expended will be the force [mass times acceleration] multiplied by the maximum velocity:

$$V_{mc} = 2X_c / t_c \qquad \textbf{E10}$$

Now we can write from ***E9*** and ***E10*** with some algebraic rearrangements

$$V_{mc} = (2X_c) / \sqrt{(4X_c / A_c)} = \sqrt{X_c A_c}$$

$$V_{mCAP} = \sqrt{X_c A_c} \qquad \textbf{E11}$$

$$P_{mc} = M A_c V_{mc} \qquad \textbf{E12}$$ [8]

Table 3a is for the four entries in column 7 as described above, these alone were derived from equations ***E4*** through ***E12*** above.

8 https://en.wikipedia.org/wiki/Work_(physics)

p	T_c +	T_c -	*V(t)ft/sec*	*Tcap/2 +t sec*
0.2	0.22423817	0.18049056	1,883,711.45	0.11
			1,712,464.96	0.12
			1,541,218.46	0.13
0.51	0.56059541	0.45122641	1,369,971.96	0.14
			1,198,725.47	0.15
			1,027,478.97	0.16
2.53	2.80297707	2.25613205	856,232.48	0.17
			684,985.98	0.18
			513,739.49	0.19
5.06	5.60595413	4.51226410	342,492.99	0.2
			171,246.50	0.21
			0.00	0.22

Table 3a: Sanity check on equation derivations

Table 3a uses equation 8 from Subappendix A, $V(t) = 2V_{mc}(1 - t / t_c)$ for $t > t_c/2$ to check equation ***E8*** used to calculate p, t_{c+} and t_{c-} and it compares V(t) as it steps through 0.1 sec increments from 0.11 sec equal to $t_c/2$ shown in column 5. As we see from Figure 4, previously displayed, V(t) should equal 0 at $t = t_c$ as expected also in the third column t_{c-} has values less than t_R as derived in ***E7*** above. Table 3b has the four entries shown in orange for BPD greater than 20 miles [case2] all other entries in gray are [case1] entries where the BPD distance is less than 20 miles. This gives different values for these entries than Table 2 where the BPD distance does not follow the same trajectory as the CAP point trajectory. Note that the velocity at the BPD distance, which is the same as the maximum velocity because the object continues accelerating out of sight in Table 2 is 2,062,648.05 ft/sec while the velocity at the BPD distance in the second case Table 3a is 171,246.50 ft/sec because in the second case the object has gone into deceleration at the halfway point and has decreased its velocity from 1,883,711.45 ft/sec to 171,246.50 ft/sec in a maner of 0.1 sec and comes to rest at 0 velocity at the CAP point.

As a final sanity check for Table 3b we will calculate the $V_m(t)$ and A(t) for case 2 using the equations from Subappendix A which allow us to calculate these values approaching the CAP point.

Replicating the values in Row 1 of Table 3b for V_m and A(t) only $X_c = 40$ mi and $t_c = 0.22$ sec from the calculations in Table 3a all other calculations are derived as in example for Table 2.
$V_m = V_{mc} = 2X_c / t_c$ from E7 = (2 x 40 mi x 5280 ft/mi) / 0.22423817 sec = 1,883,711.45 ft/sec
$A_c = 4X_c / (t_c)^2 = 4(40\text{mi} \times 5280\text{ft/mi}) / (0.22423817\text{sec})^2 = 16,800,988.09$ ft/sec^2 = 521,769.84 g's

Figure 6 is a plot from Microsoft Mathematics plot of equation 17 from Subappendix A showing that the calculated $T_{C\ substituted}$ into Equation 17 when plotted reproduces the proper T_R and X_R confirming that

the equations ***E4*** - ***E10*** are correct. Again Figure 6 displays a piece-wise function[9] composed of two parabolas separated by the regions $t \leq t_m/2$ for the blue parabola defining the ascent to the halfway point at $t_m/2$ and the green parabola for $t \geq t_m/2$ where the ascent acceleration is reversed and the object comes to rest at X_m, $t > t_m/2$ the white square is the only region where the functions are defined. This reverse calculation uses the originally unknown time of $t_m = 0.22423817$ sec to get to the CAP point as an input and solves for the time when the BPD occurred and it agrees with the original assumed value of 0.2 sec for T_R confirming the validity of the derived equations above.

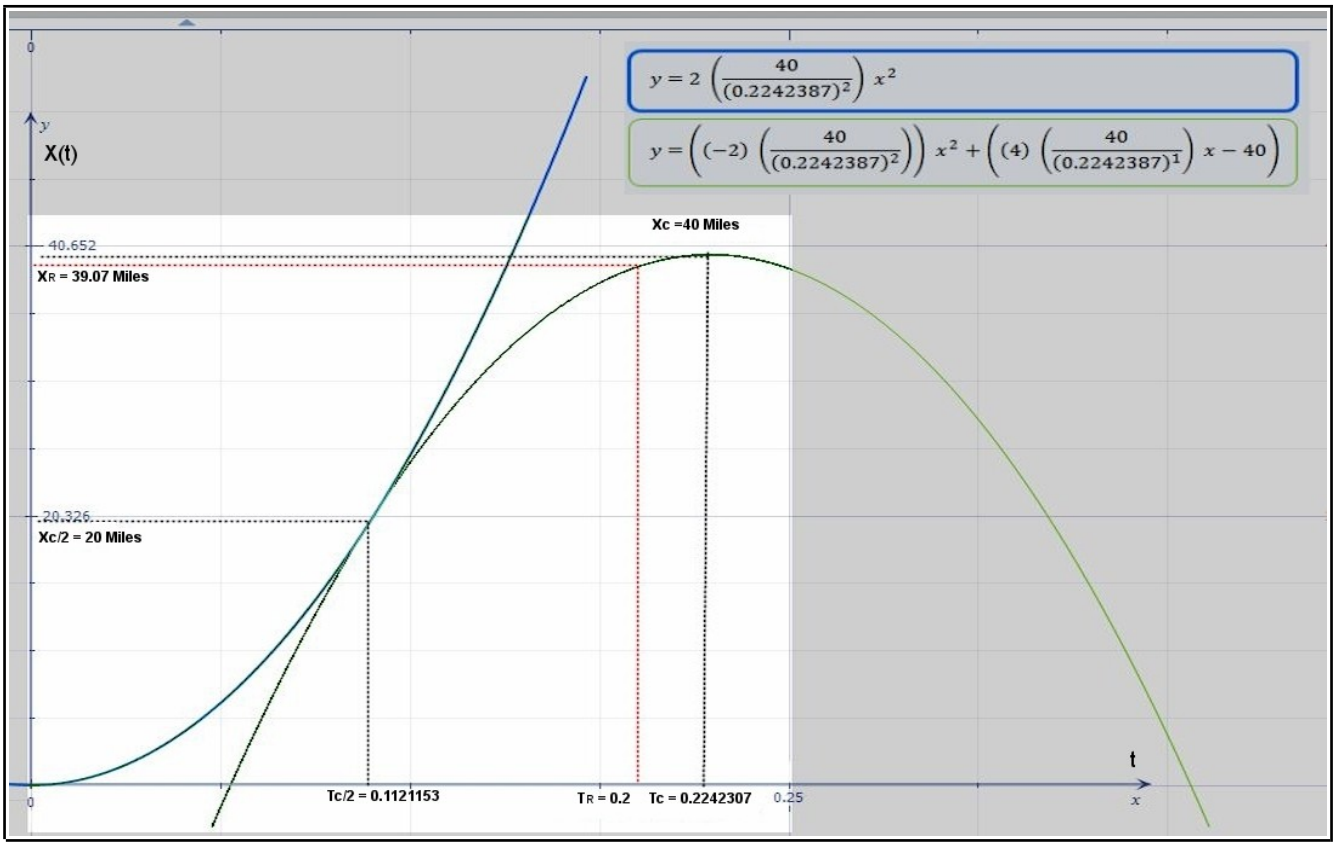


Figure 6: Case 2 BPD greater than Tc/2 showing calculated T_c from T_L matches table values

9 https://en.wikipedia.org/wiki/Piecewise_linear_function

TL-R Secs	Tc Secs	Diameter at 3 viewing angles in ft	BPD (Φ) Visual Acuity Angle deg	m	BPD (Φ) In decimal deg	XL-R ft	XL-R Mi	Linear Vmc ft/sec	Linear Vmc Mph	Linear Vmc Mi/sec	Linear A(t) ft/sec2	Linear A(t) g's	Pmax ft-lb/sec T1	Pmax GigawattsT1	tons of Tnt
0.2	0.224238	60	1/60 deg	2000	0.02	206264.8	39.07	1883711.45	1284348.72	356.76	16800988.79	521769.84	1.97E+015	2.67E+006	639566.89
0.2	0.404757	30	1/60 deg	2000	0.02	103132.4	19.53	1043589.08	711538.01	197.65	5156620.12	160143.48	3.34E+014	4.55E+005	108750.54
0.2	0.572413	15	1/60 deg	2000	0.02	51566.2	9.77	737928.92	503133.35	139.76	2578310.06	80071.74	1.18E+014	1.61E+005	38449.12
0.5	0.560595	60	1/60 deg	2000	0.02	206264.8	39.07	753484.58	513739.49	142.71	2688158.21	83483.17	1.26E+014	1.71E+005	40932.28
0.5	1.011893	30	1/60 deg	2000	0.02	103132.4	19.53	417435.63	284615.2	79.06	825059.22	25622.96	2.14E+013	2.91E+004	6960.03
0.5	1.431032	15	1/60 deg	2000	0.02	51566.2	9.77	295171.57	201253.34	55.9	412529.61	12811.48	7.56E+012	1.03E+004	2460.74
2.5	2.802977	60	1/60 deg	2000	0.02	206264.8	39.07	150696.92	102747.9	28.54	107526.33	3339.33	1.01E+012	1.37E+003	327.46
2.5	5.059463	30	1/60 deg	2000	0.02	103132.4	19.53	83487.13	56923.04	15.81	33002.37	1024.92	1.71E+011	2.33E+002	55.68
2.5	7.155161	15	1/60 deg	2000	0.02	51566.2	9.77	59034.31	40250.67	11.18	16501.18	512.46	6.05E+010	8.23E+001	19.69
5	5.605954	60	1/60 deg	2000	0.02	206264.8	39.07	75348.46	51373.95	14.27	26881.58	834.83	1.26E+011	1.71E+002	40.93
5	10.118925	30	1/60 deg	2000	0.02	103132.4	19.53	41743.56	28461.52	7.91	8250.59	256.23	2.14E+010	2.91E+001	6.96
5	14.310321	15	1/60 deg	2000	0.02	51566.2	9.77	29517.16	20125.33	5.59	4125.3	128.11	7.56E+009	1.03E+001	2.46
0.2	0.404757	60	1/30 deg	2000	0.03	103132.4	19.53	1043589.07	711538	197.65	5156620.01	160143.48	3.34E+014	4.55E+005	108750.53
0.2	0.572413	30	1/30 deg	2000	0.03	51566.2	9.77	737928.91	503133.35	139.76	2578310.01	80071.74	1.18E+014	1.61E+005	38449.12
0.2	0.809514	15	1/30 deg	2000	0.03	25783.1	4.88	521794.53	355769	98.82	1289155	40035.87	4.18E+013	5.68E+004	13593.82
0.5	1.011893	60	1/30 deg	2000	0.03	103132.4	19.53	417435.63	284615.2	79.06	825059.2	25622.96	2.14E+013	2.91E+004	6960.03
0.5	1.431032	30	1/30 deg	2000	0.03	51566.2	9.77	295171.56	201253.34	55.9	412529.6	12811.48	7.56E+012	1.03E+004	2460.74
0.5	2.023785	15	1/30 deg	2000	0.03	25783.1	4.88	208717.81	142307.6	39.53	206264.8	6405.74	2.67E+012	3.64E+003	870
2.5	5.059463	60	1/30 deg	2000	0.03	103132.4	19.53	83487.13	56923.04	15.81	33002.37	1024.92	1.71E+011	2.33E+002	55.68
2.5	7.155161	30	1/30 deg	2000	0.03	51566.2	9.77	59034.31	40250.67	11.18	16501.18	512.46	6.05E+010	8.23E+001	19.69
2.5	10.118925	15	1/30 deg	2000	0.03	25783.1	4.88	41743.56	28461.52	7.91	8250.59	256.23	2.14E+010	2.91E+001	6.96
5	10.118925	60	1/30 deg	2000	0.03	103132.4	19.53	41743.56	28461.52	7.91	8250.59	256.23	2.14E+010	2.91E+001	6.96
5	14.310322	30	1/30 deg	2000	0.03	51566.2	9.77	29517.16	20125.33	5.59	4125.3	128.11	7.56E+009	1.03E+001	2.46
5	20.237851	15	1/30 deg	2000	0.03	25783.1	4.88	20871.78	14230.76	3.95	2062.65	64.06	2.67E+009	3.64E+000	0.87
0.2	0.572413	60	1/15 deg	2000	0.07	51566.2	9.77	737928.88	503133.33	139.76	2578309.79	80071.73	1.18E+014	1.61E+005	38449.12
0.2	0.809514	30	1/15 deg	2000	0.07	25783.1	4.88	521794.51	355768.99	98.82	1289154.89	40035.87	4.18E+013	5.68E+004	13593.82
0.2	1.144826	15	1/15 deg	2000	0.07	12891.55	2.44	368964.44	251566.66	69.88	644577.45	20017.93	1.48E+013	2.01E+004	4806.14
0.5	1.431032	60	1/15 deg	2000	0.07	51566.2	9.77	295171.55	201253.33	55.9	412529.57	12811.48	7.56E+012	1.03E+004	2460.74
0.5	2.023785	30	1/15 deg	2000	0.07	25783.1	4.88	208717.81	142307.59	39.53	206264.78	6405.74	2.67E+012	3.64E+003	870
0.5	2.862064	15	1/15 deg	2000	0.07	12891.55	2.44	147585.78	100626.67	27.95	103132.39	3202.87	9.45E+011	1.29E+003	307.59
2.5	7.155161	60	1/15 deg	2000	0.07	51566.2	9.77	59034.31	40250.67	11.18	16501.18	512.46	6.05E+010	8.23E+001	19.69
2.5	10.118926	30	1/15 deg	2000	0.07	25783.1	4.88	41743.56	28461.52	7.91	8250.59	256.23	2.14E+010	2.91E+001	6.96
2.5	14.310322	15	1/15 deg	2000	0.07	12891.55	2.44	29517.16	20125.33	5.59	4125.3	128.11	7.56E+009	1.03E+001	2.46
5	14.310322	60	1/15 deg	2000	0.07	51566.2	9.77	29517.16	20125.33	5.59	4125.3	128.11	7.56E+009	1.03E+001	2.46
5	20.237852	30	1/15 deg	2000	0.07	25783.1	4.88	20871.78	14230.76	3.95	2062.65	64.06	2.67E+009	3.64E+000	0.87
5	28.620644	15	1/15 deg	2000	0.07	12891.55	2.44	14758.58	10062.67	2.8	1031.32	32.03	9.45E+008	1.29E+000	0.31

Table 3b Calculations for the Case with non constant acceleration

Index: Orange BPD = T_R, Grey Angle 1/60 deg, Yellow Angle 1/30 deg, Green Angle 1/15 deg
All entries except Orange Occur with BPD = T_L

Conclusions:

[1] The Blind Point Distance was determined to be due to visual acuity effects and not because the object traveled over the horizon and became invisible due to the curvature of the Earth.

[2] Looking at the accelerations for all cases in Table 2 and 3b, we can see that for all cases between 0.2 to 5 sec, apparent size between 60 and 15 ft, and visual acuity between 1/60 to 1/15 deg, the minimum acceleration is 32 g's and the maximum acceleration is 521,770 g's which would be impossible for any human and any mechanically complex mechanism to survive. The lowest g-force value also occurs at 5 sec of time to the BPD which really cannot be considered as fast or instantaneous as was described by the pilots. This was included for completeness of exposition but should probably be replaced by the 2.5 sec acceleration of 128 g's.

[3] For the same time range the power dissipated at the maximum velocity is a minimum of 441 megawatts and a maximum of 2,670,000 gigawatts. To put this in perspective a one megaton nuclear weapon, releases 4.18×10^{15} joules energy[10], if we say it is released in one sec then a joule/sec is the definition of a watt, 10^9 watts is a gigawatt so it would release 4.18×10^6 gigawatts. A one kiloton nuclear weapon would release 4.18×10^3 gigawatts of energy. This would then place the energy release per second at a minimum of 121/4,180 = 0.11 tons or 860 lb of TNT each second and a maximum of 639.57 kilotons of TNT per second to propel it on its trajectory.

[4] Further, all known propulsive methods are reaction type of engines that release this energy by explosions of different types to propel the vehicle through the atmosphere. Exploding the minimum of 220 lb of TNT per second would be quite noticeable in the atmosphere and cause massive sonic and shock wave disturbances, a 639.57 kilotons of TNT released per second is equivalent to a larger than Hiroshima type of nuclear weapon being exploded and would cause massive destruction throughout the entire area. No explosive effects or sounds were observed or any damage done to the planes or the surrounding area, which raises questions about the physics and technology of the observed objects, called "Tic-Tacs", that are beyond current physical explanations.

[4] In this paper only the horizontal acceleration and power calculations were made. The CAP point was at 20,000 ft and so there was a vertical component to the energy expenditure that was just as extraordinary, but a similar treatment like this has already been covered in Appendix G which calculates these figures for accelerations from 20,000 ft to 80,000 ft. We could just estimate that this is a little less than four miles and so using the figures for 4.8 miles in Table 3b a rough estimate of the energy released would be between 860 lb and 6.72 kilotons of TNT released per second. The interested reader is referred to Appendix G for further details and will not be treated here.

[5] Every effort has been made to be conservative and take into account the visual acuity problems of the observers due to atmosphere, light intensity and visual aspect ratio of the object described by the witnesses. In all these cases the acceleration is beyond the capability of any known science or

10 http://www.atomicarchive.com/Effects/effects1.shtml

technology that is presently available. The power released would, at a minimum, have been easily detected and at worst would be extremely destructive, but this was not the case. The witnesses have impeccable reputations and much of their testimony is in agreement with each other. Although some details are uncertain there is enough agreement to lead to the conclusion that this was an observation of a machine-like unidentified flying object with technology beyond our current capabilities. It should be investigated further by having a full release of the details that are currently classified by military and government entities to allow academic and scientific organizations do detailed studies.

Subappendix A

Derivation of the Linear Velocity Trajectory with reversing acceleration to hover at CAP point

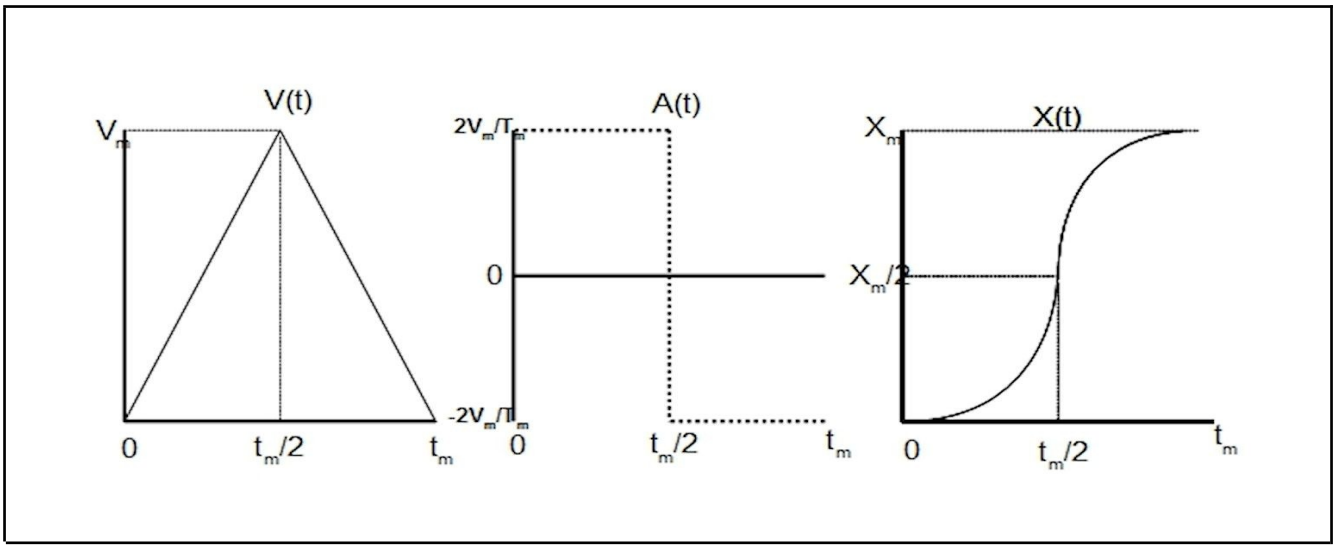


Fig 5 Linear Velocity With Reversing Constant Acceleration

$v(t) = 2V_m t / t_m$ for $t \leq t_m/2$ and $v(t) = 2V_m(1 - t/t_m)$ for $t > t_m/2$ 8.0

$A(t) = dV(t)/dt = 2V_m / t_m$ for $t \leq t_m/2$ and $A(t) = -2V_m / t_m$ for $t \geq t_m/2$ 9.0

$$X(t) = \int V(t)\,dt + K1 = \int [2Vmt/tm]\,dt = Vm(t^2)/t\,m + K1 \text{ for } t \leq tm/2 \quad 10.0$$

$$X(t) = \int [2Vm/tm(1 - t/tm)]dt = [2Vm[t - (t^2)/2tm]] + K2 \text{ for } t > tm/2 \quad 11.0$$

Now from 3.0 solving for K1, since $X(t_m/2) = X_m/2$ we can write

$X_m/2 = (V_m / t_m)*(t_m/2)^2 + K1$ therefore $K1 = (2X_m - V_m t_m)/4$ 12.0

Therefore $X(t) = V_m t^2 / t_m + (2X_m - V_m t_m)/4$ for $t \leq t_m/2$ 13.0

Now at $t = 0$ $X(t) = 0$ Therefore $(2X_m - V_m t_m)/4 = 0$ so

$$V_m = 2X_m / t_m \quad 14.0$$

from 8.0 $A(t) = dV(t)/dt = |2V_m / t_m|$ $0 \leq t \leq t_m$ 15.0

and 14.0 $A(t) = 2V_m / t_m = 2(2X_m / t_m)/t_m = 4X_m / (t_m)^2$

$$A(t) = 4X_m / (t_m)^2 \quad 16.0$$

now from 4.0 $X(t) = [\ 2Vm[\ (t-(t^2 / 2t_m)\ ]+ K2$ for $t > t_m/2$ and $X(t_m) = X_m$, so

$X_m = 2Vm[\ t_m - (t_m)^2/2t_m]\ + K2 = Vm\ t_m + K2$ therefore $K2 = X_m - Vm\ t_m$

$$K2 = X_m - Vm\ t_m \qquad 17.0$$

$$X(t) = [\ 2Vm[\ (t-(t^2 / 2t_m)\ ] + X_m - Vm\ t_m \qquad \text{for } t > t_m/2$$

from 7 above $V_m = 2X_m / t_m$ so $t_m = 2X_m / V_m$

$$X(t) = [4X_m / t_m\ ]\ [\ (t-(t^2 / 2t_m)\ ]\ - X_m \qquad \text{for } t > t_m/2 \qquad 18.0$$

APPENDIX J

ACCELERATION, SPEED, AND POWER CALCULATIONS BASED ON AN ATFLIR VIDEO

Author: Peter Reali

The 2004 *Nimitz* "Tic-Tac" Incident

This is an analysis of the F4.mpg Video that determines not what the "Tic-Tacs" are but that they exhibit characteristics beyond any known present technology.

Executive Summary:

This paper takes a simple approach to investigating the size, perpendicular angular velocity component and acceleration of the so called "Tic-Tac" object in the F4.mpg video. From these calculations are derived a range of estimated distances of the "Tic-Tac" from the F/A-18 jet and the size of the "Tic-Tac" based on the size of the angular dispersion of the "Tic-Tac" diameter in the ATFLIR video. This allows us to eliminate any object that is larger or smaller than the known sizes of all aircraft in the area of the *Nimitz* exercise location. While not precise, it shows that the "Tic-Tac" due to it's size, estimated distance and lack of aerodynamic details in the ATFLIR image and by calculating it's average velocity and acceleration, along with the power requirements to perform these maneuvers, it cannot be any known type of aircraft using current technology.

These calculations are based on two regions of the ATFLIR screen as it changes from a 1X zoom with a 0.7 deg field of view to a 2X zoom with a 0.35 deg field of view of the ATFLIR camera and the angular size of the "Tic-Tac" compared to the total field of view. It uses two diameters; one for the dense center and the other that is wider that includes the corona. It concludes that the distances calculated are not far enough to prevent the details of a conventional aircraft, like wing's, to not be visible on the ATFLIR display. The acceleration calculated would have killed a human pilot, although a drone device is not eliminated as a possibility. The final conclusion is that the "Tic-Tac" cannot be another F/A-18 due to the lack of identifiable wing's and air-frame characteristics, further since during the 2004 *Nimitz* aerial exercise the only planes in the area were F/A-18s and an E2 radar plane and neither of these could produce the results seen. This is an unidentified object with characteristics that are beyond our current understanding due to the acceleration and lack of identifiable aerodynamic features in the ATFLIR display.

Abstract:

In preparing this paper the F4.mpg video was analyzed using the VirtualDub[1] open source video editing and filtering tool to examine the video on a frame by frame basis to determine the timing between the examined portions of the frames and calculate the accelerations, power requirements and maximum velocities for the observed trajectories of the "Tic-Tac". VirtualDub is a well supported and active open source application with people who write and post third party filters that are available for free download and analysis. Attempts were made to filter the video in different ways but for this paper only the raw video was used.

Using the analysis tools of VirtualDub the video has the following encoding characteristics:

1 https://sourceforge.net/projects/virtualdub/

F4.mpg Video:
Frame size, fps (µs per frame): 352 x 240, 29.970 fps (33367 µs)
Length: 2289 frames (1:16.37)
Decompressor: Internal DIB decoder ( )
Number of key frames: 2289
Min/avg/max/total key frame size: 253440/253440/253440 (566528K)
Min/avg/max/total delta size: (no delta frames)
Data rate: 60765 kbps (0.01% overhead)

Assumptions:

All scientific investigations are based on underlying assumptions that need to be proved or disproved by logical examinations to see if they violate current accepted knowledge and physical laws. The author of this paper will list his assumptions to the best of his ability always aware that there may be others he is unaware of.

1. This paper uses the F4.mpg video as the source of its analysis and further restricts its analysis to the last few seconds of the video [frames 2221 to 2252] as the "Tic-Tac" object accelerates to the left out of the field of view of the ATFLIR display. This video and the FLIR1 video released by the government and displayed on the *Two The Stars Academy* website appear identical. The author has viewed the two videos in detail, at the pixel level, and is satisfied that the FLIR1 video was likely derived from the original F4.mpg video; which appeared on a German website in 2007, and is just over two years after the 2004 *Nimitz* Naval incident. It is possible that this is an elaborate fake and this cannot be ruled out, but the SCU has interviewed pilots who were there at the time of the debriefing and have said that it is substantially the same video, but it is lower quality and has been shortened in length. The author feels that the difficulty in tracing the origin of the document is a result of the legal ramifications for the person who copied the video illegally and released it without authorization. This would subject them to the risk of government prosecution due to the classified nature of the equipment being used. Further, any fakery would take substantial resources and technical skill, with little chance of financial reward for the effort. All these reasons lead the author to conclude that the video is most likely valid. A more detailed discussion of the origin of the two videos is covered in a different appendix.

2. The operation of the Ratheon An/ASQ-228 ATFLIR camera acts like a typical full frame camera and maps the full field of display to the sensor without cropping the image. This means that at the display the full 0.7 deg field of view has a one-to-one mapping to the horizontal display and that a percentage of the horizontal display represents the same percentage of the angular view of the ATFLIR camera. If this is not the case and the sensor is cropped, as is termed in the photographic community, it means that the sensor is seeing only a portion of the field of view and this acts as another magnifying factor and

that all images on the FLIR display are bigger and farther away than the author assumes in the paper below. This would not invalidate his conclusions,however, and the “Tic-Tac” would only have even more extraordinary acceleration and power capabilities. The case of the FLIR mapping to less than the sensors full imaging capability would be wasting the capability of the sensor and throwing away important image resolution capabilities and that would be a design disaster and huge waste of money.

3. Any object that has a long axial dimension, as it would turn left, would appear to change in size on the ATFLIR display as the long aspect of the body would show up in the ATFLIR display, the author believes this is a powerful argument against this being a conventional air-frame of any known type and rules out aircraft or missiles as sources of the “Tic-Tac's” image in the ATFLIR display.

4. The apparent movement of the “Tic-Tac” object moving to the left during frames 2221 to 2251 or 1.14.11sec to 1.15.11 sec (the exact times are obtained using the VirtualDub software) into the video is due to the “Tic-Tac” moving to the left and not due to the airplane moving to the right. This is based on the ATFLIR display showing that the “Tic-Tac” remains in a relatively stable position, as the ATFLIR display registers a constant angular pointing position at the top of the ATFLIR display of 8 deg to left and 5 deg down from the airplane axis in the frames that were analyzed. The tracking servo does not seem to change its position, but it is possible that a small angular degree shift of a few tenths of a degree would not be registered in the display as the display does not appear to update changes of less than 1 deg. This could result in what would appear to be a large acceleration and not due to any change in the objects motion. This would also nullify assumption 3 above as the object would not be turning to the left and no change in shape would be observed. The argument against this possibility is that the ATFLIR display would be very difficult for the pilot to use, if small angular deviations due to atmospheric vibrations would constantly make objects on the display shoot off the screen and this has not been reported by the pilots during any interviews or other discussions. If it did occur this would surely have been mentioned as a possibility. The tracking servo does not seem to change its position but it is possible that it could be turned off or be malfunctioning during this time, but according to interviews of the people involved all equipment was functioning perfectly.

Forward:

As shown in Fig 1 and 2 the ATFLIR maps a 0.70/0.35 deg field of view to the ATFLIR image sensor, this is equivalent to a super-telephoto lens of a focal length greater than 1200mm and a magnification factor of 35x or greater compared to a 35mm lens and sensor. This means that for objects at significant distance the details of their structure should be visible in the ATFLIR display up to several miles in distance. The exact analysis of this factor will be left for future investigations of the ATFLIR operating characteristics. Figure 2b shows a table of focal length to angular field of view for typical camera lenses

and shows that a 1.5 deg field of view exceeds the magnification factor of a 1200mm telephoto lens.

Figure 1: shows the small angular area aperture of 1.5 deg of the ATFLIR

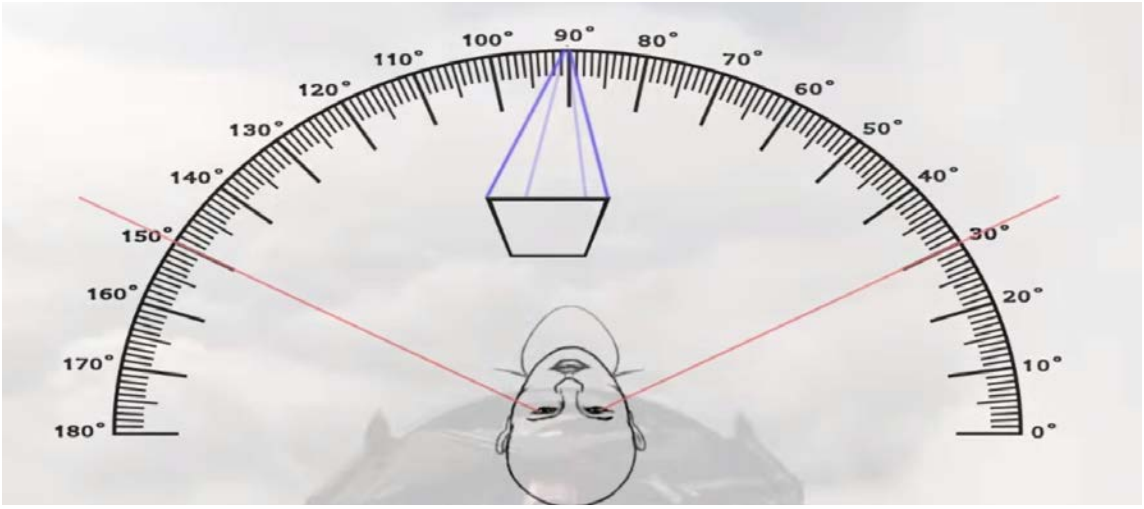


Figure 2a: shows the small angular aperture of 0.7/0.35 deg mapping on the ATFLIR display

Focal Length (mm)	Diagonal (°)	Vertical (°)	Horizontal (°)
35	63.4	37.8	54.4
50	46.8	27.0	39.6
70	34.4	19.5	28.8
85	28.6	16.1	23.9
105	23.3	13.0	19.5
200	12.3	6.87	10.3
300	8.25	4.58	6.87
400	6.19	3.44	5.15
500	4.96	2.75	4.12
600	4.13	2.29	3.44
700	3.54	1.96	2.95
800	3.10	1.72	2.58
1200	2.07	1.15	1.72

Figure 2b:[2] shows the small angular aperture of 0.7/0.35 deg is a super Telephoto lens

Figure 3 below is a screen capture from the FLIR1 video showing the "Tic-Tac" just before it accelerates to the left out of the screen's field of view.

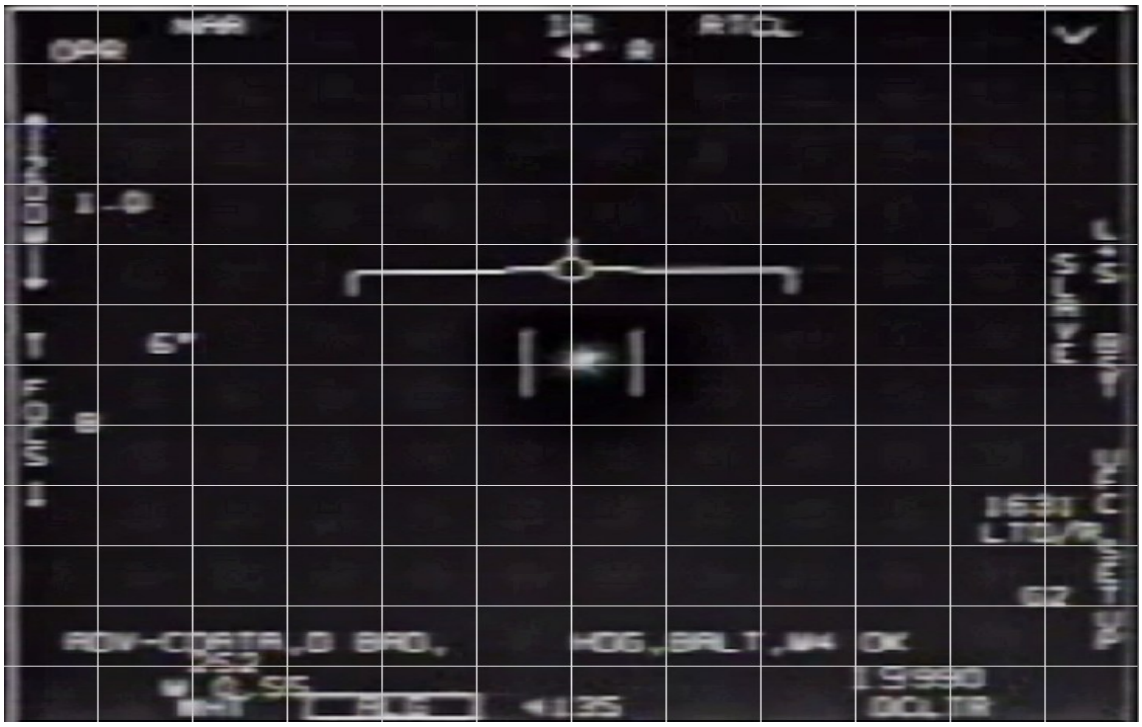


Figure 3: ATFLIR display showing the "Tic-Tac" diameter across the 0.7deg field of view

2 https://www.edmundoptics.com/resources/application-notes/imaging/understanding-focal-length-and-field-of-view/

1.0 The details of the Calculations:

As can be seen in Figure 3 the ATFLIR display has superimposed on it a grid that divides it equally into 12 parts horizontally. By viewing the entire video it was noticed that the "Tic-Tac" object has a diameter between 1/3 and 1/2 of a single reticle of the display. This is due to the diameter of the dense center relative to the vague corona extending outside this center which occupies a diameter about 1/2 of a reticle. If we were to place these two diameters across the screen they would fill the screen completely with 36 small diameter objects or 24 large diameter objects. How much each small object covers the screen is proportional to the portion of the 0.7 deg angle that it occupies. Thus we can divide the display into two regions of 24 or 36 subdivisions of the total 0.7 deg field of view of the ATFLIR display. The 0.7 deg of ATFLIR display comes from information obtained by reading the specifications for the Ratheon AN/ASQ-228 ATFLIR specifications. The ATFLIR has three setting's WFOV = 6 deg, MFOV = 2.8 deg, NFOV or NAR = 0.7 deg.

We have no way of knowing the true trajectory of the object observed except for an average velocity, the distance traveled in a fixed amount of time. Now in the following analysis the velocity is assumed to increase linearly and the resulting acceleration will be constant and provides a convenient way to overcome the difficulties of abrupt changes in velocity and accelerations that may not be linear as shown in Figure 4a below. But if the velocity varies in a non-linear way it still requires that the average velocity $V_m/2$ be the same since it travels the same distance in the same amount of time t_m ; so if the velocity is varying above the linear amount it must decrease below the linear amount so that the final average velocity is $V_m/2$, to guarantee it goes off the screen in time t_m. This results in a very conservative approach, as other trajectories that have lower accelerations for part of the time will require higher accelerations for at least some part of the remaining time. This means that the acceleration may be greater or less than the constant acceleration but if we can show that the constant acceleration is beyond the capability of an F/A-18, then we have shown that the "Tic-Tac's" ATFLIR signature is not any known aircraft. This is shown in Fig 4a below with the "Tic-Tac" exhibiting nonlinear velocity, the dashed line, with the average velocity the same as the linear increasing velocity, not dashed. At t_m, V_{nl} is > V_m but both have traveled the same distance in t_m seconds, so the average velocity is the same.

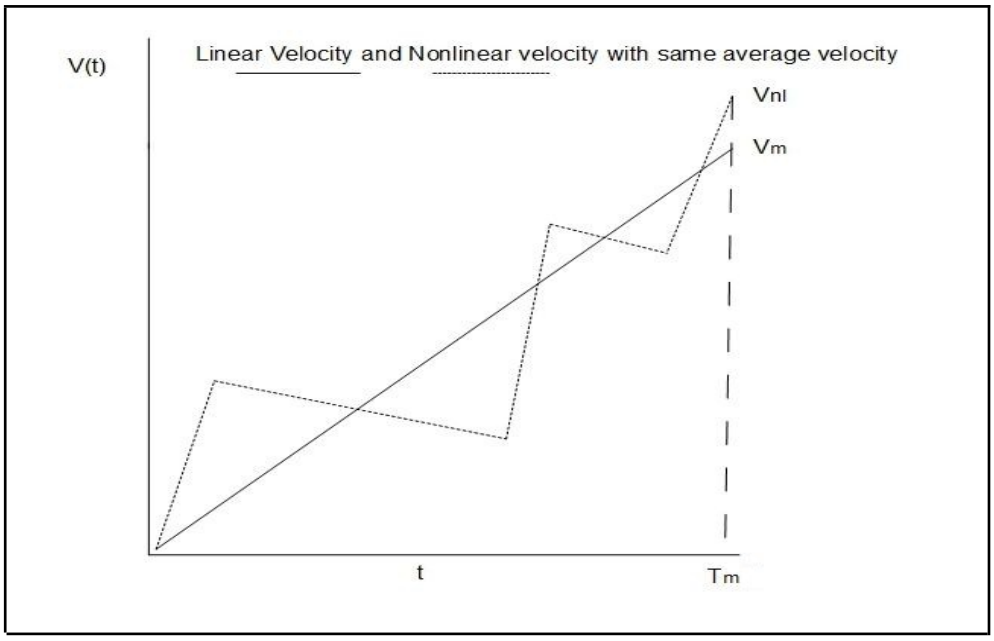


Figure 4a "Tic-Tac" with nonlinear velocity equal to average velocity of a linear trajectory

Figure 4b below shows with simple trigonometry the relationship between the distance from the F/A-18's ATFLIR detector using the tangent relationship of d1 the distance to the "Tic-Tac", α the angle created between d2 /2 the half diameter of the "Tic-Tac": Since the tangent of α is (d2/2)/d1 = Tan(α) we can derive d2 = 2*d1*Tan(α) now neither d1 or d2 are known but the angle α is derived by dividing the amount or % of the reticle occupied by either diameter by the 0.7deg or 0.35deg of angle of the total 12 divisions shown in Figure 3 above. From this we get two relationships for the diameter with simple trigonometry. The relationship between the distance from the F/A-18's ATFLIR detector using the tangent relationship of d1, the distance to the "Tic-Tac", and the angle created between d2 /2, the half diameter of the "Tic-Tac".

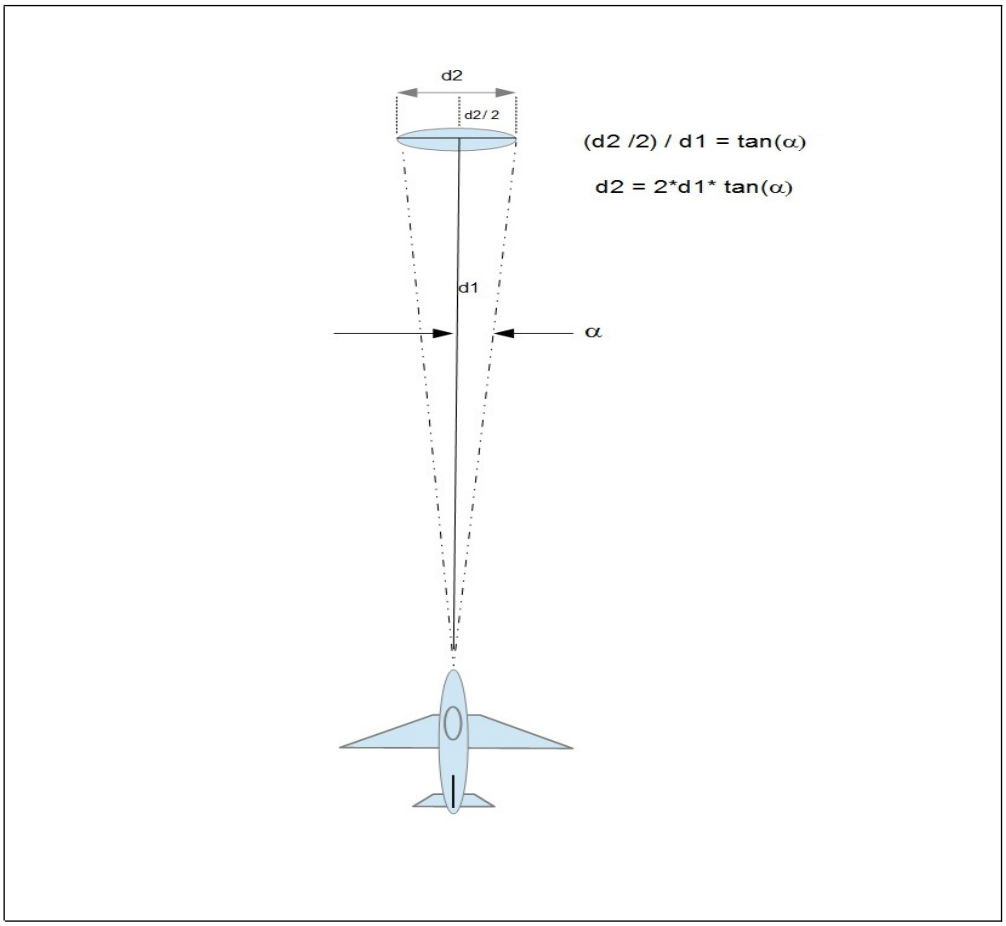


Figure 4b: "Tic-Tac" Size Calculations

In Figures 5a and 5b, although the image shows a 1x zoom indicator on the left of the display, in 5b it has already zoomed the image and an instant later it updates the Zoom to 2X. Thus the diameter of the relationships of the "Tic-Tac" image to the reticle size stay the same 1/3 to 1/2 a reticle in size. As the zoom changes to 2X the full field of view in the LCD display is now 0.7 deg / 2 or 0.35 deg. This means that in the 2X mode each reticle represents half the distance as the 1X mode. Since we want to keep a constant scale we will keep the reticles weighted to the 1X Zoom mode, so for the "Tic-Tac" in figure 5a, the 2X portion of the screen, actually moves 5.0 / 2 = 2.5 reticles in 0.60 sec in the 2X mode and 1.0 reticles in 0.367 sec in the 1X mode in Fig 5a.

Further complicating the situation, one must also consider that when the ATFLIR zooms the display is blanked for a period of time giving inaccurate reading's and producing artifacts until the mechanism stabilizes. So the calculations will be done compensating for the uncertainty of when the zoom display can be used to calculate the "Tic-Tac" trajectory distances. These are shown in Table 1 for the early zoom and in Table 2 for the late zoom changes with the associated calculations. The two cases are displayed with the resulting calculations of maximum velocity and acceleration as a function of the "Tic-Tac" distance and apparent diameter [k = to 24 or 36 and 1X or 2X zoom] followed by a detailed

derivation of the equations used to derive these results.

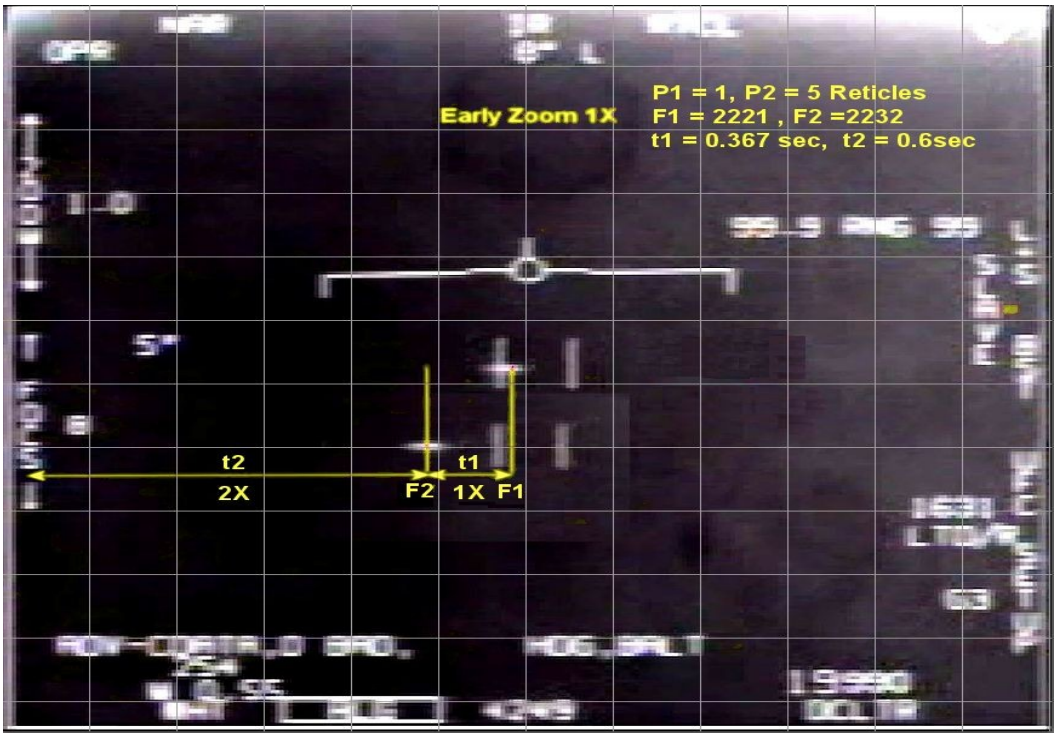


Figure 5a: shows the point where the Early Zoom changes from 1X to 2x

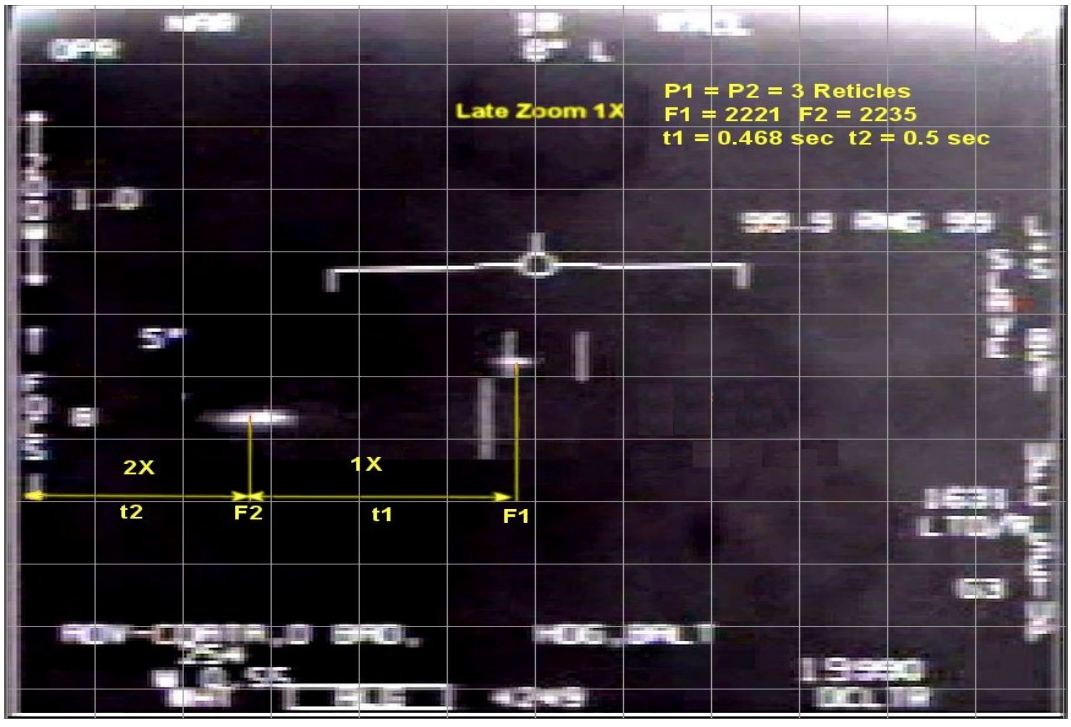


Figure 5b: shows the point where the Late Zoom changes from 1X to 2x

Subappendix D gives the detailed relationships between the frame numbers of the video and the time spent in each of the early and late zoom phases of 1X and 2X.

Zoom Factor z=1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d1 in miles	d2 in feet	(Vm) Ang Vel. ft/sec	T_m sec	(Am) Angular Accel g's	Power Req ft-lb/sec	PwrRatio must be >1
1X	36	0.7	1.696848E-04	1.696848E-04	141000	26.70	47.85	782.31	0.367	66.2	1.66E+09	0.05
1X	36	0.7	1.696848E-04	1.696848E-04	149000	28.22	50.57	826.69	0.367	69.96	1.85E+09	0.04
1X	36	0.7	1.696848E-04	1.696848E-04	157000	29.73	53.28	871.08	0.367	73.71	2.05E+09	0.04
1X	36	0.7	1.696848E-04	1.696848E-04	165000	31.25	56.00	915.47	0.367	77.47	2.27E+09	0.03
1X	36	0.7	1.696848E-04	1.696848E-04	173000	32.77	58.71	959.85	0.367	81.22	2.49E+09	0.03
2X	36	0.7	1.696848E-04	1.696848E-04	141000	26.70	47.85	1978.58	0.600	61.92	3.92E+09	0.02
2X	36	0.7	1.696848E-04	1.696848E-04	149000	28.22	50.57	2090.84	0.600	65.43	4.38E+09	0.02
2X	36	0.7	1.696848E-04	1.696848E-04	157000	29.73	53.28	2203.11	0.600	68.95	4.86E+09	0.02
2X	36	0.7	1.696848E-04	1.696848E-04	165000	31.25	56.00	2315.37	0.600	72.46	5.37E+09	0.01
2X	36	0.7	1.696848E-04	1.696848E-04	173000	32.77	58.71	2427.63	0.600	75.97	5.90E+09	0.01
Zoom Factor z =1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d1 in miles	d2 in feet	(Vm) Angular Vel ft/sec	T_m sec	(Am) Angular Accel g's	Power Req ft-lb/sec	PwrRatio must be >1
1X	24	0.7	2.545272E-04	2.5453E-04	93000	17.61	47.34	515.99	0.367	43.66	7.21E+08	0.11
1X	24	0.7	2.545272E-04	2.5453E-04	101000	19.13	51.41	560.38	0.367	47.42	8.50E+08	0.09
1X	24	0.7	2.545272E-04	2.5453E-04	109000	20.64	55.49	604.76	0.367	51.18	9.90E+08	0.08
1X	24	0.7	2.545272E-04	2.5453E-04	117000	22.16	59.56	649.15	0.367	54.93	1.14E+09	0.07
2X	24	0.7	2.545272E-04	2.5453E-04	93000	17.61	47.34	1305.02	0.600	40.84	1.71E+09	0.05
2X	24	0.7	2.545272E-04	2.5453E-04	101000	19.13	51.41	1417.28	0.600	44.35	2.01E+09	0.04
2X	24	0.7	2.545272E-04	2.5453E-04	109000	20.64	55.49	1529.54	0.600	47.87	2.34E+09	0.03
2X	24	0.7	2.545272E-04	2.5453E-04	117000	22.16	59.56	1641.8	0.600	51.38	2.70E+09	0.03

Table 1 "Tic-Tac" Size k, Early Zoom Z, Angular Velocity and Acceleration

The actual size of the “Tic-Tacs” does not change with zoom as we will calculate them as if they were in the 1X zoom range and we get: $\alpha = a = b/2$

$d2 = 2*d1*\text{Tan}(\alpha/24) = 2*d1*\text{Tan}(0.35 \text{ deg} / 24)$ for the corona of the “Tic-Tac” 1.0

$d2 = 2*d1*\text{Tan}(\alpha/36) = 2*d1*\text{Tan}(0.35 \text{ deg} / 36)$ for the center of the “Tic-Tac” 2.0

Tables 1 and 2 are spread sheets that encapsulate d2 for assumed values of d1, the divisions of 24 and 36 are defined by the variable k = to 24 or 36. b = ATFLIR angular field of view [AFOV] $\alpha = b/2$ = half the angle used in figure 4b to calculate d2 the “Tic-Tac” maximum diameter.

Zoom Factor z=1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d1 in miles	d2 in feet	(Vm) Ang Vel. ft/sec	T_m sec	(Am) Ang Acc g's	Power Req ft-lb/sec	PwrRatio must be >1
1X	36	0.7	1.6968E-04	1.6968E-04	141000	26.7	47.85	1840.43	0.47	122.13	7.19E+009	0.01
1X	36	0.7	1.6968E-04	1.6968E-04	149000	28.22	50.57	1944.85	0.47	129.06	8.03E+009	0.01
1X	36	0.7	1.6968E-04	1.6968E-04	157000	29.73	53.28	2049.27	0.47	135.99	8.92E+009	0.01
1X	36	0.7	1.6968E-04	1.6968E-04	165000	31.25	56	2153.69	0.47	142.92	9.85E+009	0.01
1X	36	0.7	1.6968E-04	1.6968E-04	173000	32.77	58.71	2258.11	0.47	149.85	1.08E+010	0.01
2X	36	0.7	1.6968E-04	1.6968E-04	141000	26.7	47.85	2701.75	0.5	53.5	4.63E+09	0.02
2X	36	0.7	1.6968E-04	1.6968E-04	149000	28.22	50.57	2855.04	0.5	56.53	5.16E+09	0.01
2X	36	0.7	1.6968E-04	1.6968E-04	157000	29.73	53.28	3008.33	0.5	59.57	5.73E+09	0.01
2X	36	0.7	1.6968E-04	1.6968E-04	165000	31.25	56	3161.62	0.5	62.6	6.33E+09	0.01
2X	36	0.7	1.6968E-04	1.6968E-04	173000	32.77	58.71	3314.91	0.5	65.64	6.96E+09	0.01
Zoom Factor z =1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d1 in miles	d2 in feet	(Vm) Ang Vel ft/sec	T_m sec	(Am) Ang Acc g's	Power Req ft-lb/sec	PwrRatio must be >1
1X	24	0.7	2.545272E-04	2.545272E-04	93000	17.61	47.34	1213.9	0.47	80.55	3.13E+09	0.02
1X	24	0.7	2.545272E-04	2.545272E-04	101000	19.13	51.41	1318.32	0.47	87.48	3.69E+09	0.02
1X	24	0.7	2.545272E-04	2.545272E-04	109000	20.64	55.49	1422.74	0.47	94.41	4.30E+09	0.02
1X	24	0.7	2.545272E-04	2.545272E-04	117000	22.16	59.56	1527.16	0.47	101.34	4.95E+09	0.02
2X	24	0.7	2.545272E-04	2.545272E-04	93000	17.61	47.34	1782	0.5	35.29	2.01E+09	0.04
2X	24	0.7	2.545272E-04	2.545272E-04	101000	19.13	51.41	1935.29	0.5	38.32	2.37E+09	0.03
2X	24	0.7	2.545272E-04	2.545272E-04	109000	20.64	55.49	2088.58	0.5	41.36	2.76E+09	0.03
2X	24	0.7	2.545272E-04	2.545272E-04	117000	22.16	59.56	2241.88	0.5	44.39	3.18E+09	0.02

Table 2 "Tic-Tac" Size k, Late Zoom Z, Angular Velocity and Acceleration

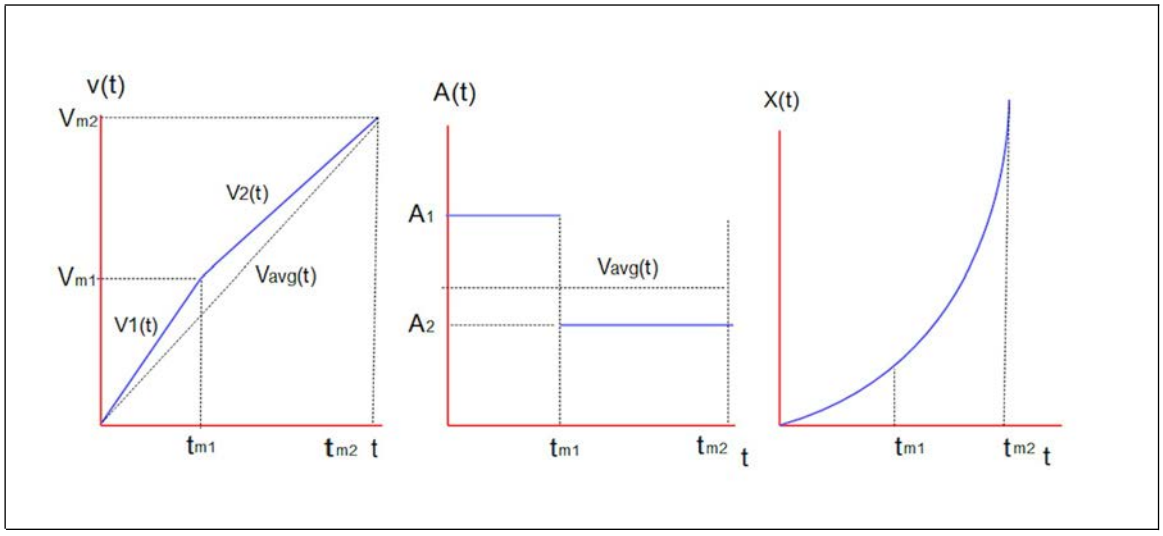


Figure 6: Linear velocity and constant acceleration curves

Now proceeding we can further calculate the velocity and acceleration for a given distance assuming the "Tic-Tac" accelerates to the left a portion of the full 0.7 deg in approximately 1 second. We do this by assuming a constant acceleration to the left and calculate the maximum velocity. Figure 6 above shows the "Tic-Tac" having three velocity curves based where $V(t)_1$ occurs when $0 \leq t \leq t_{m1}$ and $V(t)_2$ occurs when $t_{m1} \leq t \leq t_{m2}$. These are both assumed to be linear velocity curves as the velocity and acceleration changes are unknown precisely but we know where the zoom changes, there may have been an acceleration change at t_{m1}. We will treat the two trajectories independently and calculate the average velocity and accelerations forming the third curve based on the distances $X(t_{m1}) = X1$ and $X(t_{m2}) = X2$ shown in Figure 6.

$V(t)_1 = V_m / t_{m1}$ for $0 \leq t \leq t_{m1}$ for our case:

$$V(t)_1 = (V_{m1} * t) / t_{m1} \qquad 3.0$$

Since the acceleration of for each V(t) is equal to $dV(t)/dt = V_{m1}/ t_{m1}$ the slope we can write as $A_1(t) = V_{m1}/ t_{m1}$ 4.0

further we observe the average velocity is $(V_{m1} + 0)/ 2 = V_{m1} /2 = X1/ t_{m1}$ we can write

$$V_{m1} = 2*X1/ t_{m1} \qquad 5.0$$

or for linear velocity trajectory the maximum velocity is twice the average velocity over X1 and further the acceleration is from 4 and 5

$$A_1(t) = 2*X1/ (t_{m1})^2 \qquad 6.0$$

and for $t_{m1} \leq t \leq t_{m2}$

$$V(t)_2 = [(V_{m1} - V_{m2})/(t_{m1} - t_{m2})]*(t) + [(t_{m1}V_{m2} - t_{m2}V_{m1}) /(t_{m1} - t_{m2})] \qquad 7.0$$

again since the acceleration of for each V(t) is equal to

$$dV(t)/dt = A_2(t) = (V_{m1} - V_{m2})/(t_{m1} - t_{m2}) \qquad 8.0$$

now by a similar argument as above we can calculate the average velocity traveling over the distance X2 as

$$X2/(t_{m2} - t_{m1}) = (V_{m2} - V_{m1}) /2 \qquad 9.0$$

From 9 solving for $V_{m2} = 2*X2/(t_{m2} - t_{m1}) + 2\ X1/ t_{m1}$ and from 9.0 and 5.0 above

$$V_{m2} = 2*X2 / (t_{m2} - t_{m1}) + V_{m1} \qquad 10.0$$

looking at this result we see that this is twice the sum of the average velocity over X1 plus the average increase in velocity over X2 which intuitively makes sense.

Now from 5 and 8 we can find the acceleration $A_2(t) = (V_{m1} - V_{m2})/(t_{m1} - t_{m2})$

$A_2(t) = [2X1/t_{m1} - (2*X2 / (t_{m2} - t_{m1}) + 2\ X1/ t_{m1})\ ] / (t_{m1} - t_{m2}) = 2*X2 / (t_{m1} - t_{m2})^2$

$$A_2(t) = 2*X2 / (t_{m1} - t_{m2})^2 = (V_{m2} - V_{m1})/(t_{m2} - t_{m1}) \qquad 11.0$$

For the sake of brevity, it's left as an exercise for the reader to substitute values in to check the correctness of the algebra.
Now we introduce four more variables, z, p1, p2 and s:
[1] To account for the change in Zoom of 1X, z =1 and for 2X, z =2
[2] And in addition, the decimal portion of reticles (for k = 24 or 36) traveled traversing distance X1 in units of d2, the "Tic-Tac" diameter, is p1 and the decimal portion of reticles traveling in X2 in units of d2, the "Tic-Tac" diameter, is p2
[3] s = k/12 : [when multiplied by P1 or P2 and divided by Z] is the apparent distance the "Tic-Tac" has moved across the screen diameter in decimal reticle units based on the large or smaller diameter k], so the total distance moved in either zoom is (s*p1)/z or s*(p2/z) or explicitly: is 3*p1/z for k = 36, s =3 or 2*p1/z for k = 24, s=2 and the ATFLIR has three setting's: WFOV = 6 deg, MFOV = 2.8 deg, NFOV or NAR = 0.7 deg. We define b = 0.7deg for the NAR setting in our analysis.

further as an example: if the "Tic-Tac" has moved 1.25 reticles when Z = 1 or 2 when p1 or p2 = 1.25., then X1 = (3*p1/z)*d2 or (3*1.25/1)*d2 = 3.75*d2 and X2 = (2*p2/z) = 2.5*d2, if Z =2 then X1 = 1.875*d2 and X2 = 1.25*d2. Now the diameter of the "Tic-Tac" in ft, is d2 = 2*d1*Tan(a = b /2) from equations 1 and 2. It follows, if d1 is 69,000 ft b= 0.7deg and a = 0.35 deg then d2 = 1.70 x 10^{-4} x 2 x 69,000ft =23.46 ft we can then calculate X1 = 1.875 x 23.46 = 43.99ft and X2 = 2.5 x 23.46 = 58.65ft

Now expressing the equations above using these variables:

now from 1.0 , 5.0 and 6.0 above zoom = 1: angle in radians = pi /180 x angle in deg

$V_{m1} = 2*X1/ t_{m1}$, d2 = 2*d1* Tan([.35deg]*[pi /180] /k), X1 = (3*p1/z)*d2 we can then combine them:

$$V_{m1} = (4/t_{m1})*(s*p1/z)*d1*Tan([.35deg]*[pi /180] /k) \qquad 12.0$$

$$A_1(t) = V_{m1} / t_{m1} \qquad 13.0$$

and the portion traveled traversing distance X2 in units of "Tic-Tac" Diameter is p2 / z, now from 1.0,10.0 and 11.0 above for zoom = 2: $X2 = (s*p2/z)*d2$

$V_{m2} = 2*X2 / (t_{m2} - t_{m1}) + 2\ X1/ t_{m1}$, $d2 = 2*d1* Tan([0.35deg]*[pi /180] /k)$

with $X2 = (s*p2/z)*d2$ = we can write:

$$X2 = (s*p2/z)*2*d1* Tan([0.35deg]*[pi /180] /k)$$

$V_{m2} = [4/(t_{m2} - t_{m1})]*(s*p2/z)]*d1*Tan([0.35deg]*[pi /180] /k) + V_{m1}$	14.0
$A_2(t) = (V_{m2} – V_{m1})/(t_{m2} - t_{m1})$	15.0

The following calculations use Table 1 columns 6 and 8 to derive the relations of d1 and the apparent size of the "Tic-Tac", d2 in the calculations below:

The Early Zoom = 1X case using Fig 5a above, s=3, p1 =1,z = 1, t_{m1} = 0.367sec:

From 12.0 $V_{m1} = (4/t_{m1})*(3*p1/z)*d1*Tan([0.35deg]*[p /180] /k)$ = If d1 = 141,000ft, with apparent size of 47 ft, k = 36, $Tan([0.35deg]*[p /180] /36) = 1.696848 \times 10^{-4}$, $V_{m1} = (4/0.367 \text{ sec})*(3)*(141{,}000 \text{ ft})*(1.696848 \times 10^{-4}) = 782.31$ ft/sec. Now from 6.0 we can calculate the acceleration for Zoom= 1X, $A_1(t) = 2*X1/ (t_{m1})^2$ we can see from 5.0 that this is just $V_{m1} / t_{m1} = 782.31/ (0.367)$ ft/sec^2 = 2131.82 ft/sec^2 expressed in g's = 2131.82/32.2 = 66.20 g's.

The Early Zoom = 1X , Apparent Size 47 ft, with small center size:
V_{m1} = 782.31 ft/sec and $A_1(t)$ = 66.20 g's
As can be seen in Table1, row 2, the 9th and 11th column.

The Early Zoom 1X case for the larger corona size with apparent size of 47 ft ,

if d1 is 93,000 ft, k = 24,$Tan([0.35deg]*[p /180] /24) = 2.5453 \times 10^{-4}$ we are looking at a same apparent object diameter [47 ft] traveling a smaller distance, in the same amount of time and it must be closer and the velocity must be smaller.

V_{m1} = (93000/141000) x 782.31= 515.99 ft/sec,

$A_1(t)$ = 515.99/(0.367*32.2) = 43.66 g's

The Early Zoom = 1X, Apparent Size 47 ft, with large corona size:
V_{m1} = 515.99 ft/sec and $A_1(t)$ = 43.66 g's As can be seen in Table1,
As can be seen in Table1 row 13, the 9th and 11th column.

The Early Zoom case for Zoom = 2X case, with apparent size of 47 ft, for small center size, k = 36, using Fig 5a previously displayed, s = 3, p2 = 5, z = 2, t_{m1} = 0.600sec:

From 14.0, we can write $V_{m2} - V_{m1} = ([4*3*2.5]/0.600)*141{,}000*(1.69684 \times 10^{-4}) = 46.875*(1.41 \times 10^5)*(1.696848 \times 10^{-4}) = 1196.29$ ft/sec and $V_{m1} = 782.31$ft/sec so,

V_{m2} = 1978.60ft/sec as can be see in Table 1 above the 6th row and 9th column is the same value. From 15.0 we get $A_2(t) = (V_{m2} - V_{m1})/(t_{m2} - t_{m1}) = 1196.29/0.600$ ft/sec^2 = 1993.82 ft/sec^2 in units of g's = 1993.82/32.2 = 61.92 g's

The Early Zoom = 2X, Apparent Size 47 ft, with small center size:
V_{m2} = 1978.60 ft/sec and $A_2(t)$ = 61.92 g's
As can be seen in Table1, row 7, the 9th and 11th column.

The Early For Zoom = 2X, and apparent size of 47 ft, for large corona size

k = 24, using Fig 5a previously displayed, s = 2, p2 = 5 ,z = 2, t_{m1} = 0.64 sec:
From 14.0, $V_{m2} - V_{m1} = ([4*2*2.5]/0.600)*93{,}000*(2.5453 \times 10^{-4}) = 31.25*(9.3 \times 10^4)*(2.5453 \times 10^{-4}) = 789.05$ ft/sec and V_{m1} = 515.99 ft/sec so V_{m2} = 1305.04 ft/sec From 15.0 we get $A_2(t) = (V_{m2} - V_{m1})/(t_{m2} - t_{m1}) = 789.05/0.600$ ft/sec^2 = 1315.10 ft/sec^2 in units of g's = 1315.10/32.2 = 40.84 g's

The Early Zoom = 2X, Apparent Size 47 ft, with large corona size:
V_{m2} =1305.04 ft/sec, $A_2(t)$ = 40.84 g's
As can be seen in Table1, row 17, the 9th and 11th column.

Now the same equations are used to calculate the cases of the late zoom changes and these are shown in Table 2, previously displayed.

The formality of the equations was done to enter them into a spreadsheet to complete the calculations shown in Tables 1 and 2 and will not be reproduced further. Now the same equations are used to calculate the cases of the late zoom changes and these are shown in Fig 6 on page 206 and are detailed in Subappendix A, and will not be reproduced further.

The complete calculations for Early and Late Zoom changes for all ranges not included in Tables 1 and Tables 2 above are detailed in Subappendix C for the interested reader.

Calculating the Average Maximum and Minimum Velocities and Accelerations:

The average maximum velocity and acceleration described in Figure 6 can be derived from Figures 5a and 5b by ignoring the timing of the zoom changes and determining the distance X1 traveled in t_{m1} and X2 traveled in t_{m2} and dividing by $t_{m1} + t_{m2}$. From equation 5.0 we can determine X1 and X2 for the each linear trajectory and add them together

From the work done above we write:

$$V_{mavg} = 2*(X1 + X2) / (t_{m1} + t_{m2}) \qquad 16.0$$

$$A_{mavg} = 2*(X1 + X2) / (t_{m1} + t_{m2})^2 = V_{mavg} /(t_{m1} + t_{m2}) \qquad 17.0$$

Table 3 uses the above equations along with the values in Table 1 and 2 to derive the average maximum velocities and accelerations for the late and early zoom changes to derive the results for the average trajectory shown previously in Figure 6. These will now be compared to see if they differ and determine the boundaries for the power and acceleration exhibited by the "Tic-Tac".

Zoom Factor 1X or 2X	k	d1 in ft.	L Distance Traveled X1 +X2 ft	L (Vm) Avg Angular Velocity ft/sec	L A) Avg Angular Accel g's	Power Req ft-lb/sec	Power Ratio must be >1	E Distance Traveled X1 +X2 ft	E(Vm) Avg Ang Velocity ft/sec	E (A) Avg Ang Accel g's	Power Req ft-lb/sec	Power Ratio must be >1
1X	36	141000	645.99	1334.69	42.82	1.83E+09	0.04	502.44	1004.87	31.21	1.00E+09	0.08
1X	36	149000	682.64	1410.42	45.25	2.04E+09	0.04	530.94	1061.89	32.98	1.12E+09	0.07
1X	36	157000	719.29	1486.14	47.68	2.27E+09	0.03	559.45	1118.9	34.75	1.24E+09	0.06
1X	36	165000	755.95	1561.87	50.11	2.50E+09	0.03	587.96	1175.92	36.52	1.37E+09	0.06
1X	36	173000	792.6	1637.6	52.54	2.75E+09	0.03	616.46	1232.93	38.29	1.51E+09	0.05
2X	36	141000	645.99	1334.69	42.82	1.83E+09	0.04	502.44	1004.87	31.21	1.00E+09	0.08
2X	36	149000	682.64	1410.42	45.25	2.04E+09	0.04	530.94	1061.89	32.98	1.12E+09	0.07
2X	36	157000	719.29	1486.14	47.68	2.27E+09	0.03	559.45	1118.9	34.75	1.24E+09	0.06
2X	36	165000	755.95	1561.87	50.11	2.50E+09	0.03	587.96	1175.92	36.52	1.37E+09	0.06
2X	36	173000	792.6	1637.6	52.54	2.75E+09	0.03	616.46	1232.93	38.29	1.51E+09	0.05
1X	24	93000	426.08	880.33	28.24	7.96E+08	0.1	331.39	662.79	20.58	4.37E+08	0.18
1X	24	101000	462.73	956.05	30.67	9.38E+08	0.08	359.9	719.8	22.35	5.15E+08	0.15
1X	24	109000	499.38	1031.78	33.1	1.09E+09	0.07	388.41	776.82	24.12	6.00E+08	0.13
1X	24	117000	536.03	1107.51	35.53	1.26E+09	0.06	416.92	833.83	25.9	6.91E+08	0.11
2X	24	93000	426.08	880.33	28.24	7.96E+08	0.1	331.39	662.79	20.58	4.37E+08	0.18
2X	24	101000	462.73	956.05	30.67	9.38E+08	0.08	359.9	719.8	22.35	5.15E+08	0.15
2x	24	109000	499.38	1031.78	33.1	1.09E+09	0.07	388.41	776.82	24.12	6.00E+08	0.13
2x	24	117000	536.03	1107.51	35.53	1.26E+09	0.06	416.92	833.83	25.9	6.91E+08	0.11

Table 3 The Average Max Velocity and Acceleration for early and late zoom changes Max Values and Min Values the early and late zoom average acceleration changes are calculated over a Tic-Tac diameter size ranging from 47 to 60 feet as shown in Sub-appendix C

Zoom Factor	k	E-Avg Accel	L-Avg Accel	E-Avg-Overall	L-Avg-Accel Overall X1+X2
1X	36.00	73.71	135.99	37.16	47.68
2X	36.00	86.18	59.57	37.16	24.85
1X	24.00	49.3	49.37	24.85	47.68
2X	24.00	46.11	46.11	26.75	24.85

Table 4 Final Averaging of Accelerations for Final Conclusions are over the 5 entries for k=36 and the 4 entries for k=24

Now the remainder of my arguments are based on the results of Table 1, 2, 3 and 4 above. A rather critical parameter in Table 1 and 2, is the diameter d2 in column 8. This is

the apparent diameter of the object, although the ATFLIR measures the heat signature, *so the object's size is a result of the aircraft's temperature differences compared to the sky due to the frictional heating of the aerodynamic surfaces to create lift and directional control and not just the high exhaust temperatures due to its engines.* Now we know from the investigations that the only type of aircraft that were present during this *Nimitz* exercise were F/A-18s[3] (dimensions 60ft x16ft x45ft) and E2 Hawkeye Radar planes[4] (dimensions 57ft x 18ft x 80ft) so if the "Tic-Tac" is an aircraft then the ATFLIR signature should be similar in size to the dimensions of the two possible aircraft shown in Figure 7.

Figure 7: E2 Hawkey radar plane (left) and F/A-18 Super Hornet (right).

We must consider the possibility that the ATFLIR images are of the exhaust only and that the aircraft was at such a distance that no features could be visible. The images in Figures 8a and 8b show that due to thermal temperature differences caused by frictional heating of the aircraft's air-frame compared to the sky temperature the body of the aircraft would be visible and if it was at such a distance that the telescopic site of the ATFLIR equipment could not make it out it would still extend to the maximum dimensions of the aircraft. Additionally, if only the exhaust was being viewed, when the object moves to the left then it would need to change its profile so that its wing's come into view.

We see in Tables 1 and 2 column 8 that as d2 varies from 47 to 58 feet, the acceleration varies from 30 to 150 g's. This wide variance is a result of uncertainty in the timing of when the zoom occurs and when the average overall accelerations are calculated; in Table 4 it appears to agree with the early zoom case much better. Further the most likely case is that in the early zoom case, when the image size doubles it is actually in the 2X zoom mode. This gives a range of accelerations of 41 to 81 g's, which clearly is beyond the capability of the given aircraft and would severely injure any pilot operating the plane and probably exceeds the stress capability of all aircraft in existence. The lowest acceleration of 41g's was not within the known capability of air-to-air missiles[5], possessed by the Navy in

3 http://www.navy.mil/navydata/fact_display.asp?cid=1100&tid=1200&ct=1
4 http://www.flugzeuginfo.net/acdata_php/acdata_e2_en.php
5 http://www.x-plane.org/home/urf/aviation/text/missiles/aam.html

2004[6] and the relative distance and dimensions rule this out as will be discussed next.

Figure 8a: FLIR images of F-35 showing the characteristic body shape[7]

These are sets of images [Fig 8a and 8b] of an F-35 flying at speed and a Stealth B-2 bomber taking off and it can readily be seen that the air-frame is quite visible.

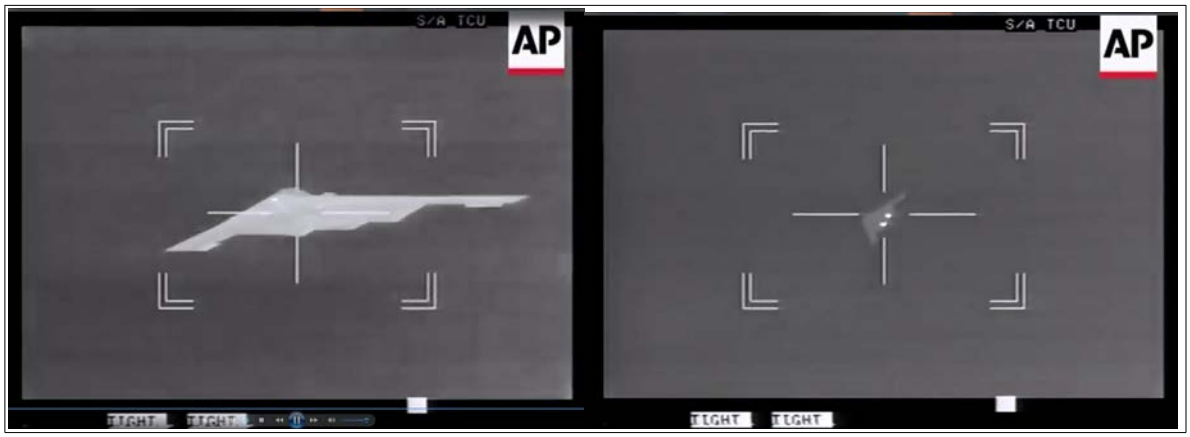


Figure 8b: B2 Stealth Bomber seen through infrared FLIR type system[8]

Now if the "Tic-Tac" dimensions are closer in distance and smaller than the dimensions of the airplanes in questions, such as a Sidewinder air-to-air missile[9] which is about 10 ft long and 0.5 ft in diameter it would have to be between 4 and 7 miles distant (d1) but its acceleration would be between 8 and 25 g's. The calculations for brevity are shown in Subappendix B, highlighted in yellow, and use the same equations as were used to derive Tables 1, 2, and 3. While this is a possibility, the SCU has conducted interviews of

6 http://www.deagel.com/Defensive-Weapons/AIM-9X-Sidewinder_a001166003.aspx

7 https://www.youtube.com/watch?v=AzyH0M4C8TY

8 https://www.youtube.com/watch?v=3c6pa_vPE_k

9 Sea Power (January 2006). Wittman, Amy; Atkinson, Peter; Burgess, Rick, eds. "Air-to-Air Missiles". **49** (1). Arlington, Virginia: Navy League of the United States: 95–96. ISSN 0199-1337

military personnel who witnessed these objects and they testified the objects were the size of an F/A-18. Further, if the object was a missile it would lengthen its display signature as it changed its angle and moved off the screen to the left and this was not observed.

We have proved our case and our unknown has no apparent air-frame that is visible, if the dimensions are larger and the "Tic-Tacs" *are* much farther away, then their size and acceleration characteristics are even greater and display unknown capability and technology that would be fatal to any human pilot and destroy any air-frame of current technology.

One further observation, the calculations that use the corona as the diameter and produce smaller accelerations [k = 24] are more likely not the real diameter of the "Tic-Tac" and are most likely some type of thermal or optical radiation signatures of the air close to the object.

Power Requirements:

Now we will consider the power requirements to perform this maneuver if it were being made by an F/A-18 "Super Hornet" at the minimum Early Zoom acceleration shown in Table 3 of 20.58 g's. Since we are considering averages of acceleration and velocity we can take two approaches. First we will consider the power exhibited by the "Tic-Tac" assuming it is an F/A-18 aircraft that has been misidentified and then compare it to the actual maximum power that an F/A-18 can deliver to its air-frame. It should be obvious that the E2 Hawkeye could not possibly sustain a 20.58 g-force acceleration without tearing off its large radar dome much less having the power or speed capability. It will not be considered in the following power analysis.

1.0 The power required for an F/A-18 to accelerate to the side at 20.58 g's can be calculated from the following relationships:
Power = Force x Velocity[10] for constant force and velocity and in this case we will consider the F/A-18's mass and its acceleration exhibited from Table 3, columns 10 and 11, row 11 shown in yellow. The mass M of the F/A-18 is equal to weight[11] = 32,000 lb / g or M = 32,000lb / g ft/sec^2. The Force = Mass x Acceleration so from Table 3 the acceleration is 20.58 g's. Now force is 32,000 lb/g ft/sec^2 x 20.58 g's = 3.2 x 2.058 x 10^5 = 6.59 x 10^5 lb. Continuing, the maximum angular velocity from Table 3 column 10 row 11, the angular velocity of 20.58 g's of acceleration is 662.79 ft/sec. We are rounding up to whole numbers for simplicity. The power is 6.59 x 10^5 lb x 662.79ft/sec = 4.37 x 10^8 ft-lb/sec as calculated in Table 3. It should be noted that velocity is a vector quantity and we are only considering the component of angular velocity that is perpendicular to the axis of the "Tic-Tac" and so the "Tic-Tac" could also have a component of velocity that is parallel to the axis of the "Tic-Tac" and that would make the total velocity even greater and require more power, but from the information we have there is no way to determine this. So this is a minimum power that we are calculating.

10 https://en.wikipedia.org/wiki/Thrust#Thrust_to_propulsive_power
11 https://en.wikipedia.org/wiki/Boeing_F/A-18E/F_Super_Hornet

2.0 The maximum power that an F/A-18 has available comes from its two General Electric F414-400 turbo fan jet engines each developing 22,000lb of thrust.[12] The maximum speed of an unloaded F/A-18- "Super Hornet" is specified as Mach 1.6 or about 1200 miles/ hour[13]. Since this is the maximum power available to the F/A-18 we can calculate it as P_{max} = $Force_{max}$ x $Velocity_{max}$ = 44,000lb x 1200 mi/hr x 5280ft/mi x (1hr/3600sec) =[(4.4 x 1.2 x 5.28)/3.6] X 10^7 ft-lb/sec = 7.744 x 10^7 ft-lb/sec. We further note that this ignores the atmospheric resistance to the plane as the speed increases which is a nonlinear power law and is beyond the scope of this calculation, so it sets an unrealizable upper limit as if the plane were traveling in a vacuum. It serves as a computable upper boundary that we know the F/A-18 would not be capable of this acceleration. So comparing the results we see:

3.0 The maximum power available from the F/A-18's engines is less than the maximum power required to accelerate the plane to the left at 19.11 g's by a factor of 7.744 x 10^7 ft-lb/sec/ 4.37 x 10^8 ft-lb/sec = 0.18 or only about 18% of the required power and this is for the minimum acceleration shown as well as only part of the probable acceleration that is actually occurring as mentioned above.

Table 1, 2, and 3 above have been enhanced with the right most two columns containing the power requirements for the "Tic-Tac" maneuvers and the power ratio as is calculated in Section 3 above, for the power requirements. As seen, the power ratio is not >1 in any of the rows in the column, showing that an F/A-18 does not have the power to execute the required trajectories.

Conclusions:

[1] The "Tic-Tacs" are not aircraft of any know type.

[2] The "Tic-Tacs" exhibit at least one of the following characteristics, no aerodynamic air-frame, no obvious means of reactive propulsion, acceleration characteristics beyond human endurance and air-frame structural capability.

[3] If the "Tic-Tacs" were a missile, it would be smaller and closer to the plane and it would not have the acceleration calculated from the ATFLIR display as shown above.

[4] If the "Tic-Tac" were a missile or an airplane, as it moved to the left it would have to show part of its long air-frame changing the diameter of the image on the ATFLIR display as it moved to the left and this does not happen.

12 ibid
13 ibid

[5] If the “Tic-Tacs” were F/A-18 sized aircraft, it would be between 18 and 33 miles from the ATFLIR camera and with its telescopic capability it would likely be identifiable by its shape and certainly by the external dimensions of the image on the screen; it's size would be able to be calculated, as we have shown above.

[6] The “Tic-Tacs” demonstrate accelerations of greater than 40g’s and most likely much higher, with no noticeable effect on their structure or performance. Here we are using the early zoom figures from Table 1 as the most conservative.

[7] The ATFLIR is capable of registering the maximum dimensions of aircraft air-frames and showing the aerodynamic structures that support lift and maneuver functions.

[8] The F/A-18 does not have adequate power to exhibit even the minimum required acceleration for the maneuvers that are observed in the video.

[9] The “Tic-Tacs” exhibit technological capability far beyond anything that existed in 2004 or that exist today.

Sub-appendix A

Calculations for the Late Zoom Case using Fig 5b shown prior:

The Late Zoom = 1X , small center size, s=3, p1 =3.0, z = 1, t_{m1} = 0.468sec, :

From 12.0 $V_{m1} = (4/t_{m1})*(3*p1/z)*d1*\text{Tan}([0.35 \text{ deg}]*[\text{pi} / 180] / k) =$
If d1 is 141,000 ft, apparent size of 47 ft, k = 36, $\text{Tan}([0.35 \text{ deg}]*[\text{pi} /180] / 36)$
$= 1.696848 \times 10^{-4}$
$V_{m1} = (4 / 0.468\text{sec})*(3*3)*(141{,}000 \text{ ft})*(1.696848 \times 10^{-4}) = 1840.43$ ft/sec
Now from 6.0 we can calculate the acceleration for Zoom= 1X
$A_1(t) = 2*X1/ (t_{m1})^2$, we can see from 5.0 that this is just V_{m1} / t_{m1}
$= 1840.43 / (0.468)$ ft/sec^2 $= 3932.5427$ ft/sec^2
expressed in g's = 3932.5427 / 32.2 = 122.13 g's

> The Late Zoom = 1X, apparent size 47 ft, with small center size:
> V_{m1} = 1840.43 ft/sec and $A_1(t)$ = 122.13 g's As can be seen in Table2, row 2, the 9th and 11th column.

The Late Zoom 1X case for the larger corona size with apparent size of 47 ft ,
if d1 is 93,000 ft, k = 24,$\text{Tan}([0.35 \text{ deg}]*[\text{pi} / 180] / 24) = 2.5453 \times 10^{-4}$ we are looking at a same apparent object diameter [47.34 ft] traveling a smaller distance, in the same amount of time and it must be closer and the velocity must be smaller.
$V_{m1} = (4 / 0.468\text{sec})*(2*3)*(93{,}000 \text{ ft})*(2.5453 \times 10^{-4}) = 1213.91$ ft/sec,
$A_1(t) = 1213.91 / (0.468*32.2) = 80.55$ g's

> The Late Zoom = 1X, Apparent Size 47 ft, with large corona size:
> V_{m1} = 1213.91 ft/sec and $A_1(t)$ = 80.55 g's
> as can be seen in Table 2, row 13, the 9th and 11th column.

The Late Zoom case for Zoom = 2X case, with apparent size of 47 ft, for small center size, k = 36, using Fig 5b above, s = 3, p2 = 3, z = 2, t_{m1} = 0.50 sec:
From 14.0, we can write $V_{m2} - V_{m1} = ([4*3*1.5] / 0.50)*141{,}000*(1.696848 \times 10^{-4}) =$
$V_{m2} - V_{m1} = 36 *14.1* 1.696848$ so $V_{m2} - V_{m1} = 861.32$ ft/sec
$V_{m2} = 861.32 + 1840.43 = 2701.75$ ft/sec
From 15.0 we get $A_2(t) = (V_{m2} - V_{m1}) / (t_{m2} - t_{m1}) = 861.32 / 0.50$ ft/sec^2 $= 1722.64$ ft/sec^2 in units of g's = 1722.64 / 32.2 = 53.50 g's

> The Late Zoom = 2X, apparent size 47 ft, with small center size:
> V_{m2} = 2701.75 ft/sec, $A_2(t)$ = 1722.64 ft/sec = 53.50 g's
> As can be seen in Table 2, row 7, the 9th and 11th column.

The Late For Zoom = 2X, and apparent size of 47 ft, for large corona size

k = 24, using Fig 5b above, s = 2, p2 = 3.0, z = 2, t_{m1} = 0.50sec:

From 14.0, $V_{m2} - V_{m1} = ([4*2*1.5] / 0.50)*93{,}000*(2.5453 \times 10^{-4}) =$

$24*(9.3 \times 10^{4})*(2.5453 \times 10^{-4}) = 568.11$ ft/sec and $V_{m1} = 1213.91$ so $V_{m2} = 1782.02$ ft/sec

From 15.0 we get $A_2(t) = (V_{m2} - V_{m1}) / (t_{m2} - t_{m1}) = 568.11 / 0.50$ ft/sec^2 = 1136.22 ft/sec^2 in units of g's = 1136.22/32.2 = 35.29 g's

The Late Zoom = 2X, Apparent Size 47 ft, with large corona size:

V_{m2} = 1782.02 ft/sec, $A_2(t)$ = 35.29 g's

As can be seen in Table 2, row 17, the 9th and 11th column.

Sub-appendix B

“Tic-Tac” Size d2 of Missile relative to Early Zoom and Distance

Zoom Factor z=1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d1 in miles	d2 in feet	(Vm) Angular Vel. ft/sec	T_m sec	(Am) Angular Accel g's
1X	36	0.7	0.0001696848	0.0001696848	21000	3.98	7.13	116.51	0.37	9.86
1X	36	0.7	0.0001696848	0.0001696848	29000	5.49	9.84	160.9	0.37	13.62
1X	36	0.7	0.0001696848	0.0001696848	37000	7.01	12.56	205.29	0.37	17.37
2X	36	0.7	0.0001696848	0.0001696848	21000	3.98	7.13	294.68	0.6	9.22
2X	36	0.7	0.0001696848	0.0001696848	29000	5.49	9.84	406.94	0.6	12.74
2X	36	0.7	0.0001696848	0.0001696848	37000	7.01	12.56	519.2	0.6	16.25
1X	24	0.7	0.0002545272	0.0002545272	13000	2.46	6.62	72.13	0.37	6.1
1X	24	0.7	0.0002545272	0.0002545272	21000	3.98	10.69	116.51	0.37	9.86
1X	24	0.7	0.0002545272	0.0002545272	29000	5.49	14.76	160.9	0.37	13.62
2X	24	0.7	0.0002545272	0.0002545272	13000	2.46	6.62	182.42	0.6	5.71
2X	24	0.7	0.0002545272	0.0002545272	21000	3.98	10.69	294.68	0.6	9.22
2X	24	0.7	0.0002545272	0.0002545272	29000	5.49	14.76	406.94	0.6	12.74

“Tic-Tac” Size d2 of Missile relative to Late Zoom and Distance

Zoom Factor z=1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d1 in miles	d2 in feet	(Vm) Angular Vel. ft/sec	T_m sec	(Am) Angular Accel g's
1X	36	0.7	0.0001696848	0.0001696848	21000	3.98	7.13	274.11	0.47	18.19
1X	36	0.7	0.0001696848	0.0001696848	29000	5.49	9.84	378.53	0.47	25.12
1X	36	0.7	0.0001696848	0.0001696848	37000	7.01	12.56	482.95	0.47	32.05
2X	36	0.7	0.0001696848	0.0001696848	21000	3.98	7.13	402.39	0.5	7.97
2X	36	0.7	0.0001696848	0.0001696848	29000	5.49	9.84	555.68	0.5	11
2X	36	0.7	0.0001696848	0.0001696848	37000	7.01	12.56	708.97	0.5	14.04
1X	24	0.7	0.0002545272	0.0002545272	13000	2.46	6.62	169.68	0.47	11.26
1X	24	0.7	0.0002545272	0.0002545272	21000	3.98	10.69	274.11	0.47	18.19
1X	24	0.7	0.0002545272	0.0002545272	29000	5.49	14.76	378.53	0.47	25.12
2X	24	0.7	0.0002545272	0.0002545272	13000	2.46	6.62	249.1	0.5	4.93
2X	24	0.7	0.0002545272	0.0002545272	21000	3.98	10.69	402.39	0.5	7.97
2X	24	0.7	0.0002545272	0.0002545272	29000	5.49	14.76	555.68	0.5	11

Sub-appendix C

Complete Calculations for the Early and Late Zoom Cases

Early Zoom Factor 1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d2 in feet	(Vm) Angular Velocity ft/sec	Angular Velocity mi/hr	tm sec	(Am) Angular Acceleration g's	Power Req ft-lb/sec	Power Ratio must be >1
1X	36	0.7	0.00016968	0.00016968	1,000	0.34	5.55	3.78	0.367	0.47	8.34E+04	929.01
1X	36	0.7	0.00016968	0.00016968	2,000	0.68	11.1	7.57	0.367	0.94	3.33E+05	232.25
1X	36	0.7	0.00016968	0.00016968	3,000	1.02	16.64	11.35	0.367	1.41	7.50E+05	103.22
1X	36	0.7	0.00016968	0.00016968	4,000	1.36	22.19	15.13	0.367	1.88	1.33E+06	58.06
1X	36	0.7	0.00016968	0.00016968	5,000	1.70	27.74	18.91	0.367	2.35	2.08E+06	37.16
1X	36	0.7	0.00016968	0.00016968	13,000	4.41	72.13	49.18	0.367	6.1	1.41E+07	5.5
1X	36	0.7	0.00016968	0.00016968	21,000	7.13	116.51	79.44	0.367	9.86	3.68E+07	2.11
1X	36	0.7	0.00016968	0.00016968	29,000	9.84	160.9	109.7	0.367	13.62	7.01E+07	1.1
1X	36	0.7	0.00016968	0.00016968	37,000	12.56	205.29	139.97	0.367	17.37	1.14E+08	0.68
1X	36	0.7	0.00016968	0.00016968	45,000	15.27	249.67	170.23	0.367	21.13	1.69E+08	0.46
1X	36	0.7	0.00016968	0.00016968	53,000	17.99	294.06	200.49	0.367	24.88	2.34E+08	0.33
1X	36	0.7	0.00016968	0.00016968	61,000	20.70	338.44	230.76	0.367	28.64	3.10E+08	0.25
1X	36	0.7	0.00016968	0.00016968	69,000	23.42	382.83	261.02	0.367	32.4	3.97E+08	0.2
1X	36	0.7	0.00016968	0.00016968	77,000	26.13	427.22	291.28	0.367	36.15	4.94E+08	0.16
1X	36	0.7	0.00016968	0.00016968	85,000	28.85	471.6	321.55	0.367	39.91	6.02E+08	0.13
1X	36	0.7	0.00016968	0.00016968	93,000	31.56	515.99	351.81	0.367	43.66	7.21E+08	0.11
1X	36	0.7	0.00016968	0.00016968	101,000	34.28	560.38	382.07	0.367	47.42	8.50E+08	0.09
1X	36	0.7	0.00016968	0.00016968	109,000	36.99	604.76	412.34	0.367	51.18	9.90E+08	0.08
1X	36	0.7	0.00016968	0.00016968	117,000	39.71	649.15	442.6	0.367	54.93	1.14E+09	0.07
1X	36	0.7	0.00016968	0.00016968	125,000	42.42	693.53	472.86	0.367	58.69	1.30E+09	0.06
1X	36	0.7	0.00016968	0.00016968	133,000	45.14	737.92	503.13	0.367	62.44	1.47E+09	0.05
1X	36	0.7	0.00016968	0.00016968	141,000	47.85	782.31	533.39	0.367	66.2	1.66E+09	0.05
1X	36	0.7	0.00016968	0.00016968	149,000	50.57	826.69	563.65	0.367	69.96	1.85E+09	0.04
1X	36	0.7	0.00016968	0.00016968	157,000	53.28	871.08	593.92	0.367	73.71	2.05E+09	0.04
1X	36	0.7	0.00016968	0.00016968	165,000	56.00	915.47	624.18	0.367	77.47	2.27E+09	0.03
1X	36	0.7	0.00016968	0.00016968	173,000	58.71	959.85	654.44	0.367	81.22	2.49E+09	0.03
1X	36	0.7	0.00016968	0.00016968	181,000	61.43	1004.24	684.71	0.367	84.98	2.73E+09	0.03
1X	36	0.7	0.00016968	0.00016968	189,000	64.14	1048.62	714.97	0.367	88.74	2.98E+09	0.03
1X	36	0.7	0.00016968	0.00016968	197,000	66.86	1093.01	745.23	0.367	92.49	3.24E+09	0.02
Early Zoom Factor 1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d2 in feet	(Vm) Angular Velocity ft/sec	Angular Velocity mi/hr	tm sec	(Am) Angular Acceleration g's	Power Req ft-lb/sec	Power Ratio must be >1
2X	36	0.7	0.00016968	0.00016968	1,000	0.34	14.03	9.57	0.600	0.44	1.97E+05	392.71
2X	36	0.7	0.00016968	0.00016968	2,000	0.68	28.07	19.14	0.600	0.88	7.89E+05	98.18
2X	36	0.7	0.00016968	0.00016968	3,000	1.02	42.1	28.7	0.600	1.32	1.77E+06	43.63
2X	36	0.7	0.00016968	0.00016968	4,000	1.36	56.13	38.27	0.600	1.76	3.16E+06	24.54
2X	36	0.7	0.00016968	0.00016968	5,000	1.7	70.16	47.84	0.600	2.2	4.93E+06	15.71
2X	36	0.7	0.00016968	0.00016968	13,000	4.41	182.42	124.38	0.600	5.71	3.33E+07	2.32
2X	36	0.7	0.00016968	0.00016968	21,000	7.13	294.68	200.92	0.600	9.22	8.70E+07	0.89

2X	36	0.7	0.00016968	0.00016968	29,000	9.84	406.94	277.46	0.600	12.74	1.66E+08	0.47
2X	36	0.7	0.00016968	0.00016968	37,000	12.56	519.2	354	0.600	16.25	2.70E+08	0.29
2X	36	0.7	0.00016968	0.00016968	45,000	15.27	631.46	430.54	0.600	19.76	3.99E+08	0.19
2X	36	0.7	0.00016968	0.00016968	53,000	17.99	743.72	507.08	0.600	23.27	5.54E+08	0.14
2X	36	0.7	0.00016968	0.00016968	61,000	20.7	855.98	583.63	0.600	26.79	7.34E+08	0.11
2X	36	0.7	0.00016968	0.00016968	69,000	23.42	968.24	660.17	0.600	30.3	9.39E+08	0.08
2X	36	0.7	0.00016968	0.00016968	77,000	26.13	1080.5	736.71	0.600	33.81	1.17E+09	0.07
2X	36	0.7	0.00016968	0.00016968	85,000	28.85	1192.76	813.25	0.600	37.33	1.42E+09	0.05
2X	36	0.7	0.00016968	0.00016968	93,000	31.56	1305.02	889.79	0.600	40.84	1.71E+09	0.05
2X	36	0.7	0.00016968	0.00016968	101,000	34.28	1417.28	966.33	0.600	44.35	2.01E+09	0.04
2X	36	0.7	0.00016968	0.00016968	109,000	36.99	1529.54	1042.87	0.600	47.87	2.34E+09	0.03
2X	36	0.7	0.00016968	0.00016968	117,000	39.71	1641.8	1119.41	0.600	51.38	2.70E+09	0.03
2X	36	0.7	0.00016968	0.00016968	125,000	42.42	1754.06	1195.95	0.600	54.89	3.08E+09	0.03
2X	36	0.7	0.00016968	0.00016968	133,000	45.14	1866.32	1272.49	0.600	58.41	3.49E+09	0.02
2X	36	0.7	0.00016968	0.00016968	141,000	47.85	1978.58	1349.04	0.600	61.92	3.92E+09	0.02
2X	36	0.7	0.00016968	0.00016968	149,000	50.57	2090.84	1425.58	0.600	65.43	4.38E+09	0.02
2X	36	0.7	0.00016968	0.00016968	157,000	53.28	2203.11	1502.12	0.600	68.95	4.86E+09	0.02
2X	36	0.7	0.00016968	0.00016968	165,000	56	2315.37	1578.66	0.600	72.46	5.37E+09	0.01
2X	36	0.7	0.00016968	0.00016968	173,000	58.71	2427.63	1655.2	0.600	75.97	5.90E+09	0.01
2X	36	0.7	0.00016968	0.00016968	181,000	61.43	2539.89	1731.74	0.600	79.48	6.46E+09	0.01
2X	36	0.7	0.00016968	0.00016968	189,000	64.14	2652.15	1808.28	0.600	83	7.04E+09	0.01
2X	36	0.7	0.00016968	0.00016968	197,000	66.86	2764.41	1884.82	0.600	86.51	7.65E+09	0.01
Early Zoom Factor 1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet0	d2 in feet	(Vm) Angular Velocity ft/sec	Angular Velocity mi/hr	tm sec	(Am) Angular Acceleration g's	Power Req ft-lb/sec	Power Ratio must be >1
1X	24	0.7	0.00025453	0.00025453	1,000	0.51	5.55	3.78	0.367	0.47	8.34E+04	929.01
1X	24	0.7	0.00025453	0.00025453	2,000	1.02	11.1	7.57	0.367	0.94	3.33E+05	232.25
1X	24	0.7	0.00025453	0.00025453	3,000	1.53	16.64	11.35	0.367	1.41	7.50E+05	103.22
1X	24	0.7	0.00025453	0.00025453	4,000	2.04	22.19	15.13	0.367	1.88	1.33E+06	58.06
1X	24	0.7	0.00025453	0.00025453	5,000	2.55	27.74	18.91	0.367	2.35	2.08E+06	37.16
1X	24	0.7	0.00025453	0.00025453	13,000	6.62	72.13	49.18	0.367	6.1	1.41E+07	5.5
1X	24	0.7	0.00025453	0.00025453	21,000	10.69	116.51	79.44	0.367	9.86	3.68E+07	2.11
1X	24	0.7	0.00025453	0.00025453	29,000	14.76	160.9	109.7	0.367	13.62	7.01E+07	1.1
1X	24	0.7	0.00025453	0.00025453	37,000	18.84	205.29	139.97	0.367	17.37	1.14E+08	0.68
1X	24	0.7	0.00025453	0.00025453	45,000	22.91	249.67	170.23	0.367	21.13	1.69E+08	0.46
1X	24	0.7	0.00025453	0.00025453	53,000	26.98	294.06	200.49	0.367	24.88	2.34E+08	0.33
1X	24	0.7	0.00025453	0.00025453	61,000	31.05	338.44	230.76	0.367	28.64	3.10E+08	0.25
1X	24	0.7	0.00025453	0.00025453	69,000	35.12	382.83	261.02	0.367	32.4	3.97E+08	0.2
1X	24	0.7	0.00025453	0.00025453	77,000	39.20	427.22	291.28	0.367	36.15	4.94E+08	0.16
1X	24	0.7	0.00025453	0.00025453	85,000	43.27	471.6	321.55	0.367	39.91	6.02E+08	0.13
1X	24	0.7	0.00025453	0.00025453	93,000	47.34	515.99	351.81	0.367	43.66	7.21E+08	0.11
1X	24	0.7	0.00025453	0.00025453	101,000	51.41	560.38	382.07	0.367	47.42	8.50E+08	0.09
1X	24	0.7	0.00025453	0.00025453	109,000	55.49	604.76	412.34	0.367	51.18	9.90E+08	0.08
1X	24	0.7	0.00025453	0.00025453	117,000	59.56	649.15	442.6	0.367	54.93	1.14E+09	0.07
1X	24	0.7	0.00025453	0.00025453	125,000	63.63	693.53	472.86	0.367	58.69	1.30E+09	0.06
1X	24	0.7	0.00025453	0.00025453	133,000	67.70	737.92	503.13	0.367	62.44	1.47E+09	0.05
1X	24	0.7	0.00025453	0.00025453	141,000	71.78	782.31	533.39	0.367	66.2	1.66E+09	0.05
1X	24	0.7	0.00025453	0.00025453	149,000	75.85	826.69	563.65	0.367	69.96	1.85E+09	0.04

1X	24	0.7	0.00025453	0.00025453	157,000	79.92	871.08	593.92	0.367	73.71	2.05E+09	0.04
1X	24	0.7	0.00025453	0.00025453	165,000	83.99	915.47	624.18	0.367	77.47	2.27E+09	0.03
1X	24	0.7	0.00025453	0.00025453	173,000	88.07	959.85	654.44	0.367	81.22	2.49E+09	0.03
1X	24	0.7	0.00025453	0.00025453	181,000	92.14	1004.24	684.71	0.367	84.98	2.73E+09	0.03
1X	24	0.7	0.00025453	0.00025453	189,000	96.21	1048.62	714.97	0.367	88.74	2.98E+09	0.03
1X	24	0.7	0.00025453	0.00025453	197,000	100.28	1093.01	745.23	0.367	92.49	3.24E+09	0.02
1X	24	0.7	0.00025453	0.00025453	205,000	104.36	1137.4	775.5	0.367	96.25	3.50E+09	0.02
Early Zoom Factor 1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d2 in feet	(Vm) Angular Velocity ft/sec	Angular Velocity mi/hr	tm sec	(Am) Angular Acceleration g's	Power Req ft-lb/sec	Power Ratio must be >1
2X	24	0.7	0.00025453	0.00025453	1000	0.51	14.03	9.57	0.600	0.44	1.97E+05	392.71
2X	24	0.7	0.00025453	0.00025453	2000	1.02	28.07	19.14	0.600	0.88	7.89E+05	98.18
2X	24	0.7	0.00025453	0.00025453	3000	1.53	42.1	28.7	0.600	1.32	1.77E+06	43.63
2X	24	0.7	0.00025453	0.00025453	4000	2.04	56.13	38.27	0.600	1.76	3.16E+06	24.54
2X	24	0.7	0.00025453	0.00025453	5000	2.55	70.16	47.84	0.600	2.2	4.93E+06	15.71
2X	24	0.7	0.00025453	0.00025453	13000	6.62	182.42	124.38	0.600	5.71	3.33E+07	2.32
2X	24	0.7	0.00025453	0.00025453	21000	10.69	294.68	200.92	0.600	9.22	8.70E+07	0.89
2X	24	0.7	0.00025453	0.00025453	29000	14.76	406.94	277.46	0.600	12.74	1.66E+08	0.47
2X	24	0.7	0.00025453	0.00025453	37000	18.84	519.2	354	0.600	16.25	2.70E+08	0.29
2X	24	0.7	0.00025453	0.00025453	45000	22.91	631.46	430.54	0.600	19.76	3.99E+08	0.19
2X	24	0.7	0.00025453	0.00025453	53000	26.98	743.72	507.08	0.600	23.27	5.54E+08	0.14
2X	24	0.7	0.00025453	0.00025453	61000	31.05	855.98	583.63	0.600	26.79	7.34E+08	0.11
2X	24	0.7	0.00025453	0.00025453	69000	35.12	968.24	660.17	0.600	30.3	9.39E+08	0.08
2X	24	0.7	0.00025453	0.00025453	77000	39.2	1080.5	736.71	0.600	33.81	1.17E+09	0.07
2X	24	0.7	0.00025453	0.00025453	85000	43.27	1192.76	813.25	0.600	37.33	1.42E+09	0.05
2X	24	0.7	0.00025453	0.00025453	93000	47.34	1305.02	889.79	0.600	40.84	1.71E+09	0.05
2X	24	0.7	0.00025453	0.00025453	101000	51.41	1417.28	966.33	0.600	44.35	2.01E+09	0.04
2X	24	0.7	0.00025453	0.00025453	109000	55.49	1529.54	1042.87	0.600	47.87	2.34E+09	0.03
2X	24	0.7	0.00025453	0.00025453	117000	59.56	1641.8	1119.41	0.600	51.38	2.70E+09	0.03
2X	24	0.7	0.00025453	0.00025453	125000	63.63	1754.06	1195.95	0.600	54.89	3.08E+09	0.03
2X	24	0.7	0.00025453	0.00025453	133000	67.7	1866.32	1272.49	0.600	58.41	3.49E+09	0.02
2X	24	0.7	0.00025453	0.00025453	141000	71.78	1978.58	1349.04	0.600	61.92	3.92E+09	0.02
2X	24	0.7	0.00025453	0.00025453	149000	75.85	2090.84	1425.58	0.600	65.43	4.38E+09	0.02
2X	24	0.7	0.00025453	0.00025453	157000	79.92	2203.11	1502.12	0.600	68.95	4.86E+09	0.02
2X	24	0.7	0.00025453	0.00025453	165000	83.99	2315.37	1578.66	0.600	72.46	5.37E+09	0.01
2X	24	0.7	0.00025453	0.00025453	173000	88.07	2427.63	1655.2	0.600	75.97	5.90E+09	0.01
2X	24	0.7	0.00025453	0.00025453	181000	92.14	2539.89	1731.74	0.600	79.48	6.46E+09	0.01
2X	24	0.7	0.00025453	0.00025453	189000	96.21	2652.15	1808.28	0.600	83	7.04E+09	0.01
2X	24	0.7	0.00025453	0.00025453	197000	100.28	2764.41	1884.82	0.600	86.51	7.65E+09	0.01
2X	24	0.7	0.00025453	0.00025453	205000	104.36	2876.67	1961.36	0.600	90.02	8.29E+09	0.01
Late Zoom Factor 1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d2 in feet	(Vm) Angular Velocity ft/sec	Angular Velocity mi/hr	tm sec	(Am) Angular Acceleration g's	Power Req ft-lb/sec	Power Ratio must be >1
1X	36	0.7	0.00016968	0.00016968	1000	0.34	13.05	8.9	0.47	0.87	3.62E+05	214.05
1X	36	0.7	0.00016968	0.00016968	2000	0.68	26.11	17.8	0.47	1.73	1.45E+06	53.51
1X	36	0.7	0.00016968	0.00016968	3000	1.02	39.16	26.7	0.47	2.6	3.26E+06	23.78
1X	36	0.7	0.00016968	0.00016968	4000	1.36	52.21	35.6	0.47	3.46	5.79E+06	13.38
1X	36	0.7	0.00016968	0.00016968	5000	1.7	65.26	44.5	0.47	4.33	9.04E+06	8.56

1X	36	0.7	0.00016968	0.00016968	13000	4.41	169.68	115.69	0.47	11.26	6.11E+07	1.27
1X	36	0.7	0.00016968	0.00016968	21000	7.13	274.11	186.89	0.47	18.19	1.60E+08	0.49
1X	36	0.7	0.00016968	0.00016968	29000	9.84	378.53	258.09	0.47	25.12	3.04E+08	0.25
1X	36	0.7	0.00016968	0.00016968	37000	12.56	482.95	329.28	0.47	32.05	4.95E+08	0.16
1X	36	0.7	0.00016968	0.00016968	45000	15.27	587.37	400.48	0.47	38.98	7.33E+08	0.11
1X	36	0.7	0.00016968	0.00016968	53000	17.99	691.79	471.68	0.47	45.91	1.02E+09	0.08
1X	36	0.7	0.00016968	0.00016968	61000	20.7	796.21	542.87	0.47	52.84	1.35E+09	0.06
1X	36	0.7	0.00016968	0.00016968	69000	23.42	900.63	614.07	0.47	59.77	1.72E+09	0.04
1X	36	0.7	0.00016968	0.00016968	77000	26.13	1005.06	685.27	0.47	66.69	2.15E+09	0.04
1X	36	0.7	0.00016968	0.00016968	85000	28.85	1109.48	756.46	0.47	73.62	2.61E+09	0.03
1X	36	0.7	0.00016968	0.00016968	93000	31.56	1213.9	827.66	0.47	80.55	3.13E+09	0.02
1X	36	0.7	0.00016968	0.00016968	101000	34.28	1318.32	898.85	0.47	87.48	3.69E+09	0.02
1X	36	0.7	0.00016968	0.00016968	109000	36.99	1422.74	970.05	0.47	94.41	4.30E+09	0.02
1X	36	0.7	0.00016968	0.00016968	117000	39.71	1527.16	1041.25	0.47	101.34	4.95E+09	0.02
1X	36	0.7	0.00016968	0.00016968	125000	42.42	1631.58	1112.44	0.47	108.27	5.65E+09	0.01
1X	36	0.7	0.00016968	0.00016968	133000	45.14	1736.01	1183.64	0.47	115.2	6.40E+09	0.01
1X	36	0.7	0.00016968	0.00016968	141000	47.85	1840.43	1254.84	0.47	122.13	7.19E+09	0.01
1X	36	0.7	0.00016968	0.00016968	149000	50.57	1944.85	1326.03	0.47	129.06	8.03E+09	0.01
1X	36	0.7	0.00016968	0.00016968	157000	53.28	2049.27	1397.23	0.47	135.99	8.92E+09	0.01
1X	36	0.7	0.00016968	0.00016968	165000	56	2153.69	1468.43	0.47	142.92	9.85E+09	0.01
1X	36	0.7	0.00016968	0.00016968	173000	58.71	2258.11	1539.62	0.47	149.85	1.08E+10	0.01
1X	36	0.7	0.00016968	0.00016968	181000	61.43	2362.53	1610.82	0.47	156.77	1.19E+10	0.01
1X	36	0.7	0.00016968	0.00016968	189000	64.14	2466.96	1682.02	0.47	163.7	1.29E+10	0.01
1X	36	0.7	0.00016968	0.00016968	197000	66.86	2571.38	1753.21	0.47	170.63	1.40E+10	0.01

Late Zoom Factor 1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d2 in feet	(Vm) Angular Velocity ft/sec	Angular Velocity mi/hr	tm sec	(Am) Angular Acceleration g's	Power Req ft-lb/sec	Power Ratio must be >1
2X	36	0.7	0.00016968	0.00016968	1000	0.34	19.16	13.06	0.5	0.38	2.33E+05	332.87
2X	36	0.7	0.00016968	0.00016968	2000	0.68	38.32	26.13	0.5	0.76	9.31E+05	83.22
2X	36	0.7	0.00016968	0.00016968	3000	1.02	57.48	39.19	0.5	1.14	2.09E+06	36.99
2X	36	0.7	0.00016968	0.00016968	4000	1.36	76.65	52.26	0.5	1.52	3.72E+06	20.8
2X	36	0.7	0.00016968	0.00016968	5000	1.7	95.81	65.32	0.5	1.9	5.82E+06	13.31
2X	36	0.7	0.00016968	0.00016968	13000	4.41	249.1	169.84	0.5	4.93	3.93E+07	1.97
2X	36	0.7	0.00016968	0.00016968	21000	7.13	402.39	274.36	0.5	7.97	1.03E+08	0.75
2X	36	0.7	0.00016968	0.00016968	29000	9.84	555.68	378.87	0.5	11	1.96E+08	0.4
2X	36	0.7	0.00016968	0.00016968	37000	12.56	708.97	483.39	0.5	14.04	3.18E+08	0.24
2X	36	0.7	0.00016968	0.00016968	45000	15.27	862.26	587.9	0.5	17.07	4.71E+08	0.16
2X	36	0.7	0.00016968	0.00016968	53000	17.99	1015.55	692.42	0.5	20.11	6.54E+08	0.12
2X	36	0.7	0.00016968	0.00016968	61000	20.7	1168.84	796.94	0.5	23.14	8.66E+08	0.09
2X	36	0.7	0.00016968	0.00016968	69000	23.42	1322.13	901.45	0.5	26.18	1.11E+09	0.07
2X	36	0.7	0.00016968	0.00016968	77000	26.13	1475.42	1005.97	0.5	29.22	1.38E+09	0.06
2X	36	0.7	0.00016968	0.00016968	85000	28.85	1628.71	1110.49	0.5	32.25	1.68E+09	0.05
2X	36	0.7	0.00016968	0.00016968	93000	31.56	1782	1215	0.5	35.29	2.01E+09	0.04
2X	36	0.7	0.00016968	0.00016968	101000	34.28	1935.29	1319.52	0.5	38.32	2.37E+09	0.03
2X	36	0.7	0.00016968	0.00016968	109000	36.99	2088.58	1424.04	0.5	41.36	2.76E+09	0.03
2X	36	0.7	0.00016968	0.00016968	117000	39.71	2241.88	1528.55	0.5	44.39	3.18E+09	0.02
2X	36	0.7	0.00016968	0.00016968	125000	42.42	2395.17	1633.07	0.5	47.43	3.64E+09	0.02
2X	36	0.7	0.00016968	0.00016968	133000	45.14	2548.46	1737.58	0.5	50.46	4.12E+09	0.02

2X	36	0.7	0.00016968	0.00016968	141000	47.85	2701.75	1842.1	0.5	53.5	4.63E+09	0.02
2X	36	0.7	0.00016968	0.00016968	149000	50.57	2855.04	1946.62	0.5	56.53	5.16E+09	0.01
2X	36	0.7	0.00016968	0.00016968	157000	53.28	3008.33	2051.13	0.5	59.57	5.73E+09	0.01
2X	36	0.7	0.00016968	0.00016968	165000	56	3161.62	2155.65	0.5	62.6	6.33E+09	0.01
2X	36	0.7	0.00016968	0.00016968	173000	58.71	3314.91	2260.17	0.5	65.64	6.96E+09	0.01
2X	36	0.7	0.00016968	0.00016968	181000	61.43	3468.2	2364.68	0.5	68.67	7.62E+09	0.01
2X	36	0.7	0.00016968	0.00016968	189000	64.14	3621.49	2469.2	0.5	71.71	8.31E+09	0.01
2X	36	0.7	0.00016968	0.00016968	197000	66.86	3774.78	2573.71	0.5	74.75	9.03E+09	0.01
Late Zoom Factor 1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d2 in feet	(Vm) Angular Velocity ft/sec	Angular Velocity mi/hr	tm sec	(Am) Angular Acceleration g's	Power Req ft-lb/sec	Power Ratio must be >1
1X	24	0.7	0.00025453	0.00025453	1000	0.51	13.05	8.9	0.47	0.87	3.62E+05	214.05
1X	24	0.7	0.00025453	0.00025453	2000	1.02	26.11	17.8	0.47	1.73	1.45E+06	53.51
1X	24	0.7	0.00025453	0.00025453	3000	1.53	39.16	26.7	0.47	2.6	3.26E+06	23.78
1X	24	0.7	0.00025453	0.00025453	4000	2.04	52.21	35.6	0.47	3.46	5.79E+06	13.38
1X	24	0.7	0.00025453	0.00025453	5000	2.55	65.26	44.5	0.47	4.33	9.04E+06	8.56
1X	24	0.7	0.00025453	0.00025453	13000	6.62	169.68	115.69	0.47	11.26	6.11E+07	1.27
1X	24	0.7	0.00025453	0.00025453	21000	10.69	274.11	186.89	0.47	18.19	1.60E+08	0.49
1X	24	0.7	0.00025453	0.00025453	29000	14.76	378.53	258.09	0.47	25.12	3.04E+08	0.25
1X	24	0.7	0.00025453	0.00025453	37000	18.84	482.95	329.28	0.47	32.05	4.95E+08	0.16
1X	24	0.7	0.00025453	0.00025453	45000	22.91	587.37	400.48	0.47	38.98	7.33E+08	0.11
1X	24	0.7	0.00025453	0.00025453	53000	26.98	691.79	471.68	0.47	45.91	1.02E+09	0.08
1X	24	0.7	0.00025453	0.00025453	61000	31.05	796.21	542.87	0.47	52.84	1.35E+09	0.06
1X	24	0.7	0.00025453	0.00025453	69000	35.12	900.63	614.07	0.47	59.77	1.72E+09	0.04
1X	24	0.7	0.00025453	0.00025453	77000	39.2	1005.06	685.27	0.47	66.69	2.15E+09	0.04
1X	24	0.7	0.00025453	0.00025453	85000	43.27	1109.48	756.46	0.47	73.62	2.61E+09	0.03
1X	24	0.7	0.00025453	0.00025453	93000	47.34	1213.9	827.66	0.47	80.55	3.13E+09	0.02
1X	24	0.7	0.00025453	0.00025453	101000	51.41	1318.32	898.85	0.47	87.48	3.69E+09	0.02
1X	24	0.7	0.00025453	0.00025453	109000	55.49	1422.74	970.05	0.47	94.41	4.30E+09	0.02
1X	24	0.7	0.00025453	0.00025453	117000	59.56	1527.16	1041.25	0.47	101.34	4.95E+09	0.02
1X	24	0.7	0.00025453	0.00025453	125000	63.63	1631.58	1112.44	0.47	108.27	5.65E+09	0.01
1X	24	0.7	0.00025453	0.00025453	133000	67.7	1736.01	1183.64	0.47	115.2	6.40E+09	0.01
1X	24	0.7	0.00025453	0.00025453	141000	71.78	1840.43	1254.84	0.47	122.13	7.19E+09	0.01
1X	24	0.7	0.00025453	0.00025453	149000	75.85	1944.85	1326.03	0.47	129.06	8.03E+09	0.01
1X	24	0.7	0.00025453	0.00025453	157000	79.92	2049.27	1397.23	0.47	135.99	8.92E+09	0.01
1X	24	0.7	0.00025453	0.00025453	165000	83.99	2153.69	1468.43	0.47	142.92	9.85E+09	0.01
1X	24	0.7	0.00025453	0.00025453	173000	88.07	2258.11	1539.62	0.47	149.85	1.08E+10	0.01
1X	24	0.7	0.00025453	0.00025453	181000	92.14	2362.53	1610.82	0.47	156.77	1.19E+10	0.01
1X	24	0.7	0.00025453	0.00025453	189000	96.21	2466.96	1682.02	0.47	163.7	1.29E+10	0.01
1X	24	0.7	0.00025453	0.00025453	197000	100.28	2571.38	1753.21	0.47	170.63	1.40E+10	0.01
1X	24	0.7	0.00025453	0.00025453	205000	104.36	2675.8	1824.41	0.47	177.56	1.52E+10	0.01
1X	24	0.7	0.00025453	0.00025453	1000	0.51	13.05	8.9	0.47	0.87	3.62E+05	214.05
Late Zoom Factor 1X or 2X	k	b deg	a = b/2k radians	Tan(b/2k)	d1 in feet	d2 in feet	(Vm) Angular Velocity ft/sec	Angular Velocity mi/hr	tm sec	(Am) Angular Acceleration g's	Power Req ft-lb/sec	Power Ratio must be >1
2X	24	0.7	0.00025453	0.00025453	1000	0.51	19.16	13.06	0.5	0.38	2.33E+05	332.87
2X	24	0.7	0.00025453	0.00025453	2000	1.02	38.32	26.13	0.5	0.76	9.31E+05	83.22
2X	24	0.7	0.00025453	0.00025453	3000	1.53	57.48	39.19	0.5	1.14	2.09E+06	36.99

2X	24	0.7	0.00025453	0.00025453	4000	2.04	76.65	52.26	0.5	1.52	3.72E+06	20.8
2X	24	0.7	0.00025453	0.00025453	5000	2.55	95.81	65.32	0.5	1.9	5.82E+06	13.31
2X	24	0.7	0.00025453	0.00025453	13000	6.62	249.1	169.84	0.5	4.93	3.93E+07	1.97
2X	24	0.7	0.00025453	0.00025453	21000	10.69	402.39	274.36	0.5	7.97	1.03E+08	0.75
2X	24	0.7	0.00025453	0.00025453	29000	14.76	555.68	378.87	0.5	11	1.96E+08	0.4
2X	24	0.7	0.00025453	0.00025453	37000	18.84	708.97	483.39	0.5	14.04	3.18E+08	0.24
2X	24	0.7	0.00025453	0.00025453	45000	22.91	862.26	587.9	0.5	17.07	4.71E+08	0.16
2X	24	0.7	0.00025453	0.00025453	53000	26.98	1015.55	692.42	0.5	20.11	6.54E+08	0.12
2X	24	0.7	0.00025453	0.00025453	61000	31.05	1168.84	796.94	0.5	23.14	8.66E+08	0.09
2X	24	0.7	0.00025453	0.00025453	69000	35.12	1322.13	901.45	0.5	26.18	1.11E+09	0.07
2X	24	0.7	0.00025453	0.00025453	77000	39.2	1475.42	1005.97	0.5	29.22	1.38E+09	0.06
2X	24	0.7	0.00025453	0.00025453	85000	43.27	1628.71	1110.49	0.5	32.25	1.68E+09	0.05
2X	24	0.7	0.00025453	0.00025453	93000	47.34	1782	1215	0.5	35.29	2.01E+09	0.04
2X	24	0.7	0.00025453	0.00025453	101000	51.41	1935.29	1319.52	0.5	38.32	2.37E+09	0.03
2X	24	0.7	0.00025453	0.00025453	109000	55.49	2088.58	1424.04	0.5	41.36	2.76E+09	0.03
2X	24	0.7	0.00025453	0.00025453	117000	59.56	2241.88	1528.55	0.5	44.39	3.18E+09	0.02
2X	24	0.7	0.00025453	0.00025453	125000	63.63	2395.17	1633.07	0.5	47.43	3.64E+09	0.02
2X	24	0.7	0.00025453	0.00025453	133000	67.7	2548.46	1737.58	0.5	50.46	4.12E+09	0.02
2X	24	0.7	0.00025453	0.00025453	141000	71.78	2701.75	1842.1	0.5	53.5	4.63E+09	0.02
2X	24	0.7	0.00025453	0.00025453	149000	75.85	2855.04	1946.62	0.5	56.53	5.16E+09	0.01
2X	24	0.7	0.00025453	0.00025453	157000	79.92	3008.33	2051.13	0.5	59.57	5.73E+09	0.01
2X	24	0.7	0.00025453	0.00025453	165000	83.99	3161.62	2155.65	0.5	62.6	6.33E+09	0.01
2X	24	0.7	0.00025453	0.00025453	173000	88.07	3314.91	2260.17	0.5	65.64	6.96E+09	0.01
2X	24	0.7	0.00025453	0.00025453	181000	92.14	3468.2	2364.68	0.5	68.67	7.62E+09	0.01
2X	24	0.7	0.00025453	0.00025453	189000	96.21	3621.49	2469.2	0.5	71.71	8.31E+09	0.01
2X	24	0.7	0.00025453	0.00025453	197000	100.28	3774.78	2573.71	0.5	74.75	9.03E+09	0.01

Sub-appendix D

Defintion of Early and Late Zoom Timing with video frame references

Zoom Phase	Frame Number	Time From Beginning of Video Min:Sec	Time From Beginning of Video (Sec)	Time In Zoom Phase (Sec)
Early Zoom 1X	2221	01:14.11	74.11	0.000
	2232	01:14.47	74.47	0.367
Early Zoom 2X	2233	01:14.51	74.51	0.000
	2251	01:15.11	75.11	0.600
Late Zoom 1X	2221	01:14.11	74.11	0.000
	2235	01:14.58	74.58	0.468
Late Zoom 2X	2236	01:14.61	74.61	0.000
	2251	01:15.11	75.11	0.500

APPENDIX K

A VIDEO ANALYSIS

Author: Larry Cates

Abstract

The analysis of F4.mpg was based on the results generated by a Python program that extracted data from each of the 2,228 frames of this video. These frame by frame measurements are available from SCU on request.

This appendix argues that there was one extreme displacement event of the video, if interpreted as an acceleration, that was both phenomenal and logically inescapable given only these two conditionals:

1. If the video was not a fabrication
2. If the accelerations were intrinsic to the target.

It was important to look closely at this one displacement event because, unless 1 and 2 are proven beyond all doubt, these measured accelerations could only be the product of technology in advance of human technology – a possibility that should not be dismissed. It is not proven that the displacements of the target as seen in the video were indeed accelerations of the target. Until more evidence appears, objective reasoning must acknowledge that any other possible reasons were equally far from proven. When *acceleration* is referenced in this appendix, the above conditionals will be assumed true.

Section 1 will examine the acceleration estimates. The accelerations were approximately between 2,200 g's and 4,500 g's given for target size of 30 feet to 60 feet as estimated by the F/A-18 pilots.

Section 2 details the Zoom 1 to Zoom 2 transition issues involving the acceleration path over Frames 2155-2157 that complicate acceleration estimates over these frames.

Specifically, the issues were

1. The accelerations were attributable to artifacts created by the zoom change.
2. Zoom changes over this event distorted the angular measurements needed to determine acceleration estimates.

A close investigation revealed this event was analytically accessible. Evidence will be given that counters the notion the assumed accelerations were zoom change artifacts and methodologies given that will address angular measurements over the zoom changes.

Section 3 examines the equation and includes descriptions of all associated variables used to plot the acceleration estimates.

Section 4 details the equation variables and some computer derived data that will provide background for the definition of the variables using that data.

Section 5 provides the steps required to derive the final equation used to estimate the accelerations.

Section 1

Acceleration Estimates for the Event of Frames 2155 to 2157

The "Rifle Shot Acceleration"

This event has been given the nickname Rifle Shot Acceleration because one F/A-18 pilot described the acceleration of an object leaving his area as exactly that, a rifle shot. Although a different incident, such a description seems to parallel the event seen in this video.

Figure 1 illustrates a basic relationship between the target size and the accelerations for a given distance. While distance needs to be acknowledged as a factor, it does not need to be explicit. This plot is based on an equation discussed in Section 3.

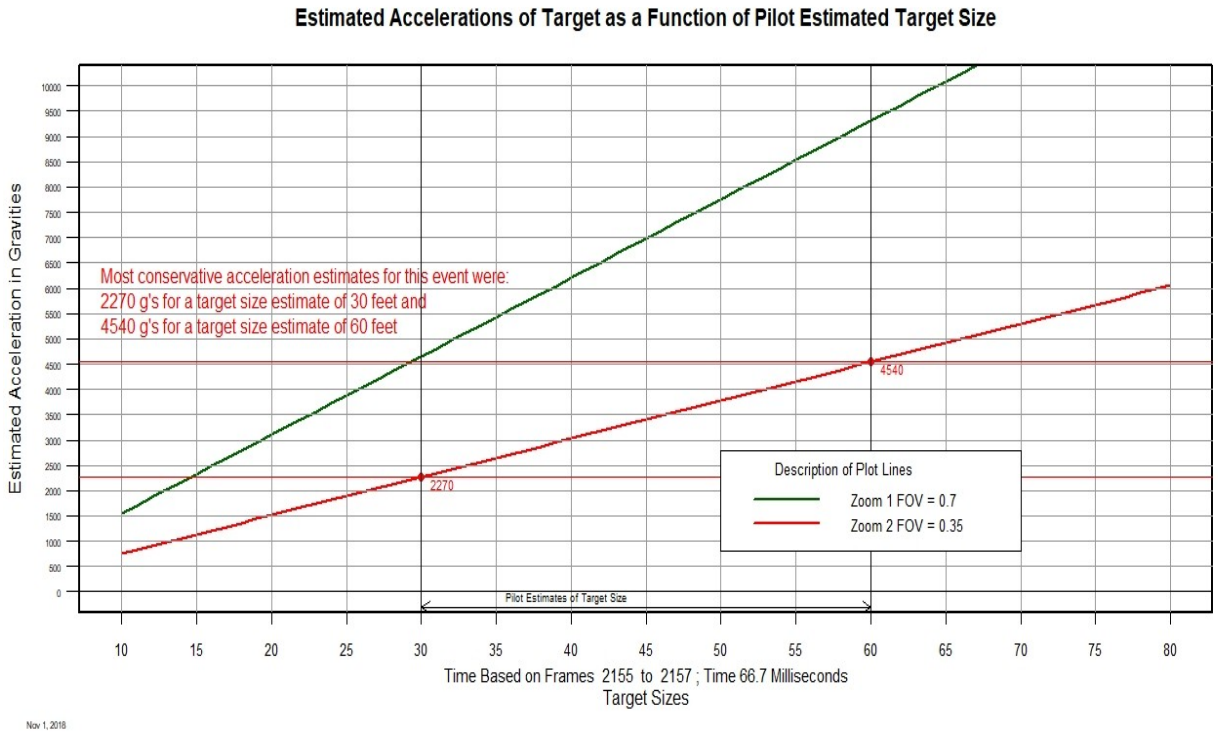


Figure 1

The red line is based only on Zoom 2 pixel measurements. The green line, the one with the steeper incline, is based only Zoom1 pixel measures. Since the event itself actually straddled both Zoom 1 and Zoom 2, the closest estimates are somewhere between these two lines. For reasons noted in Section 2, the line of closest estimates are probably right on or slightly above the red line. Conservatively, the acceleration estimates were between 2,270 and 4,540 g-forces. Figure 2 illustrates why these estimates should be so high and depicts more detail of the event.

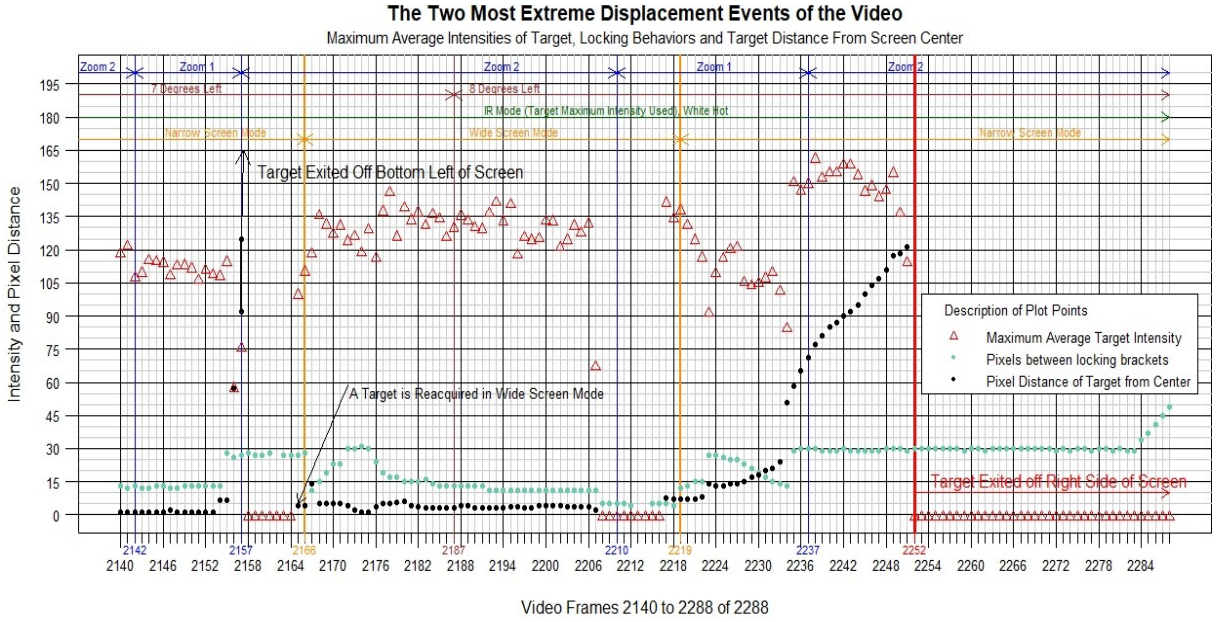


Figure 2

The initial position of the target near the center of the ASQ-228 display is indicated by the black point near the bottom of the graph. How the locations of the black points are derived from the video data are detailed in Section 4. The black point, the target, has an X, Y screen coordinate of 5, 2155. This means that in Frame 2155, the target was 5 pixels from the center of the video display.

Looking further up for the same frame number at Y = 107 you will see a red triangle. The red triangle, as seen in the Legend, is a maximum average intensity for the target. How the maximum average intensity is derived for the target is covered in Section 4.

The red triangle point indicates the given Y axis value for this point should be interpreted as a pixel intensity level rather than a pixel distance.

The Y axis of Figure 2 depicts both measures; in general for Figure 2, solid *points* indicate Y axis values are pixel distances and the red *triangle* points similarly indicate maximum average intensities.

The red triangle points at Y=-1 at the bottom of the Figure 2, along with the absence of black points, indicate no target was detected. The reasons no target was detected will be discussed.

Section 2 will argue the possibility that the maximum average intensity drop to 58, in Frame 2156, was due, not only to a change in zoom level, but also to the extreme speed of the target.

A displacement of 58 pixels in 33.4 milliseconds, a single frame, is an extreme angular change from, essentially, a dead standstill from the point of view of the video display.

The extreme displacement continued over Frame 2157 and, it appears created a smear analogous to the blur created by a camera set at a slow shutter speed while capturing a fast moving object in a snapshot.

Two separate displacement points connected with a solid line, in Figure 2, represented that smear; the target was detected over two locations at the instant of Frame 2157. Section 2 will provide evidence that this smear was not an artifact due to the zoom change. The acceleration seen for each of video frames 2155 through 2157, are shown in Figure 3.

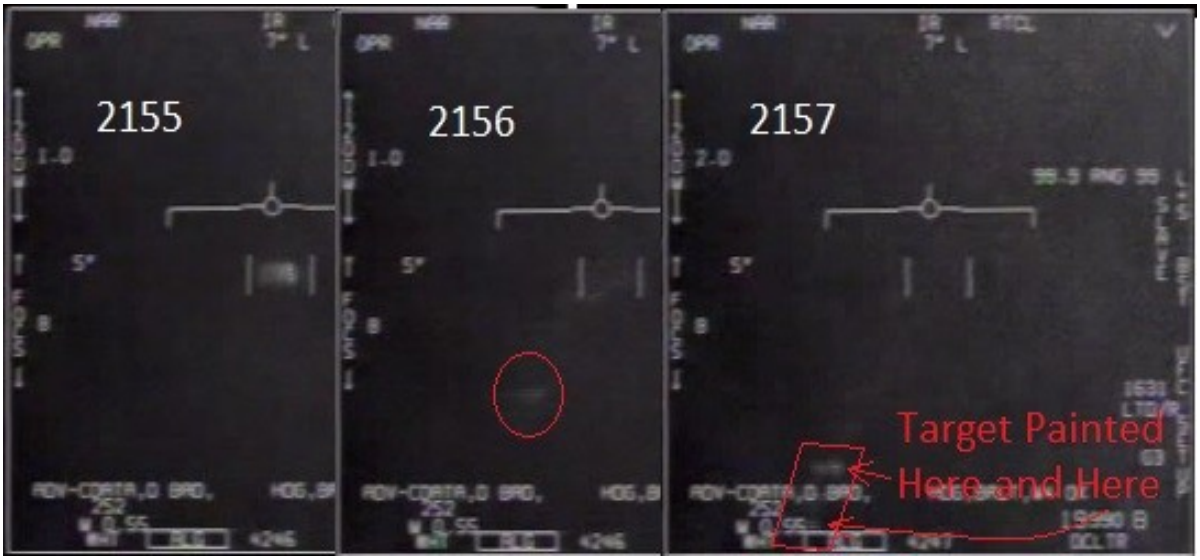


Figure 3

The target exited the video display screen completely after Frame 2157.

After the target was gone, apparently there was a gain, an amplification, of intensity as evidenced by the increased background snow. This gain appears to be due to the ASQ-228 coping with the absence of a bright IR target where background snow is seen in Frames 2158-2160.

The red triangles at the bottom, Y = -1, for Frames 2158-2164 indicated there was no target detected. Additionally, there is no locking bracket point (cyan) in Frame 2162. This is the frame where the video display went completely white, washing out nearly all the telemetry to include the locking brackets.

Apparently Frames 2161-2164, with interference and no target detected, were all associated with video display screen resets apparently in preparation for the Narrow to Wide Screen View telemetry change. This is a point Raytheon engineers could clarify; it would help vindicate the integrity of the video as well ensure that the proper interpretation of these events has been made.

It appears the WSO set the telemetry to Wide Screen View in an attempt to reacquire the target after it had leaped off the video display.

There was a target reacquired starting with Frame 2165. It seems probable that this was the same target that left the video display originally.

Section 2

Impact of Transition from Zoom 1 to Zoom 2

on Acceleration Measures

The path of the target seen on the video display over this event began under zoom 1 and ended under zoom 2.

Interestingly enough, the target motions began precisely when the WSO changed the zoom levels which created complications for any attempts to measure the target displacements captured by the ASQ-228 for this event.

The complications go a little deeper than measurements of acceleration derived from pixels. Were the observed target motions attributable to artifacts of the zoom change?

The artifact and the measurement issues will be each addressed under ***Algorithmic Steps of Zoom Changes*** and ***A Methodology to Bracket Acceleration Estimates***.

Algorithmic Steps of Zoom Changes

Comparisons made via Figure 6 will provide evidence that zoom processing has been finalized before the instant the video display telemetry is updated to reflect the new zoom number. Updates to the target intensities and locking brackets are completed prior to the frame, i.e. the *finalized frame*, with this telemetry update.

Evidence will be given that asserts frames at or beyond the finalized frame are stable enough for pixel measurements and beyond the effects of any zoom change**.**

With some close study, the steps in processing a zoom transition can be seen in the frame sequences of Figure 6. These sequences are shown side by side to enable direct comparisons of events/steps throughout each set of zoom transitions.

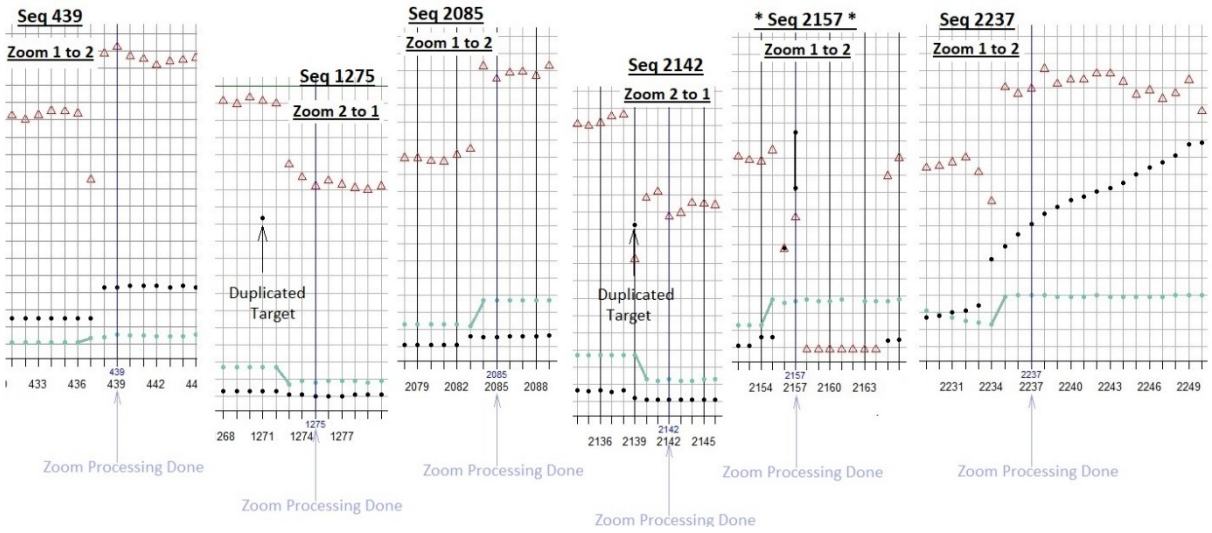


Figure 6

- There are 6 frame sequences with each sequence encapsulating effects of zoom change primarily on target intensities and the pixel distances between locking brackets.
- Each frame sequence is labeled ***Seq xxx*** where xxx is the frame number in which the video display zoom telemetry number is actually updated with the new zoom number; 1 to 2 or 2 to 1.

Because zoom processing has been completed by the finalized frame, it is likely the programmers of the ASQ-228 used this video display telemetry update to signal that zoom processing was completed. In Figure 6, the finalized frame is indicated in blue in several ways.

- The cyan points are the pixel distance between locking brackets. This distance is changed to accommodate the change in magnification and consequently indicates the change in the degrees of angular measure represented by each pixel.

  In each of the 6 sequences there is one cyan line connecting a pair of these points emphasizing the frame locations of pixel distance transition. Notice that the slope of the line is up or down appropriate to the magnification change; zoom 1 to 2, increased magnification and increased distance between locking brackets; zoom 2 to 1, decreased magnification and decreased distance between locking brackets.

In **Seq 2085**, the change in locking brackets was completed one frame (33.4 milliseconds) before the telemetry update and two frames (66.7 milliseconds) before in other 5 sequences.

- The target intensities were also modified during zoom changes with the updated results given in the same frame, for all but one sequence, as updated pixel distance for the locking brackets.

The most problematic aspect of the *rifle shot* acceleration is the scarcity of frames to analyze with most of those contaminated by the change of zoom.

One type of zoom change artifact not yet discussed is seen in **Seq 1275**, frame 1271 and **Seq 2142**, frame 2139, of Figure 6 where the target paint was duplicated in the same frame. The features of these duplications do not match the features of the "smear" seen in **Seq 2157**, Frame 2157, and discussed in Section 1.

First, the artifacts seen in frames 1271 and 2139 are nonsensical. There is no target motion in either frame. Both of these were an initial signal of the zoom change from 2 to 1 being first indications 4 and 3 frames prior to the telemetry update. The ghost target appears at the same screen coordinate location in frames 1271 and 2139 while both their counterparts were between the locking brackets.

Second, the paint of the ghost target in frame 2157 is clearly a continued motion of the target toward the lower left of the video display. A straight line can be drawn connecting all 4 target paints over the three frames demonstrating a logical continuation of motion as opposed to

a nonsensical target paint. If indeed this reflects a real event, the ASQ-228 did a superb job of capturing an event for which it was not designed.

Third, the 2157 ghost is not in the initial stages of the zoom but in the last, final stage of the zoom with all prior zoom processing completed. Another bit of circumstantial evidence that this is not an artifact of the zoom change.

Fourth, every sequence of Figure 6, the intensities are seen to drop, for zoom changes 2 to 1, at or before the frame with the telemetry update and increase for zoom changes 1 to 2. This is an indication that the changes in zoom processing have been completed before the video display telemetry update. Note the target paint in 2157 was updated with an increased intensity in a manner consistent with other sequences. It should be noted that the intensity measure, as well as the location of the target, were both based on the target paint not entangled with the telemetry. See Figure 3, frame 2157.

Conclusion of this discussion: <u>Zoom changes were complete and frame data were stabilized at and beyond the frame having the telemetry update.</u>

If Raytheon engineers directly involved with the development and programming of the ASQ-228 could verify the specific measurement data referenced in the frame sequences of Figure 6 as operational characteristics typical of an (2004 model) ASQ-228. Such verification would provide strong circumstantial evidence for the validity of the video.

SCU is in possession of quite a bit more similarly detailed frame by frame data. SCU invites Raytheon to discuss these details with SCU to further vindicate the video.

The data from the video, f4.mpg, was quite detailed and quite precise.

It seems very unlikely that a fabricated video could correctly reproduce such operational detail. The specifics, such as the variation of the relative timing of the occurrence of certain same events across the given sequences, most certainly add realistic detail.

A Methodology to Bracket Acceleration Estimates

Pixels are an angular measure; the number of degrees represented by each pixel changes with the level of magnification. This was certainly a handicap in attempting to derive the angular measures where these measures were subject to change under zoom changes. The best indication of what frames pinpointed such pixel changes can be seen in the frame sequences of Figure 6.

For zoom changes 1 to 2 there were increased distances between the locking brackets. Figure 6 emphasizes this using the cyan colored line connecting pairs of locking bracket points in each sequence. The locking brackets widen to accommodate the increase in target size due to magnification that changed angular measure.

For zoom changes 2 to 1 it is reversed; the cyan line reflects a decreased distance between locking brackets. This decrease reflects the decrease in magnification and angular measure of the pixels.

In **Seq 2157**, the *rifle shot acceleration* sequence, the change in magnification can be seen over frames 2154 and 2155 where it is very likely, all frames 2155 and after are under zoom 2. It is reasonably asserted, that the data indicated for frame 2157, are under a stable zoom 2.

Given that the entire acceleration path of frames 2155 through 2157 is under zoom 2 then it seems likely the closest acceleration estimates seen in Figure 1 would be very close to if not the red line of estimates. However, to be sure that the best estimates are bracketed based on the data, the entire acceleration path can be treated under zoom 1, as seen by the green line in Figure 1, then again under zoom 2 as seen by the red line.

Specifically, deriving an angular pixel size for the path based on Zoom 1 and another angular pixel size for the path based on Zoom 2, enables bracketing the acceleration estimates.

In Seq 2157, the measured path of acceleration was approximately 91.55 pixels.

This measure was based on the length of the straight line connecting the beginning and ending points specified exactly by screen coordinates. This straight line enabled calculation of an acceleration average over 3 frames; 66.7 milliseconds of elapsed time.

There are two options for the angular size of the acceleration path, ϕ, based on Zoom 1 and Zoom 2; $\phi_1 \approx 91.55*\epsilon_1$ and $\phi_2 \approx 91.55*\epsilon_2$ where ϵ_1 is the degrees represented by each pixel under Zoom 1 and ϵ_2 the degrees for each pixel under Zoom 2.

The documented Field of View (FOV) for the video display is 0.7 degrees for Zoom 1 and 0.35 degrees for Zoom 2. As seen in the video, the video display boundary is the white rectangular border. This is 240 pixels wide.

Given an FOV of 0.7 for Zoom 1, $\epsilon_1 = 0.7/240 \approx 0.002917$ and an FOV of 0.35 for Zoom 2, $\epsilon_2 = 0.35/240 \approx 0.001458$ so $\phi_1 \approx 0.267$ degrees and $\phi_2 \approx 0.134$.

It is clear that $\phi_1 > \phi_2$. If ϕ_t is the true angular size of the path which may be based on some mix of zoom levels, then $\phi_1 > \phi_t > \phi_2$.

Envision substituting in a magnified Zoom 2 pixel, which is larger on the screen, for each Zoom 1 pixel, which is smaller on the screen, will result in a larger path but a smaller angular measure for that path. Reversing the substitution would make smaller path but a larger angular measure.

More concretely, if P is the path length in feet or meters and $P = D \tan(\phi)$ then it follows that $P_1 > P_t > P_2$ thus allowing the acceleration estimates to be bracketed for a given distance D, F-18 to target path.

This bracketing method sidesteps the issues created by a possible mix of zoom levels as the target traverses the acceleration path.

Section 3 discusses the equation used to derive the acceleration estimates of Figure 1. This equation was derived to use, among other variables, the derived pixel data as its variables.

Section 3

The Equation and Description of Its Variables

An equation was derived isolating only those variables needed to calculate acceleration estimates directly from pixel measurements, size of the target in feet and the elapsed time:

Equation 1:
$$A = S * \frac{2 * \tan((D_p * \epsilon)/2)}{t^2 * \tan((S_p * \epsilon)/2)}$$

The derivation of Equation 1 from initial considerations is detailed in Section 5, near the end of this appendix, so that it may be easily skipped if desired.
Equation 1 was used for all acceleration estimates graphically illustrated in this appendix.
The variables:

- **S** – The size of the target. This is the only independent variable in the equation as it was the only variable not able to be measured directly. There was insufficient data at the time of this writing to determine the actual size of the target. One notable reason for this insufficiency was the ASQ-228 telemetry failure to measure distance to target. As a consequence, the estimates of acceleration were dependent upon the size of the target.
- **D_p** – The pixel distance from acceleration start to end. This was measured using screen coordinates and the standard distance equation discussed earlier. This pixel distance is proportional to the angular measure of the acceleration. How the pixel distances were converted to angular magnitudes is discussed in Section 4.
- **S_p** – The measured (horizontal) size of the target in pixels. The number of pixels measured are exactly proportional to the angular measure of the target at a given distance and to the Field of View (FOV). How the target pixel sizes were converted to angular magnitudes is discussed in detail in Section 4.
- **ϵ** - Degrees per pixel. This variable is derived from the ASQ-228 FOV specification and the number of pixels, as measured in the video, of the ASQ-228 Heads Up Display (video display). Only two values were used for **ϵ** in the acceleration estimates. Documented in the ASQ-228 specs were Zoom 1 with an FOV of 0.7 degrees and Zoom 2 with an FOV of 0.35 degrees. Since the video display, as seen surrounded by a white border in the video measured 240 pixels wide then the two measures of **ϵ** used were $0.7/240 \approx 0.002917$ for Zoom 1 degrees per pixel and $0.35/240 \approx 0.001458$ Zoom 2 degrees per pixel respectively.

- **t** – Elapsed time required for the target to traverse $\mathbf{D_p}$. This was derived from the frame number starting the pixel distance and ending frame number at the end of the pixel distance using the formula

t = (End Frame Number – Start Frame Number) / 29.97

where 29.97 frames per second was the EXIF documented frame rate for the F4.mpg video. The data used from Frames 2155 through 2157 were used to calculate the acceleration.

Notes

- Although distance from F-18 to target was a factor, the Equation 1 shows that it need not be explicitly used for the acceleration estimates.
- This equation also assumes that the initial velocity of the target was 0. In the case of the Frames 2155-2157, a close look at Figure 6, Seq 2157, reveals that the location of target begins essentially at the center the video display without motion. The reason for the slight rise from Frame 2153 to 2154 is the pixel change involved with the zoom change from 1 to 2. The rise was not due target motion away from the center. It is important to remember that the ASQ-228 was designed to keep the target fixed to the video display center.
- Once the numerator and denominator were calculated, once for Zoom 1 and then for Zoom 2, that quotient is completed, no more calculations need be done for these variables for the duration of the frames under consideration. The target size was then varied over the range 10 to 80 feet to generate the linear plot seen in Figure 1. Those with some mathematical background may note, despite the complexity of Equation 1, as applied to the case of the Rifle Shot Acceleration frames, is really just an equation for a straight line.

Section 4

Variables and Computer Derived Data Used as Input for Equation 1

Frame Number and Frame Size

Frame number is always used as the X axis for every graphic having frame sequences. The X axis frame numbers correspond frame numbers and distance between these frame numbers incremented by 1 frame represent an elapsed time increments of 33.4 milliseconds. The elapsed time between frames is derived from the EXIF specified video frame rate of 29.97 frames per second.

Each frame of the video was converted to a jpeg snapshot using ***Free Video to JPG Converter***, version 5.0.101 build 201 from DVDVideoSoft. These snapshots contain digital data representing the instantaneous state of that data at that frame number.

The converters can change the frame size of the snapshots and there are a number of such converters. They can also differ in the total number of frames (2,288 total frames for DVDVideoSoft converter).

The ***Free Video to JPG Converter*** generated snapshots with a frame size of 352x262 which does not correspond to the EXIF specification of 352x240 for the video frame size.

Frame Size Impact on Screen Coordinates and Pixel Distance Variables

The frame size directly affects measurements using XY screen coordinates. This is a nuisance that must be considered, for example, in calculation of pixel distances between screen XY locations.

Coordinate translation must be used if the frame size is not the same as the original video.

The frame by frame data available from SCU is based on the frame size 352x262.

To ensure the pixel distances are calculated accurately for 352x240 when getting the pixel distance between points on the 352x262 screen, coordinate translation is required:

Equation 1: **X' = X**
Equation 2: **Y' = (240/262) Y**

where X' , Y' and X, Y are the coordinates for the frame size 352x240 coordinates and the 352x262 frame size respectively.

All pixel distance calculations used this transformation to remain consistent with 352x240 screen size.

Pixel Distance Between video display Center and Target

To get this distance in pixels, two screen coordinate values are needed. The center of the video display screen is 176,132 but how was the location of the target determined?

Turns out the best way to identify the location of the target is to use the screen coordinate location of the maximum/minimum average intensity.

There were 3 reasons for choosing the screen coordinate location of the target to be the location of the maximum/minimum average intensity.

1. The single pixel maximum/minimum intensity was not a good choice because it may not be unique for the target in a given frame.
2. The 9 pixel maximum/minimum average intensity is a better choice as it will provide more stable screen coordinate locations for the target across frames as intensities for the target fluctuate.
3. The 9 pixel maximum/minimum average intensity has a far higher probability of being unique for the target in any given frame.

The location maximum/minimum intensity, being equivalent to the target position, was used to calculate the pixel distances from the video display center to the target.

Throughout the majority of the video, the target was at or near the video display center. Of interest is when the target moves away from the center since the tracking accuracy is reduced. This is one element for which the ASQ-228 was obviously designed - to track targets for combat purposes.

While we will be able to measure how well this tracking has been done, to date we have no baseline to measure normal operating behaviors under different circumstances other than the content of the first 54% of the f4.mpg video. In that region of the video, the target is stable at the video display center.

The pixel distance from the video display center can give us an approximate idea of how well the target is locked.

How the screen coordinates of the target are determined has been discussed earlier. If X2, Y2 are the screen coordinates of the target and screen coordinates of the video display center are X1, Y1 then that pixel distance **D** is

Equation 3: $$D=\sqrt{(X2-X1)^2+(Y2-Y1)^2}$$

Note, for example, that the center of the video display for video frame size 352x262 is 176,131 while for frame size 352x240 the center is 176,120. This creates different results in pixel distances. For graphics illustration purposes, the distance of the target from the video display

center as well other graphic variables, the impact of these two screen size differences are minimal.

Maximum Average Intensity Value of Target

Some of graphics illustrate pixel values with highest average intensity or lowest average intensity pixel values of the target. Depending on IR or TV Mode, a highest (IR) or lowest (TV) intensity pixel was always found within the target screen paint and the screen coordinate location of this pixel documented.

Because the video was color, each pixel had 3 intensity values, one red (R), one green (G) and one blue (B). A single gray ***value***, an unweighted average of the RGB intensities, was derived which provided a single intensity value for each pixel

For example, a particular shade of cyan for example; Red intensity 42, Green 255 and Blue 170 makes an unweighted gray value intensity of (42+255+170)/3 = 155.67. This is an example how all gray intensities were derived.

The general algorithm, used to determine the maximum (or minimum) average intensity for the target, implemented the concept of enclosing the target in a rectangular region. Every RGB pixel within that region was converted to a Grey value. This procedure was done for every frame in the video adapting different sized regions as needed.

Two central concepts, to be discussed in more detail later, were algorithmically defined to derive both the maximum/minimum average gray value intensities as well as determine the sizes and edges of each target in any given frame:

1. A square region of 9 pixels was moved over every pixel within the entire selection region containing the target. See Figure 7 for an example of this 9 pixel region outlined in red. Each set of the 9 pixel gray value intensities were averaged. The highest (IR) or the lowest (TV) average was chosen as the maximum/minimum of the target. The screen coordinate of its center pixel documented the screen location of this maximum. It should be noted that the maximum/minimum averages, in the case of this video, were found to be unique within the target across every frame.
2. A gray value intensity threshold was determined for each frame that defined the sizes and edges of the target. The determination of the threshold value was based on background gray value intensities immediately surrounding the target. These background intensities provided a clear contrast to make an edge determination. For IR Modes, if a given pixel intensity was greater than the threshold, that pixel was considered part of the target. For TV Modes, if the pixel intensity was less than the threshold, that pixel was included as

In Frame 1, for example, every RGB pixel in a 19x22 selection area around the target was converted to a gray intensity value and depicted in Figure 7 is an array of gray level intensities.

In this frame, the telemetry IR Mode was specified white as hot so the gray pixel values for the target are in a range from 255 down to 0. The threshold was set to an intensity of 74.70, well above the overall background average which was below a gray level intensity value of

30.00. The threshold defined the edges of the target so that every pixel included as part of the target had an intensity of >= 74.70.

The maximum average intensity, from all possible average intensities within the entire selection area for Frame 1 was 144.41. This was the average of the 9 pixels within the red border in Figure 7 and within the black border, 158.00, the maximum intensity (not the maximum average at the center of the 9 pixels. For the screen size 352x262, the XY screen location of the maximum average intensity, which was unique within the selection area in this case, was (177,130).

In the instance of Frame 1, the screen locations of both the single pixel maximum intensity and 9 pixel maximum average intensity had exactly the same screen location.

This was not always true but the locations of the 9 pixel maximum/minimum averages and the single pixel maximum/minimum values were largely within one pixel of one another.

The exact values for the maximum/minimum intensity and maximum average/minimum average intensity and their locations are found in the raw data tables for every frame.

Frame 0001, Screen Coordinate of Top Left Selection Area: X 167, Y 121 Selection Width X Height: 19 by 22

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185
0 121	12.67	10.67	8.67	7.67	8.67	7.67	5.67	5.67	6.67	4.00	5.00	6.00	6.00	7.00	7.00	8.00	9.00	4.00	6.00
1 122	10.67	8.67	6.67	5.67	5.67	5.67	3.67	4.67	5.67	7.00	7.00	9.00	10.00	10.00	11.00	10.00	10.00	4.00	7.00
2 123	8.67	5.67	3.67	3.67	5.67	6.67	6.67	8.67	10.67	4.00	5.00	9.00	12.00	14.00	13.00	11.00	8.00	8.00	8.00
3 124	10.00	6.00	5.00	6.00	9.00	12.00	14.00	18.00	21.00	14.67	14.67	16.67	18.67	18.67	16.67	11.67	8.67	10.67	8.67
4 125	11.00	6.00	6.00	8.00	13.00	19.00	23.00	29.00	34.00	41.67	38.67	34.67	31.67	27.67	23.67	17.67	13.67	15.67	12.67
5 126	10.00	5.00	6.00	11.00	20.00	29.00	38.00	47.00	53.00	63.67	58.67	51.67	44.67	39.67	33.67	26.67	22.67	19.67	16.67
6 127	10.00	7.67	9.00	16.67	28.00	42.67	54.00	65.67	73.00	83.67	77.67	68.67	60.67	52.67	42.67	32.67	25.67	18.67	16.67
7 128	15.67	13.00	16.67	28.00	41.67	57.00	71.67	91.00	104.67	116.67	113.67	108.33	97.33	79.33	58.33	40.33	31.33	21.33	16.33
8 129	17.00	14.00	20.00	29.00	42.00	57.00	79.00	107.00	128.00	143.67	144.67	138.33	120.33	93.33	65.33	44.33	33.33	22.33	17.33
9 130	17.00	21.00	26.00	35.00	48.00	65.00	90.00	121.00	143.00	157.00	158.00	150.00	127.00	97.67	71.67	51.33	40.33	22.33	18.33
10 131	17.00	16.00	22.00	34.00	51.00	73.00	98.00	123.00	140.00	144.33	139.33	124.33	100.00	77.00	61.00	44.33	31.33	22.33	18.33
11 132	16.67	19.67	26.67	37.67	52.67	72.67	93.67	113.67	125.00	125.00	118.00	101.00	79.00	62.00	51.33	39.00	29.00	22.00	18.33
12 133	17.67	13.67	21.67	32.67	43.67	57.67	76.67	95.67	108.00	101.00	99.67	89.67	72.00	56.00	44.00	33.67	25.67	20.00	17.00
13 134	18.67	16.67	23.67	31.67	37.67	45.67	57.67	70.67	77.00	79.33	83.00	81.00	71.00	55.00	37.33	26.00	20.00	17.00	15.00
14 135	17.67	13.67	19.67	25.67	31.67	38.67	46.67	49.67	48.67	52.00	58.00	63.33	60.00	49.00	33.00	21.33	16.33	15.33	13.33
15 136	18.67	15.67	14.67	16.67	21.67	28.67	33.67	34.67	33.67	33.33	31.67	34.00	36.00	31.00	21.00	15.67	16.67	11.67	9.67
16 137	17.67	12.67	10.67	10.67	12.67	16.67	18.67	17.67	16.00	20.67	17.00	18.00	21.00	20.67	14.67	11.00	12.00	9.00	10.00
17 138	12.67	9.67	7.67	6.67	7.67	10.67	11.67	10.67	8.00	14.00	8.33	6.33	8.33	9.67	6.67	5.67	6.67	9.00	9.00
18 139	10.67	9.67	8.67	7.67	9.67	11.67	12.67	12.67	11.00	12.67	7.67	6.00	6.67	8.00	7.00	7.00	8.00	9.00	8.67
19 140	13.00	11.00	11.00	10.00	10.00	10.00	11.00	10.00	9.00	8.67	8.00	9.00	10.00	10.67	9.67	10.67	12.67	8.67	14.33
20 141	11.00	12.00	11.00	11.00	11.00	10.00	10.00	9.00	8.67	8.67	9.67	11.67	11.67	10.33	9.33	9.33	10.33	10.33	15.33
21 142	9.00	10.00	10.00	10.00	10.00	10.00	10.00	11.00	10.67	11.33	12.00	12.00	11.00	9.00	8.00	8.33	7.33	10.33	10.33

Figure 7

It should be noted in passing there is no exact comparison of pixel intensity values between different frame sizes because there is no exact digital locations between them. But for a given vicinity, they are analytically comparable.

Pixel Distance Between Locking Brackets

The pair of vertical bars on either side of the target are locking brackets. The distance between the brackets is the count of pixels between but not including the pixels belonging to either bracket.

An X location was found for a single vertical column of pixels associated with each bracket. A rectangular region surrounded each bracket and included areas that clearly did not have the bracket. A sum of gray pixel values for each and every column within the region was calculated. The X coordinate representing the X location of the bracket was associated with the column of single pixels having the largest sum.

If $\mathbf{X_L}$ and $\mathbf{X_R}$ are the designated X coordinate values for the left and right brackets respectively, then the pixel distance **D** between locking brackets is

Equation 3: $$\mathbf{D = X_R - X_L - 1}$$

Expanding distance between locking brackets indicate attempts to regain lock. Shrinking distance indicate increasing lock.

The measurements made directly from the video are:

1. Angular size of the target
2. Angular size of the target path
3. The time taken for the target to traverse the path; the elapsed time between each frame is known to be 33.4 milliseconds.

Pixel Distance of Acceleration ($\mathbf{D_p}$)

As seen in some sequence of frames in the video, the target traverses a path whose distance can be discretely measured as pixels. The nice thing about modern digital recordings is that each pixel has a unique screen coordinate so the distance, in pixels, can be measured by using these screen coordinates in the distance formula discussed earlier.

A pixel is actually a relatively precise angular measure with 1 pixel usually representing some small fraction of a degree. The count of pixels comprising the target path is therefore a multiple of that small fraction of a degree and so the pixel path is itself an angular measure on the video.

To know the physical distance of the path in feet or miles, not the angular measure of degrees, the distance to the target must be known. There is a mathematical relationship of target path, distance to the target from the F-18 and the angular measure of that target path:

Equation 6: $$\mathbf{D_p = 2 * D \tan(\phi/2)}$$

where $\mathbf{D_p}$ is the target displacement, that is, the target path length in feet or miles.
D is the distance from the F-18 to the target.
$\boldsymbol{\phi}$ is the angular measure of the target path, or target displacement.

At the time of this writing, that distance, **D**, was not known for any acceleration estimates so, therefore, neither was the path length, $\mathbf{D_d}$.

Readers with some mathematical background may have noted the absence of these distances in Equation 1. In the final derivation, these distances can be substituted out distilling the input variables down to the measurements made directly from the video and the witness estimates of the target size.

Pixel Size of Target ($\mathbf{S_p}$)

The pixel size of the target was measured and 2 distinct measurements resulted as might be expected. Zoom 1 and Zoom 2 had to be included as this measure was included in various applications of Equation 1 in the variable $\mathbf{S_p}$ as constants for each plotted acceleration estimate.

This contributed somewhat to the range of acceleration estimates. I say somewhat because the term in the denominator of Equation 1, $\mathbf{\tan((S_p * \epsilon)/2)}$, was essentially invariant over a zoom change because Sp changes inversely with ϵ. This product ideally remains identical under zoom change. Using the measured pixel sizes for each zoom level the products are near identical.

The target pixel sizes varied across frames for any given Zoom and Mode. The results were as follows:

	IR Zoom 1	IR Zoom 2
Average	8.280	16.977
Standard Deviation	0.707	0.902
Average Based on N Frames	437	87

Table 1

Obviously, to determine the size of the target, the edge of the target had to be determined. A simplistic algorithm for edge detection was used that was computationally expedient. More rigorous algorithms would not contribute any particular refinements to what were already approximate estimates.

A fixed threshold gray level intensity was chosen based on the average gray level background intensity surrounding the target. This approach provided sufficient statistical contrast between the target and the background. The background and target pixel intensities did fluctuate in intensity so a statistical average and standard deviation was measured over the number of frames indicated (N Frames) for each mode and zoom.

A target pixel size average was a based on the width of a smaller rectangle within a larger rectangular region of pixels that excluded telemetry. The larger rectangular region was the selection rectangle.

The smaller rectangle got its size by ensuring that it contained only those pixels whose intensities satisfied the threshold requirement. A simplistic way of find the target edge.

For example, for an IR Mode Zoom 1 frame and threshold gray level intensity of 74.7, all pixels within the selection rectangle but not within the smaller rectangle would have had a guaranteed intensity < 74.7. In other words, all those pixels whose intensities are >= 74.7 define the target.

For IR Mode Zoom 1 frames, 437 of them, the widths of the smaller rectangles were measured for every frame and those widths averaged a target size of 8.28 pixels with a standard deviation of 0.707 so 68% of the target sizes measured based on a threshold intensity of 74.7 were between 7.573 and 8.987 pixels.

The 6 target pixel size numbers substituted into $\mathbf{S_p}$ for Equation 1 estimated acceleration graphic is found in Table 2:

	IR Zoom 1	IR Zoom 2
Average – 1 SD	7.573	16.075
Average	8.280	16.977
Average + 1 SD	8.988	17.879

Table 2

Section 5

Derivation of Equation 1

The derivation is a straightforward set of substitutions whose goal is to derive the acceleration strictly as a function of certain variables directly derived from the video.

Equation 5.1 expresses the relationship among the variables D[1], the distance from the F-18 to the target, and the angular size of the target's path, ϕ, to the physical length of the path traversed by the target, D_d, over the given set of video frames.

Equation 5.1 $$D_d = 2D \tan(\phi/2)$$

Equation 5.2 expresses the relationship among the variables D, again the distance from the F-18 to the target, and the angular size of the target, Θ, to the physical size of the target itself, S.

Equation 5.2 $$S = 2D \tan(\Theta/2)$$

Equation 5.3 is the standard acceleration formula but, as applied here, assumes the initial velocity to be zero. A, the acceleration, is a function of D_d , the length of the path, that is, the distance traversed by the target during the elapsed time t determined from the number of frames.

Equation 5.3 $$A = \frac{2*D_d}{t^2}$$

There is no need to address D in the final equation because both Eq 5.1 and 5.2 contain D and so

Equation 5.4 $$\frac{S}{2\tan(\Theta/2)} = \frac{D_d}{2\tan(\phi/2)}$$

Nor does the target displacement need to be explicit in the final equation because Dd is in equations 5.3 and 5.4, so

[1]The variables D, S, and D_d must all of the same units of measure. For example, if D is in feet so are S and D_d.

Equation 5.5 $$A = \frac{2 S \tan(\phi/2)}{t^2 \tan(\Theta/2)}$$

Both ϕ, the angular size of the target's path, its displacement, and Θ, the angular size of the target can be derived from pixel data via equations 5.6 and 5.7.

There are only two values for ϵ in this application, either 0.7/240 for Zoom 1 or 0.35/240 for Zoom 2. This has been discussed in some detail in Section 3.

Equation 5.6 $$\phi = P_d \epsilon$$

where Pd is the measured pixel distance of the target path.

Equation 5.7 $$\Theta = S_p \epsilon$$

Where Sp is the measured pixel size of the target.
Substituting the right sides of equations 5.6 and 5.7 into equation 5.5 gives

Equation 5.8 $$A = \frac{2 S \tan((P_d \epsilon)/2)}{t^2 \tan((S_p \epsilon)/2)}$$

Equation 5.8 The acceleration, A, is now completely a function of the video data with the exception of the independent variable S which is the only variable not able to measured. There was insufficient information to determine S beyond witness input. Section 1 plots the result for Zoom 1 and Zoom 2 for the given domain of S.

APPENDIX L

WITNESSES AND ASSOCIATED INFORMATION

by Robert Powell

Witnesses

The testimonies that have been made are of an event that occurred 14 years ago. It is expected that memories change over time and that once testimonies become public that they can contaminate other witness's memories of an event. The authors of this report have taken this into consideration and will note when important discrepancies between witnesses exists. The more important issue is whether the testimonies are sufficient to establish that the event occurred and whether the testimonies can establish that the object displayed extreme accelerations.

This section will provide the backgrounds of the witnesses interviewed as well as commentary on witness information.

Primary Witnesses

Commander David Fravor is considered one of the two strongest witnesses to this event because he was the senior officer and the pilot who engaged the "Tic-Tac". He graduated from the United States Naval Academy in 1988 with a degree in Oceanography, Chemical and Physical. He rose to the rank of Commander and was the Commanding Officer in 2004 of a Navy squadron of F/A-18F "Super Hornets" the VFA-41, also known as the "Black Aces". He had 16 years of experience, 3500 hours in the cockpit as a Navy pilot, and graduated from the Navy's TopGun program.[1]

David Fravor was not personally interviewed by SCU. His testimony was taken across multiple sources and found to be quite consistent from interview to interview. He has made a large number of interviews both to newspapers and via internet radio. He first discussed the "Tic-Tac" encounter publicly in March of 2015 through the *FighterSweep* article written by his friend, former Navy pilot Paco Chierici. Two of the better recorded interviews conducted were by Two The Stars Academy and Linda Moulton Howe. Both interviews allowed Mr. Fravor to discuss his experience with minimal interruptions.[1,2]

Lieutenant Commander James Slaight is also considered one of the two strongest witnesses to this event and was the senior officer and weapons operator in the aircraft overlooking CDR Fravor's engagement. He graduated from the United States Naval Academy in 1993 with a degree in Political Science. He rose to the rank of Lieutenant Commander and was the LCDR in 2004 for VFA-41. He was a naval officer for 20 years, made six deployments, and has over 2700 tactical jet aircraft hours of experience.[3]

James Slaight was first interviewed by retired Navy Captain Tim Thompson of the SCU on Feb. 19, 2018 and a followup interview by Robert Powell of the SCU on Feb 22. His replies were succinct and matter-of-fact. He had not had any substantial public interviews prior to that time and to our knowledge has not been interviewed publicly since then. It was clear in the interview with Mr. Slaight that he did not appreciate how the national media outlets had confused the IR video taken in 2004 with another video taken at a later date.[3,4]

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1 David Fravor, interview by Linda Moulton Howe. KGRA radio, June 28, 2018.

2 David Fravor, interview by Jeremy Corbell, *Jeremy Corbell Radio Show*, internet radio, June 23, 2018.

3 Jim Slaight, interview by retired Navy Captain Tim Thompson, telephone interview, February 19,2018. (Some information unavailable on the recording due to a technical problem in the first 10 minutes of the interview.) Interview available at https://www.explorescu.org/papers/nimitz_strike_group_2004

4 Jim Slaight, interview by Robert Powell, telephone interview, February 22, 2018.

Senior Chief Kevin Day is a key witness from the USS *Princeton* because of his position, rank, and experience. He was the Air Intercept Control Supervisor for the *Princeton* and for the Nimitz Strike Group. He was responsible for the radar operators as well as the use of those radars for air defense. He has very extensive experience with the SPY-1 phase shifting radar used on the ship as he worked on one of the first SPY-1 radar systems on the USS *Vincennes*. His performance rating in January 2005 from Captain J.L. Smith of the USS *Princeton* indicated that he "greatly exceeded standards". The Captain made the comment on the rating document, which is available later in this appendix:

*"*He is my number #1 SCPO [Senior Chief Petty Officer]! A recognized expert in Air Defense, his impact within the Nimitz Strike Group has been phenomenal.*"*

The Senior Chief Day has 18 years of service at sea on Aegis radar systems and his medals included the Meritorious Service Medal and the Navy/Marine Corp Commendation Medal. He was also a Top Gun graduate for Strike-Fighter Tactics. He had seven deployments to the Middle East and has completed hundreds of air intercepts. A copy of these documents is available later in this appendix. This extended commentary is noted because it is important to understand the level of competence and the capabilities of Senior Chief Day. In civilian life he has earned a degree in Business Administration and a Master Degree in Education.

Kevin Day was first interviewed by Robert Powell on January 15, 2018. He indicated that he had not been interviewed by anyone else prior to that date. Mr. Day indicated that he had made notes of the November 14, 2004 event and was operating with his notes during the interview. Beginning in May of 2018 Mr. Day made several public interviews and became active on a Facebook chat site. Some of his comments are regarding topics to which he did not have first hand knowledge and may have been picked up from things either he read on Facebook sites or heard from others or just changes to memory. It is not the intent of this report to look for every inconsistency in a witness's testimony but instead to look for consistencies between witnesses and draw a conclusion as to what actually occurred. It is believed the most accurate recounting of the Senior Chief's experience was his original interview on January 15 with Mr. Powell.[5] Although not an interview, prior to his January 15th statements Mr. Day did make a posting on an internet forum known as *Open Minds* in December of 2010.[6] The details that he provided are very similar to the interview conducted on January 15. There are some statements made that are different such as a statement that the "Tic-Tac" entered the water or that the video was taken on a HUD display rather than a ATFLIR. But as a whole, Mr. Day's basic story has been consistent and in combination with statements from other witnesses allows the critical portions of this event to be pieced together.

Kevin Day's experience with this incident did affect him emotionally and his emotions are evident in his voice during the January 15 interview. The fact that this event had such an impact on Mr. Day, and that there are also multiple witnesses, only strengthens the argument that these witnesses experienced an extraordinary event. Nonetheless, the emotional impact on Mr. Day requires us to look for corroborating evidence on the details that he has recounted. This has been done and the critical facts recounted by Mr. Day are supported by other witnesses.

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5 Kevin Day, interview by Robert Powell, telephone interview, January 15, 2018 by Robert Powell. Interview available at https://www.explorescu.org/papers/nimitz_strike_group_2004

6 *ATS: Above Top Secret*, "The *Nimitz* Story in the Former OMF Forum," http://www.abovetopsecret.com/forum/thread1207350/pg1. Accessed July 30, 2018.

Fire Controlman Petty Officer Third Class Gary Voorhis is also a key witness from the USS *Princeton* because he was in charge of the ship's Aegis computer suite known as the Cooperative Engagement Capability (CEC). This system allows the sharing of radar, electronic data, and any other sensor data between all the ships and aircraft in a Strike Group and coordinates this information with the ship's weapon systems.

Gary Voorhis was first interviewed by Robert Powell on April 6, 2018.[7]

Petty Officer Third Class Jason Turner was in Supply and did not have access to radar or electronic data on the ship. However, he had a security clearance and as a result was able to view the IR video with the ship's cryptology group. Jason was active in the service for 10 years and was stationed onboard the *Princeton* from January 2002 to March 2005.

Jason Turner was first interviewed by Robert Powell on January 11, 2018.[8]

SECONDARY WITNESSES

These are witnesses who are not anonymous but have either made statements or provided their story on social media sites.

Lieutenant Colonel Douglas S. Kurth is considered the strongest of the secondary witnesses. He was the commanding officer of the Marine squadron VMFA-232. While leading his group, they received the Chief of Naval Operations Safety Award. After leaving the service in 2006 he worked for Bigelow Aerospace and is now working for Lockheed Martin as a F-35 flight instructor and subject matter expert. He graduated from Iowa State University with a Bachelor of Applied Science in Mathematics.[9]

Mr. Kurth's testimony is made through the naval blog known as *FighterSweep* which is written and edited by retired Navy pilot Paco Chierici. Mr. Kurth talked to researcher Robert Klinn on November 9, 2017 by phone. He did not want to talk any details due to a commitment to a prior employer but indicated to Mr. Klinn that he knew Paco well and that 95% of what was written in the *FighterSwee*p article was correct.

CDR Fravor's Wingman Pilot and WSO both wish to remain anonymous. These two pilots are listed as secondary witnesses because the identity of the pilots is not truly anonymous and both have testified anonymously. The SCU has verified both pilots' identity and will honor their desire to remain anonymous. CDR Fravor's wingman pilot is the primary source for the document titled "2004 USS *Nimitz* Pilot Report" on the TTSA website and is listed as the "Source" on that document. The main value of both these witnesses is in confirming the activities of the "FastEagles" that day and as primary witnesses to CDR Fravor's engagement of the "Tic-Tac". These pilots also viewed the ATFLIR video.[10]

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7 Gary Voorhis, interview by Robert Powell, telephone interview, April 6, 2018. Interview available at www.explorescu.org.

8 Jason Turner, interview by Robert Powell, telephone interview, 01-11-2018. Interview available at www.explorescu.org.

9 *Douglas Kurth* (2018) LinkedIn profile. https://www.linkedin.com/in/douglas-kurth-25195b145/.

10 "2004 USS *Nimitz* Pilot Report" from *"Two The Stars Academy"*. https://coi.tothestarsacademy.com/nimitz-report Accessed 07/05/2018.

Pilot and WSO that took the ATFLIR video both wish to remain anonymous as of this writing. These two pilots are listed as secondary witnesses because the identity of the pilots is not truly anonymous and both have testified anonymously. The SCU has verified both pilots' identity and will honor their desire to remain anonymous. These two pilots were requested to video the object if possible by CDR Fravor.

Don Oktabinski had the call name 'Poison' on the USS *Princeton* and was the radio communication point between all aircraft and the ship. His photo in the 2003 *Princeton* cruise book indicates that he was an Operations Specialist Petty Officer Second Class.[11] The SCU contacted him for an interview but he did not reply.

Multiple Marine officers in addition to Lt. Col. Kurth were provided as possible witnesses that may have viewed the original IR video on FOIA requests dated August 13, 2017 and October 10, 2017. (See Appendix B.) All of these witnesses would definitely be aware of the "Tic-Tac" incident. Their names are as follows:

Lt. Col. Ryan McCaskill (serving with US Northern Command)
Lt. Col. Justin Knox (retired 2016)
Lt. Col. John Schares (retired 2013)
VFA-41 XO Dell Bull (currently Rear Admiral)
Major Richard Behrmann (current XO of VMA-232)
Lt. Col. Robert A. Tomlison (current CO VMFA-323)
Lt. Col. Warren Byrum (current CO VMFA-314)

Multiple Navy personnel from the USS *Princeton* commented on the November 2004 event six years ago on the public Facebook site called USS *Princeton* (CG-59). A copy of their commentary from July 9, 2012 is listed in later in this appendix. All of the following sailors have been verified as aboard the *Princeton* based on the 2003 *Princeton* Cruise Book.[11] Some of these sailors are listed elsewhere as witnesses, but are shown here for the record. The following sailors have indicated that they saw the IR video:

Chris Guilford, Petty Officer Third Class. Fire Controlman.
Karson Kammerzell, Petty Officer Third Class. Cryptologic Technician.
Joseph Wolschon, Junior Enlisted Seaman. Sonar Technician.
Jason Turner, Petty Officer Third Class. Supply.

The following sailors have indicated that they were aware of the event but did not state if they saw the video:

Jared James, (Name not verified in 2003 *Princeton* Cruise Book. Perhaps joined the ship in 2004.)
Joshua Newell, Petty Officer Second Class. Electronics Technician.
Jesse Tiffany, Petty Officer Third Class. Boatswain's Mate.

11 *U.S. Navy Cruise Book*, "USS *Princeton* (CG 59), Honor and Glory, Operation Iraqi Freedom", 2003 Westpac Deployment.

In January 2018, some of the same sailors comment about remembering the event as well as the following additional sailors:

Chris Brewer, Seaman. Gunner's Mate.
Ryan Gowin, Petty Officer Third Class. Sonar Technician.
Joe Juette, (Name not verified in 2003 *Princeton* Cruise Book. Others who were verified recognized this individual from that period of time.)
John Schwanke, Senior Chief Petty Officer. Fire Control Technician.
Duane VanDyken, (Name not verified in 2003 *Princeton* Cruise Book. Perhaps he joined the ship in 2004.)

JosephWolschon sent an email to the SCU on November 1, 2017. He did not respond for a request to be interviewed. It has been verified that he was a crewmember of the *Princeton* and he is listed in the 2003 cruise book as a Junior Enlisted Seaman with the role of Sonar Technician. A copy of his email is available later in this appendix.

Trevor Xxxxxx wishes to remain anonymous. He is listed as a secondary witness because he is not truly anonymous. The SCU has verified his identity as an Operations Specialist aboard the USS *Nimitz*. His desire for anonymity will be honored and his name will not be disclosed in this report. He has been contacted by the SCU for an interview but has not responded.

He participated in a recorded interview with Jeremy Corbell on June 13, 2018 that has been made public.[12]

ANONYMOUS WITNESSES

These are anonymous witnesses and are listed from oldest to newest. Witness statements prior to December 17, 2017 when the New York Times article was released are considered of greater value since the "Tic-Tac" event was not well known prior to that time. These witnesses are listed chronologically.

February 3, 2007 Two anonymous witnesses in 2007 using the name "The Final Theory" and "Cometa" posted on the forum *Above Top Secret*. This discussion is too long to post here but can be found at the forum site.[13] These two anonymous individuals also posted a copy of an IR video via YouTube of an unknown aerial object as filmed from an F-18. The video has since been removed from YouTube. This is the same video that was released ten years later by the group "To The Stars Academy" and the *New York Times* in December of 2017. "Cometa" seems to be an individual out of Germany who was not a direct witness to the event. "The Final Theory" also seems to be an indirect witness. He makes too many incorrect statements related to the November 14, 2004 which tends to support that he was not a direct witness to the event. However, he provides enough basic information that he likely had obtained information from someone else who was a direct witness involved in the 2004 event.

12 Terry V., interview by Jeremy Corbell, *Jeremy Corbell Radio Show*, internet radio, June 13 2018.
13 *ATS: Above Top Secret*, "Fighter Jet UFO Footage: The Real Deal," http://www.abovetopsecret.com/forum/thread265835/pg1. Accessed 08/05/2018.

There is a lot of internet banter on the *Above Top Secret* site as to whether or not the video posted is or is not a valid copy. There are comments from an Australian pilot regarding the video that are worth reading. His name on the site is "Willard856". The video will be discussed in detail later in this report.

The main value in the 2007 anonymous postings is that it indicates someone apparently made a copy of a portion of the IR video that was held on the classified Navy server system known as SIPRNet. It was first hosted on a German website probably in hopes of lessening the likelihood of the person copying the video being identified. Making a copy of a classified video could cause a lot of problems for the perpetrator.

November 19, 2013 An anonymous witness in 2013 posted a reasonable summary of the events surrounding the "Tic-Tac" encounter on the Reddit forum. This individual worked on the flight deck of the USS *Nimitz*. His story is based on information that he obtained from other sailors during the time of the event. Although some of his statements are not correct as would be expected with second hand testimony, he obtained sufficient verifiable facts of the event to include his story and discussion in this appendix. This is another example of the widespread knowledge of this event on the *Nimitz* as well as the *Princeton*.

July 13, 2017 Anonymous witness indicates that he attended flight school with CDR Fravor's WSO. The comment is posted on the blog site article "There I Was: The X-Files Edition" of *Fighter Sweep*.[14]

May 30, 2018 An anonymous witness indicates he was on the *Nimitz* during this event. His comment is posted on the blog site article "There I Was: The X-Files Edition" of *Fighter Sweep*[32] and is include in this appendix. This anonymous witness on the *Nimitz* also indicates he viewed a copy of the video on the ship.

14 Paco Chierici, *Fighter Sweep*, "There I Was: The X-Files Edition" https://fightersweep.com/1460/x-files-edition/. March 14, 2015. Accessed 08/08/2018.

DD214 Form –Senior Chief Kevin Day

CAUTION: NOT TO BE USED FOR IDENTIFICATION PURPOSES | THIS IS AN IMPORTANT RECORD. SAFEGUARD IT. | ANY ALTERATIONS IN SHADED AREAS RENDER FORM VOID

CERTIFICATE OF RELEASE OR DISCHARGE FROM ACTIVE DUTY

1. NAME (Last, First, Middle): DAY, KEVIN MARK	2. DEPARTMENT, COMPONENT AND BRANCH: NAVY-USN
4a. GRADE, RATE OR RANK: OSCS	b. PAY GRADE: E8
5. DATE OF BIRTH (YYYYMMDD):	6. RESERVE (YYYYMMDD): N/A
7a. PLACE OF ENTRY INTO ACTIVE DUTY: OAKLAND, CA	b. HOME OF RECORD AT TIME OF ENTRY (City and state, or complete address if known): ALBANY, OR
8a. LAST DUTY ASSIGNMENT AND MAJOR COMMAND: COMNAVAIRFOR NAS NORTH ISLAND, CA	b. STATION WHERE SEPARATED: PERSUPP DET NORTH ISLAND, CA
9. COMMAND TO WHICH TRANSFERRED: NAVPERSCOM (PERS-4912) 5720 INTEGRITY DRIVE, MILLINGTON, TN 38055-4912	10. SGLI COVERAGE: [ ] NONE; AMOUNT: $ 400,000.00

11. PRIMARY SPECIALTY (List number, title and years and months in specialty. List additional specialty numbers and titles involving periods of one or more years.)

0319 - SUPERVISORY AIR INTERCEPT CONTROLLER (09YRS, 08MOS); 0348 - MULTI-TACTICAL DIGITAL INFORMATION LINK OPERATOR (TADIL) (13YRS, 03MOS); 0311 - AEGIS OPERATIONS SPECIALIST (CG47-64) (20YRS, 10MOS); 9502 - INSTRUCTOR (16YRS, 06MOS).

X X X X
X X X X

12. RECORD OF SERVICE

	YEAR(S)	MONTH(S)	DAY(S)
a. DATE ENTERED AD THIS PERIOD	86	JUL	25
b. SEPARATION DATE THIS PERIOD	08	JAN	31
c. NET ACTIVE SERVICE THIS PERIOD	21	06	06
d. TOTAL PRIOR ACTIVE SERVICE	00	00	00
e. TOTAL PRIOR INACTIVE SERVICE	00	00	00
f. FOREIGN SERVICE	00	00	00
g. SEA SERVICE	14	04	27
h. EFFECTIVE DATE OF PAY GRADE	03	SEP	16

13. DECORATIONS, MEDALS, BADGES, CITATIONS AND CAMPAIGN RIBBONS AWARDED OR AUTHORIZED (All periods of service)

MERITORIOUS SVC MDL; NAVY/MARINE CORPS COMMENDATION MDL; NAVY/MARINE CORPS ACHIEVEMENT MDL; COMBAT ACTION RBN; NAVY UNIT COMMENDATION; MERITORIOUS UNIT COMMENDATION; NAVY "E" RBN; GOOD CONDUCT MDL (6); NATIONAL DEFENSE (CON'T):

14. MILITARY EDUCATION (Course title, number of weeks, and month and year completed)

OPERATIONS SPECIALIST, CLASS A1" SCHOOL, 17WKS, FEB87; INSTRUCTOR COURSE, 4WKS, JUL91; ASSAULT BOAT COXSWAIN, 3WKS, SEP91; LEADER DEVELOPMENT PROGRAM (NAVLEAD) FOR LEADING PETTY OFFICERS, 1WK, JAN92 & FEB92 & DEC95; AIR INTERCEPT CONTROLLER, (CON'T):

15a. MEMBER CONTRIBUTED TO POST-VIETNAM ERA VETERANS' EDUCATIONAL ASSISTANCE PROGRAM		YES	X	NO
b. HIGH SCHOOL GRADUATE OR EQUIVALENT	X	YES		NO
16. DAYS ACCRUED LEAVE PAID: 1.0	17. MEMBER WAS PROVIDED COMPLETE DENTAL EXAMINATION AND ALL APPROPRIATE DENTAL SERVICES AND TREATMENT WITHIN 90 DAYS PRIOR TO SEPARATION	YES	X	NO

18. REMARKS

BLK 13 CONT' SVC MDL (2); ARMED FORCES EXPEDITIONARY MDL; SOUTHWEST ASIA SVC MDL; GLOBAL WAR ON TERRORISM SVC MDL; SEA SVC DEPLOYMENT RBN; ENLISTED SURFACE WARFARE SPECIALIST. BLK 14 CONT': 5WKS, AUG94; COMMAND AND CONTROL PROCESSOR SUBSYSTEM OPERATOR, 1WK, APR96; AIR INTERCEPT CONTROLLER - SUPERVISOR QUAL. CLASS "C1" SCOL, 2WKS, MAY98; PRIMARY LEADERSHIP DEVELOPMENT PROGRAM (FIRST CLASS PO LEADERSHIP), 2WKS, JUN98; ENLISTED TACTICAL APPLICATIONS, 2WKS, MAR00; CPO LEADERSHIP, 2WKS, MAR02. "SUBJECT TO ACTIVE DUTY RECALL BY THE SECRETARY OF THE NAVY." "EFFECTIVE DATE OF TRANSFER TO FLEET RESERVE STATUS: (08FEB01)." Ser: 42827-07-15965-KAN

X X X X

The information contained herein is subject to computer matching within the Department of Defense or with any other affected Federal or non-Federal agency for verification purposes and to determine eligibility for, and/or continued compliance with, the requirements of a Federal benefit program.

19a. MAILING ADDRESS AFTER SEPARATION (Include ZIP Code): 10317 WEST SUPERIOR AVENUE, TOLLESON, AZ 85353	b. NEAREST RELATIVE (Name and address - include ZIP Code): DEBBIE MITCHELL, 1121 NE D ST, GRANTS PASS, OR 97526
20. MEMBER REQUESTS COPY 6 BE SENT TO: AZ DIRECTOR OF VETERANS AFFAIRS	X YES NO
21. SIGNATURE OF MEMBER BEING SEPARATED	22. OFFICIAL AUTHORIZED TO SIGN (Typed name, grade, title and signature): T. J. WALKER, PSCS (AW/AC), USN, ACTING BY DIR OIC

SPECIAL ADDITIONAL INFORMATION (For use by authorized agencies only)

23. TYPE OF SEPARATION: TRANSFERRED TO FLEET RESERVE	24. CHARACTER OF SERVICE (Include upgrades): HONORABLE
28. NARRATIVE REASON FOR SEPARATION: SUFFICIENT SERVICE FOR RETIREMENT	
29. DATES OF TIME LOST DURING THIS PERIOD (YYYYMMDD): TL-NONE	30. MEMBER REQUESTS COPY 4 (Initials)

DD FORM 214, FEB 2000 PREVIOUS EDITION IS OBSOLETE. STATE DIRECTOR OF VETERANS AFFAIRS - 6

Fitness Report and Counseling Record –Senior Chief Kevin Day

FITNESS REPORT & COUNSELING RECORD (E7-O6)

1. Name (Last, First MI Suffix)	2. Grade/Rate	3. Desig
DAY, KEVIN M	OSCS	SW

5. ACT	TAR	INACT	AT/ADSW/ 265	6. UIC	7. Ship/Station	8. Promotion Status	9. Date Reported
X				21447	CG-59 PRINCETON	REGULAR	03JAN06

Occasion for Report					Period of Report	
10. Periodic	11. Detachment of Individual X	12. Detachment of Reporting Senior	13. Special		14. From: 04SEP16	15. To: 05JAN10

16. Not Observed Report	Type of Report 17. Regular X	18. Concurrent	19. Ops Cdr	20. Physical Readiness	21. Billet Subcategory (if any)
				P/WS	NA

22. Reporting Senior (Last, FI MI)	23. Grade	24. Desig	25. Title	26. UIC	27. SSN
SMITH, J L	CAPT	1110	CO	21447	231-92-1638

28. Command employment and command achievements.
C5RA-1; CART II/FEP-1; HARP/SFARP-1; COMPTUEX-1; POM/Upkeep/Maintenance-1.

29. Primary/Collateral/Watchstanding duties. (Enter primary duty abbreviation in box.)
DEPT LCPO/AAWO Assigned to Operations Department as LCPO and Assistant Air Warfare Officer-4. LCPO of 98 Sailors in OPS Dept. Provides LINK and AD expertise in support of PRINCETON as NSG ADC. COLL: OPS Dept LCPO-4, AAWO-4, AICS-4, CSTT Tactical-4, Duty Section Leader-4. WATCH: (U/W) Force Air Defense COORD-4; (IPT) OOD-4.

For Mid-term Counseling Use. (When completing FITREP, enter 30 and 31 from counseling worksheet, sign 32.)	30. Date Counseled	31. Counselor	32. Signature of Individual Counseled
	NOT REQ		

PERFORMANCE TRAITS: 1.0 - Below standards/not progressing or UNSAT in any one standard; 2.0 - Does not yet meet all 3.0 standards; 3.0 - Meets all 3.0 standards; 4.0 - Exceeds most 3.0 standards; 5.0 - Meets overall criteria and most of the specific standards for 5.0. Standards are not all inclusive.

PERFORMANCE TRAITS	1.0* Below Standards	2.0 Pro-gressing	3.0 Meets Standards	4.0 Above Standards	5.0 Greatly Exceeds Standards
33. PROFESSIONAL EXPERTISE: Professional knowledge proficiency, and qualifications. NOB	- Lacks basic professional knowledge to perform effectively. - Cannot apply basic skills. - Fails to develop professionally or achieve timely qualifications.	-	- Has thorough professional knowledge. - Competently performs both routine and new tasks. - Steadily improves skills, achieves timely qualifications.	-	- Recognized expert, sought after to solve difficult problems. - Exceptionally skilled, develops and executes innovative ideas. - Achieves early/highly advanced qualifications. X
34. COMMAND OR ORGANIZATIONAL CLIMATE/EQUAL OPPORTUNITY: Contributing to growth and development, human worth, community. NOB	- Actions counter to Navy's retention/ reenlistment goals. - Uninvolved with mentoring or professional development of subordinates. - Actions counter to good order and discipline and negatively affect Command/ Organizational climate. - Demonstrates exclusionary behavior. Fails to value differences from cultural diversity.	-	- Positive leadership supports Navy's increased retention goals. Active in decreasing attrition. - Actions adequately encourage/support subordinates' personal/professional growth. - Demonstrates appreciation for contributions of Navy personnel. Positive influence on Command climate. - Values differences as strengths. Fosters atmosphere of acceptance/inclusion per EO/EEO policy.	- X	- Measurably contributes to Navy's increased retention and reduced attrition objectives. - Proactive leader/exemplary mentor. Involved in subordinates' personal development leading to professional growth/sustained commitment. - Initiates support programs for military, civilian, and families to achieve exceptional Command and Organizational climate. - The model of achievement. Develops unit cohesion by valuing differences as strengths.
35. MILITARY BEARING/ CHARACTER Appearance, conduct, physical fitness, adherance to Navy Core Values. NOB	- Consistently unsatisfactory appearance. - Unsatisfactory demeanor or conduct. - Unable to meet one or more physical readiness standards. - Fails to live up to one or more Navy Core Values: HONOR, COURAGE, COMMITMENT.	-	- Excellent personal appearance. - Excellent demeanor or conduct. - Complies with physical readiness program. - Always lives up to Navy Core Values: HONOR, COURAGE, COMMITMENT.	-	- Exemplary personal appearance. - Exemplary representative of Navy. - A leader in physical readiness. - Exemplifies Navy Core Values: HONOR, COURAGE, COMMITMENT. X
36. TEAMWORK: Contributions towards team building and team results. NOB	- Creates conflict, unwilling to work with others, puts self above team. - Fails to understand team goals or teamwork techniques. - Does not take direction well.	-	- Reinforces others' efforts, meets personal commitments to team. - Understands team goals, employs good teamwork techniques. - Accepts and offers team direction.	-	- Team builder, inspires cooperation and progress. - Talented mentor, focuses goals and techniques for team. - The best at accepting and offering team direction. X
37. MISSION ACCOMPLISHMENT AND INITIATIVE: Taking initiative, planning/prioritizing, achieving mission NOB	- Lacks initiative. - Unable to plan or prioritize. - Does not maintain readiness. - Fails to get the job done.	-	- Takes initiative to meet goals. - Plans/prioritizes effectively. - Maintains high state of readiness. - Always gets the job done.	-	- Develops innovative ways to accomplish mission. - Plans/prioritizes with exceptional skill and foresight. - Maintains superior readiness, even with limited resources. - Gets jobs done earlier and far better than expected. X

NAVPERS 1610/2 (03-02)

FITNESS REPORT AND COUNSELING RECORD (E7-O6) (cont 'd)

1. Name (Last, First MI Suffix)	2. Grade/Rate	3. Desig
DAY, KEVIN M	OSCS	SW

PERFORMANCE TRAITS	1.0* Below Standards	2.0 Pro-gressing	3.0 Meets Standards	4.0 Above Standards	5.0 Greatly Exceeds Standards
38. LEADERSHIP: Organizing, motivating and developing others to accomplish goals. NOB [ ]	- Neglects growth/development or welfare of subordinates. - Fails to organize, creates problems for subordinates. - Does not set or achieve goals relevant to command mission and vision. - Lacks ability to cope with or tolerate stress. - Inadequate communicator. - Tolerates hazards or unsafe practices.	-	- Effectively stimulates growth/development in subordinates. - Organizes successfully, implementing process improvements and efficiencies. - Sets/achieves useful, realistic goals that support command mission. - Performs well in stressful situations. - Clear, timely communicator. - Ensures safety of personnel and equipment.	-	- Inspiring motivator and trainer, subordinates reach highest level of growth and development. - Superb organizer, great foresight, develops process improvements and efficiencies. - Leadership achievements dramatically further command mission and vision. - Perseveres through the toughest challenges and inspires others. - Exceptional communicator. - Makes subordinates safety-conscious, maintains top safety record. - Constantly improves the personal and professional lives of others. [X]
39. TACTICAL PERFORMANCE: (Warfare qualified officers only) Basic and tactical employment of weapons systems. NOB [X]	- Has difficulty attaining qualification expected for the rank and experience. - Has difficulty in ship(s), aircraft or weapons systems employment. Below others in knowledge and employment. - Warfare skills in specialty are below standards compared to others of same rank and experience.	-	- Attains qualifications as required and expected. - Capably employs ship(s), aircraft, or weapons systems. Equal to others in warfare knowledge and employment. - Warfare skills in specialty equal to others of same rank and experience.	-	- Fully qualified at appropiate level for rank and experience. - Innovatively employs ship(s), aircraft, or weapons systems. Well above others in warfare knowledge and employment. - Warfare skills in specialty exceed others of same rank and experience.

40. I recommend screening this individual for next career milestone(s) as follows: (maximum of two) Recommendations may be for competitive schools or duty assignments such as: LCPO, DEPT CPO, SEA, CMC, CWO, LDO, Dept Head, XO, OIC, CO, Major Command, War College, PG School.

SEA/CMC | LDO

41. COMMENTS ON PERFORMANCE: * All 1.0 marks, three 2.0 marks, and 2.0 marks in Block 34 must be specifically substantiated in comments. Comments must be verifiable. Font must be 10 or 12 Pitch (10 or 12 Point) only. Use upper and lower case.

Fitness Report submitted upon Senior Chief Day's transfer to COMNAVAIRPAC. He is my #1 SCPO! A recognized expert in Air Defense, his impact within the NIMITZ Strike Group has been phenomenal. His charismatic leadership has had a positive effect upon many enlisted Sailors and Officers onboard PRINCETON.

- Highly effective leader. Was OPS Department Leading Chief Petty Officer throughout an extremely arduous complex training cycle culminating in a highly successful group sail and COMPTUEX. His mentorship and exceptional knowledge were keys to PRINCETON's success.

- Superb Air Defense Tactician. PRINCETON was lauded by COMSTRKFORTRAPAC as having "the best Air Defense observed out of the last six Strike Groups". OSCS Day's his role as senior enlisted tactician and Force AWC was crucial in NIMTIZ Strike Group's unparalleled success.

- Master Trainer. As CSTT Tactical Coordinator, he developed the combined CSTT packages for PRINCETON's CART II and FEP, resulting the highest scores obtainable. He was the driving force behind NIMITZ Strike Group AIC's attendance at CVW-11 HARP and SFARP. This advanced training COMPTUEX 05-3 was completed with zero blue-on-blue engagements and a nearly perfect record in carrier air defense.

OSCS(SW) Day is an impact player with unquestionable competence and impeccable character. Promote to Master Chief NOW! He is a must select for CMC!

Promotion Recommendation	NOB	Significant Problems	Progressing	Promotable	Must Promote	Early Promote
42. INDIVIDUAL						X
43. SUMMARY	X	0	0	0	0	1

44. Reporting Senior Address
COMMANDING OFFICER
USS PRINCETON (CG 59)
FPO AP 96675-1179

45. Signature of Reporting Senior
James L. Smith Date: 6 JAN 05

Member Trait Average: 4.83 Summary Group Average: 4.83

46. Signature of Individual Evaluated. "I have seen this report, been apprised of my performance, and understand my right to make a statement."
I intend to submit a statement. [ ] do not intend to submit a statement. [X]

OSCS Date: 06 JAN 2005

47. Typed name, grade, command, UIC, and signature of Regular Reporting Senior on Concurrent Report

Date:

NAVPERS 1610/2 (03-02)

Social Media Discussion by *Princeton* Sailors and other Witnesses in Chronological Order

July 9, 2012 Facebook, Public Group, USS *Princeton* (CG 59)

Chris Guilford
July 9, 2012 · National City, CA

Anyone remember the UFO's during com2ex before the 05 deployment?

7 23 Comments 1 Share

Like Comment Share

Jared James I remember 2
6y · Like

Jason Turner I was just talking about it to my girlfriend the other day. It sounds SO unbelievable when I te" it 2
6y · Like

Brian Wilkerson I wasn't on board yet, but I definitely remember the stories.
6y · Like

Jason Turner We went into battle formation for it. It was crazy not knowing what the heck was going on. Also, The Nimitz launched a few jets that captured video that was "leaked" somehow. 1
6y · Like

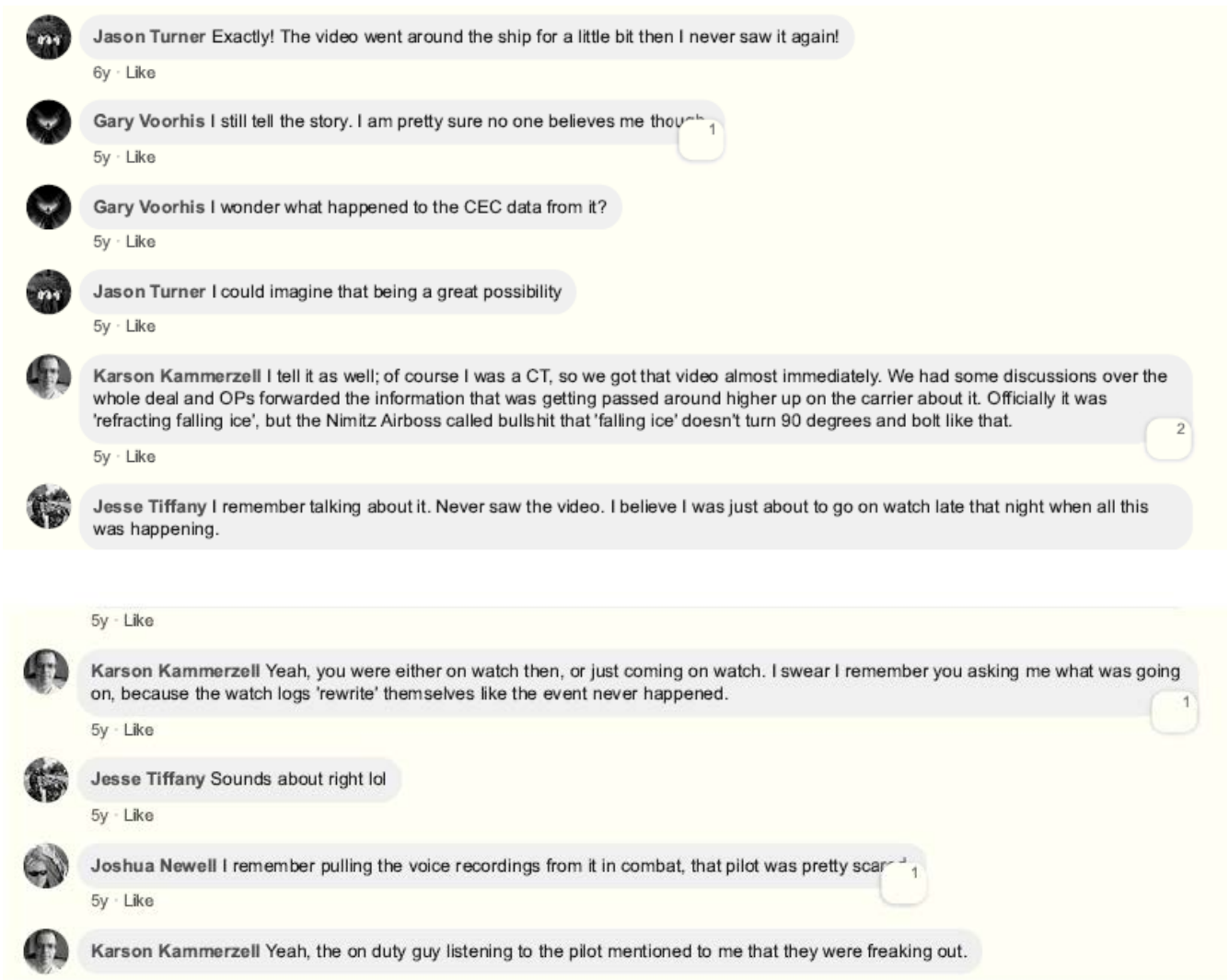
Matt Martinez Damn...where was I? I don't remember any of that?!?!?
6y · Like

Daniel Rafferty II There was no UFO, just atmospheric ice falling from the sky 2
6y · Like

Jason Turner Hahahaha, tell that to the guys in SSES 2
6y · Like

Chris Guilford I remember the flir video, sorry Dan but atmospheric doesn't make a horizontal 90 degree turn at 800 knots.... If it was man made I hope it was ours... 3
6y · Like

Joe Wolschon Nothing to see here, it was only ice. Didn't as soon as we pulled back into port suits came onboard and took any data that recorded them, or was that just a rumor? I do remember watching them from combat and also seeing the vid from the f18 a few days later. The thing looked like it was oscillating till bam right turn and outta sight instantly. Google UFO sightings in San Clemente islands.
6y · Like



Jason Turner Exactly! The video went around the ship for a little bit then I never saw it again!

6y · Like

Gary Voorhis I still tell the story. I am pretty sure no one believes me thou

1

5y · Like

Gary Voorhis I wonder what happened to the CEC data from it?

5y · Like

Jason Turner I could imagine that being a great possibility

5y · Like

Karson Kammerzell I tell it as well; of course I was a CT, so we got that video almost immediately. We had some discussions over the whole deal and OPs forwarded the information that was getting passed around higher up on the carrier about it. Officially it was 'refracting falling ice', but the Nimitz Airboss called bullshit that 'falling ice' doesn't turn 90 degrees and bolt like that.

2

5y · Like

Jesse Tiffany I remember talking about it. Never saw the video. I believe I was just about to go on watch late that night when all this was happening.

5y · Like

Karson Kammerzell Yeah, you were either on watch then, or just coming on watch. I swear I remember you asking me what was going on, because the watch logs 'rewrite' themselves like the event never happened.

1

5y · Like

Jesse Tiffany Sounds about right lol

5y · Like

Joshua Newell I remember pulling the voice recordings from it in combat, that pilot was pretty scar

1

5y · Like

Karson Kammerzell Yeah, the on duty guy listening to the pilot mentioned to me that they were freaking out.

November 9, 2013 Anonymous Witness Statement on Reddit

Witness Statement made in Reddit in 2013 before the public release of this information.
https://www.reddit.com/r/UFOs/comments/1qyu5i/my_ufo_encounterexposure_while_on_board_an/#bottom-comments

My UFO Encounter/Exposure While on Board an Aircraft Carrier in the Military (No Pics, Only Story) (self.UFOs)

submitted 4 years ago by anon402

I decided to create an account to tell this story of an experience I had while on board an aircraft carrier far from the coast of California in the Pacific.

*FIRST OFF, I am relaying information and supporting circumstances, I did not see a UFO personally. However, it is an interesting story.

I am intentionally going to be vague about certain specifics just to protect my identity, although this information was never told to be kept secret and was wide spread.

During a one or two month "work-up" on an aircraft in the Pacific Ocean, we encountered a UFO. For those that are unfamiliar, "work-ups" are training exercises in preparation for deployment. So, the ship will deploy for anywhere from 2-8 weeks and let the pilots get aircraft carrier experience.

So, we are on a routine "work-up" in the Pacific Ocean. However, this work-up involved multiple carriers and battleships in a rather large exercise. I have zero recollection of the time in the work up that the encounter occurred, but I believe it was a few weeks in.

I was attached to an F18 squadron and worked in a technical capacity, as opposed to working on the flight deck. For 3 days in a row, an Operations Officer noticed an aircraft breaching our restricted airspace. The aircraft was traveling at a low speed at around 20,000 feet. The first 2 days the aircraft was observed, it disappeared from radar after a few minutes before being able to investigate. In preparation for this aircraft, the carriers had f18s ready to scramble.

On the 3rd sighting, a formation of around 10 (very rough guess, but it was a large group) F18c&d's scrambled to the location to investigate including my Commanding Officer.

This is where the story becomes hard to believe and almost silly to tell.

According to the pilots and confirmed by a friend in intel, when they encountered the aircraft it had disappeared from sight. However, there was a large disruption in the ocean below and it was assumed that the aircraft crashed. So, the strike group circled the area and inspected the scene. OK, crazy part now, an object that was described by multiple pilots and a friend in intel as resembled a very large "tic-tac".

Sounds like the ultimate troll job, I know. So, the "tic-tac" oval object lifted from the water. Out of fear or impulse (I have no idea) our pilots decided to engage the object. After lifting from the water and sitting briefly, the object flew at a speed that none of the pilots had ever encountered. It was just gone.

The incident was not cloaked in secrecy. The entire carrier was buzzing with rumors. I was not able to see the COM/NAV actual flight recording, so I was very skeptical. Things get dull in the middle of the ocean and it is not uncommon for troll jobs. So I wasn't exactly sold.

That night in the berthing I asked a very close friend in intel if he could confirm the legitimacy of the film. Without speaking, he gestured that it was correct. So, my skepticism began to fade and that next day a group of individuals were "cod'ed" onto the carrier and they retrieved all the tapes. I can confirm they cod'ed onto the ship, but the seizure of tapes came from people that work in those shops.

Years later I had practically forgotten this experience and I was watching tv at a friend's house. The show was about UFO's and some Russian pilots were describing an experience they had and they actually released the flight footage. The object that captured on film was shaped just like a "tic-tac" and moved faster than anything in existence. If someone can find a video or pic of that doc, much love! It was on History Channel years ago.

Anyways, I hope you guys enjoyed the read. I will try to answer any questions if anyone has any! I don't want to go into details about dates, ship name, my job, etc.... although I don't think it matters, we weren't told to be quiet and it was pretty wide-spread (minus certain details I acquired through discussions)

[–]**anon402**[S] 1 point 4 years ago

Thank you freddy. I can honestly say that I am not trolling. I can't provide definitive evidence that proves my story and validates all of my allegations. However, the totality of the events that occurred validated the occurrence.

My only fear is that my command and the entire ship was involved in some sort of prank and that is a realistic possibility. However, given the circumstances that I investigated and the information I obtained from credibly sources validate most of the alleged events that occurred.

I could totally have been trolled. However, I am not the one trolling.

Just to give more specific info, i was aboard the USS Nimitz during the encounter. My job was to strip the black boxes from every plane. The black box tracks all of the flight data which tracks the life limits of aircraft parts. I was in charge of stripping black boxes. Although, I did not see the actual film, i replayed the flight in a 3d computer generated re-enactment. All of the evidence I could gather from my technical position verified the story.

Regarding earlier comments about the russian cockpit view. Our jets have FLIR's and are able to directionally position their FLIR's to capture all of the incident versus the russian pilots from years ago.

The Com/Nav video typically comes from FLIR's and not an actual "cockpit" view to my understanding.

[–]**anon402**[S] 6 points 4 years ago

No problem! When I say "engage," my understanding is that the planes that were equipped with ordnance went "hot" and all the planes assumed a tactical formation. However, I know for a fact no ordnance was fired from any jet.

Com/Nav is in charge of the inflight real time footage and they did have the real-time video of the event. The confirmation that I mention I received from my friend, was confirmation that the video exists and that it showed the events as we had been described.

Cod'ed is a term that refers to a small size passenger plane that the military uses to bring personnel on and off of aircraft carriers. The term that is commonly used is ...."People were cod'ed onto the ship today..."

The individuals that took our data were American and not in military uniform. They were also very well dressed. My shop personally had pertinent data that was collected. They did not personally collect it from me, but it was given to my supervisor and after he brought the required data, he was pretty vocal upon his return about how unusual this is/was.

The general consensus aboard the ship is that the individuals were from the government in some capacity and were there to obviously remove any evidence. Imagine if a Pfc. Bradley leaked that video hahaha? My personal belief is that it was a military project. I believe they were attempted to test its stealth/evasive capabilities by testing the strike group. We had 3 aircraft carriers in an unusually large exercise which would have provided a pretty good testing ground for such technology. That is just my opinion!

Thank you guys for the interest and taking the time to read! I'll keep trying to answer whatever I can!

July 13, 2017 Blog site, https://fightersweep.com/1460/x-files-edition/

woodsidetj · a month ago

I went to flight school in Pensacola with CDR Fravor's WSO on this flight. (I won't say his name on here.) Heard this story through the Hawkeye grapevine not long after it happened. We were down the hall from VAW-117. I would have thought it was BS if I didn't know the WSO that told the story. Most level headed guy you'll ever know. Smart as hell. He described it as a giant, flying Tylenol that could stop on a dime from super sonic speeds.
Thanks for sharing this, Paco. Can't believe I just now found your site!
--Boomhower

November 1, 2017 Email sent to SCU

Name Joe Wolschon

Email [redacted]

Subject 2004 Nimitz UFO Sighting

I was on board the USS Princeton during this event. I can remember it very well and can confirm that the video was released the day after the event on our secret email server from the Nimitz to the other ships in our battle group. I was a Sonar Technician and was on watch when this happened, I remember someone from combat told us to come over and check out these crazy contacts we were picking up on radars. We confirmed the targets with other ships in the battle group and the Nimitz then sent out jets to investigate. There were multiple targets that were drastically changing from sea level altitudes to 20k+ ft. I was excited to share the video with family members because I have been talking about this day for many years.

Sent on: 1 November, 2017

January 2, 2018 Facebook, Public Group, USS *Princeton* (CG 59)

Ben Blooflat shared a link.
January 2

The Princeton is mentioned in this article. Thought that was interesting.

FOXNEWS.COM

Fighter pilot chases UFO, urges world leaders to take the threat of aliens seriously

Luke A. Fink You boys ever hear of UUWOs.... Hyper Velocity Underwater Objects... Been on record for years in the Navy....
Like · Reply · 28w

Ryan Gowin Was on watch in Sonar Control when this happe[illegible] 3
Like · Reply · 28w

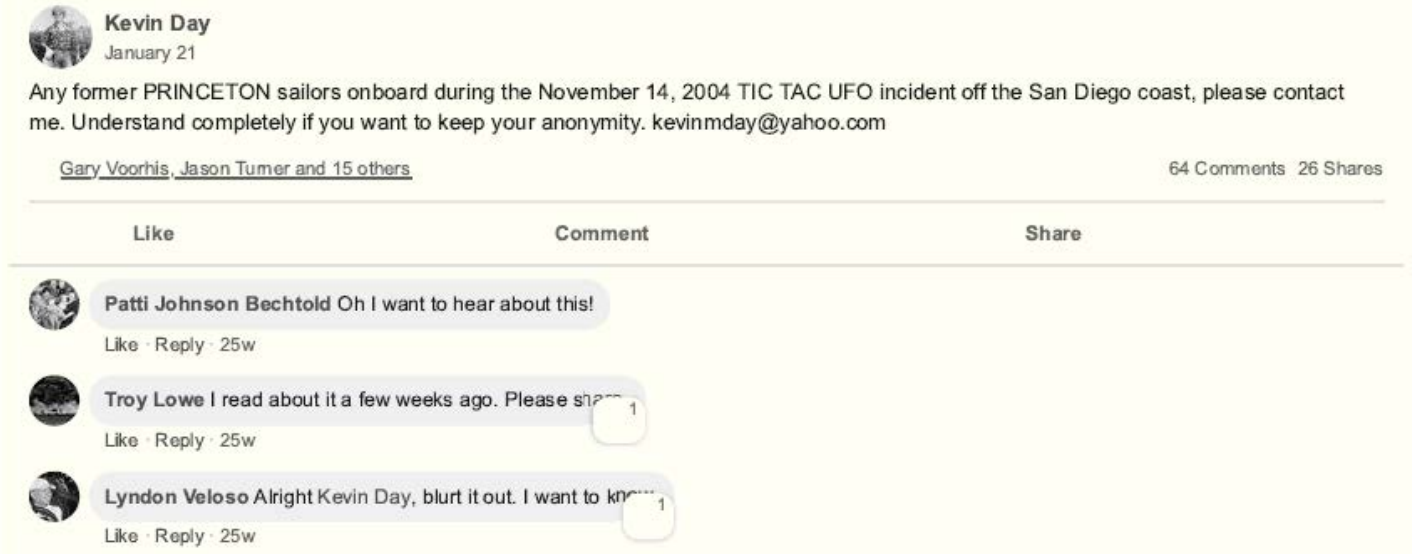
Rich Hoffman Did you detect anything or just hear about it?
Like · Reply · 21w

Ryan Gowin We checked the displays for contacts and didn't see anything. I was in combat when it all went d[illegible] 2
Like · Reply · 21w

Write a reply...

John Schwanke Saw it on the scope. 2
Like · Reply · 21w

January 21, 2018 Facebook, Public Group, USS *Princeton* (CG 59)



Beauford Shmuckatelly

5

Like · Reply · 25w

De Vante R Gunn I'm curious about this topic

Like · Reply · 25w

Travis Emery Was there. Why? Whatcha doin?

1

Like · Reply · 25w

Kevin Day What the hell, in the water with this now so I guess I'll swim. It happened, I was the AICS in Combat that morning. The Air side made those intercepts. So did teams onboard HIGGINS, CHAFEE, NIMITZ, and VAW117. I will post the whole story soon. However, please understand when I leave the names of those involved out of the story. 13 years ago now, yet incredibly important history, as things are turning out..

6

Like · Reply · 25w

Lyndon Veloso Maybe you can share it on "Ancient Aliens" with the History Ch[illegible]

2

Like · Reply · 25w

Jason Turner Was crazy when it happened that they wasn't it?! We went to GQ for a couple of hours when it happen[illegible]

2

Like · Reply · 25w

Craig White I don't recall GQ for this event ever, just doing circles seeing Coronado bridge on nvg's from a distance.

Like · Reply · 25w

Write a reply...

Stephen Sinur Tons of stories and videos have been written about it. Its not like your hiding top secret informati[illegible]

1

Like · Reply · 25w · Edited

Kevin Day VFA41, VMFA232..

Like · Reply · 25w

Kevin Day Very, very true. Damn glad about that [illegible]

1

Like · Reply · 25w

Jason Turner There are a lot of us on here who were there and who have been talking about it way before these articles finally came out. It's definitely quite the experience!

3

Like · Reply · 25w

Gary Voorhis I was there to. Aegis computer/ C[illegible]

4

Like · Reply · 25w

Chris Brewer I was there. Remember it.

5

Like · Reply · 25w

Lyndon Veloso So, how about the snipes? Did they see anything too?

Like · Reply · 25w

Chris Miller I didn't see anything from CCS.

Like · Reply · 23w

Write a reply...

Brian Langley Csc 2

Like · Reply · 25w

Charles Kimbril Who was the IS then?

Like · Reply · 25w

Charles Kimbril Oh wow, I remember that name.

Like · Reply · 25w

Scott Robbins Charles Kimbril I was mistaken, I was ten years off. Him and I served onboard 94-97 2

Like · Reply · 25w

Write a reply...

Jason Turner Cain (I think that's how he spelled his last name. It may be Kane... He passed a couple years ago.)

Like · Reply · 25w

Brian Langley Cain 1

Like · Reply · 25w

Charles Kimbril Oh really, sorry to hear that. I was IS1 1999-2000 1

Like · Reply · 25w

Pat Cabrera ISC Cain passed away during our Chief's Initiation in 2006. Really g[illegible] 5

Like · Reply · 25w

Write a reply...

Gary Voorhis It went on for over a week. The spy guys thought it might have been clutter at first and ran every diag they n[illegible] 2

Like · Reply · 25w · Edited

Kevin Day Tracks held by PRINCETON, CHAFEE, HIGGINS, NIMITZ, and VAW117. CEC and WAR DIARY.

Like · Reply · 25w

Write a reply...

Bob Teague All I can say is I'm not surprised it happened to the Princet[illegible] 2

Like · Reply · 25w

Mark Ashburn Personally I'm glad you're leaving names out. I remember when the MSS's name from the Vincennes Air Bus incadent got published and I watched as a very good man broke down. Some things are just best left alone! On another note I'd love a link to your story!!! 4

Like · Reply · 25w

Joe Sun Same here, also were there when the CIWS took out the target just to watch it hit our port side Helo hanger bulkhea[illegible] 2

Like · Reply · 25w

Jason Turner Yeah, I was picking up pieces of that thing in my storage space up at the top of the hanger. It went through two huge rolls of rope that were stored in there. 3

Like · Reply · 25w

Rick Shirer Man, HT1 Brock, Henley and myself were up there for hours patching the hole. I remember sticking my head out of the hole and look up and seeing one of the SPY antennas like 2-3 feet above me 5

Like · Reply · 25w

Karson Kammerzell Wasn't Snow taking an unauthorized nap in that area when it punched through the Hull [illegible] 2

Like · Reply · 25w

Matt Martinez I was playing poker with the ET's in the cal lab which was right above the hangar and he sound scared the crap out of us. 2

Like · Reply · 25w

Write a reply...

Troy Lowe Me too please. 1

Like · Reply · 25w

Jack Gillies I was in the cal lab when that thing hit the ship. IC2 Bailey was on the flight deck filming and had to run for co[illegible] 1

Like · Reply · 25w

Bryan Bailey I remember that shit. Was standing in the hanger when the chain of command ra[illegible] 1

Like · Reply · 25w

Brian Tolle My beloved flight deck & hanger sound like they just fell apart without me.

Like · Reply · 25w

Mat Camara So wait. This thing got taken out by CIWS and hit the superstructure?

Like · Reply · 25w

Bryan Bailey The UFO thing was different, this was a drone that was being pulled to see if ciws and 5 inch could hit a low slow flier... It did lol 1

Like · Reply · 25w

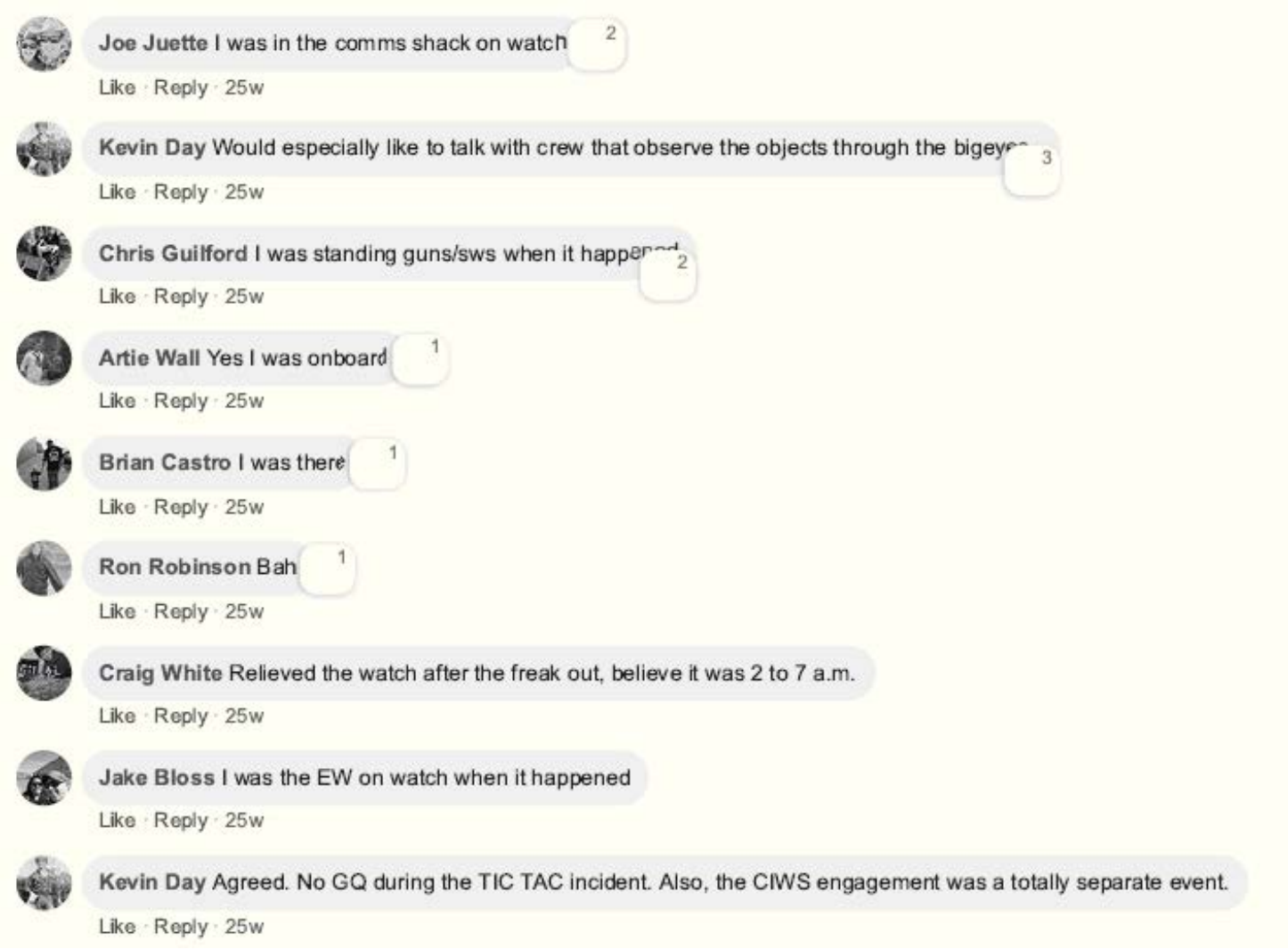
Write a reply...

Jordan Udelhofen I'm curious, never heard of this before...

Like · Reply · 25w

Duane VanDyken I remember being shown the video in 2005.

https://en.m.wikipedia.org/wiki/USS_Nimitz_UFO_incident



May 30, 2018 Blog site, https://fightersweep.com/1460/x-files-edition/

The Best • **2 months ago**

I was onboard the Nimitz when this took place. We called them "Zoomers". Flying up to 60k feet, back down to 100 in seconds. SH-60b's reporting them hovering over the waves kicking up steam. I saw the video of it that night. It moved in a manner that was impossible by anything we knew existed. The next day, the video had been erased and our ship had moved to a location further away to avoid any more contact.

I was under the impression an air force stratcom colonel was flown out to our ship to escort the involved pilot off ship for a debriefing. I'd like to know if that actually took place.

It could be our tech, or something else's. Confirmation one way or another would be very appreciated. I'm guessing by the pilot's response of "i want to fly one", he was briefed about it being ours. But personally I'm hoping he was told our government had no idea what it actually was.

Near-Miss with UAP near Sao Paulo, Brazil Airport in 2004[1]

Richard F. Haines
Oak Harbor, Washington

October 2009[2]

Abstract

This report summarizes a near-miss aerial encounter between a Brazilian passenger flight and a single, self-luminous and self-propelled sphere-shaped phenomenon during an afternoon in 2004. The UAP was in sight for over 14 minutes. The Captain had to make an abrupt evasive maneuver while approaching Sao Paulo airport's runway 17 localizer. Both cockpit crewmembers ducked down instinctively as they watched the white sphere pass by in front of them at an undetermined but relatively near distance. A beam of light swept through the cockpit as the UAP (unidentified aerial phenomenon) passed. It is highly unlikely that the object was an unmanned aerial vehicle, a helicopter, a balloon of some kind or ball lightning. The UAP was not recorded on ground radar at any time and remains unidentified at this time.

Date, Time and Location of Sighting

The exact date of this near-miss event is not known because the primary reporting witness (i.e., Capt. XX, First Officer; F/O) did not record it in his log book because the Sr. Captain "… refused to acknowledge the event in public." In a correspondence with the author of April

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[1] The primary reporting eye witness is referred to as Capt. XX. Although he gave permission for his name to be used the author decided against it for his future protection.

[2] This article originally published in English in The International UFO Reporter, Center for UFO Studies, Chicago, vol. 32, No. 3, Pp. 9-18, 23-24, July 2009.

30, 2009 the reporting witness wrote that this flight took place "during the week and not on the week-end." He also said, "I cannot be precise (about the season) because the weather around here has been changing a lot and you have warm days, bright sunny days even during the winter. The time of this encounter was sometime during the afternoon.[3] He recalls seeing cockpit shadows from the sun.

Flight Crew Witnesses and Passengers

The primary reporting eye witness was Capt. XX, 45 yrs. old. He was flying this leg. He had accumulated about 3,000 hours flight time in this airplane type at this time. By 2008 he had logged over 10,000 total flight hours and also had flown many different small propeller aircraft as well as the EMB-110 Bandeirante (1,300 hrs.), ATR-442 (3,500 hrs.), and Citation II and Citation Ultra (1,500 hrs.). He had no military flight experience. He had seen another unexplainable self-luminous phenomenon while flying sometime between 1989 and 1991 flying a Citation jet in the vicinity of Sao Paulo.

The second eye witness was Capt. YY, 52 yrs. old sitting in the left seat. During the sighting the reporting witness turned to his left and asked him, "Did you see this? Have you seen this?" He answered, "I saw it, but if you say that I will deny that I did. I know what it was, but I'll deny (it)." Nothing more was said between them for years. More recently the Sr. Captain has been employed by another airline.[4]

There were about sixteen to twenty passengers on board and two cabin attendants. Due to the position of the UAP relative to the airplane it is very unlikely that anyone else onboard saw the UAP although this isn't known for certain.

Weather

The witness indicated generally clear air enroute to Sao Paulo from the north. The witness said, "I remember a clear day, city in view. Someway it comes to my mind (that there were)

---

[3] The witness wrote, "…we were arriving during the afternoon, most probably (at) the end of the day in VMC Visual Meteorological Conditions." (Personal Correspondence, April 15, 2009)

some small cumulus (cloud) around (the) Guarulhos area, but not significantly…. it was rather a dry day… (When flying between the navigation fix "ERIC" and "EVER") the air was clear horizontally and vertically. I do not have the Metar, but I think that Sao Paulo was Cavok (Ceiling and visibility unlimited)."[5] "The sky was blue."[6] "Winds from 6 to 12 kts."[7]

The Airplane

The pilots were flying a French built (Aerospatiale/ Alenia, Avions de Transport Regional) ATR-42-300, two-engine, short-haul, regional, turbo-prop aircraft. Figure 1 shows a similar model as flown by a different airline. This model aircraft has been in revenue service in many countries since 1985 with over four hundred built to date. The "42" refers to number of passengers. Its short take-off field length of 3,822 feet at sea level makes it an attractive aircraft for many locations. It is considered a relatively high performance aircraft. The latest version (ATR-42-500) has a maximum cruise speed at 17,000 feet = 300 kts; time to reach 17,000 feet from 1,500 feet = 9.9 minutes. The airplane involved here was not equipped with a Terminal Collision Avoidance System (TCAS).

Figure 1

ATR-42/300 In-flight

[4] An attempt is being made to locate him for purposes of an interview.
[5] Personal correspondence, May 20, 2009.
[6] Personal correspondence, June 1, 2009.
[7] Personal correspondence, June 2, 2009.

Flight Path and Sighting Details

This flight was returning to Sao Paulo's Congonhas Airport (SBSP) from one of the following small cities northwest of Sao Paulo: Bauru, Marilia, Presidente Prudente, Aracatuba, or Araraquara. The reporting witness cannot recall which one. All are within about 300 miles (or less) of the airport, the busiest in Brazil. SBSP uses two primary navigational approach entry points for landing:[8] Point 1 is SANTANA (STN) (to be discussed below and shown in Figure 2) generally for flights approaching from the northeast, north, and northwest and landing on runway 17 L and 17R, and Point 2 is referred to as the REDE fix (RDE) for flights arriving from the coast to the southeast, south, and southwest and landing on runway 35 L and 35 R. Runway elevation is 2,631 feet MSL. There are a number of mountains surrounding Sao Paulo ranging in height from 3068 to 4167 feet (MSL).

The following reconstruction of events is based upon the primary witness' memory and his extensive flight experience flying to and from Sao Paulo's Congonhas Airport (SBSP). Without radar confirmation of the UAP's position at any time during this fourteen minute-long visual sighting its location must be considered only approximate. The author has arbitrarily selected three locations along the airplane's flight path from which to consider various characteristics of the UAP. These three airplane locations are shown on Figure 2 with bold, block letters as:

A. At or very near the VOR fix named "ERIC"; airplane on heading of 158 deg.

B. Passing just north of the VOR fix named "SANTANA" (STN) shown by concentric circles in lower center of Figure 2. Here the airplane is banking left and altering its heading by 52 degrees to a new heading of 106 deg.

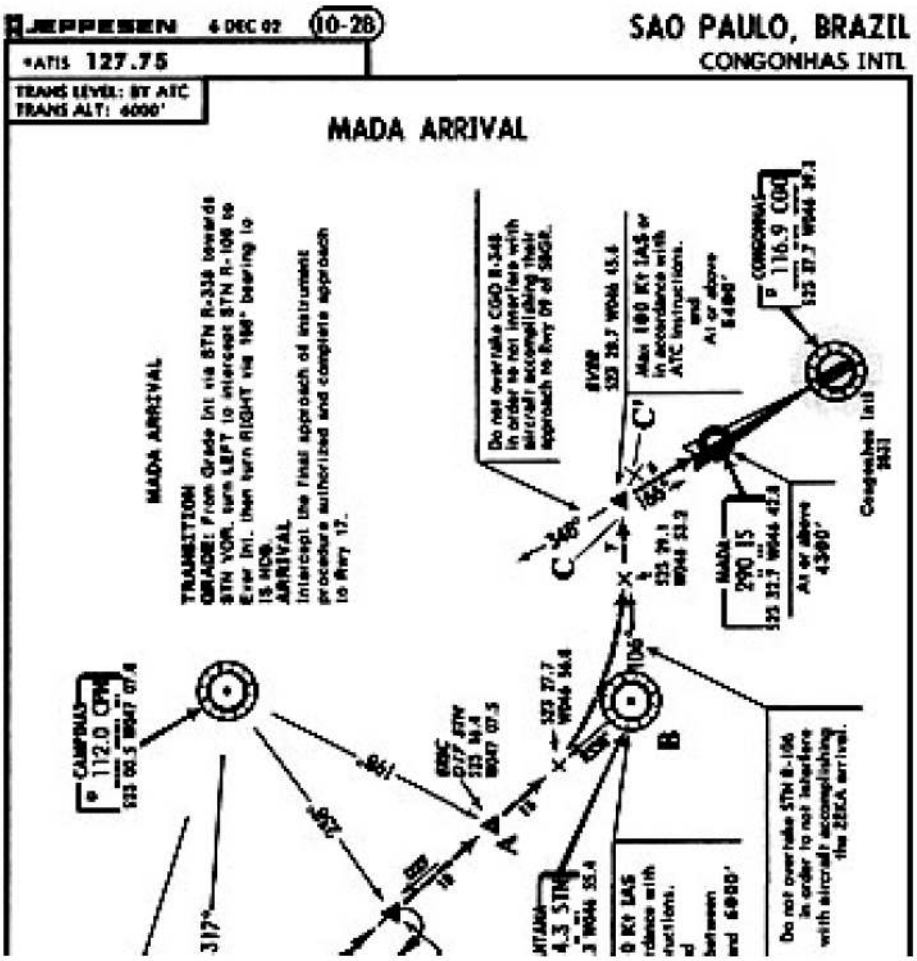
C. On heading of 106 deg. from STN and very "close to the navigation fix named EVER"[9] and shown by a triangle in Figure 2. This location is only approximate. At this location the

[8] There are several others as well that will not be discussed.
[9] Personal correspondence, May 27, 2009.

witness estimated he was about one minute flight time before he would normally begin to turn to the right to intercept the ILS localizer to runway 17.

Figure 2

MADA Arrival Chart to Runway 17, Sao Paulo



Airplane at Location A "ERIC"

The reporting witness kindly provided an approach chart[10] a portion of which is presented as Figure 2. He definitely remembers arriving at a navigation fix called "GRADE" and

continuing on autopilot toward the SSE toward the SANTANA VOR beacon (labeled B in lower center of Figure 2) following a straight course approximately 60 miles long on a heading of 158 deg. The flight was conducted under Instrument Flight Rules. Atmospheric visibility was good at the time. The flight itself was under active ground radar monitoring and vectoring at the time.

Upon arriving at "ERIC" the primary reporting witness noticed a single, relatively intense white light at his ten thirty or eleven o'clock position (about 30 or 40 deg to left of his flight path). There is another large airport to the north of Sao Paulo called Cumbica (see Figure 4); its official acronym is SBGR. At this location the witness' aircraft was at about FL080 (approximately 8,000 feet) and travelling about 180 kts.; it was descending and slowing in conformance with air traffic control (ATC) instructions prior to landing. In a later correspondence regarding the judged location of the UAP, the witness said, "I would rather say (it was) somewhere … in between Cumbica (SBGR) airport and Congonhas (SPSP) airport."[11]

In order to help visualize the apparent location of the UAP and its approximate angular size within the outline of the windshield the witness kindly provided several composite illustrations. He used cockpit photos he had taken (while on the ground) of the same model airplane; he stood just behind the pilots' seats on the cockpit's centerline. Then he superimposed other daytime aerial photos of the ground he had taken from the air at different locations. Figure 3 depicts the small, round, white UAP seen just left of the aircraft's center windshield post and low on the horizon when he was at location A (ERIC).

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[10] MADA Arrival, Sao Paulo, Congonhas International Airport, (dated December 6, 2002) The original arrival plate was not available, however, the distances shown on this plate are still accurate.

[11] Personal correspondence dated May 13, 2009.

Figure 3

Approximate Location and Appearance of the UAP

when the Airplane was at Location A

(UAP located ahead and just to left side of center post)

The witness' initial estimate of the distance to the UAP from location A was twenty nmiles. "… in the neighborhood of Sao Paulo airport (SBSP)." The measured distance from point A and airport SBGR is about 38.2 nmi.[12] The measured distance from point A to his destination airport, Congonhas Airport (SBSP) is about 33.5 nmiles. Of course the actual distance to the UAP is not known.

The witness also provided estimates of the angular size of the UAP at each of these three locations. At location A it appeared as "just another traffic (airplane) approaching them,"[13]

[12] This underestimation of distance in clear air is a well known phenomenon of visual perception, particularly when the identity and actual size of the target object isn't known and there are no intervening distance cues present with which to judge the separation distance.

[13] Personal correspondence April 12, 2009.

"only as a single white light" (that) flew along a "constant course."[14] He said its initial angular size was equivalent to about 1.5 times the thickness of a pencil lead or about 3 mm (d), the pencil held at arm's length. Assuming the viewing distance to the pencil to be 71 cm (D) the resulting angle (alpha[1]) = Tan alpha[1] = d/D) or Tangent 0.00423. The resulting angle = about 14 minutes arc or just under one-half of the full Moon's diameter of 32 min. arc.

The reporting witness said that somewhere between location A and B he asked the captain to contact center to ask about other possible traffic in the area. But even when they arrived near the SANTANA VOR fix he had not done so. So Capt. XX contacted center himself and learned two things, (1) there was another aircraft to his left and at a higher altitude probably bound for Cumbica Airport (SBGR) and (2) the ground radar showed no other traffic in their area.

The witness also stated that his first plotting of the probable location of the UAP while flying near Location A was visually near prohibited area SBP 429 (2337.83 S; 04629.03 W). This airspace extends from the ground to 4,000 feet altitude and is listed as a permanent restriction.[15] The area is labeled "Petroquimica." (Petrochemical factory) He identified two other prohibited areas[16] of possible relevance to the location of the UAP: (1) SBP 408 USINA CONGAS (Thermoelectric plant; 2334.03 S; 04637.03 W). This airspace extends from the ground to only 1,000 feet altitude and is listed as a permanent restriction. (2) SBP 436 CIDADE UNIVERSITARIA (exists to protect the Sao Paulo University Campus). Unless someone at the university was launching and flying a spherically shaped UAV or conducting high energy physics experiments in the lower atmosphere this prohibited area does not appear to play any role in this event.

Airplane at Location B
Near VOR Fix "SANTANA"

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[14] The witness clarified this point on May 18, 2009; "I would say (the UAP flew) parallel with the ground. Imagine that I was concerned with his horizontal displacement in relation to the (flight) path I had to make, thus we would get together (collide) nearby the localizer interception." (Personal correspondence, May 18, 2009).

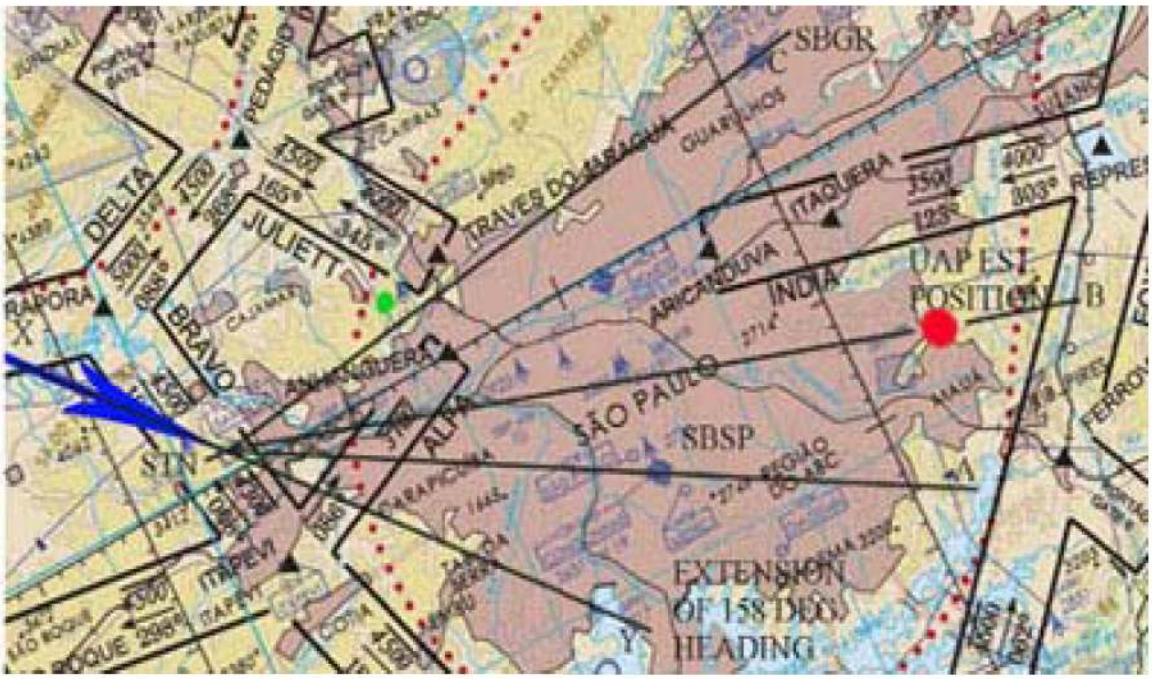
[15] www.aisweb.aer.mil.br/aisweb_files/indices/AIP-Brasil/enr5.pdf (pg. 21)

[16] The locations of these prohibited areas are found on the Juliett 5 NDB descent chart for runway 35L at Congonhas airport.

While the SANTANA (STN) VOR is used as a fixed navigation point most flights turn left just before reaching it to achieve a smooth outbound VOR radial heading of 106 deg in order to intersect the runway's ILS path's inbound bearing of 166 deg. Capt. XX recalls that his altitude passing STN was about 6,500 feet AGL. He was traveling about 165 kts.[17]

Figure 4 has been prepared to help understand better the possible azimuth angles of different locations and the UAP as seen from location B.

Figure 4
Sao Paulo Regional Chart
(Annotated points and lines explained in text)



Referring to Figure 4, the flight path of the airplane is shown by the diagonal blue arrow entering at the left-center.[18] It points at the SANTANA VOR beacon (STN) but the line has been extended beyond (on heading of 158 deg.) to Y. This straight line is useful in measuring azimuth angles from the cockpit to various locations. Line STN - A is directed toward the

[17] These are only rough estimates and are likely based on prior flight experience and reference to flight charts.
[18] This chart with its various marked locations was provided by the witness on May 6, 2009.

Congonhas Airport (SBSP), some 17.3 nmi. away. Line STN - C is directed toward the Cumbica Airport (SBGR) about 23.8 nmi. away. Finally, the small red dot that represents the estimated location of the UAP (along the line STN - B) when first seen at location A. Its distance would have been about 29 nmiles away.

Assuming that the airplane was just approaching STN and had not yet begun its left turn, the UAP would have been located between 30 and 40 deg to their left side. However, if the UAP was not at the red dot location but somewhere else between Cumbica and Congonhas Airports then the UAP could have been between about 30 and 60 deg. arc to the left of their heading.

Upon leveling their wings on their new heading of 106 degrees beyond STN the UAP was now seen at a bearing of about 125 degrees or about twenty degrees arc on their right side. In other words, their change in heading caused the distant UAP to appear to move across to their right-hand side.

Based on his recent recollection of the UAP while he was near STN, the reporting witness wrote, "As I was concerned about the (presence of) the object… I would prefer not to go faster but slower (than about 165 kts)[19] in order to see better (how) the situation developed… I don't recall…any increase in airspeed while traveling along the 106 deg heading."[20]

I asked the reporting witness whether the UAP seemed to be descending with their airplane, i.e., whether it appeared to be matching their descent, so as to be on a collision course? On May 2, 2009 he wrote, "I couldn't notice any descent movement on the part of the object. As I was descending it remained at the same angle of the cockpit. As it was always steady, (i.e., maintained a smooth horizontal motion), that called my attention (to it) because if it were following the approach to runway 17, any traffic along the LOC course should not be there for a long time. What I could perceive was that it was moving in a way that I calculated that, if it continued, we would get together (collide!). So, as regarding some sort of

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[19] Words in parentheses within quotation marks are inserted for clarification by the author.

[20] Personal correspondence, May 13, 2009. The MADA Approach chart specifies that all airplanes must not exceed 190 kts and cross SANTANA at between FL080 and 6,000 feet unless specific instructions to the contrary are received from ATC.

(perceived) motion, (there was) only that of an approaching target. But I could not observe that it was descending with me."[21]

Capt. XX asked the Captain if he was looking at the other unidentified traffic and learned that he was. The traffic continued to appear to be approaching their airplane. He also asked the Captain how long approach control would remain silent about the other traffic. About then he noticed that the other object had no navigation lights but looked only like a self-luminous point or ball. He then asked the Captain to contact ATC.

Figure 5 is the witness' photographic composite image of the UAP when the airplane was on a heading of 106 degrees and nearing a navigational fix indicated by **X** on Figure 8 but before beginning to turn right.

Figure 5
Approximate Location and Appearance of
the UAP when the Airplane was on a Heading
of 106 Degrees at Location B

[21] The accurate visual perception of vertical displacement of a distant object in clear air is difficult at best unless there are fixed visual reference points also present against which the moving object's displacement may be compared over time.

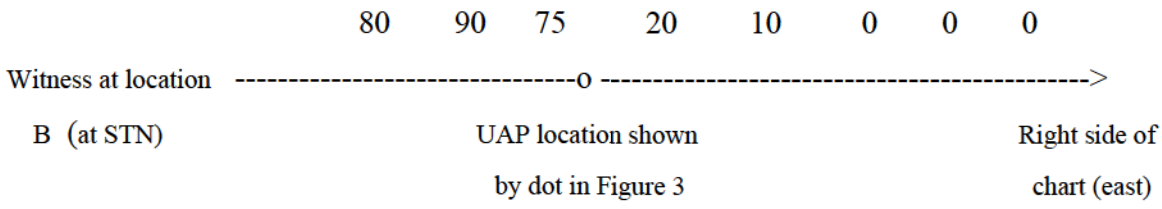
After an unspecified period of time when the Sr. Captain had not called air traffic control Capt XX. called them himself. He was informed that they did not "see" the other traffic on ground radar. Because the airplane had turned farther left to the new heading of 106 degrees, from the cockpit the UAP appeared to have stayed in basically the same two o'clock relative position which would signal an eventual mid-air collision if nothing else changed.[22]

The reporting pilot said that the relative bearing to the UAP from the airplane[23] was now only about six degrees to their right which confirms the pilot's stated concern that it might collide with them if the both continued their present flight paths.

The author attempted to obtain a more accurate determination of the distance to the UAP as seen from location B. Using the chart presented in Figure 4 for basic ground reference points the witness was asked to assign a probability number from zero to 100[24] for each of seven equally-spaced distances away from his own location at STN. The witness's assignment of probabilities is presented in Figure 6.

Figure 6

Probability Estimates of Range between Witness and UAP



What these probability estimates suggest is that the reporting witness modified his earlier estimation of the location of the UAP [as he was passing location B (STN)] and now thought that its could have been nearer to him by an unknown amount.

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[22] It is a well known fact that if an oncoming airplane does not change its visual position on the windshield it is on a converging course and will eventually strike the other airplane.

[23] The longitudinal axis of the airplane defines zero degrees bearing.

[24] A zero was to be inserted (at any distance to the UAP) where the witness thought there was absolutely no possibility at all that the UAP was there. A probability score of 100 was to be inserted where he was absolutely certain that the UAP was there. Any number between zero and 100 could be used.

Referring to Figure 4, if the UAP was at the location marked by the witness (with a red dot) then: (1) its azimuthal location would have been somewhere between the two airports mentioned above, and (2) its distance (from point STN) would be about 28.8 nmiles. If the airplane were flying at about 165 kts (just beyond STN) and the UAP was 12 nmiles away at location B' (cf. Fig. 9) and both were on a direct collision course they would have met after 4.3 minutes of flight.

Using known distances and airspeeds of the airplane (Fig. 2) between locations A, B, and C the duration of flight was 10 minutes from A to B and 3.8 minutes from B to C. Knowing these durations to first order accuracy permits calculations of the velocity of the UAP from A' to B' and from B' to C' assuming that the X marks on Figure 8 are approximately correct. We find a UAP velocity of 28 kts between A' to B' and 58 kts between B' to C'.

Location C
Position C on Figure 2 just Before the Near Miss with UAP

At location C the airplane was at about 5,500 feet altitude and travelling about 150 knots airspeed. Normally he would have started his right-hand turn to intercept the runway's LOC upon arriving at the navigational fix labeled EVER.

At this point during the flight Capt. XX said, "this guy is very close and is (still) approaching us. This is not an aircraft, only a light, and we are very close." "(As) I was heading to EVER then the object was to my right at about 20 deg. or 25 deg."[25] "… and the object (was) approaching (me) I saw that it was round, like a ball, so it was a sphere."[26]

Then, when the airplane was "…very close to the interception point on the localizer," the UAP was now so close that Capt. XX decided to turn off the autopilot, bank sharply to the right, and descend slightly to "…avoid a collision." He wrote that he thought he did this

[25] Personal correspondence, May 27, 2009.
[26] Personal correspondence, May 20, 2009.

about one minute's flight time before reaching the fix at EVER. This is portrayed by the witness in Figure 7.

Figure 7
Approximate Location and Appearance of
the UAP when the Airplane was at Location C
at Beginning of Right-hand Banking Turn

At this point both crewmen saw "…a great torch of light (that) swept the cabin (and) caused great confusion. The cabin was suddenly and unexpectedly illuminated from the UAP appearing to come from the left side and moving across to the right. Both crewmen ducked down behind the instrument panel (for protection?) for several seconds, anticipating a mid-air collision. When I asked how long both crewmen bent forward and looked down the primary witness wrote, "Well, as soon as I initiated the curve (began to bank right and descend) perhaps in 2 seconds the beam came. I guess I would say about 8 seconds until the beam of light went away. … Well, I was with the controls, having the object (so) close by and having to detour and fly the airplane. I think that when I (made) that decision, I started to look at him,

like conveying, "you see what I am doing?" and immediately (the) light came around (and the) cockpit alert went high at that moment - and I saw him with his head bowed while the light passed, gazing at the (floor) and I guess he remained like that for the following seconds."[27]

The reporting witness provided the following additional comments about these final moments during the close encounter. "I don't know why I didn't look at (the UAP) in its closest moment. Something I would not (have) missed at any cost. But I missed the very moment that I could have (had) more answers - or perhaps more to wonder (about). But someway, I did not look (at it) and I cannot understand why."[28]

It was then during the flight that Capt. XX asked the captain, "Did you see this? Have you seen this?" He answered, "I saw it, but if you say that I will deny that I did. I know what it was, but I'll deny (it)."

I wrote to the reporting witness to ask if he would feel comfortable with me remarking that any pilot would have been very frightened or panicked by seeing such an aerial object approaching them while in flight. He replied, "I was worried. The other captain was apparently not worried. At our closest moments with the object we were silent. And (I conducted the) detouring maneuvers, at least on my part in (a state of) apprehension, uneasiness. There was no panic, but perhaps a reflexive behavior when the light passed from left to right in the cockpit, making us duck (in) some way. At the moment I started to bank right I really did not see the size of the object and I cannot explain why I did not look at it. Afterwards, when we looked at each other, I would say that a relief came. My thought at that moment was, that was too close for comfort."[29]

Location C' in Figure 2 is where the UAP appeared to be when the airplane was at location C. The calculated separation distance between them was only about 3.8 nmi. With the airplane travelling at 150 knots and the UAP also an assumed velocity of 150 knots the time to impact would have been about 77 seconds.

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[27] Personal correspondence, May 9, 2009.
[28] Personal correspondence, May 20, 2009.

After the UAP had passed beyong the airplane Capt. XX maneuvered to intercept the localizer and completed its approach and landing on runway 17R.[30] The UAP departed off toward the left side of the airplane maintaining its altitude. Capt. XX continued to look at the UAP from his seat on the right side of the cockpit until the airplane was nearing the outer marker about 5.5 nmi. from the runway.

Significantly, no air turbulence was felt at any time during this event. It is also important to note that this near-miss took place only about 15 miles north of the runway threshold. The question can be asked whether tower personnel could have seen this event if they had been alerted in advance and looking in that direction? This is particularly possible if the UAP was continually emitting bright light in all directions as the witness' following testimony suggests. The Capt. wrote that, "The interesting fact at this time (was) that regardless of the angle you looked at the object (it) was still a bright light discarding the possibility of (it being) an aircraft."[31]

At this point it is necessary to consider another approach plate for Sao Paulo airport (SANTANA 1 Arrival) presented as Figure 8. This is the first approach chart the witness provided the author before he had more carefully reconsidered the flight path he had followed during the incident. He marked six locations in black pen on this chart.[32] Circles labeled A, B, and C correspond to the three airplane locations discussed above. Crosses labeled A', B', and C' are the estimated positions of the UAP at corresponding times.

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29 Personal correspondence, May 20, 2009.

30 Normal approach to landing procedure requires that the pilot contact the airport tower when at the outer marker. The reporting pilot didn't remember any airplane making a landing in front of him. If there was a UAP in this vicinity either it was not seen by tower personnel or they disregarded it because it was travelling away from the airport.

31 Personal correspondence, April 30, 2009. Implicit in this statement is the fact that no external airplane fuselage light sources shine in all directions simultaneously. Most are confined to narrow beams that disappear when pointed away from the viewer.

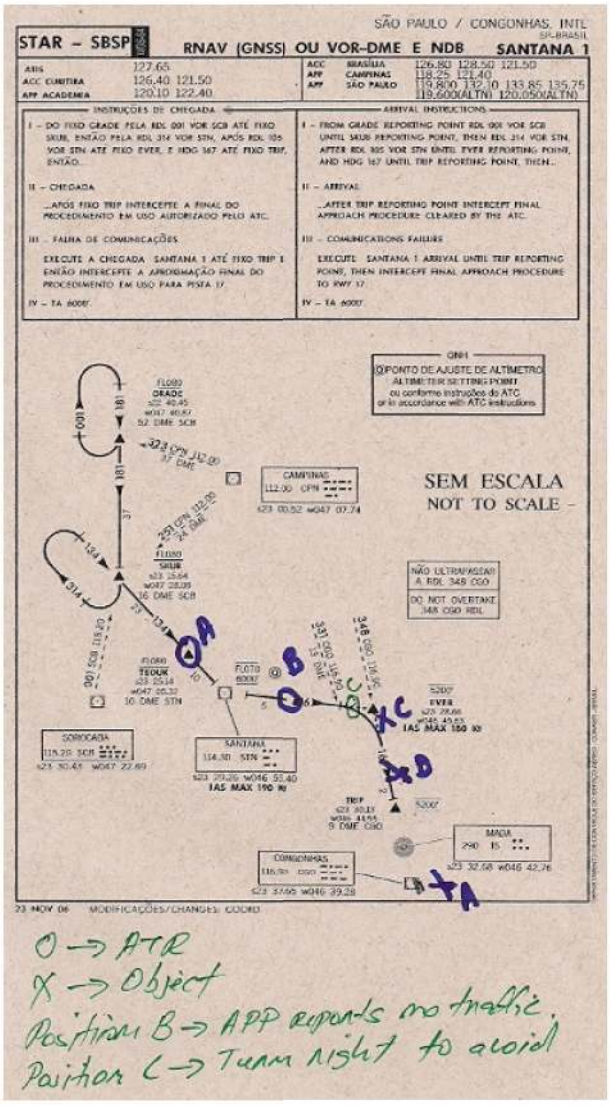
32 Personal correspondence, April 30, 2009.

It is important to note that the apparent flight path of the UAP was linear and directed toward or near) the EVER navigational fix where the airplane also was headed. The UAP never appeared to veer toward the airplane; i.e., both were on a converging course. "By no means (did) the UAP move towards my path when I was (flying on a heading of) 106 deg before my detour."[33]

Figure 8

Annotated SANTANA 1 Approach Chart to Runway 17, Sao Paulo

(Original flight chart received with witness notations in black ink)



[33] Personal correspondence, May 27, 2009.

It will be noted that the three positions of the airplane depicted in Figure 8 differ somewhat from those shown in Figure 2. This is because the witness subsequently remembered that he hadn't used the SANTANA 1 arrival chart during this event but, rather, the MADA arrival (i.e., Figure 2). Figure 8 is presented only for its depiction of the three UAP positions and their relative distances apart relative to the more accurately known position of the airplane at location A, B, and C; this helps establishes durations between these three locations to a first order of accuracy. Table 1 presents the result of these calculations.

Table 1

Distances, Speeds, and Flight Durations

Based on Witness Narrative Data and Figure 5

Locations	*Distance (nmi.)*	*Velocity*	*Time to Travel (min.)*
Airplane			
A - B	*17 (K)*	*180 (K)*	*5.7 (K)*
B - C	*10.6 (K)*	*165 (K)*	*3.85 (K)*
C - EVER	*1.2 (K)*	*150 (K)*	*0.5 (K)*
UAP			
A' - B'	*4.7 (A)*	*28.2 (C)*	*5.7 (K)*
B' - C'	*3.7 (A)*	*57.7 (C)*	*3.85 (K)*
C" -EVER	*2.6 (A)*	*102.5 (C)*	*1.54 (K)*
(K) = Known		*(A) = Assumed*	*(C) = Calculated*

Note in Figure 8 that the UAP was drawn as traveling farther from A' to B' relative to the airplane's travel distance from A to B while the opposite is true between points B' and C' versus B and C. It is as if the UAP seemed to be approaching the intersection point at a higher rate of speed in order for it to cover the greater separation distances portrayed in Figure 2. This is made apparent in the calculated velocity values of the UAP in Table 1. Of course, if these marked UAP locations are not correct then this analysis is mute.

For the sake of completeness and possible useful reference Figure 9 presents the DESCENT HOTEL 1 Approach chart to ILS Runway 17 to Sao Paulo. It contains much useful information for the region north and west of Congonhas International Airport (SBSP). This is an enlarged flight chart compared with Figure 2 and is useful for plotting the possible locations of the airplane and UAP relative to one another over time. Points C, A', B' and C' have been replotted according to the locations provided by the witness in Figure 8.

Figure 9

Annotated Descent Hotel 1 Approach Chart to Runway 17, Sao Paulo

The reporting witness claimed that, as he originally sketched on Figure 8, the UAP appeared to be in the vicinity of the Congonhas Airport (SBSP) when first seen (location A'). Then the UAP moved continuously toward the NNW by about 4.7 miles over the same period of time as the airplane traversed from A to B or 5.7 minutes. This represents a UAP velocity of about 28 kts.

If the distance traveled by the UAP from B' to C' is about 3.7 nmi. and the duration of its flight was 3.8 minutes (again using the airplane's known flight distance and velocity as a reference) then the UAP's velocity would have been almost 58 kts.

Finally, if the distance traveled by the UAP from location C' to the EVER fix is about 2.6 nmi. and it was covered in only 92 seconds, the UAP would have had to be travelling at over 100 kts! Even relatively small changes to the estimated UAP locations shown on Figures 5 and 6 could even out the calculated velocity of the UAP to around a constant 65 to 75 kts.

The lower diagram in Figure 9 shows an elevation view of the nominal ILS flight path that airplanes should follow to runway 17. Note that the localizer should be intercepted at an altitude of 5,200 feet and that there are several mountain peaks lying near the flight path making altitude control very critical. The outer marker should be crossed at 4,300 feet and the middle marker at decision height.

The UAP

The reporting witness provided the following additional details about the UAP over the course of the approximately 14.3 minute-long sighting:

Appearance: Initially the UAP appeared as a very small, self-luminous area of bright white (or "crystal") light, something like a single landing light on some airplanes. It was large enough to not qualify as an optical point, at this point. "I saw no change in color at any time.

It only seemed stronger (more luminous) as time went by."[34] When asked about his statement that the center or body of the UAP had a "milky white" appearance he replied, "By milky I mean that it was more concentrated, not that there was a mixture of colors, but a single, unique color that I could infer it was a body, although I could not see its surface directly." Later in this same correspondence he wrote, "It was not silver." [35] At no time during this encounter did its outline shape change from "round."

When asked about his general impression of the shape and luminosity of the UAP taking into account his entire time of looking at it the witness replied, "I saw it was round, although I could not say it had any inner surface, that is, something (that) one could touch; in its center it had a more…milky light… Now this center is not a single point (within) the object but the very round shape of a more consistent light, which I refer (to) as a ball (of) light. Around this (ball) there was also light, with some minute streaks coming from (it)…. The surrounding light was not as strong (luminous) as was the center object."[36]

Considering size proportions of the UAP, the witness said: "…let's say the inner ball (is) 10 cm (then) the outer sphere will be 10 cm plus 2 cm (in diameter)."[37] When asked whether there was a hazy appearance like fog that produces a gradation of luminance from the more luminous to less luminous area he replied, "Not exactly. The decrease was abrupt between the two areas (spheres), so that a clear distinction could be seen."[38] It is quite clear that the outer shell of light was semi-transparent, of the same color, but also of lower luminance. This description has some elements in common with a spherically shaped, contained plasma where the surface of the inner-most sphere is at one energy level and the outer boundary is at a different level. If the outermost shell was less optically dense for some reason then it would tend to possess a lighter luminance than the inner core. What would produce a clear edge or boundary for both the inner and outer cores is not known.

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[34] Personal correspondence, May 20, 2009.
[35] Personal correspondence, May 20, 2009.
[36] Personal correspondence, May 18, 2009.
[37] As used here cm. refers only to the relative size of the two spheres.

The UAP had no colored "navigation lights" of any color. It is important to note here that the UAP did appear to increase significantly in size during its approach as has been mentioned above.

When asked about the color and origin of the "streaks" of light that seemed to be associated with the UAP during his sighting he answered, "(They were of the) same color as the main body or ball. I cannot say that they emanated from the centroide of it or, let's say, from its surface but they came (from/out of) the denser (inner) ball, not from the surrounding or external, fainter area. …I could not see any specific area in the inner ball that the streaks came out (of)…. The streaks were of the same strength (luminosity) as the inner ball, same quality, same intensity."[39]

When asked about how often the light streaks would appear he answered, "This (question) is quite a tough one. First, they weren't abundant at all. At (the) distance when I (first) saw it (they) seemed to be fixed (emitted at a fixed interval). As we came nearer I could see that they changed a little. I don't know if that was due to our angle (of view) that changed … or because it really changed…. At the nearest (position), although I didn't look at it directly, I had the sensation they (the flashes) were fixed…. I think it was a guided beam (not the streaks) that reached us, since it traveled from (our) left to right, as scanning and then mixing with the light coming from the streaks themselves plus the body, for the cockpit became more luminous."[40] The witness also said that he was certain the light flashes appeared to travel or extend beyond the edge of the outermost ball of light. Some of the streaks traveled beyond the outer edge by about the thickness of the outer shell of light.[41]

Velocity: The calculated velocity of the UAP from locations A' to B', and from B' to C' is on the order of 28 kts and 58 kts, respectively, if the distance estimates provided by the witness are at all accurate. If the actual distances to the UAP are less then these velocities would also be less. But what is more interesting is the calculated increase in its velocity from location C' to EVER where a velocity of over 100 kts was discovered! If these values are accurate to first

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38 Personal correspondence, May 20, 2009.
39 Personal correspondence, May 20, 2009.
40 Personal correspondence, May 20, 2009.
41 The reporting witness was encouraged to work with an artist to reconstruct details of the UAP's appearance.

order magnitude they suggest that the phenomenon had accelerated (to double its velocity) so as to arrive at location EVER when the airplane would arrive there. The levels of navigational guidance and energy management technology needed to achieve this objective are very high indeed.

While the airplane was flying between points A and C (Figure 2) the unidentified traffic appeared to be travelling at a "low speed." This judgment by the witness is based on a great many hours of flight experience where other airplanes are seen at large distances. Nevertheless, if a distant moving object (or phenomenon) can't be identified then its absolute size, distance, and also to some extent even its velocity, cannot be judged as accurately. This is particularly true when the viewer is in a moving vehicle himself and the UAP is viewed above the horizon where stable spatial references are not present. Here the UAP appeared to be moving through a horizontal arc in the sky (from the witness's right toward his the left). This horizontal travel was confirmed by the witness by correspondence on May 18, 2009 and again on June 1, 2009.

Size: It is instructive to try to gain some rough idea of the size of this UAP. Earlier the reporting witness said, "My feeling was not that it (UAP) was huge because I saw a ball of light and (at) the closest moment that I could still think "I can wait (to carry out any needed evasive maneuver)." It appeared to be around one meter in size, perhaps a little less or a little more." However, later, the witness provided a second size estimate based on a known object, viz., a Piper Cherokee 140 as seen from another airplane cockpit in flight. "If you draw its diameter (length) on the horizon and add (a) light we are close to what I could see, at the closest moment."[42] A Piper Cherokee PA-28-140 is 23.3 feet long. When viewed at a distance of 3.9 nmiles, i.e., from location C to C' the UAP would subtend an angle of just over 3 min. arc in other words the UAP would be approximately equivalent in actual size to this small airplane.

Post Flight Events

Neither pilot reported this incident to their company. The reporting pilot said, "I myself did not talk about that (the sighting) outside of the cockpit since he (the Sr. Captain) was

already quite fed up with (our) company's policies."[43] There is a possibility that he told another pilot friend of his of long standing. Some years later Capt. XX wrote a brief summary of his sighting and submitted it to ORKUT, a Google Brazilian International Chat Community.[44] It is included in Appendix 1.

Other Considerations

At no time was air turbulence felt at any time while flying between Location A and the airport. In addition, the reporting witness does not remember noticing any abnormal cockpit instrument display deviations nor static on the radio between Location A and landing.

Discussion

Quite apart from the important question of what this UAP was is that this near-miss incident raises serious questions concerning flight safety. This is particularly true because it took place very near the busiest airport in Brazil on a weekday afternoon and yet was not detected by any ground radar or (apparently) visually by personnel in the airport tower. However, if the UAP was relatively bright and radiated in all directions (as from a point or an isotropically radiating sphere) it might have been seen from the tower if someone had been looking in that direction at the right time. If this UAP was not detected at all by tower or radar personnel there is no way in which air traffic control could have warned airplanes in the vicinity to avoid it. This kind of incident appears to be a much more common occurrence around the world than is usually acknowledged.[45] (Haines, 2000; Haines, 2002) Also, whatever this UAP was it passed within a relatively near distance from the airplane putting it in danger either from collision, possibly some kind of electro-magnetic interaction with avionic systems, or the consequences of a rapidly executed yet unplanned control input by the pilot to avoid a collision. Fortunately none of these events occurred here.

The pilot flying did the only thing he could have done to avert an in-flight collision and he

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[42] Personal correspondence, May 27, 2009.
[43] Personal correspondence, May 6, 2009.
[44] http://www.orkut.com.br
[45] A review of such incidents is in preparation at this time by NARCAP personnel.

did it professionally and safely.

The possibility must be addressed whether this UAP could have been either a helicopter of some kind, an unmanned aerial vehicle (UAV), a weather balloon or even ball lightning. Regarding the former, (AIC, 2005) presents current operational and technical requirements for operating a helicopter within the controlled airspace of Sao Paulo. The effective area of positive control of all helicopter operations in the vicinity of Sao Paulo is defined by a radius of 13 nmi from the airport's established latitude and longitude coordinates (Lazzarini and Guilherme, 2005). All helicopters also must be equipped with Mode C transponders (altitude reporting capability). The maximum velocity of helicopters flying into and away from Congonhas Airport is in the 80 to 100 kts. range. They must be under positive ATC control at all times. The calculated velocity of the UAP (see above) was within this range of velocities.

Many helicopters, light twins, and private airplanes now use the Campo de Marte airfield (Figure 10) along with Air Force aircraft. The witness thought that when first noticed, the UAP could have flown over this airfield. It is located approximately between Cumbica Airport (SBGR) and Congonhas Airport (SBSP) at 23 deg 30 min 32.9 sec. S; 46 deg 38 min 15 sec W. Nevertheless, if this UAP had been a helicopter the flight crew would have been able to identify it as such.

Figure 10

Aerial Photograph of Campo de Marte Airfield Sao Paulo, Brazil certainly have been

Unmanned Aerial Vehicles: It is known that Brazil is continuing to investigate the advantageous features of UAV for various applications. (Brandao, et al., 2007) In reviewing the aerodynamic shapes of the UAV presented at the First Latin-American UAV Conference held in Panama City, August 2007, none were discovered that are spherical. All of the proposed UAV either used (stationary or rotary) wings for lift and traditional means of propulsion except for one. Called the AURORA Project, a 9m long lifting vehicle is under development as a sensor platform. Its dirigible outline shape is very familiar and could not be confused as a sphere for very long as it is viewed from different angles.

Whether or not a spherical UAV was in use in 2004 and flown in the vicinity of Gongonhas Airport is not known. It is very unlikely, however, for several reasons. First, air traffic control authorities told the reporting witness that there were no other transponding aircraft in the area of this flight on their ground radar when this UAP was seen. All UAV are required to be under positive ground radar control at all times and a transponder must be onboard. Second, while there is a spherically shaped UAV being produced in the USA[46] there is no evidence of it being used in Brazil in 2004. Unless a spherically shaped UAV was present but flying without any transponder signal it is very unlikely that this UAP was a UAV. Third, an operational or test flight of a UAV would be expected to be announced in advance by NOTAM or other similar means. No such notice was published. Finally, it is unlikely that an operational or a test flight of a UAV would be carried out so near to a runway approach corridor to the busiest airports in Brazil.

Weather Balloon: The witness said that he has seen a great many balloons of all kinds in his flying career. They appear dark on the horizon during the daytime and other pilots will report their presence to ATC for transmission to other pilots in the region. Also, all weather balloon launches must be reported to ATC in advance. The witness said, "They are completely different (from this UAP) as to brightness and shape."[47]

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[46] A series of lighter-than-air UAV ships are in production by Techsphere Systems International (TSI) of Columbus, Georgia in conjunction with 21st Century Air Ships of Canada. The SA-60 made a successful test flight on June 24, 2004 in Maryland. A review of UAV designs and operational characteristics is found elsewhere (Osborn, 2009)

Ball Lightning: To the extent that ball lightning (BL) is usually spherical and has been reported at reasonably high altitudes it might be the stimulus for the present UAP report. However, the great majority of BL reports are associated with thunderstorm activity (Fryberger, 1994; Singer, 1971). There was no such weather occurring during this incident. Nevertheless, according to Egely (1989) BL (or a similarly appearing phenomenon) may still occur in clear weather. Also, while rare, some BL have been reported to produce flashes or rays of light as was reported here. Arguing against BL is the very long duration of this sighting. Indeed, BL typically lasts from seconds to several minutes at the most. As the author documents elsewhere (Haines, 2010, in press), the physical features of BL are so varied as to either explain or not explain a wide variety of reported spherical phenomena.

Conclusions

This sighting incident leads to virtually the same conclusion as was presented elsewhere regarding another busy airport-related case (Haines, et al., 2007). It is becoming increasingly clear that some kind of uncontrolled and non-responsive visual phenomenon is flying within or very near the controlled airspace of modern-day airports yet they are not detected visually from the control tower or by ground radar. Aviation officials should take these events seriously and mandate the installation of sensing systems that have a broader range of wavelengths than they now do.[48] At the same time pilots should report their sightings to the authorities in real-time in order to document them and to improve the chances of immediate ground detection of the UAP. Finally, government aviation officials and airline management must encourage, not discourage, such pilot reports for the long-term benefit of flight safety.

This spherical UAP remains unidentified at this time.

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[47] Personal correspondence, June 2, 2009.

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[48] For useful technical information in this regard see the detailed analysis of twenty one ground and radar UAP contact reports between 1948 and 1976 is presented elsewhere (Shough, 2002).

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To Whom It May Concern:

It is no secret within the aviation community that aviation professionals sometimes encounter unidentified aerial phenomena or UAP. Stories of pilot and air traffic controllers who were confronted by unusual lights or objects, UAP, in the course of conducting their careers have been documented across the entire history of powered flight. Many of these reports arise from military and commercial aviation sources. Some of these reports have demonstrated that UAP can be a hazard to aviation.

The National Aviation Reporting Center on Anomalous Phenomena was founded to specifically examine these incidents and observations. Staffed by current and former aviation professionals and scientific experts, NARCAP seeks to collect data on aviation safety related UAP encounters. NARCAP publishes technical reports detailing examinations of UAP data and investigations of UAP incidents which are posted on its website at www.NARCAP.org .

While these incidents are well documented outside of the aviation system, both the aviation community and the scientific community have declined to thoroughly investigate these reports. For many years this reluctance has prevailed over efforts to engage the situation. Though qualified individuals are responsibly reporting encounters with UAP they find that the aviation community is both unsympathetic to their concerns and unprepared to receive UAP reports. In some cases UAP witnesses may find that attempts to engage this issue can be hazardous to their careers.

Though the primary source for the most credible UAP reports has been the aviation community, all information about UAP was either stifled by a bias against reporting or flowed directly away from the aviation community. UAP observations and incidents have never been addressed as an issue that aviation professionals should be prepared for. This reluctance to discuss UAP encounters and examine UAP reports arose from specific causes during the Cold War and expresses itself as a bias against reporting and investigating UAP encounters that exists to the present day.

Aviation professionals are encouraged to make confidential reports involving UAP encounters to **both** the **NASA Aviation Safety Reporting System** and **NARCAP.org** . While there may be a bias within the greater aviation community, the safety concerns represented by the Aviation Safety Reporting System and by NARCAP are squarely focused on mitigating hazards to safe aviation regardless of their source. Both the ASRS and NARCAP are the safest and most effective places for aviation professionals to confidentially and responsibly report encounters with UAP without fear of retribution from employers or government agencies.

NARCAP invites any aviation professional who is either interested in the subject of UAP and aviation or would like to report an incident involving UAP to contact us through our website at www.NARCAP.org or directly at ted_roe@narcap.org

Report of an

Unidentified Aerial Phenomenon and its Safety Implications

at O'Hare International Airport on November 7, 2006

Case 18

By

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with

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March 9, 2007

http://www.NARCAP.org

National Aviation Reporting Center on Anomalous Phenomena[1]

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Part 1

Part 2

Part 3

1.0 Executive Summary[2]

This report presents the results of an investigation into an interesting incident at O'Hare International Airport (ORD) on November 7, 2006 at about 1615 hrs (4:15 pm) CST that had definite safety implications. A number of highly reliable airline employees and others reported seeing a round, revolving, gray, metallic appearing object [hereafter called an *Unidentified Aerial Phenomenon* (UAP)] hovering approximately above United Airline's Gate C17 in Concourse C at an altitude less than 1,900 feet above ground level (AGL) and departing sometime between 4:18 and 4:33 pm. Since two United taxi mechanics reported seeing the object sometime after 4:00 pm the object could have been present for at least eighteen minutes or more. The following subjects are discussed here: Description of eye witness accounts, overview of O'Hare International Airport and its aviation operations, visibility from the control tower, weather conditions, the reported hole in the cloud allegedly caused by the UAP, radar technical considerations and possible primary contacts, safety implications of the incident, and a summary. Appendices also present a discussion of hoax data, press coverage of the event, reports of UAP made by other alleged witnesses in the area on that day, a description of typical cockpit duties during an approach, landing, and taxi to gate and other relevant documents.

Based on eye witness testimony the UAP would have ranged in size from about twenty-two to eighty eight feet diameter. It accelerated at a steeply inclined angle through the 1,900 ft cloud base leaving a round hole approximately its own size that lasted for as long as fourteen minutes. This is suggestive of a super heated object or otherwise radiated (microwave?) heat energy on the order of 9.4 kJ/m^3. According to the FAA nothing was detected by radar at this location or time of day or seen by air traffic controllers from the main tower. An examination of primary radar data supplied by the FAA confirmed the first claim. Nevertheless, an FAA inbound ground controller remarked about the "UFO" (UAP) at about 3:58:09 pm, long before the object had departed. No reference to a UAP IS made by any inbound or outbound flight crew other than two United maintenance taxi mechanics moving an empty airplane to the maintenance hanger on the north side of the airport. Of course this does not mean that there was no object present but only that these flight crew did not discuss it over the radio. Our analyses suggest that a potentially significant air safety problem existed at O'Hare International Airport on the afternoon of November 7, 2006. Anytime an airborne object can hover for several minutes over a busy airport but not be registered on radar or seen visually from the control tower, constitutes a potential threat to flight safety. The identity of the UAP remains unknown. An official government inquiry should be carried out to evaluate whether or not current sensing technologies are adequate to insure against a future incident such as this.

2.0 United Airline Employee Eye Witness Accounts

The following narrative presents an approximate chronological reconstruction of what took place during this incident showing where each eye witness[3] was at the time (Table 1). Numbered events and letter-identified witnesses are marked on an aerial photograph of the airport property taken from an altitude of 1,800 feet (Figure 1).[4] Letters represent the approximate location of each witness. As will be discussed, whether or not the UAP could be seen depended upon the vantage point of each witness.

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[2] All sections of this report were prepared by the Senior Editor except where noted.

[3] The identity of all eye witnesses has been concealed at their request to safeguard their reputation and job security. It is very unlikely that witness A is "rampagentX" who posted a spurious account on the *AboveTopSecret.com BLOG*. (cf.Appendix E.5)

Table 1

Airline Employee Eye Witnesses

Witness	Job Category (all United AL)	Location
A	Ramp Mechanic	Standing beside B737 at C17
B	Aviation Mechanic	Left Cockpit Seat in B-777 taxiing on Alpha
C	Supervisor	Outside at Gate B5
D	Ramp Mechanic	Near C17
E	Supervisor	Near B5
F	Capt. B737-500	Near C17
H	First Officer B737-500	Near C17
I	Aviation Mechanic	International Terminal ramp area

Figure 1. Aerial Photograph of United Concourses B and C from Altitude of 1,610 Feet.

Witness A. The earliest known witness was Mr. X.X. (witness A) who was assisting the push-back of a B-737-500 from gate C17. He was standing on the tarmac beside the nose of the jet with his communication headset cable plugged into a connection port in the nose of the airplane. Figure 2 is a photograph taken at gate B5 looking toward gate C17. At about 4:30 pm witness A said that, "…he was

[4] The interested reader can view this airport image using the Goggle-Earth utility and locating 41.97805 deg N.,87.90611 deg. W.

compelled to look straight up for some reason and was startled to see the craft hovering silently." He then made a radio call over his head-set to the airline's operation center to Sylvia, United Airlines Zone 5 control coordinator who is responsible for ten gates. He then told the cockpit crew in the airplane beside him about what he was looking at. One or both of the crew allegedly opened their side windows and looked up at the UAP[5], however, this cannot be confirmed. Later, witness A said that he thought the object was between 500 and 1,000 feet altitude directly above his gate. He was sure that the UAP was round and rotating "pretty fast." He said that the object "shot off into the clouds about two (2) minutes after his initial sighting… (and) that it was about the same angular size as a quarter held at arm's length (26") (just over two (2) deg. arc) diameter." He estimated that between ten and fifteen people had seen the object.

[5] As is noted in Section 3.5.2 and Appendix G.

Figure 2. View of United Concourse C with Gate C17 Visible at Center
(United Ramp Control Tower Seen on Roof at Left-Center)

Figure 3 (Page 12) is an FAA airport diagram (04162) of Chicago-O'Hare International Airport (ORD) with the red box showing the outline of Figure 1.

Witnesses B (left cockpit seat) and C (right seat), both United aviation mechanics, were about to taxi an empty commercial jet airplane from the International ramp initially near D2 to the United Service Center hanger on the north side of the airport. At this point there are two slightly different alternative versions of what happened next.

In the first version, the details provided to NARCAP by witness B are given. He said that while they were parked they both overheard a radio message from the flight crew of the B-737-500 at gate C17 talking on their company frequency about, "…a circle or disc shapped (sic) object hovering over gate."[6] This fact tends to confirm that at least one of the two cockpit crewmen in the B-737-500 looked up at the object, i.e., either witness G and/or H.

Witness B continued, "At frist (sic) we laughed (sic) to each other and then the same pilot said again on the radio that it was about 700 feet agl (above ground level)… The radio irrupted (sic) with chatter about the object and the ATC controller that was handling ground traffic made a few smart comments about the alleged UFO siting (sic) above the C terminal." (cf. Section 3.5 and Appendix G)[7]

According to witness B then they began to taxi the airplane to the west around taxiway Alpha (approaching United Concourse C on their right).[8] Radio communications with the inbound ground controller showed that they began their taxi at 3:57:30 pm (see Table 6). The probable taxi path of this United airplane is shown by a dashed line in Figure 4. During their taxiing witness C was in radio contact with inbound ground control for directions to their destination; he would have used the call sign "United maintenance-44".

Just before reaching A-14 or A-13 both witnesses leaned forward and looked diagonally to the right in the direction of Gate C17. Witness B estimated that the object was hovering about 100 to 200 feet beneath the clouds. The UAP was seen in the upper right corner of left front cockpit windshield. It was stationary and did not appear to be revolving. To him it appeared "hazy" on its bottom and both ends[9] but clearer on top; even if they had not been alerted to its presence by a radio contact, it was clearly conspicuous to the naked eye.[10] It never changed brightness, color, or shape at any time during his thirty to sixty second-long viewing period. It didn't flash or give off any lights and, "…it was definitely not a

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6 While both witnesses heard the ground controller only witness C handled the radio.

7 It was because none of this alleged radio conversation was received by the Senior editor from his first FOIA request that a second request was made for all ground controller communications between 3:55 and 4:55 pm. (cf. Appendix I for details). It was discovered from the inbound ground controller's tape that he made only one "smart comment" as is recorded in Table 6.

8 Unfortunately, the negative reaction of United management and some of his co-workers caused witness C to be totally unwilling to cooperate in any way with this investigation. A detailed questionnaire was mailed to him on November 24, 2006 but he did not respond.

9 This detail is supported by witness J.H. (Appendix E.1 [2]).

10 When questioned in depth the witness said that the object was quite conspicuous since the airport flood lights had not yet come on. When they are on, "it makes it much harder to see things in the sky around the terminal."

blimp." He said that it appeared as an oval with a width to height ratio of 2.7.[11] He also said, "I'll tell you definitely, it's not an airplane as we know it."

At no time during the entire (approximately) eighteen minute taxi time (witness A provided the following route "Alpha - Juliet - Zulu - Echo - Yankee - United Service Center") were any electrical problems noted in his cockpit nor was any unusual radio static heard. He overheard the United ramp controller ask if anyone could get a picture of it. He also overheard the ground controller say that the object wasn't seen from the ATC tower,[12] "…even though it would have been in their field of view.[13] Then the tower told us to move. We were facing west at the time and I could look at American Airlines, Terminal 3. The (ramp) tower guy said he didn't see it and I heard him laughing. Then we passed Concourse C where I looked over and didn't see it anymore[14] (but) my partner watched it go up into the clouds and (it) left a hole there."[15]

The taxi transit time of the B-777 is between fourteen and twenty two minutes from D2 to the maintenance hanger. Knowing this as well as the length of the airplane's taxi path it was estimated that the UAP could have been visible from the cockpit for between 3.2 and 5 minutes (mean = 4.1 minutes) between A17 and A8. United maintenance 44 made only one stop for an American MD-80 (Table 6) A total taxi time of about twenty four minutes is assumed.

Only after parking the aircraft near the hanger (located off taxiway Yankee) at about 4:22 pm (+/- 3 min) were witnesses B and C able to look back in the direction of the UAP where they could still see a "smooth round hole"[16] in the overcast but no object. Witness B estimated that the hole must have remained open about two minutes more although he could not be sure. Witness B remarked, "I guess it had just left." He felt that the object hovered from 100 to 200 feet under the cloud base and, "…it wasn't a reflection." He said he heard a tower controller say, "there's nothing there that would reflect lights."[17] Table 6 presents a brief conversation between the inbound ground controller and a taxi mechanic who said that he and others witnessed the object about one-half hour earlier.

He also remarked that, "There must have been hundreds of witnesses. I got some positive responses from about three other guys I work with." He also offered that the actions of the UAP seemed "very deliberate given the weather conditions and the airport operations at the time." He wrote, "I am still in absolute wonder and amazement at what I saw that afternoon." (Appendix G)

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[11] Witness B was interviewed anonymously as "Joe" by Gary Tuchman on CNN HeadlineTV News on January 6, 2007 where he approved of the general shape of the UAP made by an artist from his description.

[12] No such statement was made either by the inbound or outbound ground controller.

[13] This statement may or may not be accurate depending upon the altitude of the UAP. See Section 3.4 for further information on this important subject.

[14] At this orientation, his line of sight was cut off by the cockpit structure.

[15] The time would have been about 4:15:30 pm

[16] It must be assumed that what was meant was an oval which is what one would see when looking at a horizontally oriented circle (e.g., coin) from an oblique angle of about nineteen degrees from below. The distance between the witnesses near the maintenance hanger and gate C17 (cf. line in Figure 4) was about 5,500 feet. Also cf. similar testimony by witness J.H. in Appendix E.1 **[9].**

[17] No such statement was made either by an inbound our outbound ground controller.

A careful analysis of the inbound ground controller tapes showed that there were three United Airline airplanes taxiing to the maintenance hanger during this time, United maintenance 97 (a B747), United maintenance 5 (a B777), and United maintenance 44, (a B777). Cf. Figures 3 and 5 for all locations.[18] We are concerned only with that latter which contained witnesses B and C.

At 4:48:05 pm a male voice allegedly coming from one of the two above airplanes broke into an ongoing conversation between Gateway flight 5668 and the inbound ground controller. Here is that interaction starting at about 4:47:39 pm where: (A/C1 = Gateway 5668; : A/C2 = United 44; T = inbound ground controller)

T "Gateway 5668."
A/C1 "Gateway 5668."
T "Yeh… look out your window. Do you see anything above United concourse? They actually, believe it or not, they called us and said, somebody observed a flying disc about a thousand feet above the, ah… gate Charley 17. Do you see anything over there?"
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pause of about 5 sec.

A/C1 "Not that I can tell. I thought my job was stressful" (laughter)

Approx. 4:48:05 pm
A/C2 (witness B)[19] "Oh, we saw it a half hour ago"
T "Who saw it?"
A/C2 "A whole bunch of us over at the, ah Charley concourse."
T "Really? You guys did? who is this?"
A/C2 "United taxi mechanics (5 sec. pause). We thought it was a balloon but we're not sure."

Note that a half-hour before this statement by the alleged eye witness would be about 4:18pm

[18] An airport diagram for O'Hare is found at: <http://204.108.4.16/d-tpp/0704/00166AD.PDF>

[19] At this point witness B and C are either at gate C10 or at the United maintenance hanger. NARCAP's recon-struction assumes the latter.

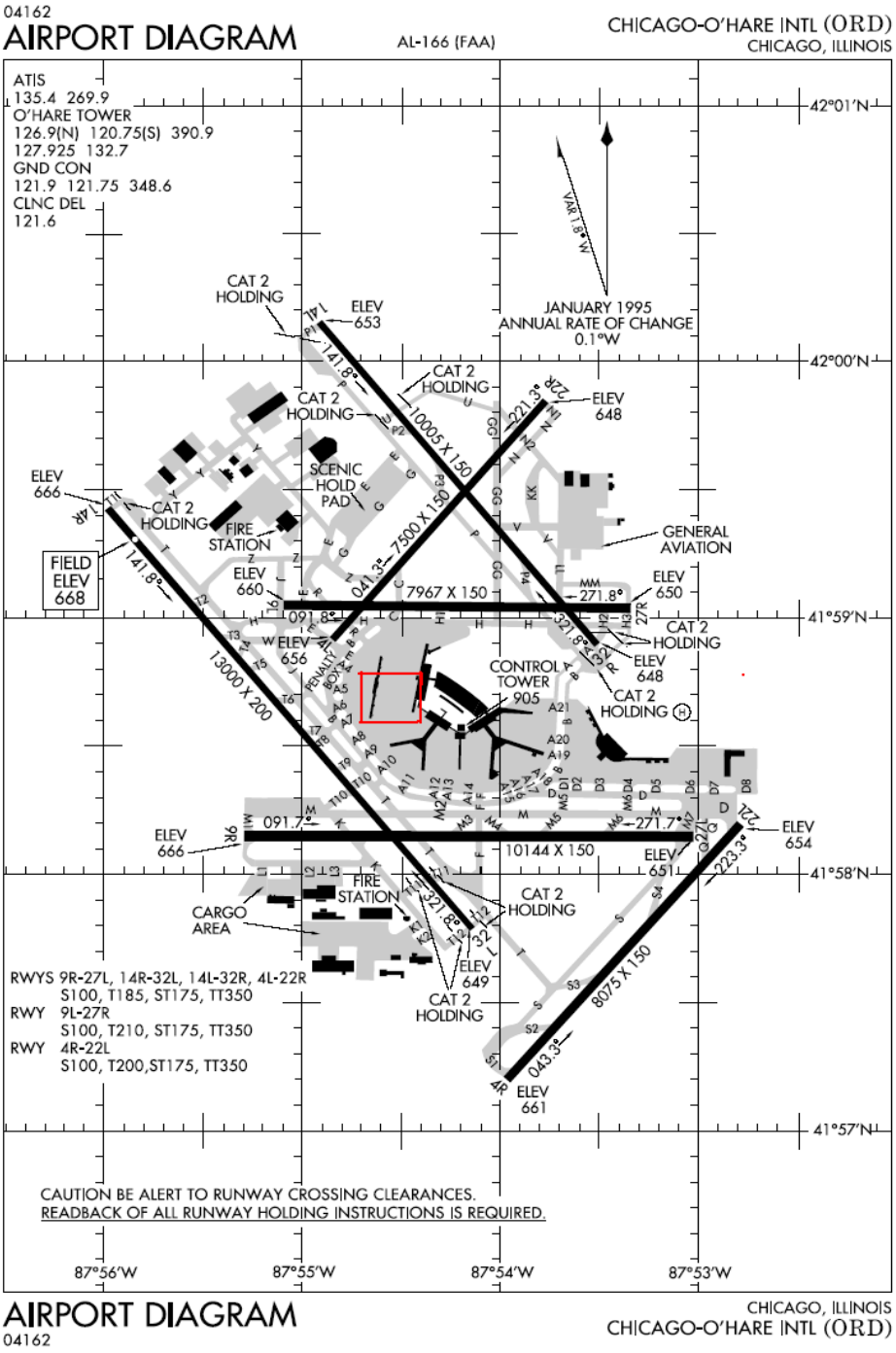

Figure 3. Airport Diagram
Chicago - O'Hare International Airport (ORD)

The dashed line in Figure 4 shows the taxi path of the empty jet taxied by witness B and C fromA20 to the United maintenance hanger (labeled United 97)

Figure 4. Aerial Photograph of Taxi Path of B-777

According to a report submitted to the National UFO Reporting Center (Appendix G), witness D was working in his office when he heard the operation's center announcement about the UAP over the company's radio frequency at about 4:30 pm. He immediately left his office and walked to the Gate B5 area where he looked up and saw the UAP located at about a forty-five degree (vertical) angle. Figure 5 shows the location of Gate B5 from where he observed the object. Figure 6 is a photograph looking directly toward Gate B5 and witness D's position and also showing the old (left) and new (right) control tower in the background on a hazy day several months later.

He was quoted as saying, "I stood outside in the gate area not knowing what to think, just trying to figure out what it was… I knew no one would make a false call like that. But if somebody was bouncing a weather balloon or something else over O'Hare, we had to stop it because it was in very close proximity to our flight operations." (Hilkevitch, 2007)

He also said, "I'm absolutely convinced the object wasn't much bigger than 6 to 10 feet in diameter. It took me a second to find the UFO and I only noticed it because I knew where to look.[20] He described the UAP as an "elliptical sphere-like dark metal object…". From his location he said that the object rose almost instantaneously at a slight angle toward the east.[21] Its departure was so fast that he thought he could see a kind of blurred effect in his vision from the object. Another employee (witness E) was standing with him at the time. Later he admitted that
if it ever happened again, "he probably would report it."

He also mentioned the presence of another airline employee (Witness F) who saw the object for about thirty seconds but, because of its small visual size, "…dismissed it as a bird and walked away. He immediately called the operations center to confirm the sighting" and returned to his office briefly and then drove over to concourse C to talk with the witnesses there. During this time the zone controller asked if the object was still present. It was she who called the FAA control tower to inquire about it. (see Section 3.5.2 for a transcript of the conversation between the United ramp control and the tower). The United shift manager, TSA, and the United WHQ Operations Center were also notified at about this time.

[20] He reiterated this detail several times during later conversations. See Appendix E.1 [3] for independent support for this observation.

[21] Witness D estimated that the UAP did not travel more than between two hundred and four hundred feet laterally at the most before entering the clouds.

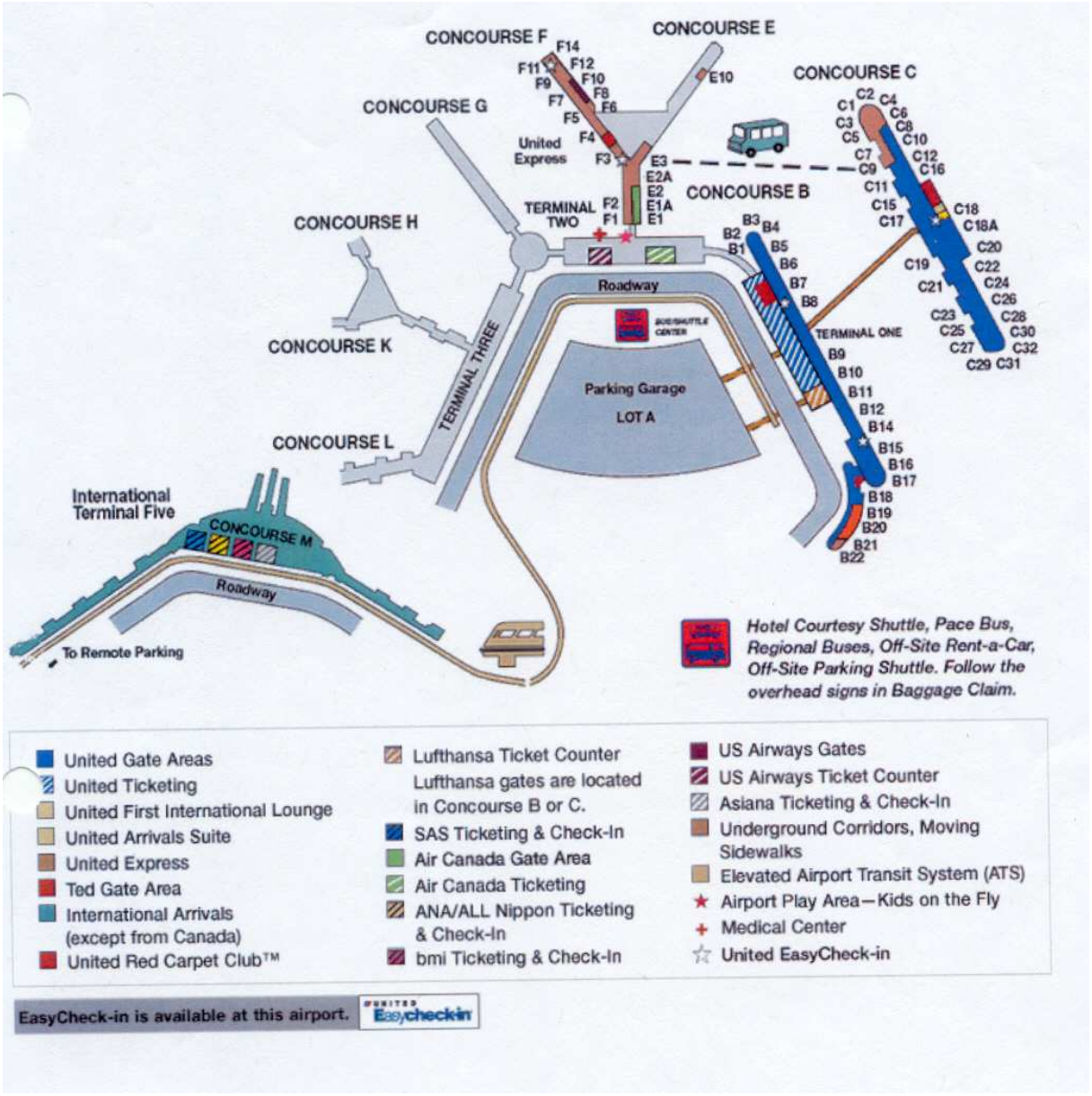

Figure 5. Gate Designations for ORD Concourses B, C, E & F

Figure 6. Photograph at Gate C17 Looking Toward Gate C5

Within about a day after the incident witness B met witness I, also a mechanic, at the International Terminal ramp area who admitted having also see the UAP from that vantage. Unfortunately, witness I could not be located for an interview.

Hilkevitch interviewed the First Officer of the B737-500 (Witness H) that was still parked at gate C17. He discovered that both of these flight crewmen saw the object for about five minutes. Both opened their cockpit side windows and looked up at the object. The First Officer, age 39 with over 13,000 flight hours, said the UAP was a dirty aluminum color, very stable and without any optical distortions near it. It was perfectly round and silent. He said that neither he nor the captain took a photo of the object. A company supervisor arrived and ordered them to push back for an scheduled departure time. The captain did not want to be interviewed.

How large was the UAP? Because the UAP hovered below a cloud base of about 1,900 feet AGL that fact established its maximum distance. Several witnesses provided angular diameter estimates for the UAP which made it possible to calculate its maximum diameter assuming it was at the distance of the

cloud base. Witness A said it was equivalent in angular size to a quarter held at arm's length or about 2 deg. 4 min arc. The object would have to be 88 feet across at 1,900 feet altitude to have the same angular size. Similarly, witness D said the UAP was about the same size as the end of a pencil held at arm's length (about 36 minutes of arc in diameter) which is equivalent to a 22 foot diameter object located 2,093 feet away.[22] If the UAP were at a lower altitude then its visual size would increase slightly. Thus, if it is assumed that the UAP was at 1,500 feet altitude these same two witness's estimates become 69 feet and 18 feet, respectively. Witness J.H. standing in a parking lot about a mile east (see Appendix E [4]) estimated its diameter to be from 25 to 30 feet. Witness 'Rampagent X' located somewhere near concourse C thought it was about twenty feet diameter. These are remarkably similar estimates.

At what altitude did the UAP hover? Estimates vary from five hundred feet to 1,700 feet above the ground. Interestingly, the two witnesses who were directly beneath the object (witness A and G) gave the lowest estimates and were in the poorest position to make such a judgment. Witness A thought it was from 500 to 1,000 feet and witness G, 700 feet. Other witnesses who were able to see the object from a greater distance and at an oblique (nearer to a side view) angle gave higher estimates of its altitude. Witness D standing about 878 feet from C17 and looking up at about a forty-five degree angle thought it was 1,000 feet high. This vertical angle would place the UAP at a calculated altitude of only 878 feet, however. Witness B near taxiway A17 at the International Terminal estimated its altitude at between 1,700 feet and 1,800 feet while witness J.H. some 5,400 feet away in the SW corner of the International Terminal's parking lot thought it was between 1,100 and 1,400 feet. These estimates are not in basic conflict with later calculated values given in Section 3.4 for the altitude of an object above C17 that could not be seen from the control tower, viz., between 1,438 feet and 1,802 feet (based on the FAA claim that the UAP was not seen from the control tower).

When did the UAP leave? This is an important yet difficult question to answer. It is possible to identify only an approximate range of times. Witness A said it left after about two minutes after he first saw it, or at about 4:32 pm. Witnesses B and C watched the object from the cockpit of a an empty B777 for at least 3.2 minutes (and as long as 5 minutes) sometime between 3:57:30 pm and about 4:18 pm. The UAP had gone by about 4:20 pm when they had reached their destination at the United maintenance hanger. Thus, according to them the object probably departed around 4:18 pm. Witness D said the object "disappeared within a fraction of a second"[23] after he had been looking at it for approximately one minute (i.e., at about 4:33 or 4:34 pm) depending on how long it took him to reach the viewing location at Gate C5.

The above time estimates appear to be at variance with the FAA's inbound ground controller's statement made at 3:58:09 pm to Gateway flight 5668 to, "…use caution for the ah, UFO" which is the first official mention of a UFO by the FAA. Does this difference in time suggest that the UAP remained above the airport for almost a full hour, that the officially certified time of the inbound ground controller's tape recording is in error, or for some other reason? Without definitive data we will assume that the UAP departed at about 4:34 pm. (+/- 1 min.) This time is important for the discussions of the hole in the cloud of Section 5.0, possible radar contact, and when ATC personnel looked for it from the control tower.

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[22] The slant range of an object at 1,900 feet altitude and 878 feet horizontally away would be 2,093 feet.

[23] See Section E.1 [8] for an independent confirmation of this statement made by witness J.H. standing about a mile away to the east.

While witness J.H. said she saw the UAP for between ten and fourteen minutes total but did not note the time.

How did the UAP Rise? As substantiated by several witnesses, the UAP did not rise vertically but at a slight angle to the east. Witness D who was standing about 878 feet SE of gate C17; said that the object rose in an easterly direction (toward concourse B) and entered the cloud layer after travelling only about one-quarter to one-half the distance between concourse B and C or between 200 and 400 feet laterally. Witness J.H. was standing about a mile away to the east in the parking lot of the International Terminal. She said that it rose at, "…a very slight angle towards me and to my left - very slight angle… Where we were we could see the side ways motion and tell it was coming towards us a little." (cf. Appendix E.1 [7])

2.1 Other Unofficial and/or Unverified Responses

Over the course of the past several months many people besides airline employees have spoken out about what they allegedly saw or believed about this event at O'Hare International Airport. Of course, it is not possible to accept or reject any specific comment without verification or without knowing the specific identity of the reporter. Nonetheless, it is important to document several statements for their possible relevance to this investigation.

2.1.1 FAA Tower and Other Personnel. As is very clear from the transcripts of the control tower communications between the United ramp tower and several ATC personnel, (cf. Section 3.5.2) everyone made a joke out of the presence of the alleged object. It appeared as if they were embarrassed to be talking about it. According to witness B, "…the ATC controller that was handling ground traffic made a few smart comments about the alleged UFO siting (sic) above the C terminal." (Appendix G)

As early as November 27, 2006 an attempt was made to find out what the general feelings about this event were at FAA Headquarters. "Nothing of interest (was discovered at (FAA) headquarters, Washington, D.C.) except skepticism about the nature of the event."[24] When a NARCAP representative visited headquarters in January 2007 he was told that he had to contact the Chicago FAA office for any information about this incident.

In the first press release on this incident by J. Hilkevitch (Chicago Tribune, pg. 1, January 1, 2007), Craig Burzych, a union official and ATC specialist in the tower was quoted as saying about this event, "To fly 7 million light years to O'Hare and then have to turn around and go home because your gate was occupied is simply unacceptable." What is unacceptable is this extremely cavalier and trivializing attitude toward UAP that is representative of much of today's aviation community.

FAA spokeswoman, Elizabeth Isham Cory said that none of the tower controllers saw the object and "…a preliminary check of radar found nothing out of the ordinary." She also added that the sighting was caused by a "weather phenomenon." She continued, "Our theory on this is that it was a weather

[24] Personal communication from a highly reliable government source.

phenomenon. That night was a perfect atmospheric condition in terms of low [cloud] ceiling and a lot of airport lights. When the lights shine up into the clouds sometimes you can see funny things. That's our take on it." This kind of grossly oversimplified generalization that is not based on the actual facts at the time of the sightings only contributes to an attitude of disbelief and skepticism in others. In fact, the airport ramp lights had not yet been turned on! One unfortunate result is that other witnesses are inhibited from reporting their sightings.

2.1.2 Airline Management, Flight Crews, and Others. The first airline employee to make a general announcement within the company and to the FAA tower of the (apparently) ongoing event was "Sylvia," a United Airlines zone coordinator in charge of ten gates. She received several calls about the UAP. Another woman named "Sue" contacted the ATC tower at 4:30 pm to see if they could see anything. She was told that tower personnel looked and didn't see any object.[25] This time is fifteen minutes *earlier* than the time recorded for this same call (see Table 3) by the FAA in its Daily Record of Facility Operation (see time 2245 UTC, column 1 in Figure 8). This discrepancy in time is discussed below.

United Airlines allegedly began its own internal safety review of this incident the day after the incident occurred but, sometime before November 10th decided against a full investigation. The findings of their safety review are not known.

The senior editor tried without success to discover the identity of the cockpit crew of United Flight 446. The two main reasons given for not providing this information were: (1) this was considered privileged company information in accordance with established policy, and (2) the flight operations department wasn't interested; they thought it was a waste of time. One might well ask why they weren't interested?

Megan McCarthy, a United Airlines spokeswoman told newspaper reporter J. Hilkevitch in December 2006 that, "There's nothing in the duty manager log, which is used to report unusual incidents. I checked around. There's no record of anything." A NARCAP initiated FOIA request (see Appendix I) for all tower logs and communications, however, clearly showed: (1) three separate telephone inquiries from the United ramp tower (and management) concerning the UAP and (2) a written notation of one of these calls in the FAA tower's "Daily Record of Facility Operation." (see Figure 8 below)

Airline employee interviews conducted by Hilkevitch (2007) said that they were interviewed by United management and "instructed to write reports and draw pictures of what they observed." They were also allegedly told to not talk about what they saw to anyone. The senior editor could not locate any airline employee who would confirm this allegation.

There is a definite possibility that pilots for a major airline saw this UAP during their approach to ORD that afternoon. However, this possibility has not been confirmed as of the publication of this report.

Appendix E.5 presents BLOG entries by an alleged witness who claimed to be a United baggage handler. The senior editor asked several eye witnesses to prepare descriptive reports of what they saw.

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[25] See Section 3.4 that provides supportive evidence for this assertion.

Copies of their reports are not included here to safeguard their identity. One airline employee summarized his company's attitude toward this incident using the cryptic phrase, "corporate culture of apathy."

2.1.3 Passengers at the Terminal. Over the ensuing months there has been some effort made to try to locate other eye witnesses in and around the O'Hare terminal. This was done mainly using notices placed on websites.[26] Many e-mails were sent in by both identified and anonymous "witnesses," however, very few have been able to be substantiated. One notable exception is Ms. J.H. who submitted twenty seven separate BLOG entries over a two-day period to the *AboveTopSecret.com* website. (see Appendix E.3). She was also interviewed by Sam Maranto on February 6 and 22, 2007; these interviews are presented in their entirety in Appendix E.1 and E.2, respectively. Her comments tend to support the testimony obtained from United Airlines employees in many respects and offer additional facts.

2.2 Aftermath Effects on Witnesses

How were these airline employee witnesses treated by others after this event? The answer(s) is familiar to those who study UAP seriously; the answer(s) underscores a reason why fewer and fewer legitimate witnesses are willing to come forward as time goes on.[27] According to the Chicago Tribune article (Hilkevitch, 2007), "One United employee (was) appeared emotionally shaken by the sighting and "experienced some religious issues" over it, one co-worker said." During a TV interview on CNN one of the witnesses said that his airline's management had not pressured him in any way to stay quiet and had only received occasional ribbing from some coworkers.

Most of the witnesses were very willing to cooperate with NARCAP immediately after the event *but before their management found out about the public's response*. Now, several months after this incident, some of the eye witnesses are experiencing typical aftermath effects. One of the witnesses wrote NARCAP saying, "…sorry for being paranoid, but this information cannot be tied to any XXXXX employee and must not publicly disclose my location. It is identifying. … I cannot have sources continuing to show me as the leak as it builds a case against me…. Anyway, I totally trust you and want to make sure you know exactly what will identify me so something isn't accidentally disclosed." NARCAP has done everything it can to keep the identities of all witnesses confidential.

It took a long time for several witnesses to reply to the senior editor in writing from about one week after the event to two months afterward for some unknown reason. He realized the need to let things cool down and to not jeopardize their jobs. It is understandable that airline management is busy enough without having to deal with the tedious public relations aspects of an incident such as this yet it appears as if management simply wanted the whole incident to go away. Given the FAA's public conclusion that there was nothing detected on radar or seen from the tower it was easier for the airline to take this position.

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[26] Such an approach tends to be self-limiting and even self-defeating due to the fact that they are not read by everyone but (usually) by those who already have an interest in the subject.

[27] Legitimate witnesses seem to be replaced by others who, for one reason or another, wish to pose as real witnesses but who aren't. This social psychology phenomenon deserves more study.

The Chicago Tribune (2007) article stated, "Some of the witnesses, interviewed by the Tribune, said they are upset that neither the government nor the airline is probing the incident." In the words of an alleged United Airlines baggage handler witness, "Some of us are getting angry with this being hushed up with all the terrorism and TSA idiots hanging around. If we see a funny looking bag all damn hell breaks loose but park a funny silver thing a few hundred feet above a busy airport and everyone tries to hush it up. It just don't (sic.) make sense." (Appendix E.4, #5)

A passenger of an aircraft landing at O'Hare Airport at this same time submitted the following chatline comment:

> "Asked a United pilot about this ironically as we were landing into Gate c17 at Ohare. (sic) He said it indeed was something a lot of his peers saw. He also stated that no pilot in his right mind would go on record with as serious and at the same time "goofy sounding" claim unless they were convinced they saw something extraordinary. He followed up this comment to it being like reporting little green gremlins on the wing of the plane, unless you want to be doing desk duty for the rest of your career, there are some things you just don't say.
>
> "We proceeded to talk about it and I came to the conclusion that if as he stated about 100 people saw this object and the sighting was in Nov. 2006, WHY is it taking 6 weeks to make the press … unless there's some SERIOUS type of government investigation going on that is.....hmm"[28]

To set the record straight, Peter Davenport, Director of the National UFO Reporting Center, who had received the original witness reports (see Appendix G) contacted the senior editor on the evening of November 7, 2006 because it appeared that this event might have aviation safety implications. He waited until November 14, 2006 before putting the witness reports on the NUFORC website so that NARCAP could obtain further important data. In addition to other historical facts given elsewhere[29] it can be mentioned that, after Davenport had discussed the sightings on the Coast-to-Coast radio program (November 15, 2006) and on the Jeff Rense Radio Program (December 12, 2006), he eventually contacted the Chicago Tribune to find out if they knew about the incident and whether they were interested in investigating it. And so this deliberately planned delay was intended to help NARCAP obtain as much first hand information as possible before press coverage, and the subsequent airline response to this publicity, would take its toll on witness cooperation.

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[28] 28 http://www.flyertalk.com/forum/showthread.php?t=642107 posted early in January 2007.

[29] See the NUFORC website www.nuforc.org/ for additional information concerning release of information regarding this incident.

2.3 The Possibility of a Conspiracy

What if all of these witnesses had conspired to perpetrate a hoax? This possibility needs to be examined if, for no other reason than to squelch the arguments raised by future skeptics. There are several reasons why a deliberate hoax is very unlikely. First, all participants would have to know one another in advance in order to work out the details of their stories. Yet only witness A, D, E and F knew each other and only one of them was willing to speak out to NARCAP! In addition, several were union employees and several management. Second, their stories would have to match one another in all major details. There are enough reported differences (considering the different ground vantage points) to suggest that a script-like narration is very unlikely. Third, given the intense and relatively prolonged public response to the press accounts of this incident the airline's management went first into a very brief investigative mode and then into damage control mode. While the details of their investigation are not known, subsequent witness statements about management reactions make it unlikely that anyone working for the airline would knowingly have tried to pull off a hoax that could endanger their jobs. If it was a hoax it backfired, leaving several of the "witnesses" afraid for their jobs. Fourth, the manner in which the major eye witnesses came forward appears to be independent from one another. Only a *very* well planned hoax would carefully schedule who and when each player in the "drama" would make their report. Additionally, as far as is known, witness A and E never made any public report at all except to their management. Fifth, the eye witnesses that the senior editor has stayed in contact with have always been very forthcoming with relevant information; their accounts never overlapped with what the other witnesses said in terms of narrative style or specific terminology. One might expect participants in a staged event to rehearse their "lines" together and adopt the same name and visual features for their UAP. This did not happen here as is suggested by the various names given to the UAP. For example, witness A referred to the UAP only as an "object." Witness B referred to the UAP as "small gray object," "dark gray round object," "looked like a Frisbee," "hazy sides and bottom." Witness D used such terms as "an object," "relatively small object," "dark metallic circle," and "the aircraft." Witness E thought it was only a "bird" of some kind. Ramp-agent X called it a "gray shiny thing," a “fat disc."

When taken all together, the above facts point away from a deliberate hoax event and toward a genuine event.

3.0 O'Hare International Airport - Overview

O'Hare International Airport is such a large and complex facility that it deserves more discussion in order to put this event into its proper perspective, particularly the apparent inability of the FAA to detect the UAP. Of the hundreds of statistics, measurements, and functions that characterize ORD we will concentrate on only two topics: (1) Geometry of ORD, and (2) Airport Operations. Radar characteristics and antenna site location details are presented below.

3.1 Geometry of ORD[30]

[30] The geographic coordinates of O'Hare International Airport are: 41.97805 deg N; 87.90611 deg W and its official three letter FAA designation is ORD. Digital ATIS and other airport information is available at <http://www.fboweb.com/fb40/airport/ORD.html>

Figure 3 and 5 shows the location of all major structures, runways, and taxiways at O'Hare. It should be noted that gate C17 (cf. Figure 5) where this incident occurred is located almost at the geometric center of the airport's runways. Located well off the flight path of any of O'Hare's runways, a hovering object above gate C17 would not interfere with normal flight operations.

The new control tower at O'Hare International Airport, completed in 1995, is 253 feet tall (905 feet MSL). It is shown in Figure 7. The ATC work area is at the level of the transparent outward sloping windows.

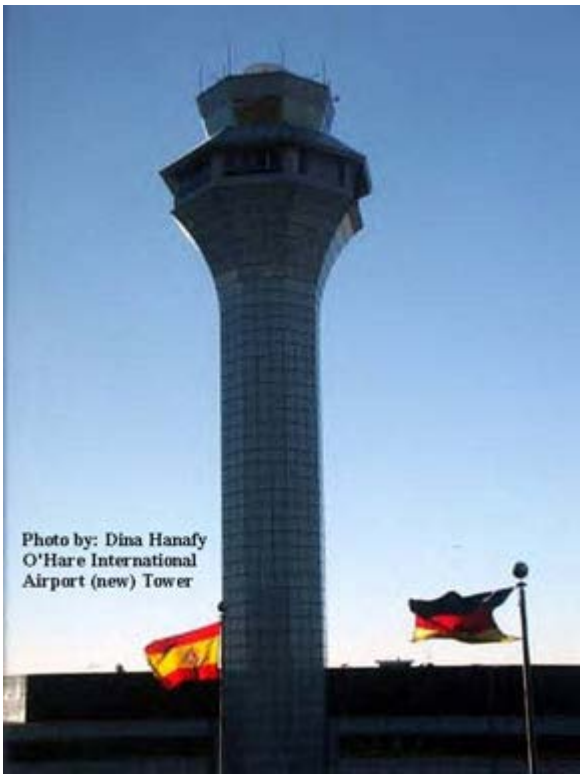

Figure 7. New O'Hare Airport Control Tower

3.2 Airport Operations at ORD

Of primary importance to this report is the fact that O'Hare International Airport is officially designated by the FAA as a Class B Airspace (FAA Order 7400/9F). The various operational and safety implications of this fact are presented later in section 8.0. Suffice it to say here that in order for these federal aviation regulations to be effective every airborne vehicle flying within this airspace must conform fully with the equipment, crew training, and procedural requirements of this order. Of course, the more flights into and out of any given airport the more critically important such regulations become. As will be pointed out, the

UAP in the present incident did not conform to these regulations.

According to an Associated Press article of July 3, 2006, quoting government statistics, O'Hare was the busiest airport in the nation during the first six months of 2006 with 477,001 flights (take-offs and landings). Wendy Abrams of the Chicago Department of Aviation said, "It (ORD) is a key aviation hub both nationally and internationally." To put this huge number of flights into a national perspective, consider that for the first ten months of 2006 U. S. airlines operated 8,822 million scheduled domestic and international flights[31] at all of its airports and 890,300 flights just in October 2006 alone. O'Hare's air traffic controllers typically handle about ninety six arrivals per hour or one every 38 seconds, usually on multiple runways. They are kept extremely busy.

O'Hare International Airport currently has four passenger terminals. Three are used by approximately thirty major and regional airlines. The International Terminal (Concourse M) serves approximately twenty seven airlines.

As of November 7, 2006 there were twenty seven cargo carriers operating in and out of ORD[32]. Official statistics point out that there were 30,537 arrivals and 30,535 departures in November 2006 from its six runways (see Table 2 in Section 3.5.1). The extremely large size of these numbers emphasize the critical importance of the nation's air traffic control system that is designed to keep aircraft from colliding both on the ground and in the air. As this report will show, the radar system at O'Hare was incapable of detecting the presence of an airborne, hovering object of significant size, nor was the object seen from the tower. If an object cannot be seen visually or on radar it does not officially exist and no specific actions can be taken to warn airplanes of its existence.

3.2.1 FAA Facility Operations Record.

Figure 8 is a certified copy of the ORD tower *'Daily Record of Facility Operation*' for November 7, 2006.[33] It contains several interesting points:

(1) At UTC 2245 (4:45 PM) the record states that "SUE FROM UNITED RAMP TOWER CALLED TO INQUIRE IF WE HAD SEEN A FLYING DISC OVER THE UNITED TERMINAL IN THE VICINITY OF GATE C17 AT ABOUT ONE THOUSAND FEET. I REPLIED THAT WE HAD NOT./DH. (2) UTC 2303 (5:03 PM) QAR CLSD ABOUT DISC. (3) E. GISH ON WCLC.

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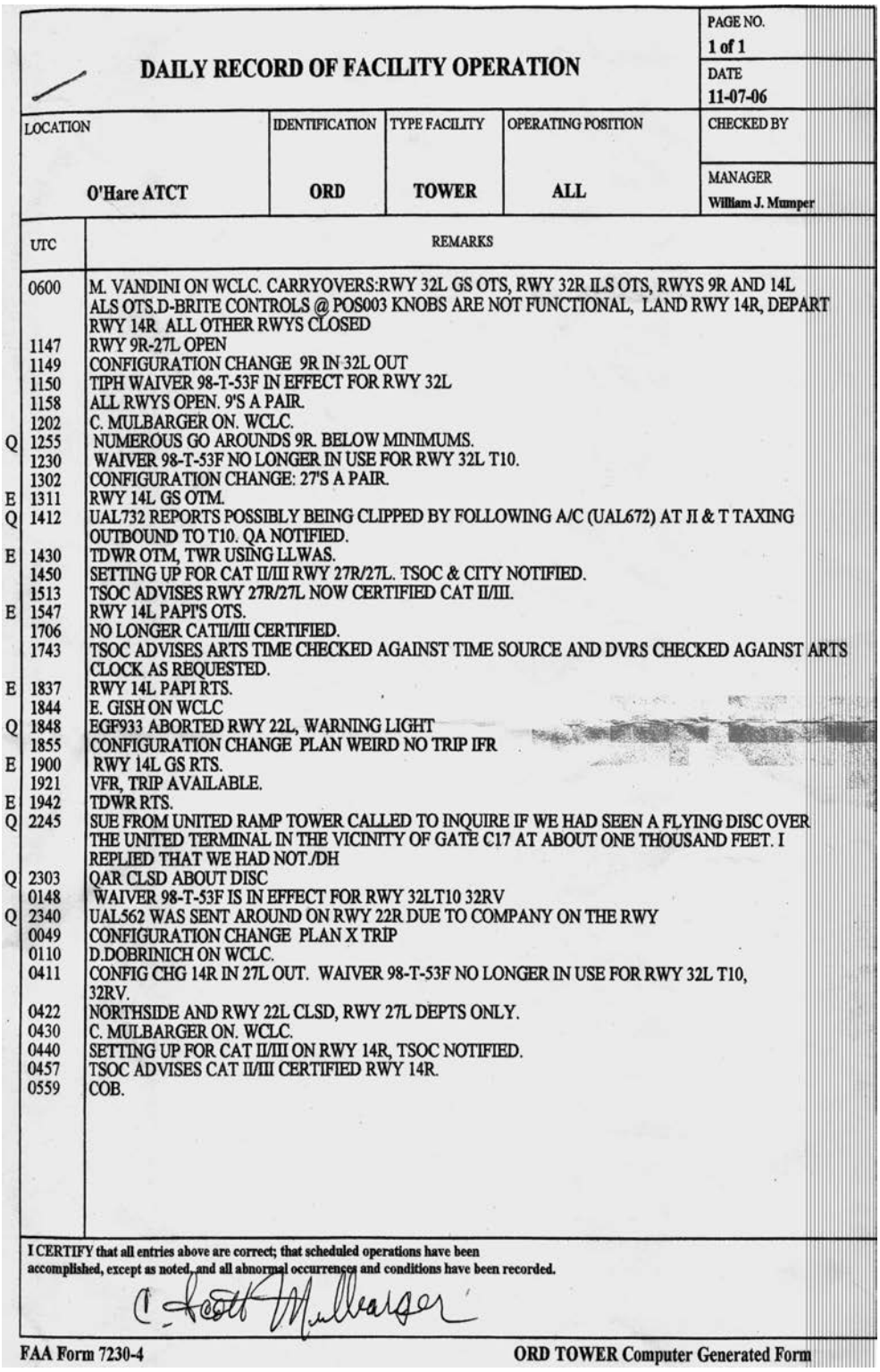
31 Bureau of Transporation Statistics, January 11, 2007 press release.

32 http://en.wikipedia.org/wiki/O'Hare_International_Airport.

33 Received on March 5, 2007 from F.O.I.A. request 2007-001234GL.



DAILY RECORD OF FACILITY OPERATION

PAGE NO. 1 of 1

DATE 11-07-06

LOCATION	IDENTIFICATION	TYPE FACILITY	OPERATING POSITION	CHECKED BY
O'Hare ATCT	ORD	TOWER	ALL	MANAGER William J. Mumper

	UTC	REMARKS
	0600	M. VANDINI ON WCLC. CARRYOVERS:RWY 32L GS OTS, RWY 32R ILS OTS, RWYS 9R AND 14L ALS OTS.D-BRITE CONTROLS @ POS003 KNOBS ARE NOT FUNCTIONAL, LAND RWY 14R, DEPART RWY 14R. ALL OTHER RWYS CLOSED
	1147	RWY 9R-27L OPEN
	1149	CONFIGURATION CHANGE 9R IN 32L OUT
	1150	TIPH WAIVER 98-T-53F IN EFFECT FOR RWY 32L
	1158	ALL RWYS OPEN. 9'S A PAIR.
	1202	C. MULBARGER ON. WCLC.
Q	1255	NUMEROUS GO AROUNDS 9R. BELOW MINIMUMS.
	1230	WAIVER 98-T-53F NO LONGER IN USE FOR RWY 32L T10.
	1302	CONFIGURATION CHANGE: 27'S A PAIR.
E	1311	RWY 14L GS OTM.
Q	1412	UAL732 REPORTS POSSIBLY BEING CLIPPED BY FOLLOWING A/C (UAL672) AT JI & T TAXING OUTBOUND TO T10. QA NOTIFIED.
E	1430	TDWR OTM, TWR USING LLWAS.
	1450	SETTING UP FOR CAT II/III RWY 27R/27L. TSOC & CITY NOTIFIED.
	1513	TSOC ADVISES RWY 27R/27L NOW CERTIFIED CAT II/III.
E	1547	RWY 14L PAPI'S OTS.
	1706	NO LONGER CATII/III CERTIFIED.
	1743	TSOC ADVISES ARTS TIME CHECKED AGAINST TIME SOURCE AND DVRS CHECKED AGAINST ARTS CLOCK AS REQUESTED.
E	1837	RWY 14L PAPI RTS.
	1844	E. GISH ON WCLC
Q	1848	EGF933 ABORTED RWY 22L, WARNING LIGHT
	1855	CONFIGURATION CHANGE PLAN WEIRD NO TRIP IFR
E	1900	RWY 14L GS RTS.
	1921	VFR, TRIP AVAILABLE.
E	1942	TDWR RTS.
Q	2245	SUE FROM UNITED RAMP TOWER CALLED TO INQUIRE IF WE HAD SEEN A FLYING DISC OVER THE UNITED TERMINAL IN THE VICINITY OF GATE C17 AT ABOUT ONE THOUSAND FEET. I REPLIED THAT WE HAD NOT./DH
Q	2303	QAR CLSD ABOUT DISC
	0148	WAIVER 98-T-53F IS IN EFFECT FOR RWY 32LT10 32RV
Q	2340	UAL562 WAS SENT AROUND ON RWY 22R DUE TO COMPANY ON THE RWY
	0049	CONFIGURATION CHANGE PLAN X TRIP
	0110	D.DOBRINICH ON WCLC.
	0411	CONFIG CHG 14R IN 27L OUT. WAIVER 98-T-53F NO LONGER IN USE FOR RWY 32L T10, 32RV.
	0422	NORTHSIDE AND RWY 22L CLSD, RWY 27L DEPTS ONLY.
	0430	C. MULBARGER ON. WCLC.
	0440	SETTING UP FOR CAT II/III ON RWY 14R, TSOC NOTIFIED.
	0457	TSOC ADVISES CAT II/III CERTIFIED RWY 14R.
	0559	COB.

I CERTIFY that all entries above are correct; that scheduled operations have been accomplished, except as noted, and all abnormal occurrences and conditions have been recorded.

C. Scott Mulbarger

FAA Form 7230-4 ORD TOWER Computer Generated Form

Figure 8. Daily Record of Facility Operation, ORD, November 7, 2006

(1) According to the above daily operations record entry referring to Dave H., nothing unusual was seen from the tower either before (or after?) UTC 2245 (4:45 pm) which is about fifteen minutes after "Sue" in the United ramp tower called him the first time and perhaps twenty minutes after the initial sighting was made! Of course the question remains, why was this official tower log entry made so long after the event?[34] According to the eye witnesses they watched the object depart at about 4:34 or 4:35 pm at the latest so that, of course, by 4:45 pm there would be nothing to see in the sky! The transcript included in Table 3 of Section 3.5.2 indicates that "Sue," a United Airline ramp tower employee reported the UAP at 4:45 pm; there *was* about forty eight seconds of continuous discussion about the UAP on the tape recording. NARCAP asks, why is there a fifteen minute difference in these two times? Additionally, witness A said that he watched the object depart about two minutes after he first saw it, then the UAP would have been gone well before 4:45 pm.

(2) Also shown in this Facility Operations Record is the fact that the FAA Regional Quality Assurance office (QAR) closed this UAP incident at UTC 2303 (5:03 pm), some eighteen minutes after the tower was contacted from the United ramp tower. There are references to the Transportation Safety Administration (TSA) being informed as well. Apparently, the tower supervisor (and perhaps other officials) did not initiate any further formal internal investigation. It had quickly become a non-event. We may presume that during this time some attempt was made to back-check radar screens for the presence of the alleged hovering object. The senior editor has filed a FOIA request for all related communications between Scott AFB, Illinois and O'Hare Airport on the date and time in question to find out whether military aircraft were scrambled. No reply has been received as of mid April, 2007. NARCAP's independent study of the available radar data for the same period of time is presented in Section 7.0 of this report.

(3) Mr. E. Gish was officially on duty at 1844 UTC (12:44 pm) as indicated by the entry WCLC, i.e., "Watch Checklist Complete"

According to the Automatic Terminal Information Service (ATIS) data issued for November 7, 2006 (see Appendix H) the active instrument landing system (ILS) runways were 22R, 27L, and 27R and the active departure runways were 22L, 32R, and 32L. Apparently, no modifications were made to arrival routings during the afternoon of November 7, 2006.[35] However, this raises the possibility of a modification to departure operations due to the possible presence of the UAP.

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[34] One possibility is that the tower did not take the first call from Sue seriously enough to record it in their daily record and only did so after the second call from Sue at 4:47 pm

[35] An interesting but unverified BLOG entry by a Dennis Goethe of Durand, Illinois stated that he and other passengers on an airplane at Port Columbus, Ohio had to wait at least an extra hour on the afternoon of November 7, 2006 before they took off for O'Hare. The airplane was scheduled to land at 4:30 pm. Upon arriving at ORD it allegedly had to wait for "…about another hour and circled the airport waiting to land." The pilot did not give the passengers a reason for this alleged delay. (Google Earth Community, 2007)

As Ledger, a pilot and one of NARCAP's technical specialists[36] has pointed out, the presence of the alleged UAP might have resulted in a change in departures on runways 27L and 32R since the UAP above gate C17 could be seen from the takeoff end of each. The airplanes taking off from 32L would fly increasingly close to the location of the UAP as they climbed out such that the flight crew could look up at the bottom of the object from a distance of only about 1,500 feet away. As he points out in Appendix F.4, he would be extremely concerned about the intentions of this hovering object and the possibility that it might suddenly veer toward the airplane taking off and endangering his airplane, passengers, and crew. Executing a sudden avoidance maneuver at such low altitudes and airspeeds is fraught with danger. Nevertheless, no evidence could be found in official records that any modifications were made to any airport departure operations around the time of this incident. However, United Airlines flight 446 was delayed at least seventeen minutes from its scheduled push-back time for some unknown reason!

3.2.2. United Flight 446

This aircraft was at gate C17 and scheduled to depart for Charlotte, NC at 4:10 pm according to published airline flight data. This flight departure time was actually delayed to 4:27 pm. (or slightly longer?) According to a FOIA recording for the outbound ground controller's station, the following taxi instructions were given at about 4:30:19 pm: (A/C = flight 446; T = tower)

T "United 446, O'Hare ground. Thirty two L, T10, turn right on Alpha, go to Alpha 7 for Tango."

A/C "Alpha, Alpha 7, Tango (garbled) 446."

This radio communication indicates that the B737-500 airplane: (1) had finally pushed back from the gate area and had moved into the active taxiway area between concourse B and C, i.e., it had uncoupled from its pusher and was ready to move forward. (2) was headed for the T10 entry onto runway 32L for takeoff via taxiway Alpha, Alpha 7, and Tango.

Just about one and one-half minutes later at 4:31:44 pm the tower again contacted United 446 with the following instructions:

T "United 446. Come down on Tango. Give way to Northwest. Follow him. 132.7."

A/C "Follow Northwest, 132.7. Good day."

These instructions indicated that flight 446: (1) had to follow a Northwest Airlines airplane down taxiway Tango toward the SE which would have been facing away from gate C17, making it impossible for the crew to look back in that direction, and (2) was authorized to change radio frequencies to 132.7 which is the departure controller's frequency. That is, United flight 446 was now under the control of a different tower controller who would authorize his takeoff from runway 32L. We may assume that United 446 took off at about 4:34 pm.

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[36] Don Ledger, personal communications, March 1, 2007.

According to an official FAA voice tape recording received through NARCAP's first FOIA request, the crew of flight 446 contacted Chicago TRACON at 4:37:13 while climbing through 2,000 feet altitude which would call for a climb rate of about 620 fpm (+/-).

3.3 Miscellaneous Considerations

This incident involved (at minimum) five organizations each with its own administrative responsibilities, legal considerations, and procedures. These organizations are: Federal Aviation Administration (federal), Airport Administration Management and employees (city of Chicago), United Airlines Management and employees, a pilot union, and ground workers union. While access to internal airline working documents concerning this incident is very limited, NARCAP did receive some documents that were quite revealing. To include these documents here or even quote extensively from them would compromise the identity of their sources which NARCAP will not do. It is unfortunate but true that we must read between the lines for some needed evidence merely because of personal fear of what management might do to others for reporting this incident. See Appendix C and (Roe, 2004) for further discussion of this general subject.

3.4 Visibility from the Main ATC Tower

The FAA stated publicly that no one in the air traffic control tower saw the UAP. This statement is important since it is not qualified in any way. Calculations were therefore made to determine at what elevation above the ground an object hovering directly above gate C17 would not be visible to ATC tower personnel. It was determined that a five foot six inch tall ATC specialist standing next to the console[37] and facing gate C17 would have a vertical view (above the local horizontal) of about thirty (30) degrees arc before their vision would be blocked by the outside overhanging roof and upper window frame. Additionally, if the same viewer were to lean forward over the console so as to increase this vertical angle an additional seven to ten degrees arc would be gained. It remains to determine the approximate height above the ground of this viewer's eyes, the horizontal distance (D) between the viewer in the tower and gate C17, and two further heights (30 degree elevation (B) and 37 degree elevation (A) above the local horizontal.

Because the ground isn't exactly level in this area of the airport, topographic interpolations were made based on data obtained from the official Airport Diagram.[38] A ground elevation at gate C17 of 649 feet MSL is assumed or three feet lower than the base of the tower.

Note that the highest point on the tower is 905 feet MSL according to the Airport Diagram [AL-166 (FAA] (see Fig. 3). Based on a side elevation photograph of the tower it was estimated that the middle of

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[37] A console is the horizontal work surface extending around the interior perimeter of the tower cab. The typical console is about 24 inches deep with other displays and controls on additional inclined panels located nearer the windows. <http://ffc.arc.nasa.gov>

[38] Ground elevation values are from Figure 3, interpolating elevations listed there using four points: (1) the southerly end of runway 32R (648 feet MSL), (2) the southerly end of runway 4L (656 feet), (3) the east end of runway 27L (651 feet), and (4) west end of runway 9R (666 feet).

the outward canted viewing windows was about twelve feet below the ASDE-3 radar antenna on its roof or 893 feet MSL. Since the base of the tower is at an elevation of approximately 652 feet MSL, the difference of H = 241 feet being the air traffic controller's eye height above the ground at the base of the tower. Thus, the height above the ground at gate C17 that is the same height as the controller's eye level is 244 feet. The horizontal distance (D) is about 2,068 feet. Figure 9 is an elevation drawing of the tower summarizing these values.

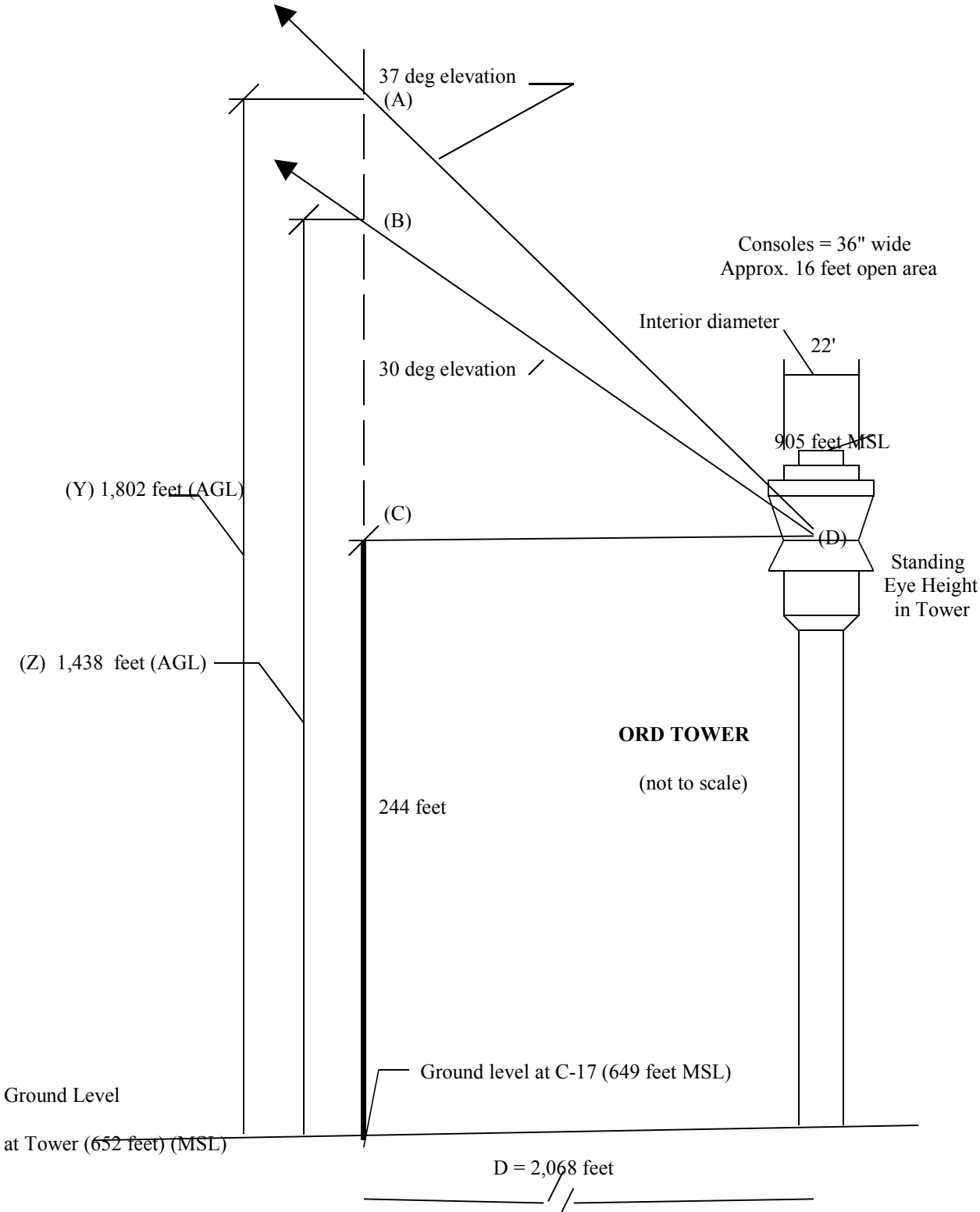

Figure 9. Vertical Visibility Limits from New Control Tower

Now it is possible to calculate the height (above the airport surface at gate C17) above which an object would not have been visible from the control tower for each of the two ATC controller body postures mentioned. For the 30 degree visual elevation condition we solve for the vertical segment (B) - (C) where tan. 30 deg = Ht/2068 = 1,194 feet. Solving for the 37 degree visual elevation in the same way, the segment (A) - (C) = 1,558 feet. To each of these values must be added the height of the controller in the tower or 244 feet. Thus, if an object were above about 1,438 feet (AGL) it would not have been visible from the tower *without* leaning forward and looking upward. Likewise, if an object were above about 1,802 feet (AGL) directly above gate C17 it wouldn't be visible to a viewer in the tower *who is leaning forward* over the console and looking up into the sky. Perhaps this is why the tower controllers didn't see the object.

We are still faced with the dilemma of not knowing the actual altitude of the UAP except that it was beneath 1,900 feet AGL, the approximate base of the cloud layer at the time. For the remainder of this paper the claim by the FAA that the ATC specialist(s) in the tower did not see the UAP will be accepted. Therefore, the UAP hovered somewhere between about 1,438 feet and 1,900 feet altitude (AGL).

Finally, according to Jon Nowinski of the *Smoking Gun Research Agency,* officials at Scott Air Force Base some 250 miles SW of O'Hare Airport were aware of the sighting (as of January 8, 2007) but were not contacted by O'Hare ATC personnel which further supports their public statement that they didn't see anything from the tower.[39]

3.5 Flight Delays and Tower Communications on November 7, 2006

3.5.1 Flight Delays. General data on airport flight approach and departure delays for each hour of operation is available for O'Hare Airport and thirty others (Anon., 2006a). Delays are collected by the Bureau of Transportation Statistics (www.bts.gov/) in accordance with 14 CFR Part 234 of DOT's regulations. There is much useful data presented in these monthly reports. However, in the tables giving the causes of delays only five categories are listed (Air Carrier Delay; Extreme Weather Delay; National Aviation System Delay; Security Delay; and Late Arriving Aircraft Delay). There is no miscellaneous category in which incidents of the kind discussed here might be included.[40]

An "on-time" operation means that a scheduled air carrier operated within 15 minutes of the scheduled time shown in the carrier's Computerized Reservation Systems. Arrivals refer to gate arrival. Of most interest here are two statistics: (1) Departure delays at ORD (across all airlines) within the time period 4:00 and 4:59 pm local time, and (2) Approach/Landing diversions or go-arounds (also called "missed approach") across all airlines during this same period. (Table 2). Either or both categories might possibly indicate that a situation had existed at ORD that constituted a flight hazard. Unfortunately, these values are continuously running totals over a twelve month period which masks smaller variations in operating statistics.

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[39] A FOIA request was submitted to Scott AFB on March 22, 2007. No reply has been received as of date of publication of this report.

[40] It is possible that so-called UAP events might be included within the National Aviation System Delay category but there is no way to tell.

Table 2

Percentage of on-time Arrivals and Departures
at ORD Across all Airlines for a Twelve Month Period
Ending in the Month Indicated Between 4:00 and 4:59 pm[41]

Month	Arrivals	Departures	Total No. Arrivals	Departures
June 2006	66.6	61.0	31,286	31,252
July 2006	66.2	59.4	31,890	31,845
Aug. 2006	65.1	62.1	32,338	32,321
Sept. 2006	59.3	60.3	30,768	30,751
Oct. 2006	56.3	54.7	32,244	32,247
Nov. 2006	65.7	62.9	30,537	30,535

Weather is a predominant factor in determining the above data. Nevertheless, it appears that there were no significant arrival or departure delays experienced on November 7, 2006 within the (relatively low) precision of these particular statistics.

It is known that ORD experienced at least one flight delay on November 7, 2006. UPI reported that on November 7, 2006 that two United Airline passenger planes contacted one another in fog conditions. This incident is noted in Figure 8 at time 1412 UTC (8:12 am). No injuries were reported.

An airline employee told the senior editor that he saw several safety vans in the vicinity of Z5 (i.e., gate C17) travelling toward C-11 at about 5:30 pm. He had never seen them before and did not know why they were there. He conjectured that they might have been there because of the earlier wing clip collision that morning.

3.5.2 Tower and TRACON Communications. NARCAP submitted a FOIA request in mid November 2006; the FOIA Analyst assigned to this job contacted the Senior editor on January 12, 2007 claiming that the O'Hare tower had "checked its voice tapes for the date and time in question and had found relevant portions only on three phone calls (all from United ramp control) and one inbound ground frequency." The FOIA package was finally received on March 5, 2007. The FAA provided three (3) separate recordings, viz., the three numbered boxes[42] diagrammed in Figure 10 as well as radio communications from 4:25 to 4:40 pm, between Chicago TRACON, south departure with numerous aircraft that had just taken off from O'Hare. One of these communications was with United flight 446.[43] Each of these recordings is discussed separately below. The results of NARCAP's second FOIA request

[41] Note that the total number of arrivals and departures are not limited to the one hour of the day indicated. < http://airconsumer.ost.dot.gov/reports/atcr06.htm >

[42] Certified by Karen Powalish, Quality Control Assurance Technician, Chicago O'Hare ATC Tower. At the end of these four recordings she states, "There were no other recordings found that involved the UFO incident."

resulting in box no. 4 and 5 in Figure 10 are discussed later.

It should be noted that for the thirty minute period from 4:30 to 5:00 pm three different communication channels were used (cf. right side of Figure 10). Data segments that were received extended from 4:30 to 4:32 pm (box #1), from 4:47 to 4:49 pm (box #3), from 4:52 to 4:53 pm (Box #2). All of these voice tape recordings were certified as being accurate.[44]

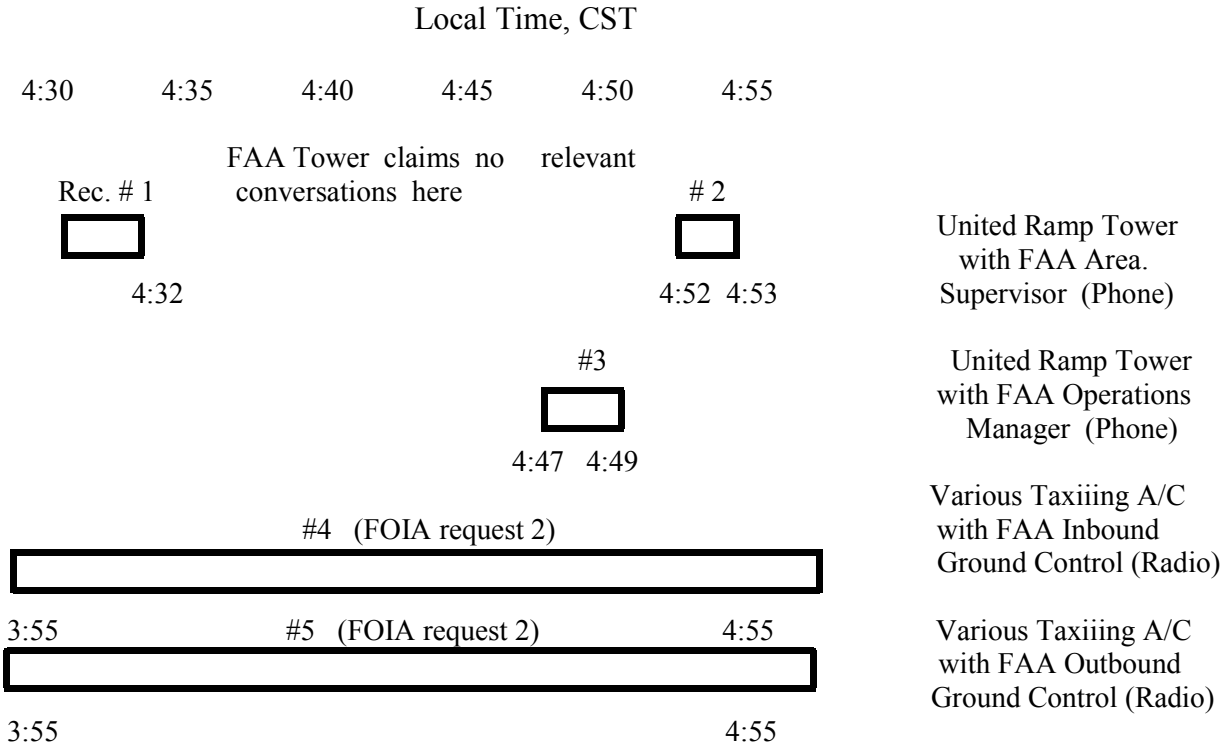

Figure 10. Diagram of Control Tower Voice Recordings Received Through NARCAP's F.O.I.A. Requests

Table 3 presents a transcript of the conversation held between the United Airlines ramp tower and the Area Supervisor Position in the O'Hare tower between 4:30 and 4:32 pm.

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[43] FOIA Request No. 2007001234GL by senior editor. "All (FAA) control tower voice recordings, tower supervisor logs, notes, and all other documents such as telephone and radio communications notes memos, etc. and Tower Ground Controller logs, notes, and all other documents such as telephone and/or radio communications notes, memos, etc. " was specifically requested, for the time period 4:00 pm to 5:00 pm CST on November 7, 2006.

[44] Because of these time lapses where no data was provided the senior editor submitted a second FOIA request as discussed in Appendix I.

Table 3

Recording No. 1

Phone Conversation Between United Zone Controller (R)
and FAA Area Supervisor (T1) in O'Hare Tower
(Parentheses enclose editor's comments or uncertain transcription)

Start time: 4:30 pm

T1 "Tower, this is Dave" (initials DH: see Daily Record of Facility Operations, time 2245)
R "Hey Dave, this is Sue in the United tower"
T1 "Hey Sue"
R "Hey, did you see a flying disc out by C17?"
T1 "Oh, it starts Sue. (laughter) Oh, we're Sorry Sue, (feminine laughter in background) A flying … you're seeing flying discs?"
R "Well, that's what a pilot in the ramp area at C17 told us. They saw some flying disc above them. But we can't see above us."
T1 "Common Sue"
R (You didn't see it?)
T1 "Hey, you guys been celebrating the holidays or anything, or what? You're celebrating Christmas today? I haven't seen anything Sue, and if I did I wouldn't admit to it. No, I have not seen any flying disc at gate C17. (Sue continues to laugh) Unless you've got a new aircraft you're bringing out that I don't know about."
R "No" (Sue continues to laugh)
T "No, I haven't seen anything Sue (he becomes more serious) (feminine laughter continues) …nothing I know about"
R "Alright"
T1 "If I do I don't know what I'll do. (both laugh) I guess I'll back it up with you. . . but I'll keep an eye out"
R "Alright" (continues to laugh)
T1 "Alright"

End Time: approx. 4:31:10

The second recording was for the period 4:47 to 4:49 pm (lasting about 87 seconds) between the United Ramp Tower and the Operations Manager in the tower. It is presented in Table 4.

Table 4

Recording No. 3

Phone Conversation Between United Ramp Tower (R)
and FAA Area Supervisor (T) in O'Hare Tower

Start time: 4:47 pm

T "Go ahead, tower, Dwight"
R "Dwight?"
T "Yes"
R "What happened to Dave? Did he have to take a break because I called him?"
T "No"
R "This is Sue from United" (laughter)
T "Yes" (serious tone)
R (12 sec. pause) "There was a disc out there flying around"
T "There was a what?"
R "A disc"
T "A disc?"
R "Yeh"
T "Can you hang on one second?"
R "Sure"

(33 sec. pause) Contains ramp tower background chatter "He's working traffic", "OK, I'll be right back" "Alright"

T "OK, I'm sorry what can I do for you?"
R "I'm sorry, there was, I told Dave, there was a disc flying outside above Charley 17 and he thought I was pretty much high. But, um, I'm not high and I'm not drinking."
T "Yeh"
R "So, someone got a picture of it. So if you guys see it out there …."
T "A disc, like a Frisbee?"
R "Like a UFO type thing"
T "Yeh, OK."
R "He got a picture of it." (laughs)
T "How, how, how high above Charley 17?"
R "Well, it was above our tower. So"
T "Yeh"
R "So, if you happen to see anything (she continues to laugh)"
T "You know, I'll keep a peeled eye for that"
R "OK"
T "Bye"

R "Bye"
T "Alright"

The third telephone conversation was recorded between a male in the United Ramp tower and the tower flight operations manager (Position T2) for the period 4:52 to 4:53 pm. it lasted 51 seconds and is presented in Table 5.

Table 5

Recording No. 2

Phone Conversation Between United Airlines (R)
and FAA Area Supervisor (T) in O'Hare Tower

Start Time: 4:52 pm

T "Tower Cab, this is Dave"
R "Hi Dave ??? (unintelligible: this is ABC or ADC?)
T "Yeh Rog… (Rod?)" (unintelligible here)
R (garbled) "Some of our employees… I don't know if you know anything about this, some of our pilots on the ground are reporting a ufo sighting at a thousand feet to the east side of the airport. Do you guys know anything about this?"
T "You know, the ramp tower called me I want to say about ten - fifteen minutes ago. We have not seen anything up here."
R "OK"
T "And I guess she said it was right around gate C17"
R "OK"
T "But I mean, but since she called we have not seen anything up here."
R "OK"
T "Yeh, I mean, if we do, oh well …" (chuckles)
R . "Yeh, ah, no, I was just wondering maybe we'll, maybe we'll have to give them the 27 right."
T "Yeh, yeh, I know. Either that or you guys have unveiled a brand new aircraft and ain't been tellin anyone about it."
R "Yeh" (laughter)
T "But, ah, no, we haven't seen anything but we'll surely keep an eye out for it, that's for sure."
R "Thank you very much."
T "No Problem."

The fourth recording was for the period 4:47:39 to 4:47:58 pm (19 seconds total) between the Inbound Ground Controller Position at O'Hare and various aircraft that had landed and were taxiing to their gates.

He also directed other airplane surface movements. There are several interesting conversations found here. (Table 6).

Table 6

Recording No. 4

Radio Conversations Between FAA Inbound Ground Controller (T), the Pilot of Gateway Airlines Flight 5668 (A/C1), United Maintenance 44 (A/C2) and Other Airplanes

Approx. Local Time hr:min:sec (p.m.)	Speaker	Statement(s)
Tape start time: 22:55 UTC = 3:55 pm.		
3:57:20	A/C2	"United maintenance forty-four. International ramp to, ah, north (port?)."
3:57:30	T	"United maintenance forty four. Join Alpha at Alpha eighteen. Taxi to north port via Alpha eighteen, Alpha."
3:57:30	A/C	"Alpha eighteen, Alpha, United forty-four."
3:57:33	T	"Ah, American, just coming across the bridge, who is that?"
3:57:35	A/C	"American nineteen ten."
3:57:37	T	"Yeh, what's your gate number again?"
3:57:38	A/C	"K-10."
3:57:39	T	"Yeh, Kilo ten. Give… ahh, OK. There's a United comin off the International (he'll) give way to you."
3:57:43	A/C	"Yeh, OK. He'll give way."
3:57:45	T	"Yeh, he'll give way to you. United, off the International ramp, the maintenance flight. You're to give way to one American

MD-80 from your right and then continue."

3:57:50 A/C2 "Give way to the MD-80, United forty four."

3:57:52 T "United six twenty three, (instructions) ".. taxi to the gate."

3:58:04 A/C "Gateway 5668…(garbled) … penalty box…we go to the north port."

3:58:09 T "Gateway 5668, you can use Alpha to northport and use caution for the, ah UFO." (spoken in a matter of fact tone)

3:58:13 A/C "For the northport. We'll take a look." (slight chuckle)

(Note: The controller seems to be giving someone with him a situation briefing at this point.)

3:58:18 T "I got the chicken liner (garbled)… ah information. Ah, we're … I got a bit of information here. We're up to date here… (Currently?) our plan (here? or weird?)" …(interrupted by call)

3:58:23 A/C "Ten-forty-four is on Bravo .. ah, Foxtrot one, Bravo."

3:58:27 T "Ten forty-four… continue via Bravo. Taxi to the gate."

3:58:30 A/C (garbled) (pilot acknowledges instruction)

3:58:31 T "Ah, these guys. (were on?)... (interrupted by incoming A/C call)

(Note. It is now clear that a new person has arrived at the Inbound Ground Controller's Position. The controller is filling him in on what is taking place.)

3:58:32 A/C " Eagle four nineteen …. on Bravo going to Delta seven."

3:58:35 T "Eagle four nineteen taxi via Bravo."

3:58:37 T "We got a couple guys on maintenance .. down on..(garbled) .. over at tango over here. We got a United maintenance flight… I think it's a …" (brief pause)

(Controller continues to explain what is happening to second person).

3:58:44 T (speaks louder here as to a different person) "Yeh, United maintenance flight that's just joining Alpha from the International, what's your number again?"

3:58:47 A/C "United maintenance forty-four."

3:58:49 T "That's four-four, thank you."

3:58:50 A/C "Alright."

3:58:51 T "United forty four is goin' around the north (fork?) … ah, yeh, Eagle and Skywest over here comin around this way. He's turnin in … we've really got no other gate holds."

3:58:57 [second voice] "Alright."

3:58:59 T "Somebody reported a UFO or a flying disc above Charley concourse, seriously."

3:59:02 [second voice] "Excellent."

3:59:03 T "Yeh. … Um, so nobody…"

3:59:04 [second voice] "I'll keep my eyes open."

3:59:04 T "Nobody can see it. But use caution."

3:59:06 [second voice] "Alright."

3:59:07 T "Um… and a… (laughter by two men) "that's pretty much it (garbled conversation)

3:59:11 (interrupted by female pilot voice)

4:47:39 T "Gateway 5668."

A/C1 "Gateway 5668."

T "Yeh… look out your window. Do you see anything above United concourse? They actually, believe it or not, they called us and said, somebody observed a flying disc about a thousand feet above the, ah… gate Charley 17. Do you see anything over there?"

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pause of about 5 sec.

A/C1 "Not that I can tell. I thought my job was stressful" (laughter)

4:48:05 pm A/C2 (witness B)[45] "Oh, we saw it a half hour ago"

T "Who saw it?"
A/C2 "A whole bunch of us over at Charley concourse."

T "Really? You guys did? Who is this?"

A/C2 "United taxi mechanics (5 sec. pause). We thought it was a balloon but we're not sure."

As discussed in Section 2.0, it is very likely that the taxi mechanic who spoke with ground control at 4:48:05 in Table 6 was witness B based on the similarity of details provided. If the estimate that they had seen the UAP thirty minutes earlier is accurate then the time would be at about 4:18pm.

The inbound ground controller remarked to the pilot of Gateway 5668 that the tower had been called about the presence of the object over C17 and that is what prompted his request to look for the object. The first communication occurred at 4:30 pm and is transcribed in Table 3. A second and third communication from United Airlines occurred at 4:47 pm and 4:52 pm, respectively (Table 4 and 5). Exactly when the inbound controller first learned about the UAP cannot be determined but there are a number of relatively long periods of silence where this might have occurred, all of them were before United personnel made the first call to the tower. While NARCAP acknowledges that there are normal periods of high and low taxi activity that call for instructions from the controller the following blank periods become obvious when heard as part of a full hour's worth of recording. At 4:21:49, for instance, the controller said nothing for sixteen seconds; then, as if to catch up with his workload, he speaks faster and seems somewhat distracted immediately afterward. The next period of quiet begins at 4:24:07 for seventeen seconds followed by him thinking he had missed a pilot's comment when no such comment had been made by the pilot. The next period of quiet begins at 4:24:36 for eighteen seconds followed at 4:27:19 for twenty-four seconds and then at 4:28:44 for thirty-two seconds. These quiet periods would not seem so unusual except that for most of the preceding and following minutes (in the hour's recording) he was talking almost continuously.

The final recording received through NARCAP's first FOIA request was related only to TRACON radio communications with United flight 446. The entire certified[46] recording began at 4:25 pm and ended at 4:40 pm. However, the only radio communication with United Flight 446 found was a brief

[45] At this point witness B and C are either at gate C10 or at the United maintenance hanger. NARCAP's reconstruction assumes the latter.

[46] Certified by Sharon Graham, Quality Program Assurance Specialist, Chicago TRACON.

radio contact between the jet and TRACON at about 4:37:15 pm soon after its takeoff. It is transcribed as follows:

Pilot "This is United 446, checking in with you. We're passing two thousand for five thousand."
TRACON "United 446, Chicago Departure, end of contact."

If the cockpit crew of United Flight 446 parked at gate C17 did see the UAP as suggested earlier they apparently did not comment about it to the TRACON controller.[47] There is also no mention of any UAP between this controller and other taxiing aircraft on this particular frequency.[48] The tape ends with ATC instructions for flight 446 to level off at 13,000 feet altitude. These official communications tend to support the FAA's contention that they knew nothing about the presence of a UAP over the airport.

4.0 Weather Conditions

William Puckett[49]
NARCAP Research Associate

The greater Chicago area was under the influence of a stable air mass with low pressure gradients. The air mass was moist below about 2,000 feet (AGL) and quite dry above 2,000 feet. Surface winds were below ten knots in the lower 5,000 feet. A few light rain showers had occurred earlier in the day. Cloud ceilings were 1,000 to 2,000 feet[50] with visibility restricted to three (3) to five (5) miles in haze and fog. Weather data for this and location and date from the Automated Surface Observation Station (ASOS) showed a cloud ceiling of 1,900 feet AGL at 4:51 pm. This overcast had been rising gradually since about 10:00 am. Additional regional weather data is included in Appendix A (prepared by W. Puckett). Table 7 presents the atmospheric lapse rate data for Davenport, Iowa on November 7, 2006 at 6:00 pm CST.

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[47] Given the unwritten censure and ridicule that usually accompanies reporting UAP to management pilots typically remain quiet about what they see. Cf. (Roe, 2001) for background information directly related to this unhealthy negative reporting bias.

[48] A second FOIA request was made to FAA O'Hare office on March 8, 2007. It confirmed that nothing was said about the UAP either by inbound or outbound ground controllers other than one brief query to an airplane with call sign Gateway 5668 at 4:47:39 pm. (See Table 6 for details).

[49] Atmospheric scientist, MS, retired.

[50] Cloud ceiling is determined using a laser ceilometer. Cf. <http:// www.allweatherinc.com/meteorological/8340_ ceilometer.html>

Table 7
Table of Lapse Rates, Humidity & Winds (Davenport, Iowa)
Nov. 7, 2006 – 6:00 pm CST

Pressure (Millibars)	Height (Meters)	Temperature (Degrees C)	Dew Point (Degrees C)	Relative Humidity (Percent)	Wind Direction (Degrees)	Wind Speed (Knots)
1000	72					
981	229	10.8	6.4	74	190	4
973	298	12.8	7.8	72	198	4
925	724	10	6.6	79	244	5
906	896	8.4	5.3	81	263	6
904	914	8.5	4.8	78	265	6
882	1118	9.2	-0.8	50	268	7
871.3	1219	9.1	-1.6	47	270	7
850	1424	8.8	-3.2	43	270	8
809	1829	6.3	-7.3	37	275	10
779.4	2134	4.5	-10.4	33	280	12
753	2415	2.8	-13.2	30	294	15
750.9	2438	2.8	-16.3	23	295	15
747	2480	2.8	-22.2	14	296	15
723.1	2743	2.3	-27.8	9	305	16
719	2789	2.2	-28.8	8	307	16
700	3004	0.4	-27.6	10	315	16
699	3015	0.4	-25.6	12	315	16
687	3154	-0.5	-4.9	72	317	17
670.1	3353	-0.7	-8	58	320	19
655	3535	-0.9	-10.9	47	320	21
645	3658	-1.5	-14.3	37	320	23
630	3845	-2.5	-19.5	26	315	25
597.2	4267	-5	-17.6	37	305	30
593	4323	-5.3	-17.3	38	306	29
567	4673	-7.9	-12.6	69	315	26
552.2	4877	-9.2	-14.8	64	320	24
530.7	5182	-11.1	-18	56	325	26
500	5640	-13.9	-22.9	47	325	32
470.3	6096	-17.6	-23.9	58	325	35
451.4	6401	-20.1	-24.5	68	325	38
420	6937	-24.5	-25.7	90	331	46
400	7290	-27.3	-28.8	87	335	51
385	7564	-29.3	-30.8	87	335	56
382	7620	-29.2	-32.5	73	335	57
376	7733	-28.9	-35.9	51	339	61
366	7925	-30.2	-37.5	49	345	67
346	8323	-32.9	-40.9	45	345	78
307.3	9144	-39.2	-44.6	56	345	101
300	9310	-40.5	-45.4	59	345	105

Astronomical Data Used:
Source: Weather Underground Web Site) http://www.weatherunderground.com

Figure 11 is a graph of the basic data of Table 7. The ordinate is temperature (deg. C) and the abscissa is altitude (m). The dark, irregular line on the right represents air temperature (deg. C) while the dark, irregular line on the left represents dew point temperature, i.e., the temperature at which relative humidity would be 100% if the air temperature were cooled to the dew point temperature. Clouds will generally form where the two lines are superimposed over each other since the air has become completely water saturated. See Appendix A for additional weather-related data.

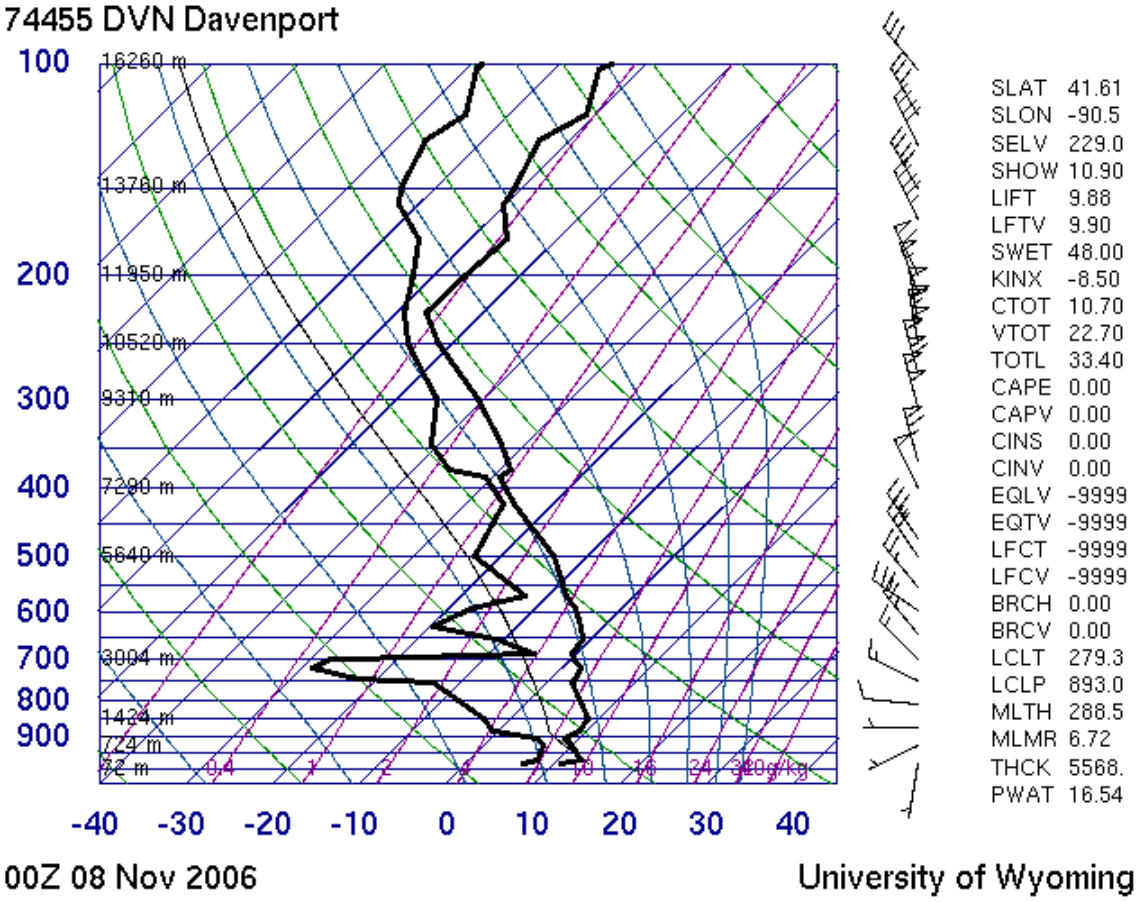

Figure 11. Atmospheric Lapse Rate Data for Davenport, Iowa on November 7, 2006 at 6:00 pm CST

Surface Data Used:
(Source: University of Wyoming Weather Server): http://weather.uwyo.edu

O'Hare International Airport – Chicago

Observation on November 7, 2006 at 4:51 PM CST:
Sky: Overcast With Ceiling at 1,900 feet
Visibility: 4 Miles Haze
Wind Direction: West (270 Degrees Compass)
Wind Speed: 7 Knots
Temperature: 53 Degrees F
Dew point: 48 Degrees F
Relative Humidity: 83%
Altimeter Setting: 29.80 Inches of Mercury

5.0 Hole-in-Cloud Considerations

Kim Efishoff, Research Associate and Larry Lemke, Executive Committee

5.1 Introduction. Other sections of this report present the basic descriptive facts surrounding the Chicago O'Hare International Airport UAP sightings of November 7, 2006 in greater detail. In this section we concentrate on one particularly striking assertion occurring in the reports namely, that the apparent oblate spheroid shaped object or phenomenon produced a sharp edged "hole in the clouds" (HIC). If we assume only that the witnesses are not mistaken or dissembling, then the HIC must be considered to be a physical trace capable in principle of providing some information about the nature of the object or phenomenon. What can the HIC tell us about whatever caused it? Ultimately, there is insufficient data in the reports to uniquely and definitively identify the presumptive "object" that caused the HIC. Indeed, we cannot even determine whether the "object" was solid or as ephemeral as, for example, a self-organized plasma. However, we may hope to eliminate from consideration classes of explanations which do not make physical sense. Thus even if we cannot identify the ultimate cause of the sighting reports, we can make some reasonable inferences about what it was not. As usual, in attempting this we should apply Occam's Razor, and avoid needlessly invoking any unconventional physics.

The phenomenon we are attempting to explain is described in the words of one of the witnesses: At around 4:30 in the afternoon of November 7 several employees of United Airline company witnessed a "disc shaped [sic] object" that was seen "hovering over gate C17 at the C concourse" of the Chicago O'Hare International Airport.[51] The object, which could not be identified by witnesses as any known aircraft, was said to be "holding very steady and appeared to be trying to stay close to the cloud cover." According to testimony given to NARCAP by one witness, after looking away for a short while, the witness "noticed that the craft…[was]… no longer there but there was an almost perfect circle in the

[51] National UFO Reporting Center (NUFORC) Report Index, posted 12/7/2006

cloud layer where the craft had been, The hole disappeared a few minutes later." As discussed in Section 2.0, one highly qualified witness (B) confirmed that he and witness (C) saw the hole at about 4:20 pm. He said, "I guess it had just left." Estimates given above (Section 2.0) for the time of departure of the UAP and a fairly definite time when the hole in the cloud was still visible range from five to ten (mean = seven and one-half) minutes!

The story of this unusual sighting broke on January 1, 2007, in the Chicago Tribune.[52] According to the Tribune story, reports by airlines employees state that "A flying saucer-like [sic] object hovered low over O'Hare International Airport for several minutes before bolting through the clouds with such an intense energy that it left an eerie hole in overcast skies…the object [was] estimated to be hovering 1,500 feet above the ground...[and] was seen to suddenly accelerate straight up through the solid overcast skies, which the FAA reported had 1,900-foot cloud ceiling at the time...It left behind an open hole of clear air in the cloud layer…[that] disappeared within a few minutes." The Tribune attributes one airline employee with the statement, "It was like somebody punched a hole in the sky."

5.2 Historical Background. Although the multiple eyewitness accounts of this HIC may be unusual, they are not unprecedented. Reports of this odd manifestation have been associated with UAP sightings as far back as 1947, and as far afield as Newfoundland, England and Scotland.

A declassified Army Air Force Intelligence Investigation Report held in the files of the Center for UFO Studies (CUFOS)[53], provides a record of one such sighting that occurred approximately six miles SSW of Harmon Field, Newfoundland (1388th AAF Bu, NBC, ATLD, ATC. Harmon Field, Newfoundland) on July 10, 1947. According to the signed statements by witnesses – John E. Woodruff, Chief Mechanic, Pan American Airways; John N. Mehrman, Jr. Supervisor and Mechanic, Trans World Airway; and, Robert W. Leidy, Station Mechanic, Pan American Airways – at approximately 5:00 in the afternoon, Woodruff saw a "translucent disk like a wheel traveling at a terrific speed and opened the clouds as it went through the air." The witnesses stopped the vehicle in which they were traveling and got out to observe the object. Though Woodruff was the only witness to actually see the "disk", both Mehrman and Leidy saw the hole left in the cloud layer upon the departure of the object. Mehrman reported "the clouds were very scattered and were about 8,000 to 10,000 feet, the object passed through and cut the cloud leaving a gap where you could see the blue sky, like a knife had cut it. The edges were feathered similar to a weld, as if you cut a weld in half." Leidy stated that "you could see the trail right through the cloud, it looked to be traveling in a big circle and it left sharp edges to the clouds."

An article in the Fort Pierce (FL) Tribune from Feb 16, 2007 quotes from a formerly classified U.S. Government report released under the Freedom of Information Act, and states, in part:

"… on Oct. 28, 1947, Lt. Col. George Garrett prepared a so-called Intelligence Collection Memorandum for Air Force Intelligence which listed some commonly reported features of flying discs: "The ability to group together very quickly in a tight formation when more than one aircraft are together; evasive action ability indicates the possibility of being manually operated, or possibly by electronics or remote control;

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52 Jon Hilkevitch. "In the sky! A bird? A plane? A…UFO?" Chicago Tribune. 1/1/2007

53 Col. W. R. Clingerman and Lt. Col. E. G. Nabell, of Hqrs., Air Material Command, Wright Field, Dayton, Ohio. "Flying Saucers." July 1947

and under certain conditions the craft seems to have the ability to CUT A CLEAR PATH THROUGH CLOUDS ..."

This Air Force Intelligence Collection memorandum may, in fact, be a response to the Harmon Field incident occurring earlier in the same year.

On March 9, 1977 a "club master and professional golfer at the Ardeer golf course on the Ayrshire coast of south-west Scotland" observed a similar incident. The two reported seeing an odd light "hovering over the seventeenth tee, no higher than a telegraph pole. Its glare was so enormous that nothing could be seen behind it…After hovering for about four minutes, the light suddenly streaked upwards into the low cloud-cover, leaving a clear hole in it as it passed through. The cloud just seemed to evaporate and then close again around the UFO, eventually leaving it to shine through as just a veiled glow" before it shot out of sight. The object made no sound whatsoever throughout the entire episode.[54]

According to a 1979 article published in the British journal Flying Saucer Review[55], at about 4:30 in the afternoon, December 30, 1977, 62-year old Edith Lane of Exhall, Warwickshire, England, observed an oval object in the sky over the residence in which she was staying. The object was "about 20 feet in diameter", and "was in view for about 5 minutes. The object suddenly began to move and accelerated rapidly to a tremendous speed…leaving a hole in the sky…where it had been hovering…All the clouds covering a roughly oval space, several times the diameter of the object, had dispersed. This condition remained many minutes after the object had gone, despite winds moving the clouds quite noticeably."

The final incident involving displaced clouds took place in the afternoon of December 6, 2002 at Ventura, California. Two college professors watched as a dark object moved across the sky toward the south over Ventura County at an estimated ten to fifteen thousand feet altitude. Then it stopped its forward travel for about five minutes while carrying out "…several unusually tight (seemingly) uncontrolled maneuvers … and (appeared to) change shape from a disc to an oval." It then moved back toward the north until it disappeared out of sight over another five minute-long period. As the object moved it "displaced cloud formations in a circular area surrounding it, the area directly around the object was clear even when flying through cloud formations." (NUFORC report)

As demonstrated by the multiple-witness accounts documented in the foregoing reports, the HIC phenomenon associated with the sighting of a UAP witnessed at Chicago O'Hare International Airport on November 7, 2006 appears to be observable and repeatable over large separations of time and space. Groups of witnesses to the individual events could not plausibly have known of the existence of each other, so we consider the reports to be independent. The existence of an Air Force Intelligence Collection Memorandum in October, 1947 which refers to this phenomenon is also inferential evidence that the authors of this section are not the first ones to conclude that this phenomenon is both real and repeatable.

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54 Randles. J., UFO Reality: a Critical Look at their Physical Evidence. Robert Hale, London. 1983.

55 Phillips. K., "UFO leaves hold in sky". Flying Saucer Review, FSR Publications Ltd., West Malling, Maidstone, Kent, England.,Vol. 24, No. 4, 1979.

The obvious question is, "what could have created the holes in the clouds?" In seeking to answer this question, we should first describe as exactly as possible the features or characteristics of the phenomenon we consider in need of explanation. Briefly, the puzzling characteristics common to all the reports are:

1. A finite column or segment of cloud material was changed from visible to invisible.
2. The process causing the change from visible to invisible acted almost instantaneously, coincident with the passage of the object or phenomenon.
3. The process causing the hole(s) in the clouds—just larger than the presumed object or phenomenon preserved the shape of the object or phenomenon accurately and with sharp edges.

5.3 Analysis and Discussion. Within the portion of the Earth's atmosphere in which the HIC phenomena have been observed (the Troposphere) water plays a unique role; it is the only naturally occurring substance which can exist in any or all three phases—gas, liquid, or solid. It is when water molecules in the atmosphere transition between these phases that clouds appear and disappear. For example, when water condenses out of the vapor phase into the liquid phase, it forms small liquid droplets which, collectively, become normal clouds. Liquid water droplets can be removed from the atmosphere by the reverse process of evaporation (requiring the addition of heat) or by the process of freezing into the solid phase (accompanied by the removal of heat). Freezing of liquid water into the solid phase is usually followed by precipitation, as the snow, hail, or sleet particles are often too large to remain aloft. All these processes involve the flow of energy and sometimes mass, and if we wish to arrive at a self-consistent explanation of what may or may not have caused the HIC phenomenon, we must be able to explain the details of the associated mass and energy balance.

The National Weather Service reported the synoptic conditions over O'Hare on November 7 as a stable low-pressure system. Temperature at the ground was about 10 deg, C. Wind was about 4 knots. There was a solid overcast layer at a constant 1,900 ft, AGL over the entire Chicago area. Data discussed in Appendix A.4 suggests that there were two cloud layers. The lowest extended from 1,900 to about 3,700 feet AGL and a second extending from about 8,000 to 9,000 feet. Freezing level was at 10,000 ft, AGL. In short, at 1,900 ft above the airport (where the HIC appeared), conditions closely approximated those for the formation of a simple "textbook" cloud deck, with no complicating factors such as temperature inversions, nearby freezing levels, winds, or convective activity.

The standard model of cloud formation starts from the knowledge that an average parcel of air anywhere in the Troposphere will almost certainly have water vapor in it. Water vapor is no more or less visible to the human eye than any other gaseous constituent, such as Nitrogen or Oxygen. It is only when the vapor condenses into either liquid droplets or freezes into ice particles that the accretions of water molecules become large enough to be seen, and therefore form visible clouds.

Because the freezing level above Chicago O'Hare on November 7, was at 10,000 ft, we know that the clouds in which the hole appeared consisted of water droplets, only. Although we do not have detailed weather reports for the other historical cases discussed above, we note that the 1947 case occurred in midsummer (on July 10), when, freezing conditions would presumably be extremely unlikely. Likewise, the Scottish case occurred in March of 1977 at an altitude no higher than that of a telegraph pole where

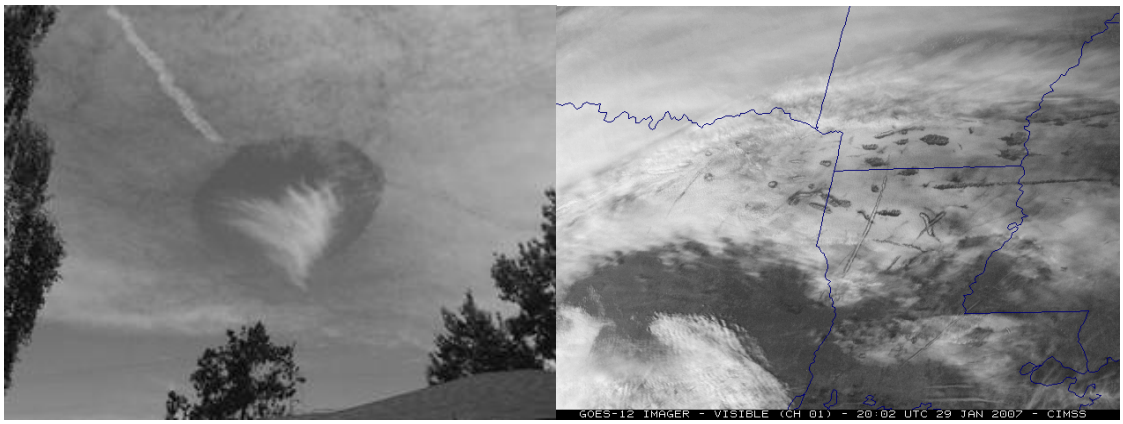
the conditions would also likely be above freezing. Thus, in at least 3 of the 4 cases we consider here, it is certain that the clouds in which the HIC appeared were composed of water droplets at a temperature above the freezing point.

Classically, there are three ways to make a cloud of water droplets disappear; one way is to evaporate them (turning them back into invisible vapor), another way is to freeze them into ice particles (causing them to drop out of the sky), the third way is to aggregate them into large rain drops (which also fall out of the sky). We know it was not raining on November 7, 2006 or any of the other 3 cases, so we need only consider evaporation and freezing.

It has been suggested that a variation of the freezing phenomenon called the "Bergeron-Findeisen Process" (BFP) may have produced the HIC witnessed in the O'Hare incident, since the BFP is known to produce holes in clouds. For BFP to occur, a layer of water cloud must first exist in a temporary super cooled condition at or above the altitude of the freezing level. The term "super cooled" means that the temperature of the cloud is below the nominal freezing point of water yet most of the water present is still in the liquid state. In this condition, the cloud droplets will resist freezing if no ice particles are present upon which the water can adhere. This precondition is intrinsically unstable and will revert to a more stable condition if ice nuclei are provided from an external source.

Water is a natural and abundant component of the combustion products of, for example, jet fuel. The sudden introduction of water molecules in the "contrail" behind a conventional aircraft flying above a super cooled cloud deck can provide the source of ice nuclei needed for the water droplets in the cloud to freeze. In this hypothetical case, if the cloud temperature is below freezing, the air temperature at the altitude of the aircraft must be even lower (because it is higher in altitude). Therefore, the water vapor in the aircraft exhaust may freeze instantly and form ice crystals. Gravity will cause the ice crystal "seeds" to fall through the super cooled cloud region. As they do so, they accrete more ice and fall faster and farther. Eventually, the "seeds" and accreted ice fall out as snow (note the visible snow streaks in Figure 12, below). The net result is a hole in the cloud, with streaks of snow extending downward. This snow never reaches the ground because it sublimates (evaporates) in the drier and warmer air below. Figure 12a shows a single BFP HIC over Santa Rosa CA photographed from below and Figure 12b shows numerous HICs appearing in a large area of a super cooled cloud layer photographed from above by the MODIS instrument onboard NASA's TERRA Satellite.

Essentially, in the BFP, a mass of super cooled water droplets supplies the energy potential to cause freezing; ice crystals falling under the influence of gravity provide the mass flow necessary to create a hole in the cloud. Neither this energy source nor this mass displacement mechanism was present on the day of the O'Hare sighting. Therefore, the BFP was not responsible for producing the HIC on November 7, 2006. The highly characteristic snow streaks were not in evidence in any of the 3 previous cases, either, so this phenoenon is not a tenable explanation. In fact, we may generalize this conclusion to eliminate any form of freezing as the removal method and concentrate instead on evaporation.



Figures 12a, b. Santa Rosa, CA. and Louisiana-Alabama Region. Photographs of "Holes in Clouds" Due to the Bergeron-Findeisen Phenomenon Photographed from Below (left) and From Above (right).

How much energy would have been required to evaporate water droplets in the clouds above O'Hare airport? Although we don't have detailed data about the specific clouds above the airport on the day in question, we can estimate the answer to this question by considering the characteristics of typical "textbook" clouds. First, we should recognize that clouds forming in a continental air mass (such as above Chicago) are dominated by a process referred to as heterogeneous nucleation. This means that all the droplets form around small (i.e., sub-micron) nucleation particles, such as mineral grains, bacteria, pollen, salt crystals, etc. This is important because it places an approximate upper limit on the water content of the cloud. In a cloud formed by heterogeneous nucleation it is rare for the relative humidity to rise above about 101%. At this relative humidity, the minimum radius for a liquid droplet to exist or grow is about 0.1 micron. Droplets smaller than this will completely evaporate; droplets this size or larger will grow until they have consumed all the water vapor consistent with a relative humidity of 101%. This results in cloud droplets with a radius of about 10 microns and number densities of about 10^9 droplets per cubic meter of cloud[56]. Thus, the average density of liquid water suspended in a typical cloud is about 4.2×10^{-3} kg/m^3. The latent heat of evaporation of water at 10 deg, C (the cloud temperature) is about 2260 kJ/kg. Thus, the minimum amount of heat required to evaporate a volume of cloud is about 9.4 kJ/ m^3. On a relative scale, this is not a large amount of energy; each cubic meter of cloud would require the heat energy equivalent to the combustion of approximately 2 cubic centimeters (about one half teaspoon) of gasoline.

Could this amount of heat have been deposited in an air mass by the flight dynamics of some secret, or perhaps misidentified, but otherwise conventional aerospace craft? (By "conventional aerospace craft" we mean any combination of balloon, propeller aircraft, rotorcraft, turbojet, or rocket powered vehicle.) Such conventional aerospace craft all operate by pushing aside the air molecules in their flight path. Although the air in the wake of the craft returns to near its original position, work must be done on the air in passage of the craft. What we are interested in estimating is the fraction of the craft's kinetic

[56] R.R. Rogers; A Short Course in Cloud Physics; Pergamon Press, 1976.

energy which could end up as heat in the atmosphere in the wake of the craft, and whether this energy is large enough to plausibly cause evaporation of the cloud droplets.

Witness accounts place the hovering object 300 to 400 feet below the bottom of the cloud deck and indicate that it went from hovering to "gone" in "a blink". A conservative, upper-limit interpretation of the term "blink" is about 0.3 sec. If the object traversed 300 feet in 0.3 seconds, its average speed would have been 1000 ft/s. A more normal value for the speed of an eye blink is 0.2 sec. If the object traversed 400 feet in 0.2 seconds, its average speed would have been 2000 ft/s. Thus, estimates of the vertical speed of the object range from about 1000 to 2000 feet/sec (approximately 300 to 600 meter/sec). The lower end of this speed range is just barely subsonic (M = 0.9) and the upper range is fully supersonic. No sonic boom was reported but certainly would have been if there had been a shock wave attached to a body several meters in diameter. If the object was moving subsonically, then it could have been a simple solid body displacing air molecules through collisions with the object's outer skin. If the center of mass of the object was moving supersonically yet produced no sonic boom, then it would have to have had some additional means of interacting with the air molecules other than simple collisions. One such possibility would be a Magneto Hydrodynamic (MHD) interaction, which could keep the airflow locally subsonic over the object's skin, while allowing the center of mass of the object to move supersonically. Here, we will assume the simpler case of simple collisional interaction. Witnesses described the object as looking like an oval from the side (with an aspect ratio of about 2:1) and a circle from below. The solid shape that fits this description best is an oblate spheroid whose major axis is twice the length of the minor axis. Apparently the "object" flew upward with its blunt side into the wind (i.e., in the most aerodynamically inefficient orientation).

Consider such a solid body passing through the atmosphere at velocity, v. The kinetic energy per unit volume of the airflow relative to the solid body is:

$$\text{K.E.} = \rho v^2/2, \text{ where } \rho \text{ is the atmospheric density.} \qquad (1)$$

From the U. S. standard atmosphere, ρ at the cloud base ≈ 1.13 kg/ m^3. Solving eq. (1) with this value of density and a flight speed of 300 m/sec yields an estimate for the specific kinetic energy of the air stream of about 50 kJ/m^3. Note that this kinetic energy density quantity is the same as the stagnation pressure, and it is a fraction of this stagnation pressure that shows up as aerodynamic drag. From Fig. 13, shape #4, we can see that the total drag coefficient of an oblate spheroid flying broad side-on is about 0.59.

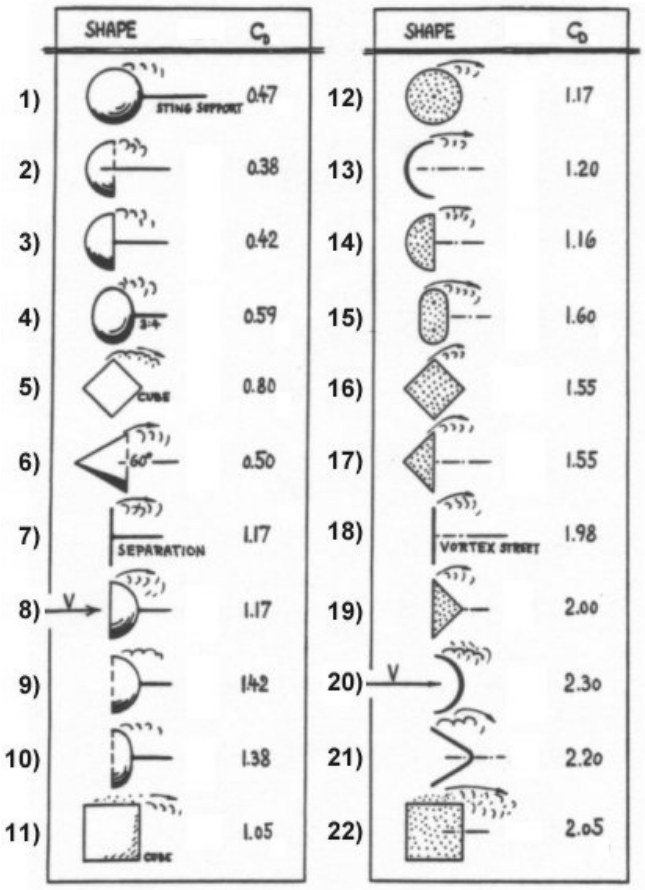


Figure 13. Drag Coefficients of some common shapes.

Thus, about 59% of the free stream kinetic energy—29.5 kJ/m^3 –shows up as drag. However, the total drag force is comprised of pressure drag and viscous, or friction drag. Pressure forces are recovered in the wake of an object and it is only a portion of the viscous drag component that shows up immediately as localized heating of the air. For blunt bodies, the component of drag due to pressure is very much larger than the component due to viscosity or friction. Fig. 14 gives a graphical depiction of this situation.

Only about 10% of the total drag force of a blunt body moving at subsonic velocities could show up immediately as heat. This means that the presumed oblate spheroid which ascended nearly vertically above Chicago O'Hare on November 7, 2006 could only have provided about 2.95 kJ/m^3 of heating to the surrounding air due to its kinetic energy. This calculation yields an effect more than 3 times too small to have produced cloud droplet evaporation and provides a semi-quantitative basis for the common sense observation that solid objects such as aircraft, rockets, artillery rounds, and the like do not punch sharp edged holes in clouds. We must look for an evaporation mechanism not limited to the energy transfer mechanism of aerodynamics.

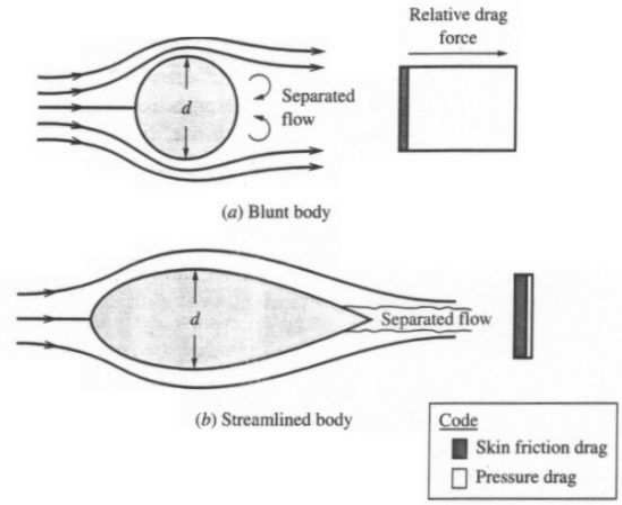


Figure 14. Comparison of viscous and pressure drag for blunt and streamlined bodies.

The HIC witnessed over the O'Hare airport matched the circular or "Frisbee" shape of the object observed, but as we have demonstrated above, cannot be explained by either liquid water or ice particles dropping through the cloud from above or by conventional aerospace objects ascending through the cloud from below. The fact that the HIC appeared immediately coincident with passage of the object or phenomenon and closely matched the size and shape of the object or phenomenon itself implies an influence attached to and centered on the ascending object or phenomenon. In order for the size and shape to be preserved, the cloud water droplets must have been evaporated out to a distance that is of the same order as the body radius. Moreover, all the energy required for this evaporation must have been transferred from the object to the cloud droplets during the brief period they were within this range (about 10 milliseconds). Consideration of this fact yields a startling realization regarding the motion of the "object"—the relatively high power associated with its passage.

For example, if the object were rising approximately vertically at 300 m/sec, in one second it would evaporate all the water droplets in a column 300 m long and approximately as large in diameter as the object itself. Estimates for the diameter of the object ranged from approximately 6.8 to 24 meters. Evaporating a column of cloud 300 meters long and 6.8 meters in diameter in one second requires an average power of approximately 100 megawatts (MW). By comparison, the steady state power consumption of a Boeing 747 cruising at about 0.9 Mach is about 60 MW.

We have eliminated aerodynamics, or motion of the object, as the cause of the evaporation energy source, but still require some sort of energy transfer mechanism that is attached to and centered on the phenomenon. As a practical matter, the options for explaining this type of energy transfer seem to be a either a high external temperature of the oblate spheroid surface or high energy subatomic particles or electromagnetic radiation emitted from the surface in a spheroid or toroid pattern. We have not conducted detailed calculations or modeling regarding the high temperature surface hypothesis, however, it seems intuitively unlikely to explain the heat transfer because 1) it would require a high blackbody temperature with consequent visible light (which was not observed), 2) it operates through the relatively

slow processes of conduction and convection, and 3) it does not produce a sharp edged cutoff. Perhaps further examination of this possible mechanism would reveal it to be feasible.

On the other hand, energetic subatomic particles (e.g., electrons) or electromagnetic radiation (e.g., ultra violet (or UV) light) can transfer arbitrarily large amounts of energy at or near the speed of light. Because water molecules are electrically polar, many absorption resonances exist in the portion of the EM spectrum between about 10 and 1,000 microns, and could explain a relative short extinction length (i.e., sharp edges for the HIC). Ionizing UV light could cause instantaneous energy deposition in both air and water molecules. Likewise, high energy electrons (beta particles) are completely absorbed in less than 1 mm column density of normal materials and could also explain a sharp cutoff. We postulate that one or more of these energy sources emanated from the surface of the oblate spheroid and caused evaporation of the water droplets in its path.

It is interesting to note that high power lasers (a source of electromagnetic radiation) have been used to produce this same effect.[57] "Results of experimental attempts to produce an optically clear channel in a water cloud by evaporating the cloud droplets with a CO_2 laser...[have been demonstrated in the laboratory]. Using scattered light it is possible to visualize the clear channel produced. Measurements of the fraction of power transmitted through the channel at visible wavelengths give insight into the clearing mechanisms. The present data suggest that the water droplets explode in the process of clearing. By evaporating the liquid water in a cloud, it is possible to temporarily create an optically clear channel…In the present experiments, it appears that the droplets first explode resulting in an initial increase in turbidity. The smaller droplets formed by the explosion then evaporate leaving a partially cleared channel. This channel remains clear for a time period on the order of a second, finally closing by advection due to turbulence in the cloud."

5.4 Summary and Conclusion

On November 7, 2006 multiple witnesses reported sighting a cryptic object or phenomenon over Chicago O'Hare International Airport. The object or phenomenon presented itself as an apparently solid yet featureless oblate spheroid which hovered at a fixed altitude and attitude for a period of minutes before suddenly ascending nearly vertically into and through the solid cloud layer. The passage of the object through the clouds apparently caused the creation of a sharp edged circular hole somewhat larger in diameter than the object itself. We review the literature and find that the Chicago incident appears to be the latest example in a series of rare, but not unprecedented incidents stretching back to at least 1947. Because of the similarity of the phenomena in the reports, we seek a common physical explanation for the HIC.

We consider the possibility that the HIC was produced by a naturally occurring precipitation process, but reject that hypothesis because neither freezing conditions, raindrops, nor falling ice crystals were

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[57] Caramana, E. J.; Morse, R. L.; Quigley, G.P.; Stephens, J. R.; Webster, R. B.; York, G. W. "Cloud hole-boring with infrared lasers: Theory and experiment". Smithsonian/NASA ADS Physics Abstract Service. 1989.

present at the time and location in question. We postulate that sudden *in situ* evaporation of the water droplets constituting the cloud represents the least extraordinary physical process capable of explaining the observations. We estimate the minimum volumetric energy density required to cause such *in situ* evaporation as approximately 9.4 kJ/m^3, in the form of heat. We consider the remote possibility that a blunt body moving at high subsonic velocities through the air may dissipate sufficient amounts of aerodynamic energy through viscous friction to cause this amount of heating, but find that the likely heat production rate is too low. We postulate that the instantaneous nature of the HIC formation, the circular shape, and its sharp edges all point to the direct emission of, for example, electromagnetic radiation from the surface of the oblate spheroid as the proximate cause of the HIC. We cannot identify the object or phenomenon lying inside the oblate spheroid surface, but two conclusions seem inescapable: 1) the object or phenomenon observed would have to have been something objectively and externally real to create the HIC effect; and, 2) the HIC phenomenon associated with this object cannot be explained by either conventional weather phenomena or conventional aerospace craft, whether acknowledged or unacknowledged.

6.0 Radar[58] Coverage and Propagation Conditions

Martin Shough[59]
NARCAP Research Associate

6.1 Abstract

Visual reports of an unidentified aerial phenomenon rising through a 1,900 foot overcast at Chicago O'Hare International Airport on Nov 7, 2006 raise the prospect of possible radar detection by FAA surveillance radars. The present section addresses:

6.2 Radar System Types and Characteristics: (Air Surveillance Radars, Weather Radars, Surface Surveillance Radars) with available technical specifications of ATC and joint-use defense surveillance radar heads (antenna) covering the relevant C-90 control area.

6.3 Antenna Sites

6.4 Radar Coverages (including results from National Weather Service Doppler weather radar coverage of the sighting locations).

6.5 Radar Propagation Conditions at the Time of the Reported Observations.

6.6 Preliminary Conclusions and factors likely to affect interpretation of possible radar data.

6.2 Radar System Types and Characteristics:

6.2.1 Air Surveillance Radars

ASR-9 (Airport Surveillance Radar Model 9; Northrop Grumman)

This model radar is of principal interest in this study. FAA Terminal Radar Approach Control (TRACON) radars operating in primary and SSR modes, responsible for TRACON surveillance volume designated C-90, surface to 13,000 ft altitude[60] within 40 mile radius of O'Hare (ORD), remote cable feeds to central TRACON facility at Elgin, Ill., 30 miles NW of O'Hare. ASR-9 also has weather data channel, optionally integrating 6-level precipitation reflectivity data onto its display with a refresh rate of 30 seconds (a Weather Systems Processor [WSP] upgrade has been made to some ASR-9s adding doppler wind velocities and an improved update rate). (Table 8)

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[58] The term radar is an acronym that stands for "Radio Detection And Ranging."

[59] The author acknowledges assistance and advice from Joel Carpenter, Don Ledger and James Smith in the writing of this section.

[60] 44. The normal procedure for an airplane handoff from Center to TRACON would occur about 1,000 feet below 13,000 feet during climb and at 14,000 feet during a descent as a safety buffer.

Frequency	S-Band, 2.7-2.9 GHz (~10 cm)
Polarisation	Linear or r/h circular
Peak power	1.1 MW
Pulse width	1.08 microsec
Pulse Repetition Freq.	928 & 1193 pps
	1027 & 1321pps
Range performance	$1m^2$ @ 111 km (60 nmi)
Elevation beamwidth	4.8 Degrees
Azim. Beamwidth	1.4 Degrees
Beam shaping	Cosecant ^{2}
Rotation rate	12.5 RPM (4.8 sec)

Table 8. ASR-9 Specifications

This radar has a dual horn parabolic antenna producing two beams, utilising the same frequency but with different vertical profiles, giving high and low beams. The receiver toggles sequentially between the two patterns, which improves signal detectability at shorter ranges by minimizing clutter (coverage is discussed in Section 6.4 below). The PPI display has operator-selectable range scales to a maximum 60 nmi scale. The signal receiver/processor applies STC (Sensitivity-Time Control) swept video gain to the display product (suppressing echo strengths at shorter ranges to even out PPI brightness and improve subclutter visibility) and also uses Moving Target Detection (MTD) in its Doppler filtering software to further suppress ground clutter and enhance visibility of moving targets.

The ASR-9 divides its 60 nmi range domain into 960 annuli of 1/16 nmi (~375 ft) range depth, and each annulus into 256 azimuth cells of ~ 1.4 degs. Each azimuth cell (the dwell time of a point target in one beamwidth) is filled with 18 pulses, divided into two pulse repetition intervals of 10 pulses at a higher PRF followed by 8 pulses at a lower, which allows signal processing software to improve target detection and eliminate certain problems (see Section 6.6). Returned pulse echoes are assigned in batches to their appropriate range cell to be analysed by sets of 10 and 8 phase detectors respectively, which measure pulse-to-pulse changes in Doppler frequencies. The results for each cell are integrated and measured against a reactively adjusted noise threshold [or Constant False Alarm Rate (CFAR) filter] which allows the processor to

decide whether or not a target is present.

It can be seen that the cell size represents a limit of discrimination on the PPI defined by beam width and pulse length (actually 1/2 pulse length). It is not possible to determine the position of a target to a precision finer than the range and azimuth dimensions of the cell, or to resolve two targets physically closer than the dimensions of the cell. A similar "resolution cell" is a limitation of all types of surveillance radars.

ARSR-3 (Air Route Surveillance Radar Model 3; Westinghouse)

Joint-use FAA and military. Long range (~200 nmi) primary surveillance radars for en- route ATC, operating with ATCBI-5/6 beacon interrogators for transponder traffic, remote feed to central ARTCC facility (ZAU) at Aurora, Ill. (Table 9)

Frequency	L-band, dual channel (1.25-1.35 GHz)
Polarization	Linear or circular
Peak power	5 MW
Average power	3.5 kW
Pulse width	2 microsec
Pulse Repetition Frequency	310-365 pps
Range	200 nmi: duplex $2m^2$ @ 240 nmi simplex $2m^2$ @ 193 nmi
Height cover	60,000 ft
Elevation beamwidth	+3.6 to +44 degrees +2 to +42 degrees
Azim. beamwidth	1.1 degree
Beam shaping	cosecant ^{2}
Range resolution	0.25 nmi
Rotation rate	5 rpm (12 sec)

Table 9. ARSR-3 Specification

This is a dual channel radar with two separate transmitter, receiver and signal-processing channels

utilizing adjacent frequencies. A minimum frequency separation of 25 MHz and orthogonal polarization prevents co-interference. This frequency-diversity reduces signal degradation effects and improves the signal to noise ratio (S/N) for long range targets. It also allows improved high-elevation short-range coverage by using a low beam for long range low altitude coverage and a slightly higher beam which minimizes clutter at short ranges. Digital signal processing techniques include sliding window, Moving Target Indicator (MTI), Constant False Alarm Rate (CFAR), Range Azimuth Gating (RAG)), and Sensitivity Time Control (STC or "swept gain"). Polarization diversity allows weather and target information to be displayed simultaneously.

The FAA National Airspace System architecture (see Ref. 12) describes the ARSR-3 as follows:

The Air Route Surveillance Radar Model 3 (ARSR-3) is a 1980s radar that provides primary long-range surveillance data, including slant range and azimuth data. It processes the returns which includes demodulation, analog-to-digital conversion, moving target indicator (MTI) function, sensitivity time control, range and azimuth gating, and digital target extraction - all of which are performed digitally (with the exception of the demodulation and analog-to-digital conversion). In addition, the ARSR-3 has a weather channel with associated processing to provide weather contour information in digital format.

ARSR-4 (Air Route/Reconnaissance Surveillance Radar Model 4; Northrop Grumman)

Joint-use, military and FAA, primarily air defence, longer range (~250 nmi) primary surveillance radar installed as part of FAA/Air Force Radar Replacement (FARR) upgrade of ARSR-3 radar for perimeter defence and first-contact coastal air traffic control of CONUS up to 100,000 ft altitude.(Table 10)

Frequency	L-band, 1.215 -1.400 GHz (~30cm) dual channel, frequency hopping
Polarization	linear or circular
Peak power	60 kW
Range	250 nmi in duplex mode
Pulse width	150 microsec
Height cover	100,000 ft
Azim. beamwidth	1.4 deg
Elevation beamwidth	-7 deg to +30 deg stacked beam phased array 9 x >2 deg beams
Elevation resolution	2 deg
Rotation rate	5 rpm (12 sec)

Table 10. ARSR-4 Specifications

ARSR-4 is a 3D radar producing slant range, azimuth and height data. Its electronics are all solid state for high reliability, low maintenance, having a phased array antenna that produces nine stacked beams, reducing in vertical resolution with increasing elevation. The lowest beam will tend to detect the most distant targets and hence has the finest elevation resolution (~2 degrees). Jamming and interference are suppressed by dual-channel frequency hopping (minimum channel separation 83 MHz) and by an antenna design producing low-gain sidelobes. Pulse length is on the order of 100 times that of ASR-9 and ARSR-3 radars, which allows a useful average power to be attained using much lower peak power. Range resolution is (presumably) preserved by using digital pulse compression techniques. However this does not rescue the radar from a severe minimum range limitation imposed by the uncompressed pulse length. In normal long range surveillance mode this is not an operational concern however.

6.2.2 Weather Radars

TDWR (Terminal Doppler Weather Radars; Raytheon)

TDWR radar employs multiple heads sited at Chicago O'Hare and Chicago Midway, producing multi-level digital surveillance and doppler precipitation and winds data at ~ 150m - 300m range resolution and <1 degree cross-range resolution (pencil beam) to ~ 250 miles range. Sited to detect wind shear, gust and microburst hazards along airplane flight approach paths. TDWR uses a complex scan algorithm including a low-elevation scan mode with a one-minute total update rate in a high-resolution 5 nmi window around the airport. (Table 11)

Frequency C-band	5.5 - 5.65 GHz
Polarization	Linear
Peak Power	250 KW
Pulse Width	1.1 microsec
PRF	2000 (max)
Receiver Sensitivity	0 dBz @ 190 km 1 m^2 @ 460 km
Elevation Beamwidth	0.55 Degrees (min)
Azim. Beamwidth	0.55 Degrees

Table 11. TDWR Specifications

NEXRAD (Next Generation Weather Radar)

WSR-88D weather radars, multiple overlapping coverage with doppler resolution to 124 nmi and reflectivity to 248 nmi. Doppler resolution comparable to TDWR, reflectivity resolution approx 1 km data blocks. Complete volume scan update rate depends on mode of operation: over 10 mins in clear air mode; 5 - 6 mins in weather mode. (Table 12)

Frequency	S-band, 2.7 to 3.0 GHz
Peak power	750 kW
Average power	1.56 kW
Pulse widths	1.6 & 4.5 - 5.0 microsec
Pulse Repetition Freq.	318 - 382 pps 318 - 1304 pps
Antenna	9m parabolic
Beamwidth	0.99 deg
Polarisation	Linear horizontal
Sidelobes	-27 dB
Point target detection	4 cm^2 @ 100 km
Update rate	clear air mode >10 minutes weather mode >5 minutes

Table 12. WSR-88D Specifications

TDWR and NEXRAD data are integrated with the ASR-9 picture into the Integrated Terminal Weather System (ITWS) product displayed at Elgin TRACON. Chicago O'Hare ATC Tower is believed not to have access to full ITWS product but may have partial data (relies on forecast and updates from ARTCC meteorological centre, Aurora).

6.2.3 Surface Surveillance Radar

ASDE-3

The ASDE-3 (Airfield Surface Detection Equipment) is a ground-scanning radar designed for managing planes, people and ground traffic on the runways and taxiways, detecting obstructions and predicting collision hazards in conjunction with Airfield Movement and Safety Systems (AMASS) software. Also used for perimeter security.

The ASDE-3 is a very short wavelength (millimeter) radar with 40 ns pulse giving very fine range resolution and a narrow (0.25 deg) azimuth beam width scanning the airport ground environment at 60 RPM. Its output is displayed in the Air Traffic Control tower. Capable of detecting individual persons on the airfield.

6.3 Antenna Sites

6.3.1 Air Surveillance Radar Sites

ASR-9, ORD #1

The main FAA surveillance radar serving Chicago O'Hare is designated in the FAA NAS Architecture (ref.12) as CHICAGO SRR (ORD) and is located in Dupage County, Illinois. Most of O'Hare Airport is located in Cook County. However satellite photos (Fig. 15) show what appears to be an ASR-9 radar antenna tower on the west side of the airfield, 600m over the county border inside Dupage County, consistent with the statement of a case witness and with the FAA supplied information.

Fig. 15 Aerial View of ASR-9, ORD #1, Chicago O'Hare, Dupage County, Ill.

It is possible that the second tower shown here to the north of the ASR-9 was for the now-disused ASR-7, retained in use temporarily as back-up until the relocation of ATC facilities to the new TRACON at Elgin, Illinois, too remote for effective data transmission from the ASR-7.

ASR-9, ORD #3

Most references describe (and lament) a single ASR-9 radar source[61] but mention also a second back-up radar. A U.S. Dept. of Transportation Report (ref. 1) refers to:

> Limited coverage of their two ASR-9 radars, mentioned attempts to get radar coverage to achieve 3 nm separations within 40 nm. The TRACON operates 2 ASR 9's with different coverage. The QXM radar does not cover the NE and NW cornerposts and when they use it, it affects the operations. Had upgrades over the summer but winters have been tough with radar outages. They have lost their ASR 7[62] and then must use QXM as the backup.

Press references locate the second back-up ASR-9 radar at South Tinley Park, about 25 miles S.S.W. of O'Hare. One source also indicates that this radar normally serves Chicago Midway, which airport was for this reason unaffected by recent downtime of the O'Hare radar. (Hilkevitch, 2006) It is known that the ASR-9 system fails, on the average, several times a year but was working at the time of this incident.

A National Transportation Safety Board report (ref. 2), identifies:

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61 The term "source" is used to refer to the radar antenna whose output is routed to central TRACON.

62 The ASR-7 referred to is apparently the older analogue radar previously used as a back-up and removed a few years ago, shift.ing the burden onto QXM as regular back-up.

> The ASR-9 (QXM) radar antenna that is located at latitude/longitude N41 37' 17.38" / W087 46' 10.12", elevation 669.7 feet, magnetic variation 2 degrees west. The radar antenna supplies data to an Automated Radar Terminal System (ARTS) IIIA at C90.

These coordinates locate the antenna shown in Fig. 16 near Oak Forest, Cook County, a couple of miles from Tinley Park and about 11 miles south of Chicago Midway Airport, confirming the identification of this site as the one designated in the FAA National Airspace System Architecture as CHICAGO-OAK FOREST (ORD #3) SRR [QXM].[63]

Figure 16. Aerial View of ASR-9, ORD #3,
Oak Forest, Cook County, Ill.

[63] Oddly, given the established designation of Oak Forest as ORD #3, CHICAGO SRR ORD #2, Cook County, does not yet exist but according to the FAA NAS architecture [Ref. 12; Appendix 1) is scheduled for installation in 2009.

ARSR-3

The FAA NAS Architecture locates this long-range en route radar at ELWOOD-JOLIET (JOL) approximately as shown in Fig. 17, but the antenna location has yet to be identified.

Figure 17. Locations of Chicago Area Radars

ARSR-4

Nearest ARSR-4 site is at Empire, north Lake Michigan [QJA]. Fig. 18 shows the position of this long-range radar in relation to the Chicago area. The exact antenna location remains uncertain.

Figure 18. Radar Locations Around Lake Michigan Showing the ARSR-4 at Empire, Michigan, and ASR-9 at Milwaukee.The maximum range of the latter falls a few miles short of the area of the incident at Chicago O'Hare.

6.3.2 Weather Radar Sites

TDWR

TDWR weather radars are sited at both Chicago O'Hare and Chicago Midway airports. The exact antenna site location is unknown. See Section 6.4.

NEXRAD

The nearest NEXRAD WSR-88D radar is at Romeoville, Illinois (Fig. 19).

Figure 19. Aerial View of NEXRAD WSR-88D Weather Radar at Romeoville, Ill.

6.3.3 Surface Surveillance Radar Site

ASDE-3

The Airport Surface Detection Equipment (ASDE-3) antenna is located in a radome atop the new 250 ft Air Traffic Control Tower at the south corner of the main Chicago O'Hare terminal building complex.

6.4 Radar Coverages at Time of Incident.

6.4.1 Air Surveillance Radars

Surveillance radar coverage is a toroidal volume centered on the antenna. A radar horizon occurs beyond which targets at low altitude may not be detected due to the curvature of the earth. The distance to the radar horizon is generally about 15% greater than the distance to the visual horizon because microwaves, unlike visible light, are significantly refracted by the standard atmosphere. Locally, the distance to the horizon may be modified by intervening hills and other diffraction obstacles, as well as by propagation conditions.

radar type/location	max range (n.miles)	range from O'Hare C17	antenna ht (ft AGL)	horizon ranges (n.mi) at		
				1 kft AGL	2 kft AGL	3 kft AGL
ASR-9 (ORD #1) / O'Hare	60	0.78	130	52	69	81
ASR-9 (OED #2) / unknown	60	unknown	n/a	n/a	n/a	n/a
ASR-9 (ORD #3) / Oak Forest	60	22	90	52.5	68.6	80.9
ARSR-3 / Joliot-Elwood	200	35	unknown	n/a	n/a	n/a
ARSR-4 / Empire	250	210	unknown	n/a	n/a	n/a

Table 13 Sample Range and Horizon Figures for Chicago Area Surveillance Radars

Some crude range and horizon information for these ASR and ARSR radars is summarised in Table 13. The maximum ranges are nominal, horizon ranges are calculated using standard refractivity assumptions (cf. Section 6.5) and calculated antenna heights. Shadow measurements on satellite photographs (see Figs. 13 and 14) were used to estimate antenna tower heights. The sun elevation angle is not known *a priori*, but shadows of nearby structures of relatively well-known scale were used to calibrate these measurements, which, given the uncertainty and the small difference, might reasonably be regarded as error brackets on a common tower height in the order of 100 ft. Tower heights were then added to local heights MSL to give true antenna heights relative to the sighting location.

In the case of ORD #1, sited at O'Hare, measurements AGL of antenna height and target height use a common datum point and there is no significant variation. Variation in local topography could be potentially significant for ORD #3 however. This was investigated by taking spot height[64] measurements at approximate 1.47 nmi (1.7 st. mi) intervals along the line of sight between Oak Forest and Chicago O'Hare as shown in Fig. 20.

[64] "Spot height" is a term used in surveying and cartography for the height (MSL) of a structure (etc.) measured at a particular location (spot) and marked by a dot, as distinguished from a contour height.

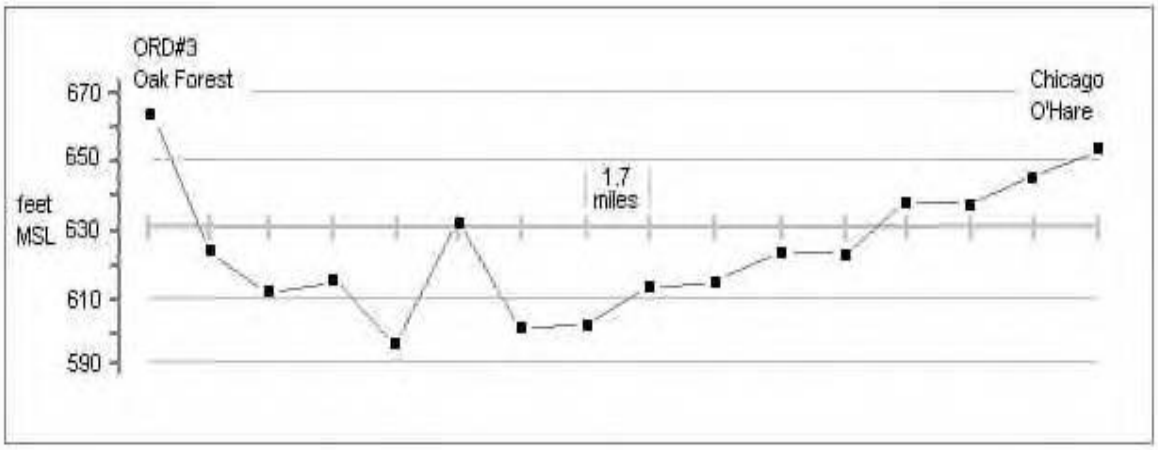

Figure 20. Topographic Profile on Line of Sight Between ORD #3 and Sighting Location

We find that ORD #3 is sited some 10 ft MSL higher than O'Hare (tending only to cancel out part of a possible difference in tower height) and that there is no evidence of significant diffraction obstacles in its line of sight. The terrain can be considered to be a fairly uniform flat reflector and coverage will be quite well represented by the theoretical curves (assuming standard propagation; see Section 6.5).

The ASR-9 coverage pattern was then investigated in more detail. A vertical polar diagram of an ASR-9 radiation pattern is shown in Fig. 21. Range performance is measured in terms of probability of detection (P_d) of a target of a given cross-section, and maximum usable range is defined by a P_d = 0.8 or greater. The two curves in Fig. 21 represent contours of equiprobability of detection for a target of $1m^2$ in each of the two beams. The ASR-9 low beam is optimised for low elevation targets (peak sensitivity at ~2.5 degs) at longer ranges generally beyond 15 - 20 nmi out to the maximum range of 60 nmi; the high beam (peak sensitivity at ~7 degs) is optimised for subclutter visibility of shorter range targets at higher elevations.

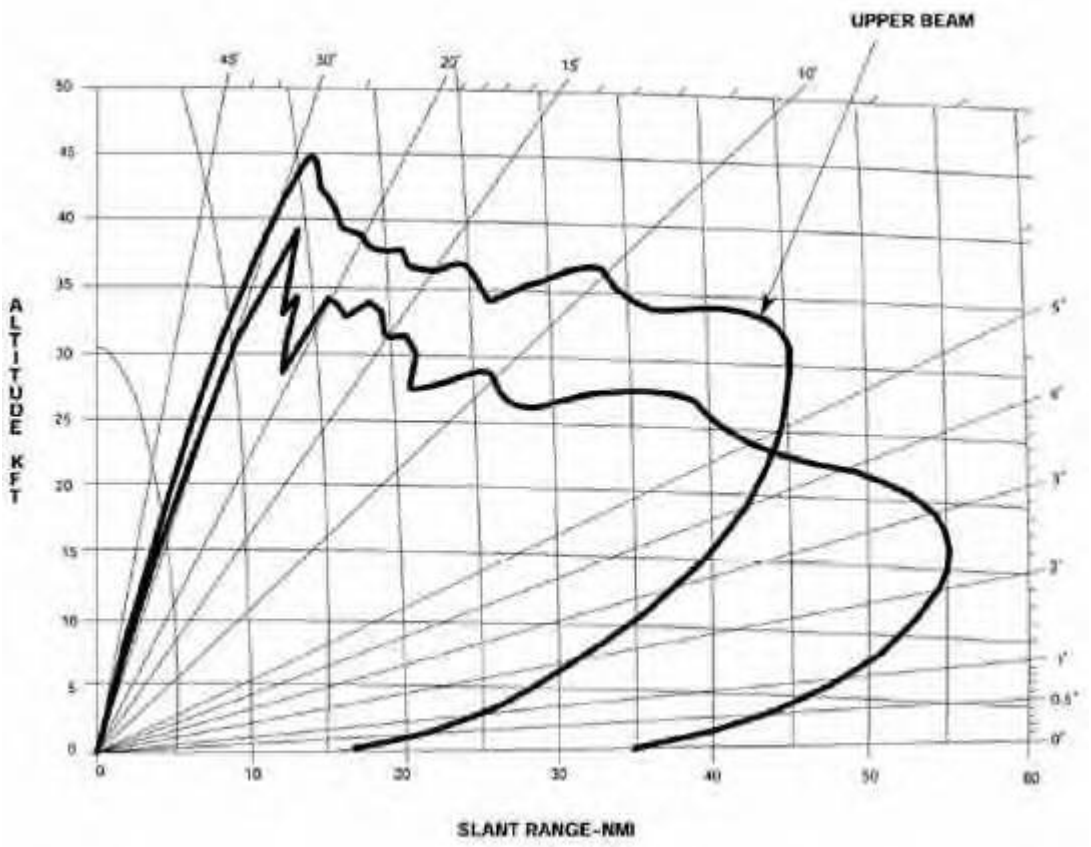

Figure 21. ASR-9 Radiation Pattern VPD Showing Contours of Equiprobability of Detection for a $1m^2$ Target in High and Low Beams (from ref. 3)

These curves probably average-over some lobing detail at low elevations, especially in the case of the low beam, but can be interpreted to mean that a target of $1m^2$ radar cross-section at a couple of thousand feet altitude 22 nautical miles from ORD #3 (i.e., above Chicago O'Hare Concourse C) would return a detectable signal with a $P_d = 0.8$ or greater in either of the alternating beams.

The ORD #1 ASR-9 antenna at Chicago O'Hare is only about 0.8 nmi from the sighting location above Concourse C. The short range is not in itself a limitation (disregarding here PPI range scale, STC video gain, and other operational issues discussed in Section 6.6), since the short 1.08 microsec pulse of the ASR-9 permits a minimum range (half pulse length) as small as about 150 m. The elevation of a target close to the cloud base above Concourse C would be about 18 degs, at which elevation the ASR-9 low and high beams should detect a $1m^2$ target to slant ranges of around 17 and 20 nmi respectively. High beam returns would be favoured, with a sensitivity 16% better than the low beam and enhanced subclutter visibility at the display.

The JOLIET-ELWOOD ARSR-3 is approximately 35 nmi from the target area. No detailed

topographic survey of the line of sight was made since neither the location nor the antenna height are known with accuracy. But the area is generally quite flat, with height variations only in the order of +/- 100ft at most and one would expect the horizon ranges to be similar to those given for the ASR-9s in Table 8. A target at or below the cloud base at O'Hare would, generally speaking, be above the radar horizon out to a range of about 64 nmi (given standard refractivity) or almost twice the distance to the sighting location.

The ARSR-4 at Empire, Michigan, is 210 nmi from the sighting location, which therefore falls inside the nominal maximum slant range of 250. But at 210 nmi range the radar horizon in normal propagation conditions will be around 26,000 ft.

6.4.2 Weather Radars

TDWR

The coverage and refresh rate of the TDWR at O'Hare are uncertain, depending on siting and operational choices. The surveillance strategy is either:

a) narrow sector scans aligned on approach paths (the strategy favoured for early TDWR installations) in which case there would no coverage of the region above Concourse C, or

b) 360 deg complete volume scans of 5-6 minutes duration (a strategy often adopted later, saving wear on turning gear) incorporating automatic scan mode changes in response to hazard detections. In this volume scan mode TDWR can incorporate a low-elevation scan with one-minute update rate in a high-resolution 5nm window around airport, with automatic changes of scan mode in response to hazard detections.

At O'Hare (*b*) is considered more likely because of the number of runways on divergent headings, making dedicated sector-scanning of approach and departure paths uneconomical and inefficient. In this case the optimum siting for a TDWR antennas would usually be some 8 - 12 miles from the runways.

Another TDWR is believed to serve Chicago Midway, about 15 miles from Chicago O'Hare. Obviously the sighting location is well inside maximum range of both radars and TDWR data would be interesting to examine. But this not accessible on any public server, so far as can be ascertained.

NEXRAD

At least four WSR-88D antennas give overlapping coverage of the Chicago O'Hare region. The nearest at Romeoville, Ill., is about 27 miles from Chicago O'Hare. Figure 22 shows radar data from this site for 1635 CST (top) and four enlargements for the O'Hare area for the times indicated. The author acknowledges the help of James C. Smith in supplying detail images of the Romeoville NEXRAD weather product for four VCP 32 Clear Air Mode antenna scans bracketing the observation period.

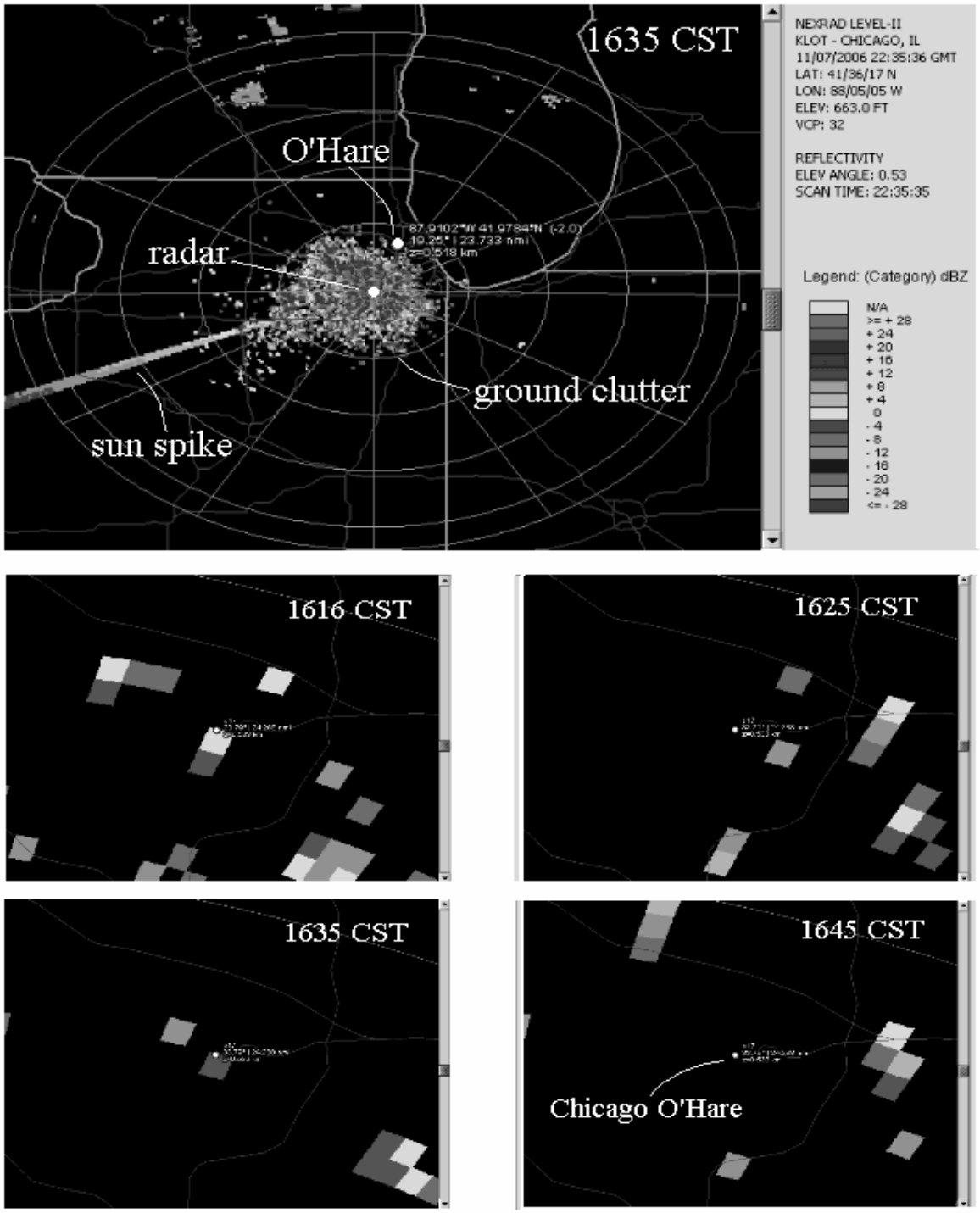

Figure 22. NEXRAD Base Reflectivity Radar Images
Bracketing the Observation Period.

The 1635 scan has been enlarged in Figure 23.

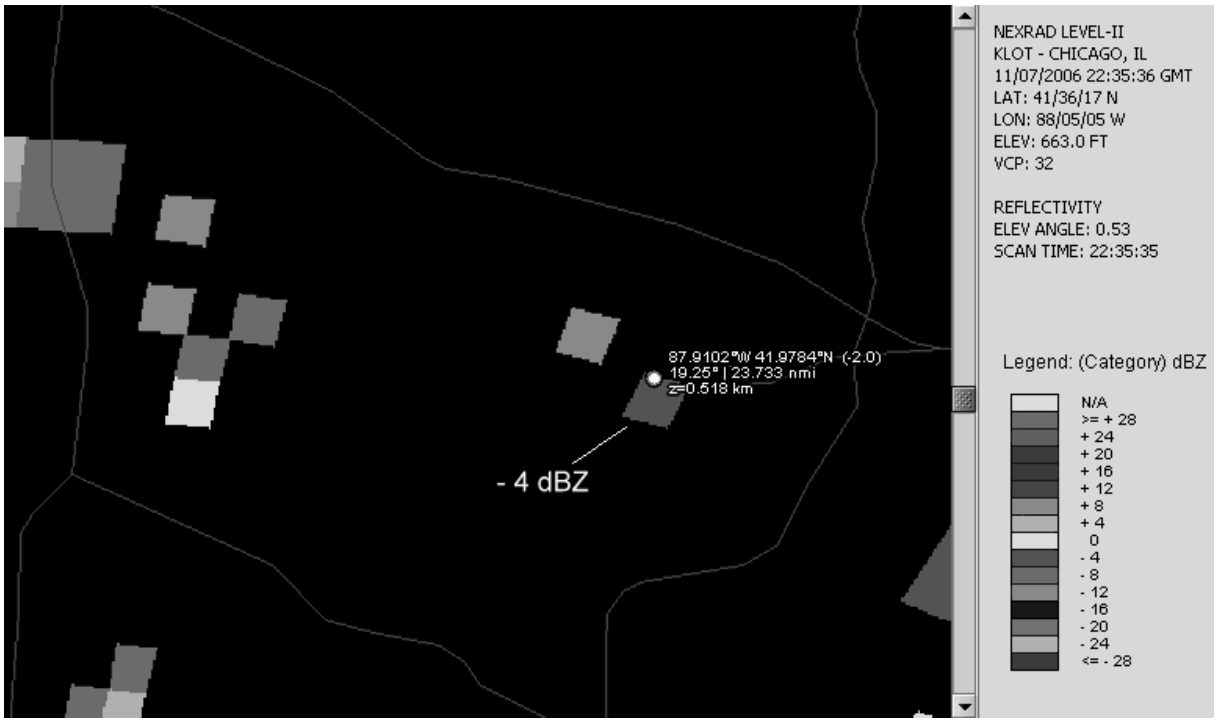

Figure 23. NEXRAD 0.5 degree Base Reflectivity Radar Image for 1635 CST Showing Echo Detail Over O'Hare Airport.

Fig. 24 shows the VCP 32 elevation coverage pattern of the radar. Complete volume coverage up to 4.3 degrees is accomplished in a number of scans of the ~1 degree beam at distinct elevations. The diagram shows that the full VCP 32 scan algorithm gives coverage at the range of the sighting location (27 nmi) up to an altitude of more than 15,000 ft. However for times around the sighting period only the lowest scan (0.53 deg) showed any data in the area of Chicago O'Hare, as shown in the images of the product from this scan in Fig. 22.

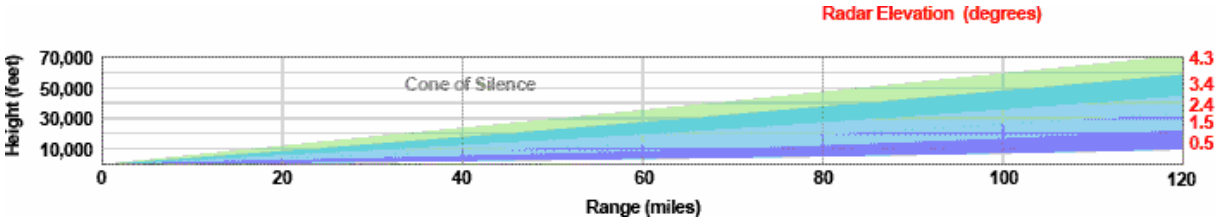

Figure 24. NEXRAD Volume Coverage Pattern VCP 31 & 32, Clear Air Mode (National Weather Service)

The images show that Romeoville WSR-88D did detect some echo, at the average signal reflectivity level less than light precipitation, in the resolution cell corresponding to the sighting location above Gate C17 and at an altitude not inconsistent with the visual reports, at 1616 CST, and again at 1635 CST. The latter is within a few minutes of the estimated sighting time. However, the ground foot print of the resolution cell is rather large (Figure 25) and there are several possible interpretations for the echo, making this a result of limited value (see Section 6).

Figure 25. Footprint of the NEXRAD Radar Resolution Cell
Superimposed on the Sighting Location
(adapted from image supplied by James Smith)

6.4.3 Surface Surveillance Radar

ASDE-3

The ASDE-3 pencil beam is oriented so as to direct radar energy at negative elevations down towards the ground and little will be wasted at high elevations. Although aircraft landing and taking off can be detected, according to Ref. 11, "The ASDE-3 displays all vehicles that can be detected by primary surface radar out to about four nautical miles in range and up to approximately two hundred feet above ground level." These figures correspond to a positive top-edge elevation of approximately

0. deg. A target 1,700 ft above Concourse C would be at nearly 20 degrees elevation even from the top of the tower. There seems to be little or no likelihood of relevant radar data from the ASDE-3.

6.5 Radar Propagation Conditions

Radar refractive index (RI) values were calculated for 32 elevated levels from 981 to 400 mbar using pressure, temperature and dewpoint readings from the 1800 CST Nov 7, 2006 Davenport, Ill., rawinsonde balloon supplied in the NARCAP case #18 meteorology report (Ref. 3). The surface weather report for the balloon site provided surface readings, giving a total of 32 pairs of levels between the surface and ~24,000 ft. Each pair provides a gradient of refractive index in N-units per thousand feet, where $N = (n - 1) \times 10^6$, as shown in Table 14 (Page 73).

The standard atmosphere, corresponding to the "4/3 earth" refractivity model used in calculations in Section 6.5, is considered to have vertical gradient of -12 N/kft over land (a figure of 18 N/kft is usually adopted over water). This is the mean of a range between 0 and -24 N/kft taken to represent normal propagation; outside this range the atmosphere refracts radio energy in various ways that are generally regarded as "anomalous propagation".

Negative gradients steeper than -24 N/kft indicate superrefractive conditions, bending the radar beam earthwards more than normal; a gradient steeper than -48 N/kft is severely superrefractive, a trapping gradient; positive gradients - i.e., more than 0 N/kft - are subrefractive, bending the radar beam upward. Such features generally occur in relatively narrow layers of wide horizontal extent in a stable atmosphere, often but not exclusively developing during pre-dawn hours. A widespread "flat" pressure regime indicated by the general meteorological report (Ref. 3) suggests conditions possibly favorable for widespread stratification in this case.

Of 32 gradients measured 25 were within the range of normal refractivity. Of 5 superrefractive pair gradients found, 2 are marginal (i.e., only one or two N-units outside the normal range) and 3 are significant. Of two subrefractive gradients, one is marginal (+5 N/kft) and one is significant. The results from Table 12 are graphed in the profile in Fig. 26, showing the 4 significant gradients.

pressure (mbar)	height (feet)	temp (°C)	dewpoint (° C)	R/I (N-units)	R/I gradient (N/kft)
1008.5	surface	11.1	6.7	320	
1000	236	—	—	—	0
981	751	10.8	6.4	320	
973	976	12.8	7.8	310	-44
925	2,375	10.0	6.6	300	-14
905	2,940	8.4	5.3	292	-14
904	2,969	8.5	4.6	288	-51
882	3,688	9.2	-0.8	272	-25
871	3,959	9.1	-1.6	270	-8
850	4,672	8.8	-3.2	268	-16
809	6,001	6.3	-7.3	252	-9
779	7,001	4.5	-10.4	240	-8
753	7,923	2.8	-13.2	223	-18
751	7,999	2.8	-16.3	222	-13
747	8,136	2.8	-22.2	219	-22
723	8,969	2.3	-27.8	210	-10
719	9,150	2.2	-28.8	208	-46
700	9,855	0.4	-27.6	201	-3
699	9,892	0.4	-25.6	200	-27
687	10,350	-0.5	-4.9	222	+48
670	11,000	-0.7	-8.0	213	-14
656	11,598	-0.9	-10.9	200	-22
645	12,001	-1.5	-14.3	193	-17
630	12,615	-2.5	-19.5	187	-10
597	13,999	-5.0	-17.6	179	-11
590	14,183	-5.3	-17.3	180	+5
567	15,331	-7.9	-13.6	180	0
552	16,000	-9.2	-14.8	175	-7
530	17,001	-11.1	-18.0	167	-8
500	18,504	-13.9	-22.9	156	-17
470	20,000	-17.6	-23.9	150	-9
451	21,000	-20.1	-24.5	142	-8
420	22,759	-24.5	-25.7	138	-7
400	23,917	-27.3	-28.8	131	-8

Table 14. Radar Refractive Index Gradients in N-units per 1000 ft. for 1800 CST Nov 7 (0000 GMT Nov 8) 2006, Davenport, Ill.

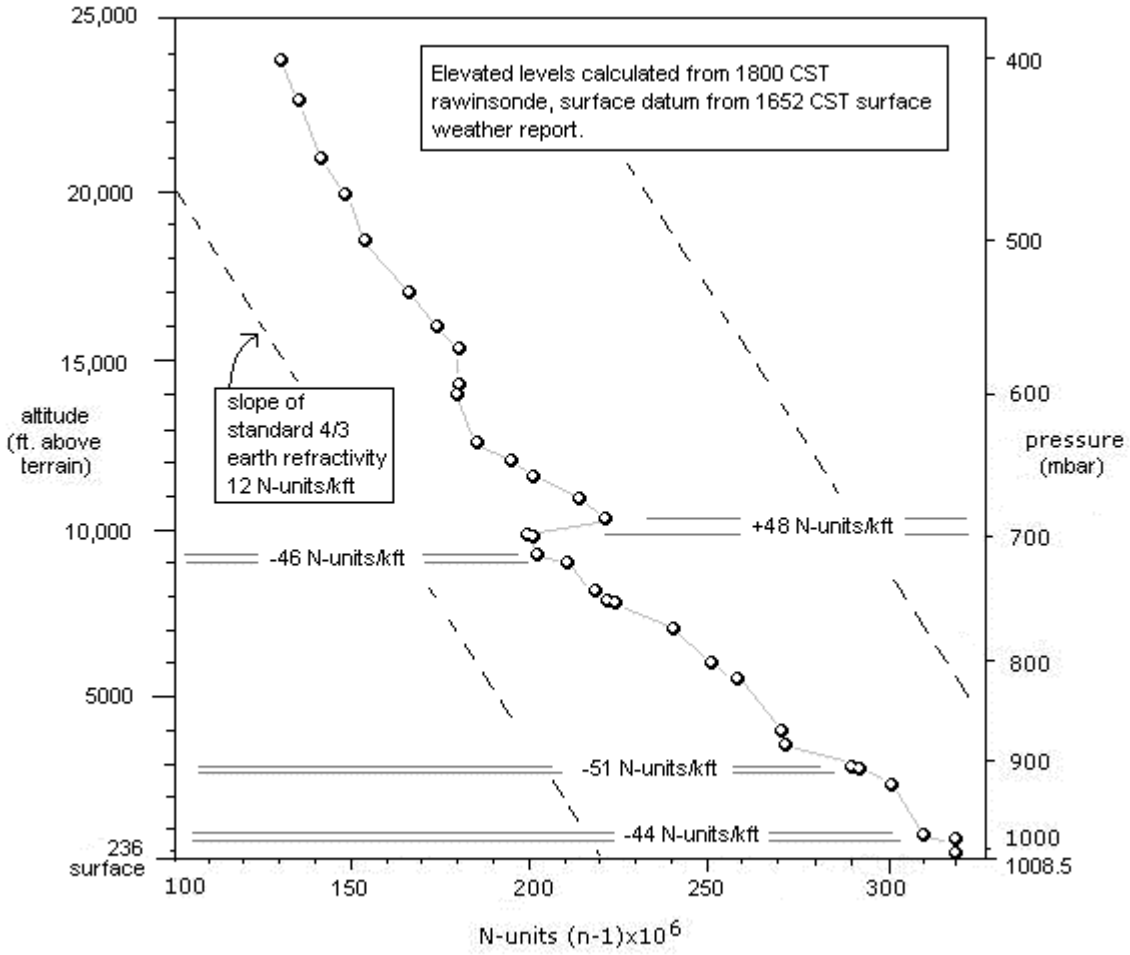

Figure 26. Radar Refractivity Profile for 1800 CST Nov 7, 2006 (0000 GMT Nov 8) 2006, Davenport, Ill., Showing Significant Layers.

Through the first 750 ft the average RI gradient is zero; in other words rays traced through this region would (averaged) be straight lines instead of the 4/3 earth curves of normal propagation, a situation on the verge of becoming subrefractive. If representative of conditions through the depth of this surface layer, this suggests that the distance to the radar horizon for energy emitted at low elevations will be somewhat reduced in radius, and the local area of permanent ground clutter would be somewhat reduced. This might enhance the sub-clutter visibility of targets at relatively short ranges from the radar.

Above this is a strongly superrefractive layer associated with a 2°C temperature inversion, the gradient then returning to normal above 1000 ft or so, until a narrow, sharp layer is encountered just below 3000 ft through which the RI drops by 51 N-units in about 60 ft of vertical ascent. This is a trapping gradient.

Radar energy entering this trapping layer can be refracted through an effective curve with a radius smaller than that of the Earth, returning to scatter off the surface some distance from the radar. If the layer is of large horizontal extent radar energy scattered back into the atmosphere from the surface after this process can be trapped a second time, and in this way a surface duct can be formed which may carry energy to large distances beyond the unambiguous range of the radar and return multiple-trip echoes by the same ray path. These echoes will display at arbitrary ranges on the PPI (the residual between some multiple of the unambiguous range and the true range to the remote reflector), but at the true azimuth of the reflector. Note however the dual PRF technique employed by the ASR-9 radars, which should eliminate multiple-trip returns.

Around 9,000 ft AGL there is another quite strongly superrefractive layer, and above that, passing through 10,000 ft, an unusual *sub*refractive layer with a strong positive gradient of +48 N/kft, associated with an overlying moist layer where relative humidity climbs from 12% to 72% through about 450 ft. Energy entering this layer will be refracted upwards, with the effect of reducing the radar horizon for some targets at higher elevations and leading heightfinder radars to underestimate altitudes for some targets above this layer.

Evidently there will be a general correlation between the severity of an RI gradient and the narrowness of the layer. Therefore, although there is no meteorological evidence of such, and although the highly stable unmixed air most favourable for extreme structures is least likely in the troposphere and in the late afternoon following solar warming, it is not possible to rule out the presence of sharper undetected gradients falling between the data points.

Research has indicated the possibility of gradients of 10^3 N-units per meter or more in certain conditions, which are capable of acting like radar mirrors. Such layers may have power reflection coefficients at low elevation angles capable of scattering significant energy to ground targets and back by near-specular partial reflection[65], and in some cases incoherent forward scatter from turbulent domains propagating across layer surfaces under the influence of winds are believed capable of generating discrete moving echoes in clear air. The reflection geometry is such that these echoes tend to move at twice the speed of the wind at the layer altitude, in the direction of the wind or at a moderate angle to the wind, and at twice the layer altitude, with the most favourable conditions occurring where there is a wind shear across the layer boundary causing turbulence in the shear zone.

In the present case, with winds veering 190-335 degs and climbing through 4 to 50 knots between the surface and 400 mbar, one would expect such echoes to move, in general, at an order of displayed speed between about 10 kts (low levels) and 100 kts (~24, 000 ft) with preferential headings varying between SW - NE and NW - SE respectively.

Of the three types of surveillance radars considered, only the ARSR-4 is capable of displaying primary height information and this radar has essentially no coverage of any of the levels below 24, 000 ft studied here. However, by extrapolation from the winds aloft (rawinsonde readings are themselves only available up to about 30,000 ft) echoes from near-tropopausal layers (35,000 ft or

[65] Efficiency is inversely proportional to the 6th power of the cosecant of the elevation angle.

more) on the ARSR-4 might be expected to show characteristic speeds of more than 200 knots on average headings between NW-SE or N-S.

There is no evidence of significant vertical velocity shear at any level while there *is* evidence of a significant RI gradient. The wind speed and direction changes across the four identified layers are shown in Table 15.

press. level	wnd spd (kts)	wnd direct. (deg)
687	17	315
699	16	317
719	16	305
723	16	307
904	6	263
906	6	265
973	4	190
981	4	198

Table 15. Wind Speed and Direction for Four Pairs of Levels Having Significant RI Gradients

Low level temperature inversion layers can produce wind shears by decoupling the momentum of winds above the inversion from surface friction forces on the winds below the inversion. Such shears can commonly reach tens of degrees of direction and tens of knots. In the present case, part of the -44 N/kft refractive index gradient above 981 mbar (750 ft) is contributed by a small temperature inversion of 2ºC. This is associated with an anticyclonic directional shear of only 8 degrees, and a speed shear of zero, through a layer of ~230 ft. Such a very weak shear would not be expected to cause turbulence of significance to the radar.

6.6 Preliminary Conclusions

The NEXRAD weather radar data (Section 6.4.2) are not inconsistent with the presence of a radar-reflective target close to the 1,900 ft cloud base within several minutes of the time of the visual report (see Note 1), but this is not probative evidence given the spatial size of the resolution cell, the slow update rate, and the distribution of stochastic echo evident in the several screenshots shown in Figures 20 and 21. Some comments on these factors are appropriate.

The radar was operating in mode VCP-32, which is one of two Clear Air modes usually used for routine monitoring in periods of quiet weather. The scan pattern (see Fig. 22) takes over 10 minutes beginning with the low 0.5 deg cut. Two types of data are collected, the base reflectivity data (or simple echo intensity) and the doppler velocity data (measuring radial precipitation droplet velocity relative to the radar). The antenna then proceeds to scan several slices at higher elevations to build up the whole coverage volume. The data of interest here are for the 0.5 deg base reflectivity, obtained during the first 1-minute rotation of the scan pattern. (Neither the 0.5 deg doppler velocity product nor the higher cuts showed any data in the relevant area.)

The NEXRAD software generates automatic labels on the screen image. Referring to Fig. 22, we can see that the elevation angle of the nominal 0.5 degree cut is actually 0.53 deg, and that the calculated height AGL of the beam at the relevant range z = 0.518 km, or about 1700 ft. This represents the boresight elevation, so the vertical coverage of the ~1 deg cross-range pencil beam will be from about 450 ft to 2,950 ft. This will be calculated for a standard atmosphere, however, and given moderate superrefractivity (Section 6.4.2) these figures probably tend to overestimate the true heights. In any case, the reported object height clearly not only lies within the coverage zone but is quite close to the main gain. Note also that the WSR-88D employs horizontal linear polarisation to optimise reflectivity from the flattened lenticular profiles of falling water droplets. This would also tend to maximise echo from an object having the type of horizontal ellipsoidal symmetry reported.

In this Clear Air mode the radar is extremely "alert" to faint echo (it automatically switches to a less sensitive Precipitation Mode when significant weather is detected). The reflectivity shown is an average over the whole resolution cell (Fig. 25) and could be echo either from very weak sources dispersed over a large area, or from a localised region of much higher reflectivity somewhere inside that footprint. Surface weather reports state "no precipitation", and the 1635 echo is probably too faint for an area of precipitation anyway. However there is the possibility of transient surface clutter echoes. The splash of colour we see around the antenna in the small-scale area image is clearly ground clutter in this case. The echo we are interested in is not constant, i.e. doesn't appear on successive scans, so this might normally suggest it isn't ground echo. But it may be that AP conditions (for which there is evidence, see Section 6.4) fluctuate over time, allowing the radar to pick out faint ground echoes intermittently.

The radar can also image flocks of birds, or even insects and small airborne particulates, in addition to the summed reflectivity of one or more aircraft on approach or take-off that may be passing through that elevation slice at that time. The data block concerned (cf. Fig. 25) seems to cover mostly apron and taxiways, but conceivably aircraft airborne a few hundred feet near the SE and W ends respectively of runways 32L/14R or 9R/27L could be detected. Another conceivable source of intermittent faint echo in AP conditions might be airport buildings themselves, in particular the tall traffic control tower buildings. The ground-control tower appears to be within the radar cell footprint, although the new 250 ft. AGL tower building falls just outside it.

In summary, the NEXRAD VCP-32 radar mode is very sensitive and there are several possible sources of faint echo. Echo is found in the relevant cell timed at 1635 CST. However each of the four scans investigated, sampling roughly 10% of the total coverage period between 1616 and 1645, shows a certain amount of intermittent echo of this type in the general area. In fact there is echo more than twice (~ 4dB) as strong in the same cell in the 1616 CST scan at a time when, apparently, no UFO was being seen. It can reasonably be argued that finding some echo within about a square km of the site within a few minutes of the sighting time is not too improbable. So whilst the height and location of the echo is

not inconsistent with the presence of an object as reported, caution is recommended in drawing any conclusions.

If better data can be obtained, some factors to be borne in mind regarding radar coverage of the sighting area include those numbered below:

1. The range/altitude performance of radars may be modified by the propagation conditions, differentially at low and high levels.

2. Pulse Doppler MTD on all surveillance radars studied allows sub-clutter visibility of moving targets, but a stationary target might be rejected by the Doppler filters.

3. On the two ASR-9 radars (ORD#1, ORD #3) multiple-trip anomalous propagation echoes from beyond the unambiguous range caused by trapping conditions should be filtered out by the staggered PRF technique employed.

4. The PPI display range scale selected may be a factor in detectability - on the ASR-9 at minimum scale (60 nmi) the range to the reported object location from ORD #1 (0.78 nmi) is only 1.3 % of the PPI radius, or less than 3 mm from the geometric tube center on a 15" PPI, which may not be resolvable.

5. Echo strength of close-in targets on the ASR-9 radars may also be artificially suppressed by the use of STC swept gain to suppress permanent clutter at the receiver/amplifier stage, which would affect the O'Hare ASR-9 (ORD #1) in particular. An attenuation of some 60 dB from the periphery to the centre of the scope may result with STC switched on, or a signal ratio of a million to one.

6. The resolution cell of the O'Hare ASR-9 (ORD #1) at the range of the sighting location (Concourse C, Gate 17) is about 375 feet on the range axis by about 115 feet in azimuth.

7. The resolution cell of the Oak Forest ASR-9 (ORD #3) at the range of the sighting location is about 375 feet on the range axis by about 3,230 feet in azimith.

8. The potential radar sample rate is limited by the rotation periods of the various radars. Considering the three surveillance radars (ASR-9s and ARSR-3) they collectively offer a possible 30 paints per minute, or approximately 420 samples of the location during the reported sighting period of fourteen minutes.

9. All surveillance sets have switchable polarisation, which might conceivably affect the signal returned by certain targets, i.e. circular polarisation might prejudice the detectability of resonators with a large degree of spherical symmetry.

10. Other operational and human factors such as staffing, operator workload and vigilance etc., will affect the observation and reporting of any unidentified targets that are displayed - i.e., undeclared primary targets appearing at low level directly above the airport gates would be among the least anticipated potential hazards for air traffic controllers.

6.7 References for Radar Section

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12. FAA National Airspace System Architecture, http://nas-architecture.faa.gov/nas/location/location_data.cfm?FID=35

13. Anon., Federal Aviation Regulations/Aeronautical Information Manual - 2000. Jeppesen Sanderson, Inc., Englewood, CO., Pg. A-520, 1999.

6.8 Notes for Radar Section

Note 1. The actual "scan time" is given as 22:35:36 UCT. If this is the time when the radar delivers the finished product from its complete volume scan, then it would indicate that the echo was collected 10 mins earlier, between about 16:25 and 16:26 CST, i.e., some 5 minutes prior to the approximate 16:31 time when visual sightings were made. If on the other hand this is the start time, or end time, of the initial 0.5 deg cut, then the echo was collected sometime between 16:34:36 and 16:36:36 CST, i.e., several minutes after the visual sighting time. The author has not found an authoritative answer to this, but there is some internal evidence in favour of the second interpretation. This takes the form of a very interesting radial line at roughly 250 degs azimuth on the full area 16:35 image (Fig. 22). This is very close to the azimuth of the sun which set at ~ 247.5 deg from the radar shortly after 16:43. It seems certain that this radial feature is a "sun spike" caused by solar EM energy radiated directly into the antenna. At 16:35 the sun was about 9 mins of arc above the optical horizon - corrected for normal refractivity - and allowing for the ~15% longer radar horizon could very plausibly have been close to the peak gain of a ~1 degree beam boresighted on 0.5 deg elevation. However 10 minutes earlier at 16:25 the sun was at 1 deg 53' elevation and thus more than two solar diameters away from the antenna boresight. This position would have been tens of dB down from the peak gain, so much less likely to produce a sun spike, and the direction of any correction due to superrefracted radar ray paths close to the horizon would be to increase this discrepancy. So tentatively we conclude that 16:35 CST +/- 1 minute is the true time of detection of this echo.

Note 2. According to the FAA, "Primary Radar" is a system in which "…a minute portion of a radio pulse transmitted from a site is reflected by an object and then received back at that site for processing and display at an air traffic control facility." "Secondary Radar/Radar Beacon" (ATCRBS) is a system in which "…the object to be detected is fitted with cooperative equipment in the form of a radio receiver/transmitter (transponder)….". (Ref. 13)

7 .0 FAA Radar Data Analysis

Richard F. Haines Chief Scientist

The Senior Editor requested National Transportation Analysis Program (NTAP) primary and secondary radar data for November 7, 2006 for the (local) time period 4:25 to 4:40 pm from the FAA.[66] The area of coverage requested was from "any antenna that had the ability to "see" ORD. A set of thirteen digital data files, each containing approximately 500 kb of data were received on February 14, 2007 that covered the period 4:25 through 4:40 pm. Each data set covered one minute

[66] F.O.I.A. request No. 2007001234GL submitted on November 18, 2006. William Puckett, NARCAP, requested an independent set of radar data, see Appendix I for details. J. Hilkevitch also submitted a separate request for radar data but was told that no such data was available so he did not pursue the matter. (Personal communication, May 8, 2007).

and arrived in list 3 ASCII format. This section discusses the results of two independent analyses of these primary radar data carried out by NARCAP Research Associates William Puckett, and Martin Shough.

7.1 Findings by William Puckett.

Primary (skin paint and/or "false") radar contacts in the vicinity of the airport for the time period 1625 to 1630 hrs are plotted with white circles in Figure 27. Gate B5 and C17 are shown by small red crosses at the upper center of this figure. There are a cluster of primary echoes to the west and southwest of runway 32L The single return that is nearest gate C17 both in distance and the time of the sighting (i.e., 2230) was at 2231:18 about one mile to the west (point A); the altitude of these returns cannot be determined. (See page 83)

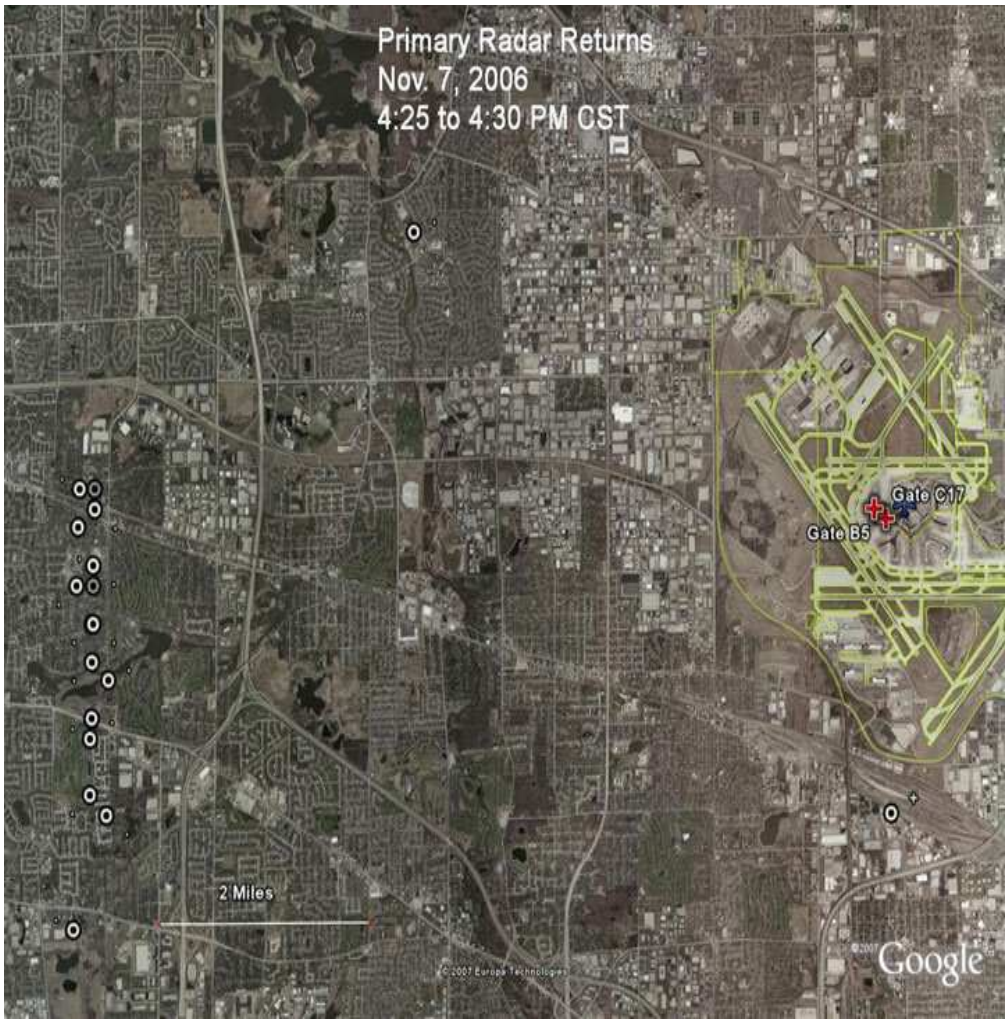

Figure 27. Primary Radar Returns Between 4:25 and 4:30 pm on November 7, 2006.

Figure 28. Primary Radar Returns Between 4:30 and 4:35 pm on November 7, 2006.

An interesting array of primary echoes was found in two different areas. Figure 27 shows one grouping along an approximately NNW - SSE line about one mile west of runway 32L but not parallel with it. There are a total of forty one primary returns found on the west side of the airport and another fifteen to the east (thirteen of which are grouped along a north-south oriented line to the SE of the airport (not shown here). There were no primary returns found near gate C17 in these radar data.

Figure 28 shows primary returns for the period 4:30 to 4:35 pm. Here it is noted that a number of returns were recorded much nearer to the runways than in Figure 27. They are grouped generally along a N-S line and might possibly be second time-around targets, i.e., double or triple reflections off ground structures, vehicles, etc. that are not filtered out.

7.2 Findings by Martin Shough

In the 4 minutes of radar data examined between 2230:55 and 2233:54 UTC, eleven primary plots were identified within a radius of about 2 nmi of Chicago O'Hare gate C17, as shown in Figure 29. Numbers by each "tack" point represent minutes and seconds (hour designation is deleted). None of these points was found to correspond either with the observed static position of the UAP or with its inferred departure vector.

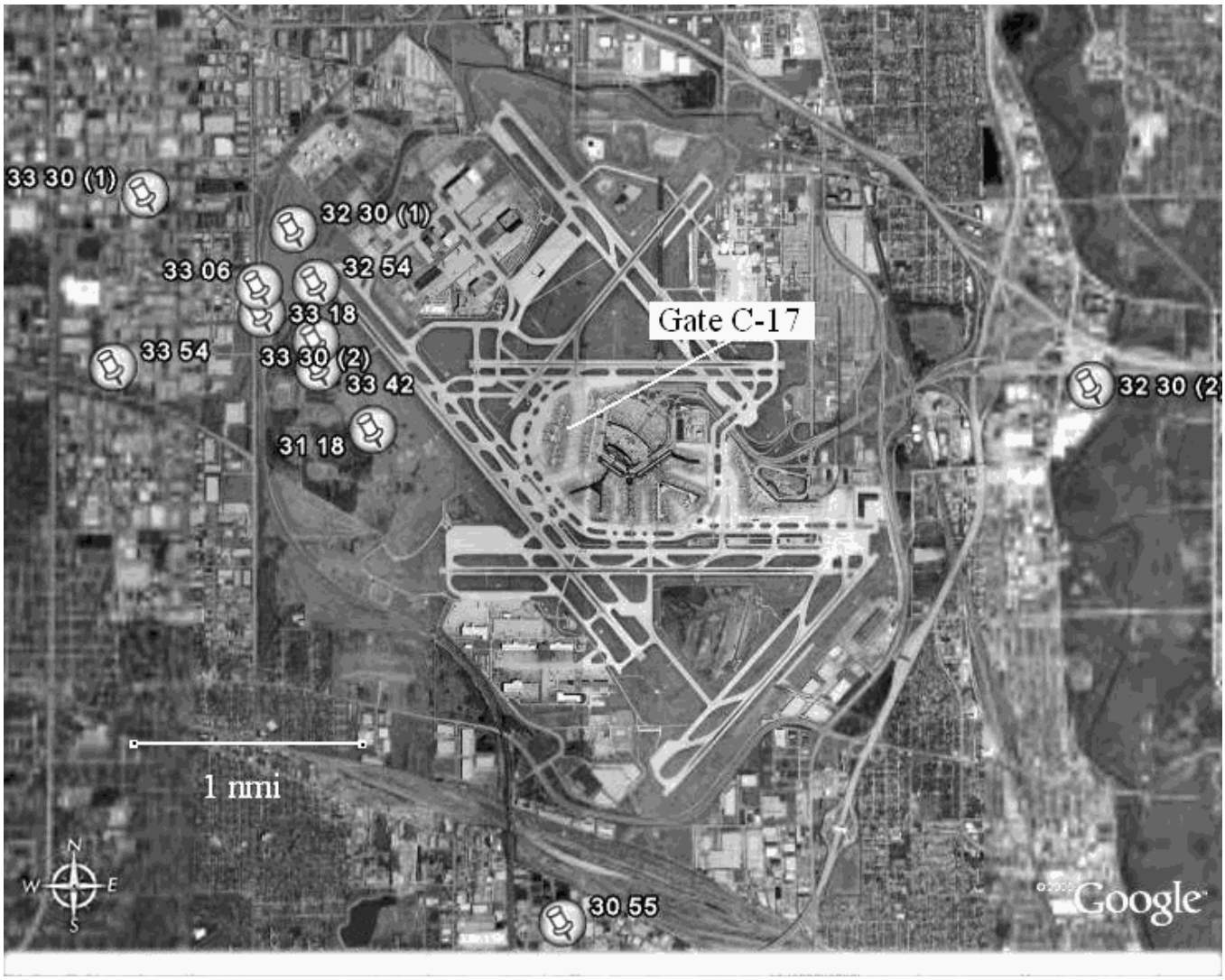

Figure 29. Plots of Primary Radar Targets in O'Hare Area Between 4:31 and 4:34

(The numbers in parentheses indicate the time sequence of multiple plots occurring in the same second.)

The only feature of note was found by expanding the search area. The following time sequence of plots occurred during one second at 2230:55 UTC:

(plot)	(symb)	(code)	(alt)	(time, HMS)	(lat)	(long)
1	.			22 30 55	41 35 21N	087 55 54W
MCI	I	2453	070	22 30 55	42 02 52N	087 54 36W
2	.			22 30 55	41 56 37N	087 54 35W
3	.			22 30 55	42 13 28N	087 53 42W

The period symbol denotes "short run length primary tracks," and the capital "I" denotes an "MCI correlated track eligible for conflict alert." Reading from south to north, the coordinates define successive positions on a line that is for all practical purposes perfectly straight. A line ~ 43.8 miles long drawn between plots 1 and 3 passes through the coordinates of plot 2 within 350-400 feet. This line also passes about 200 ft to the east of the Chicago O'Hare Concourse C building. See Figure 30.

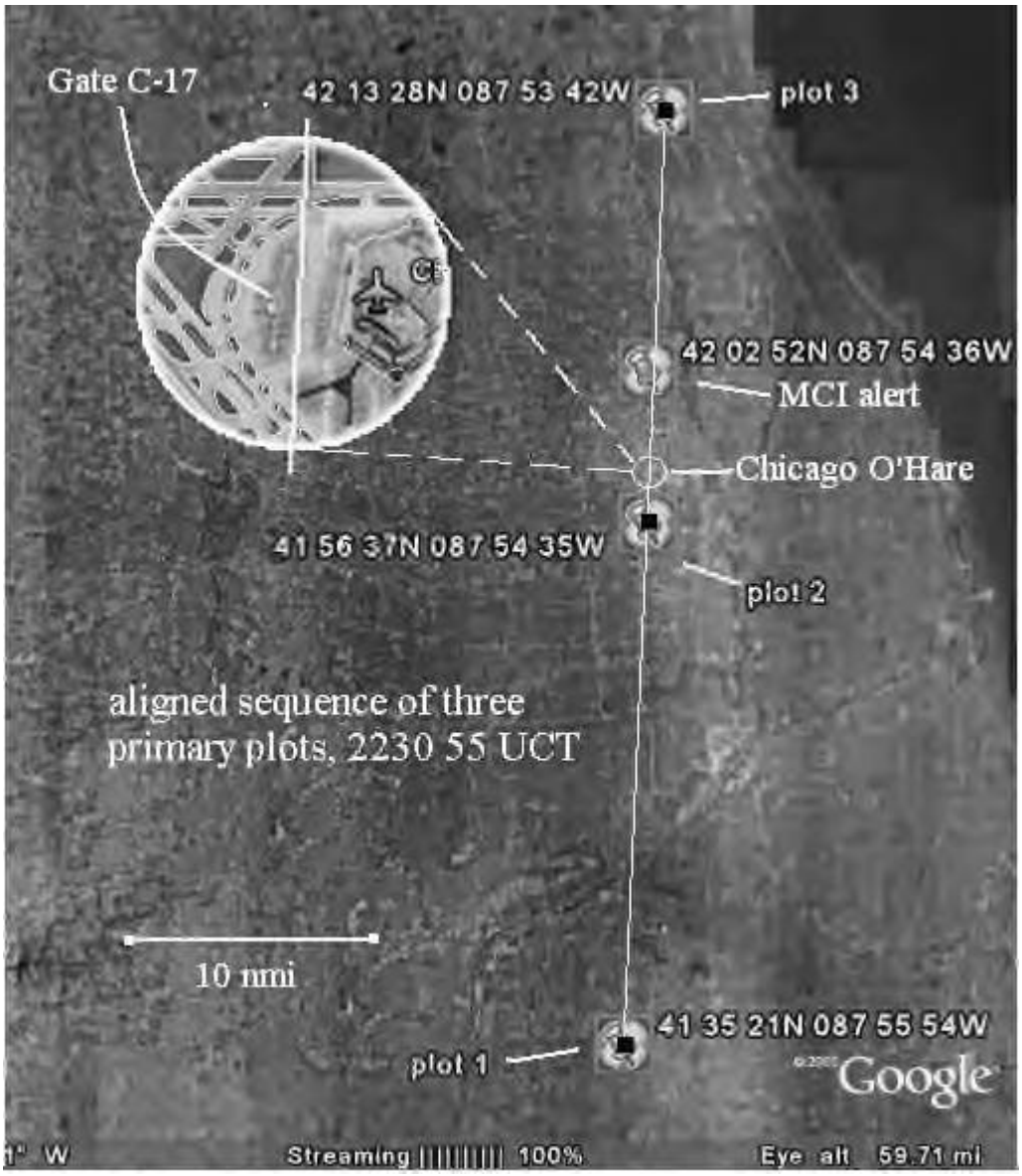

Fig. 30 Alignment of 3 Primary Radar Plots at 2330:55

The MCI correlated plot is spatially located between primary plots 1 and 2 (though it falls between plots 2 and 3 in the time sequence). It also falls within a few hundred feet of this alignment. MCI is a Mode C Intruder alert, when there is a predicted conflict risk between unknown IFR or VFR traffic and known IFR or VFR traffic with an altitude-reporting transponder. MCI triggers audio and visual alarms in the TRACON and is defined by FAA as requiring "immediate action" from the controller. The alert here was triggered by detecting a transponder in an aircraft with the flight code #2453 at an altimeter height of 7,000 ft MSL.

All of the above near-simultaneous events apparently happened within seconds of the reported 2231

time of the UAP observation above O'Hare Concourse C. This may well be no more than a curious coincidence. After all if one connects the 3 primary plots of Figure 30 into a single track you get a target rate of over 150,000 mph, which is presumably unphysical and suggests either a radar artifact or a chance alignment of three sporadic unrelated primary radar echoes. It is certainly a far cry from an object ascending vertically above C17, nor does the "track" originate or terminate at O'Hare.

MCI alerts are not in themselves very unusual, and the likelihood of an MCI alert occurring will presumably be skewed towards areas of highest flight density - i.e., near to O'Hare. The one minute block of data between 2230:00 and 2231:00 was searched, disclosing 59 examples, or a mean rate of about one MCI alert per second somewhere in the C-90 TRACON area, and flight #2453 (giving 10 transponder replies in total during this minute) was responsible for another 3 of these, at 30:19, 30:31, and 30:43, in addition to the alert at 30:55. Given that the control area is thousands of square miles, the occurrence of such an alert on a chance alignment of unrelated radar plots passing through the sighting location can still fairly be described as moderately unlikely *a priori*. But coincidence does happen and seems the most economical interpretation.

I also found the cluster of primary returns to the west of the runways that Puckett found. They lie within a sector that is approximately a mile or two from the ASR-9 (ORD#1) antenna (see Section 6.3.1). They couldn't be correlated with ground features (the atmosphere was superrefractive at the time) as the ground was flat nor do they correlate with roads or rail lines. Why aren't these returns filtered out by doppler filtering?

Referring only to the large cluster of primary returns in Puckett's Figure 26 lying to the west of the runways, careful analysis shows that they all tend to drift toward the SSE at about five knots velocity. One possibility is that they were caused by a flock of birds flying past the airport.[67] They might also have been produced by ground reflection of moving traffic on roadways in the area. There is a very low probability that these returns were from aircraft flying in the area without transponders since this is a Class B airspace (see Section 3.2).

7.3 Radar Cross Section (RCS) Issues

Richard F. Haines

None of the radar analyses presented above found evidence of primary radar returns at the approximate time of this sighting within even a mile of United Gate C17. It is little wonder that tower personnel were not alerted. However, it also should be made clear that lack of a radar return from the hovering object does not mean that the object was not really there. Indeed, there have been a number of documented instances where an object was seen visually by flight crew but there was no ground radar contact with it. The America West Airline sighting of May 25-26, 1995 qualifies well in this respect (Webb, 1996) as does TWA flight 842 on July 4, 1981 (Haines, 1982a, 1982b).[68] What this finding does

[67] An ornithologist who investigates aviation-related incidents and accidents told Sam Maranto (March 2007) that he was certain these particular echoes were not caused by insects or birds at O'Hare. Nevertheless, the ATIS issued for November 7, 2006 cautioned pilots about bird activity in the vicinity of the airport.

[68] The interested reader should also consult Shough (2002) for a review of 21 ground and airborne radar contact reports related to aviation safety occurring between October 1948 and September 1976.

suggest is that current sensing technology is not adequate to insure against such intrusions into our nation's busy airspace.

All of the present eye witnesses agree that there was a physical object present and that it was round (as viewed from directly below) or a smooth sided oval (as viewed obliquely from below). This evidence also establishes that this oblate spheroid was most likely oriented with its maximum dimension parallel with the earth's surface. If this is accurate its radar cross section (RCS) to local radar surveillance would be minimal.

Radar cross section refers to the extent to which an object reflects radar pulses, usually with respect to their point of origin. While each pulse of energy that leaves the antenna may contain megawatts of power only a very small fraction of it reflects off the object back in the direction of the receiving antenna. This occurs for many reasons whose discussion are beyond the scope of this report.[69] The interested reader should consult the following references for more information. (Anon, 2007a; Anon, 2007b; ARC Technologies, 2005; Knott, et al., 2004; Skolnik, 1990). Suffice it to say here that RCS is technically expressed as an area (in square meters) and depends on three primary variables: *Geometric cross section* of the object facing the radar antenna, object *reflectivity* of the radar beam energy, and *directivity* which is the amount of backscattered power of the original beam that reflects back to the sending/receiving antenna.[70]

As discussed, the geometric cross section of the object to be detected by radar is one of the three important variables in determining its RCS. The RCS of a modern commercial airplane, for instance, will vary by a factor of over 100 depending on its orientation to the radar beam and other factors (Anon, 2001). The sophistication of so-called low observable technology has progressed steadily ever since WW-2 to the point where the large, manned B-2 Spirit stealth bomber, F-22 Raptor, F-35 Lightning II (and others, cf., Sweetman, 1993) can fly well within the coverage of ground-based radar units and still remain undetected.

Given the fact that current low observable, i.e., "stealth" technology, can defeat even sophisticated radar it is important to try to relate this fact to the present case without stretching the issue too far; we simply do not know enough about the various characteristics of the present UAP to properly apply RCS formulae.

Most aviation radar systems employ a very short, pulsed microwave beam sent out from their antenna (see Section 6.2). If a portion of that beam is reflected by the surface material (i.e., "skin") of a distant aircraft (or other object) back in the direction of the antenna and is strong enough to be detected then the system registers a "primary" contact. Its distance is measured by comparing each pulse's return time with the time the pulse was sent. We will not be concerned here with so-called secondary radar returns that are produced by a transponder on board the aircraft that emits a coded frequency signal back to the antenna to positively identify that aircraft.

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[69] A recent Google internet search on the term "Radar Cross Section" turned up over seventy seven thousand hits.

[70] Directivity is actually the ratio of backscattered power to the power that would have been scattered/ reflected in that direction if the scattering were actually uniform in all directions.

It is known that if an object can radiate sufficient energy into the surrounding atmosphere to evaporate the water vapor (cloud) then it might also be possible for that object to increase its energy output to the point of creating an ionized plasma sheath around itself (Anon., 2007c). "This actually raises a possibility…that there may not have been a physical object inside the oblate spheroid surface at all. Both the radiant energy necessary to evaporate cloud droplets, and the ability to absorb incident radar beams are consistent with the idea that a self-organized plasma was formed and maintained at a trajectory in the air by some external energy source."[71]

One side note of possible interest is the fact that the Public Affairs Officer at Scott Air Force Base, in SW Illinois said their military radar did not detect any unidentified contacts around the airbase or the city of Chicago nor did they scramble any jets. (Nowinski, 2007).

In conclusion, we simply do not possess enough information about the present UAP to draw any reliable conclusions about its RCS and must continue to seek more and better data. This will continue to be a formidable task given the current attitude of denial and ridicule that is shown both by government and corporate aviation officials. In this instance we have lost yet another opportunity to learn more about the nature of UAP.

8.0 Discussion

One of the main objectives of NARCAP is to help improve aviation safety with specific regard to UAP while also collecting, analyzing, and reporting scientific data about UAP. This deliberate decision was not taken lightly. It resulted from an intensive study of many scores of pilot reports where an unusual object or visual phenomenon flew near their airplane for prolonged periods of time [Clark, 2003; Guzman, 2001; Haines, 1999, 2000; Haines and Weinstein, 2001; Orlandi, 2001; Smith, 1997; Weinstein, 2001] and caused disturbances of their cockpit instruments or crew communications and coordination. NARCAP felt that it was imperative to conduct its own investigation into this puzzling event at O'Hare International Airport. As more and more data was received it became clear yet again[72] that the FAA is not adequately equipped to detect all classes of atmospheric phenomena that could cause an aviation incident or accident in flight.

It is beyond the scope of this report to suggest specific solutions to this complex problem except to say that the United States of America still relies mainly on realtime, microwave-based (radar) systems to detect airborne vehicles, weather phenomena, birds, etc. Such systems are highly effective in most cases, and, when aircraft are equipped with transponders the level of their detectability (from the ground and from other aircraft) increases significantly. However, as this report has shown, there remains a class of phenomena that apparently is not detected by these particular radar wavelengths; indeed, America's aeronautical stealth technology has clearly demonstrated that it can defeat them! The tacit assumption that seems to be made within the FAA is that if a stealth vehicle belonging to the

[71] Personal communication from Larry Lemke, March 20, 2007.

[72] Interested readers should review NARCAP's website and its technical reports at www.narcap.org

Department of Defense is going to fly within the airspace of large civilian airports the military branch involved will pre-announce it using appropriate means so that ATC personnel will not react inappropriately. The cryptic response made by the FAA in the present incident that nothing was seen from the tower leaves this (stealth) door open just a crack. However, NARCAP believes that the military would not test fly a hovercraft directly over a highly populated and busy international airport for many reasons not least of which is safety.

Of primary concern in the following section are the implications that this incident has for aviation safety.

8.1 Safety Implications

Current *See and Avoid* piloting practices[73] in America are supplemented by elaborate electronic technology including ground-based and airborne radar, on-board transponders, terminal collision avoidance system(s) (TCAS), and others all designed to keep airplanes apart.

The airspace above O'Hare International Airport is a class B Airspace (FAA Order 7400/9F). A plan view of this airspace is shown in Figure from a Chicago Sectional Aeronautical Chart (1:500,000). Note the generally concentric circles centered on the O'Hare. The smallest area at the center is an approximate cylindrical volume of air extending from the ground up to 7,000 feet [labeled 70/SURFACE). The next larger concentric region extends from 1,900 to 7,000 feet [labeled 70/19], etc.; it has been likened to an upside-down wedding cake with each layer stepping outward from the center.

[73] This term refers to the requirement (when meteorological conditions permit) that the pilot is responsible to see and avoid other traffic, terrain or obstacles. (Anon., Federal Aviation Regulations/Aeronautical Information Manual, Section 5-5-8, Jeppesen Sanderson, Inc., Englewood, CO., 2000).

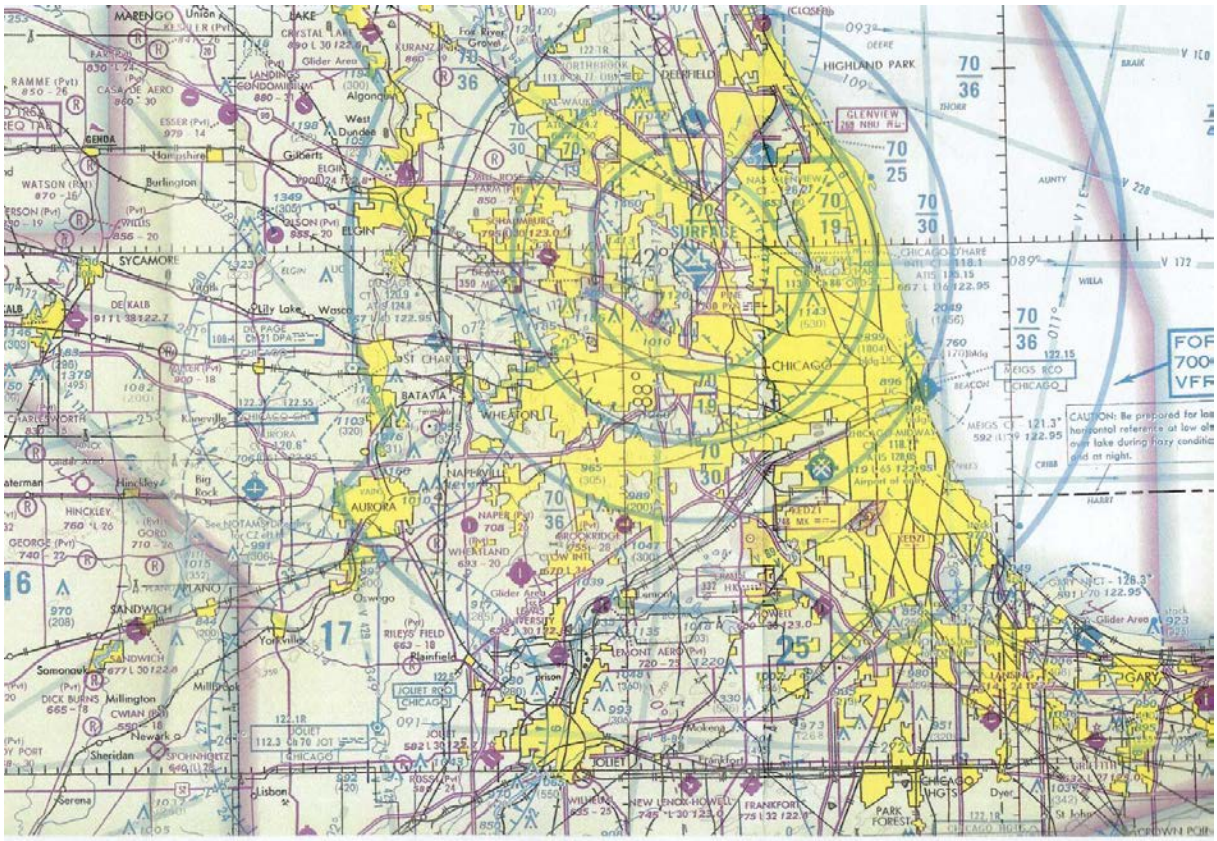

Figure 31. Sectional Avigation Chart of ORD Showing Class B Airspace

In order to fly legally within this controlled airspace "… all aircraft operators are subject to the minimum pilot qualification requirements, operating rules, and aircraft equipment requirements of Part 91…". The current Aeronautical Information Manual (AIM, Section 3-2-3) specifies that "Aircraft within Class B airspace are required to operate in accordance with current instrument flight rules (IFR) procedures. If someone wants to fly within a Class B airspace following visual flight rules (VFR) a clearance from air traffic control is required and they must also meet the requirements of FAR Part 91.215 and FAR Part 91.131. Thus, an operable two-way radio is required, the pilot must hold at least a private pilot certificate, and unless otherwise authorized by ATC, "each person operating a large turbine engine-powered airplane to or from a primary airport shall operate at or above the designated floors while within the lateral limits of Class B airspace." In addition, each aircraft must be equipped with an operable Very High Frequency Omnidirectional Range (VOR) or Tactical Air Navigation (TACAN) receiver and an operable radar beacon transponder with automatic altitude reporting equipment.[74] In order for the above federal regulations to function effectively all airborne objects must be able to communicate with the tower and should be detected on FAA radar as well as visually from the tower (given adequate atmospheric visibility). If either or both conditions do not exist then safety is

[74] Federal regulations do permit a deviation from the requirement that the airplane must have a 4096 transponder with altitude reporting capability, however, all requests for such a deviation must be submitted to the controlling ATC facility at least one hour before the proposed operation. [AIM, Section 3-2-3, B5 (c)]

compromised. *This was the case here*.

"The safety implications of any vehicle operating at low altitude over a major airport outside the authority of air-traffic control are obvious. Managers should want to hear about such vehicle operations before they become accidents or disasters," said Brian E. Smith, former manager of NASA's Aviation Safety and Security Program. He also remarked, "We need to encourage reporting of all incidents regardless of biases against particular categories of occurrences." (Kean, 2007) As the transcripts presented in Tables 3 - 5 make clear, this subject evokes mostly laughter and jokes rather than serious acceptance. According to the original Chicago Tribune article (Hilkevitch, 2007), some of the airline employee witnesses felt that the UAP could have interfered with radar or other equipment and "…even created a collision risk."

As this report has shown, both the extensive radar system and ATC personnel in the tower at O'Hare were incapable of detecting the presence of an airborne, hovering object of a relatively significant size, nor was the object (allegedly) seen from the tower. If an object cannot be seen visually or on radar it does not officially exist; indeed, no specific actions can be taken to warn airplanes of its existence. The known capabilities of the FAA radar equipment must not be ignored here.

A practical difficulty that is faced by the FAA in electronically detecting the kind of UAP reported at O'Hare on November 7, 2006 is that it *hovered* over the airport. Their long established use of so-called doppler filters in ground radar systems makes it possible to eliminate immovable ground detail such as airport buildings, etc. This makes moving aircraft targets more conspicuous. However, stationary UAP can become electronically invisible because of the use of this filter. Since airport surveillance radar antennas typically rotate about 12.5 times per minute a new radar update return cannot occur faster than about every 4.8 seconds. Thus, if the UAP can climb fast enough it can, theoretically, evade this radar detection. And even if the UAP were detected by a pulse or two during its ascent it would probably be ignored as spurious. The problem comes down to a matter of practicality.

Is it worth the expense and effort to try to detect stationary airborne objects by radar when they occur so infrequently? So far the answer has been no. However, if an airplane and UAP collide someday because the UAP was not detected on radar all of the expense and effort to do so would have been well worth it.

8.1.1 **Radar Cross Section and Safety Implications.**

The ASR-9 ORD#1 antenna is located only about 0.8 mile west of United Airline's Concourse C and about 955 feet from the west edge of runway 32L. Given the range sensitivity performance of this system (cf. Figure 21), one could postulate that in order to avoid detection by ORD#1 during its rapid ascent,[75] the upper limit on the effective RCS of the UAP at 2.7 to 2.9 GHz would be on the order of about 10^{-6} sq. m (-60 dBsm) or about two orders of magnitude *smaller* than that of a B-2 or F-22 stealth airplane. Thus, an object smaller than about two feet width by

[75] It is assumed that the rising UAP is not filtered out by the doppler moving target detection filter. Other assumptions are also made about the specific nature of the polarization used on the ASR-9 at the time. Other factors may also play a role in causing the UAP to be invisible to the radar.

0.2 foot high by 0.6 foot long (using approximate B-2 dimensions for example) would be undetected by this antenna assuming the object did not otherwise possess other exotic radar canceling characteristics. Since the present UAP was visually estimated to be on the order of 20 feet diameter and most likely larger, it should have been detected by ORD#1 during its ascent. Why it was not is not known.

Also, since the ORD#1 antenna was relatively near to the reported location of the UAP its beam would have struck it from below, i.e., not have "pinged" it from a side-on angle during its ascent. Assuming a lateral separation of 5,497 feet and cloud base of 1,900 feet gives a vertical angle of about 19 degrees arc from the horizontal up to the cloud base at the antenna. As the UAP continued to rise, now invisible because of the cloud, if it maintained a horizontal orientation the ORD#1 beam would strike it at increasingly large angles which would have increased its RCS over time making it increasingly conspicuous.

By comparison, the effective upper limit of the effective RCS from ORD#3 antenna location, about eleven miles south of Midway Airport, one could postulate that in order to avoid detection by ORD#3 during the UAP's rapid ascent,[76] the upper limit on the effective RCS of the target at 2.7 to 2.9 GHz would be on the order of about 10^{-2} sq. m (-20 dBsm) which is approximately that of a small bird.[77]

The reports that the UAP departed almost vertically is significant in that the airspace directly above Gate C17 at ORD, at least up to 7,000 feet altitude, is probably one of the lesser traveled areas of local sky above the airport. This is because commercial aircraft approach its runways from locations lying on radial extensions of the respective runway. On takeoff aircraft do not fly directly over the terminal area but along an approximate extension of their takeoff runway. Thus, the present UAP was hovering in perhaps one of the safest areas of the entire ORD airspace.

It is also interesting to note that this UAP hovered within the tower controllers' blind spot.

If the present UAP possessed advanced stealth capabilities it might explain its invisibility to radar. If this was a test of a new stealth technology one must ask why it was being tested over the busiest airport in America where, if it descended to the ground for some reason, could have caused a great deal of destruction.

Perhaps James Carrion, International Director of MUFON, summed the situation up best when he said, "They subjected it to dismissal and ridicule… it's appalling in this post 9-11 era how someone can say 'bomb' in an airport and get arrested, yet personnel at United Airlines see something like this and they (FAA and United Airlines) dismiss it."

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[76] The assumption is made that the rising UAP is not filtered out by the doppler moving target detection filter. Other assumptions have been made about the specific nature of the polarization used on the ASR-9 at the time. Additional factors may also play a role in causing the UAP to be invisible to the radar.

[77] The senior editor acknowledges the assistance of M. Shough here (March 22, 2007).

8.2 Possible Explanations for the UAP

Within several days of the event Elizabeth Isham Cory, an FAA official, suggested that all the witnesses had seen and misperceived was an abnormal weather phenomenon or perhaps ground lights shining upward and reflecting off the bottom of the cloud layer at the time. "That night was a perfect atmospheric condition in terms of low [cloud] ceiling and a lot of airport lights," she said. "When the lights shine up into the clouds, sometimes you can see funny things. That's our take on it."[78] It should be noted that witness B and J.H. confirmed, independently, that the airport (nighttime) ramp lights had not yet come on.[79] If the visual description of the UAP made by all of the present eye witnesses that were interviewed are accurate this particular explanation is absurd. It is so unreasonable as to be ludicrous and begs the question, how could someone who did not even see this particular UAP come to such a conclusion? As Maranto (2007) succinctly put it, "The answer to these questions (how can weather account for what was described) is that…the weather explanation is just complete and utter nonsense."

Soon after the story went public on January 1, 2007 many explanations were offered to try to explain what the object was. Each of them must be compared with all of the reported and calculated characteristics of the object such as size, shape, acceleration, lack of sound, hole in the cloud, etc. We will consider a number of such explanations here.

One explanation was that of a weather balloon. Most are round as seen from beneath, can hover silently, and could be twenty feet in diameter or more. Nevertheless, there are several reasons that argue strongly against this possibility.

The first problem with this hypothesis is where a weather balloon would come from in the first place. As Figure 33 shows, the nearest launch site for weather balloons is at Lincoln, Illinois, some 135 miles to the SW. With winds out of the south at only about four knots, both of the daily balloon launched from there (one at 6:00 am and the other at 6:00 pm CST) would have climbed above 1,900 feet after only about four minutes flight (assuming a nominal ascent rate of 500 ft/min)! According to the National Oceanographic and Atmospheric Administration (NOAA)[80] who launch about seventy weather balloons a day within conterminous America,[81] the standard tan latex (or synthetic rubber neoprene) balloon is about six foot diameter when launched but increases in size to about twenty feet at its nominal bursting altitude of at least 90,000 feet. At high altitudes they assume a teardrop form due to distortion from the weight of the radiosonde payload. They can travel up to 125 miles laterally during their nominal two hour-long flight life, depending on the velocity of the wind.

Second, in order to use radar to track the progress of these weather balloons each carries a

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78 As quoted to J. Hilkevitch in his article "*In the Sky! A Bird? A plane? A … UFO?,* Chicago Tribune, pg. 1, January 1, 2007.

79 See Appendix E.1 [10] for additional confirmation of this.

80 NARCAP is indebted to Bob Stahl, NARCAP National Technical Specialist, for his research into this subject.

81 http://www.erh.noaa.gov/gyx/weather_balloons.htm

radiosonde transponder (with a frequency ranging from 1668.4 to 1700.0 MHz) of the same general kind as is used on commercial airplanes. In this way winds aloft can be determined. If the object over Gate C17 was a weather balloon why wasn't it detected by secondary ground radar? Also, why wasn't this type of payload seen by any witness if it was suspended under the balloon? The third problem is the prevailing horizontal wind.

Local winds would cause a balloon to move laterally during the five-minute (or longer) sighting duration disregarding its altitude above the airport. Assuming a nominal wind velocity of seven knots (equivalent to about twelve ft/sec.) a balloon would have traveled horizontally about 3,600 feet! None of the witnesses saw any horizontal movement of the object at all as it hovered.

The fourth problem with this explanation is the rapid rate at which the UAP rose, a rate that far exceeds meteorological balloons (see above). Also, what would make a balloon remain at a fixed altitude and then begin to ascend other than a ground tether or on-board ballast that was somehow jettisoned. No such tether line was reported.

The possibility that this UAP was some U. S. military stealth vehicle has already been discussed and appears quite unreasonable. The fact that no sonic boom was reported by anyone at ORD out of doors suggests that its departure velocity was subsonic. And the heavy cloud cover eliminates all potential astronomical explanations.

The relatively long sighting duration of at least several minutes and relatively consistent description of the UAP as being round (as seen from below and oval from an oblique angle) suggests a non-aerodynamic vehicle of some sort. As witness B said, "But I know what I saw and what a lot of other people saw stood out very clearly, and it definitely was not an [Earth] aircraft."

Another explanation was raised by Alan Boyle, a science reporter for Cosmic Log at MSNBC.com. He suggested that the UAP might have been a lenticular cloud. However, there are many differences between lenticular clouds and this UAP. They include differences in: (size; altitude; appearance; rotational motion; lateral stability of the UAP given the prevailing wind; high vertical acceleration; etc.). Boyle also suggested "some sort of weather related vortex" as the cause but did not give any facts with which to support it. Section 4.0 and Appendix A.1 make it clear just how stable the lower atmosphere was at the time of the incident.

Yet another explanation offered was that the hole in the cloud (see Section 5.0) may have been produced by a jet airplane flying through the cloud cover! Among the many arguments against this possibility are: (1) No airplanes typically fly through the location of this UAP at ORD, it being so far off the centerline of any of the runways. (2) Wingtip vortices of swept wing turbojets might cause a ragged rift in the clouds on each side of their flight path but the shape of these cloud disturbances would be far different than a neat, round, vertical hole of small dimensions, and (3) airplane-caused vortices would not produce such a long-lasting hole in the cloud as this UAP did.

The possibility exists that the UAP was actually some kind of very quiet helicopter hovering there for some unexplained reason. If this was the case one would expect ATC personnel to know about it and

to give that explanation in order to quell the excited inquiries of the press. Nevertheless, "All the witnesses to the O'Hare event… said they are certain - based on the disc's appearance and flight characteristics - that it was not an airplane, helicopter, weather balloon or any other craft known to man." (Chicago Tribune, January 1, 2007) See similar statements made by witness J.H. in Appendix E.1 **[10].**

This section concludes with the tongue-in-cheek op-ed assessment by Chicago Tribune's Eric Zorn (2007) in which he writes, "…it's even harder to explain how it (the UAP) could possibly be anything but an ordinary but misunderstood phenomenon (OBMP). Best bet: It was nothing."

If it was nothing then all of the present eye witness testimony can be discounted as worthless. Worse still, these witnesses probably should not be entrusted to carry out their jobs at the airport in the future because they are considered to be such unreliable observers, witnesses prone to see things that aren't there!

9.0 Summary and Conclusions

This investigation has determined that, based upon the testimony of multiple eye witnesses in different locations at O'Hare International Airport, a small physical, and apparently solid object hovered over the United Airlines concourse area for at least ten minutes or more but was not detected either by radar or visually by air traffic controllers in the tower. For this reason the object is considered a definite potential threat to flight operations at O'Hare.

Calculations have been presented which suggest that the UAP above Gate C17 possessed a high energy density that caused a hole to be produced in the cloud as it rose up through it. If the UAP was only 6.8 m in diameter the calculated power it would require to evaporate all the water droplets within a cloud column 300 m long (assuming a vertical velocity of 300m/sec.) in one second would require an average power of approximately one hundred megawatts (MW). By comparison, the steady state power (consumption) of a B-747 airplane cruising at about 0.9 Mach is approximately 60 MW. Whether or not such a heat source would impact flight safety remains to be seen.

There is theoretical evidence given in Section 8.1 dealing with safety implications to lead us to believe that, given usual non low-observable radar characteristics, the hovering object at O'Hare should have been registered on the ASR9 ORD#1 radar during its ascent into and through clouds above it. Nevertheless, there are many reports of pilots seeing an unidentifiable airborne object that is not detected by radar as is discussed in Section 7.4. There is a small chance that the FAA's NEXRAD system may have detected the presence of a radar reflective target close to the 1,900 foot cloud base within several minutes of the reported sighting as is discussed in Section 6.4.2. However, this finding is obscured by various technical considerations that cast some doubt on this possibility.

It is interesting to note that the UAP very likely hovered at an altitude and location that made it impossible to see both from the main tower and the United ramp control tower because of their roof overhang and window placement.

This incident is typical of many others before it in that an unknown phenomenon was able to avoid radar contact and, thus, official recognition and effective response. When combined with the deeply entrenched bias pilots have against reporting these sightings the FAA seemingly had justifiable grounds for ignoring this particular UAP as non-existent. As Tony Molinaro, FAA spokseman said in January, "absence of any kind of factual evidence" precludes an investigation." (Kean, 2007) NARCAP hopes that this report will contribute to the growing accumulation of factual evidence surrounding UAP and that U.S. government officials will be motivated to carry out an independent investigation of the nation's capacity to detect a much broader range of electromagnetic phenomena than heretofore. To do otherwise is to risk grave consequences.

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11.0 Appendices

A. Weather Data

William Puckett

A.1 Regional Data

Midway International Airport – Chicago

Observation on November 7, 2006 at 4:51 CST:
Sky: Broken Cloud 1,600 Feet (Ceiling). Overcast at 2,200 feet
Visibility: 4 Miles Haze
Winds: Calm
Temperature: 54 Degrees F.
Dew Point: 49 Degrees F.
Relative Humidity: 83%

Altimeter Setting: 29.81 Inches of Mercury

Doppler Radar Site – Romeoville, Illinois

Observation on November 7, 2006 at 4:52 CST
Sky: Overcast at 900 Feet
Visibility: 4 Miles Fog
Wind Direction: South (180 Degrees Compass)
Wind Speed: 4 Knots
Temperature: 52 Degrees F
Dew Point: 51 Degrees F
Relative Humidity: 97%
Altimeter Setting: 29.81 Inches of Mercury

Upper Air Site – Davenport, Iowa

Observation on November 7, 2006 at 4:52 CST
Sky: Clear
Visibility: 4 Miles Haze
Wind Direction: South (190 Degrees Compass)
Wind Speed: 4 Knots
Temperature: 52 Degrees F
Dew Point: 44 Degrees F
Relative Humidity: 74%
Altimeter Setting: 29.78 Inches of Mercury

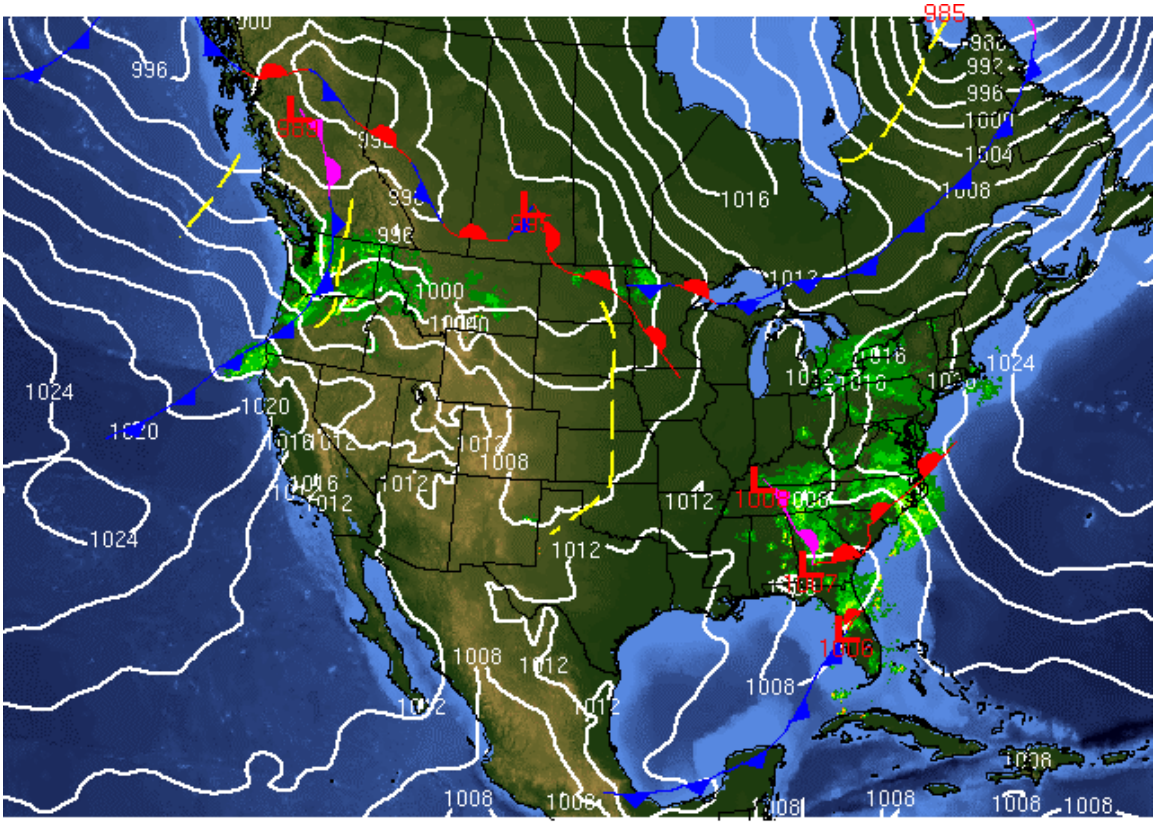

Figure 32. Surface Air Pressure Map for November 7, 2006 - 3 PM CST

A.2 Upper Air Data[82]

Figure 33 shows the location of O'Hare Airport and the three closest upper air stations. Davenport. Iowa was chosen as the most representative site for O'Hare Airport at the time of the sighting because of its proximity and wind conditions at the time.

[82] Source: University of Wyoming Weather Server: http://weather.uwyo.edu

Figure 33. Map Showing Three Upper Air "Balloon Sites" Nearest O'Hare
(The Most Representative Upper Air Site is Davenport, Iowa – 140 Miles Away)

Upper air observations (soundings) are taken twice daily at 6:00 am [12:00 Greenwich Meridian Time (GMT)] and 6:00 pm [00:00 GMT]. The 00:00 GMT sounding on November 8, 2006 was chosen for this analysis. This time equates to 6:00 pm CST on November 7, 2006.

The following information was extracted from the November 8, 2006, 00:00 GMT sounding at Davenport:

1. Cloud Thickness: Data presented in Appendix A.4 suggests that there were two cloud layers over O'Hare Airport, the lowest extending from 1,900 to about 3,700 feet AGL and a second extending from about 8,000 to 9,000 feet. The surface observation at O'Hare Airport showed a ceiling of 1,900 feet. Therefore the cloud top would be approximately 9,000 feet.
2. Winds at the surface at Davenport were from 190 degrees at 4 knots (South).
3. Winds at 1,000 feet were light and variable.
4. Winds at 2,000 feet were from 335 degrees (NNW) at 6 knots.
5. Winds at 5,000 feet were from 350 degrees (North) at 9 knots.
6. Lifted index was 9.88. Positive numbers indicate "a stable atmosphere" and thunderstorms are unlikely. Negative numbers indicate instability and thunderstorms are more likely. The lower the number, the more likely that thunderstorms will occur.

A.3 Doppler Radar Data

Located approximately twenty eight miles SW of O'Hare International Airport is a doppler radar site at Romeoville, Illinois. Figure 34 presents scan data for November 7, 2006 at 1635 hrs CST for the "clear air" mode. (Also see Figure 22). No precipitation was occurring within radar range.

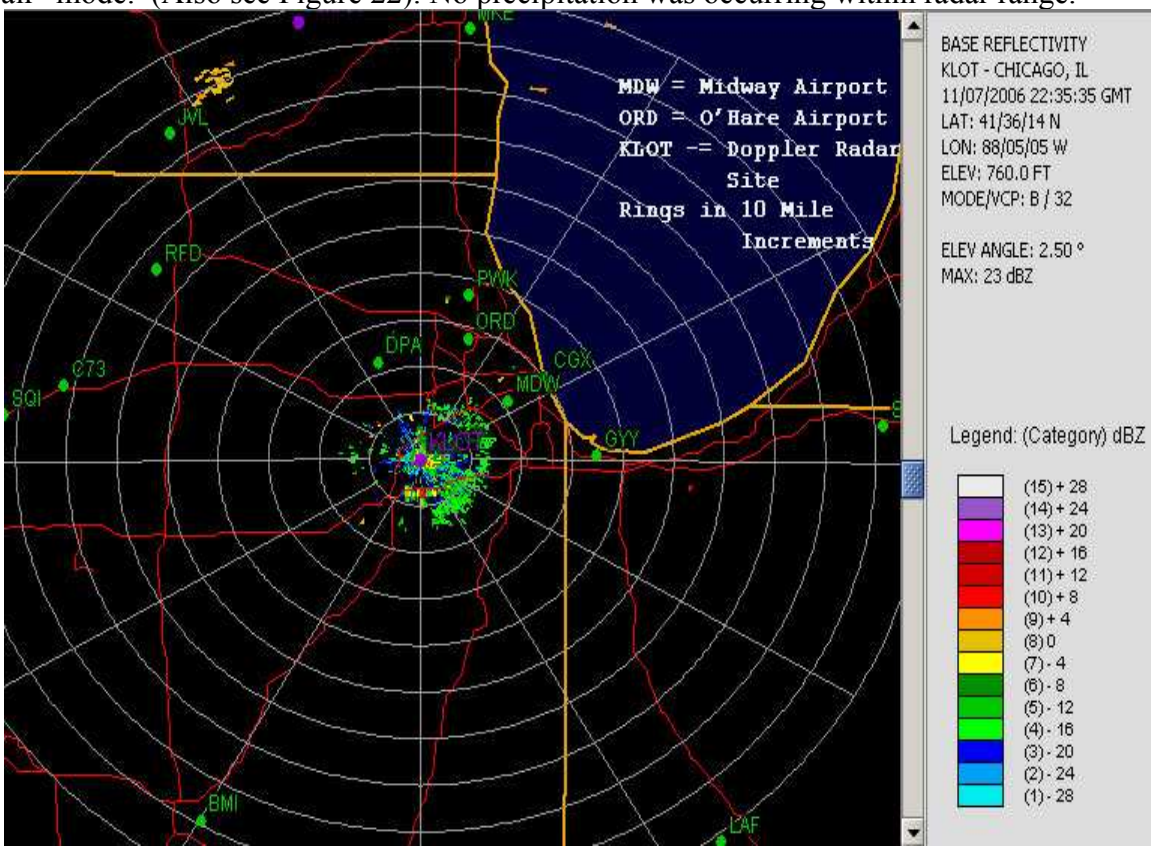

Figure 34. Doppler Radar Data for November 7, 2006 at 4:35pm

A.4 Satellite Cloud Top Temperature Data

The sounding data (Figure 11) and lapse rate data (Table 7) show that two layers of clouds were likely in the lower 10,000 feet as discussed in Section A.2 above. These cloud top computations are supported by the satellite cloud top temperature data shown in Figure 35.

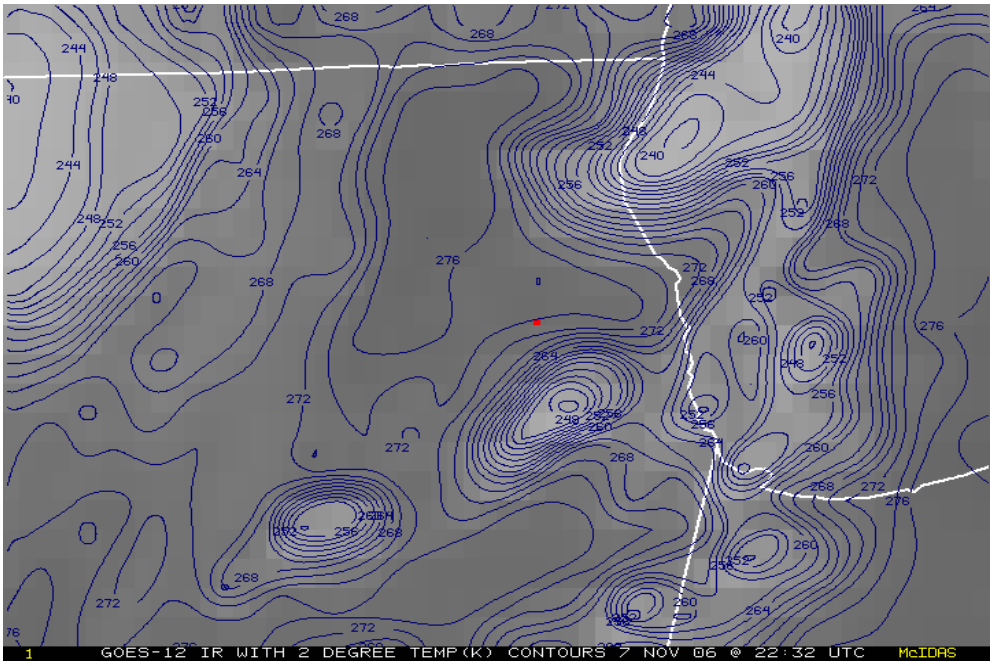

Figure 35. GOES-12 Satellite Cloud Top Temperature Profile for November 7, 2006 over the Greater Chicago Region

B. United Airlines Published Departures and Arrivals
Between ORD and Charlotte, NC for 9 November 2006

C. Investigation of Photographic and Other Hoaxes

Ted Roe, Executive Director

Aviation incident investigators who are examining cases that might involve UAP are sometimes confronted with the added task of assessing photographic evidence. Technology has made digital cameras quite common and it is possible that some UAP events may be photographed or videotaped by pilots and/or the traveling public.[83] As UAP are currently a poorly documented phenomenon, investigators that find themselves confronted by photographic evidence must determine the authenticity of the photograph as well as the veracity of the photographer/witness. As Sue, a United Airlines ramp tower employee said to Dwight in the O'Hare control tower that day, "…someone got a picture of it… he got a picture of it."[84] (cf. Table 4)

In the case of the O'Hare incident, this situation has become even more complicated with the appearance of alleged photographs of the incident that were submitted by anonymous sources.[85] Further analysis of these photographs has demonstrated that most of them are the product of image manipulation and fraudulent claims. Often these hoaxers acquire photographs from internet sources and manipulate them with software, based upon public witness statements, to appear to be consistent with publicized reports. This situation will be addressed further in a future NARCAP report.

There are several approaches that can be taken to mitigate these potential hoaxes. First and foremost the aviation community needs to accept that aviation incidents involving UAP profiles do occur and deserve close examination. In the case of the O'Hare matter, if witnesses had been encouraged to forward their reports to a prepared and sympathetic aviation incident entity like the FAA's Aviation Safety Reporting System or even an agency such as NARCAP that practices rigorous confidentiality and information management and the normal course of investigation had ensued, public speculations and complications arising from that speculation like hoaxed photos could have been all but eliminated.

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83 See (Haines and Puckett, 2007) for one such event.

84 This assertion probably originated from witness A at the scene. If so, Sue is referring to one of the flight crew of United flight 446 and not from other ramp personnel (who would not necessarily have cameras available on the job.)

85 As witness J.H. states in Appendix E, **[1]** "We ended up with a group of about seven people all together standing with us watching it. One fellow had a digital camera. He was taking many pictures. That much I do know. I saw other people taking photos too."

Figure 37 is an example of a hoaxed photograph of the November 7, 2006 O'Hare incident that was submitted anonymously via the internet by an individual who learned of the case prior to the completion of NARCAP's investigation. When this photo was shown to one of the primary witnesses he said that the aircraft pictured were MD-80s that United no longer flies, that the disc seen in the sky is "much too big, is in the wrong place, and is hazy."[86]

[86] Personal correspondence received March 6, 2007. A second alleged UAP photo from this date, time, and location was also visually evaluated by this witness. It showed airport lights across its lower edge; most of the frame showed an evenly gray sky with a small oval image located in the upper right center of the photograph. Printed in the upper left. and lower right corner of this photo was "*AboveTopSecret.com*" The witness said the object shown was not what he saw. It was "…too big and not enough contrast."

Figure 37. Hoaxed Photo at O'Hare

Many of these hoaxes have been revealed by sharp-eyed internet surfers who can find source photos on the internet and compare them with alleged incident photos. The picture above is actually a hoax that was resolved by comparing a photograph of O'Hare terminals found through an internet search with that of the alleged photo of the incident. It is clear that the original image had been acquired from an internet

website. The photograph was simply "reversed" and a UAP inserted, all done with the help of common computer imaging software.

Figure 38 shows the original source image.[87]

Figure 38. Original Photograph that was modified to create the Photographs in Fig. 37

Currently, per the FAA ARTCC manual, cases involving UAP profiles are forwarded to a non-investigative clearing house of "UFO" reports arising from every possible source. Then these cases are published and promoted in their raw form on the internet.[88] In the case of the O'Hare incident, there have also been at least a dozen fraudulent claims involving hoaxed photographs.

A very obvious and clearly unwanted result of this situation is that aviation facilities become bombarded by media inquiries, self-proclaimed "researchers" and "investigators" with no aviation investigation experience, as well as alien/ET chasers and an uncritical public at large. In response to this, airline management makes the decision to stifle discussion of the UAP incident and the result is a failure to gather information to mitigate a potential hazard to safe aviation operations.

Another unwanted result is the alienation of aviation personnel, who are trying to work and report within the framework of their jobs and suddenly find themselves dealing with the same issues – unqualified investigators, unwanted attention and worse. (see Section 2.2)

It is essential that aviation incident investigators follow the normal course of aviation investigations, secure the witnesses identities and their cooperation and keep the investigation closed until it is completed and they are ready to issue their findings.

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87 NARCAP thanks Seth Roberson for identifying this photograph.

88 This usually results in much conjecture and rampant speculation.

Aviation Agencies, Airlines and Airport Management unwittingly compound this situation by choosing to declare the matter to be "something prosaic" without investigating it and then closing the discussion. Only by conducting a thorough investigation while maintaining rigorous investigative standards including security and by limiting public announcements can the great majority of criticisms, rampant speculations, undue attention and distraction, as well as fraudulent claims and hoaxes be eliminated.

The aviation community must acknowledge that due to the unusual nature of UAP incident profiles, photographs can become an important part of the investigation. This still leaves investigators with the possibility of encountering authentic photos of UAP in the course of their investigations and the need to determine the authenticity of these photos, their relationship to the incident in question and the veracity of the witnesses.

When incidents involving UAP occur near heavily populated areas such as airport terminals it is entirely possible that members of the public may also present photographs of the incident which may further compound the problems facing the investigator.

In the case of "normal" incidents involving aircraft it is fairly simple to accept or reject a photograph. However, in the case of UAP there are few benchmarks to establish authenticity beyond detailed photo-analysis as the phenomena are poorly documented. Aviation incident investigators who examine UAP related incidents should consider UAP photographs in the context of the overall incident. It is unlikely that a photograph could verify or debunk a UAP incident report. What it can really do is add to the data collected and find its use or disqualification when compared with similar data and incidents.

D. Press Coverage Review

Ruben Uriarte, NARCAP Research Associate
and Richard F. Haines, Chief Scientist

The O'Hare incident has been reported extensively in the national and international press. This section presents a sampling of this coverage that began on December 7, 2006 with the first public announcement made by the National UFO Reporting Center. The first report was made by a person who is referred to here as witness D and the second for witness B. Both reports are included in Appendix G. Peter Davenport, NUFORC Director, contacted reporter Jon Hilkevitch on December 13, 2006 with details of the incident and Hilkevitch published his first article in the Chicago Tribune on New Year's day 2007. It was titled "In the Sky! A Bird? A Plane? A …UFO? This single article became the most read article on the newspaper's website and remained so for four days. Over one million page views were logged from around the world. To say that a good UFO story is still interesting to the public would be a gross understatement.

Jon Hilkevitch told the senior editor that his management was very supportive of his articles on this incident (despite the controversial subject matter) because of the huge public response that they garnered

for the Chicago Tribune. He was "…amazed at the level of interest in this subject (UAP) and how vast the field of study is." (personal communications, May 8, 2007)

Table 16 lists a number of articles in the newspaper, the internet press, radio interviews, and others.

Table 16

Abbreviated List of Published Articles

Date	Title	Newspaper/Media	Author/Comments
11-15-06	Radio interview with Peter Davenport, NUFORC	Coast-to-Coast radio	George Noory
12-12-06	Radio Interview with Peter Davenport and a witness	Jeff Rense radio program	Jeff Rense
12-25-06	UFO Buzzes O'Hare Airport!	Sun, pg. 6.	Richard Ryan
12-29-06	Interview with J. Hilkevitch	CLTV, Oakbrook, Illinois	n/a
1-1-07	In the Sky! A Bird? A Plane? A …UFO?	Chicago Tribune, pg. 1	Jon Hilkevitch
1-1-07	Airline Employee reports UFO Sighting at O'Hare: FAA Unconvinced	Associated Press	Anon
1-1-07	UFO is Reported at O'Hare; Feds are Silent	National Public Radio (Nation) All Things Considered Interview of Jon Hilkevitch	Melissa Block
1-1-07	UFO Over Chicago O'Hare Airport	Video Google	Anon
1-1-07	A UFO at O'Hare? Some Pilots Thought so	ABCNews Charleston, SC	News cast
1-1-07	UFO over Chicago O'Hare Airport	CLTV, Oak Brook Interview with Jon Hilkevitch	Anon

1-2-07	Airline Workers Say They Saw UFO: Mysterious Saucer-Shaped Craft over O'Hare?	MSNBC, Assoc. Press, 8:06 am	Anon
1-2-07	A UFO at O'Hare? Some Pilots Thought so	Associated Press, 8:06 am PT	Anon
1-2-07	FAA Dismisses O'Hare UFO	Chicago Sun Times	Staff & wire reports
1-2-07	UFO Spotted Over O'Hare, FAA is Stumped	Google Earth Community #739336	Anon
1-3-07	O'Hare UFO: Hoax or Real Sighting?	National Ledger	Jack Kramer
1-3-07	UFO Sightings	New Scientist	Maggie Mckee
1-3-07	O'Hare UFO Controversy: Witnesses Say Yes, Feds No	National Ledger	Keith W. Jones
1-3-07	UFO Sighting Chalked up to Weird Weather	Stars and Stripes, pg. 10	Anon
1-3-07	Chicago Airport UFO Discussed on CNN	CNN.com, Atlanta, GA	Juan Carlos Fanjul (J. Hilkevitch and Richard Dolan)
1-4-07	UFO Sighted over O'Hare Airport	Associated Press	Anon
1-4-07	Mystery Lingers over Chicago UFO Claims	MSNBC.com 2:33 pm CT	Jessica Bennett
1-4-07	UFO Seen over O'Hare Airport	CUFOS.org	Mark Rodeghier
1-4-07	Sighting of Disc-shaped Object Over Over O'Hare Airport, Chicago, Illinois at 16:30 hrs. (Central) on Tuesday, Nov. 7, 2006.	NUFORC website	Peter Davenport
1-4-07	Peter Davenport's Newsweek	Newsweek - Web	Jessica Bennett

Interview on O'Hare Airport UFO

1-4-07 Disc-shaped UFO over Chicago's O'Hare Airport Triggers National, International News Coverage — American Chronicle.com — Steve Hammons

1-4-07 Sighting of Disc-Shaped Object over O'Hare Airport, Chicago, Illinois, at 16:30 Hrs (Central) on Tuesday, November 7, 2006 — Coast-to-Coast Radio — George Noory

1-5-07 UFO Takes a Look at O'Hare, Retreats — AVWeb — Anon

1-5-07 Change of Subject — Chicago Tribune Web Log — Eric Zorn

1-5-07 Airline Workers Say They Saw UFO — MSNBC.com — Anon

1-6-07 Not a Bird or a Plane? — Newsweek — Anon

1-7-07 They're Here! A Purported UFO Sighting at O'Hare Gives Flight to Hopes that We are not Alone — Chicagotribune.com — Jon Hilkevitch

1.8.7 1-8-07 Airline Employees Spot UFO over O'Hare — CBNNews.com — Anon

1-8-07 UFO Report stirs Believers, Skeptics — Chicagotribune.come — Jon Hilkevitch

1.8.8 1-8-07 United Airlines Denies Reports of Saucer-like Objects — UFO Casebook Magazine No. 237, Jan. 8, 2007 — Anon

1-9-07 Hilkevitch On O'Hare 01-08-07 — Chicago Tribune — Jon Hilkevitch

1-12-07 Update - UFO over Chicago — youtube.com — Anon

1-19-07	O'Hare Airport UFO - More Information	UFOs/Aliens	Billy Booth
1-20-07	The O'Hare UFO Sighting May be Start of a 'Flap'	EnjoyFrance News	Anon
1-23-07	Pilots, UFOs and Job Discrimination	UFO Digest	Don Allis
1-23-07	Government Fails to Look into O'Hare UFO	The Exponent-Purdue	Editorial Board
1-30-07	Incidents (at O'Hare)	Wikipedia.org	Anon
2-7-07	Incident at O'Hare	Mutual UFO Journal No. 466, Pp. 3-5, Feb. 2007	Sam Maranto
2-7-07	UFOs and Homeland Security	Mutual UFO Journal No. 466, Pg. 1, Feb. 2007	James Carrion
2-7-07	The O'Hare Morality Play	Mutual UFO Journal No. 466, Pp. 18-19, Feb. 2007	Stanton Friedman
2-9-07	The Reality of Recent UFO Sightings	livescience.com	Benjamin Radford
2-15-07	The Truth is Out There - Strand Columnist Anthony Marcusa & Lauren Mc Phillps Ponder our Existence in the Universe in the Wake of Recent Unexplained UFO Sightings	thestrand.com	Anthony Marcusa Lauren McPhillps
2-17-07	Chicago Phenomenon Rekindles UFO Debate	tcpalm.com	Don Almentano
2-25-07	Unsettling Unidentified Incursions at O'Hare	Providence Journal	Leslie Kean
2-25-07	For Many at O'Hare it was a UFO, For the FAA a 'Hole-Punch Cloud'	Sacramento Bee	Leslie Kean

3-1-07 Aviation Investigations and Responsible Information Management NARCAP Web Site Ted Roe

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The number of reports submitted to the NUFORC website[89] each week in October, November, and December 2006 were counted (as of April 10, 2007) in order to see whether the widespread publicity afforded to this incident might have caused an increase in the number of NUFORC reports only for Illinois during and after November 7, 2006. As is shown in Table 17, this was not found to be the case.

Table 17

Number of Reports Made to NUFORC
(Bold line indicates week of the O'Hare incident)

Week (2006)	No. Reports for Illinois	No. Reports for USA and Canada	Percentage of Illinois Cases
Oct. 1 - 7	1	109	0.9
Oct. 8 - 14	0	69	----
Oct. 15 - 21	3	60	5.0
Oct. 22 - 31	4	94	4.3
Nov. 1 - 7	**6**	**60**	**10**
Nov. 8 - 14	3	71	4.2
Nov. 15 - 21	1	75	1.3
Nov. 22 - 30	2	128	1.6
Dec. 1 - 7	2	73	2.7
Dec. 8 - 14	4	76	5.3
Dec. 15 - 21	2	82	2.4
Dec. 22 - 31	4	76	5.3

The fact that the whole subject of UAP is fair game for the entertainment field is illustrated by the TV program "Boston Legal" written and produced by David E. Kelley that aired during the week of February 19, 2007. Facts from the O'Hare incident were used in an interesting way that included a courtroom scene at which an ORD tower controller was subpoenaed to testify. It's likely that such dramatic portrayals

[89] www.nuforc.com

contribute to the fears professionals already have about this subject, making it even harder to get them to cooperate in legitimate research such as NARCAP is carrying out.

E. Other Ground Observer Reports of UAP in the Area[90]

E.1 Interview 1 with Ms. J.H. (February 6, 2007)

Sam Maranto, MUFON, Illinois State Director[91]

The witness was turning off Mannheim Road into O'Hare to terminal five when she first noticed the object in the sky. Figure 39 shows an aerial view of the area involved. Mannheim Road is the yellow road on the right side running to the north.

[90] The testimony in this appendix includes two telephone interviews (E.1, E.2) between Sam Maranto, MUFON investigator and Illinois State Director and Ms. J.H. a 52 year old female alleged eye witness to this event They took place on February 6, 2007 (82 minutes duration) and February 22, 2007 (approx. 50 minutes), respectively. The BLOG entries in E.3 were submitted to the *AboveTopSecret.com* website on January 26 and 27, 2007 by Ms. J.H. and another set of BLOG entries (E.4) were submitted to the same website between January 14 and 17, 2007 by an anonymous person named "Ramp Agent X." .

[91] Bold numbers were inserted in the following interviews by the Senior Editor to mark key details that are related to testimony given by other witnesses in this report. Concerning the credibility of Ms. J.H., Maranto stated, "I am certain not only of her authenticity but the accuracy of her account of the event." (Personal communication, April 9, 2007). Nevertheless, Ms. J.H. was interviewed earlier by Mark Allin, (*AboveTopSecret.com* director) and Linda Moulton Howe so it isn't possible to accurately assess the likelihood of prior leading or biasing here.

Figure 39. Aerial Photograph of O'Hare Airport Related to Witness Testimony Provided by Ms. J. H.
narcap#18_MsJHroadpath1.jpg

Sam: So tell me what you observed last November 7th at O'Hare.

J.H.: When I first spotted it it was straight ahead of me slightly to the left[92] and just sitting there and it had this odd quality about it reflectivity. It didn't in any way look like a plane. It seemed very much to adsorb and take on the colors of its surrounding. The top of it really… you can tell was independent of the sky but it did kind of absorb the color of the sky. The bottom of it not only was shadowed but to some extent was reflecting the darker ground. So from more underneath it really looked a dark gray. If you'd seen it more from the side angle it had this almost opalescent effect. It is so hard to describe. There is not a material that I can think of that really looks like it. I even wondered… my first reaction was this must be metallic but the, I have this moment where I thought it was like, maybe it's ceramic of some sort? Because it has, almost has, this…fuzzy opalescent quality to it. Not mirror-like reflection yet able to reflect but it didn't seem like a mirror-like metallic hard metal surface. It was awful but I have to say when I saw the reported "cell phone photograph".
Sam: "Yes".

J.H.: I'd have to say it really looked like the thing. I know I was seeing it at an angle …well what I did when I saw it from the road, I was like "Oh my god we have to get to a parking lot really quickly." At first my friend didn't see (it). Then when it got to the point that she saw it too she said "We've got to get to the parking lot really quickly" so we turned into the International Terminal and parked at the first place we could park.

Sam: Now you saw it? You weren't responding to other people's reactions?

J.H.: No. No. No. I did see some other people on the road who obviously saw it and had digital cameras or cell phones I couldn't tell you which because I was in the middle of rush hour traffic so I did see people trying to take pictures. Then there were a number of people looking over that way. The sad thing is most people were focusing on driving, so they may have not seen it. Then we got into a place where we could park and got out. Most people you had to point it out to them but some people had already had done that. It took about two or three minutes for you to park. It was still there at that point. We stood there and pointed it out to people. We ended up with a group of about seven people all together standing with us watching it. One fellow had a digital camera. He was taking many pictures. That much I do know. I saw other people taking photos too.**[1]** My concern is that from as faraway as we were, that people with cell phone photos for example, that things may appear further away and it may be only a pixel or two and they might not even really think they have anything. Whereas with a good photo program. Now that I've talked to Jeff and everybody now I have some respect for what can be done with photos that look like they haven't really captured anything. In part my whole point coming out is that I

[92] It is difficult to reconcile this statement with Ms. J.H. driving north on Mannheim Road if the UAP was located above gate C17 which is almost due west of her at that time. Perhaps the object had not yet arrived above gate C17. This possibility is strengthened by an earlier testimony presented below in Appendix E.3 (BLOG entry 1. 27 at 19:27) where she said that, "When I saw it from Mannheim, it appeared much paler, but as I moved closer to underneath it it darkened."

saw people taking photos, I know there are photos out there; yes they may be taken from a farther distance - but they still can be of value. We didn't have binoculars with us but my friend had her reading glasses. We were actually adjusting our arms and looking at it through that. You knew even with the naked eye that it was something kind of oval, disk shaped. Not as hard edged as the stereotypical disk, it seemed to have a counter clock wise spin going on. If there was wobble it was so fast that this may be that was what was causing that fuzzy quality?**[2]**

Sam: So that fuzziness was like a distortion around the edge?

J.H.: There was a distortion in the immediate sky area very close up to it but a visible distortion **[2]** which I could see when I looked at it through the reading glasses.

Sam: How long did you observe it? Do you feel you witnessed the whole event?

J.H.: I must have. It was thirteen or fourteen minutes all together.

Sam: Were you viewing it from different perspectives or were you stationary in one spot?

J.H.: From the road and when we pulled into the International Terminal and pulled over. So I did see it basically from two different places which would put it up in the area of the runways to the farthest south at O'Hare the longest runways that run from Southwest to Northeast. It would put it down in the neighborhood of not quite the end of that maybe up a concourse a little from that.

Sam: So that area of concourse C does make sense?

J.H.: Yes, it totally makes sense.

Sam: Did you see it move lateral at all or only hover?

J.H.: Well here's the deal, there were times when I thought there was little movement. But for the most part I would have to say it was mainly still. If it moved laterally at all it was very little.

Sam: OK

J.H.: And very slowly. Though I was trying to pay attention to the object I was also looking around to see how many people were also seeing this. Where we were if you didn't know that it was there you probably wouldn't notice it **[3]** but once you did notice it, especially if you had reading glasses, binoculars, or a camera where you can zoom in, then it was really compelling.

Sam: Was there any other objects in the sky that can give you a reference of size?

J.H.: No but it seemed to me …I'm somebody who has been around planes a lot. My dad was a Naval carrier command crew officer. I lived on Naval air stations. I am from the Washington D.C. area originally and there is a tremendous amount of air traffic around there. It has been that way since my

childhood. I know planes, how they look, how they move. I'm not a person that is inclined to panic. I'm just very observant. I was a reporter for a number of years. When I go into observer mode I try to remember everything so later when I am sorting through I have a really coherent set of thoughts. That is also why I was watching other people to see how many people are watching it, how many are photographing it, their reactions to it, and do they really know how odd this is.

Sam: So how many people did you actually see that observed it and how many took pictures?

J.H.: It would have to be several dozen people saw it from where I was. As far as photographing it there had to be at least half a dozen, possibly to a dozen. The one fellow that was standing with us took a tremendous amount of photos. Again I don't care if it was a bad digital camera he had to get images. Something could be done with it. A number of people too because it was the international terminal and god only knows what country they are from and may have taken them with them and may not have even heard about the sighting that others had seen it also and it had become somewhat of a big deal. One of the questions I had asked at *Above Top Secret*, "Here we have people from all over the world but how many of you heard about it from some place other than a web site?" The point being is, not everyone gets their information from the internet. So how many people heard about it on their country's news? I don't get the Chicago Tribune so I didn't know about it until I stumbled upon it online. It was on one of my regular news sites. I don't know if it was on MSNBC News where this article shows up. Not knowing that it had gotten any attention, my friend and I were talking non-stop about having seen it. For her it was the first unusual thing she had ever seen so she was going though the entire process of, you know, "What was that? What could it be? What did I see?" So we had talked about it a tremendous amount.

Sam: How far were you from the C concourse? Do you have any idea where that is because you were in the international terminal, right?

J.H.: Yes. The international terminal, number five, may be a quarter mile maybe around in there. I really figured because I certainly had seen planes that day in the same vicinity. It was smaller than conventional plane I was putting anywhere from twenty five to thirtyish feet.**[4]**

Sam: How would you describe it height wise? Did you get an idea of height?

J.H.: Well again it was at a slight angle to me so it was leaning to the left from my perspective. I was seeing some of the side view but also some of the bottom. It looked from my angle not as severely shaped as a freebie. I compare its width to its height. It seemed a little fatter a one to three ratio. For example, if it was twenty-five feet wide it would probably have been six to eight feet tall.**[5]** It wasn't like the stereotypical disk where the edges were really sharply put together. It seemed to be more rounded towards the edge than that.

Sam: So it was a little plumper?

J.H.: Yes, and that was something I was trying to analyze. Am I seeing that (it) is more disk shaped yet because of the angle it is to me it's looking more oval or am I seeing something fairly oval? When the

thing took off. It sort of angled just slightly in my direction. That is when it looked the most disk like. Again I was seeing more of its bottom than its side. It stayed at this angle during the whole interlude.

Sam: Now when it took off did it go straight up or was it at a bit of an angle
(This was disclosed by the witness earlier. I am not leading the witness.)

J.H.: Very slight angle towards me and to my left very slight angle.**[6]** I think anyone standing close to it may very well have concluded that it would have (been) seen as (going) almost straight up. Where we were we could see the side ways motion and tell it was coming towards us a little.**[7]** It went from a dead zero to just god only knows what instant velocity …I mean it just went!**[8]** People gasped and some people totally squealed and it just took off. Because at that point it was kind of coming towards us a little and I think that is what freaked everybody out a little.

Sam: How, when it moved, and it may be hard to see, but was there any change in the color?

J.H.: No.

Sam: Now when you saw it go through the clouds did you see that hole appear or remain? (Not leading the witness this was disclosed voluntarily by the witness in a prior conversation before this recorded interview.)

J.H.: I could see the hole. I couldn't see up into it. A tight elliptical hole from my angle just about the size of the thing, it wasn't a huge hole but you could see that it had punched a hole in the cloud.**[9]**

Sam: Now when you were noticing people around you did you see by any chance drivers getting out of their cars or sticking their heads out of their car windows?

J.H.: You know, from were I was, you couldn't see a single taxi driver. I parked away from the terminal itself. I parked at the first place I could park and watch it. Because it was so low there was (sic) some buildings there so I didn't want to park on the side by the terminal because the terminal might be in the way.[93] After it left we had to park closer to the terminal. The people who would have had the best view of the hole would have been those working or closer to that concourse. Yet every one could have told you they saw it even though it was kind of subtle from our perspective. Everyone around us surely pointed it out. "Look, it punched a hole in the cloud," they were saying. You would have to have been much closer to see blue sky through it. Cloud cover wasn't that thick that day it was just low.

Sam: The FAA was trying to depict a night environment. What was the light condition at that time?

J.H.: It was a gloomy day there had been sprinkles but it wasn't anywhere near dark out yet. **[10]** There was plenty light enough to know what you were seeing, to the point that there was a pale reflection nearly white on the top of the craft and that was the color of the clouds at that time.

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[93] This assertion was verified by angular calculations. If the UAP was at an altitude (AGL) of 1,438 feet it would have been at an angle of only about 15 deg arc above the local horizontal.

Sam: So it was lighter on the top?

J.H.: Yes, but you knew it was the reflective property but it didn't seem like a hard mirror reflection. It seem a buffed metallic or even a ceramic just something that could reflect the intensity and quality of color.

Sam: Give a cross comparison to conventional military craft.

J.H.: I've even been around stealth bomber, the vertical take-off and landing jets… it was nothing like I had ever seen. It had no airfoils. There may have been an area on the bottom that was dropped a little though that may have been the effect of the wobble.

Sam: Slightly protruding?

J.H.: That was something I wasn't a hundred percent sure of. It had no wings. It had no rotors. It had no obvious means of propulsion. It (had) nothing that would distinguish it to be of our current technology or cutting edge technology. That is, unless you go perhaps deep into black ops. It was nothing that we have that we know of.**[11]**

Sam: Anything conventional just doesn't fall into play?

J.H.: No! It very obviously had means of propulsion that we don't know of. There were no downward facing engines for thrust (that) I could see (on) the bottom. There was no place for exhaust to be coming from and no visible air column that would keep something hovering.

Sam: Just to reiterate. The total length of time of the observation?

J.H.: Between forty seconds and a minute for the first observation. Then in the parking lot let's just say about ten minutes.

Sam: So when you got to the parking lot there were people already looking at it?

J.H.: Yes, and you could see groups of people, of maybe two or three people, that may have been traveling together. Though it was so low on the horizon most people don't go along looking in the sky. I believe those in the lot may have also originally seen it from the road on the way into the lot. There were several groups of people looking at it just in that lot.

Sam: Did you engage in conversation with anyone else?

J.H.: Just as our little group was breaking. You know everyone got kind of quiet. Even in the terminal we heard people discussing it.

Sam: Did you see security reacting to this?

J.H.: No! But I wouldn't have seen this because where I parked there is never a security presence out there. You never see as much security there at Terminal Five as you would at other parts of the airport. What I wish I'd been more observant to or had stuck around for was the supposed military aircraft that had supposedly come in. I'm kicking myself for that. It would have held some water if the military had responded to the event.

Sam: Do you know if they held back air traffic?

J.H.: Yes. There was a noticeable change in air traffic during the event and this is the busiest time of the day.

Sam: Did you see any small plane just too low enroute that may be being moved back or diverted?

J.H.: You know, I didn't notice if anything like that had happened or not, at that point I was so focused on observing the object. Though there were planes taking off. But not from that area.[94] The entire time I was watching it nothing took off from that area.

Sam: How much quicker in a comparable distance did this object move in reference to a conventional plane?

J.H.: There was no comparison whatsoever. This thing went from hovering to gone. I mean gone so fast that it made people gasp.**[8]**

Sam: As a percentage of the observable sky from the tops of buildings to the bottom of the cloud cover where would the object have been?

J.H.: Well it looked like the cloud cover had to have been between fifteen hundred and eighteen hundred feet. My guess is it would have to have been between three hundred and four hundred feet below that. The impression of the speed was, well usually, something has to get up to a running start. This thing went from not in motion to "Oh my god that thing's gone!" In a blink that it took, you could conclude that even in a few seconds this could be very far away. It was just an unbelievable speed generated in no time flat.**[8]**

Sam: Since that time you have talked to Mark? (i.e., Mark Allin from *Above Top Secret*- Internet *BLOG* / Website)

J.H.: I have to give these guys credit, I read through the entire some seventy pages of thread at that time and decided to talk about this because there were people out there with photos that have not been heard from.

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[94] If accurate, this assertion might suggest a possible departure delay on runway 32L since, of the three departure runways active at the time (viz., 32L, 32R, and 22L), it is the only runway lying directly beyond her line of sight to the west. Nevertheless, no official records of departure delays could be found. But, takeoffs do not necessarily occur on a regularly timed basis from all runways which could explain her observation.

J.H.: I had actually thought this thing was going to land. My friend said, “everything is going to change." How I hope she was right.[95]

E.2 Interview 2 with Ms. J.H. (February 22, 2007)

Sam Maranto, MUFON, Illinois State Director

Sam: Did you ever experience anything quite like that before?

J.H: My father had trained me in this way, because he had actually had UFO sightings when he was in the military. He said, “People don’t even report it…its too much hassle. They would have to change the log books and everything.” He always wanted me to be astute and observant. I have seen anomalous things in the sky and I don’t say anomalous lightly. Again, I can identify so many different phenomena. What is interesting is that I even have experience with lenticular clouds because I used to do high mountain climbing. I have seen a million of them. (a manner of expression)

Sam: So you had to have laughed when people were saying that it was a lenticular…

J.H: Please, Please, yea I can’t tell you how many lenticular clouds I’ve seen hovering over O’Hare then punching a hole in the cloud cover. Weather phenomena? It was very obvious! It was very obviously NOT clouds! It was very obviously a solid object! It didn’t change shape in any way. It obviously wasn’t a balloon that would be subject to the wind. It didn’t move with the wind. This was very obvious …it was a daytime thing . It wasn’t lights acting unusual in the night. This was just a very blatant daytime sighting. **[11]** And no, it wasn’t so dark out that we could tell what we were seeing…not at all, not by any stretch!

Sam: With that in mind were lights on, do you recall?

J.H.: It had no lights on. (referring to the object)

Sam: Was the area illuminated with lights?

J.H.: No! It was light enough that the main airport lights had not come on.**[10]**

Sam: So the whole concept (notion) of them saying that it was dark out…

J.H.: No they didn’t even have the airport lights on… that’s just bullshit.

Sam: Now how many people came back in your car?

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[95] Maranto wrote, "I had at this time invited her to consider coming forward in a Local Fox News piece that I was helping with. Her apprehension was warranted as the news piece was spun into garbage."

J.H.: Three.

Sam: Now the friend of yours that is a pilot did he get engaged in conversation at all?

J.H.: Yea we were talking about it and asking him and that's when he said, "Now that makes sense." Because when he got inside (the terminal) somebody had said, "did you see anything unusual." Now that's unusual that anyone would say that.

Sam: Who was it that was asking?

J.H.: It was one of his airline people. So if nothing else that kind of indicates that word has been passed … because he doesn't work for United.

Sam: I See.

J.H.: So that kind of indicates that word has certainly spread to American-Airlines. At least to actual ramp people.

Sam: Now since that time have you talked to him?

J.H.: A couple of times, Yes. He is one of the people who has encouraged me to go forward with this.

Sam: Did he uncover anything in the mean time?

J. H.: He hasn't heard anything yet. He really doesn't have any connection with anyone in ATC at O'Hare or anything like that. Since he works at a different airlines he doesn't have a connection with the United people. He did say that he was going to get some feelers out to see if any people at American Airlines saw this. As I said we both found out about it on November seventh but people simply were not talking about it. Except apparently the people who worked for United who were just told to shut up. They were just trying to press forward saying, "Hey, look, I know what I saw." Outside of that, he hadn't really heard anything.

Sam: Here's one for you. Did you notice how many security cameras are around the airport?

J.H.: Not just in the airport but everywhere. That concourse area, all of the ramp areas including the mechanic area that surround this spot. I can't help but think a heck of a lot of people had seen this just in that area alone.

E.3 Selected *BLOG* Postings by Ms. J.H.[96]

Richard F. Haines

All of the following *BLOG* entries are from a Ms. J.H. According to the *AboveTopSecret.com* website, she entered the *BLOG* site on January 26, 2007 posting seven entries and another twenty by the evening of January 27th. Some of her comments are included in this section for their possible relevance to this analysis. All of her *BLOG* entries were made more than a week before Maranto's interview with her which affords them some degree of precedence in terms of their accuracy and authenticity of details. These *BLOG*s clearly indicate that Ms. J.H. took her sighting seriously and wanted to share her experience with others.[97] All of her entries are available on the internet at: *AboveTopSecret.com* and are not repeated here.

Because some of her *BLOG* entries contain useful background data that adds to an understanding of this event and also adds credibility to her testimony selected comments from them are included below. It is interesting to note that her first two submissions took place within an hour of each other; the first elicited two responses (from: *fooffstarr*, who subsequently submitted at least four more comments/questions to her and *roadgravel* who subsequently submitted seven others) to which Ms. J.H. replied in her second *BLOG* entry. The psychological and sociological dynamics of "chat rooms" is not of interest here except to say that Ms. J.H. appeared to be highly motivated to try to answer the questions of many different people. One can almost hear the excitement in her "voice" as she tries to give answers - in some detail - to questions other *BLOG* participants asked her.

In the following entries the first bold number is a sequential number for sake of convenience in referencing while the second bold number is the original sequential number assigned by Mr. Allin at the *AboveTopSecret.com* website. The senior editor has merely deleted from particular *BLOG* entries details he felt were not directly relevant to an understanding either of the UAP or the credibility of the alleged witness. All underlined text is added by the senior editor for emphasis. A number of her entries are copied in their entirety to help establish her general frame of mind and key details that she felt were important.

1. 27 -- Eyewitness posted on January 26, 2007 at 19:27 single post **(Complete Version)**

Well, into the fray I go...

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[96] NARCAP acknowledges Ms. J.H. as owner and the website *AboveTopSecret.com* as co-owner of the information at <http://www.*AboveTopSecret.com*/forum/thread236709/ >.

[97] According to Mark Allin who spoke with Ms. J.H. at length soon after January 27, 2007, he found her to be sincere, well educated, and very credible. (personal correspondence, April 23, 2007)

I saw the ORD UFO. I first sighted it while at the intersection of Irving Park Rd. and Mannheim Blvd., and again for just a bit[98] when I got to the parking lot of the international terminal. I was picking up a friend, an American Airline cockpit officer who was flying in from Charles de Gaulle International Airport. His plane, scheduled for a 4:55pm arrival time, was delayed because of the object.

The ostensible cell phone photo could have been the object, in that the UFO's perceptible coloration did alter somewhat depending on the viewer's angle. When I saw it from Mannheim, it appeared much paler, but as I moved closer to underneath it it darkened... my impression is that it was highly reflective, with the upper part mirroring the lighter sky and the underneath mirroring the darker areas (as well as being naturally shaded). "Mirroring" is actually an awkward word, as the "texture" of the craft didn't seem highly polished, but it's the only word I can think of that somewhat applies. I do know that there are other photos, as I saw a fair number of people, even several on Mannheim, take photos with cell phones or digital cameras.

It was definitely an object, not a lenticular cloud or any other weather phenomenon. At its closest, it was no more than a quarter of a mile from me, and I saw it fly off. It was very clearly a controlled craft of some sort. There were no lights in use on it at that time.

roadgravel, the winds were light that day... too light to require any directional TO [takeoff] or landing alterations.

nextguyinline, purduejake actually posted the sighting information, as an eyewitness, the day after the sighting on a local democratic forum... months before the Trib [Tribune] heard of it.

amongus, the weather that day would match the photo, and there were still many green leaves around... my leaves in NW Indiana, 40 miles from O'Hare, didn't fall until after the snow in late November. In fact, the weather had been ridiculously warm up till then.

I'm willing to talk with the moderators of this forum, either online or by phone. I'm not willing to give my name and information in an open forum, but I'll be glad to answer questions. For the record, I'm a 52 year-old woman, former radio news anchor and reporter with an ABC affiliate, former chef and restaurant owner, with many hours in the air and experience with many types of aircraft. This was nothing conventional, and I frankly doubt whether it was something manmade.

Again, to the moderators --- please email me if you wish more information... this truly was an amazing sighting, given the proximity and the location, and I hope the truth emerges. I do encourage all with photos of the craft to release them --- I think there are far more credible

[98] Elsewhere she states that she watched the object for approximately ten minutes at this location (cf. E.1, and #8). This particular intersection is visible on Figure 39 in the lower right corner where the two yellow roads intersect.

photos out there than this one.

2. 26 -- Eyewitness posted on January 26, 2007 at 20:25 single post **(Complete)**

fooffstarr... yes, I imagine I will get a bit of hassle about posting, and it's taken me a few days of reading the full thread (and a devil of a lot of peer pressure from the friend who was with me and also saw it) to step over the edge of obscurity, lol. But this, to me, is a terribly important sighting, in part because of the mainstream media coverage. And as for how it impressed me --- I bought an 8-megapixel digital camera the very next day, and I don't leave home without it. That's a heck of a chunk of change to spend over a "weather phenomenon."

roadgravel, I haven't taken the time to try to make sense of where I was versus where the main terminals and concourses were, but I could indeed see it from part of the international terminal lot... if someone wants to do up a tighter map area that shows Mannheim and the international terminal and parking area, I can pretty well determine from that exactly where it was when I saw it from there. I watched it for a number of minutes from the parking lot, as did more than a few other people, although it did generally need to be pointed out, as most people walk around with their heads sort of down, or eyes focused on their destination. By the time it took off, there were six other people standing there with me watching it, plus others at other spots in the parking lot.

3. 25 -- Eyewitness posted on January 26, 2007 at 21:29 single post **(Complete)**

Jbird, when I told the friend I was picking up what I'd seen, he told me that that made sense, given that he'd been asked by the tower if he had "observed anything unusual" while holding. I'm admittedly surmising that the hold was put on because of the UFO, but there was a sudden and marked difference in the number of planes coming in for perhaps the last ten minutes of the sighting duration (while I was in the parking lot).[99] I frequently meet my friend's flights, and am very accustomed to the usual traffic at ORD at that time of day.

I did see it leave. It didn't go quite straight up, and from my angle I couldn't see blue sky at the top of the hole... but it surely did leave a hole, and it went from no movement to incredible speed in a split second... no noticeable acceleration, just gone. And no sonic boom. If I've got my own position in the parking lot adequately judged, it did angle up in an eastwardly direction. I'm in the process now of trying to locate it exactly, which I should be able to do, having seen it from two locations.

Skyway, you know, I'm indeed tentative on my ID of 00000000's photo... on the one hand, I can see where it would appear that way at a different angle, and I can even justify it not being centered (from my understanding, the copilot or pilot who took that shot opened his side window and stuck

[99] This assertion is not supported either by inbound or outbound ground control transmissions between 3:55 and 4:55 pm CST. A ten minute delay in takeoffs and/or landings at this time of day would have been clearly apparent in airplane taxi activity.

his cell phone out, and those windows aren't very conducive to much more than a quick shot at an angle). But the same object did look darker when I was more beneath it than it did when I was viewing it at a more sidelong angle from Mannheim. What I do know for sure is that a number of people in the parking lot photographed the object, and I encourage them to release their photos.

4. 24 -- Eyewitness posted on January 26, 2007 at 21:59 single post **(Complete)**

Skyway, it was when I was heading north on Mannheim that I got the best sidelong look at it, and it did look quite a bit like (I so hate to type this, lol) the ostensible cell phone photo --- evenly ovoid, overall lighter gray, a bit too distant to make out any features, if indeed features there were. From the parking lot, though, I was closer, but at a more underneath vantage point than a sideview one... from there, since I could still see it somewhat from the side but could see the bottom better, and it looked a little more disklike from the bottom, but there was enough sideview to see that it was a bit "higher" than the stereotypical flying disk... a little thicker than a Frisbee proportionately, in other words, and with much smoother curves. I saw no features whatsoever --- as I said before, there was something about the texture that halfway perplexed me, because while it seemed by its shading almost reflective, it didn't really seem to have a mirror like surface. Words really do escape me at some points regarding this, and I'm fairly well a walking dictionary, so that's noteworthy.

As to how I felt when I saw it --- initially on the road I was curious and a bit excited by it, because it was fairly apparent that it was something quite different. When I watched it from the parking lot, there was simply no doubt in me that I was seeing, under practically ideal circumstances, a craft that was under control, that was capable of moving in ways that would, with normal (known) technology, cause a human body quite a bit of discomfort, if not broken bones, and that it was, in fact, extraterrestrial in origin. I really thought it was going to land, and the friend who had ridden to the airport with me said at one point "This will change everything." Emotionally, part of me wanted it to come down fifty feet from me, and another part of me wanted to run and hide. Not very scientific-minded of me, granted, but it had that effect.

5. 23 -- Eyewitness posted on January 26, 2007 at 22:24 single post **(Complete)**

JBird, yes, sorry, less than the usual number of planes during the last minutes of the sighting.
In the parking lot, when first seeing it people made comments, but we were mostly all rather dumbstruck after the first few moments of watching, because for a number of us it wasn't a superquick glimpse, it was an ongoing and static sighting, with a realness to it that basically just shortcircuited your speech center. After it swept up and off, no one near me even said anything like "What was that?" It was difficult to find words. My friend and I reparked (I'd parked a bit far from the terminal entrance to continue watching the object) and each recounted to the other exactly what we'd just seen... I think it must have been sort of our reality test. We've discussed it every single day since then. My friend on the incoming plane said he would nose about a bit to find out more if possible, but he's not a United pilot, nor is he based in Chicago, so I'm not sure how much he'll reasonably be able to learn.

6. 22 -- Eyewitness posted on January 26, 2007 at 22:25 single post **(Incomplete)**

I didn't feel anything unusual until around the time it left, and it was such a quick sensation that I wasn't quite sure what to make of it... sort of a skin-tingle, but truly so light that it easily could have been fear rather than a genuine physical effect... although I don't tend to be especially fearful by nature, and am generally quite level even in bizarre circumstances.

7. 21 Not Included

8. 20 -- Eyewitness posted on January 27, 2007 at 00:07 single post **(Incomplete)**

Hal9000, lol, . . .As to my writing style, well, I was a reporter and news anchor once upon a time, so it behooved me to be able to write lucidly and in detail. Basically, though, much of this is difficult to explain or define, especially when it comes down to how it made me feel. It made me feel some things I've never felt before, and it's hard to come up with words for those feelings. But I'm doing my best to answer the questions put to me, and the delays have only been due to several prolonged conversations with several people who operate this forum... I've given them my name and phone number, and I think they're finding me a highly credible witness.

As to why more witnesses haven't come forward to discuss this sighting, in part it's because it didn't even make the news here for a month and a half. We were surely talking about it on at least one local forum (where purduejake first mentioned it on 7 November, the day after the sighting). Once we learned from the Tribune article about the forum where purduejake (an airline employee who saw the object) posted the sighting on 7 November, the day after the sighting… up till then, though, I had no idea that anyone had posted the information anywhere, so I just discussed it with friends, which is what I assume other witnesses were doing, too. Since I didn't have photos, I wasn't really sure what I could do... wasn't sure that simply telling what I saw would be of much use. It was mostly at the insistence of friends that I decided to write this forum... and this is the only thread on this forum I've visited. . . .

Fiverz, granted, I was paying more attention to the sky than to the parking lot, but there were easily several dozen people watching it at various points. I watched it in the parking lot for about ten minutes, and pointed it out to a few people, who stood with us and watched until the object left. I did see a number of people taking photos, both with cell phones and with digital cameras, of the object, and a large part of my purpose in talking about this is to help persuade them to release their photos.

I first saw the object when we were just north of the intersection of Irving Park and Mannheim, for less than a minute. After we reached the parking lot, we watched for approximately ten minutes, until it tore off out of there.

9. 19 -- Eyewitness posted on January 27, 2007 at 00:14 single post **(Complete)**

apc, the object had an odd visual effect to it... the sort-of-mirrorlike-yet-sort-of-"fuzzyish" quality... but I did think it was rotating rapidly and counter-clockwise. There was a vague visual effect that seemed to

indicate a spinning motion and a slight disruption or distortion of the air very close to the object.

10. 18 -- Eyewitness posted on January 27, 2007 at 00:55 single post **(Incomplete)**

Fiverz, it's exactly because I used to be in the news racket that kept me from reporting it to the papers or to television stations --- and it pretty much played out that way locally, with the usual assortment of flakes being interviewed and the story being treated lightly. I have tried to contact the reporter at the Tribune and expect to speak with him soon. If I'd had photos, I would have been more forthcoming about it, and would have sent copies of them to a print reporter, but I frankly expected dozens of photos to hit the papers quite soon after the incident, and when they didn't that both surprised and silenced me for the time being. I did contact several UFO reporting agencies to see if they'd heard about the sighting and to see if photographs had been released to them, but at that time there were no official reports (there had been several others who had contacted them as I had, but without filing official reports), and no one had sent in any photographs. Again, it wasn't until the Tribune story came out that I realized that there were, at least, other witnesses coming forward (even though they were anonymous), and I didn't discover this thread until quite recently... then I spent a number of spare hours reading this to get up to speed and to ascertain if this was where I wanted to go semi-public. I do believe more people will come out with their stories and with photos . . .

11. 17 -- Eyewitness posted on January 27, 2007 at 00:36 single post **Incomplete)**

fooffstarr, . . .After the sighting, we just moved to a closer parking space[100], went inside the terminal, collected our friend, and left. As to whether or not I'll disclose my identity fully in public and decide to raise havoc with the FAA and/or United, I'm really not sure yet... it probably depends on whether more photographic evidence is released, because while I can't provide photos, I can surely identify likely real ones and probable hoaxes.

12. 16 -- Eyewitness posted on January 27, 2007 at 00:28 single post **(Incomplete)**

Atomic, there were more than fifteen people watching it just in the parking lot where I was... so the corroborating evidence can come from more than just airline employees. There are a lot of people out there who haven't come forward yet, and just from the amount of photo-taking I saw, there are a number of photos that haven't yet been released.

13. 15 Not included.

14. 14 -- Eyewitness posted on January 27, 2007 at 01:42 single post **(Incomplete)**

Watcher777, I heard no noise that seemed to be coming from the object... nothing other than traffic, plane engines, etc.... there may have been sound to it, but if so, it wasn't loud, either when it was "parked" or

[100] This probably refers to a more westerly side of the parking lot nearer Terminal Five.

when it took off.

15. 13 -- Eyewitness posted on January 27, 2007 at 01:10 single post **(Incomplete)**

Atomic, . . .by the way, I have a very hard time believing that no one in the tower saw the object as it was... now, granted, air traffic controllers are more screen-bound than naked-eye-oriented, but still, the object was present for at least 13-14 minutes (that's a very close estimation of how long I watched it, from the first sighting on Mannheim until it took off when I was in the parking lot), and even without a radar return, that's plenty of time for the tower to have been notified by the pilots who saw it and had radios handy, and perhaps even by other airport workers and/or their supervisors.

16. 12 -- Eyewitness posted on January 27, 2007 at 01:42 single post **(Incomplete)**

Atomic, it "tore off" out of there extremely quickly, and did indeed punch a hole in the clouds. It left at a slight angle, slightly easterly.

JBird, . . . when I was on Mannheim it was in an 11:30 position, as in ahead and slightly to the left of me[101] (basically NNW), and when I was in the parking lot I was facing more WNW...

17. 11 -- Eyewitness posted on January 27, 2007 at 20:00 single post **(Incomplete)**

Hi again... I sent the lovely, talented and ever so sweet jritzmann my best guestimate of my positions and the UFO's position, as well as takeoff direction, marked... will try to answer a few questions now.

fooffstarr, I thought that photo (the Dulles area cloud hole) was worth mentioning, too... verrrry similar, indeed, except that the ORD one was fairly straight up, and slightly angling towards me and left) --- the Dulles cloud hole seems nearly perpendicular to the ground. But suffice it to say, after what I saw at O'Hare, it wouldn't exactly shock me to discover that some-one? -thing? was snooping around yet another airport.

1. 10. Not included

19. 9 -- Eyewitness posted on January 27, 2007 at 21:17 single post **(Incomplete)**

Skyway and roadgravel, I couldn't really see the runways where I was, because there was a low building between them and us, but knowing the airport somewhat I actually figured it was up at the far end of the

[101] As Figure 39 indicates (showing the route Ms. J.H. took to the airport) gate C17 is considerably farther to her left side from virtually any place along Mannheim Road. Does this fact suggest that she saw it in a different location before it hovered over gate C17 or that she made an error in direction here? A photograph published as part of an interview with Ms. J.H. on <earthfiles@earthfiles.com> entitled "O'Hare UFO Eyewitness Says Disc Spun Counterclockwise" also suggests this.

main runways near the terminal and concourses there, which would indeed put it in or quite close to the position jritzmann has located it on a satmap of O'Hare. He didn't show me that map until after I had already given him all my information as to personal identity and sighting particulars… but I'd say basically that it was slightly to the SE of the southernmost runways... those runways angle up in a northwesterly direction, somewhat up towards where I was watching... it did angle in the direction the runway goes, but only slightly off of vertical.

I am a bit directionally challenged, and am trying to remember compass directions based on jritzmann's map, so I actually might confuse things compasswise from time to time.

20. 8 Not included

21. 7 -- Eyewitness posted on January 27, 2007 at 21:20 single post **(Incomplete)**

roadgravel, . . .I think I already may have goofed up SE for SW for the direction of the object.. it was close to if not over the terminal area that's at the end of the runways that go from the SW edge of the airport and angle up somewhat northeasterly. Part of my problem is that the map I used had N at an angle on the right hand side, and I can't turn my monitor sideways, and it's frustrating the heck out of me. From where I was as I came into the airport area (I was coming from the east), the object was almost directly ahead of me --- sort of at an 11:30 position, if you know what I mean. At that point I knew it was in the vicinity of that southerly runway, probably up towards the end of it... in other words, up near the terminal that sits at the end of that runway (I think I mistakenly said "SE" of when it's really SW of the runway).

22. Not included

23. 5 -- Eyewitness posted on January 27, 2007 at 22:00 single post **(Incomplete)**

Roadgravel, ... For a bit the object was behind me, as I drove into the terminal five area. We initially parked as far SW as we could, as that provided the best visibility.[102]

[edit on 27-1-2007 by Eyewitness]

24 and 25 Not included

26. 2 -- Eyewitness posted on January 27, 2007 at 23:52 single post **(Complete)**

roadgravel, thanks... it was really hard for me to tell exactly where it was in relation to the buildings at the SW corner. My best view of that was actually when I was in traffic, and I had to keep looking back and forth between traffic, road turns and the object. All I could tell for sure was that it was over that southwestern area, and from what I knew of the airport, that put it down the line of that one outer runway

[102] The best visibility in the Terminal Five parking lot in the direction of gate C17 would be from the western end of the lot not the SW corner. Is this another directional mixup by the witness?

and over towards the one terminal/concourse area. Once I parked, the runways, etc., over that way weren't visible to me, but the object was still high enough to be visible... in fact, it seemed a little "fatter" to me there, which I took to indicate that it was either doing a fat wobble, which I couldn't outright see although that would account for the almost pearly-soft or "fuzzy" effect, or because of its angle I was now able to see a bit more of its underside and less of its top.

27. 1 Not included

E.4 Selected Questions by Linda Moulton Howe and Answers by Ms. J.H.

Richard F. Haines

Research Journalist Linda Moulton Howe obtained the name and phone number of Ms. J.H. from Mark Allin (of *www.AboveTopSecret.com*) soon after she had posted her BLOG entries (presented above). Howe phoned her and asked a number of interesting questions (Q) that have been repeated here (by permission) from her website < *www.earthfiles.com* >.[103] They provide additional insights into her sighting (A).

Q. WOULD YOU SAY IT WAS EGG-SHAPED OR ANOTHER SHAPE?

A. "I would not say egg-shaped because the elliptical part of it was really even, whereas an egg is kind of bigger on one side than the other. This (the object) was more an even shape, but a very curved shape. I know some of the people who first described it said it looked like a Frisbee. But a Frisbee is a lot flatter than this was. It was not the stereotypical disc. There was a lot more structure to it than that."

Q. IF AN EGG WERE EVEN PROPORTIONED, WOULD THE DISK HAVE BEEN EGG-SHAPED IN THAT DEFINITION?

A. "Yes, a bit more when seen from the side. When seen from underneath or at the angle I saw it from the parking lot, you could kind of get a more disc-like look from it."

Q. SO IT WAS ROUND, BUT IT WOULD HAVE BEEN PERHAPS LIKE AN EXPANDED DISC, TALLER.

A. "Exactly. It would have to be taller in the middle with no serious sharp angles at the end - just rounded curve at the sides, rather than the usual saucer-on-saucer straight edge kind of joint."

Q. HOW HIGH WAS IT ABOVE YOU AS YOU STOOD WATCHING IT IN THE PARKING LOT?

[103] The interested reader should consult this website for other information as well.

A. "I wasn't directly underneath it by a long shot. I was at an angle to it at that point. Where I stopped, I was looking close to due west, but that still put it over the main terminal airport area. But I was well under a quarter mile from it. I estimated at the time that the clouds were probably around 1800 feet high."

Q. I THINK OFFICIALLY IT WAS CLOSER TO 1500 FEET.

A. "It was a very low ceiling day and this thing was below the clouds. I wouldn't say it was much below the clouds."

Q. LET'S SAY THEN THAT IT WAS LESS THAN A QUARTER MILE FROM WHERE YOU ALL WERE IN THE INTERNATIONAL PARKING LOT AND MAYBE AT ABOUT 1,000 FEET?

A. "Yes, I would say 1,000 to 1,200 feet. It was a little under the cloud level. It was a hazy day, as well, though. But it was not foggy. Visibility was not that great, but within that quarter-mile distance, it was perfect. You couldn't mistake what you were seeing."

Q. YOU DISCRIBED THAT IT WAS SPINNING. COULD YOU SEE ANY KIND OF DISTORTION IN THE AIR AROUND IT?

A. "Yes, there was distortion very close to the craft. It did not at any point expand out from it that I saw. It was very close to the craft. It was almost as if you could see constant motion in the air very close to it.

"It almost seemed like the air was excited around it - that there was motion in it. It was almost visually like if you were watching a distant cloud of gnats. You would not be able to see the gnats, but you would be able to see the impression of motion. It was kind of like that around the object."

"…It did punch a hole through the clouds. I wasn't directly underneath the hole… It did leave a hole and it didn't even seem that the clouds moved as it punched through. But then after it was gone, they began filling back in…."

Q. AND YOU WERE THERE FOR AT LEAST TEN MINUTES

A. "I was there for about ten minutes and I had seen it on Mannheim Road for about three or four minutes earlier. So, overall from when I first saw it to when it punched a hole in the clouds, probably thirteen to fourteen minutes."

Q. YOU WERE SEEING IT STATIONARY WITH A SPINNING QUALITY AND THIS GNAT-LIKE DISTURBANCE OF THE ATMOSPHERE AROUND IT, WHEN IT

MOVED, WAS IT JUST A STRAIGHT SHOT UP? WHAT HAPPENED?

A. "From a dead stop, suddenly you saw the motion. You saw it go up those few hundred feet, but it was almost so fast that you couldn't even process it until after it was gone. There was no acceleration. No noise that I could tell. But there were jet engines and there was the heavily trafficked road between us and the object. But there really seemed to be no noise that I could perceive from it. Probably the United workers fairly well under it could tell better on that.

"It just (sic) at a slight angle in our direction, which would have been slightly east, it just was gone!"

Q. THE HOLE WAS INSTANTANEOUS?

A. A. "Instantaneous."

Q. COULD YOU SEE BLUE SKY THROUGH IT?

A. " I wasn't under the hole right under it to see that. I could not see blue sky, but I could see the hole, the shadow. I could see that there was a hole there.

"This was the most impactful sighting I can imagine, unless it had dropped down completely to the ground and entities got out! I cannot imagine what it would take to be more convincing to anyone than seeing this object. There was no way it was anything other than a solid metallic object, (spinning counterclockwise)."

E.5 Selected *BLOG* Postings by Ramp Agent X

Richard F. Haines

An anonymous person submitted a number of *BLOG* entries to *AboveTopSecret.com* between January 14, 2007 and January 17, 2007 under the name rampagentX making him or her the first person to claim to be an eye witness to this event. The senior editor devoted much effort to determine whether or not this individual was reliable and whether or not to include the details here. This effort was not entirely successful and this decision could have gone either way. When these *BLOG* entries were sent to two United Airline employee witnesses at ORD for their opinion, however, the results were surprisingly positive.

In support of the validity of these entries are the following points: (1) Ramp Agent X refers to himself and coworkers as United baggage handlers at United concourse C. Later he refers to himself as a 'rat' which is local jargon for "ramp rat." This term may not be generally known. (2) He makes a statement on January 15th that appears to correspond with something another witness had heard that could *not* have been common knowledge. (3) He refers to the small size of the UAP, "…Like one of those radio control (sic.) drones they use in Iraq." This corresponds with what another employee known to the senior editor said

among his co-workers that day.

Mitigating against the validity of these *BLOG* entries are the following points: (1) He said he would be fired if he talked about the incident which isn't necessarily true according to several other employees. (2) He claimed he and others were, "…ferrying a load of late bags for a 727 to F12 or 14." Yet, as another United official told me, "There are never any 727s around our work areas anymore." In a later entry he stated, "…my friend advised me to alter some important stuff so (sic.) prevent people from guessing who I am… We (do) get some old 727s from regional operators sometimes but its been a long time since I put bags in one."[104] (3) Just after the UAP rose up through the cloud layer he claimed that, "…there was definitely sunlight inside the hold (sic.)" and that he could, "…see sunlight for a bit." NARCAP's weather assessment suggests that this would be virtually impossible due to cloud thickness at the time. Not even witness A who was standing directly beneath the hole said he saw blue sky or sunlight. (4) On balance, ramp agent X 's testimony possesses more verified than clearly false information and is included here for the sake of completeness but without any particular endorsement. As will become apparent, rampagentX sounds remarkably like witness A.

As was done in the previous series of *BLOG*s the first bold number is a sequential number for use in referencing while the second bold number is the original chronological number assigned by Mr. Allin at the *AboveTopSecret.com* website who is acknowledged as the secondary source for this information. The senior editor has deleted some information from particular *BLOG* entries for the sake of brevity. All underlined text is added by the senior editor for emphasis.

1. 7 -- rampagentX posted on January 14, 2007 at 13:16 single post **(Complete)**

Hello. A friend told me about this website yesterday and said I should talk to you guys.

I saw the thing at O'Hare. It was a big thing for us, but then our supervisor said we'd get fired if we talked about it so Im (sic) kind of nervous.

Can they trace me here?

2. 6 -- rampagentX posted on January 14, 2007 at 14:33 single post **(Incomplete)**

Ok

What made me finally want to say something was all the news about this thing and was because we were told to stay quite. (sic) Like there is a cover up like you see in the movies. There are three of us baggage handlers who saw all of it. I never believed any of this stuff until now.
If you have any questions I can do my best to answer.

[104] This is a clear admission that he did not transport late bags to a 727 model airplane.

3. 5 -- rampagentX posted on January 14, 2007 at 21:39 single post **(Complete)**

Okay. Im (sic) not good at chat, but here goes.

I work for United like you guessed by now.

We were ferrying a load of late bags for a 727 to F12 or 14, I don't remember now, when I saw what I thought was a widebody running off course out of the corner of my eye. When I looked up there it was just siting there, a gray shiny thing pretty high up, more than 1000 feet.

At first we thought it was really far away, because it was hard to focus on it, but it shifted left and right a couple times and that's when we knew it wasn't too far away. I looked up at the 727 cockpit and pointed to it. Then the crew saw it and was staring at it too. The pilot got on his radio and waving his arms like he was going nuts over what he was seeing. We figured it was a fat disc, like a M & M, about 20 feet wide but it was really hard to tell for sure because it was almost the same color as the clouds and if you looked away it was hard to find it and focus again. One of our crew ran to his locker to get his cell phone to take a picture.

It hung there moving really slightly from side to side for about another minute when we all felt our hair stand on end,[105] and it just shot straight up into the clouds faster than anything we ever seen. It disturbed the clouds, like it made a big shockwave and we could see sunlight for a bit. We never got a picture but I don't think it would have come out very good anyway.

We could see a few other rats staring up at the hole and everyone was talking about it for a few days. Then the sups came and talked to all of us that we cant (sic) talk about this to anyone or we'd get fired. They said something about federal regulations and unauthorized reporting of false airspace breeches.

Last week, the sups came down again and reminded everyone about the regulations. Thats (sic) what made me think theres (sic) more to the story so I started searching online. I play pool with a buddy who told me about this website chat room so here I am.

I always thought people who believe in aliens were crazy but I don't know what that thing was. We see lots of aircraft come in even the fancy stuff that stays in the air when the President lands, but this thing was like nothing none of us ever saw.

4. 4 -- rampagentX posted on January 15, 2007 at 07:46 single post **(Complete)**

I just got called in because they expect there to be delays from the weather. I'm normally off on Sunday and Monday so double time is fine by me.
I saw some of your questions and I can try and answer.

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[105] Witness J.H. also remarked about feeling "a sort of a skin-tingle" when the UAP departed (cf. her BLOG entry 6. 22 in Appendix E.3).

The clouds were normal low ceiling overcast so I don't know how thick. From where we were, we couldn't see directly up the hold (sic) the thing made but there was definately sunlight inside the hold so it went all the way through the clouds. And yes it looked like the hole was made by the thing as it went up.

I'm pretty sure the sup's words were unauthorized reporting of false airspace breech but it might be something slightly different. But it was we knew they want us to treat the thing as some freak weather and not a UFO.

I don't think there is a risk if you say they can't trace me here.

When our hair stood on end I'm certain it was just a couple seconds before it took off into the clouds like there was some build up of something. It felt like the static electricity of pulling off a sweater.

I don't think there are any pictures since none of us carry anything like a camera with us but a few people now are. We all talk about it almost every day and if there were pictures it would help us because the people that didn't see it are getting pissed and think we're all crazy.

Two other rats from C thought the thing flew away to the east but most of us saw it go straight up. The boss from C thinks this might mean there were maybe two different things or the same thing showing up two different times. I'll find those guys and ask them today.

5. 3 -- rampagentX posted on January 15, 2007 at 22:05 single post **(Incomplete)**

I don't think the thing was directly over C at least it didn't look that way to us. I've never been in the tower so I don't know if there is a way to look up but I think it would be hard to see the thing from the tower but I can't say for sure.

No one wants to talk about this so I don't think anyone is going to say anything. I havent (sic) even told anyone I'm chatting here.

If I report this to the www.mufon.com or www.nuforc.org people will I need to give them my name and personal info? If so I won't do it.

We were concerned about the airspace breech too. Some of us are getting angry with this being hushed up with all the terrorism and TSA idiots hanging around. If we see a funny looking bag all damn hell breaks loose but park a funny silver thing a few hundred feet above a busy airport and everyone tries to hush it up. It just dont (sic) make sense.

We all think it was too small for a space ship too and thats (sic) why some of them think its (sic) something we made. Like one of those radio control drones they use in Iraq.

You say that youd (sic) tell your boss to screw it if he told you not to say anything but hell I got kids and

rats are rats because theres (sic) not much else we're qualified to do and the pay is pretty good for a luggage tester. hah! But we do have a contract that says we can't discuss company secrets and anything our sups tell us is a secret and we think theyre (sic) trying to male (sic) sure we know they think this is a secret.

We think there should be an investigation so we can feel better about seeing what we saw. I want to know why funny looking bags are more important than strange objects in the sky.

No one we know has any photo.

You guys were chatting a lot between youselfs (sic) so I think I got all your questions. I'll check in again in the morning. Thanks it feels better being able to tell someone about this.

6. Not Used.

7. 1 -- rampagentX posted on January 18, 2007 at 19:21 single post **(Incomplete)**

I was reading the chats and saw the one from pegasus1 and am worried.

Worried that you think I was playing a game. Well I guess part of it was since my friend advised me to alter some important stuff so prevent people from guessing who I am. I figured you guys wouldn't know about equipment and gate details and work schedules but United has many more Boeing than Airbus. We get some old 727s from regional operators sometimes but its been a long time since I put bags in one. Like I said, I'm not good at chating (sic) and screwed the pooch by trying to hide who I am with bad info.

I'm not brave enough at this to say it all with all the right details. Maybe now you have someone who is but I'm not so certain and maybe he's someone to scare me away. The reason I came to your chat was not to pretend I saw space ship but to call your attention to the real problem of its being silenced. Because we're all really pissed that something floating above an hub airport is treated like nothing and odd looking luggage causes all hell to break loose.

I'll shut up and watch for now.

E.6 Another Possible Report

Richard F. Haines

While a relatively large number of people have claimed to have seen the UAP hovering above the United concourse very few have been verified. Considering the visibility and low cloud cover at that

time it would difficult to see a small, stationary object just under the cloud base from any great distance beyond the airport property itself. Other eye witnesses of this phenomenon in nearby suburbs of Chicago might possibly have seen it before or after its departure from O'Hare, however. One such report follows.

According to a report submitted to the *National UFO Reporting Center* from Aurora, Illinois, about 25 miles SW of O'Hare, a husband, wife and their children saw a shiny object hovering in the sky to *west* of them at 5:00 pm on November 7, 2006. It was "about level with the clouds" and was located in "an open area of the sky in between two sets of clouds." No trail of any kind was seen. Its altitude was estimated at about 1,000 feet. It was thought to be silver and round. It is problematic whether this was the same UAP as reported at the airport a half-hour earlier.

F. Pilot Workload During Landing of Heavy Commercial Aircraft

Don Ledger, NARCAP International Technical Specialist)[106]

F.1 Summary

Public perception of what goes on in the cockpit of the modern and the not so modern airliner and commuter aircraft of today is largely formulated upon the thinking of the writers and directors of the

[106] Senior Editor's Comment. Given the "See-and-Avoid" flight rule discussed above (see footnote 56 in Section 8.1, Safety Implications) it becomes particularly critical to safe operations when an airborne object is present that is small, stationary, and otherwise difficult to see due to atmospheric visibility conditions and the object's coloring, background camouflage effects, etc. as was the case here. But in addition, as Ledger's discussion makes clear, the cockpit crew is extremely busy during an approach to landing and subsequent taxi operations. This makes it even harder for them to see and avoid such unexpected objects. Air traffic controllers in the tower are there to extend and reinforce the safety zone around the airport. Ledger is a rated pilot and very familiar with the cockpit activities he discusses.

movie and television industry. Often what occurs on the movie flight deck is tailored to the needs of the film; the action and the dialog almost always ignore the reality of a pilot's work in order to achieve the plotline's desired effect. The truth suffers as a result.

In fact the landing phase of any flight is extremely busy and requires a great deal of attention to many details in order to make sure that the landing is routine. The pilots not only have to deal with the mechanics of landing a two or 270 ton aircraft loaded with living, breathing human beings but they must also mentally process aural[107] as well as visual inputs while at the same time sensing the airplane's control movements.

Visually the pilots must constantly scan instruments for information that tell them the attitude, speed, altitude, rate of descent, angle of descent, fuel state, distance from, magnetic references from beacons and markers and a host of other instruments available to let the pilots know that the "good side" is still up, that is, that the airplane is right-side-up! There is also the "real" visual input from the outside world provided that the pilots can see the skies around them, the ground or the runway. Continual control inputs are necessary during the descent to the threshold of the runway.

It should therefore be obvious that for pilots to take time away from their duties to scan their surroundings other than to see the runway or quickly scan for other aircraft in their "safety" zone, and take notice of any anomaly it then must be something so important, so arresting, that they would deliberately take the time to look for it and either report it or make flight adjustments to avoid it.

While each approach and landing is different what follows is a general scenario of what pilots do when they are landing a large airplane. The actions and procedures that are followed are highly complex and are simplified for the purpose of this report; it takes a considerable amount of flight training and hundreds of hours of instrument flying to truly understand the procedures.

F.2 The Three Phases of Flight

There are three phases to any flight; the take-off phase, the in-flight phase and the landing phase. In this case we are chiefly concerned with those three phases affecting commercial, passenger and corporate aircraft. Typically these aircraft vary in size and complexity and carry anywhere between 4 and 400 passengers.

Of the three phases, the landing phase is not only the most difficult but also the most dangerous. None of this is to say that every landing is accomplished on a prayer and a song but is in fact quite routine 99 percent of the time. The remaining one percent of landings account for what commercial pilots are paid for-for when things get difficult or suddenly go wrong, sometime during the in-flight phase or during the landing phase. Often things do go wrong at the end of the flight when certain controls are activated during the approach and landing phase to slow the airplane down and lose altitude so that the aircraft can touch down at its optimum speed at a point on the runway that will allow the aircraft to roll out, slow

[107] These are usually artificial aural inputs arising from electronically generated tones, bells, highly noticeable warbles, woop-woop alarms and voice alerts.

down and exit the runway at a safe speed.

Phase One - The Take-off

To examine the landing phase and hence the pilots' workload one must appreciate the various factors set in play from the very beginning during the take off phase. Not to dwell on the take-off, it need only be said that every effort is made to get the airplane up to speed, clear of the runway surface in the shortest distance possible and gain altitude as quickly as possible.[108] Speed and runway length plus the aircraft's own virtues are usually pushed to the limit to accomplish this gaining of altitude. The take off typically affects the rest of the entire flight via a predictability curve.

Phase Two - The Flight

Once airborne it is then desirable to find that compromise necessary to fly an assigned altitude at a speed that is not only economical fuel wise, good for the airframe and closely matching the flight's Flight Plan but satisfying to the passengers on board who wish only to get to their destinations as soon as possible in relative comfort.

Phase Three-The Landing

Having arrived in the vicinity of the destination airport it suddenly becomes necessary for the pilots to reduce their speed and altitude while complying with air traffic control's requests for turns, descents and speed increases (or reductions) while being "slotted" into the long line of other air traffic also approaching a busy airport and avoiding aircraft taking off from the same airport. Spacing between consecutive airplanes, both laterally and vertically, must be maintained by law and this is the responsibility of the air traffic controllers on the ground. But this does not-or should not-lessen the vigilance on the flight deck.

The pilots will scan the sky around them while monitoring their instruments for rate of descent, speed, and distance from the touchdown point on the runway once it is known which runway they have been directed to. At very large and busy airports such as Chicago O'Hare there may be three or four approach runways in operation at the same time, designated by the control tower while other runways are being used for departures.

Since the tower knows which airline is connected with the flight it will usually "slot" the aircraft into a lineup that will land it reasonably close to its arrival gate to facilitate fuel economy and speed up the deplaning of passengers. This is not only cost effective for the airline but helps with baggage dispatch and customs checks. Because of this it is in the back of the pilot's minds to land his airplane on the runway at a point where it will be able to leave the runway to the taxiway that is best situated to get his flight quickly and safely to its pre-assigned arrival gate. Once past a taxiway there is no possibility of the airplane turning around and going back to the desired taxiway any more than the driver of an 18 wheel freight-liner would turn around on a busy freeway to go back and take a missed exit.

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[108] Needless to say, it would be almost impossible for the flight crew to see a small UAP nearby during this phase of flight unless it was directly ahead of them.

Like the heavy truck the airliner would have to take the next available taxi exit which would not only cause a delay for their arrival at the designated gate but possibly cause some additional traffic confusion for Ground Control. The ground movements at a large airport often seem chaotic. Those responsible for ground movement in the tower are known to make their frustrations known when they are faced with conflicts on their taxiways and aprons.

All of this takes skill and an attention to detail that entails maneuvering the airliner to the desired point of touchdown. Getting that airplane into a position for the optimum touchdown point which satisfies the pilots, the airline, the approach controller, and ground controller starts many miles back during its final approach.

The above should be borne in mind when considering the adjustments and maneuvers the pilots must go through in order to make the aircraft land where they want it to, at a safe speed and with the absolute minimum of impact, none of which can be accomplished without forethought and experience.

At some point during the flight the airplane begins “letting” down from its assigned altitude after being directed to do so by air traffic control (ATC). The pilots switch to the appropriate approach frequency; contact approach control and are directed to descend and turn to whatever heading is necessary to put the aircraft in a position to eventually join the other flights queuing up for that destination while maintaining mandated aircraft separation.

The auto-pilot is disconnected and the pilots, usually - but not always - the Captain, assumes manual control of the aircraft. Because they are descending the pilots have to reduce engine power in order to lose airspeed so as to not over-speed the aircraft nor exceed the approach speed demanded by ATC. They will then trim the aircraft using smaller control surfaces on the main (wing) control surfaces to keep the aircraft descending at a predetermined angle to achieve a desired rate of descent.

"Bleeding off" (reducing) speed and losing altitude in order to reach the airport at the runway's touchdown point requires the use of the tools the pilots have at hand. They will deploy (extend) flaps that are situated on the inboard section if the trailing edge of the wings; these might deploy in concert with the leading edge wing slats which help change the camber [the upper curved surface] of the wings by adding the flaps and the slats [at the front of the wing] which droop downward. The flaps not only create lift as do the slats, but create drag as well thereby slowing the airplane while maintaining essential lift.

There is another device that can be deployed as well, the spoilers. The spoilers are strips of re-enforced metal which pop up from the wing about one third of the way back from the wing's leading edge. These effectively cause turbulence over the top of the wing destroying (spoiling) the wings' lifting capability in that area. Spoilers are not only used when the aircraft has landed but sometimes in the air as well. The pilots can maintain forward speed and the aircraft's attitude (e.g., at level flight) but loose altitude at the same time. It is of course very important that the pilots be concerned about the position of the spoilers at all times.

Later model airliners are capable of landing themselves in what is called “auto-land” mode. Sometimes the pilots will select this mode to maintain their currency with “auto-land." This entails "engaging" this mode and, upon a safe landing, disengaging the “auto-land” so that the aircraft can be directed off the runway and be taxied to the intended arrival gate. Selecting auto-land however requires that the aircraft has been set up for the final approach; it cannot accept any further commands. The aircraft's navigation system knows where it is and what runway it is required to land upon and sets about to do just that. The approach then is deliberate, stabilized, and at its correct speed and rate of descent. Landing at a busy airport like Chicago O'Hare might not permit such a landing due to constant changes in speed and direction demanded of the flight crew by the tower. In this brief review of cockpit activities we assume that the pilot is in manual control of the airplane.

The pilots have, by now, radioed approach control and have been "vectored" to their heading and told to descend to (cleared down to- but not below) a certain altitude or perhaps to maintain their present altitude; it is even possible they will be required to climb to avoid other traffic.

All through the landing phase the pilots will be referring to their landing checklists that contain everything from power reduction to the seatbelt signs.

The pilots also have to respond to radio calls from ATC and stay on that designated frequency. The airline's “company” radio might be in play at that time as well but is monitored in addition to the more important FAA tower frequencies. Usually the first officer [FO] will handle the radio work while the captain flies the airplane. The FO will also be handling certain tasks such as flap deployment, slat deployment and spoiler deployment or a combination of all three when the pilot calls for these at certain settings at particular times.

Each pilot has a Jeppesen approach plate (printed chart) clamped on a small clip-board on the control yoke in front of him. This plate contains a lot of useful information regarding the airport and available radio navigation aids. Under poor visibility conditions, as was the case on November 6, 2006 at O'Hare International Airport, the approach plate provided all required information for IFR (Instrument Flight Rules) standard instrument approach procedures. It also marks the locations and altitudes (AGL) of obstructions to flight such as mountains, towers, other controlled airspaces. Also included are various navigation beacons and electronic marker frequencies and their locations.

Figure 40 shows one approach plate for ORD that provides pilots with all of the radio navigation, radio frequency, and other information needed to make an approach to runway 27L. Large airports may require many such plates. For O'Hare plates see http://www.fboweb.com /fb40 /airport/ ORD.html The present UAP would have been most visible to a flight crew during an approach either to runway 27L or 27R if they had been looking for it.

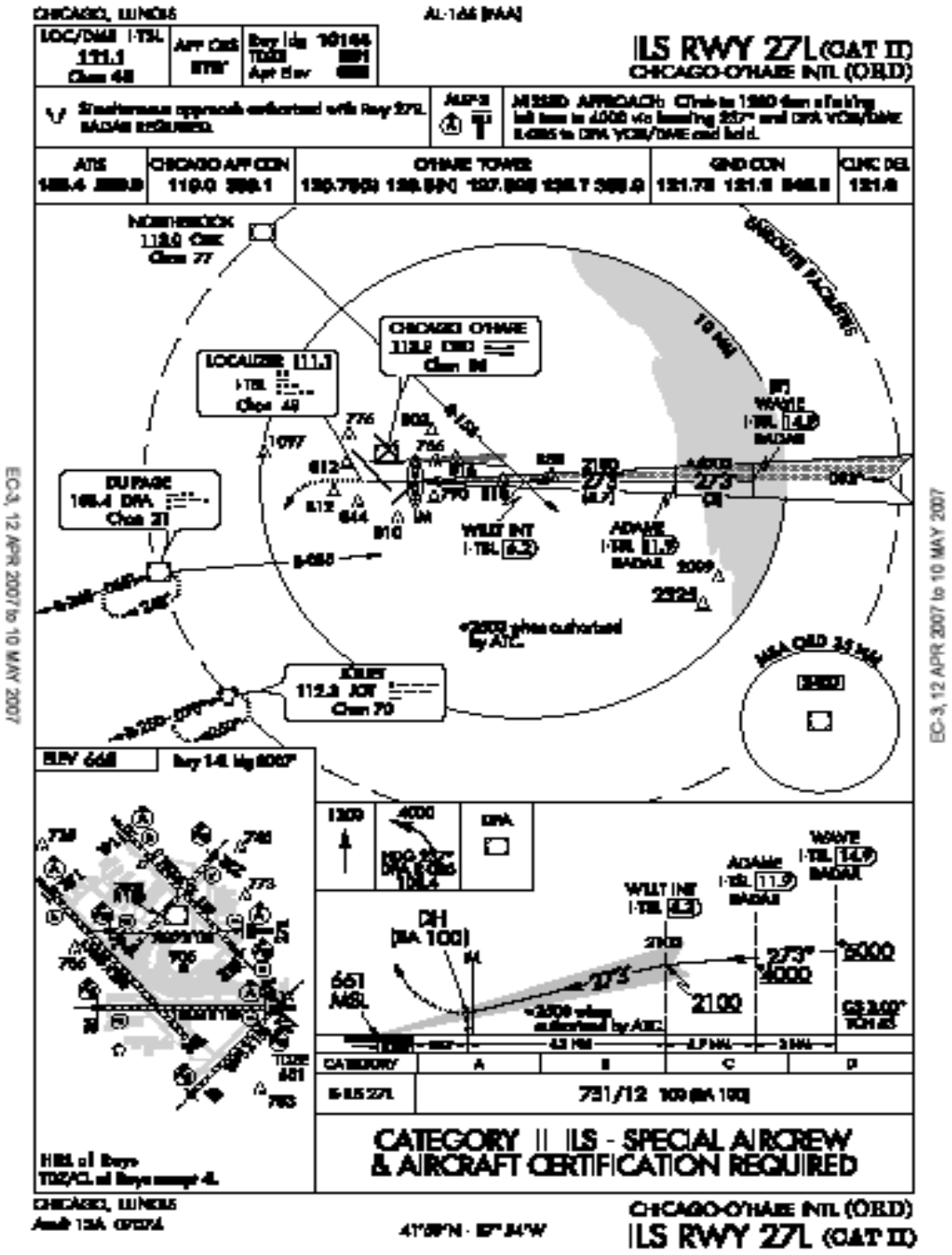

Figure 40. Approach Plate for ILS Runway 27L (Cat. II) at O'Hare International Airport

F.3 The Outer Marker

The Outer Marker (OM) is an electronic beam oriented to transmit vertically in a narrow beam that alerts the pilot when the aircraft is a measured distance from the end of the run-way. Pilots typically refer to the end of the runway as the “button," the “numbers,” or the “threshold.” The OM is usually located four to five miles from the threshold. For the purposes of this report runway 27R[109] at Chicago O'Hare International Airport will be used.

The OM for RWY 27R is located at 41-59-03.535N / 087-47-20.476W, 4.5 nm (27,198 ft.) from the approach end of runway 27R. It broadcasts on 414 kHz the Morse code identifier IA which the incoming aircraft will intercept and begin their glide-slope for the runway advising the tower that they are over the outer marker. The landing gear is extended and the resultant drag produced by the wheels suddenly introduced into the airplane's "slipstream" will require adjustments to speed, “sink” rate and the aircraft's attitude.

At this point they are pretty much committed to a landing on that runway and will be working all of their controls (predominantly trim controls and throttles) to maintain a constant rate of descent, speed and glide angle. Finally, the tower will advise them that they are number one for runway 27R and clear them for landing. At 4.5 nautical miles or just over 5 statute miles from the runway's threshold at a speed of approximately 150 knots [173mph] the aircraft will cover that distance at 2.9 miles per minute for a total of one minute and 47 seconds. During this short period of time the pilots have to visually acquire the runway. This is easy enough to do on a clear day but at night and in cloud it's a different matter.[110] On the day in question in this report the cloud-base at Chicago O'Hare was measured at 1,900 by a laser ceilometer with likely additional layers of cloud above so that our theoretical aircraft would have been descending through cloud on an ILS (Instrument Landing System] approach and would have broken out of the cloud cover shortly before intercepting the Outer Marker.

Let's assume that the aircraft has now established itself out of “trail," i.e., in a string of aircraft approaching the airport, to be number one for the runway. It is covering the distance from the outer marker to the threshold swiftly and will be touching down on the runway in the location the pilot thinks is best suited to allow for reasonable braking and reverse thrust to allow them to "roll out" and exit the runway at a safe speed onto the taxiway that will take them expeditiously to their arrival gate.

Speed is all important. Enough speed must be maintained to prevent a stall (the wings stop producing lift) while still allowing the rate of descent [usually about 500 feet per minute] necessary to allow the aircraft to touch down where the pilots want. But that option is not always available if the tower wants the pilot to "expedite" (speed up) and get the airplane on the ground because of other airplanes backing up behind him.

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[109] The numbers on a runway are the first two digits of the runway's magnetic heading rounded to the nearest 10, in this case 270 degrees magnetic. Magnetic headings below 100 degrees are prefixed with a zero and the last digit is dropped so that 90 degrees becomes runway 09.

[110] Cf. Haines and Flatau (1992) for more information about flying at night.

Assuming that the Captain is flying the airplane the first officer is reading off altitudes and distance to the runway. The pilot might be looking outside toward the runway but flicking them back to the aircraft's speed and rate of descent displays. Pilots scan their primary instruments and engine instruments constantly looking for irregularities.[111] Adjustments are being made to trim and the flaps either increasing or decreasing the angle to the wing. To an observer on the flight deck the pilots may appear to be relaxed and making small movements but in fact they are carefully guiding a highly complex piece of machinery down an invisible slope at 160 to 200 miles per hour. It is the busiest period of the flight. At some point, and that point varies between aircraft and environmental conditions, they are committed to the landing.

The landing seems assured, both pilots are looking outside for a moment, looking for the runway and any hazards to the aircraft. Such hazards include runway incursions by airport vehicles and other aircraft. In addition, other aircraft could be on the ground or perhaps in the air taking off or landing on another runway. In the latter case these would be some error committed by either tower control or a pilot. Pilots expect aircraft on runways that diverge and converge with their own. They don't expect to see an aircraft where it shouldn't be.[112] If they do it is arresting and reason for concern; a reason to wonder if it is a threat to their aircraft. One way for the flight crew to find out is to radio the tower and ask. It is not something that would be done with the slightest degree of frivolity; not at this stage of the approach and not at a busy airport. There would have to be a very good reason to do so.

Now the power is being reduced, the engines are "spooling down" producing less power, the airplane in a controlled fall forward out of the sky. The aircraft reaches the "rotation" point and the pilot "flares" the airplane which should be just at its stall speed. It then settles gently (considering its weight) onto the runway. The nose wheel is held off the runway for a short time to use the plane's own profile as an aero-brake. The wheel drops when the slats and flaps are retracted and the spoilers are "popped" up to "kill" (eliminate) lift. The brakes are applied and the mechanical buckets deploy, swinging in behind the engines' exhaust, to force the thrust forward.

Once the aircraft has slowed sufficiently the tower will usually ask them to exit the runway on one of the taxiways running off at an angle to the runway. Once the aircraft has indeed safely turned onto the exit, the tower will tell them to contact *arrival ground control* (O'Hare - 121.75 Mhz) and at that point they are under ground controls authority. From there they are directed via a number of taxiways to their intended arrival gate. The pilots have shut down various functions in the aircraft and concern themselves with making sure they are clear of ground vehicles and other aircraft while crossing aprons and traversing the rest of the way to their assigned gate.

F.4 Personal Observations as a Pilot Related to Take-offs on Runway 32L and 27L at O'Hare Airport on November 7, 2006 at About 4:30 pm.

It would appear to me that if there was any change to runways due to the UAP's presence it would have most probably been departures on runways 27L and specifically 32L. An aircraft sitting on the

[111] It should go without saying that when the crew is doing this they cannot be looking outside the cockpit.

[112] It is safe to say that almost no pilots expect to see a UAP in the vicinity of an airport Consequently, their mental "expectancy model" simply does not include a UAP. Research has shown that under such conditions pilots may not see a conspicuous object even if one is present. (Fischer, et al., 1980).

"button" of runway 32L would have had a clear view of something hovering over gate C17 almost regardless of the UAP's altitude. An aircraft departing on either of these runways would get increasingly closer to the object as they climbed out. An aircraft on 32L would have been looking up at the bottom of it from a distance of only approximately 1,500 feet laterally to the east. An aircraft taking off on 27L would have been at a greater altitude when passing the alleged UAP's position.

It could be that there were questions concerning this object's presence a few minutes before the people spotted it from the ground at gate C17. I think it is extremely unlikely that the tower was ignorant of what was going on and that they did not know of it. If I was in the pilots' positions and was either taking off and landing, I would be extremely concerned of its intentions; I would be antsy about the probability of this UAP suddenly veering toward my airplane and endangering my passengers and crew. The ramifications of an avoidance maneuver (collision avoidance turn) to avoid some object during the take-off phase when airspeeds are drastically reduced during any maneuver other then the best rate of climb versus best angle of climb and the subsequent deviation from it heading could be catastrophic.

Though there are very few instances of a UAP actually being involved with, or doing damage to an aircraft, there are other forces in play. The pilot's reactions must be fully considered during any encounter with a UAP. Perhaps that is where the real danger lies.

G. NUFORC Witness Reports

Figures 41 and 42 present the original witness reports submitted to the National UFO Reporting Center concerning this incident.

Occurred : 11/7/2006 16:30 (Entered as : 11/07/2006 16:40)
Reported: 11/13/2006 2:54:54 PM 14:54
Posted: 12/7/2006
Location: Chicago O'Hare Airport, IL
Shape: Disk
Duration:2 minutes ((NUFORC Note: This report is a revised version of the original report submitted by this party, or parties. It was revised at NUFORC's request, in order to disguise the person submitting the report. The report accurately addresses the event, although we are satisfied that the person, or persons, who submitted the report cannot be identified from it. The above facts may be a sythesis of what dozens of individuals saw, summarized by one, or more, persons, who were witness to the activities surrounding the incident.

We would like to express our sincere gratitude to this source for the information provided!! The information that has been shared with our Center has proven to be flawlessly accurate, as established by objective corroboration.

This witness has indicated above that the event probably occurred at 16:40 hrs. (Central). We believe that

16:30 is a more accurate estimate, and we have amended the time above to reflect that estimate. Official FAA tapes, if they can be obtained, should provide the exact time that the incident was reported to the O'Hare Control Tower. PD))

Disc seen hovering over O'Hare Airport. Many witnesses. FAA and TSA contacted about incident.

I'm a management employee for a major airline and was sitting in my office at around 1630 on Nov. 7th when an employee made a radio call to our station operations center concerning an object hovering over gate C17 at O'hare International Airport. I ran out of my office and saw a relatively small object hovering in place over C17. The METAR was reporting OVC 1900 and I initially estimated the object hovering at about 1000 feet. After about a minute, I saw the aircraft zip to the east and disappeared.

I immediately called our operations center to confirm the sighting and the FAA was contacted while I drove to the other concourse to talk with the witnesses. I spoke with an employee working that gate who said he was compelled to look straight up for some reason and was startled to see the craft hovering silently. He then made the radio call and notified the pilots at that gate who opened the front windows and witnessed the object for themselves. The employee stated the object was 500-1000 feet above the ground, rotating, and metallic in nature with no lights. He said it looked like a frisbe and was directly above.

The FAA reported no radar blips and I believe the TSA was notified. Our shift manager was notified and the incident was immediately reported to our WHQ Operations Center.

All employees are very familiar with aircraft around the world's busiest airport - this was nothing we are familiar with. As a side note as it is probably unrelated, the next aircraft into that gate was experiencing electrical problems.

Figure 41. Witness D Report to the National UFO Reporting Center

Occurred : 11/7/2006 16:30 (Entered as : 110706 16:30)
Reported: 11/21/2006 4:08:16 PM 16:08
Posted: 12/7/2006
Location: Chicago O'Hare Airport, IL
Shape: Circle
Duration:20 min ((NUFORC Note: This individual was interviewed, at length, by one of the investigators involved in the follow-up investigation. The investigators were highly impressed with the witness's credentials, and with the accurate description of the event. We deem this witness to be extremely highly credible.

We express our sincere gratitude to this witness for his having shared the information about his sighting with NUFORC, and with his fellow American Citizens. PD))

Figure 42. Witness B Report to the National UFO Reporting Center

Chicago OHare UFO Report

Ok I have been hesitant about talking about this, but after hearing the report on Coast to Coast AM with Mr. Norey I can not be silent. I work for a major airline at OHare, I am a taxi mechanic. I have the job responsibilty of moving aircraft under there own power from gate to gate or the hangar complex for maintenance. We also accomplish the engine run-up testing needed. So I hope that does something for establishing a little of credibility for my report. I am still in absolute wonder and amazement at what I saw that afternoon.

Around 1630 a pilot made a comment on the radio about a circle or disc shapped object hovering over gate C-17 at the C concourse in Chicago. At frist we laughed to each other and then the same pilot said again on the radio that is was about 700feet agl (above ground level). The day was overcast with the ceiling being reported at 1600 feet if I remember correctly. I was taxing a Boeing 777 from the Intl Terminal to the Company Hanger on the North side of the Airport. As we passed the C Terminal on the Alpha taxiway we observed a dark gray hazy round object hovering over OHare Intl Airport. Is was definately over the C Terminal. It was holding very steady and appeared to be trying to stay close to the cloud cover. The radio irrupted with chatter about the object and the ATC controler that was handling ground traffic made a few smart comments about the alleged UFO siting above the C terminal.

We had to contiune moving the aircraft to the hangar. After parking I noticed the craft of no longer there but there was an almost perfect circle in the cloud layer were the craft had been. The hole disappeared a few minutes later.

For the rest of the night there were jokes made on the radio about the siting.

((NUFORC Note: This individual was interviewed, at length, by one of the investigators involved in the follow-up investigation. The investigators were highly impressed with the witness's credentials, and with his description of what he saw. We deem this witness to be highly credible. PD))

Figure 43. ATIS Information for ORD, November 7, 2006

Recorded at (UTC): 11/7/2006 20:51
Airport: ORD

Visibility: 6 (mi) **Temperature:** 12 (c) **Dewpoint:** 9 (c) **Wind Direction:** 280 (deg) **Variable Wind Direction:** (deg) **Wind Speed:** 04 (kts) **Wind Gust:** (kts) **Altimeter:** 2979 (in) **Sky Condition:** HZ OVC017

ATIS Message: ORD ATIS INFO Q 2051Z. 28004KT 6SM HZ OVC017 12/09 A2979 TWO NINER SEVEN NINER. ARR EXP VECTORS ILS RWY 22R APCH, ILS RWY 27L APCH, ILS RWY 27R APCH. SIMUL APCHS IN USE. land and hold short operations are in effect. RWY 22R ARR MAY BE ASKED TO H/S OF RWY 27R, 6 THSD FIFTY FT AVBL. IF UNABLE, ADVISE APCH CTL. READBACK ALL RWY HOLD SHORT INSTRUCTIONS. DEPS EXP RWYS 22L, 32R, 32L FROM T10. 8800 FT AVBL. NOTAMS... TWY M3 CLSD TWY M4 CLSD TWY S CLSD BTN TWY S2 AND TWY T . USE CAUTION FOR NUMEROUS CONSTRUCTION CRANES IN THE VICINITY OF ORD. PLEASE REFER TO ALL NATIONAL AND LOCAL NOTAMS. PILOTS USE CTN FOR BIRD ACTIVITY IN the VICINITY OF the ARPT. Use caution for men and equip at numerous sites on the field. when ready to taxi contact gnd metering on freq 121.67. ...ADVS you have INFO Q.. .

Flight Category: MVFR
SUN Position: Day Light

I. Freedom of Information Act Requests

The senior editor requested the following items by letter dated November 18, 2006 to the Freedom of Information Act (FOIA) Office, O'Hare Lake Office Center, 2300 E. Devon Avenue, Desplaines, Illinois 60018. All requested information was for November 7, 2006 for the period 4:00 pm to 5:00 pm local (CST) time. This request was assigned the tracking number: 2007-001234GL.

All FAA control tower voice recordings
Tower Supervisor logs, notes, and all other documents such as telephone and radio communications notes, memos, etc.
Tower Ground Controller logs, notes and all other documents such as telephone and/or radio communications notes, memos, etc.
All radar data that covers an area (only) within the airport's outer perimeter. We would prefer digital printout of these (radar) data if available along with available keys, symbol definitions, and other information required to
c orrectly interpret the data.

On January 12, 2007 FAA's Freedom of Information Act analyst, D.S., telephoned to say that the Chicago tower had informed her that "…they checked its voice tapes for the data and time in question and had found relevant portions only on one inbound ground frequency and two phone calls. I authorized her to send these items. Since D.S. informed me by telephone about this alleged incomplete voice communications data I requested a confirmation by e-mail on March 7, 2007. She sent this confirmation

on March 8, 2007.

A CD containing NTAP primary and secondary radar data was received on February 14, 2007. A second package containing the tower's daily record of facility operation (Figure 8), and two audio cassettes was received on March 5, 2007. When it was discovered that the voice communications tapes were not complete (cf. Figure 8) a second FOIA request was placed by e-mail on March 8, 2007 and confirmed the following day (also by e-mail). It was assigned the tracking number 2007-003352CS. It requested:

> FAA control tower voice recordings from all ground control frequencies only for the time period 2155 to 2255 UTC.
> FAA control tower voice recordings of all phone conversations from the Area Supervisor's position only for the time period 2231 to 2252 UTC.
> All FAA Operations Manager phone conversations only for the time period 2155 to 2255 UTC.

These items were requested because, as Figure 10 illustrates, there were long periods of time in the initial tape recordings received where no recordings were provided but might possibly contain some reference to the UAP.

A package was received on March 31, 2007 (with cover letter dated March 9, 2007 from the ATO Central Service Area, Ft. Worth, TX.) containing one audio cassette. Because it only contained a repeat of the first cassette received and was not what was requested another letter and telephone call was made on April 3, 2007 to the FOIA analyst to request (again) what was originally requested. Two audio tapes were finally received on April 24, 2007. Both were for the time period 2155 to 2255 UTC (3:55 to 4:55 pm CST) on November 7, 2006 as requested. One included inbound and the other outbound ground control communications, the results of which have been included in this report.

The senior editor also filed a FOIA request with Scott AFB, Illinois on March 22, 2007 for information concerning all jet interceptor scrambles on November 7, 2006 as well as all available tower logs, communications records, memos and voice recordings having to do only with O'Hare International Airport for that date. No reply has been received as of April 25, 2007.

A second no reply was from R. Gibbons at Chicago TRACON.

Mr. William Puckett also filed several FOIA requests. The first (No. 2007-000943GL) was for NTAP primary and secondary radar data at O'Hare for the time period 2225 to 2240 UTC and all tower voice communications tape recordings related to United flight 446. He received this information on February 2, 2007 but the radar data extended only from 2225 to 2226 UTC for some reason. The more crucial fourteen minutes of data around the time of the sighting was missing. He subsequently learned that the FAA computer used to search and copy the requested data had not been allocated enough memory. He received the entire data set on February 2, 2007. His second request was for all inbound and outbound ground controller tapes for the period 2255 and 2355 UTC which he received in early May 2007.

Dublin-Stephenville Radar Report
January 8, 2008
4pm to 8pm
by Glen Schulze and Robert Powell

I. INTRODUCTION

This report presents the results of a lengthy and detailed analysis made into the sightings of an unidentified flying object on the evening and night of January 8, 2008, in the Dublin-Stephenville area of north Texas. Radar data from five different radar sites as well as witness testimony was reviewed in an attempt to understand what did and did not occur on the night of January 8. The Executive Summary will contain the basic overview of the results of this analysis, the authors' opinions and conclusions to this report. Following the Executive Summary will be the detailed radar results and witness testimony. The primary authors of this report are Glen Schulze and Robert Powell.

Glen Schulze received his BSEE from Washington University in 1952. While in the U.S. Army he was assigned to White Sands Proving Grounds (WSPG). There, he participated in evaluating and improving a five antenna site Cooperative Chain Radar System for tracking high performance long range missile launches. His contributions to the WSPG radar system resulted in earning a letter of commendation from the Commanding General of the USA 4TH Army. In the 1960s Mr. Schulze provided a major service to the CIA/NSA in the successful recording of high powered Russian radar signals arriving at the Caribbean Island of Antigua after being reflected from the surface of the moon. In the 1970s Mr. Schulze was instrumental in the successful demonstrations of recording and reproducing radar antenna return signals at the FAA Atlantic City Labs for accident investigations which eventually led to the FAA incorporating the tape recording of all FAA radar antennas around the US. In the mid 1990s Mr. Schulze began evaluating FAA radar signals obtained from FOIA requests for FAA antennas positioned at JFK, DFW, Logan Boston, Newark, O'Hare, LAX , San Diego and Sky Harbor Phoenix. He has evaluated over 3 million radar return signals from various FAA antenna sites. Mr. Schulze has flown extensively on over fifty USN P3 and USAF ARIA aircraft flight exercises as a civilian crew supernumerary responsible for the collection and recording of critical DOD and NASA data. Mr. Schulze was also involved in radar analysis of the breakup of TWA flight 800, and is a Life Member of the IEEE Professional Engineering Society.

Robert Powell is the current Director of Research at MUFON. He received his BS in Chemistry from Southeastern Oklahoma State University in 1976. He worked in the semiconductor field from 1978 to 2006, where he gained experience in device physics, statistical analysis, and relational algorithms used to improve the performance of semiconductor chips. During that time he participated in the development of MOSTEK corporation's first CMOS based semiconductors. At Advanced Micro Devices (AMD), during the 1980s, he was responsible for the early development of the flash memory chips that are now used in cameras, PCs, memory sticks, and other electronic products. During the 1990s he was a manager responsible for quality control methods used in AMD's manufacturing and engineering sites and was the manager of a state of the art chemical analysis laboratory. From 2001-2003, he was the manager of AMD's research group, the Analytical Development Lab. The group consisted of two scientists with PhDs in Laser Physics & Physical Chemistry, two engineers with Masters in Electrical Engineering, and two technicians. The group was responsible for developing new techniques for use in failure analysis of semiconductor circuits at nanoscale dimensions of 45-90 nanometers. This included research on near field optical microscopy, terahertz frequencies for visualization through materials, atomic force microscopy, and joint work with several leading universities. Mr. Powell is a joint holder of four patents related to these areas of research. He is also an amateur astronomer.

II. DEFINITIONS AND TERMINOLOGY

AOI Airspace of Interest is a cube of airspace representing an area of radar interest that is analyzed.

ARIA Apollo Range Instrumentation Aircraft

ARTCC An Air Route Traffic Control Center is an FAA center responsible for high altitude traffic as it passes between airport departures and approaches.

Astronomical Twilight Time period when the sun is at 12 to 18 degrees below the horizon. Sky illumination is undetectable and all stars are now visible.

AWACS An Airborne Warning and Control System aircraft is designed to maintain surveillance, command, and control of other aircraft during a battle.

Carswell AFB and NASJRB Both of these are terms that refer to the military air base in Ft. Worth. Formerly call Carswell, now officially the naval air station joint reserve base with units from the air force, marines, and Texas AF Reserves operating from there.

CBP Customs and Border Patrol

Civil Twilight Time period when the sun is less than 6 degrees below the horizon. Only the brightest stars and planets are visible.

FAA The Federal Aviation Administration is the Federal government agency responsible for developing and operating a system of air traffic control and navigation for both civil and military aircraft.

FOIA The U.S. Freedom of Information Act (FOIA) is a law ensuring public access to U.S. government records. FOIA carries a presumption of disclosure; the burden is on the government - not the public - to substantiate why information may not be released. Upon written request, agencies of the United States government are required to disclose those records, unless they can be lawfully withheld from disclosure under one of nine specific exemptions in the FOIA. This right of access is ultimately enforceable in federal court.

FTW Primary and secondary radar unit located in Ft. Worth, Tx.

MARSA Military Assumes Responsibility for Separation. See appendix for detailed description.

MOA Military Operating Area is a defined area allowing for military practice drills.

MTR Military Training Route is a defined and narrow air route used by an airbase to travel through civilian airspace to reach a MOA.

MUFON Mutual UFO Network is a non-profit organization created in 1969 with its mission being the scientific study of UFOs for the benefit of humanity.

NM Nautical Mile is equal to 1.15 statute miles.

NWS National Weather Service

Primary Radar & Skin-Paint Both terms refer to radar detection based on reflection of the radar beam off an object.

QOO Secondary radar unit only, located in Anson, Texas, near Abilene.

QAZ Primary and secondary radar unit located in Azle, Texas, near Ft. Worth.

QYS Primary and secondary radar unit located in Rogers, Texas, near Temple.

Redact The act of removing sensitive information by blacking it out.

RSR Primary and secondary radar unit located in Rock Springs, Texas, east of Dallas.

Secondary Radar The detection of an aircraft based on a beacon signal being emitted from the aircraft.

Transponder & Beacon Both terms refer to a system that emits a signal from an aircraft to a secondary radar antenna.

USPA Unaffiliated Skin-Paint aircraft are unidentified aircraft of interest that are not using transponders.

UTA Unaffiliated Transpondered aircraft are aircraft of interest that have transponders but are not part of the 10 jets from CAFB.

III. EXECUTIVE SUMMARY

This report deals specifically with radar as well as witness sightings of an unidentified object seen on January 8, 2008, between the times of 6pm to 9:30pm. This unidentified object was seen by multiple individuals in the skies near the Texas cities of Dublin and Stephenville. What makes this sighting unusual is that radar data has been obtained that provides precise information on the location of all military and commercial aircraft in the airspace of interest (AOI) at all times during 4pm to 8pm on January 8, 2008. Additionally, data was obtained that indicates unidentified aircraft without transponder beacons which were not military jets, were found in the same compass direction and time frame as cited by the witnesses. These sightings occurred on a cloudless evening with 10+ miles visibility, no wind, and temperatures in the upper 40s. This report concentrates on the events of January 8th and contains much more substantiated information than has been reported in the media during the 5 months following these sightings.

Data to support this report was obtained from ten different Freedom of Information requests to the FAA, the National Weather Service, all nearby military bases, the U.S. Customers & Border Protection Services, and the 21st and 30th Air Force Space Wing Commands. The NWS and the FAA were very responsive in their FOIA replies. The FAA provided 2.8 million radar returns that covered 4pm to 8pm and that were extracted from five different radar sites. Additionally, Carswell AFB provided the logbook of the 457th Fighter Squadron. Most of the logbook was manually blacked out. (This group flies the F-16C/D, also known as the Fighting Falcon.) The remainder of the FOIA requests, were returned with almost identical statements, as follows: *"We have found no records responsive to your request."* This is the reply given to the straight forward questions, *"Did you have aircraft flying within 50 miles of Stephenville on January 8, 2008 and ?*" Apparently, it is difficult to answer "yes" or "no" to those questions.

Witness testimony was obtained from MUFON's investigations into these sightings. This investigation began in Dublin on January 19, 2008. Seventeen different reports were obtained regarding sightings on January 8th. This is a very large number of sightings to occur during only one day and within a four hour period of time. Eight of these reports provided sufficient detail to identify a time and direction of the sighting of the object. Witnesses in these reports included a constable, a chief of police, a private pilot, and a former air traffic control operator. Those reports also provided enough information to calculate a gross approximation of the object's size and altitude.

The authors of this report first verified the quality of the radar data. The data was correlated between radar sites to determine accuracy between radar, ability of the radar to accurately measure the speed of known aircraft, and to determine the various radars' minimum detection altitude capability. (Unfortunately, the FAA primary radar do not measure size of an object.) The results of this work indicated that the Ft. Worth based radar, antenna FTW, was the most sensitive of the five radar sites in the area of Dublin-Stephenville. Good correlation was obtained between radar antennas and a minimum detection altitude of 2500-3000 feet in the Dublin-Stephenville area. This limit is caused by earth curvature as the distance from the radar site increases.

The first step in the radar analysis was to determine the extent of military activity and the location of military aircraft operating in the area of Dublin-Stephenville. The authors began with an examination of the redacted logbook from Carswell AFB. The logbook shows a sortie of four aircraft leaving at 6:00pm and another sortie of four aircraft leaving at 6:15pm, with both sorties returning at 7:30pm and 7:45pm respectively. Radar data shows take offs of 5:52pm and 6:15pm with returns of 7:14pm and 7:27pm. Radar data also shows a 9th and 10th jet leaving Carswell at 6:29pm and returning at about 8:00pm. These last two flights are most likely the two rows redacted in the logbook after the entries for the other 8 jets. There are two more rows redacted after the 9th and 10th flight, but it is difficult to tell if those flights took place. Also appearing on the logbook are 10 redacted rows which appear to be flights on the same day and prior to the eight flights already mentioned. These

additional 10 earlier flights cannot be verified because the radar data from FOIA requests is only from 4pm to 8pm. It is reasonable to assume that aircraft from Carswell from earlier flights may have also been in the area. All of the 8 jets identified on this logbook and the two redacted flights, flew into the Dublin-Stephenville area. This logbook highlights a high level of military aircraft for this area over a time period of less than two hours.

The radar data shows a total of ten jets from CAFB traveling through the Dublin-Stephenville area. The ten jets consist of two sorties of four aircraft and a final sortie of two aircraft. The lead aircraft in each sortie had an active transponder with the other three aircraft without transponders, following close behind. Altitudes of all aircraft with transponders varied between 15,000 feet to 17,000 feet when these aircraft flew over the Dublin-Stephenville area. The location of all these aircraft, have been identified during the entirety of their flights. The first eight aircraft participated in military maneuvers in the Brownwood MOAs. No unusual flight changes were seen until the aircraft left the MOA on their return to CAFB. Two jets in each sortie turned on a new transponder beacon and then veered to the east of the normal Military Training Route by 15 to 30 miles. These jets encroached into civilian airspace and the reason for their diverted path is not known. Flights 9 and 10 initially left Carswell to the north at 6:29pm and flew to a MOA in south central Oklahoma. They departed their MOA at around 7:28 and rather than return to CAFB, they headed south. They did not travel to the Brownwood MOA but instead made a loop around Comanche, Dublin, and Stephenville before returning to CAFB. It is odd why these aircraft flew this circuit far to the south prior to returning to base and why these two aircraft were redacted in the CAFB logbooks.

Radar also shows what appears to be an AWACS (Airborne Warning and Command System) aircraft in the area of interest. An aircraft using transponder code 1462 was altitude profiled and ground track profiled for the full 4 hour time period, during which time it produced a ground track best described as a modified racetrack course formed by several precise 180 degree north/south turns as if it were on a search or monitoring mission. Its altitude was 41000 feet for most of this time period. This is consistent with the high altitude mission of a military aircraft such as an AWACS. Only such military aircraft can afford to fly for over four hours at high altitude and go nowhere in particular. Using radar, an AWACS aircraft can detect other aircraft at distances of 250 miles. We can only speculate on its purpose. One purpose may have been to monitor the F-16 training exercises in the MOA. However, that does not explain why it was in the area of interest for over 4 hours while the ten military jets were in the MOAs and MTRs for only 70 minutes.

Six witnesses in four different instances between the times of 6:00pm to 6:25pm reported an unknown flying object near Stephenville. Radar detected an unknown target in the same area. The object was described as very bright, large, and silent. Two of the four reports indicated the object moved at a very high rate of speed and was also stationary at times. One witness only saw a stationary object and one only saw the object moving at high speed. These reports came from witnesses located with different perspectives of the object. The witnesses were located to the southeast in Selden and Chalk Mtn, to the southwest near Lake Proctor, and to the west near Gorman. Because these sightings came at about the same time and from very different locations and distances, it would be difficult to assign a single explanation to all four reports. Some of the explanations circulated in the media, such as a commercial airliners or military jets, are simply not tenable. The glint of sunlight on a commercial jet cannot be seen from four different angles due to the varied locations, nor can it explain an object that remains stationary. The military F-16s in the area maintained standard flight paths at elevations of 16,000-17,000 feet. One sortie of four jets flew over the Dublin-Stephenville area between 6:14-6:15pm and another sortie of four jets at 6:23-6:25pm. Only two of the four witnesses were close enough to Stephenville to have seen the jets. The closest witnesses to the jets were in Selden. They would have seen them taking up only 0.08 degrees of sky or about 38 times smaller than the unknown object as described by the witness. Radar detected an unknown object 7 miles due north of Selden at 3 seconds after 6:15pm. Radar detected a second unknown object 20 seconds later that was northwest of the first detection and about 9 miles north of Stephenville. This movement mimics what the primary Selden witnesses saw when they described the object coming in from the northeast then moving to north of their position and then to the northwest of

their position, before becoming stationary to the west. If the two unknown objects picked up on radar are one and the same, then the object moved at about 2100 mph. The Selden witnesses also indicated that the unknown object returned and was being chased by jets at very low altitude. These chase jets do not show up on radar. If their altitude was below 2000 feet, as described by the witnesses, then they would have been too low to be detected by the nearest FAA radar.

Another group of four witnesses saw the object between 6:40pm to 7:15pm in the Dublin area, with the final sighting at 9:30pm near Comanche. There were two radar tracks of an unknown object during this time period. The witness at 6:40pm saw an object in the sky to the southwest that she described as two large glowing amber lights similar in size and color to what you would see if behind a school bus at night. She saw the object in a stationary position for just a few seconds and then it disappeared. Radar detected a slow moving object 11 miles to the west-southwest of her position at 6:51pm and then 6 miles southwest of her position at 7:02pm. This object had no transponder and was tracked on radar for over an hour. Most of the time, the object was either stationary, or moving at speeds of less than 60mph. At 7:32pm, the object was tracked accelerating to 532mph in 30 seconds and then slowing to 49mph only 10 seconds later. It is possible that some of this speed variation could be due to imprecision with the radar. This is covered in more detail in the main body of this document. The authors are not aware of any publicized military craft capable of traveling at very low speeds for extended periods of time, accelerating rapidly to such a high speed, and then suddenly decelerating in what might best be described as a controlled crash. The closest capability would be a Harrier type jet, but it would not be able to maintain slow speeds for such extended periods of time nor decelerate so rapidly. Much more important than the possible sudden acceleration shown by the object is its trajectory heading. This object was traveling to the southeast on a direct course towards the Crawford Ranch, also known as President Bush's western White House. The last time the object was seen on radar at 8:00pm, it was continuing on a direct path to Crawford Ranch and was only 10 miles away. During this entire episode of over an hour, there is no indication that any of the military jets reacted to this unknown aircraft, that was without a required transponder, and that was headed directly to the Western White House.

At 7:15pm a constable saw an unknown object south of his home. His home is located 4 miles southwest of Dublin. He described the object as two amber lights that were initially stationary. This is similar to the description given by the witness at 6:40pm. He then described the lights as changing to a random movement of 9 to11 white lights overhead that then departed at a very fast rate of speed to the northeast. Radar detects an object at 7:20pm only 2.8 miles south southwest of the constable's home and traveling slowly in a southeastern direction. This matches very well with the time and direction of the constable's sighting. At 7:26pm, radar shows the object suddenly veering to the north at 1900 mph and then returning a minute later to continue on its southeastern course. It is possible that the radar detection of an object to the north was coincidental in time and was not the same object as was traveling to the south of the constable's home. However, the object traveling north matches the constable's description of a fast moving object traveling towards the northeast. This object finally disappeared from radar at 7:35 about 10 miles southeast of the constable's home.

The last time the object was seen on January 8th was by a former air traffic controller to the west of downtown Comanche. His description of the object was very similar to the constable's. He saw multiple lights moving around in a random fashion for almost a minute and then they disappeared as if someone turned off a light switch. 10-15 minutes later he saw military jets in the same area that he compared to the unknown object as raisins to a grapefruit. The FOIA radar data obtained by the authors only covered through 8pm, thus this sighting could not be confirmed with radar. However, due to its similarity to the previous sightings and the quality of the witness, this report is definitely noteworthy.

The findings and conclusions of the executive summary are the same as the conclusions in the detailed report and can be found near the end of this document.

IV. RADAR DATA AND HOW IT WAS OBTAINED

Freedom of Information Act (FOIA) requests were sent to all governmental and military bases with access to logbooks, witnesses, and radar data, to the events that took place on January 8th in the Dublin-Stephenville area. Copies of these FOIA requests and the replies are in the appendix. The radar data FOIA was sent out to the FAA on January 16th and the remaining FOIA requests were sent out within the first 2-3 three weeks of the event and went out to the following organizations:

The Federal Aviation Administration, Ft. Worth, TX.

The National Weather Service, Ft. Worth, TX.

The Dept of the Air Force, 30th Space Wing, Vandenberg, CA

The Dept of the Air Force, 21st Space Wing, Peterson AFB, CO

Dyess Air Force Base, Abilene, TX.

Sheppard Air Force Base, Wichita Falls, TX.

10th Air Force, Naval Air Station Joint Reserve Base, Ft. Worth, Tx.(also known as Carswell AFB)

4th Marine aircraft Wing, Naval Air Station Joint Reserve Base, Ft. Worth, Tx.

U.S. Customs and Border Protection, Washington, D.C.

Dept of the Army, Ft. Hood, TX.

Radar data was received from both the Federal Aviation Administration and the National Weather Service. The FAA quickly responded to a FOIA sent on January 16 and mailed out the completed results within 5 weeks. The FAA was also very helpful in answering questions and was very responsive in all of their communications. The FAA provided approximately 2.8 million radar returns that were on a CD containing 139 megabytes of data. This data was received in PC standard text format and covered over 4 continuous hours of time (4pm to 8pm CST) and had been collected and recorded from each of 5 different radar antennas located near and around the DFW airport airspace. The text data was converted into Microsoft Excel format and the analysis was completed using Excel routines. The Fort Worth ARTCC deserves high praise and an offer of deep appreciation for their rapid and compliant response to this important FOIA.

The NWS was also very quick to respond to the FOIA request. Their data is not as valuable for analysis of aircraft as the radar data from the NWS is based on Doppler radar that initiates a data signal collection only once every 10 minutes in clear weather and once every 5 minutes during inclement weather.

The authors of this report invested and dedicated several hundred hours in the analysis of the radar data that was obtained. A later report will be written to detail the steps used in the development of this report. But for now, the analysis consists of the following basic steps:

1. Initiation of a FOIA to government agencies.
2. Followup and re-initiation of FOIAs where applicable.
3. Conversion of radar data into a usable format.
4. Familiarization with radar data as each FAA region has slightly different FOIA data reporting formats.

5. Understand the types of radar used and their capabilities.
6. Screen data to areas of interest and evaluate data quality.
7. Evaluate flight patterns, flight origination, and flight destination of all military aircraft using military aircraft with transponders.
8. Manually screen the data for all military aircraft flying without the use of transponders and hopefully abiding by the MARSA guidelines. (See copy of MARSA in the appendix.).
9. Evaluate radar for unknown objects based on the time and location of witnesses testimony.
10. Create radar graphs based on the above findings.

There was no radar information provided by any of the United States military branches that defend this nation. It is to be expected that not every military department contacted would have information relative to this investigation. The Marine response from Ft. Worth and the Air Force response from Dyess both seemed to be forthright responses. (See the Appendix for copies of FOIAs and responses to the FOIAs.) However, it is not reasonable to believe, that not a single military base or military facility had any radar data on unknown aircraft in the Dublin-Stephenville area. Could they have not at least provided radar data confirming that there were not any unknown aircraft detected in the area? Instead the responses are almost the same; FOIA after FOIA request; *"We have found no records responsive to your request."* This catch phrase is used so often that it is clear to be the standard operating procedure for the military when answering a request under the Freedom of Information Act. What does that phrase mean? That phrase is not even a "no". It is basically a refusal to provide any information. Enough said on that topic for now. Those organizations that would be expected to have radar information on aircraft in the Dublin-Stephenville area are noted next.

Ft. Hood's reply to their FOIA was, *"There are no responsive records to fill your request."* This statement was made even though a radar installation exists on the base. Ft. Hood is within 70-80 miles of the area of interest, routinely operates with helicopters in the Brownwood Military Operating Area (MOA) and should be able to detect known and unknown aircraft operating in that area. Robert Gray AAF has a fully instrumented airfield tasked with the primary mission of providing training and deployment of III Corps and Fort Hood personnel and equipment. The airfield is capable of handling the world's largest military and civilian aircraft, covering approximately 3,800 acres within the fenced area. The airfield has one 10,000' x 200' runway with an equal length parallel and four connecting taxiways to the west side and two connecting taxiways to the east. The Larkin Terminal, Aerial Port of Embarkation (APOE) was dedicated July 1986. The installation ATC Radar Approach Control (ARAC) is also located on the airfield, providing air traffic control services for Robert Gray AAF, Hood AAF, civilian facilities and assigned airspace.(1)

The United States Air Force 21st Space Wing replied to a request for radar information with, *"A thorough search by the 21st Space Wing did not locate any records responsive to your request."* The United States Air Force has had responsibility for the Naval Space Surveillance System since 2004, when the Navy turned over operation of this radar surveillance grid to the Air Force. NavSpaSur consists of nine radar sites stretching between southern California and Georgia at the 33rd parallel and comprises a radar "fence" capable of detecting basketball-sized objects in orbit as high as 7,500 miles above Earth. The system's network of field stations produces a "detection fence" of electromagnetic energy roughly 5,000 nautical miles long that extends across the continental U.S. and portions of the Atlantic and Pacific Oceans.(2) Yet despite this capability, the Air Force reply indicated no data of any unknown aircraft in the vicinity. Later we will see that there were unknown aircraft based on FAA radar data.

The Customs and Border Protection Department, who is charged with protection of our borders by the Dept of Homeland Security, did not even respond to a FOIA sent on Jan. 30,2008, and a follow

up FOIA sent on Feb. 20, 2008. In order to protect our borders and intercept low flying drug trafficking planes, CBP have aircraft with radar capable of tracking low flying aircraft. As part of Homeland Security, they have an obligation to be aware of any unknown aircraft that could pose a threat to our nation. Yet this organization felt free to not even reply to either FOIA that was certified mailed to them.

The Dyess AFB response to their FOIA was quite interesting. When asked if they had aircraft in the Stephenville area, they replied that they had none of the records requested and that Carswell NAS in Ft. Worth should be contacted because they indicated that Carswell had jurisdiction over that surrounding area. A request was sent back to Dyess requesting clarification of that statement. They were asked, *"Does your reply mean that there were no aircraft from Dyess AFB in the air during the time and location in question, or does your reply mean that Carswell Naval Air Station would be the controlling authority that would answer that question regarding aircraft from Dyess AFB?"* A direct answer to the question was not provided. Instead, Dyess AFB responded with the following*, "If you are trying to seek information regarding aircraft(s) that were flying in the area of Stephenville, Texas, during the date and time that you specified, then you need to contact the Carswell Naval Air Station…"*

The 10th Air Force, based in Ft. Worth, Texas, at the Naval Air Station Joint Reserve Base, formerly known as Carswell AFB, did provide a blacked out flight record to establish that they had aircraft in the Dublin-Stephenville area from the 457th fighter squadron. This document will be discussed later. In terms of any radar images from their aircraft in the area, they replied with, *"The recording cartridge in use* (referring to radar on board aircraft) *have a limited storage capacity. When full, older missions are recorded over. Due to this limitation, all the Digital Recording Cartridge files from 8 Jan 08 have been overwritten."* It is difficult to understand why the radar files would be overwritten when Major Karl Lewis of NASJRB was contacted by the media on Jan. 10th. He was asked about the Air Force's knowledge of anything happening in the area. At that time he said there were no aircraft from Carswell in the area. Two days later he recanted that statement and indicated that there were 10 jets in the area from Carswell. Obviously, the Air Force should have known that the radar data on the 10 jets sent into the area was already of public interest. It is reasonable to believe that they knew it would be needed to settle the controversy of whether jets were in the area and whether any unknown flying object was detected on radar. So why was the radar information from all ten jets erased?

As will be shown later, unidentified aircraft of some type, were in the Dublin-Stephenville area. In light of the catastrophe that occurred on September 11, 2001, the question goes beyond, "What did the people in Dublin and Stephenville witness on January 8, 2008?" The question becomes, "Is our government capable of detecting, identifying, and protecting us from unidentified aircraft, be they plane, helicopter, or whatever, within our own borders?"

V. DESCRIPTION OF RADAR, PHYSICAL LOCATION, AND CAPABILITIES

The entire United States geographical map area, up to an altitude of more than 41,000 feet altitude, is covered by a vast array of FAA radar antennas. Over a third of these long range ARSR-3 and ARSR-4 modern antenna systems could fail or be destroyed by some catastrophe and the entire US would still be adequately protected by the remaining operational FAA antenna systems. The responsibility for 24 by 7 monitoring of US airspace is adequately met and achieved by over 20 FAA Air Route Traffic Control Centers, ARTCC, each with usually12 or more long range antenna systems and each radar with a range coverage of 200 NM or better. The Denver ARTCC located in Longmont, CO is responsible for monitoring the airspace over portions of at least six states. The Ft Worth ARTCC is responsible for all of Texas plus portions of adjoining states and controls operations from radar data from17 antenna sites.

Supplementing the long range ARTCCs, the FAA has over 40 major short range radar facilities using the ASR-9 or more modern ASR–11 antenna systems each with a radar range of 60 NM. These facilities are responsible for airport Terminal Radar Control, TRACON, and aircraft movement monitoring and control operations during airport departures and arrivals. For overlapping coverage backup and redundancy each major TRACON will have multiple antennas separated judiciously onto nearby ground locations. NY TRACON has 5 antenna sites, Southern California TRACON has over 12 antenna sites and DFW TRACON has 4 antenna sites. Every one of the well over 150 FAA TRACON short range ASR antennas could fail and the US airspace would still be 100 % monitored by the long range ARTCC antenna sites.

The closest ARTCC to Stephenville is Fort Worth ARTCC and the closest TRACON is DFW TRACON, with collectively 20 FAA antenna sites between them. At any moment in time over 5 FAA antennas are scanning and monitoring the airspace over Stephenville Texas. Unfortunately, the phrase “flying beneath the radar” comes into play for the Stephenville area as standard FAA radar systems cannot usually monitor the airspace down to ground level.

The typical FAA TRACON radar antenna site is usually located directly on airport property and begins to receive reliable radar returns from A/C operations between 300 and 800 feet of altitude. This more than adequate altitude coverage is not expected to be matched by the ARTCC radars because these long range facilities usually do not acquire traffic control responsibility until the A/C reach 14,000 to 16,000 feet altitude. A single ARTCC filtering algorithm can instantly be activated and eliminate all low altitude radar returns from the ARTTCC monitoring screens for congestion relief. If not eliminated by an altitude filter the ARTCC radar systems can reliably receive radar returns from A/C below 1000 feet or even lower if the radar range to the target is not excessive.

In addition to ground clutter affecting when airborne targets can drop below radar coverage, earth curvature effects come into play. At a distance of 50 to 60 NM radar range the earth curvature can totally prevent tracking a target at an elevation of 2500 to 2700 feet or less. The nearest FAA antennas are over 55 statute miles from Stephenville and radar coverage was therefore not expected to be provided below 2700 feet from any of the nearest FAA antennas sites.

Two separate Stephenville Radar FOIA requests were sent to the FAA and asked for radar returns for a 4 hour period from 4 PM to 8 PM local time from 1) the five closest ARTCC radar antennas, and 2) the five closest TRACON antennas. The FAA responded promptly with over 2.5 million radar returns from the 5 closest ARTCC antennas, identified by italics in the following chart.

FORT WORTH CENTER RADAR ANTENNAS

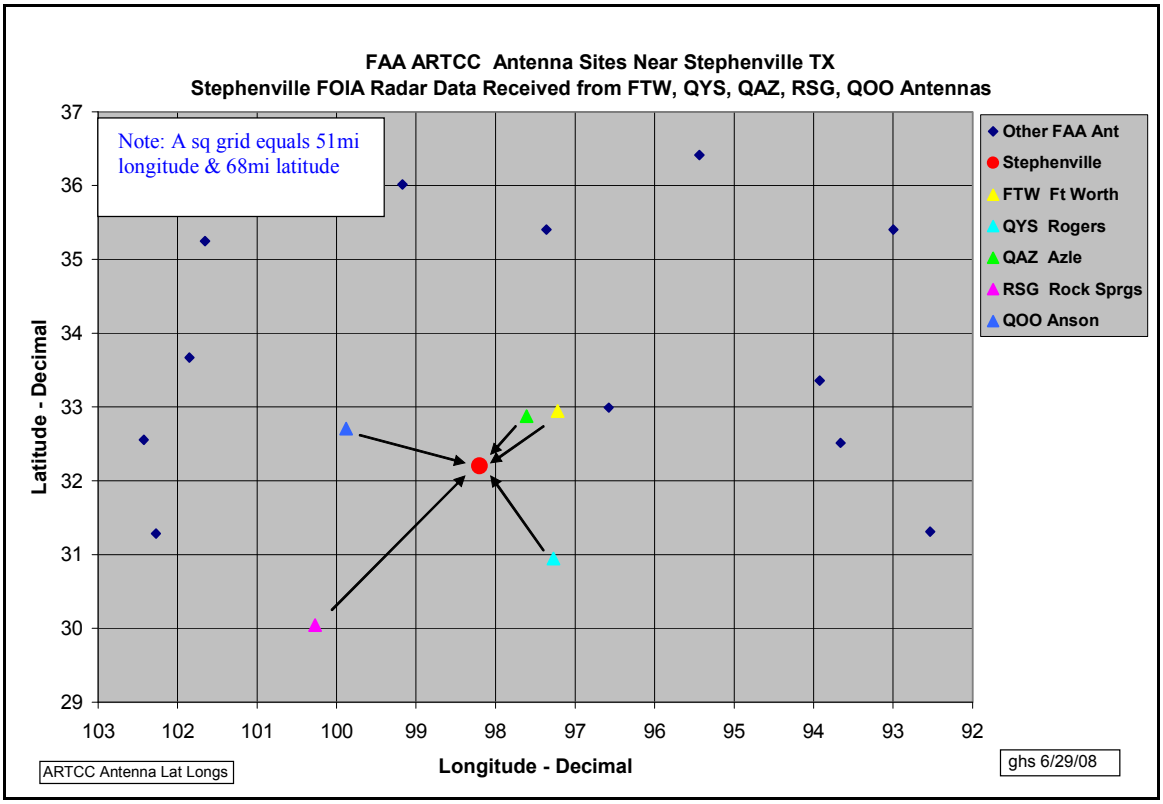
Site ID	Location	Lat	Long
FTW	**FT. WORTH, TX**	**32 56 40**	**097 13 13**
OKC	OKLAHOMA CTY, OK	35 24 08	097 21 34
TXK	TEXARKANA, AR	33 21 35	093 55 22
QXS	ODESSA, TX	32 33 15	102 25 40
AEX	ALEXANDRIA, LA	31 18 51	092 31 50
AMA	AMARILLO, TX	35 14 50	101 39 20
QAF	AFTON, OK (CHELSEA)	36 24 38	095 26 11
QOO	**ANSON, TX**	**32 42 17**	**099 52 49**
QOT	PUTNAM, OK	36 00 52	099 10 18
QYS	**ROGERS, TX**	**30 56 37**	**097 16 06**
QLB	LUBBOCK, TX	33 40 06	101 51 12
RSG	**ROCK SPRINGS, TX**	**30 02 48**	**100 16 04**
QOM	KING MOUNTAIN, TX	31 17 07	102 16 22
QAZ	**AZLE, TX**	**32 52 38**	**097 36 34**
QSK	SACHSE, TX	32 59 24	096 34 41
QXR	RUSSELVILLE, AR	35 24 10	092 59 39
BAD	BARKSDALE AFB, LA	32 3 048	093 39 33

However, no FAA radar data was received from the separate TRACON FOIA request but data from one TRACON short range antenna site QAZ was surprisingly and well received from the ARTCCC FOIA request.

DFW TRACON ANTENNAS

DFWE	32	52	36.91691N	97	00	53.21464W	676.38 Ft elevation
PA2 (AZL)	32	52	38N	97	36	34W	1112 Ft elevation
MI2 (QAZ)	32	59	23.71799N	96	34	41.15285W	637.98 Ft elevation
DFWW	32	55	20.49N	97	02	37.81W	704 Ft elevation

The locations of the five FAA ARTCC radar antenna sites providing responsive Stephenville FOIA data are shown on the following lat long grid map.



The Stephenville FOIA requests were written with specific radar parameters identified as follows:

> "We request the subject radar return data set documentation format follow the unofficial but prevalent NTSB established radar tabular format as follows, with one radar return per tabular line including but not limited to:
>
> a) raw ASR antenna radar return azimuths in degrees to three decimal places after the decimal point,
>
> b) raw ASR antenna radar return ranges in nautical miles to three decimal places after the decimal point,
>
> c) time of ASR radar return in days, hours, minutes and seconds to two decimal places after the decimal point,
>
> d) transponder codes (secondary returns only),
>
> e) transponder altitudes (secondary returns only),
>
> f) ASR run lengths in 1 to 7 steps (primary returns only),
>
> g) ASR antenna site designator code number"

The Stephenville FOIA response from the Ft Worth ARTCC was prompt, totally responsive in requested detail and provided the investigators with over 2.5 million high quality radar returns which appeared to be unedited and unadulterated.

VI. EMPIRICAL CORRELATION OF RADAR AND CAPABILITIES

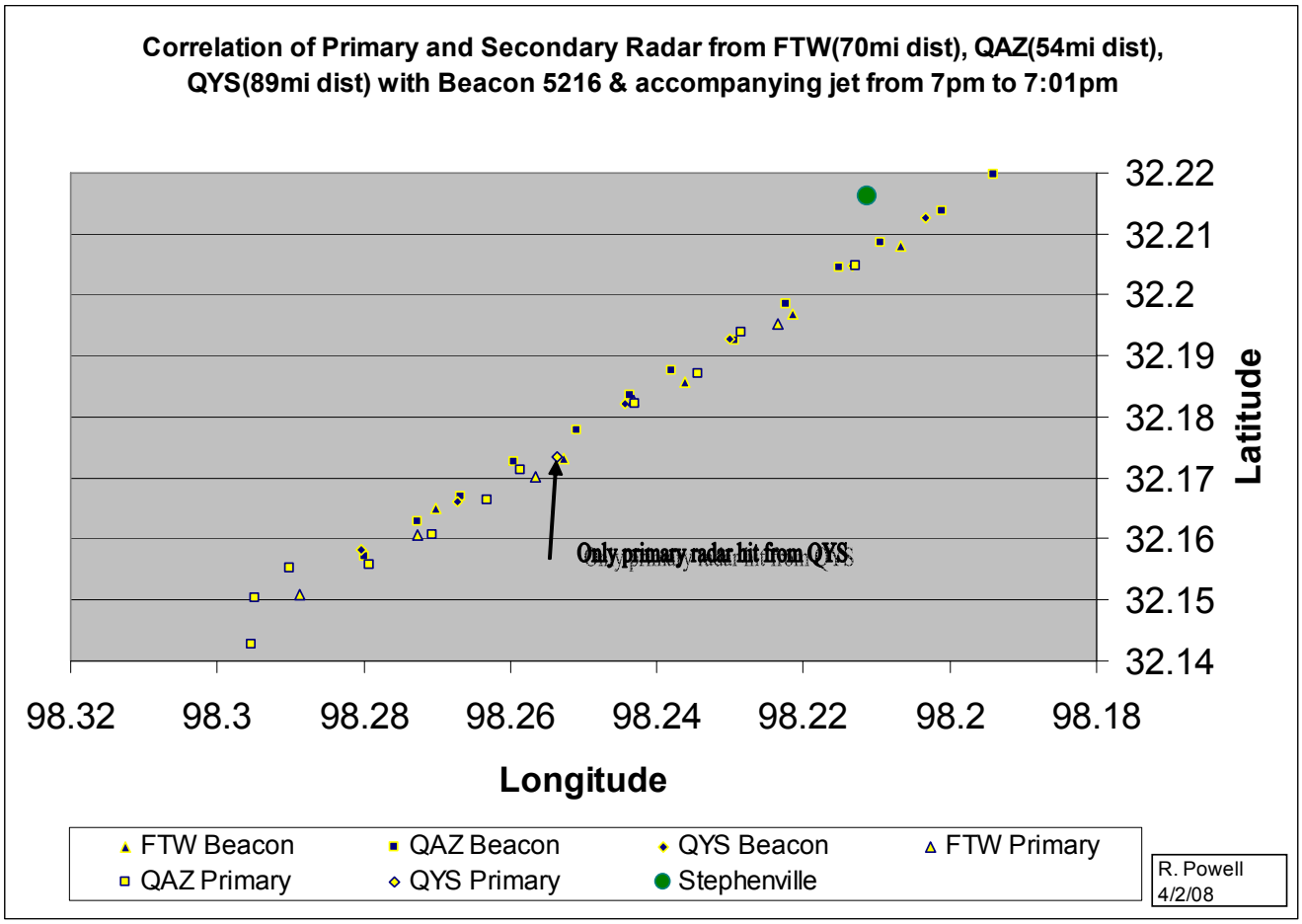
Of the five FAA radar stations, the ones with the most valuable information were those of closest proximity to Dublin-Stephenville and with the capability to detect aircraft without a beacon, or so called “skin-paint” radar targets. Those were QAZ and FTW in the Fort Worth area and QYS near Temple, Texas. Correlation work was done comparing the radar's accuracy of tracking known jet aircraft in the area, ability of the radar to accurately measure the speed of known jet aircraft in the area, and empirical calculations of the radar's minimum altitude detection capability in the direction of Dublin-Stephenville.

The data, supplied by the FAA, was in a text format, and was converted into an excel format so that it could be more easily analyzed. The data consisted of the following information:

1. Identification of the radar and its location.
2. The date and time was in Universal Coordinated Time, aka Greenwich Mean Time.
3. The time of each radar sweep was in approximate 10 second cycles for antennas FTW and QYS and in 4.7 second cycles for antenna QAZ, and was reported to the nearest tenth of a second.
4. An indicator if an object on radar had either a transponder code or if it was being detected by primary radar, aka skin-paint.
5. Range to the object in nautical miles and rounded to the nearest 1/8 of a mile.
6. Azimuth heading to the object in degrees.
7. Altitude of all objects with transponders and their corresponding transponder I.D.
8. Longitude and latitude calculated for each object based on its range and azimuth.
9. Strength of the radar signal was indicated in multiples of 4 with 7 different scales used from 4 to 28.

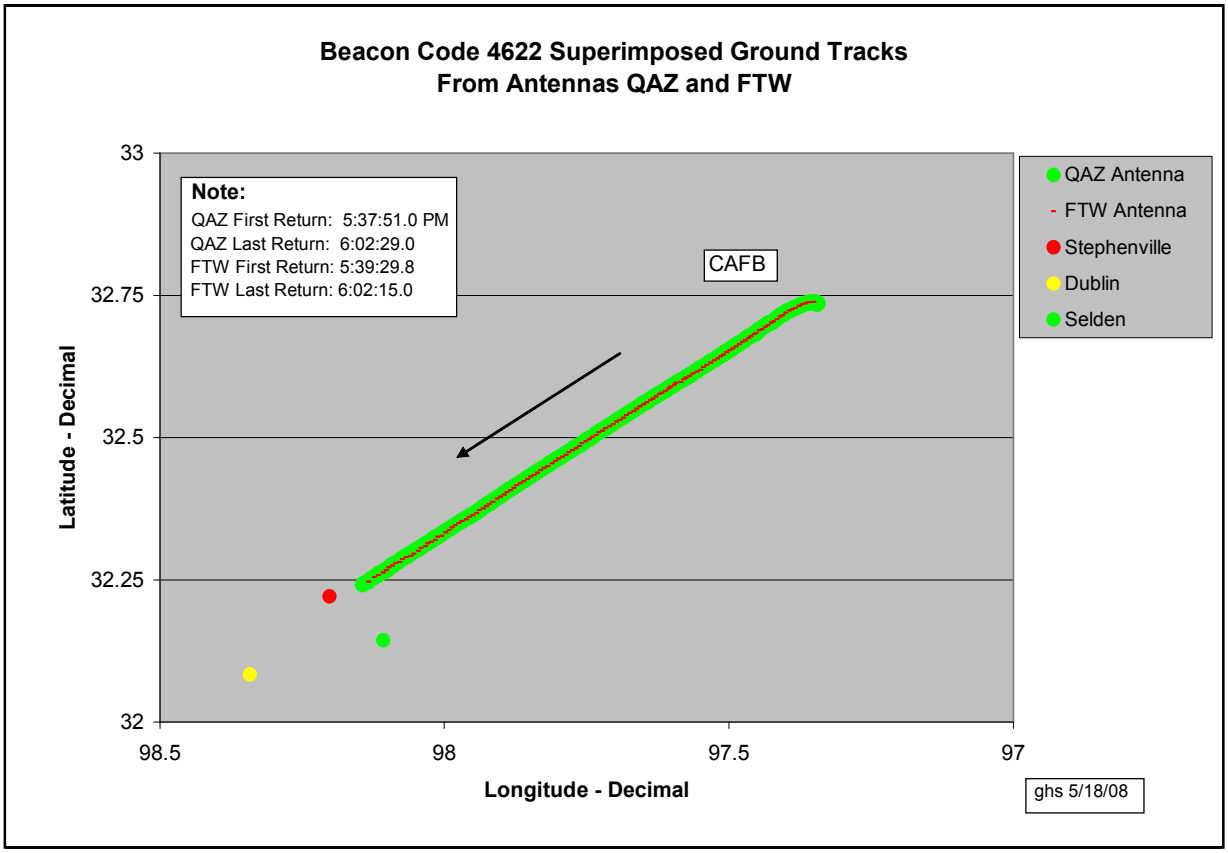
Before using the FAA calculated latitude and longitude values for this investigation, they were mathematically verified as being in agreement with the raw antenna azimuth and range data values.

An Air Force jet from NASJRB flying under beacon code 5216 was used as the test case to determine accuracy between the radar. This allowed for verification of both skin-paint and beacon capabilities because another NASJRB Air Force jet without beacon was accompanying the primary jet. The radar correlation was done when these jets were southwest of Stephenville between 7:00pm and 7:01pm and flying at an altitude of 15300 feet. In graph #1-1 it can be seen that all three radar do a very good job of tracking 5216’s beacon emission, which are the solid green shapes. The yellow shapes represent the tracking of the companion aircraft accompanying 5216, which is not emitting a beacon. The primary radar at QAZ (54 miles distant) and FTW (70 miles distant) accurately track the aircraft. However, the primary radar at QYS (89 miles distant), only picks up this aircraft on one radar sweep out of six sweeps during this time period.



Graph #1-1

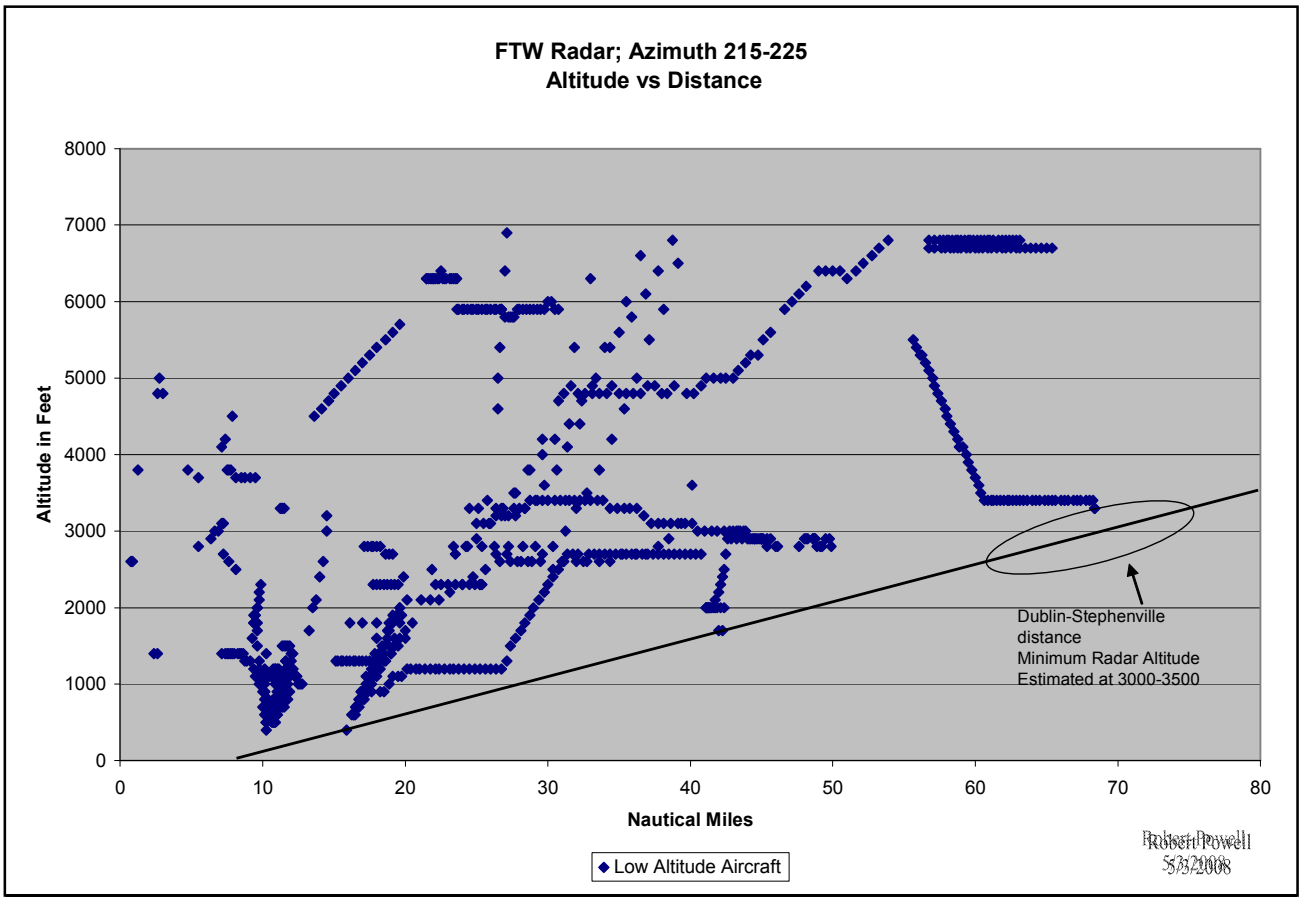
This same accuracy between the QAZ and FTW radars is also demonstrated at lower altitudes on a slow flying plane using beacon code 4622. The radar correlation was done using radar returns from a plane that flew from Ft. Worth towards Stephenville between 5:38pm and 6:02pm and that was flying at an altitude of 2700 feet. In graph #1-2 the QAZ radar trace is shown using large green squares and the FTW radar traces are easily seen by the use of red dashes. Both traces overlay well and indicate good correlation between these two radar systems.



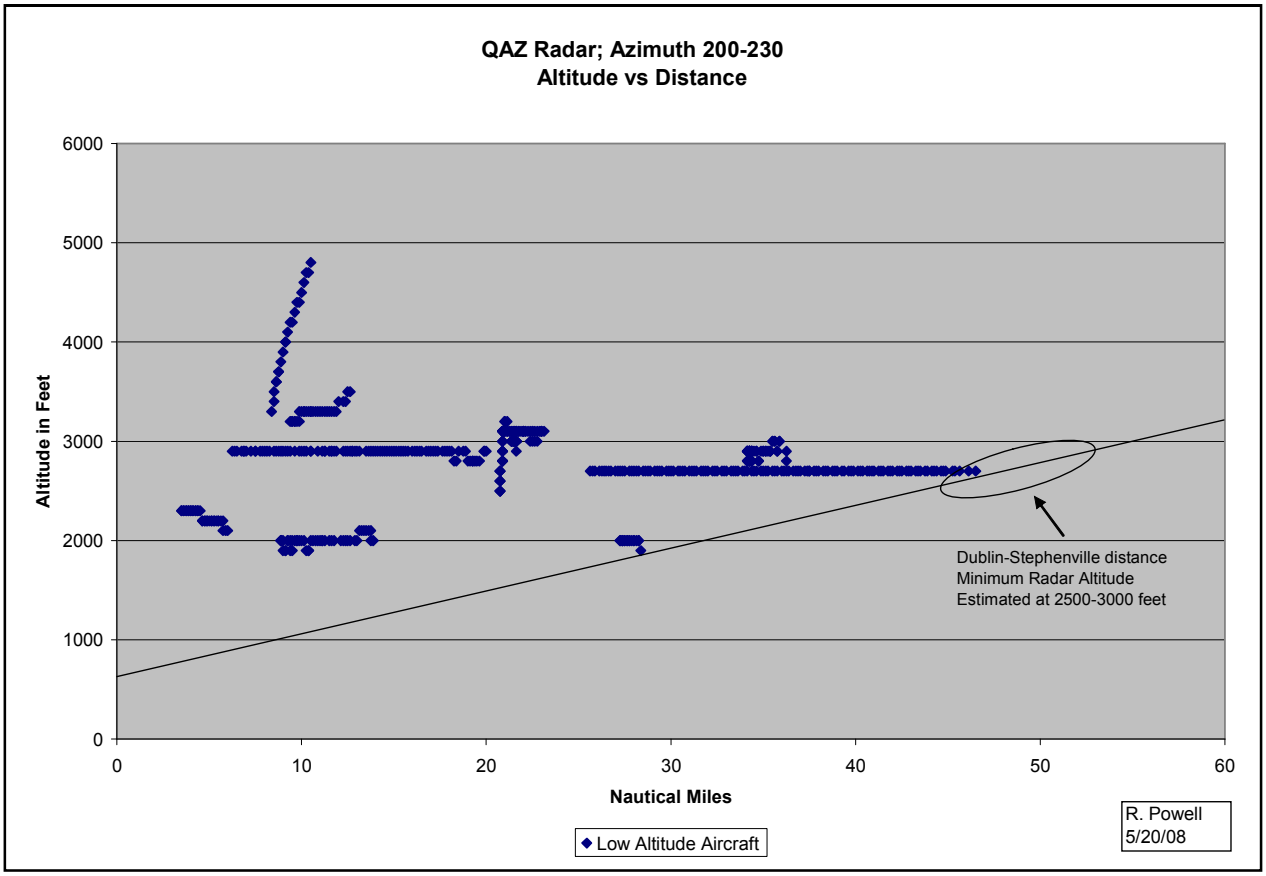
Graph #1-2

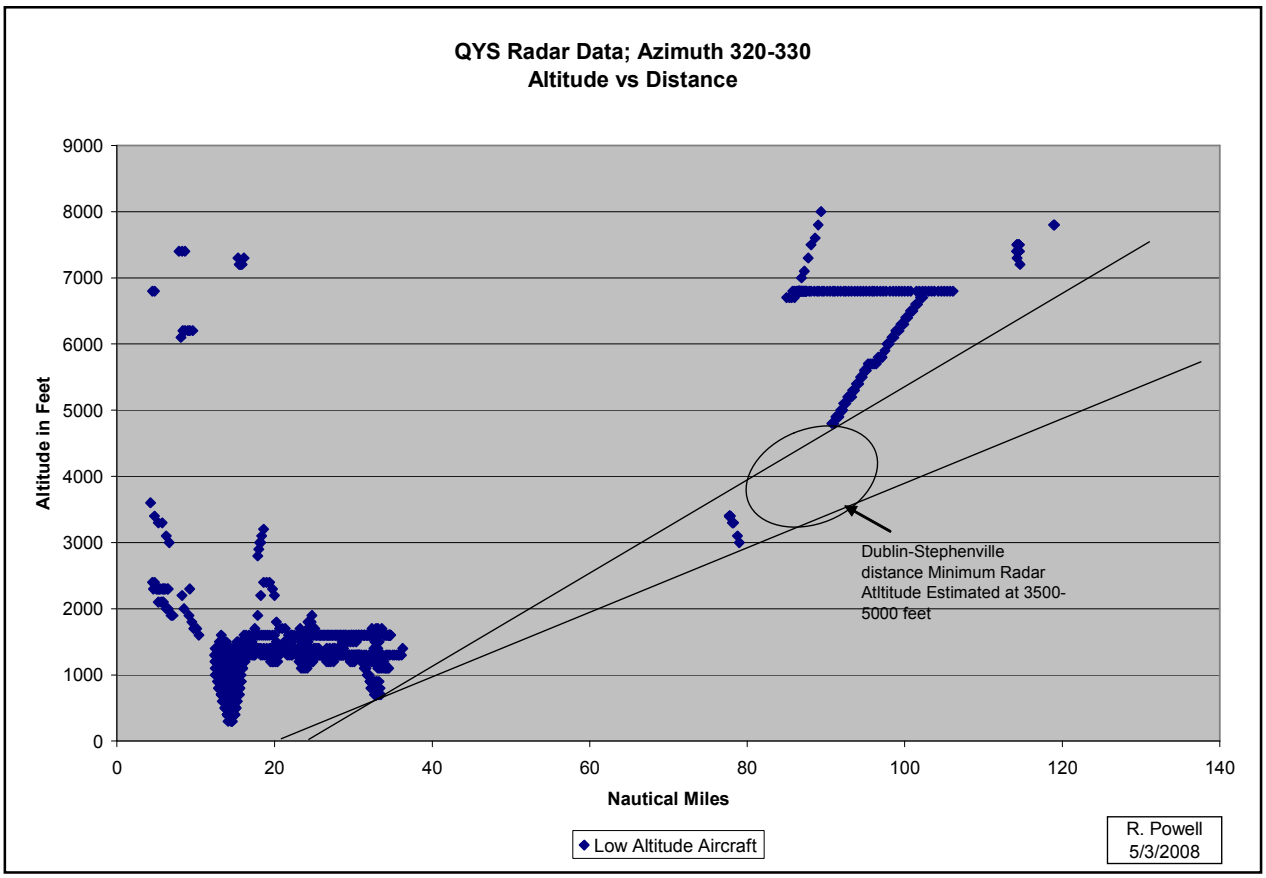
The ability to use radar data to accurately measure the speed of known jet aircraft in the area is demonstrated using the same data that created Graph #1-1. The speed of the jet is determined by taking its longitude and latitude coordinates between two different points in time. The distance between the longitude and latitude coordinates is calculated using the Haversine formula, and then along with the time coordinates, the speed of the aircraft is calculated using $d / (t_2 - t_1) = v$. Using an approximate 30 second time delta, the FTW radar indicates a speed of 423mph for the jet using beacon 5216. The QYS radar indicates a speed of 417mph and the QAZ radar a speed of 430mph. This is a very good correlation between radars with no more than a 3% variance. The calculation was also done using the original range and azimuth values provided by the FAA and the resulting values were the same.

The various radars' minimum altitude detection capability is important information as it provides information as to the minimum altitude of unknown objects that are detected by primary radar. This information was empirically calculated for the QYS, FTW, and QAZ radar by looking at secondary radar of aircraft that are in the same direction as Dublin-Stephenville. This is done because the minimum altitude that the radar can detect can be affected by the frequency of the signal, azimuth due to the tilt of the radar, the change in elevation of the terrain, the curvature of the earth, etc. The filtered data is then plotted in terms of distance vs altitude that allows us to see the minimum altitude that FAA radar can detect in the Dublin-Stephenville area. The following graphs (#1-3, #1-4, and #1-5) indicate that of our three main radar sites, the FTW and QAZ radar have the best capability and are able to detect aircraft down to 2500-3000 feet in the Dublin-Stephenville area. Unfortunately, the QAZ radar's maximum range is reached just south of the Stephenville area and drops off near the Dublin and Selden areas. The FTW radar is the most sensitive radar for this geographical area and will be the primary radar used in analysis.


FTW Radar; Azimuth 215-225
Altitude vs Distance
Altitude in Feet
8000
7000
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80
Nautical Miles
Dublin-Stephenville
distance
Minimum Radar Altitude
Estimated at 3000-3500
Low Altitude Aircraft
Robert Powell
5/3/2008

Graph #1-3


QAZ Radar; Azimuth 200-230
Altitude vs Distance
Altitude in Feet
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
Nautical Miles
Dublin-Stephenville distance
Minimum Radar Altitude
Estimated at 2500-3000 feet
Low Altitude Aircraft
R. Powell
5/20/08


QYS Radar Data; Azimuth 320-330
Altitude vs Distance
Altitude in Feet
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
20
40
60
80
100
120
140
Nautical Miles
Dublin-Stephenville
distance Minimum Radar
Atltitude Estimated at 3500-
5000 feet
Low Altitude Aircraft
R. Powell
5/3/2008

VII. DESCRIPTION OF AREA AND WEATHER CONDITIONS ON JAN. 8, 2008

The geographic area where the sightings on January 8th took place is about 60 miles southwest of Ft. Worth, Texas, and is just a few miles to the northeast of the Brownwood Military Operating Area (MOA), shown in image #1 below. Dublin lies just on the northeast corner of that MOA range. The area is based on an agricultural economy and is renowned for its dairy industry. The entire population of Erath County which includes Stephenville, Dublin, and Selden was 34,000 people in 2005. The terrain is mostly flat with elevations between 1000-1500 feet. Sightings reported by witnesses to MUFON during this four hour period include an area bounded by Stephenville, Selden, Dublin, and Comanche, Texas.

Conditions in this area on January 8th were clear with no clouds throughout the time that sightings occurred in this area. Visibility was greater than 10 miles. Fahrenheit temperatures were in the upper 40s and the winds were calm at ground level. Skewt plots from radiosonde data indicated the following winds at higher altitudes.(6):

2,000-5,000 feet	winds out of the east	30-35 mph
5,000-10,000 feet	winds out of the northeast	50-55 mph
10,000-50,000 feet	winds out of the northeast	60-75 mph

Sunset was at 5:44pm, civil twilight at 6:10pm, and astronomical twilight was at 7:10pm.(3)

BROWNWOOD M.O.A.

Image #1

VII. EVALUATION OF MILITARY ACTIVITY IN THE AREA

A. Detailed Radar Return Findings in The Stephenville Airspace of Interest

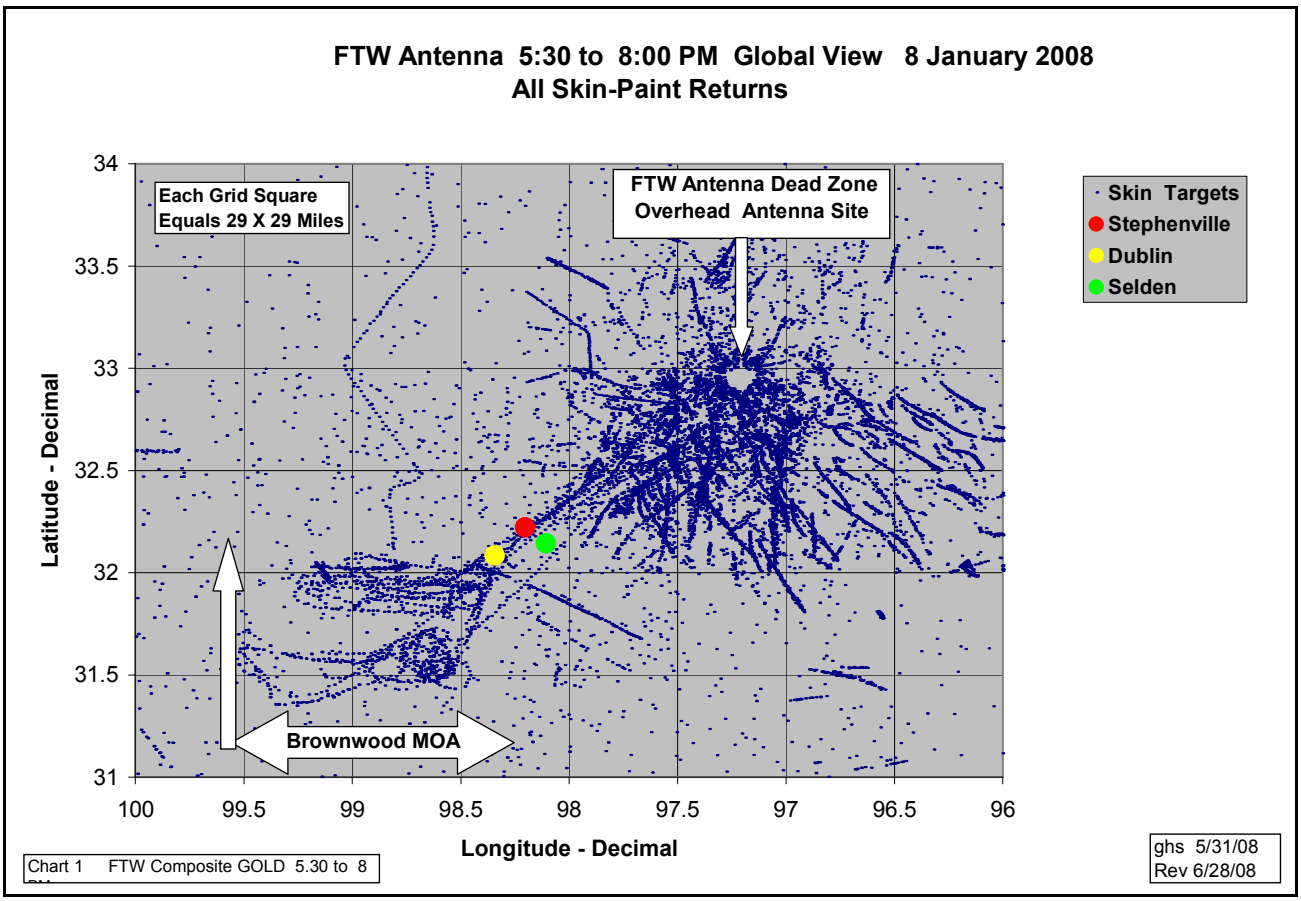
Airspace Of Interest The Stephenville Airspace of Interest, AOI, was selected by the investigators to be approximately a cube of airspace volume centered over the ground centroid formed by the north central Texas towns of Stephenville/Dublin/Selden and the USAF Brownwood Military Operations Area, MOA. This airspace volume is approximately 140 miles East to West by 100 miles North to South from near ground level to 45,000 feet in altitude. This large airspace volume was adequately scanned by at least 5 FAA rotating radar antennas which provided high quality radar returns, both primary and secondary, for the full 4 hour period from 4 PM to 8 PM local CST on January 8, 2008. Because of the radar horizon and line of sight limitations from the earth curvature, the low level altitude coverage of the FAA radars varied from minimums of 300 feet to 2700 feet in the AOI. A total of 16 airborne radar targets in the AOI came under close scrutiny during this investigation.

Radar Returns Graphing Format The millions of radar returns investigated for this report cannot possibly be absorbed and reviewed without the benefit of converting the most important tabular lines of radar returns into graphical charts. Inspection of these graphs can at a glance greatly increase the understanding and comprehension of the all-important FAA radar data available to be analyzed.

The most prevalent and common 2D graph format the investigators have chosen to use is a presentation of the ground tracks of the 16 targets discovered using decimal longitude as the X axis and decimal latitude as the Y axis. Statute mile scales are also shown, with a 1 degree longitude by 1 degree latitude square grid equal to 51 by 68 statute miles respectively. Altitude profile plots for the beaconed targets are sometimes shown as a smaller insert graph in the upper left or upper right corner of the ground track graph. These altitude plots use arrival times of the radar returns in sequence as the X axis and altitude in feet as the Y axis. Colored legends are used when necessary to differentiate between different targets on the same graph. The FAA source antenna and the time period covered by the individual graphs are noted in the graph title and annotated time stamps are shown on the various graphs when appropriate. Graph Nos. appearing in the text are accentuated to make them more easily relocated for reference.

When both Primary and Secondary radar returns are shown on a single graph they will be properly identified. Primary radar returns are also referred to as skin paint returns as they are RF reflections returned to the FAA transmitting antenna by the metallic skin of the target. Secondary radar returns are also referred to as beacon returns as they are a different frequency RF signal returned by the answering target's transponder to the FAA transmitting/receiving antenna. The last few target beacon returns forming a ground track are usually enhanced in size emulating the blooming and decaying persistence of a typical FAA ATC scanning radar screen. Only the Secondary beacon returns carry the targets ID code number and the targets altitude. All FAA radar returns, regardless of type, consist of the targets azimuth angle in degrees, target range in nautical miles, NM, and the hours, minutes and seconds when the radar return was received.

Graph 2-1 shows the massive number of just primary -- i.e., skin paint -- radar returns in and near the AOI for two and one half hours, 5:30 to 8:00 PM, from just the FTW antenna. This Global View Graph, of primarily the southwest quadrant three of the FTW antenna radar data available for analyses, is included primarily to convey the massive number of FAA radar returns received by FOIA request.



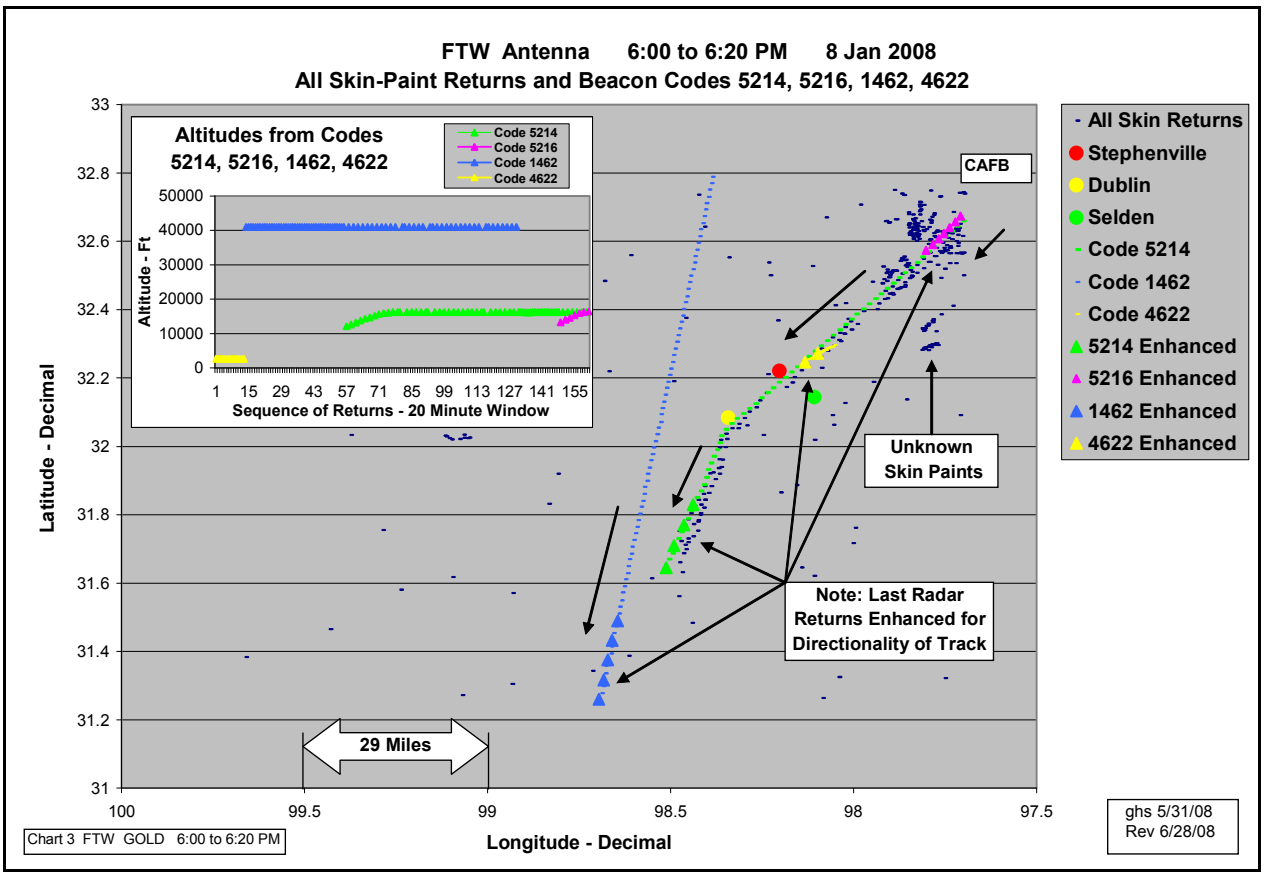
Graph #2-1

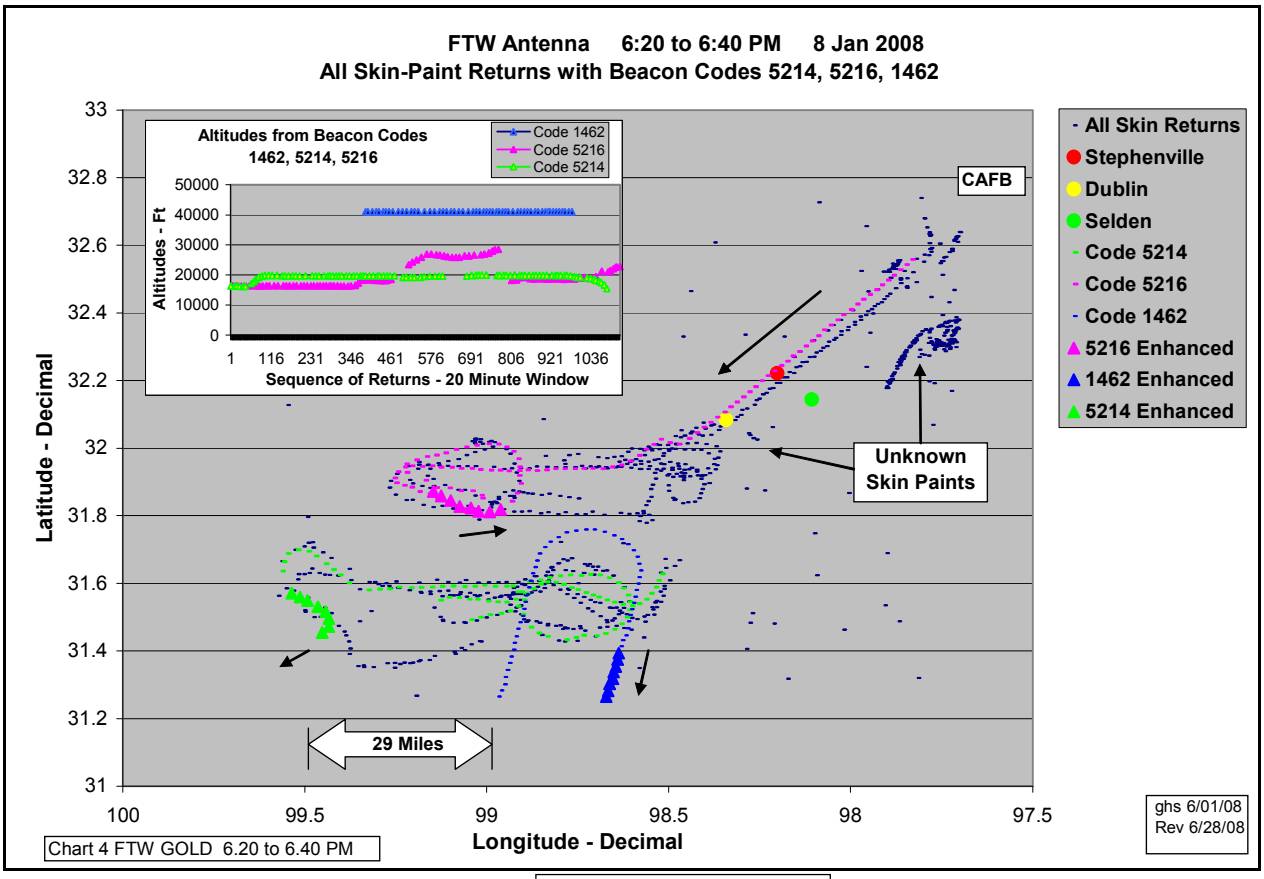
Graphs 2-1 to 2-6 in time aggregates show the 16 targets of interest in and near the AOI after their radar returns have been found and extracted from the entire 2.5 million data returns. These targets are identified by beacon codes when available. These six graphs display either 20 or 30 minute snapshots of radar tracking returns on a non overlapping time basis from 5:30 to 8 PM. It is suggested the novice reader initially derive only a global view impression from these six graphs as detailed discussions of the targets found on each graph will be provided in the following paragraphs along with a display of each graph as it is described.

Graphs 2-7 to 2-14 are customized Graphs designed to graphically enhance and explain a particular target or targets behavioral characteristics, sometimes for targets outside the primary AOI.

B. Ten Identified Military Jet aircraft Operating Out of Carswell Air Force Base,

CAFB Jets 1 to 8 Eight military jets (Identified as F-16s by CAFB) were found to have departed CAFB to the north between 6 and 6:20 PM and then sharply turn southwest toward the Brownwood Military Operations Area, MOA. These 8 jets all transited southwest along the precise centerline of a well used and easily defined Military Training Route, MTR. Their flight paths took them directly over Stephenville in a straight-line heading to the MOA, arriving at the MOA about 20 to 30 minutes after takeoff from CAFB. (See graphs 2-2 and 2-3 on the next page.)


FTW Antenna 6:00 to 6:20 PM 8 Jan 2008
All Skin-Paint Returns and Beacon Codes 5214, 5216, 1462, 4622
Altitudes from Codes 5214, 5216, 1462, 4622
Code 5214
Code 5216
Code 1462
Code 4622
Altitude - Ft
Sequence of Returns - 20 Minute Window
CAFB
Unknown Skin Paints
Note: Last Radar Returns Enhanced for Directionality of Track
29 Miles
All Skin Returns
Stephenville
Dublin
Selden
Code 5214
Code 1462
Code 4622
5214 Enhanced
5216 Enhanced
1462 Enhanced
4622 Enhanced
Latitude - Decimal
Longitude - Decimal
Chart 3 FTW GOLD 6:00 to 6:20 PM
ghs 5/31/08
Rev 6/28/08


FTW Antenna 6:20 to 6:40 PM 8 Jan 2008
All Skin-Paint Returns with Beacon Codes 5214, 5216, 1462
Altitudes from Beacon Codes 1462, 5214, 5216
Code 1462
Code 5216
Code 5214
Altitudes - Ft
Sequence of Returns - 20 Minute Window
CAFB
Unknown Skin Paints
29 Miles
All Skin Returns
Stephenville
Dublin
Selden
Code 5214
Code 5216
Code 1462
5216 Enhanced
1462 Enhanced
5214 Enhanced
Latitude - Decimal
Longitude - Decimal
Chart 4 FTW GOLD 6.20 to 6.40 PM
ghs 6/01/08
Rev 6/28/08

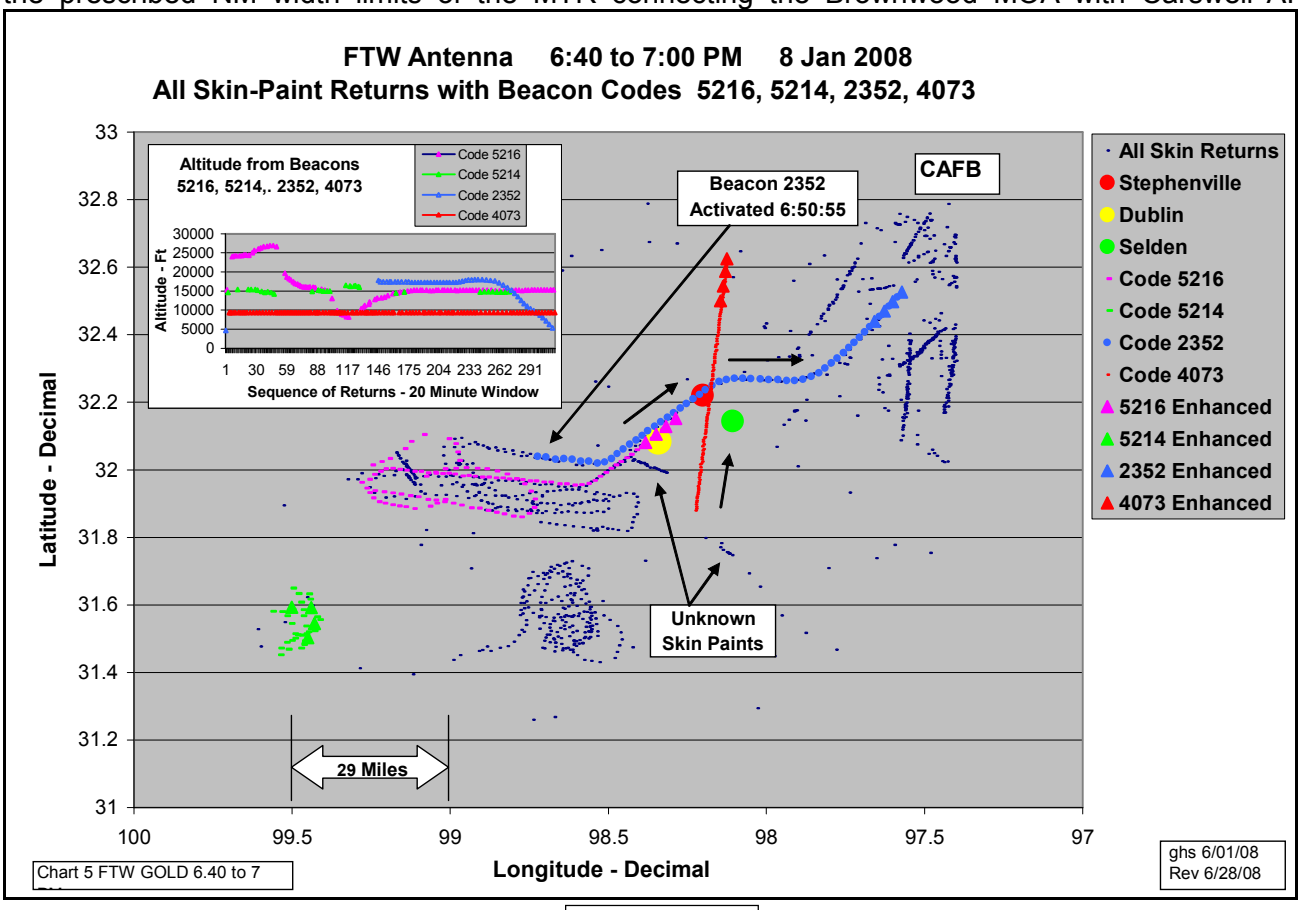
Graphs #2-2, #2-3

The altitudes of these 8 jet aircraft when passing over Stephenville and the center of the AOI were approximately 15,000 ft above ground level, AGL. These altitudes were provided by the transponder beacon codes 5214 and 5216 from the 2 lead aircraft, and the assumption that their trailing six aircraft were in close formation. Each of the two lead and beaconed aircraft led a loosely formed sortie of 4 jets with the 3 trailing jets transponder beacons purposely muted in apparent agreement with FAA/DOD MARSA procedures, i.e., Military Assumes Responsibility for Separation. When military aircraft are in a sufficiently close formation only the lead aircraft is required to have an active transponder.

The first 4 jet sortie that departed CAFB near 6 PM, led by beacon 5214, arrived at the southernmost Brownwood MOA (Brownwood 2 East) near 6:25 PM and performed a number of coordinated and intricate aerial maneuvers all at altitudes above 15,000 ft.

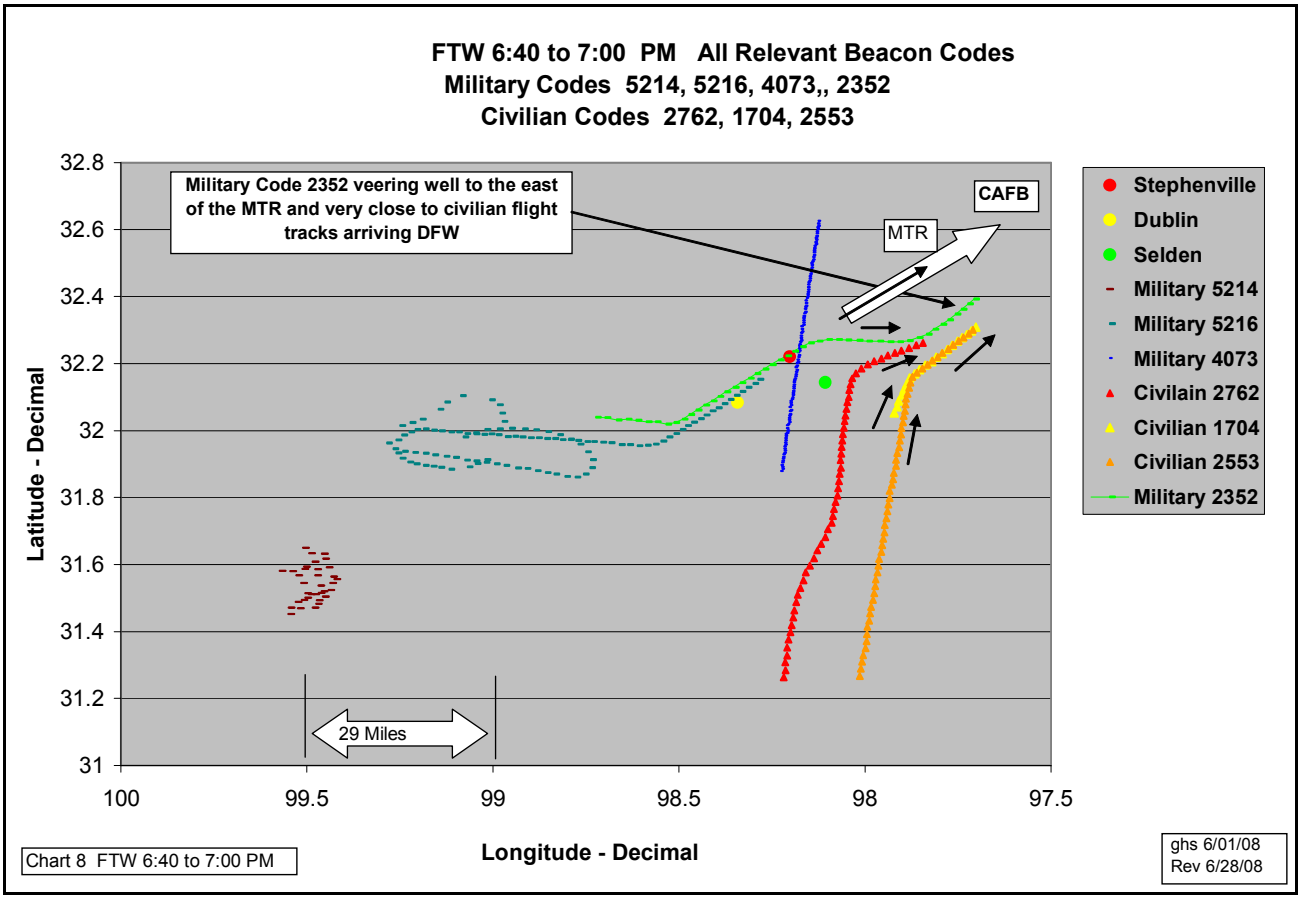
The second 4 jet sortie that departed CAFB near 6:15 PM, led by beacon 5216, arrived at the northernmost Brownwood MOA (Brownwood 1 East) near 6:35 PM and performed a number of intricate aerial maneuvers all at altitudes above 15,000 ft., except for the lead beacon code 5216 aircraft briefly descending down to below 9,000 ft.

Two New CAFB Beacons Activated During High Level Flight Two initially un-beaconed aircraft from the second departing sortie were the first to depart either Military Operating Area and return to CAFB after a very short period of maneuvering time in the northern MOA. (See Graph 2-4) As they broke away from their originally lead beaconed aircraft the new lead CAFB jet activated his beacon code at 6:50:55 PM set to 2352. After having just achieved heading alignment with the MTR centerline leading back to CAFB this lead jet increased airspeed and veered sharply to the right and east for approximately 25 to 30 NM with the trailing second jet in rather loose formation; 2 NM to the rear. This eastward bearing ground track took these 2 CAFB jets close to and probably beyond the prescribed NM width limits of the MTR connecting the Brownwood MOA with Carswell AFB.



Graph #2-4

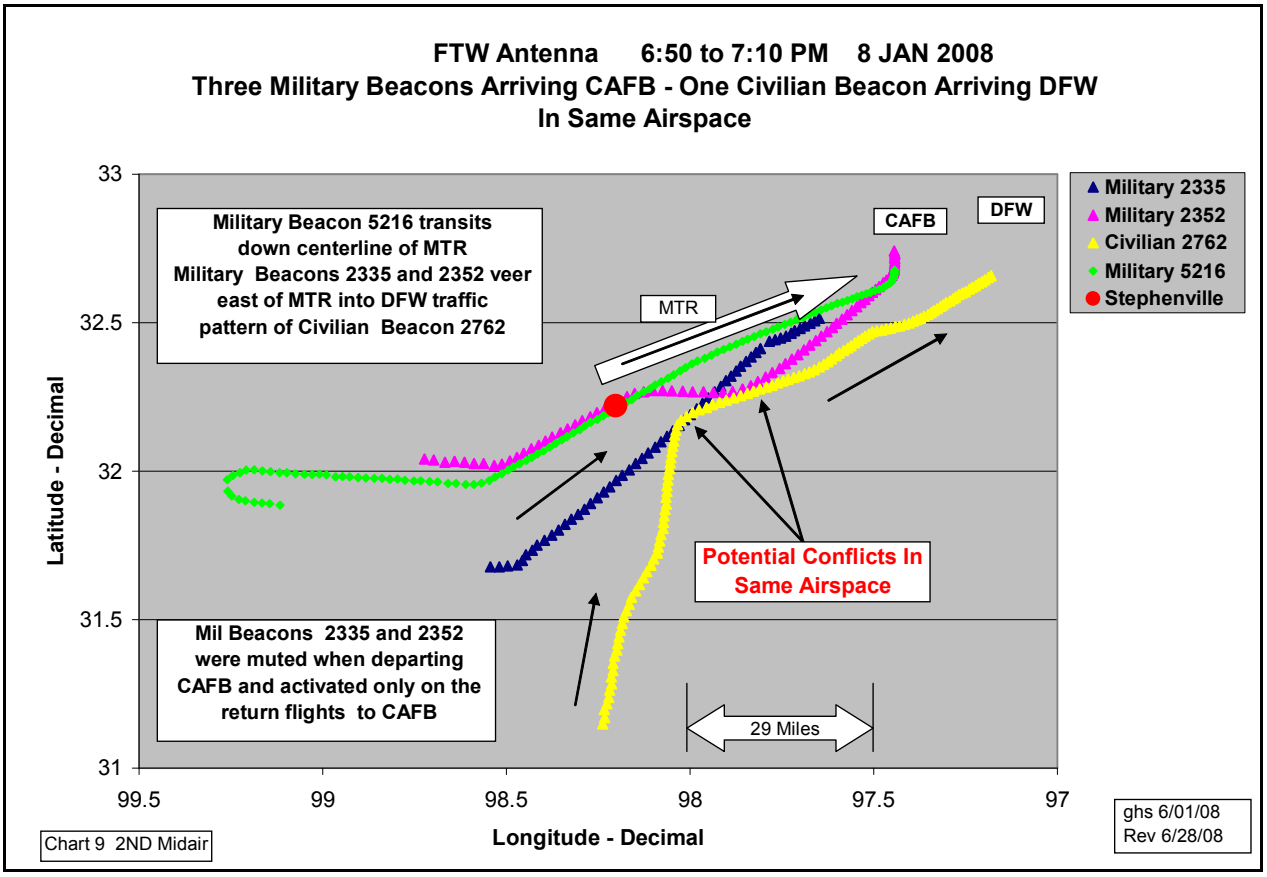
Their ground tracks closely approached the ground tracks of two to three civilian aircraft preparing to land at DFW from the southwest. (See Graph 2-5, below). After a few minutes of their veering to the east from the MTR centerline they again turned northward toward CAFB. These 2 returning aircraft passed near Stephenville and Selden and the center of the AOI between 2,700 and 15,000 ft AGL.



Graph #2-5

A similar sortie disbandment took place with the last 2 aircraft in the first 4 jet sortie that departed CAFB near 6 PM and trained at the Brownwood South MOA. Two of the trailing aircraft in the first departing sortie broke away from their lead aircraft and returned as a separate sortie to CAFB with the new lead aircraft activating beacon code 2335 at 7:00:41.

These 2 returning aircraft did not proceed directly to the MTR centerline but elected to return to CAFB via a ground track transiting 11 to 15 NM east of the usual MTR centerline, but still remained separated from all but one of the civilian aircraft ground tracks. These 2 returning aircraft passed near Stephenville and Selden and the center of the AOI between 2,700 and 15,000 ft AGL. (See Graph 2-6, below.)



Graph #2-6

CAFB Jets 9 and 10 A 9th and 10th military jet departed CAFB to the north near 6:30 PM and transited to a MOA in southern Oklahoma (well north of our primary AOI), with the lead aircraft transmitting beacon returns on code 5241. (See graphs 2-7 and 2-8 on the next page.) These 2 aircraft remained in loose formation for their entire flight and returned to CAFB using only beacon 5241 throughout. Their maneuvers in the Oklahoma MOA were limited to simple and non-intricate concentric circular patterns. Their return to CAFB was not direct as they traveled far to the south, and made a loop around the Dublin-Stephenville area. It seems an odd occurrence that these two planes were diverted to the south after completing their maneuvers in Oklahoma. They then used the same southwestern MTR, between Stephenville and CAFB to return to base. Their return altitudes over Stephenville and the AOI center near 7:40 PM was between 2,700 and 15,000 ft AGL and their ground tracks were within 1 to 2 NM east of the MTR centerline.

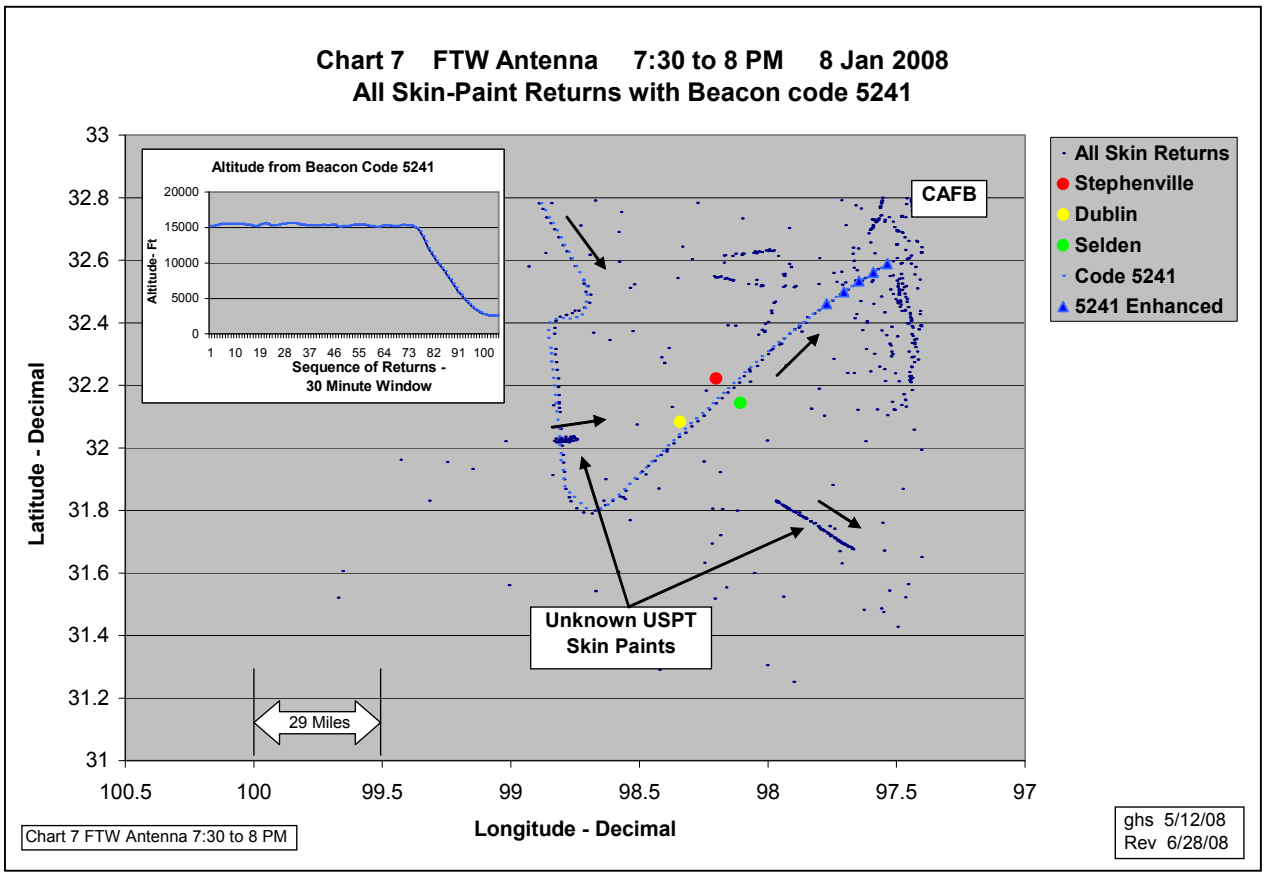
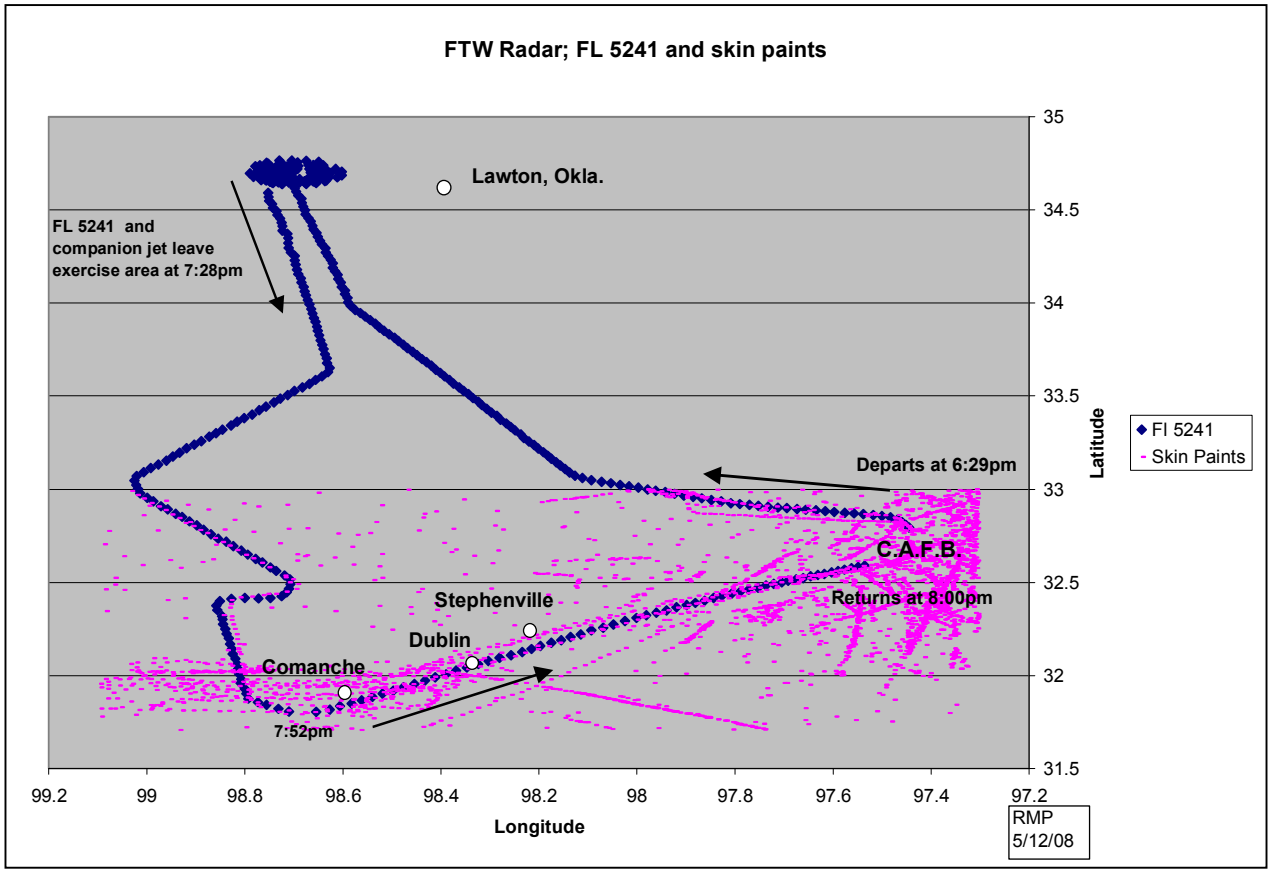


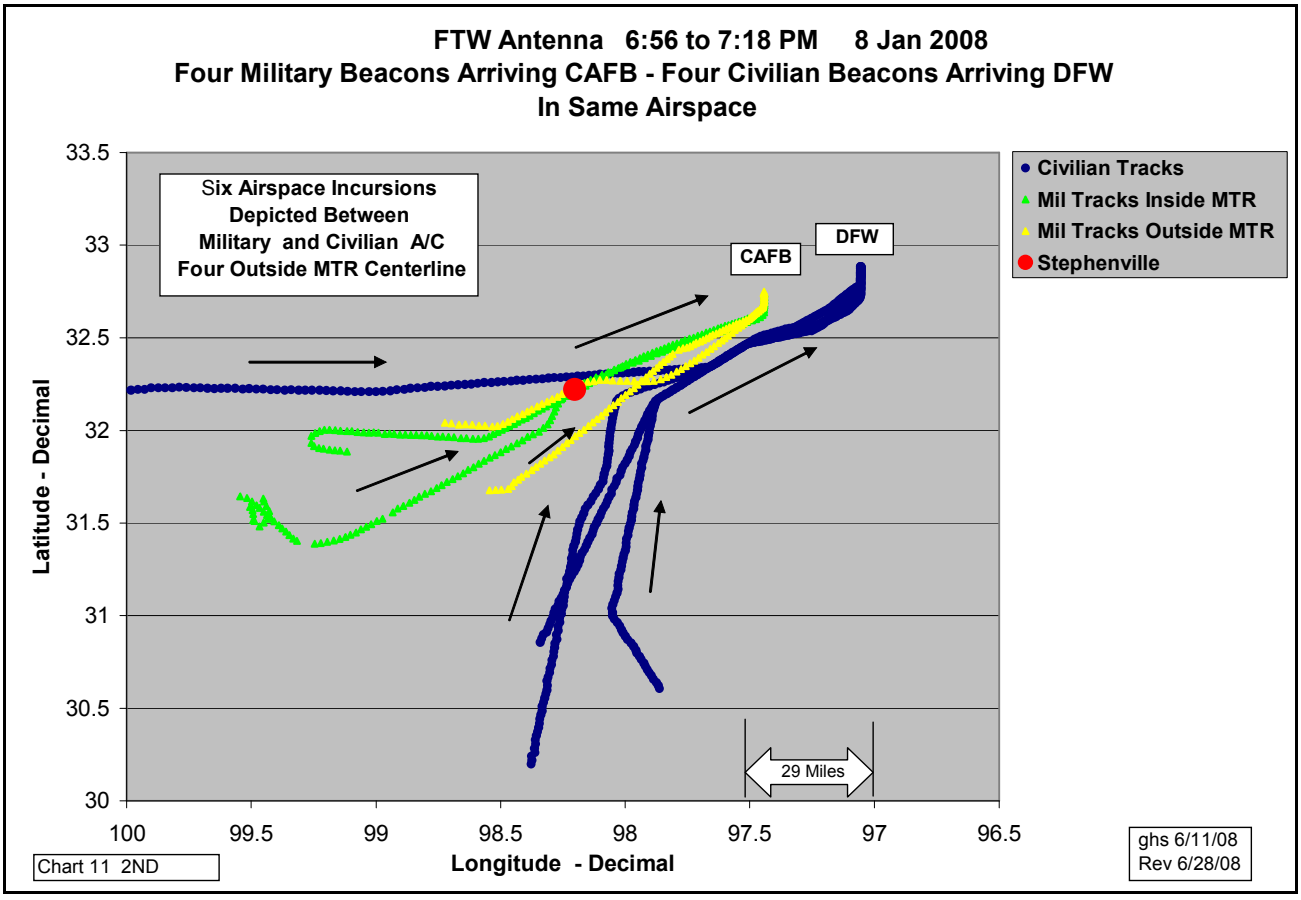
Chart 7 FTW Antenna 7:30 to 8 PM 8 Jan 2008
All Skin-Paint Returns with Beacon code 5241
Altitude from Beacon Code 5241
Altitude- Ft
Sequence of Returns - 30 Minute Window
CAFB
Unknown USPT Skin Paints
29 Miles
All Skin Returns
Stephenville
Dublin
Selden
Code 5241
5241 Enhanced
Latitude - Decimal
Longitude - Decimal
Chart 7 FTW Antenna 7:30 to 8 PM
ghs 5/12/08
Rev 6/28/08


FTW Radar; FL 5241 and skin paints
Lawton, Okla.
FL 5241 and companion jet leave exercise area at 7:28pm
Departs at 6:29pm
C.A.F.B.
Returns at 8:00pm
Stephenville
Dublin
Comanche
7:52pm
Fl 5241
Skin Paints
Latitude
Longitude
RMP 5/12/08

Graphs #2-7 & #2-8

All 10 of these CAFB affiliated jet aircraft were substantially radar ground tracked and altitude profiled for the complete duration of their training flights commencing at 6 PM and terminating shortly after 8 PM. Altitude profiles for the 5 CAFB trailing jets without beacons have been assumed to be between 2,700 and 15,000 feet when returning to CAFB. Although these 5 trailing jets have been skin tracked throughout their entire flights we cannot be totally sure of their altitudes other than they never dropped below the radar horizon.

The return ground tracks of these 10 jet aircraft returning back to CAFB are most interesting as 4 of these 10 aircraft veered and transited to the east of the prescribed MTR centerline by 15 to 30 NM appearing to create an airspace incursion into DFW arriving flight traffic patterns. (See Graph 2-9 below.)



Graph #2-9

CAFB Logbook Now that the military jets have been identified on radar, let's examine the redacted logbook from Carswell AFB that was obtained through a FOIA. A copy of this logbook is in the appendix. The logbook shows a sortie of four aircraft leaving at 6:00pm and another sortie of four aircraft leaving at 6:15pm, with both sorties returning at 7:30pm and 7:45pm respectively. Radar data shows take offs of 5:52pm and 6:15pm with returns of 7:14pm and 7:27pm. These times match up quite well as the logbook appears to be anticipated arrival and departure times to the nearest quarter hour. Radar data also shows a 9th and 10th jet leaving Carswell at 6:29pm and returning at about 8:00pm. These two flights are most likely the two rows redacted in the logbook after the entries for the other 8 jets. There are two more rows redacted after this 9th and 10th flight, but it is difficult to tell if those flights took place. Also appearing on the logbook are 10 redacted rows which appear to be flights on the same day and prior to the eight flights already mentioned. These additional 10 earlier flights cannot be verified because the FOIA radar data is only from 4pm to 8pm. It is possible that aircraft from Carswell's earlier flights may have also been in the area. All of the 8 jets identified on this logbook, the two redacted flights, and possibly earlier flights, flew into the Dublin-Stephenville area. This logbook highlights a high level of military aircraft for this area over a time period of only two hours.

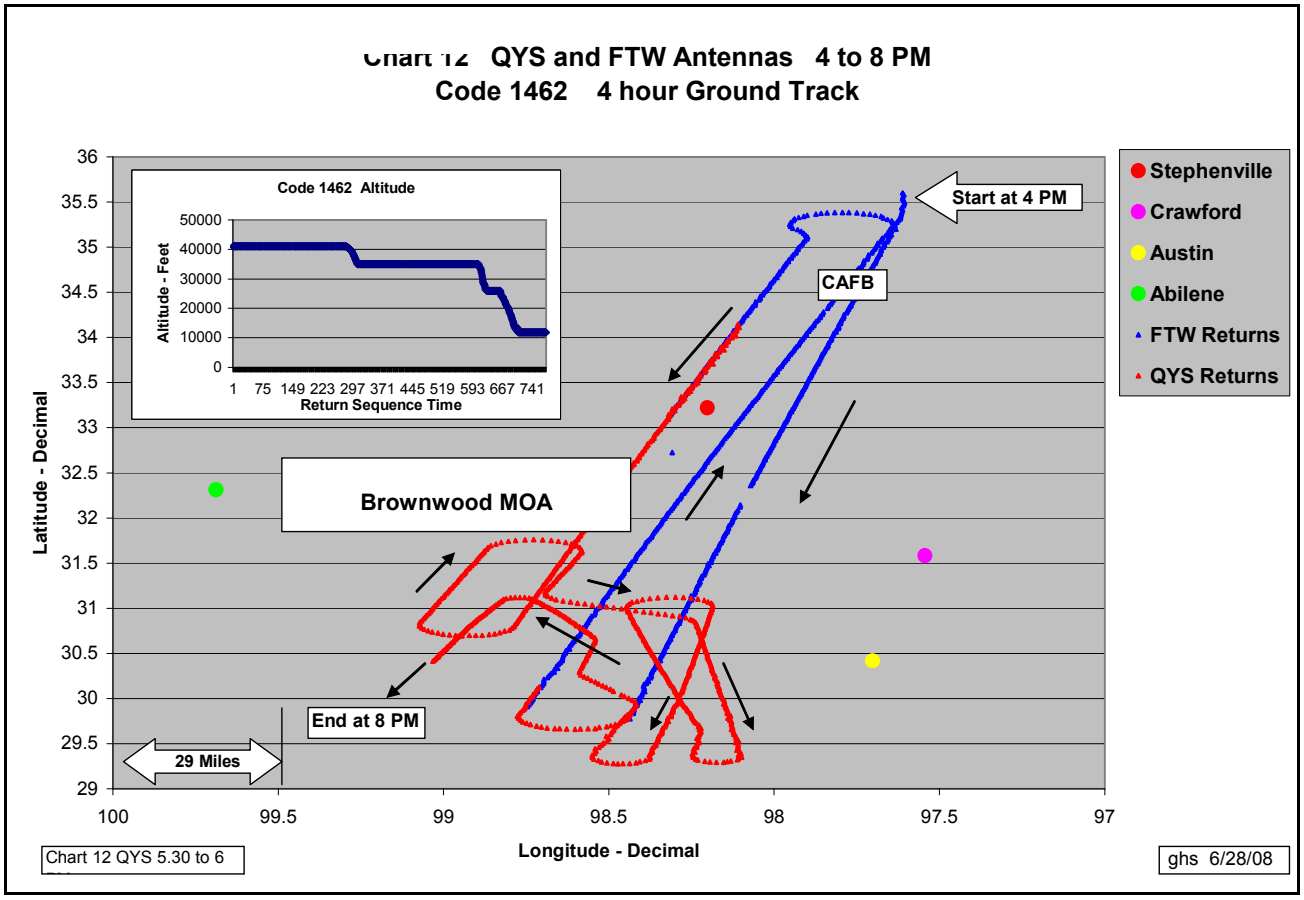
C. Three Unaffiliated Transpondered aircraft

Three apparently separate and Unaffiliated Transpondered aircraft, UTAs, were detected and tracked by FAA radar in the AOI during the 4 hour period from 4 PM to 8 PM, emitting beacon codes 1462, 4073 and 4622.

The airborne source of transponder beacon code 1462 was altitude profiled and ground track profiled for the full 4 hour time period, during which time the airborne target both directly entered, departed and repeatedly approached our AOI, always at altitudes between 35,000 and 41,000 ft AGL.

Near the end of the 4 hour period, beacon code 1462 departed the AOI to the southwest at a gradually decreasing altitude down to below 15,000 ft at 8 PM. During this continuous four hour period the source aircraft emitting code 1462 produced a ground track best described as a modified and expanded racetrack course formed by several precise 180 degree NS turns as if it were on a search or monitoring mission. The altitude profile and ground track of beacon code 1462 is consistent with the high altitude mission of a military aircraft such as an AWACS, Airborne Warning And Control System. The AWACS radar (an AN/APY-1 or AN/APY-2) has a range of more than 200 miles (320 kilometers) for low-flying targets and farther for aerospace vehicles flying at medium to high altitudes. The radar combined with an identification friend or foe subsystem can look down to detect, identify and track enemy and friendly low-flying aircraft by eliminating ground clutter returns that confuse other radar systems.(5) Only such military aircraft can be expected to fly for over four hours at high altitudes and flying nowhere in particular. The USAF AWACS has an 8 hour mission on-station capability and are home based at Tinker AFB, Oklahoma. (See graph 2-10 for the path of the potential AWAC.)

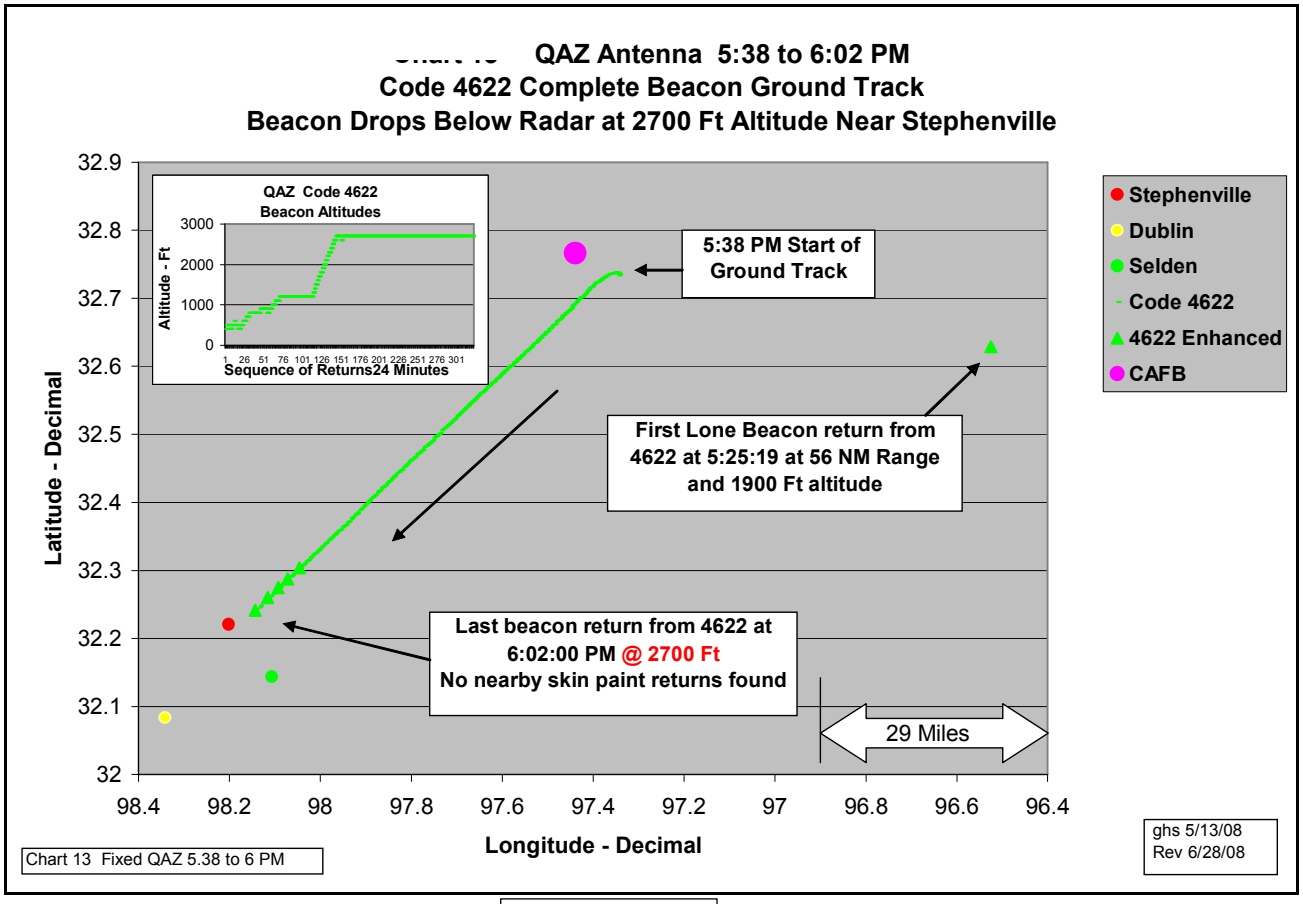
Note: Earth curvature effects and "flying beneath the radar" scenarios cannot seriously occur during high altitude AWACS missions



Graph #2-10

The second UTA, emitting beacon code 4073, transited through the AOI at a constant near northerly heading at an altitude of 8,900 ft AGL and at a constant airspeed of approximately 145 mph. (See graph 2-4). This beacon source was present in the AOI from approximately 6:40 to 7:05 PM, flying straight-line north northeast and crossed the MTR centerline directly over Stephenville. Its operation and speed were consistent with that of a light plane or helicopter.

The third UTA, emitting beacon code 4622, arrived in the AOI from the northeast transiting directly down the centerline of the MTR but at a very low altitude. Code 4622 was first acquired at 400 ft AGL over the city of Ft Worth. (See graph 2-11) This UTA target gradually gained altitude reaching 2,700 ft AGL when it suddenly disappeared from two FAA radar screens within a 20 second period. The airspeed of the source of beacon 4622 was in the range of a light plane or helicopter, approximately 140 to 150 MPH, and was early on tracked from 5:38 to 6:02 PM. The disappearance of this beacon signal within a 20 second time period from two of the nearest FAA radars is consistent with the altitude of the source aircraft operating below FAA antenna altitude tracking minimums. This loss of radar tracking would be expected by earth curvature line-of-sight and radar horizon considerations at a radar range of 50 to 60 NM. This important beacon of opportunity provided hard evidence of the low level altitude limitations of 2,700 feet when the FAA radars scanned the Stephenville airspace at 50 to 60 NM distance.


QAZ Antenna 5:38 to 6:02 PM
Code 4622 Complete Beacon Ground Track
Beacon Drops Below Radar at 2700 Ft Altitude Near Stephenville
QAZ Code 4622
Beacon Altitudes
Altitude - Ft
3000
2000
1000
0
1 26 51 76 101 126 151 176 201 226 251 276 301
Sequence of Returns24 Minutes
5:38 PM Start of Ground Track
First Lone Beacon return from 4622 at 5:25:19 at 56 NM Range and 1900 Ft altitude
Last beacon return from 4622 at 6:02:00 PM @ 2700 Ft
No nearby skin paint returns found
29 Miles
Stephenville
Dublin
Selden
Code 4622
4622 Enhanced
CAFB
Latitude - Decimal
32.9
32.8
32.7
32.6
32.5
32.4
32.3
32.2
32.1
32
98.4
98.2
98
97.8
97.6
97.4
97.2
97
96.8
96.6
96.4
Longitude - Decimal
Chart 13 Fixed QAZ 5.38 to 6 PM
ghs 5/13/08
Rev 6/28/08

Graph #2-11

IX. EVALUATION OF UNKNOWN AIRCRAFT ACTIVITY IN RELATION TO WITNESS TESTIMONY

Although this report is primarily driven by radar analysis, it is critical that the witness testimony of January 8th be tied in, and when appropriate, related to the radar data. 17 reports were obtained by MUFON regarding unknown objects seen during the time frame of 6pm to 10pm on the night of January 8, 2008, and of those 17, this report will look at the 8 best witness(s) reports that help identify the location(s) and size of the object. It is recognized that witness testimony is not perfect and often contains errors. The number of reports in this investigation from varied geographical locations and from a narrow time window of four hours helps minimize those errors. The number of witnesses and their testimony eliminate any reasonable explanations related to meteors, helicopters, jet aircraft, flares, balloons, blimps, etc. These witnesses include a constable, a chief of police, a former FAA air traffic controller, and a private pilot. However, for privacy reasons, the names of all the witnesses have been withheld but may be released at a later date. The exact latitude and longitude is rounded in the literature when the sighting location is an individual's home. However, the exact latitude and longitude is used in all calculations. Although not a direct witness, it would be appropriate to highlight Angelia Joiner, a former news reporter for the Stephenville Empire Tribune, as having been very instrumental in bringing many of these witnesses forward.

This report examines witness testimony in chronological order of their sightings, with the realization that witness' estimated time of observation will vary. On the night of January 8, 2008, there were a total of 17 reports investigated that seemed to be tied to the same object. There is no indication of any sound from the object by any of the witnesses. Six of those reports described orange to reddish colored lights. Two of these involved witnesses who initially saw reddish lights that turned to white. Two of the reports involved bright white lights, three of fast moving bright white lights, and four reports of fading/brightening white lights. Four of the witnesses who saw bright white lights, described them as similar to a welder's arc. It's unusual to have different witnesses use as similar and as distinct a terminology as this. Three of the eight witnesses specifically mention the enormous size of the object and calculations based on testimony from the other witnesses support this description.

A. First set of sightings; 6:10pm to 6:25pm; witness testimony

The earliest sightings of the object occurred between 6:10pm and 6:25pm. There were four different reports received related to this time. The witnesses were at varied locations that were southeast, southwest, and west of the object. This variation in witness location helps in estimating the size and location of the object. Triangulation is not possible because it cannot be verified that any witness saw the objects simultaneously. However, due to the varied distances from Stephenville of the various witnesses, it is possible to make some reasonable estimates of the size of the object. A description of each witness's sighting will be provided and will be followed by relating this to radar information.

6:10pm; Chalk Mtn sighting Witness 'A' was interviewed on the phone with three follow up conversations. Witness 'A' was traveling in his truck on Hwy 67 just west of Chalk Mountain. His location was 32°09'12"N 97°55'W. He had left Bono, Tx. at 5:45 which is 30 miles from his location at the time of the sighting and he estimated that he saw the objects at about 6:10pm in the western sky at an elevation of about 10 degrees. He indicated that the sun had already set, there weren't any stars out yet, and there was still light in the sky. His travel time and amount of light in the sky supports the witness's estimation of a sighting at about 6:10pm. He saw two bright lights towards the west, which would have been in the direction of the Stephenville area, which was 17 miles to the northwest, and the Selden area, which was 11 miles to the west southwest. He described the lights as similar to welding arcs that were next to each other and stationary when he first saw them. He estimated each light to be the size of his little finger at arm's length. This would equate to about 1 degree. The two lights then split apart and moved very rapidly with one light moving to the north and the other to the

south. The lights moved so rapidly that the witness was not certain how far they had moved apart before disappearing, other than to say that they disappeared before they left his field of view within his truck windshield. That would put the lights' distance from each other at their time of disappearance at between 20-50 degrees.

6:15pm; Selden 1st Sighting The second report occurred at about the same time. Witnesses 'B'(a private pilot), 'C', and 'D', were located a mile from Selden, Texas, at 32°08'N 98°06'W. Their location was at a high elevation point of 1330 feet without obstructions. The surrounding terrain is at an elevation of 30-70 feet lower. One of those three witnesses ,('D'), has not been interviewed as he has avoided contact with everyone regarding this sighting. The pilot was interviewed on April 16, 2008, at the location of the sighting. Within various press reports, Witness B's initial time of observation has varied from *"the sun was behind me and was just setting"*(sunset was at 5:44pm) to *"I got there a little after 6pm. Just been there a moment when I saw lights coming from the east and going west".* In meeting with the witness, the one portion that is clear about the time of the sighting is that there was still plenty of light left in the sky. The time could have been anywhere between 5:45pm to 6:15pm. One additional piece of information is that the witness indicates he left Glen Rose, Tx., at 5:15pm, and drove towards Selden. That is a 28-mile trip through county roads and he made one quick stop at a convenience store. This should have taken about 40-50 minutes, which would have the witness arriving at Selden at about 6pm.

Witness 'B' first saw the object in the north-northeast at an elevation of about 20 degrees. He described the object as completely silent and that it consisted of four very bright lights similar to the intensity of burning magnesium. This description was also verified by witness 'C'. He estimated the object's overall size as taking up about 3 degrees of sky. See image #2 below, which contains an actual photo of the location of the sighting, but with an artist rendering of the object embedded in the photo as it appeared to the witness. In the actual sighting, due to the brightness of the lights, the witness could not tell if the lights were separate or part of one craft. The object moved at a high rate of speed and gradually slowed as it moved from north-northeast to northwest and finally coming to a stationary position in the west.

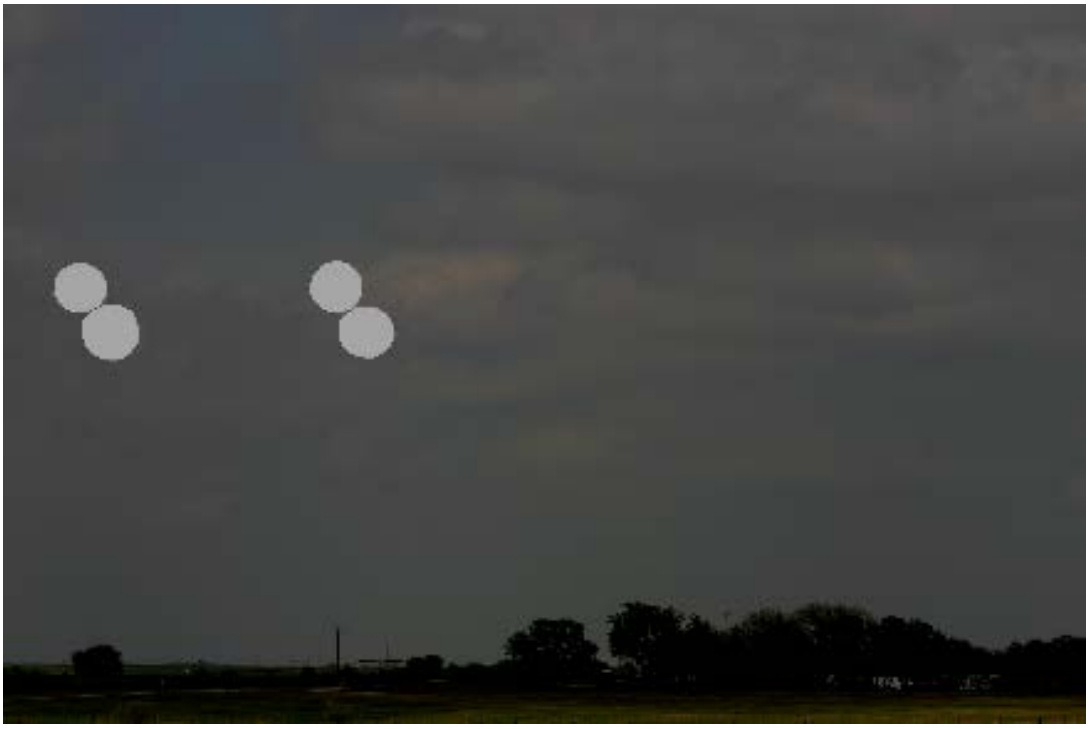


Image #2

By the time the object had reached the western location, its elevation had dropped to 10 degrees and its size had increased to cover about 6 degrees of the sky. The witness estimates that this took about three minutes. It was at this point that the witness saw 7 lights in an evenly spaced horizontal position. The seven lights then changed to an arc in the horizontal position, followed by all 7 lights aligning themselves vertically, and then two pair of lights in a vertical position. The object then emitted a bright white flame and disappeared.

6:25pm; Selden 2nd Sighting This sighting involves a repeat observation by the same witnesses just mentioned. One witness left the area and the other two went inside. They informed the fourth witness, Witness 'E', as to what they had seen and that Witness 'D' had left in his vehicle. Witness 'E', who had not seen this initial sighting, called Witness 'D' who informed them that the object was back and that he could see it from his truck.

Witnesses 'B', 'C', and 'E' returned outside. Witness 'B' estimated that about 10 minutes had elapsed since the first sighting and that it had begun to get dark but there was still some light outside. This last statement further supports the likely time as closer to 6:15pm rather than 5:45pm because 10 minutes after 5:45pm (sunset), it would not have begun to grow dark.

During the second sighting, the object was seen in the southwest at an elevation of only 8-10 degrees above the horizon. The object took up about 2-3 degrees of sky at its closest point. It was traveling from the southwest to the east and was being pursued by two jets that were about 3 seconds behind it. Witness 'B' estimated that each jet took up about 1 degree of sky at their closest point. He described the sounds of the jets as deafening. All three witnesses indicated that the jets were at low altitude. Witnesses 'B' and 'C' both indicated that they could see the jet's afterburners engaged. The object disappeared from view in the east and at that time was only about a degree above the horizon.

6:20pm; Gorman Sighting Witness 'F' is a chief of police who was traveling east on State Hwy 6 between Carbon and Gorman, Texas. He was 29 miles west of Stephenville when he saw an unusual grouping of lights in the direction of Stephenville. His location at the time was 32°13'17"N 98°42'00"W. He provided a very good witness description as follows:

"On Tuesday, January 8, 2008, at about 6:20 PM, I was driving east on State Highway 6 between Carbon and Gorman, Texas. On the stretch of road that I was on at that time, the road runs due East and West. When I was about a mile and a half from Gorman, I noticed a bright light in the sky, and I immediately thought that it was a flare dropped from a military aircraft in the Brownwood Military Operating Area. It is not unusual to see flares in that area."

"From my location, the light appeared to be in the direction of Stephenville, just slightly north of due east from my location. As I watched the "flare", it did not appear to decrease in altitude, as flares normally do... at least the ones I've seen do. Also, it was not decreasing in intensity as they normally do."

"Suddenly, the light went out and three other lights immediately came on. The three lights appeared to be equally spaced around where the first light was seen. In other words, the first light would have been near the middle of the triangle formed by the three lights. The uppermost light appeared to be at about the 11 o'clock position, the lower left light at about the 8 o'clock position, and the lower right light was approximately the 2 o'clock position. The three lights were of a lesser intensity than the first light. The lights were no more than 15 degrees above the horizon."

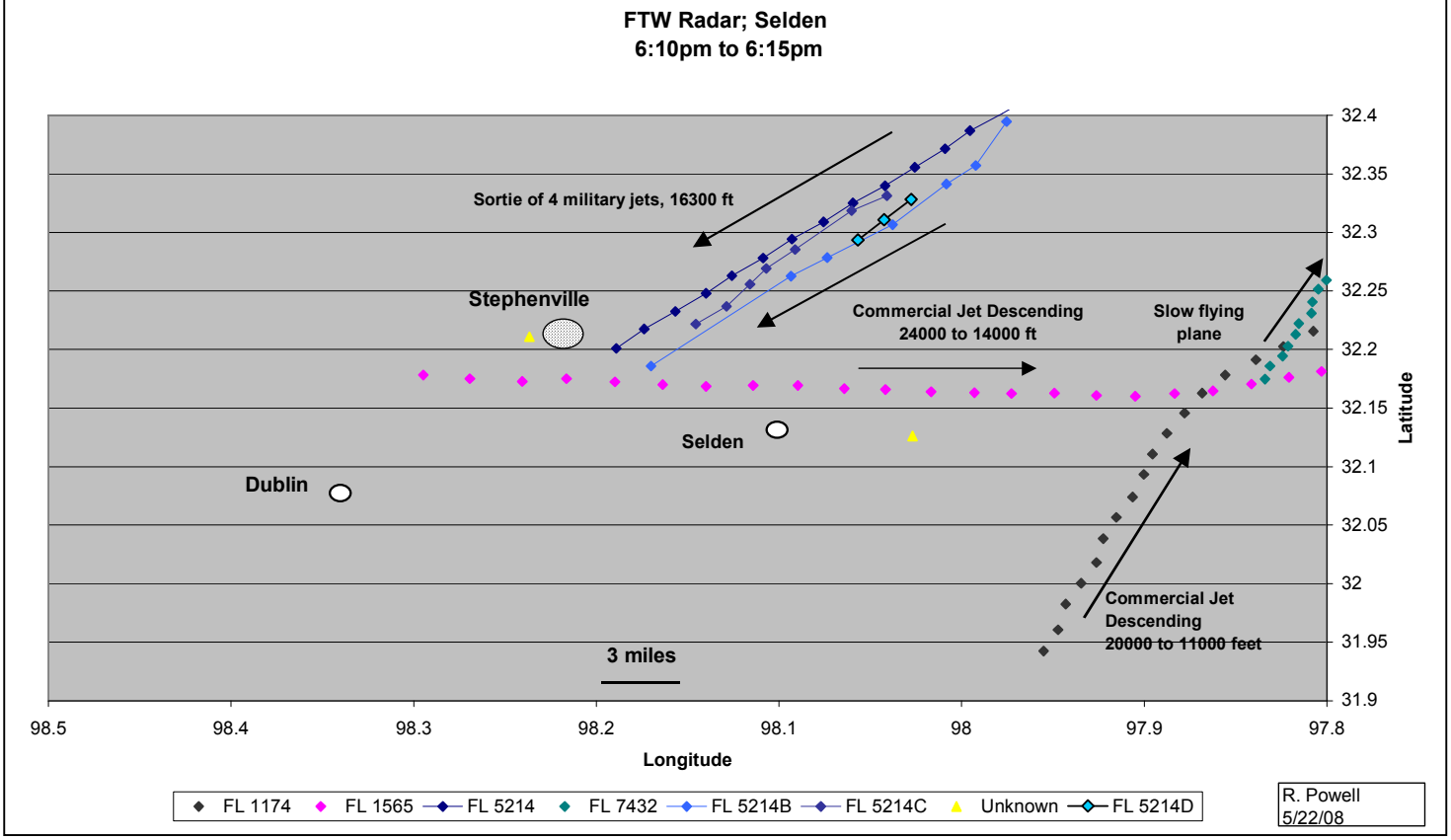
"A few seconds later, the three lights went off and a brighter "middle" light came back on... for only about three seconds. It appeared to be moving upward before the light disappeared again. The three lights, when on, occupied about one degree of my field of view. Not knowing exactly how far away the lights were, I formed no opinion as to size or distance between the lights."

6:20pm; Lake Proctor Sighting The fourth report was from Witness 'G' who was located at his home 22 miles to the southwest of Stephenville near Lake Proctor and was able to see the Stephenville lights from his location. The witness's location was 32°00'N 98°28'W. Witness 'G' was interviewed in person and indicated that he saw the lights between 6:15pm to 6:25pm because he remembered that he was waiting for Inside Edition to come on TV at 6:30pm. He also indicated that it was dark enough that he needed to bring a flashlight when he went outside to check on his barking dogs. The witness saw what he first thought were aircraft in formation to the northeast towards Dublin. He described the brightness as brighter than the brightest star in the sky and that the lights were steady. There were 8-10 lights. However, there was no noise and the lights moved very rapidly in a

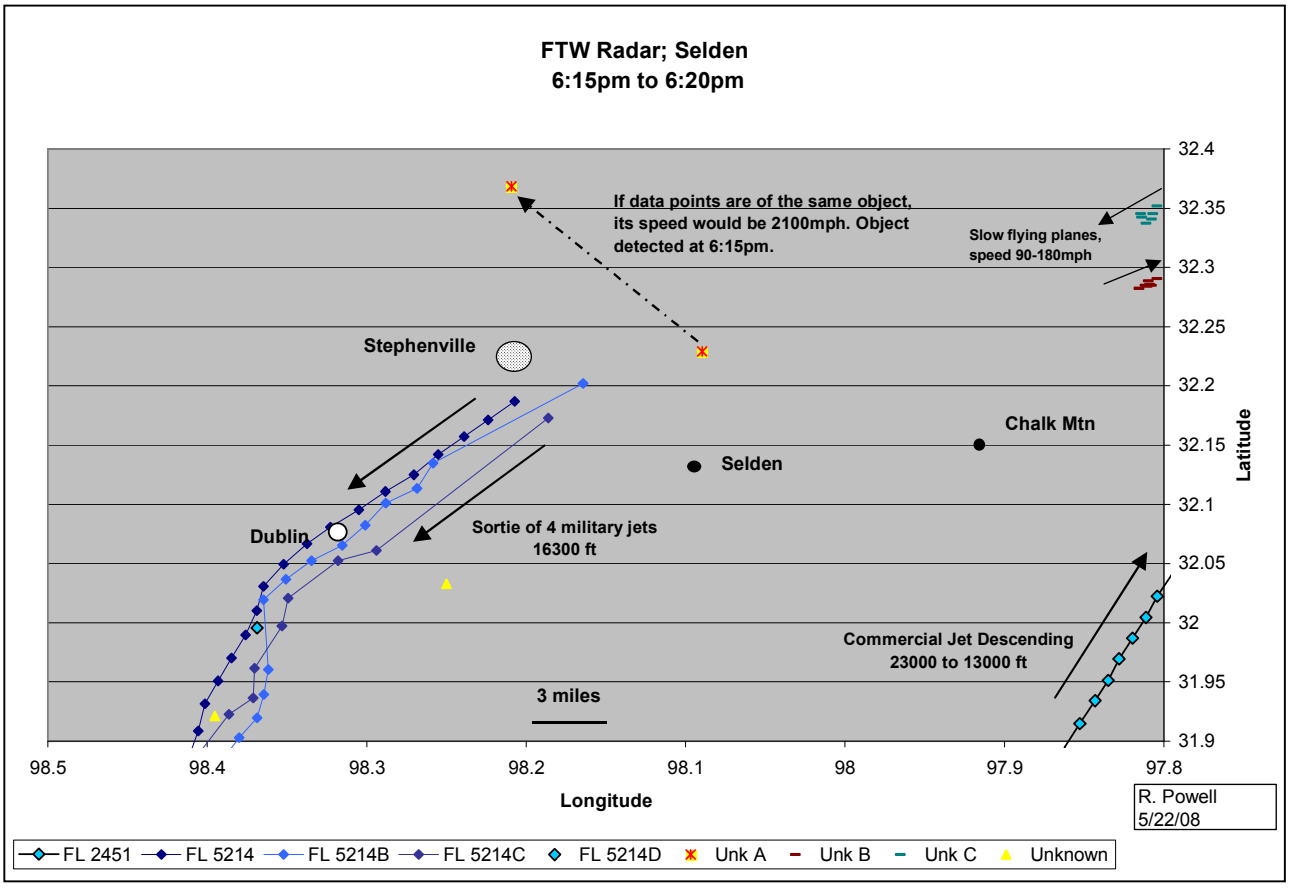
southernly direction from the object's location. The lights disappeared in 6-7 seconds. The witness indicated that both his dogs were scared. This is the only report of animal reaction to the object. It was difficult to get this witness to understand the concept of degrees in elevation and degrees of sky, so no reliable data is available.

B. First set of sightings; 6:10pm to 6:25pm; relation to radar data

At 6:15 pm, the first sortie of four jets from Carswell AFB had just begun to reach Stephenville directly from the northeast. Based on radar data, these jets were flying at 16300 feet and at about 520mph. See Graph #4-1 that reflects what the FTW radar saw between 6:10 and 6:15pm. The graph shows the location of the witnesses in Selden, the military jets, and all commercial jet activity in the area at the time. Using the known altitude of the jets, the latitude and longitude of the Selden witness and the jets, and the fact that an F16 is 49 feet in length, and trigonometry, it can be determined as to what these aircraft would have looked like to an individual in Selden. The closest military jet would have been 6.75 miles slant range from the witness. This is calculated using Pythagoras' Theorem, $c^2 = a^2 + b^2$ where 'a' is the known altitude of the jets from radar and 'b' is the known ground distance between the jets and the witness based on radar provided latitude and longitude coordinates. Each jet would cover less than .08 degrees of sky. This is determined by using the formula, sine(angle A) = (opposite side) / (hypotenuse). Sin A = (49 ft) / (6.75 miles x 5280 ft) = 0.001375. Solving for the arc sine gives 0.0788 degrees. And the same technique can be used to calculate that the jets would have been at an elevation of 27 degrees to the northwest. In this case the opposite side of the angle is the altitude of jets rather than their size. Sin A = (16300 ft) / (6.75 x 5280 ft) = 0.45735 which results in an angle of 27.22 degrees. The military jets would have been visible, but hardly something to catch one's attention. The unknown object was described by the witness as being 3 degrees in size, or 38 times the apparent size that the jets would have been. The object was described as silent, traveling at a high rate of speed, and then coming to a stationary stop; not a quality of either a military or commercial jet.



Just seconds after 6:15pm, an unusual object shows up on radar. See Graph #4-2 below, which reflects what the FTW radar saw between 6:15pm and 6:20pm. A commercial jet is in the lower right portion of the graph, unknown slow flying craft to the upper right, and the first sortie of military jets are shown departing in the lower left portion of the graph. Before progressing, it is important to explain what is happening with radar. The FTW radar antennas sweeping the area every 10 seconds and records a target longitude and latitude, based on range and azimuth, for all objects detected during the sweep. The two points that you see labeled as Unknown 'A' on the graph are 20 seconds apart in time, in close proximity to each other, and show up as identical and weak skin paint radar reflection levels of 4 on the FAA radar, which uses a scale of 4,8,12,16,20,24,28 units representing reflection intensity of the object. If there wasn't witness testimony, then these two radar data return points would normally be considered an unusual coincidence of points in time and location, and not likely to be real. However, in this case the radar hits are in the same direction that all four witnesses were looking when they saw the object. See Image #3 on the next page. It shows the radar track in bright yellow just northeast of Stephenville, and the positions of all the witnesses as well as the direction in which they saw the object. The curved arrow, that begins to the east of Stephenville and ends to the west, represents the path of the object as described by the witnesses in Selden. Bear in mind that the radar track only represents two locations from radar, separated by 20 seconds, and with an arbitrary straight line drawn between them. It doesn't tell you where the object was before or after the two radar hits, or even that it traveled in a straight line. And remember, this object has been described as moving rapidly and coming to a stop. Each witness may have seen the object at various times during the short time it was in the area. One witness was east of the target in Chalk Mtn. His location is represented by the pn head near Chalk Mnt and the direction he saw the object is represented by the arrow. Another witness was southwest of the target near Lake Proctor, and the final witness was due west of the object near Gorman. The location of these witnesses is also represented by a pin head and a white arrow represents the direction in which they saw the object. With witness testimony from different directions from the object's location and that corresponds to what was seen on radar, these radar points have to be considered as potentially linked. And if they are linked…they represent an object that traveled at a



minimum of 2,100mph. Velocity was calculated using longitude and latitude coordinates to obtain distance and the radar's actual time returns. $(d_2 - d_1) / (t_2 - t_1) = v$.

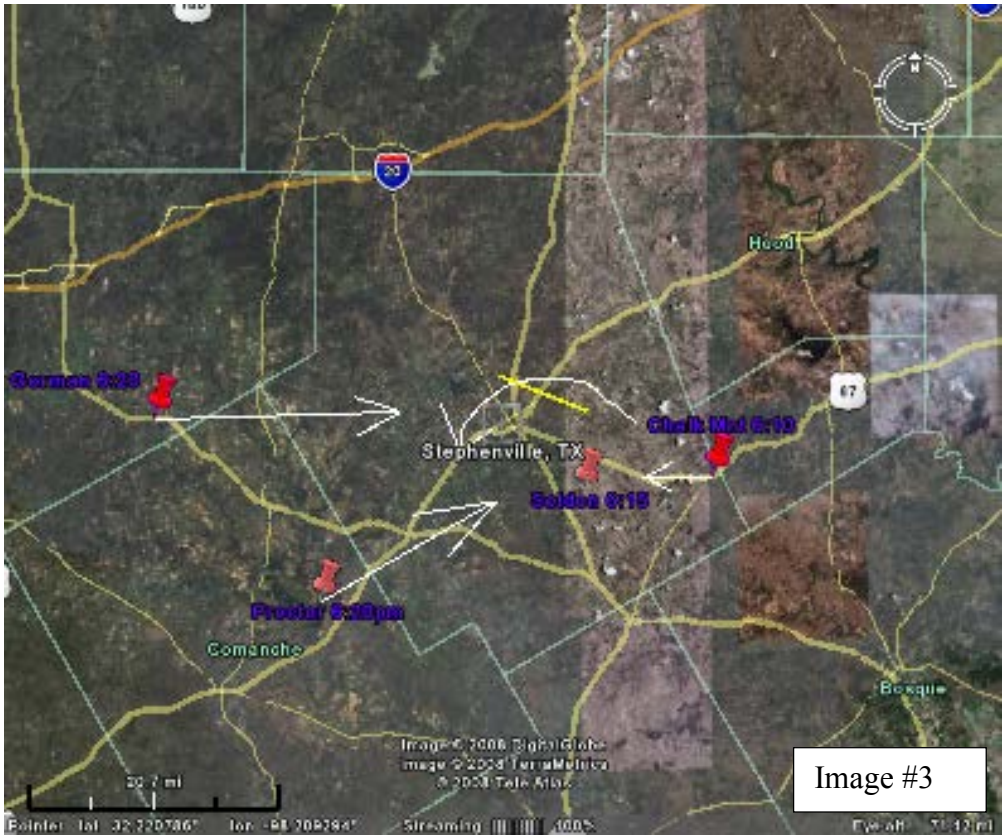


Image #3

Let's first examine the radar information from the vantage point of the witness that was near Chalk Mtn. The object first appears on radar as due west of Chalk Mtn, the same direction that the witness saw two bright objects move apart and travel to the north and south. So if the object on radar was what the Chalk Mtn witness saw, then the distance, size, and altitude for the object can be calculated using the same formulas and techniques that have been previously discussed. Its distance when it first appeared on radar would be 11.38 miles from the witness. Its <u>actual</u> size depends on the witness's accurate estimate of its <u>apparent</u> size. The witness indicated that each object displaced 1.0 degree of sky. Since most witnesses will overestimate the apparent size of an object, a range of 0.5-1.0 degrees will be used in the calculation. This gives a size for the object of between 524 feet and 1,048 feet. Since the witness indicated the object was at an approximate 10 degree elevation, and if we calculate using an error of plus or minus 5 degrees in the witness's estimate of the elevation, the altitude of the object would have been somewhere between 5,300-16,700 feet.

Now let's examine the radar information in relation to the first of the two sightings that occurred near Selden. As mentioned earlier, it is not clear whether from the primary witness's direct testimony as to whether he saw the object at 5:45pm, 6:00pm, or 6:15pm. Travel time tends to indicate it was after 6:00pm. Based on how closely his testimony ties into the radar data, the 6:15pm time is likely. The first radar hit occurs north-northeast of the witness's location. Recall that the witness saw an object in the north-northeast that moved very rapidly to the northwest and then to the west where it became stationary. And the second radar hit is to the northwest of the witness. So let's calculate size and altitude based on the radar information and what the witness described. The distance based on known latitude and longitude locations of the object on radar and the witness indicate the object's closest approach, as it passed by, was 6.6 miles. The witness indicated that the object displaced 3 degrees of sky. As with the previous witness we will halve the apparent size so that we look at a range of 1.5-3.0 degrees. This gives a size for the object of between 912 and 1,825 feet. The object was seen at an elevation of 20 degrees. A witness error factor of plus or minus 5 degrees will again be used. This set of numbers gives a possible altitude range of 9,300 feet to 16,200 feet.

The Gorman sighting, which provided an excellent witness description, also matches well with what appeared on radar. Depending on which of the two radar tracks is used, the witness was between 30.4 and 35.7 miles from the object. The witness indicated that the set of lights occupied one degree of his field of view. Using the two distances as a range, the apparent size of the object, and assuming that the apparent size could have been smaller (0.5 to 1.0 degree), the resulting size of the

object is between 1,400 feet and 3,300 feet. The object was seen at an elevation of "no more than 15 degrees above the horizon" according to the witness. In this case, it makes sense to assume that errors in the estimated elevation would only be less than the witness' estimate. So we will use 10-15 degrees elevation and a distance range of 30.4 to 35.7 miles. The object's altitude based on this calculation is 28,000 feet to 51,000 feet.

The Lake Proctor sighting does not provide any useable data from which reasonable calculations can be made. However, it does establish that the line of sight of the object in question matched up with its radar location.

So, what can be concluded from the radar track shown on graph #4-2 and the witness' testimony? It is clear that the size of the object and its altitude cover a wide range, but that is to be expected from testimonies from multiple witness. What is clear is the following:

1. The object that shows up at 6:15pm on radar, matches up directionally with what four witnesses saw between about 6:10pm and 6:20pm on January 8, 2008

2. The high rate of speed seen by the witnesses from Selden, Chalk Mtn, and Lake Proctor is supported by the radar data, which calculates a minimum velocity of 2100 mph. The lack of high velocity in the object from the perspective of the Gorman witness may be due to the point in time that it was observed as the object was seen both stationary and moving at a high rate of speed.

3. The object is large. The smallest calculated value of the object's size was 524 feet. This supports the impression of all the witnesses.

4. Little can be said about the altitude of the object other than all the calculations indicate that it was of sufficient altitude to be detected by primary radar.

The last item to discuss, related to the 6:10pm to 6:25pm sightings is the 2nd Selden sighting. The three witnesses report the object returning 10 minutes later from the southwest and moving to the east. They also report the objects being chased by two military jets. There is no radar data to support this second sighting. Neither an unknown object, nor jets show up on radar to the southwest of Selden during any time from 5:30pm to 7:00pm. However, calculations of the jets' altitude based on the witness testimony would indicate that they were below the minimum detectable radar altitude for the FAA radars. Using the size of the F-16 for the jet, it would be 49 feet in length. The witness estimated that the jets took up about a degree of sky. Again using the witness error factor, we will do calculations based on the jets apparent size being between 0.5 to 1.0 degrees. Based on this, their distance would be between 2,800 feet to 5,165 feet, or ½ to 1 mile away. Their altitude would be 400-1000 feet, which is below the altitude ceiling for radar detection from the FAA radars. This calculation is also supported by the witness statement that the jets' sound was deafening. At that distance an F-16 would generate a very loud 80-90 decibels of noise and would be about 10 decibels louder if the afterburners were engaged.(4)

So where did the chase jets come from? Carswell AFB out of Ft. Worth can be monitored for low level flights due to the proximity of radar units in that area. We know based on radar data that no low level flights came out of that air base between 4pm and 8pm. So if they were from that air base then they must have left before 4pm, maintained very low altitude flight for several hours, and flew below radar near Selden. This is a possibility that cannot be discounted. The CAFB logbook (see appendix) shows what appears to be a set of 10 flights prior to the 10 aircraft that have been documented on radar. Only the Air Force knows the truth behind the redacted logbook. Another possibility is Dyess AFB in Abilene. It is only 70 miles to the west, but it is believed to possess only B-1 bombers and not any fighter aircraft. If fighters came out of Dyess then they were temporarily stationed there. Sheppard AFB is located in Wichita Falls about 90 miles to the north and has F-16 aircraft. If they came out of Sheppard AFB at low altitude, they could avoid populated areas and FAA radar could not have picked them up on their flight to Stephenville. The other possibility is that the witnesses did not see any jets at low altitude. But the three witnesses seem credible as a quick

investigation revealed two other witnesses who heard what they believed were jets at very low altitude. A private pilot in Hico, about 17 miles to the southeast of Stephenville, indicated that he heard sonic booms on January 8th and judged the jets to be low due to the high sound level. He also indicated that on other days, he has visually seen military jets flying at a few hundred feet coming from the Ft. Worth area and traveling to the southwest towards the Brownwood MOA. An employee of Clark Field airport in Stephenville, indicated that on January 8th he heard military jets that were so low and loud that they caused him to go outside and look for the jets. This occurred at his home in DeLeon which is 18 miles to the southwest of Stephenville. He described the loudness of the jets as similar to when he was at a military air show. He did not see the jets when he went outside because the trees around his home obscure much of his view of the sky. This witness also indicated that he has seen military jets on other days travel directly over his home and at very low altitude. He indicated that his little finger extended would not be able to cover one of the jets. Using trigonometry, the size of an F-16 at 49 feet, and that the jets would have covering more than 1 degree of size, the altitude would have been less than 2,800 feet. Together, all of these witnesses, indicate that it is plausible to believe that there may have been military jets operating below radar in the vicinity of Dublin-Selden-Stephenville in the early evening of January 8, 2008.

C. Second set of sightings; 6:40pm-7:15p and 9:30pm; witness testimony

The next set of sightings took place between 6:40pm and 7:15pm with a final sighting at 9:30pm. These four sightings are as interesting as the earlier sightings, although they are spaced farther apart in time. Weather conditions were still the same as earlier in the evening.

6:40pm; Alexander Sighting Witness 'H' was interviewed on the phone due to family illness and her desire for privacy. She was traveling south from Stephenville on County Road 914 and was just north of Alexander. The time was about 6:40pm. She was below the hill, prior to the intersection of Hwy 6, when she saw the lights. Her location was 32°03'54”N 98°12'15”W. She indicated that the lights scared her because they were close to her and caused her to move her car toward the road's shoulder. When initially seeing the lights, her first thought was that two planes were about to collide until she realized that the lights were stationary. She described the lights as two very bright red lights slightly to the right of being directly in front of her. She said they were similar in brightness to a school bus at night when it is directly in front of your car. There may have been two fainter white lights near each of the red, but she wasn't sure. She indicated that each light was larger than a quarter held at arm's length, which would equate to about 3 degrees. They were separated in distance by about the width of her outstretched arms which would be about 40 degrees. She estimated the lights to be slightly less than halfway up the sky or 35-40 degrees above the horizon. The witness did note that it was a little difficult to judge elevation because of the hill in front of her. By the time the witness reached the top of the hill, the lights simply disappeared. She did not see them move away. She never heard any noise. The total time of her observation was just a few seconds. During this time the witness's car was pointed to the southwest. Since the two lights were 40 degrees apart and slightly to her right, they would have spanned the southwestern to western portion of the sky.

6:45pm; Cisco Sighting Witness 'I' was interviewed on the phone two different times. His sighting occurred at his home near the intersection of I-20 and CR-425, which is not far from Cisco, Texas. His location is about 50 miles northwest of the Dublin area. It is interesting that he was able to see the lights in the Dublin-Stephenville area from this distance. His location corresponds to 32°23'”N 99°08'W. He recalls that the time was about 6:45pm. He described the time of day as the sun having set and no color was left in the sky, which is in line with a time of about 6:45pm. The witness was outdoors and facing south when he saw a bright orange amber flickering light to the SE. He described the light as much brighter than the brightest star. Over a 15-30 second time period, he saw five of these lights in a row almost parallel to the ground but slightly tipped to the diagonal. As one light would brighten the previous one would fade. He judged there to be five lights based on their spacing location as each light brightened off and on 3 times. He never saw more than two lights on at the same time. The lights were at two fists elevation, which equates to about 20 degrees. He estimated that the

distance between the left most and right most light was about the size of his fist or perhaps larger, which would be about 10-15 degrees.

7:15pm; SW Dublin Sighting Witness 'J' is a local constable who was at home at the time of his sighting. He has been interviewed in person as well as over the phone multiple times. The event was also witnessed by his young son. Their location at the time of the sighting was 32°03'N 98°23'W. The time was about 7:15pm and the witness indicated it was completely dark with all the stars being viewable. One reddish-orange glowing light was first seen in the south. That light disappeared and either the same light or a different light reappeared 1-2 seconds later at about 5 degrees away from the first light. No sound was heard related to the lights. They were just above the tree line and in a horizontal line. Based on the trees being 15 feet tall and their distance at 450 feet, this would equate to 2 degrees above the horizon. The witness described the lights as the size of his little finger at arm's length, or about 1 degree. Although the witness did not have a reference point, he felt like the lights were less than 300 feet high and that they occupied a space of 50' by 50'. Witness 'J' went inside to look for his wife. When he came back in about 30 seconds the two reddish-orange lights were gone. But to the southwest he could see nine strobing/flashing white lights which were smaller and appeared to be much higher up. Again he had no reference point, but felt they were at least 5,000 feet high. He said that they were definitely spread out across more than 50 degrees of sky, but not in any formation. The lights would turn on and off and show up in different locations. The witness retrieved his binoculars from his pickup truck to get a better view. He couldn't see any outline of an object with his binoculars. He was asked if he could see any stars between the lights. He said he was concentrated too much on the lights to recall if he saw any stars between the lights. The lights randomly moved around except when they shot off to the northeast, and were then in tandem. The witness indicated that when they moved to the northeast their rate of speed was so fast that he had trouble following it with his binoculars.

9:30pm; Comanche Sighting The city of Comanche is located 20 miles southwest of the city of Dublin. Witnesses 'K' and 'L', a former air traffic controller and his wife, provided a very good description of a sighting which was considerably later than the previous sightings. The report was generated by the husband. He was not sure of the exact time but estimated it to be about 9:30pm, plus or minus 10 minutes. His location at the time of the sighting was 31°53'54"N 98°36'W. His report is as follows:

"I am not sure of the exact time. My wife and I had made a trip to a local store. On our way home (4 blocks) we were crossing Grand Ave. As I looked left (west) for traffic, I saw several strange lights not far above the horizon. The lights were partially obscured by a two story building about 4 blocks away. I stopped in the middle of Grand Ave., blocking traffic and told my wife to look and pointed towards the lights. She looked and saw the lights also. When I first saw them, they looked like white fireworks (without the trailing flame) coming up from the ground. As we watched them, they appeared to fly around one another very quickly and randomly. We watched them for a little more than a minute and they just disappeared, like turning off a light switch."

"I worked for five years as an Air Traffic Controller, mostly in a control tower at night. I can quite confidently state that these were NOT any known aircraft. I cannot estimate a size, but judging by how large they appeared in contrast to the building they were partially behind and not knowing how much further away they were, each individual light was much too large to be any type of known aircraft. If the lights were all part of a single unit then it would have been more massive than any craft I have ever seen or studied, including the Zeppelins and other lighter than air giants."

"Approximately 15-20 minutes after we observed the lights, I saw a couple of small jet aircraft in the same area (this after arriving home). The contrast between the small jets and the strange lights is staggering. It would be like comparing the size of grapefruit to a raisin."

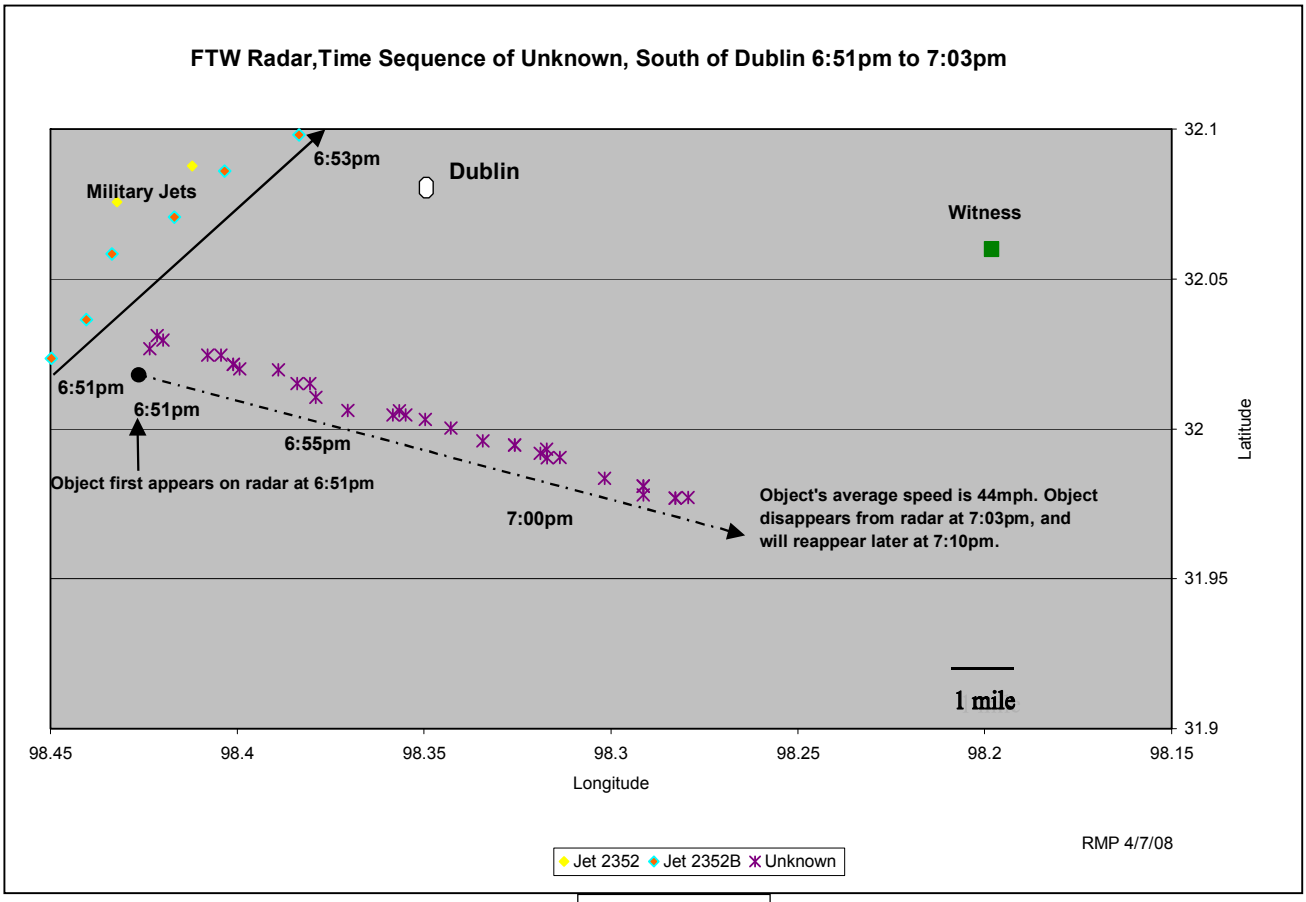
During the interview the witness indicated that he saw five lights that rose upwards from the ground and stopped at an elevation of about 10-15 degrees towards the west. Each light was white, similar to a 4th of July roman candle light, and was slightly larger than his little finger' tip at arm's

length which would be about 1 degree. No physical object was seen. The lights danced around each other and remained for 1 minute and then just disappeared as if turned off. About 10 minutes after the objects disappeared, the witness saw two military jets in the same general area. He indicated that he could tell they were military based on how they maneuvered, but that they were too far away for him to determine the type of military jet.

D. Second set of sightings; 6:40pm to 7:15pm and 9:30pm; relation to radar data


Image #4

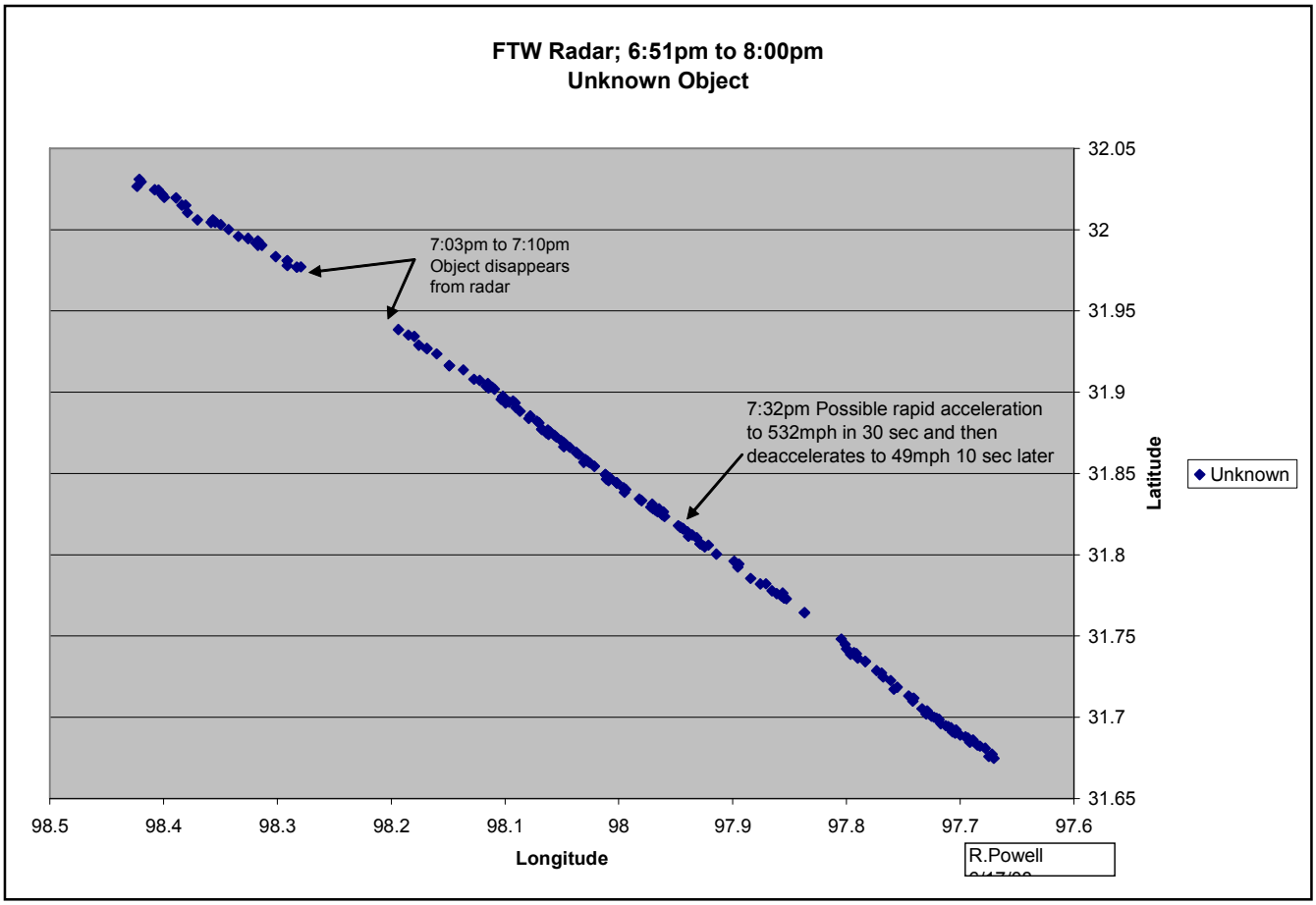
The witness near Alexander, Texas, describes two large and bright lights to the southwest at 6:40pm. The witness's testimony does not allow a determination of whether this was one large object with two lights on it or two different objects. Radar data shows no unusual aircraft near her position at 6:40pm, but does by 6:52pm. Two military jets are 12 miles due west of her position at 6:52pm and at an altitude of 17,000 feet. (See Graph #4-3, below.) From her vantage point, the jets would have been immediately to her right, at an elevation of 15 degrees, and occupying 0.04 degrees of sky. It is not likely that she would have noticed the jets while driving, land it may not have even been possible due to the hill to her right. See Image #4 on this page that shows the terrain to the southwest of the witness's location. Due to the size of the object viewed by this witness and the fact that it remained stationary; what she saw cannot be explained by the military jets.



Another object shows up on radar to her southwest, the direction that she described the object that she witnessed. This object is very slow moving with its speed averaging 40-50mph. The object has no beacon signal, so it is being tracked by primary radar based on reflections off its surface. This object could be explained by two military helicopters traveling without beacons, outside of a MOA, and violating FAA regulations because no beaconed aircraft are nearby. However, this is not very likely and the military indicated in the FOIAs sent to them that they had no aircraft in the area other than the jets from the NASJRB in Ft. Worth. No known civilian helicopters were in the area at the time.

If the object on radar is the same object seen by the witness, then we can estimate its size. Altitude cannot be calculated because the elevation of the object would have been very difficult for the witness to estimate since it was above a hill. The witness indicated that each light filled 3 degrees of sky, so as before we will use a range of 1.5-3.0 degrees in our calculations. The radar distance is 6.5-10 miles depending on the exact time that the witness saw the object. Its size can be estimated by multiplying its distance by the tangent of its apparent size in degrees. This gives a size range of .17 to .52 miles for the object, which is similar in size to the calculations made based on other witness testimony.

Graph #4-4 on the next page shows the full path of this object from 6:51pm to 8:00pm. The y-axis of the graph has been stretched to allow a better view of the individual radar hits. This object was tracked on radar for over an hour with 187 returns being obtained by the FTW radar. At 7:32pm, this object is captured on radar accelerating to 532mph in the course of 30 seconds and then in 10 seconds or less, the object drops speed from 532mph to 49mph. What could have caused this? Calculating the speed using the minimum radar sweep increment of 10 seconds magnifies any imprecision within the radar system. One possibility is imprecision in the azimuth values from the radar, which will then induce an error in speed calculations. Radar azimuth uncertainty will impact the speed calculation for a slow moving aircraft more than a fast moving aircraft. The potential error can be caused by the width of the radar beam, distance to the object, and strength of the returned signal. One way to estimate this error is to look at actual data on known aircraft. Empirical data taken on known aircraft with and without transponders yielded a potential standard deviation of plus/minus 7%-8%. That error can be greater on a slow moving object without a transponder. Although the authors cannot determine for certain whether the unknown object accelerated to this speed, it is worth mentioning. And of course the other possibility is that this unknown object did accelerate and decelerate rapidly. Either way, this should not distract from a more important aspect of this object on radar, which is discussed next.


FTW Radar; 6:51pm to 8:00pm
Unknown Object
7:03pm to 7:10pm
Object disappears
from radar
7:32pm Possible rapid acceleration
to 532mph in 30 sec and then
deaccelerates to 49mph 10 sec later
32.05
32
31.95
31.9
31.85
31.8
31.75
31.7
31.65
Latitude
Unknown
98.5
98.4
98.3
98.2
98.1
98
97.9
97.8
97.7
97.6
Longitude
R.Powell

Graph #4-4

And what does the U.S. military know about this unknown aircraft? What is their reaction? Here is an aircraft flying without a transponder and is clearly seen on FAA radar for over an hour. There are three sorties of 10 jets that fly by during this time period, some as close as 1 mile from the unknown aircraft, as well as what is probably an AWACS, crisscrossing the AOI. Didn't they pick up this object on their radar? And in what direction is this unknown object flying? It is headed directly towards the Crawford Ranch, home of the Western White House. See Image #5 below. The last sighting on FAA radar showed it only 10 miles from Crawford Ranch at 8:00pm. The president was not at the ranch on January 8th, 2008, but that would not lessen the importance of an unknown craft headed in that direction and already in controlled air space. And where are the radar tapes from any of the F16s that were in this operating area? Apparently they have all been erased.

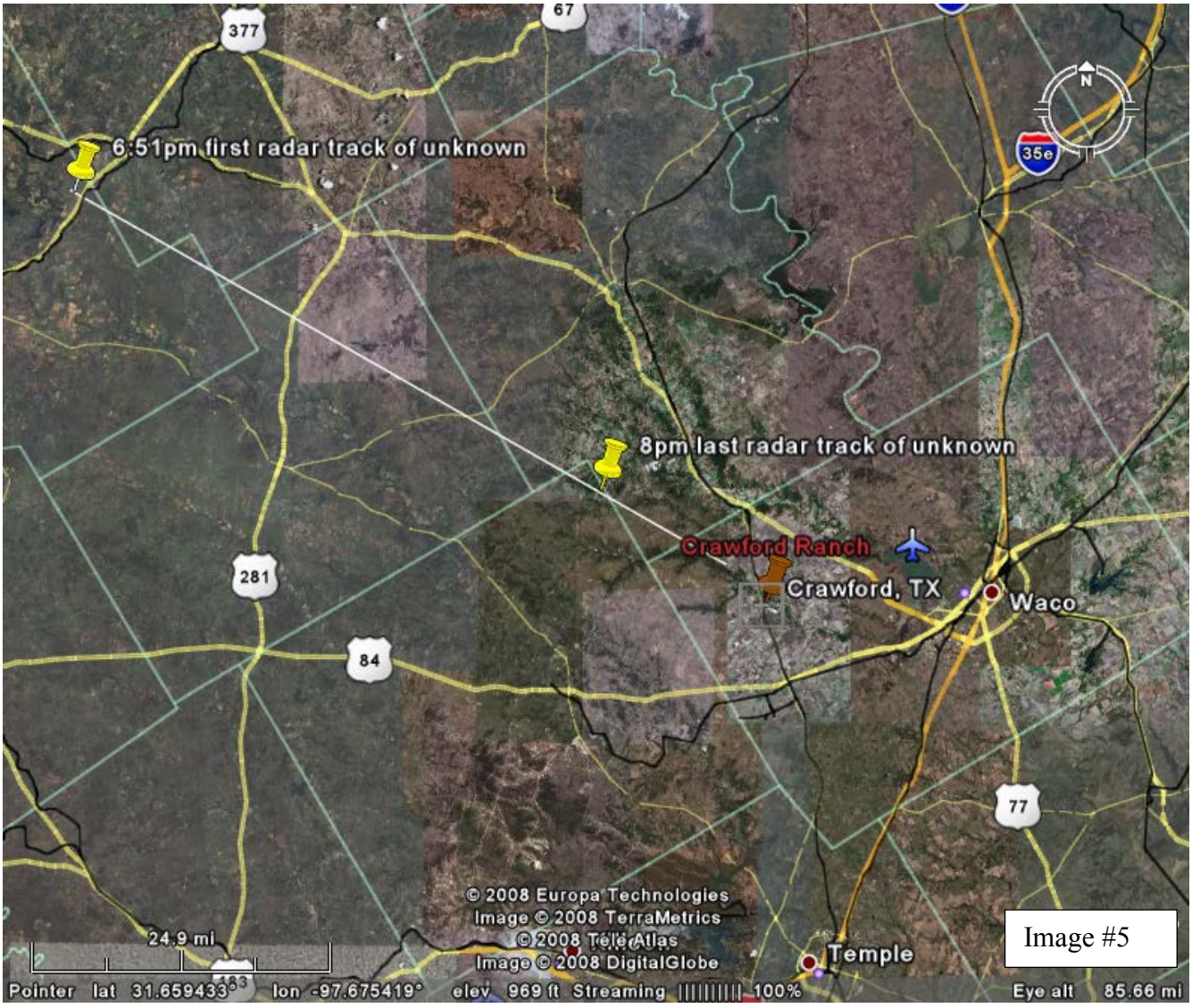
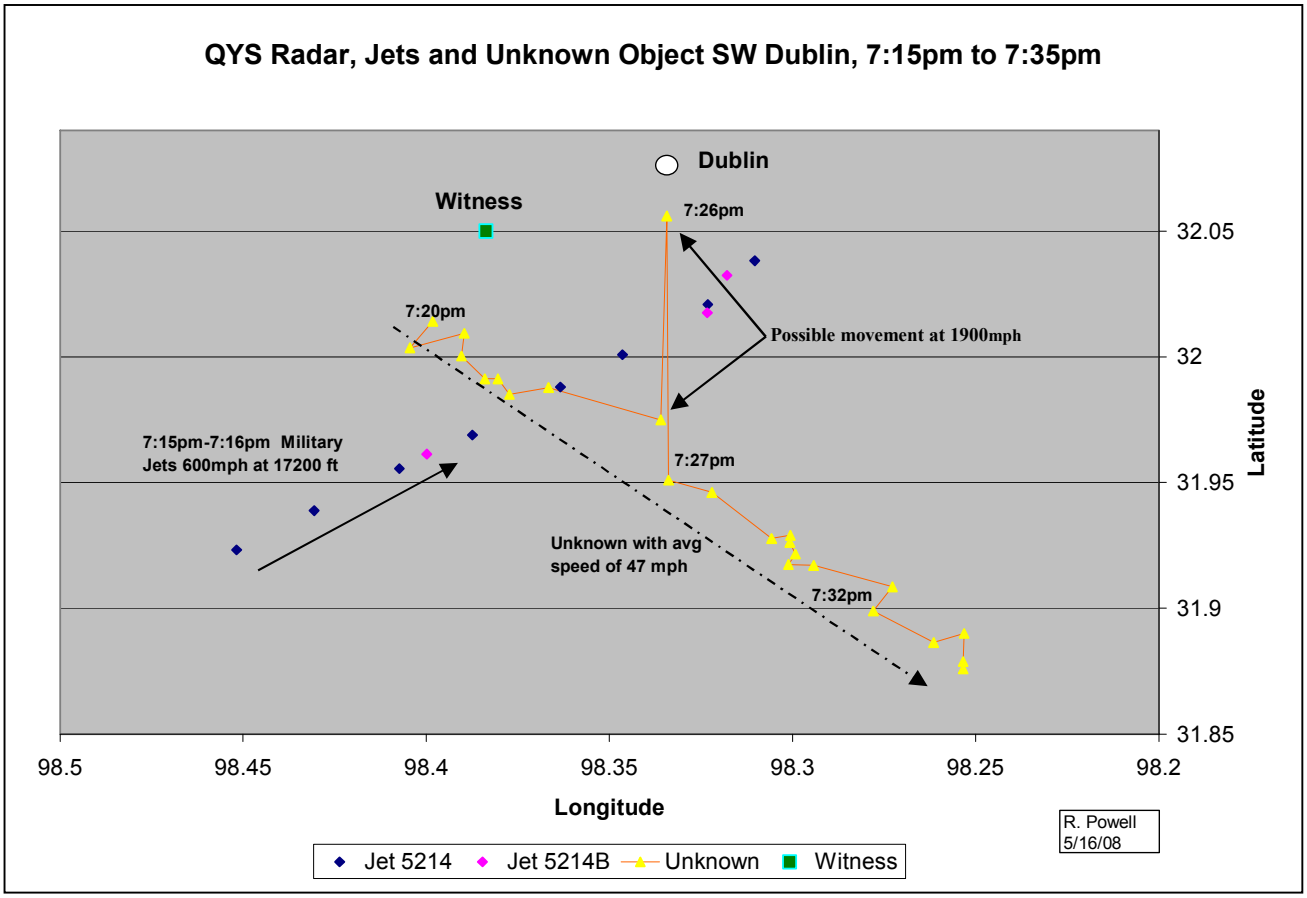


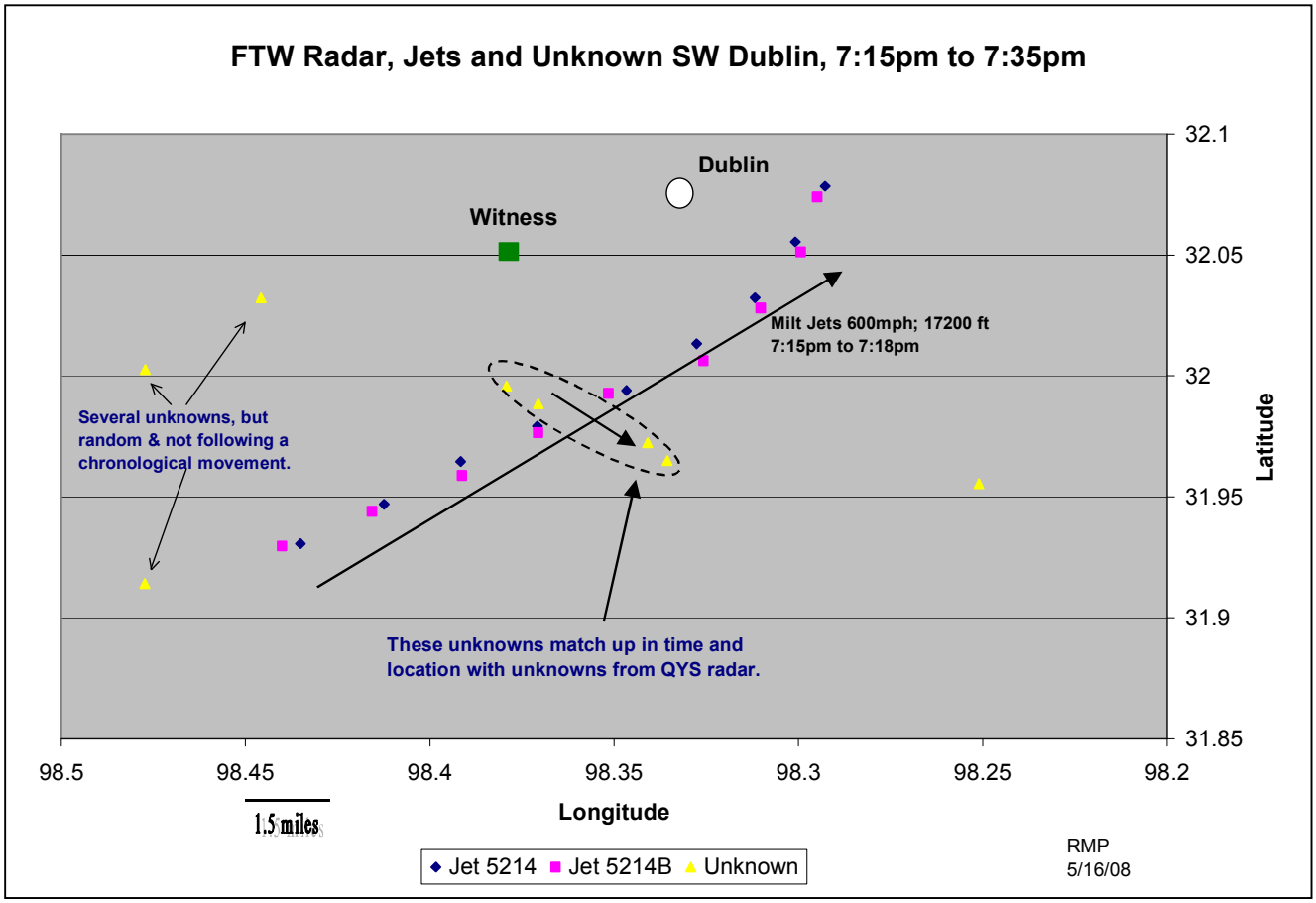
Image #5

At 6:45pm another witness sighted an object in the same direction as the object that appeared on radar. This witness was 48 miles to the northwest of the object and was near Cisco, Texas. His description is very similar to the one made by the witness near Gorman, Texas, earlier in the evening. If this is the same object that was seen southwest of Alexander then the witness near Cisco has grossly overestimated the apparent size of the object because at the distance of the witness, the lights were spanning an area that would equate to an object 4 miles in size.

At 7:15pm a constable witnessed an object to the south of his home that also shows up on radar beginning at 7:20pm. The object on radar is only 2.8 miles south of the constable's home. This matches quite well to the location and direction of the object seen by the constable. This is the third instance of radar matching up with a witness. This object shows up both on the FTW radar and the QYS radar that is located in Rogers, Texas. The QYS radar (graph #4-5) does much better than the FTW radar (graph #4-6) in tracking the object, which is opposite of what normally occurs in terms of the capability of these two radars. It is noteworthy that this object showed up on radar in very close to the same location as the object which showed up 24 minutes earlier at 6:51pm. Its origination point on radar is within 2 miles of the previous object's point of origin. It also travels towards the southeast as did the earlier object, but on a slightly different route. It is also moving slowly at an average speed of 47mph. Two military jets passed to the south and southeast, within 4 miles of the constable's home at 17,000 feet at 7:17pm, which was three minutes prior to the unknown object appearing on radar. The jets would have been at an elevation of 39 degrees and would have occupied 0.1 degree of sky. They would have been easy to see and should have generated about 56 decibels of noise [4], which is near the sound level of a typical conversation of 60 decibels. If the constable had been in his home when the jets went over, they would not have generated enough noise to have been heard, but should have been easy to hear outdoors.



Graph #4-5



Graph #4-6

The detailed information provided by the constable allows us to make some estimations of the object's size. Since he saw the object just above a tree line, we can calculate potential sizes and distances for the object. The tree line was 450 feet away and the height of the trees was 15 feet. The object was seen just above this tree line at about ½ the trees height above the trees, which places it at 3 degrees above the horizon. Each light was estimated at 1 degree in size and the separation of the lights at 5 degrees. This allows us to calculate a set of distances and sizes for the object. See Table 1 below. The radar data shows the object at distances varying between 2.8 miles and 4 miles south of the constable's house from 7:20pm to 7:24pm. If one light defines the object then its size is between 258 to 368 feet. If the object is outlined by both lights then its size is 1294 to 1848 feet. Its altitude would equate to between 773' to 1104' in the table below, which is below detectable altitude for radar in that area. But when the constable returned from trying to find his wife, the object had moved to a higher elevation and would have been within radar range at that point in time.

Table 1

Distance to Object	Altitude of Object	Size of Lights 1°	Distance Between Lights 5°
2640'(1/2 mile)	138'	46'	231'
5280'(1 mile)	276'	92'	462'
2.8 miles	773'	258'	1294'
4 miles	1104'	368'	1848'

Radar confirms an unknown skin paint to the south of the Constable's home at about the time he first saw the object. But does it confirm the second part of his observation when he stated that the object moved at a high rate of speed to the northeast? Graph #4-5 does show the possibility that the object being tracked, suddenly moves quickly to the north. Two arrows outline the object's movement to the north. This is somewhat similar to what happened earlier in the evening near Selden. There are two possibilities. One is that this is a different object that just happens to show up near Dublin at about the same time as this unknown object is moving south of the Constable's home. If so, this coincidence has now occurred twice on the same night. The other possibility is that it is the same object that is south of the Constable's home and it moves towards Dublin then returns to its original course one minute and twenty seconds later. If it is the same object then it traveled at over 1,900 mph based on the radar calculation. Additional support of this possibility is provided by a detailed description by another law enforcement witness, of an object over Stephenville at about the same time. At the speed noted above, Stephenville is less than 30 seconds away from Dublin. (Because this report was received after this paper was basically complete, it is documented in the appendix. It is a very striking report.)

There is no way to know for sure, but with everything that happened on January 8th it certainly would have been highly desirable to have had access to the radar of the military jets that were flying in the area.

The last important witness that night was the former Air Traffic Controller that described seeing an object very similar to what the Constable saw, but to the west of Comanche, Texas. Unfortunately, we don't have any FOIA radar data for any events after 8pm that night. But what is still important is that this witness saw two military jets in the same area about 10 minutes after the object disappeared. So from where did the military jets originate? There is a partial entry that has been redacted in the logbook from CAFB which would have been entry lines #20 and #21. It is possible this could have been the source of the jets later that night that were seen in Comanche.

X. SUMMARIZATION

There are several conclusions that the authors have reached with this report and its supporting analysis. The first and primary conclusion is that there was definitely a real and physical object that appeared and was witnessed on January 8, 2008, in the Dublin-Stephenville area. Reports of unidentified flying objects occur all the time. Most of those reports are from single individuals or a group of individuals who see an unexplained object at a given location and time. These types of reports are easier to explain away because there is usually, whether likely or not, some type of explanation that can be constructed to explain away the event at a specific time and place. What makes the Dublin-Stephenville event unique is that there are multiple witnesses at different locations and the sightings occur over a three hour time period. Additionally, radar data identifies unknown aircraft in the sky at the same time as many of the witness sightings. So in the Dublin-Stephenville case, one would have to attempt several varied low probability explanations to try and explain away all of the various sightings. The likelihood that all of these witnesses miss-identified separate known objects at different times, in different but closely associated geographic locations, all within a 3 ½ hour time period is extremely low. It is much more reasonable to believe that these witnesses truly saw an object that could not be explained by any objects with which they are familiar.

As to what these witnesses saw, it is difficult to determine. It was not any known aircraft. The enormous size of the object, its complete silence, and its ability to travel at high rates of speed and to also remain stationary or travel at slow speeds, is not explained by any known aircraft. The smallest size calculated from witness descriptions was 524 feet and most of the calculations based on approximate distance of the object and witness descriptions of degrees of sky covered by the object indicated an object closer to 1,000 feet in size. Twice, radar picked up an unknown object flying at 1,900-2,100 mph. Admittedly, it could have been a coincidental radar hit…but in both cases that coincidence occurred when a witness saw a very fast moving object in the same direction as an object painted by radar. Twice, radar tracked slow moving objects, for extended periods of time, that were very near the witness' location, in the direction described by the witness, and at approximately the same time that the witness saw the unknown object. It is very difficult to dismiss witness testimony that is corroborated by radar. And to further augment the strangeness of these events, radar tracked one of those two objects for over an hour as it traveled directly toward Crawford Ranch. The authors cannot comment on the source or origin of this object, but it is clear to the authors that the unknown object was real and not imaginary.

The second conclusion of this report is that the military did not react overtly to the presence of these unknown objects. In light of the disaster of Sept. 11, 2001, the authors of this report have concerns with how the military reacted to an unknown aircraft(s) in U.S. air space. It is clear that there was an unknown object without any transponder beacon traveling along a path that began south of Dublin and that proceeded on a direct path to Crawford Ranch. This object was tracked by the FTW radar for over an hour. Military jets flew within a mile of this object on their way to the Brownwood MOA. The F-16s had to have seen this object on their radar and the suspected AWACS that was circling this area must have detected and recorded this object on its state-of-the-art radar. This must have raised concerns, yet the radar tracks of the military jets, indicates that there was no reaction by them to this object during the hour of time in question. What could explain this lack of reaction? One possibility is that the military knew the identity of the object and instructed the F-16 pilots to ignore it and stay on course to the MOA. But this possibility is countered by all of the military replies to the FOIAs that indicated the military had no aircraft in the area other than the F16s from CAFB that have already been identified. Secondly, if it was a military aircraft then it was violating FAA and military MARSA rules by not having a transponder beacon code activated while being outside of a MOA. This leaves us with the possibility that the military either did not see the object or just ignored it. In light of what happened on 9/11, what if the unknown object had been a terrorist aircraft? The Air Force should

explain what their radar detected on the evening of January 8, 2008, and the reason as to why the military jets in the area did not react.

The third conclusion is that military aircraft traffic in the area was unusually heavy and twice military aircraft strayed out of their standard Military Training Routes and into civilian airspace. Ten F-16 jets from Carswell AFB were documented as flying into the Dublin-Stephenville area within a 2 hour time period as well as a probable AWACS that circled the area for over 4 hours. A FOIA requesting information to determine how unique this level of jet activity may be was sent to the 10th Air Force in Ft. Worth on May 7th, 2008. An acknowledgement of the correspondence has been received but a formal reply is still pending.

Two CAFB sorties, a total of 4 F-16s, returning to CAFB belatedly activated military beacons and veered unexpectedly eastward over Stephenville toward DFW civilian aircraft arrival traffic patterns. There is no explanation as to why the military jets strayed from their normal MTR. Since they did not initially leave CAFB with beacons, it is reasonable to assume that something occurred that caused those aircraft to break away from their lead aircraft and request a beacon code so that they could veer away from the standard MTR.

The last conclusion is that there are indications that requests submitted under the Freedom of Information Act are not considered seriously by the U.S. military and were completely ignored by the Dept of Homeland Security's branch, U.S. Customs & Border Patrol. If true, this would be a violation of a law passed by the Congress of the United States. FOIA requests are usually handled by a clerk who is an intermediary between the submitter and who ever within the military decides what information can be provided. The reply is uniformly the same from military base to military base. The standard reply has obviously been crafted specifically in the manner that the military should use to deal with FOIAs from the public. The standard reply is, *"There are no responsive records that meet your request".* With the events of September 11, 2001, it is understandable that the military would choose caution in dealing with any release of information regarding their operational activities. But in this case, we are discussing military activities within the United States, during a four hour period of time, on a specific date, and in a small and specific area of Texas. One would be hard pressed to argue that release of this type of information would be a threat to national security. And exactly what complicated information was requested? Only the following..."Do you have any evidence to support if Military Base "X" was flying aircraft within 50 miles of Stephenville, Tx., on Jan.8, 2008?" "Can you provide copies of radar images from any military aircraft operating with 50 miles of Stephenville on Jan 8, 2008?" Surely the military can say, "No, we had no aircraft in the area.", or perhaps, "We cannot release this information due to reasons of national security." But, no, instead we receive*..."We found no documents responsive to your request."* On the other hand, we would like to again express our sincere thanks to the National Weather Service and the Federal Aviation Administration for their excellent responses and their willingness to abide by the requirements of the Freedom of Information Act. They communicated effectively and if they did not have the required information, they readily said so.

We are a nation of freedom that is based on a set of principals designed to maintain our individual liberties. When our government bodies reach a point that they do not feel compelled to honor the requests of their citizenry, as defined by the laws of this nation, we have taken a path that allows the government to arbitrarily and secretly decide what we should and should not know. The American people have a right to know what did or did not occur on January 8, 2008 in the Dublin-Stephenville area.

Authors Certification Statements

The authors certify that all radar graphs and annotations are the true, unaltered and non fabricated product of the FAA radar returns contained within the FAA ARTCC FOIA response of Feb. 16, 2008. Only valid and uncontroversial editing of the FAA radar return data needed to reduce the large number of radar returns to manageable levels and to radar returns relevant to the airspace of interest has been performed.

These radar analyses and graphical presentations have been peer reviewed by well qualified radar specialists wishing to remain anonymous.

x Glen H. Schulze

Glen H. Schulze, Radar Specialist

Date: July 4, 2008

x Robert Powell

Robert Powell, MUFON Director of Research

Date: July 4, 2008

BIBLIOGRAPHY

(1) Fort Hood Public Affairs Office; Current as of Feb. 15, 2007

(2) Globalsecurity.org

(3) FAA's Automated Surface Observation System

(4) Realistic Bomber Training Initiatives; Fleischner and Weisber, 1986

(5) Air Force Military Fact Sheet; Public Affairs Office; 130 Andrews St., Suite 202; Langley AFB, VA; April 2008

(6) NOAA's National Climatic Data Center

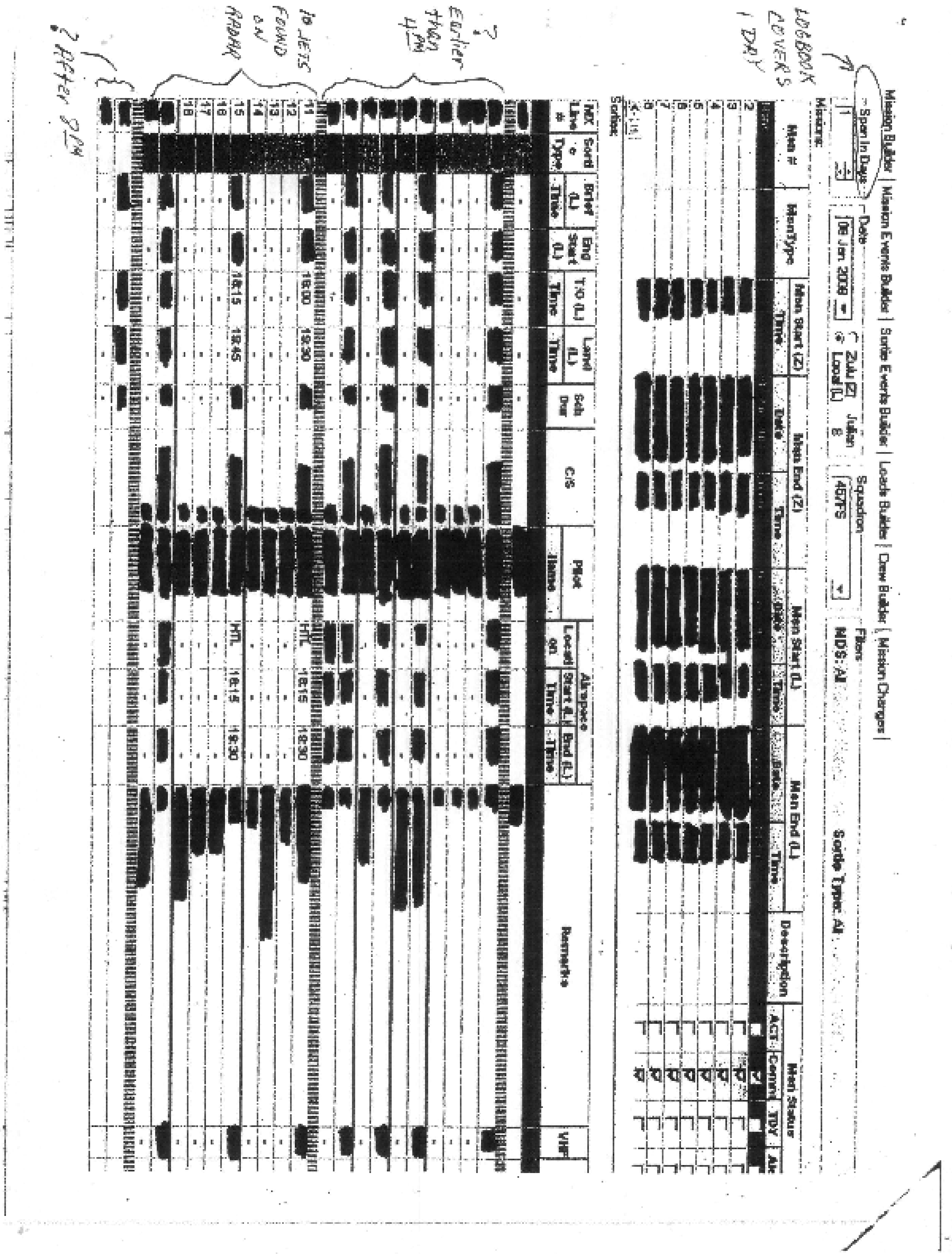
APPENDIX

Errata Sheet

Item: Stephenville TX Statute Mile Scales and Latitude and Longitude Relationships

Several of the provided graphs have incorrect statute mile scales shown in the lower left and lower right hand corners. The correct relationships are as follows:

One degree of longitude at Stephenville, TX:	58.50 miles
One half degree of longitude at Stephenville, TX:	29.25 miles
One degree of latitude at Stephenville, TX:	68.70 miles
One half degree of latitude at Stephenville, TX:	34.35 miles



Mission Builder | Mission Events Builder | Sortie Events Builder | Loads Builder | Crew Builder | Mission Changes |

Span In Days: 1 — Date: 08 Jan 2008 — Zulu (Z) / Local (L) — Julian 8 — Squadron: 457FS — Filters: MDS: All — Sortie Type: All

Missions:

Msn #	MsnType	Msn Start (Z) Time	Msn End (Z) Date	Msn End (Z) Time	Msn Start (L) Date	Msn Start (L) Time	Msn End (L) Date	Msn End (L) Time	Description	ACT	Comm	TDY	Alt
2		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			☑		
3		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			☑		
4		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			☑		
5		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			☑		
6		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			☑		
7		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			☑		
8		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			☑		

Sorties:

MX Line #	Sortie Type	Brief (L) Time	Eng Start (L)	T/O (L) Time	Land (L) Time	Sch Dur	C/S	Pilot Name	Airspace Location	Airspace Start (L) Time	Airspace End (L) Time	Remarks	VHF
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
11	[redacted]	[redacted]	[redacted]	18:00	19:30	[redacted]	[redacted]	[redacted]	HTL	18:15	19:30	[redacted]	[redacted]
12	[redacted]	-	-	-	-	-	[redacted]	[redacted]	-	-	-	[redacted]	-
13	[redacted]	-	-	-	-	-	[redacted]	[redacted]	-	-	-	[redacted]	-
14	[redacted]	-	-	-	-	-	[redacted]	[redacted]	-	-	-	[redacted]	-
15	[redacted]	[redacted]	[redacted]	18:15	19:45	[redacted]	[redacted]	[redacted]	HTL	18:15	19:30	[redacted]	[redacted]
16	[redacted]	-	-	-	-	-	[redacted]	[redacted]	-	-	-	[redacted]	-
17	[redacted]	-	-	-	-	-	[redacted]	[redacted]	-	-	-	[redacted]	-
18	[redacted]	-	-	-	-	-	[redacted]	[redacted]	-	-	-	[redacted]	-
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

LOGBOOK COVERS 1 DAY

? Earlier than 4PM

10 JETS FOUND ON RADAR

? After 8PM

ATCC Controllers' Read Binder...

NOTAMS, FAQs and other info for users of ATCC

August, 1998

MARSA

This is a term that means "Military Assumes Responsibility for SeparAtion." If a military aircraft wants to join in formation with another in your sector, you first vector them and/or assign an altitude next to their target at the minimum separation amount (5 miles/1000 feet). Once they get each other in sight, they will say they are "MARSA", which means they are taking over separation and will join up. So, for instance, you may have TOPGUN1 at FL230, and TOPGUN2 you would assign FL220. When TOPGUN2 gets #1 in sight, he would say "TOPGUN2 is MARSA with TOPGUN1", then you would say "TOPGUN1 flight, maintain FL230." They join up, and you treat them as one aircraft (the second turns off his transponder).

Similarly, if a flight wishes to break up, you would assign different altitudes to each aircraft in the flight, tell them to report when established, then say "MARSA terminated" which means you are taking over separation responsibility. So for a flight of 3 at FL230, you might assign TOPGUN1 FL210, TOPGUN2 FL220, and TOPGUN3 FL230, then when they report established at those separate altitudes, you would terminate MARSA and treat them as three separate aircraft with their own datablocks, instead of one flight with one datablock.

It becomes a headache if you are busy and a flight suddenly announces they want to break up, so it is possible to deny the breakup until you are less busy, or tell them to make the request on the next sector. If they are headed into clouds, however, you may have no choice, or you may tell them to circle awhile until you can get to them.

January 28, 2008

Robert Powell

[redacted]

Naval Space Command
5280 Fourth Street
Dahlgren, VA 22448-5300
VOICE: (540) 653-6146
FAX: (540) 653-6148

Re: Freedom of Information Act Request(DODR 5400.7)

Dear Sir or Madam:

This is a request under the Freedom of Information Act. I am the Director of Research at MUFON, a non-profit organization, and I am conducting this investigation solely for the purpose of conducting scientific research. The fee category should be classified as an educational or noncommercial scientific organization. I am willing to pay up to $50 for this request for the cost of duplication, after the first 100 pages as per the FOIA. If fees will exceed this amount, please contact me first.

All requests for information are related to the dates of January 8 and January 9 2008, and with specific interest in the time period of 17:30hrs to 19:30hrs Central Standard Time, on January 8, 2008. The specific location and description of interest is any airborne object of unknown origin, traveling over the southern United States at any altitude and a size greater than 100 meters in diameter. This request is related to civilian sightings of an unknown object near Stephenville, Texas. I request a review of any documents, records, radar logs, communication entries, etc. that can be obtained from the NAVSPASUR surveillance system, or from satellite photos. Please provide me a copy of any such documents.

Thank you for your time and consideration in helping us resolve this issue.

Sincerely,

Robert Powell
MUFON Director of Research

DEPARTMENT OF THE AIR FORCE

30TH SPACE WING (AFSPC)

APR 07 2008

30 SCS/SCXS (FOIA Office)
867 Washington Avenue
Vandenberg AFB CA 93437-6120

[redacted]

Dear Mr. Powell

This letter is sent in response to your original Freedom of Information Act (FOIA) request, you sent to the Dept of the Navy dated 28 January 2008, for any documents, records, radar logs, communication entries or satellite photos available, from the NAVPASUR surveillance on 8 Jan 08 (0730-1930) that relate to any airborne objects of unknown origin flying near Stephenville TX. A thorough search conducted by the Joint Space Operations Center (JSpOC) did not locate any records responsive to your request. The Air Force Surveillance Network (including the sensor formerly called NAVSPASUR) does not track or maintain records for any airborne objects. They further suggested that you submit your inquiries to NORAD and the Federal Aviation Administration (FAA). Your original request was also referred to NORAD who will respond directly to you. The FAA contact information is:

Ms. Lettie Perez, FOIA Coordinator
Federal Aviation Administration
Central Service Area Air Traffic Organization
Fort Worth, TX 76193
Phone: (817) 222-5564
Fax: (817) 222-4299

If you interpret this no records response as an adverse action, you may appeal our decision by writing to the Secretary of the Air Force within 60 days from the date of this letter. If no appeal is received, or if the appeal is postmarked after the conclusion of this 60-day period, the appeal may be considered closed. Include your reasons for reconsideration along with a copy of this letter. Mail to:

Secretary of the Air Force
THRU: 30 SCS/SCXS (FOIA Office)
867 Washington Avenue
Vandenberg AFB CA 93437-6120

GUARDIANS OF THE HIGH FRONTIER

The Department of Defense Regulation 5400.7 indicates fees be assessed for processing requests; however, the fees are not applicable in this instance. This concludes the administrative process of this request. If you have any questions, please call us at (805) 606-7006, and refer to FOIA case file 08-0018.

Sincerely

Louise Henle

LOUISE HENLE
Freedom of Information Act Manager

Robert Powell
[redacted]

Air Force Space Command
21 SCS/SCXIF (FOIA)
655 West Ent Ave Ste 107
Peterson AFB, CO 80914-1645

Re: Freedom of Information Act Request(DODR 5400.7)

Dear Sir or Madam:

This is a request under the Freedom of Information Act. I am the Director of Research at MUFON, a non-profit organization, and I am conducting this investigation solely for the purpose of conducting scientific research. The fee category should be classified as an educational or noncommercial scientific organization. I am willing to pay up to $50 for this request for the cost of duplication, after the first 100 pages as per the FOIA. If fees will exceed this amount, please contact me first.

All requests for information are related to the dates of January 8 and January 9 2008, and with specific interest in the time period of 17:30hrs to 19:30hrs Central Standard Time, on January 8, 2008. The specific location and description of interest is any airborne object of unknown origin, traveling over the southern United States at any altitude and a size greater than 100 meters in diameter. This request is related to civilian sightings of an unknown object near Stephenville, Texas.

I request a review of any documents, records, radar logs, communication entries, etc. that can be obtained from the Air Force Space Command's surveillance systems such as but not limited to, The Ballistic Missile Early Warning System, PAVE Phased Array Warning System and Perimeter Acquisition Radar Attack radars, The Maui Optical Tracking Identification Facility, Ground-based Electro-Optical Deep Space Surveillance System, Passive Space Surveillance System, Space Based Infrared System, phased-array and mechanical radars, or from satellite photos. Please provide me a copy of any such documents.

Thank you for your time and consideration in helping us resolve this issue.

Sincerely,

Robert Powell
MUFON Director of Research

DEPARTMENT OF THE AIR FORCE
21ST SPACE WING (AFSPC)

13 March 2008

21 SCS/SCOKF
655 W. Ent Ave Ste 109
Peterson AFB CO 80914-1645

[redacted]

Dear Mr. Powell

This is in response to your Freedom of Information Act (FOIA) request dated 11 February 2008 for information pertaining to any airborne object of unknown origin traveling over the southern United States at any altitude and a size greater than 100 meters in diameter during the time period of 17:30 hrs to 19:30 hrs Central Standard Time on the dates of January 8 and 9 2008, our FOIA Case #08-037.

A thorough search by the 21st Space Wing did not locate any records responsive to your request. No other record systems within the 21st Space Wing are likely to produce any responsive records.

If you interpret this "no records" response as an adverse action, you may appeal it in writing to the Secretary of the Air Force. Your appeal should be postmarked no later than 60 calendar days from the date of this letter. Address your letter as follows:

Secretary of the Air Force
Thru: HQ AFSPC/A6NKI (FOIA)
150 Vandenberg Street STE 1105
Peterson AFB CO 80914-4160

The FOIA provides for the collection of fees based on the cost of processing a FOIA request and your fee category. We have placed you in the Non-Commercial Scientific Institution Requesters fee category; however, in this case, we have waived fees.

Sincerely

CHARLES M. SPRINGS
FOIA Manager

January 30, 2008

Robert Powell

[redacted]

7th Communications Squadron/SCXR
341 3rd Avenue
Dyess AFB, TX 79607-1441

Re: Freedom of Information Act Request(DODR 5400.7)

Dear Sir or Madam:

This is a request under the Freedom of Information Act. I am the Director of Research at MUFON, a non-profit organization, and I am conducting this investigation solely for the purpose of conducting scientific research. The fee category should be classified as an educational or noncommercial scientific organization. I am willing to pay up to $50 for this request for the cost of duplication, after the first 100 pages as per the FOIA. If fees will exceed this amount, please contact me first.

All requests for information are related to the time period of 17:30hrs to 19:30hrs Central Standard Time on January 8, 2008. This request is related to civilian sightings of an unknown object near Stephenville, Texas. I request a review of the following document(s) and release of copies to me of those documents as described below:

1. A copy of any and all Dyess Air Force Base records or logs of communication by aircraft that were operating within 50 miles of Stephenville, Texas, during the above mentioned date.
2. A copy of any evidence that establishes whether military aircraft controlled by Dyess Air Force Base, were operating within 50 miles of Stephenville, Texas, during the above mentioned time period.
3. Copies of any radar images, preferably in a CD using ASCII format, from any military aircraft operating within 50 miles of Stephensville, Texas, during the above mentioned date.
4. A copy of any gun camera images of unknown aerial phenomena or objects filmed during the above mentioned time period.

Thank you for your time and consideration in helping us resolve this issue.

Sincerely,

Robert Powell
MUFON Director of Research

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH MISSION SUPPORT GROUP (ACC)
DYESS AIR FORCE BASE TEXAS

1 Feb 08

Dyess FOIA
426 3d Ave
Dyess AFB TX 79607

[redacted]

Dear Mr. Powell,

This is in reference to your Freedom of Information Act (FOIA) request, dated, 30 Jan 08, asking for a copy of the following:

- any and all Dyess AFB records or logs of communications by aircraft that were operating within 50 miles of Stephenville TX during 8 Jan 08 between the hours of 1730 to 1930, Central Standard Time
- any evidence to support *if* Dyess AFB was flying in the vicinity of Stephenville on 8 Jan 08
- copies of radar images from any military aircraft operating within a 50-mile radius of Stephenville on 8 Jan 08
- copies of gun camera images of unknown aerial phenomena or objects on 8 Jan 08

It was confirmed, in speaking to the office of primary responsibility (OPR), that Dyess AFB do not have any of the records that is being requested. It was recommended that you might want to contact the Public Affairs office located at the Carlswell Naval Air Station in Ft Worth TX, as it is believed they have jurisidiction around that surrounding area. They may be contacted by calling (817) 782-7170.

If you interpret this "no records" response as an adverse action, you may appeal our decision by writing to the Secretary of the Air Force within 60 days from the date of this letter/e-mail. If no appeal is received, or if the appeal is postmarked after the conclusion of this 60-day period, the appeal may be considered closed. Include your reasons for reconsideration along with a copy of this letter/e-mail. Mail to:

Secretary of the Air Force
Thru: HQ ACC/A6XP (FOIA)
180 Benedict Avenue, Ste 210
Langley AFB VA 23665-1993

Department of Defense Regulation 5400.7 indicates fees be assessed for processing this request; however, the fees are waived in this instance.

Sincerely,

Dianna Sanders
Dyess FOIA Manager

Global Power For America

Feb. 11, 2008

Robert Powell
[redacted]

Dyess FOIA
426 3d Ave
Dyess AFB, TX 79607

Re: Freedom of Information Act Request(DODR 5400.7)

Dear Ms. Sanders,

Thank you for your prompt reply. A copy of your reply is attached. I have a question regarding clarification of your reply.

Does your reply mean that there were no aircraft from Dyess AFB in the air during the time & location in question, or does your reply mean that Carswell Naval Air Station would be the controlling authority that would answer that question regarding aircraft from Dyess AFB?

Thank you for your time and consideration in helping me regarding this issue.

Sincerely,

Robert Powell
MUFON Director of Research

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 7TH MISSION SUPPORT GROUP (ACC)
DYESS AIR FORCE BASE TEXAS

14 Feb 08

Dyess FOIA
426 3d Ave
Dyess AFB TX 79607

[redacted]

Dear Mr. Powell,

This is in reference to your letter dated, 11 Feb 08, concerning your Freedom of Information Act (FOIA) request, dated, 30 Jan 08.

If you are trying to seek information regarding aircraft(s) that were flying in the area of Stephenville, Texas, during the date and time that you specified, then you will need to contact the Carlswell Naval Air Station in Ft Worth TX, to see if maybe they can assist you or determine if records/documentation exist. Again, they may be contacted by calling (817) 782-7170.

Sincerely,

Dianna Sanders

Dyess FOIA Manager

January 28, 2008

Robert Powell

[redacted]

82 CS/SCBR (FOIA)
819 D Avenue
Sheppard AFB, TX 76311

Re: Freedom of Information Act Request(DODR 5400.7)

Dear Sir or Madam:

This is a request under the Freedom of Information Act. I am the Director of Research at MUFON, a non-profit organization, and I am conducting this investigation solely for the purpose of conducting scientific research. The fee category should be classified as an educational or noncommercial scientific organization. I am willing to pay up to $50 for this request for the cost of duplication, after the first 100 pages as per the FOIA. If fees will exceed this amount, please contact me first.

All requests for information are related to the time period of 17:30hrs to 19:30hrs Central Standard Time on January 8, 2008. This request is related to civilian sightings of an unknown object near Stephenville, Texas. I request a review of the following document(s) and release of copies to me of those documents as described below:

1. A copy of any and all Sheppard Air Force Base records or logs of communication by aircraft under the control of Sheppard Air Force Base, where those aircraft were operating within 50 miles of Stephenville, Texas, during the above mentioned date.
2. A copy of any evidence that establishes whether military aircraft controlled by Sheppard Air Force Base, were operating within 50 miles of Stephenville, Texas, during the above mentioned time period.
3. Copies of any radar images, preferably in a CD using ASCII or excel format, from any military aircraft operating within 50 miles of Stephensville, Texas, during the above mentioned date.
4. A copy of any gun camera images of unknown aerial phenomena or objects filmed during the above mentioned time period.

Thank you for your time and consideration in helping us resolve this issue.

Sincerely,

Robert Powell
MUFON Director of Research

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

FEB 2 6 2008

Capt Sanjoy Malhotra
82d Communications Squadron
227 Avenues G
Sheppard AFB TX 76311-2061

[redacted]

Dear Mr. Powell,

Your Freedom of Information Act (FOIA) request was received 30 Jan 08 in this office for processing and given case #2008-0014. The 80 Operation Support Squadron (80 OSS) was tasked as the Office of Primary Responsibility (OPR) for this request. A thorough search and review was conducted for this request. The OPR found no documents that are responsive to your request. Therefore, a no records response is being provided.

If you interpret this no records response as an adverse action you may appeal it in writing to the Secretary of the Air Force. Your appeal should be postmarked no later than 60 calendar days from the date of this letter. Address your letter as listed below.

Secretary of the Air Force
82 CS/SCOK (FOIA)
819 D Avenue
Sheppard AFB TX 78311-3464

In response to your 2nd request received in this office 25 Feb 08 through certified mail, letter dated 20 Feb 08, stating that this office had not responded to you in a timely manner. In accordance with DoD 5400.7-R/AFSUP1, *Freedom of Information Act Program, para* C1.5.4. Simple request are processed within 1 to 20 workdays. The 20 day workday time limit starts when the request is received in our office (not the date the request was written). Your request was dated 28 Jan 08 and was sent through the United States Postal Service and arrived in this office 30 Jan 08. Please note that all weekend and holidays are excluded from the 20 workday limit. A response from this office was due to you no later than 28 Feb 08, which meets all statuary requirements.

Thank you for giving us the opportunity to assist you.

SANJOY MALHOTRA, Capt, USAF
Operations Flight Commander

Cc: Senator Kay Bailey Hutchison
Senator John Cornyn

January 28, 2008

Robert Powell

[redacted]

Naval Air Station Joint Reserve Base
10th Air Force
1510 Chennault Avenue
Fort Worth, Tx. 76127-1510

Re: Freedom of Information Act Request(DODR 5400.7)

Dear Sir or Madam:

This is a request under the Freedom of Information Act. I am the Director of Research at MUFON, a non-profit organization, and I am conducting this investigation solely for the purpose of conducting scientific research. The fee category should be classified as an educational or noncommercial scientific organization. I am willing to pay up to $50 for this request for the cost of duplication, after the first 100 pages as per the FOIA. If fees will exceed this amount, please contact me first.

All requests for information are related to the time period of 17:30hrs to 19:30hrs Central Standard Time on January 8, 2008. This request is related to civilian sightings of an unknown object near Stephenville. I request a review of the following document(s) and release of copies to me of those documents as described below:

1. A copy of any and all 10th Air Force records or logs of communication by aircraft under the control of the 10th Air Force, where those aircraft were operating within 50 miles of Stephenville, Texas, during the above mentioned date.
2. A copy of any evidence that establishes whether military aircraft controlled by the 10th Air Force, were operating within 50 miles of Stephenville, Texas, during the above mentioned time period.
3. Copies of any radar images, preferably in a CD using ASCII or excel format, from any military aircraft operating within 50 miles of Stephensville, Texas, during the above mentioned date.
4. A copy of any gun camera images of unknown aerial phenomena or objects filmed during the above mentioned time period.

Thank you for your time and consideration in helping us resolve this issue.

Sincerely,

Robert Powell
MUFON Director of Research

DEPARTMENT OF THE AIR FORCE
AIR FORCE RESERVE COMMAND

27 March 2008

10th Air Force A6/SC (FOIA)
1700 Tuskegee Airmen Drive
NAS Fort Worth JRB TX 76127

[redacted]

Dear Mr. Robert Powell,

This is in response to your January 28, 2008 Freedom of Information Act request for information on a reported civilian sighting of an unknown object near Stephenville Texas. You specifically asked for information for the time period of 17:30 hrs to 19:30 hrs Central Standard Time on January 8, 2008. As stated in previous memorandum the Headquarters 10th Air Force has no records; however, your request was sent to 301st Fighter Wing for another search for the requested records. The 301st Fighter Wing found the following records:

Item 1. A copy of any and all 10th Air Force records or logs of communication by aircraft under the control of the 10th Air Force, where those aircraft were operating within 50 miles of Stephenville, Texas, during the above mentioned date.

No records found - A thorough review has been conducted on all Digital Video Recording (DVR) cartridges that were used on the night of 8 Jan 08.

Item 2. A copy of any evidence that establishes whether military aircraft controlled by the 10th Air Force, were operating within 50 miles of Stephenville, Texas, during the above mentions time period.

See attached record – Only information we have indicating 10th Air Force aircraft was operating within 50 miles of Stephenville, Texas during the specific time frame per your request.

Item 3. Copies of any radar images, preferably in a CD using ASCII or excel format, from any military aircraft operating within 50 miles of Stephenville, Texas, during the above mentions time period.

No records found - The recording cartridges in use have a limited storage capacity. When full, older missions are recorded over. Due to this limitation, all the DVR files from 8 Jan 08 has been overwritten.

Item 4. A copy of any gun camera images of unknown aerial phenomena or objects filmed during the above mentioned time period.

No records found – There are no other devices used to record cockpit images, thus, there are no soft or hard media recording files, tapes or other cockpit images available.

A "no records" response may be considered to be adverse in nature, and if so interpreted, you may appeal this response. Should you decide that an appeal from this decision is necessary, you must write to the Secretary of the Air Force at the address provided below in sufficient time so that the appeal reaches us not later than 60 calendar days after the date of this letter. Please include in the appeal your reasons for requesting reconsideration, and attach a copy of this letter. Address your letter as follows:

Secretary of the Air Force
THRU: HQ AFRC/A6 (FOIA Office)
155 Richard Ray Blvd
Robins AFB GA 31098-1635

There are no fees charged for the processing of this request. If you have questions concerning this matter you may contact Ms. Barbara Mumaw at (817) 782-3210, fax number is 817 782-6084, and/or e-mail address is 10af.foia@carswell.af.mil. Please refer to case number FOIA 08-003 in future correspondence.

Sincerely

Barbara L Mumaw

BARBARA L. MUMAW, MSgt, USAFR
Freedom of Information Act Manager

Attachment:
Releasable Document for Item 2

January 28, 2008

Robert Powell

[redacted]

rpowell@austin.rr.com

COMMANDER MARINE FORCES RESERVE

ATTN DEPUTY COUNSEL FOIA
4400 DAUPHINE STREET
BUILDING 601 ROOM 5A404
NEW ORLEANS LA 70146

Re: Freedom of Information Act Request(DODR 5400.7)

Dear Sir or Madam:

This is a request under the Freedom of Information Act. I am the Director of Research at MUFON, a non-profit organization, and I am conducting this investigation solely for the purpose of conducting scientific research. The fee category should be classified as an educational or noncommercial scientific organization. I am willing to pay up to $50 for this request for the cost of duplication, after the first 100 pages as per the FOIA. If fees will exceed this amount, please contact me first.

All requests for information are related to the time period of 17:30hrs to 19:30hrs Central Standard Time on January 8, 2008. This request is related to civilian sightings of an unknown object near Stephenville. I request a review of the following document(s) and release of copies to me of those documents as described below:

1. A copy of any and all records or logs of communication by aircraft under the control of the 41st Marine aircraft Group's squadron located at the Naval Air Station Joint Reserve Base in Ft. Worth, Tx. , if those aircraft were operating within 50 miles of Stephenville, Texas, during the above mentioned date.
2. A copy of any evidence that establishes whether military aircraft controlled by the Marines, were operating within 50 miles of Stephenville, Texas, during the above mentioned time period.
3. Copies of any radar images, preferably in a CD using ASCII or excel format, from any Marine aircraft operating within 50 miles of Stephensville, Texas, during the above mentioned date.
4. A copy of any gun camera images of unknown aerial phenomena or objects filmed during the above mentioned time period.

Thank you for your time and consideration in helping us resolve this issue.

Sincerely,

Robert Powell
MUFON Director of Research

UNITED STATES MARINE CORPS
MARINE FORCES RESERVE
4400 DAUPHINE STREET
NEW ORLEANS, LOUISIANA 70146-5400

IN REPLY REFER TO:
5800
FOIA
12 Mar 08

[redacted]

Dear Mr. Powell:

This letter responds to your Freedom of Information Act (FOIA) request you submitted to Commander, U.S. Marine Forces Reserve, in which you seek information regarding Marine Corps aircraft flying "within 50 miles of Stephenville, Texas," during the "time period of 1730 hours to 1930 hours Central Standard Time on January 8, 2008." I am responding on behalf of the Commander, U.S. Marine Forces Reserve.

A thorough search was made into agency records to locate all documents relevant to your request. Although our search revealed that Marine Corps aircraft from the Naval Air Station Joint Reserve Base in Ft. Worth, Texas were flying during the timeframe identified in your request, none of these aircraft were near or within 50 miles of Stephenville, Texas. This information was verified by the aircrew flying that day. Therefore, we were unable to find any information responsive to your request.

Because your request has been denied, you are advised of your right to appeal this determination, in writing, to the Judge Advocate General of the Navy (Code 14); 1322 Patterson Avenue, SE, Suite 3000; Washington Navy Yard, DC; 20374-5066. Please note your appeal must be postmarked within 60 calendar days from the date of this letter to be considered. Additionally, the appeal and the corresponding envelope should bear the notation: "Freedom of Information Act/Privacy Act Appeal." A copy of this letter and all correspondence from me should likewise be attached. A statement explaining why you believe your appeal should be granted should also be included.

Should you have questions, please feel free to contact Major D. R. Fields at (504) 678-8016.

Sincerely,

T. D. TAYLOR
FOIA Officer
By direction of the Commander

Enclosure

FREEDOM OF
INFORMATION ACT
REQUEST

February 11, 2008

Robert Powell
[redacted]

FOIA Office (IMSW-HOD-HR)
Bldg. 1001, Room C-203
Fort Hood, Tx. 76544-5000

Re: Freedom of Information Act Request(DODR 5400.7)

Dear Sir or Madam:

This is a request under the Freedom of Information Act. I am the Director of Research at MUFON, a non-profit organization, and I am conducting this investigation solely for the purpose of conducting scientific research. The fee category should be classified as an educational or noncommercial scientific organization. I am willing to pay up to $100 for this request for the cost of duplication, after the first 100 pages as per the FOIA. If fees will exceed this amount, please contact me first.

All requests for information are related to the time period of 17:30hrs to 19:30hrs Central Standard Time on January 8, 2008. This request is related to civilian sightings of an unknown object near Stephenville, Texas. I request a review of the following document(s) and release of copies to me of those documents as described below:

1. A copy of any and all Ft Hood records or logs of communication with any aircraft that were operating within 50 miles of Stephenville, Texas, on Jan. 8, 2008.
2. A copy of any Ft. Hood helicopter communications related to a sighting of unidentified lights during the time frame of Dec.28, 2007 through Jan. 21, 2008.
3. A copy of any evidence that establishes whether any type of military aircraft, were operating within 50 miles of Stephenville, Texas, during the time period of 17:30hrs to 19:30hrs on Jan. 8, 2008 .
4. Copies of radar images, if possible in a CD using ASCII format, from all primary and secondary surveillance radar at Ft. Hood, during the above mentioned time period.
5. Information on the models and types of radar in service at Ft. Hood.

Thank you for your time and consideration in helping us resolve this issue.

Sincerely,

Robert Powell

Robert Powell
MUFON Director of Research

DEPARTMENT OF THE ARMY
DIRECTOR OF HUMAN RESOURCES
BUILDING 4230, 78TH STREET
FORT HOOD, TEXAS 76544-5016

REPLY TO
ATTENTION OF

IMWE-HOD-HR-R

20 February 2008

[redacted]

Dear Mr. Powell:

Your Freedom of Information Act request was processed through this office. There are no responsive records to fill your request. This reply is the final decision from original request.

I am considering this correspondence our final decision and please be advised that this request is now administratively closed.

If you consider this response to be an adverse action, you may make an appeal through this office. Your appeal should be filed in order to reach the appellate authority no later than 60 calendar days after the date of this letter and it should include a statement as to why an appeal is being filed. Please address your letter to:

Directorate of Human Resources
IMWE-HOD-HR-R (ATTN: FOIA)
Building 4230, 78th Street
Fort Hood, TX 76544-5016

If you have any questions or need further assistance please contact the undersigned at (254) 287-0220, Fax (254) 287-6509, or Email marie.ann.rosa@us.army.mil.

Sincerely,

Marie A. Rosa
Freedom of Information Act
Officer

Ms. Lettie Perez, FOIA Coordinator 16 January, 2008
Federal Aviation Administration
Central Service Area Air Traffic Organization
Fort Worth, TX 76193

Subject: FOIA Request for DFW TRACON Radar Data, Request dated
16 January, 2008 by G H Schulze of Littleton, Colorado

Dear Ms. Perez,

Pursuant to the Freedom of Information Act, 5 U.S.C. 552 and /or the Privacy Act, 4 U.S.C. 552a, I hereby submit the following specific request for FAA TRACON radar data.

This is an urgent FOIA request for unedited, unaltered, unfiltered, and unprocessed DFW TRACON radar returns ---both primary and secondary returns---for the entire contiguous 4 hour period from 1600 Hrs to 2000 Hrs local, 8 January 2008, and requiring a timely response.

1) By unedited we mean no radar returns are to be manually or electronically redacted or eliminated from the requested radar return data set,
2) By unaltered we mean no radar returns in the requested radar return data set are to be manually or electronically numerically changed, rounded or approximated,
3) By unfiltered we mean no radar returns from the requested radar return data set are to be manually or electronically removed by confining the returns to a specific azimuth sector or to a specific range/distance nautical mile limit or to a specific altitude limit,
4) By unprocessed we mean the radar returns are to be provided in raw antenna parameters of azimuth angles and radar return ranges in nautical miles, and not be converted to latitude and longitude values,
5) By contiguous for 4 hours we mean the data set shall not be segmented into various and different time spans but shall be one complete 4 hour data set free from time gaps and missing time periods.

We request the subject radar return data set documentation format follow the unofficial but prevalent NTSB established radar tabular format as follows, with one radar return per tabular line:

a) raw ASR antenna radar return azimuths in degrees to three decimal places after the decimal point,
b) raw ASR antenna radar return ranges in nautical miles to three decimal places after the decimal point,
c) time of ASR radar return in days, hours, minutes and seconds to two decimal places after the decimal point,
d) transponder codes (secondary returns only),
e) transponder altitudes (secondary returns only),
f) ASR run lengths in 1 to 7 steps (primary returns only),
g) ASR antenna site designator code number,

from ALL ---repeat ALL -- ASR FAA and FAA affiliated radar antenna sites providing ASR radar returns for the DFW TRACON.

Also, we request confirmation and values of all latitude and longitude coordinates for all DFW TRACON affiliated radar antenna site designator codes, with NTSB approved precision, as well as their magnetic north deviation factors in degrees to one decimal place after the decimal point.

It is neither desired nor requested that radar returns be translated to, or plotted in, Cartesian X Y coordinates or translated to latitude and longitude values by the FAA.

We further request the subject radar return data set be provided in standard NTSB electronic format in either a Notepad or WordPad Comma Separated Value ---CSV –
PC compatible program and supplied electronically and formatted on standard CD media.

These materials are for research purpose only and are not for commercial use.
I understand there may be a small fee to provide the requested materials.
Please contact me if this fee exceeds an amount of $100.

Should any part, aspect or detail of this request be either unclear or be found unable to be met by the FAA DFW TRACON we suggest a telephone call be made to the undersigned prior to your commencement to comply with this request.

Sincerely,

Glen H. Schulze

U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of the Air Traffic Organization
Central Service Area

2601 Meacham Blvd.
Fort Worth, TX 76137

FEB 19 2008

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

[redacted]

Dear Mr. Schulze:

Subject: Freedom of Information Act (FOIA)
Request Number 2008-002174

This letter is in response to your January 16, 2008, FOIA request seeking copies of radar data for Fort Worth Air Route Traffic Control Center (ARTCC) for a specific time period on January 8, 2008.

We are enclosing a CD-ROM containing radar data from Fort Worth ARTCC. Your request is within a category that entitles you to all review time and 2 hours of search time free; however, there is a $12.35 charge for the CD-ROM.

Payment, in the amount of $12.35, may be made by check or money order payable to the Federal Aviation Administration (FAA). Please include your FOIA number on the bottom left-hand corner of your check. Your payment should be mailed to:

FAA/ATO Central Service Center
ATTN: Lettie Perez, AJO2C5
Fort Worth, TX 76193

You can also make payment electronically through Pay.gov. A link from our FOIA web page (www.faa.gov/foia/) will take you to a secure website where you can pay by e-check or credit card. When you access the website, you will be asked to provide FOIA Web payment ID 304524, your FOIA request number, requester's name, and amount due.

Your request has been assigned FOIA Request Number 2008-002174, which should be referred to in any further correspondence concerning this matter. Should you have any questions, please call Ms. Connie Johnson, FOIA Specialist, Administrative Services Group, ATO Central Service Center, at 817-222-4039.

Sincerely,

Konstantine Nezer, Jr.
Director, ATO Central Service Center

Enclosure

VERBAL TESTIMONY FROM WITNESS M

(Because the report was basically complete at this point in time, this testimony has been placed in the appendix.)

Witness M was interviewed via telephone on July 3, 2008. Witness M is also a law enforcement officer. The total time involved in the following event was about 2-3 minutes. The event occurred in Stephenville, Texas.

Witness M had just started his patrol shift and the time was between 7pm and 7:30pm. The stars were already out on a clear night with no wind. As the officer was driving east on highway 377 near the city park, he saw a large object to the north, towards the courthouse. The object was stationary and because the object was within the city, he was able to compare it against other objects in order to estimate its size, distance, and altitude. The object was about 4 city blocks wide or close to 1/8 mile. Its height was about 40 feet. He couldn't tell its depth, or how far back it went. The altitude was between 150'-300'. Since it was near the courthouse, it was ¼ - ½ mile away. The object was darker than the sky, which made it easier to see. It had towers with strobe lights on its top and bottom. There were two towers on top and three on bottom. They were about twice the width of the object or about 50' to 100'. There was no pattern to the flashing of the strobes. The object also had two very large lights on its body. The officer estimated that each light was 25 feet in diameter. The lights were similar to xenon lights as they were very steady and there was no flickering of the light.

As the officer turned left on Graham Street the object began moving slowly to the north. Then the object paused for about 3 seconds and tilted towards its left to a 45 degree angle. Then the object completed the turn to 90 degrees so that it was basically on its side in a vertical position. The strobe lights turned off at this point and a third "xenon-like" light came on in between the other two lights. The object began to move again to the north and at this point in time the officer turned on his radar and it registered the object moving at 27 mph. The last speed registered by the officer had the object at 33 mph. It disappeared from the officer's view at that point because of the trees in front of him and he was behind other cars at the time.

Case Report MUFON SIP Deployment

Case # 20706 **CAT 2 MUFON Deployment**

Investigators: Charles Modlin, Vicki LeBlanc

GPS COORDINATES : Latitude: N41.32279
Longitude: W-74.57908
Elevation: 163 M

COORDINATES ACCURACY: Exact, coordinates taken with GPS at effected area of event on Highway

Location: Port Jervis, NY objected headed towards Unionville

DATE OF EVENT: 11/25/09

TIME OF EVENT: 12:15 AM Local **( ) Exact (X) Approximate**

On November 25, 2009 , a STAR team CAT 2 Deployment was activated on Case #20706 in Port Jervis, NY. STAR Team Investigator Chuck Modlin was assigned as lead investigator. Chuck is the Chief Technical Advisor for STAR Team. Investigator Vicki LeBlanc was secondary investigator. James Bouck was State Coordinator.

Richard Lang
MUFON (Mutual UFO Network)
STAR Team Manager
SIP Project Coordinator

Background: The primary Witness is a 41-year old male. The Witness is a mental health professional and works in a hospital facility on second shift. He is married and lives with his wife at an un disclosed location in Port Jervis, NY. Investigators found this witness to be highly credible. He was still visibly shaken from his encounter .

Witness was very concerned about maintaining his anonymity in regards to this sighting report. He refused to sign a third party release form when asked by investigators.

The Witness did allow Investigators to Video tape the interview at his home, but requested the camera be pointed at the floor to protect his identity. Investigators also Videotaped the interview at the affected area along the road side, as witnessed pointed out the details of the event.

Witness Narrative: (CMS Sighting Report) *I left work at 12am as I work 4pm till 12am, I work in Unionville which is approx 15 minutes from port Jervis where I live, the quickest route is to take the Minisink turnpike then to the Greenville turnpike, I was driving on the Minisink turnpike when I noticed lights in the sky, firstly I thought it was a plane then I noticed it had 5 lights on it from end to end the lights went from blue-white-red-white-blue in that order but the strangest thing was it was turning clockwise slowly and the only sound I could hear was like a cat purring, I slowed the car down to around 20 mph to get a better look then I noticed the size it must of been around 200 feet in length, I proceeded to speed up as I started to get nervous but as it passed over the car the car turned off. I came to a stop and grabbed my cell phone and noticed that had turned off too, by this time I didn't know whether to get out of the car and run or stay in my car before I came to the decision the lights had gone out and the car started up I put my foot down a sped up the road not looking back I tell you it was the most unnerving things to happen to me.*

Investigator Report: Investigators left Bowling Green, VA at about 1:30 p.m. on 11/26/09, arriving at Port Jervis, NY at 8:30 p.m. Investigators met with the witness at his home on 11/27/09 at 10:15 a.m.

- The witness works in the medical field on second shift. He leaves work around midnight and it takes approximately 15 minutes to get home. He takes a route which goes through a rural area with curving roads. He said that he was "semi-tired but not tired enough to blank out." He was playing Christmas CDs on the radio and singing as he drove. He drove through Unionville up to the Minisink Turnpike. Coming around a bend in the road, he could see an object about a mile away – it looked pretty small. As he came to the next turn, he slowed down to about 25 miles to get a better look at it, then it was almost on top of him and he doesn't understand how it crossed the distance from where he first saw it to where he was in such a short time.

- He stopped his vehicle along the side of the road and remembers putting the car in PARK, with the engine running. He could now also see that it looked cigar-shaped and was turning clockwise slowly (on axis) as it came towards him. He described the speed as slow like a hot air balloon. When asked to compare the size of the object to an aspirin at arm's length, the witness said that it would be about the size of a baseball.

- According to the witness description, there were lights (blue, white, red, white and blue in that order) so he knew it wasn't a plane. He heard a sound like a cat that was purring at a low frequency (continuously vibrating)

- As the object passed over the witnesses vehicle, the engine just stopped as if someone had turned off the ignition. The Witness tried to use his cell phone but it wouldn't work despite the fact that he always keeps it charged. He also tried to roll down the electric car window but it wouldn't work either. He thought about getting out. He opened the door slightly but then reconsidered and closed the door.

- When he looked at the lights they seemed very bright but they didn't illuminate the ground; the witness said he can't explain this aspect as it doesn't make any sense to him. The craft appeared gun metal gray against the dark sky.

- After about 1.5 minutes the craft's lights blinked out and the witnesses vehicle started up without any action on the part of the witness. He put the car into drive and put the pedal down. All he wanted to do was find someone, find civilization. He was terrified! He didn't even

- look in his rearview mirror and says there is “no way I’m going to take that road again.” Witness recalled running through several STOP signs on the way home. He said that he nearly crashed the car into a fence he was so scared. The witness stated that he actually doesn’t want to even drive along that road again.

- When he got home, he told his wife who said “well, maybe it was a plane” but the witness knows that it wasn’t a plane. His wife also suggested that he call the police but he didn’t see what good that would do. Instead, he paced back and forth and drank a beer. He was so unnerved that he couldn’t sleep for about two hours. He then goggled “how to report a UFO” and the first thing that came up was MUFON. He said that he wrote down exactly what remembered in his report. He wants to know what it is.

Physiological (Medical) Effects: Witness reported that he had a toothache since his sighting but didn’t notice any other physiological effects. He did not wish to be scanned for an implant. (investigator was prepared to conduct a magnetic scan)

Physical Effects - Investigator Modlin inspected the cell phone and found it to be working properly.

Radiological Survey: Investigators checked the affected Vehicle for radiation, without any unusual readings (consistent with background)

Investigators surveyed the site of the event (road side) and reading at the affected area were consistent with background reading.

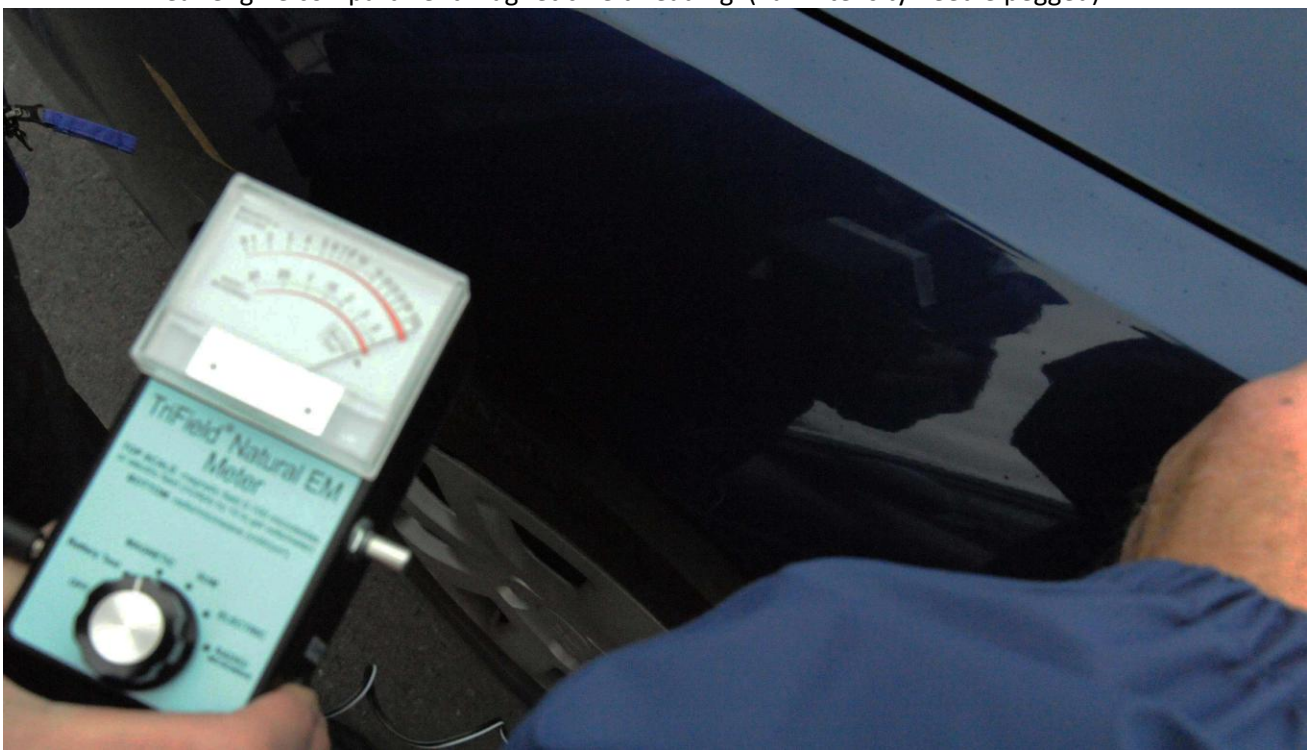
Electromagnetic- Electrostatic Effects: Investigators did find very significant abnormal readings on the subject vehicle with a tri-field meter. The witness was driving a 2009 Midsize 4 door sedan that was approximately 2 months old.

Investigators conducted electro-static and electro-magnetic field tests on the Witnesses Vehicle (SUBJECT VEHICLE) and then went to a car dealer and selected an identical vehicle to the witnesses vehicle (TEST VEHICLE) same make model and year for comparison testing.

Both the electro-static and electro-magnetic fields appear to have been dramatically affected. Specific meter reading (as to intensity) were not available, because the meter (pictured) pegged the needle in the proximity of the SUBJECT VEHICLE.

See photos next page

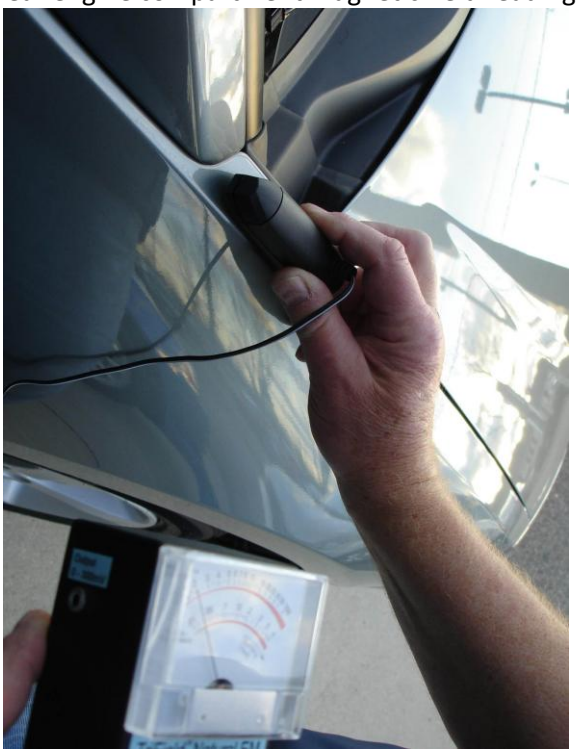
SUBJECT VEHICLE - Driver's side
rear engine compartment magnetic field reading. (Full intensity needle pegged)



TEST VEHICLE - Driver's side
rear engine compartment magnetic field reading.

SUBJECT VEHICLE - Passenger's side
rear engine compartment magnetic field reading. (Full intensity needle pegged)

TEST VEHICLE - Passenger's side
rear engine compartment magnetic field reading



Note: The witness said that it seems like the car is actually driving faster now…almost as if he got a free tune up.

Note: for unknown reasons, it appears that at some point during the investigation, Modlin's Nikon D700 battery failed and the backup battery also failed. Modlin recalls, however, that at all areas which he checked on the witness' vehicle, the EMF meter remained at maximum reading as long as the meter was within 3 inches of the witnesses' car. Modlin has no explanation for the camera's multiple battery failure. The batteries were charged beforehand and normally will take over 1000 photos with GPS enabled. The first photos were taken at the site of the event. Modlin checked the camera's batteries after taking pictures at the site of the event and a 94% charge remained. Modlin then returned to the witness' home to take photos of his two month old 2009 car. Modlin took over 100 photos of the witness' car. Only 12 photos documenting the magnetic testing and none of the EMF testing turned out. Modlin then tested the exact same car model in a car dealer's lot with a digital camera ("test vehicle.")

Note: While we were with the witness, he had a telephone call which did not display a number and when he answered, there was no response on the other end. This has happened a couple of times since the event. The witness also states that his phone has been affecting his speakers since the incident and we heard a strange static sound ourselves. Modlin checked the phone for electro magnetic and electro-static effects and found none.

Summary: The investigators did not notice any major contradictions in witness testimony, nor did the witness appear to falter in any of the questions of detail.

- Investigators found this witness to be highly credible. He was still visibly shaken from his encounter.
- The witness denies any medical conditions or taking any medications that affect his ability to think or concentrate.
- The investigators questioned for the possibility of lost time, without any indication of such, evident from the witness testimony.
- This Investigation yields a reliance primarily on a single witness testimony of events.
- Independent evidence was a electromagnetic and electrostatic effects on the effected vehicle as compared to test vehicle of identical make and model.
- Natural phenomenon was ruled out as a possibility because of the proximity to the witness, movement patterns, and contact/effects of the witness.
- A radiological survey was conducted and readings in the affected area were consistent with the background readings in the unaffected control area.

END REPORT

Case Report MUFON SIP Deployment
Amended Report– follow up investigation

Case # 20706 **CAT 2 MUFON Deployment**

Investigators: Charles Modlin, Vicki LeBlanc
Star team Manager: Richard lang

GPS COORDINATES : Latitude: N41.32279
Longitude: W-74.57908
Elevation: 163 M

COORDINATES ACCURACY: Exact, coordinates taken with GPS at effected area of event on Highway

Location: Port Jervis, NY objected headed towards Unionville

DATE OF EVENT: 11/25/09

TIME OF EVENT: 12:15 AM Local **( ) Exact (X) Approximate**

On November 25, 2009, a STAR team CAT 2 Deployment was activated on Case #20706 in Port Jervis, NY. STAR Team Investigator Chuck Modlin was assigned as lead investigator. Chuck is the Chief Technical Advisor for STAR Team. Investigator Vicki LeBlanc was secondary investigator. James Bouck was State Coordinator.

On December 16, 2009 a follow up investigation was conducted by Chuck Modlin and Richard Lang. The primary witness was interviewed for additional details, the vehicle was re-examined and the area where the incident occurred was photographed. During the vehicle re-examination, electromagnetic readings were taken and Compass readings were taken and compared to initial readings. Investigators Interviewed a New York State Trooper who is assigned to patrol the area where the incident occurred.

Richard Lang
MUFON (Mutual UFO Network)
STAR Team Manager
SIP Project Coordinator

Background: The primary Witness is a 41-year old male. The Witness is a mental health professional and works in a hospital facility on second shift. He is married and lives with his wife at an un disclosed location in Port Jervis, NY. Investigators found this witness to be highly credible. He was still visibly shaken from his encounter.

Witness was very concerned about maintaining his anonymity in regards to this sighting report. He refused to sign a third party release form when asked by investigators.

The Witness did allow Investigators to Video tape the interview at his home, but requested the camera be pointed at the floor to protect his identity. Investigators also Videotaped the interview at the affected area along the road side, as witnessed pointed out the details of the event.

Witness Narrative: (CMS Sighting Report) *I left work at 12am as I work 4pm till 12am, I work in Unionville which is approx 15 minutes from port Jervis where I live, the quickest route is to take the Minisink turnpike then to the Greenville turnpike, I was driving on the Minisink turnpike when I noticed lights in the sky, firstly I thought it was a plane then I noticed it had 5 lights on it from end to end the lights went from blue-white-red-white-blue in that order but the strangest thing was it was turning clockwise slowly and the only sound I could hear was like a cat purring, I slowed the car down to around 20 mph to get a better look then I noticed the size it must of been around 200 feet in length, I proceeded to speed up as I started to get nervous but as it passed over the car the car turned off. I came to a stop and grabbed my cell phone and noticed that had turned off too, by this time I didn't know whether to get out of the car and run or stay in my car before I came to the decision the lights had gone out and the car started up I put my foot down a sped up the road not looking back I tell you it was the most unnerving things to happen to me.*

MUFON Dispatcher indicated that when he initially contacted the witness, his observation was that witness was terrified.

Investigator Report: (11-27-09) Investigators left Bowling Green, VA at about 1:30 p.m. on 11/26/09, arriving at Port Jervis, NY at 8:30 p.m. Investigators met with the witness at his home on 11/27/09 at 10:15 a.m.

- The witness works in the medical field on second shift. He leaves work around midnight and it takes approximately 15 minutes to get home. He takes a route which goes through a rural area with curving roads. He said that he was "semi-tired but not tired enough to blank out." He was playing Christmas CDs on the radio and singing as he drove. He drove through Unionville up to the Minisink Turnpike. Coming around a bend in the road, he could see an object about a mile away – it looked pretty small. As he came to the next turn, he slowed down to about 25 miles to get a better look at it, then it was almost on top of him and he doesn't understand how it crossed the distance from where he first saw it to where he was in such a short time.

- He stopped his vehicle along the side of the road and remembers putting the car in PARK, with the engine running. He could now also see that it looked cigar-shaped and was turning clockwise slowly (see illustration) as it came towards him. He described the speed as slow like a hot air balloon. When asked to compare the size of the object to an aspirin at arm's length, the witness said that it would be about the size of a baseball.

- According to the witness description, there were lights (blue, white, red, white and blue in that order) so he knew it wasn't a plane. He heard a sound like a cat that was purring at a low frequency (continuously vibrating)

- As the object passed over the witnesses vehicle, the engine just stopped as if someone had turned off the ignition. The Witness tried to use his cell phone but it wouldn't work despite the fact that he always keeps it charged. He also tried to roll down the electric car window but it wouldn't work either.

- He thought about getting out. He opened the door slightly but then reconsidered and closed the door.

- When he looked at the lights they seemed very bright but they didn't illuminate the ground; the witness said he can't explain this aspect as it doesn't make any sense to him. The craft appeared gun metal gray against the dark sky.

- After about 1.5 minutes the craft's lights blinked out and the witnesses vehicle started up without any action on the part of the witness. He put the car into drive and put the pedal down. All he wanted to do was find someone, find civilization. He was terrified! He didn't even

- look in his rearview mirror and says there is "no way I'm going to take that road again." Witness recalled running through several STOP signs on the way home. He said that he nearly crashed the car into a fence he was so scared. The witness stated that he actually doesn't want to even drive along that road again.

- When he got home, he told his wife who said "well, maybe it was a plane" but the witness knows that it wasn't a plane. His wife also suggested that he call the police but he didn't see what good that would do. Instead, he paced back and forth and drank a beer. He was so unnerved that he couldn't sleep for about two hours. He then goggled "how to report a UFO" and the first thing that came up was MUFON. He said that he wrote down exactly what remembered in his report. He wants to know what it is.

Follow Up Investigation: (12-16-09) during the follow up investigation, the witness was questioned by investigators for additional details about the encounter. The following additional information came from the witness testimony.

- Witness indicated that he remembers being stopped in his vehicle on the side of the road. He remembers pulling over and stopping to get a better look (see photo Pg.8 for location of event and direction of travel)

- He could see object from the bottom (see rendition - next page) and see the immediate area around the lights on the bottom of the object, but he could not distinguish overall shape.

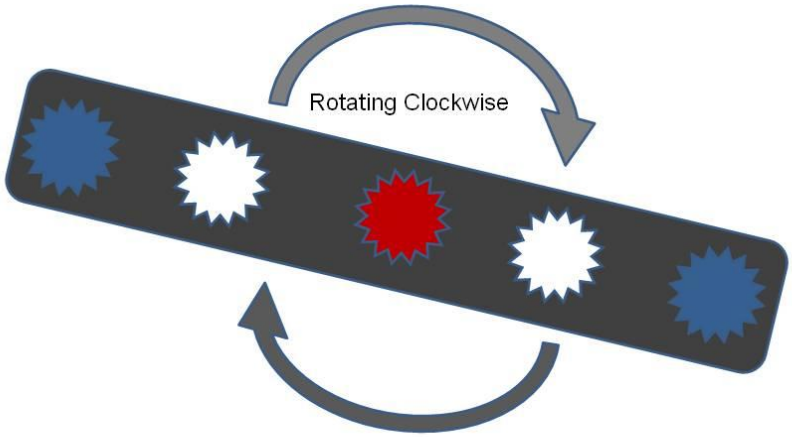
- As the object passed directly over head, **the power in the witness vehicle went off** . . . engine stopped, head lights went off, dash lights went off and radio went silent. He reached for his cell phone and it was also dead (no power). He was sitting in the dark (in his vehicle) and hearing a humming sound, that he described as a purring sound (like a cat).

- At some point he tried to put the power window down (power was out) and it did not work. He opened the vehicle driver's door and looked up at the object. He could see the lights on the bottom of it as he attempted to lean out of the car (seat belt still on) then the lights on the object went out. He is not sure if it took off or just turned its lights off.

- **Immediately his vehicle was running again** . . . engine turning, lights back on, music playing on the radio and he noticed his cell phone (lighted screen) starting to boot up. He stated that the engine was just running. There was no sound of a starter motor kicking in (as noticed during the

normal engine startup). Witness described the experience as if watching a movie and someone pressed the pause button for about 1 minute and they went to play mode again.

Rendition of Object
as viewed from the bottom by witness
(estimated to be 200 feet in length)



Physiological (Medical) Effects: Witness reported that he had a toothache immediately after his sighting event and encounter (Left rear molar) but didn't notice any other physiological effects. He did not wish to be scanned for an implant. During the follow up interview the witness indicated that his toothache lasted approximately 5 days and then went away. He has not seen a dentist as yet.

Physical Effects - Investigator Modlin inspected the cell phone and found it to be working properly.

Radiological Survey: Investigators checked the affected Vehicle for radiation, during the initial deployment, without any unusual readings (consistent with background)

Investigators surveyed the site of the event (road side) during the initial deployment and readings at the affected area were consistent with background reading.

Electromagnetic- Electrostatic Effects: During the initial deployment, **Investigators did find very significant abnormal readings on the subject vehicle with a tri-field meter.** The witness was driving a 2009 Mitsubishi Gallant (Midsize) 4 door sedan that was approximately 2 months old with 2000 miles on it. Investigators conducted electro-static and electro-magnetic field tests on the Witnesses Vehicle (SUBJECT VEHICLE) and then went to a car dealer and located an identical vehicle for comparison testing. (TEST VEHICLE)

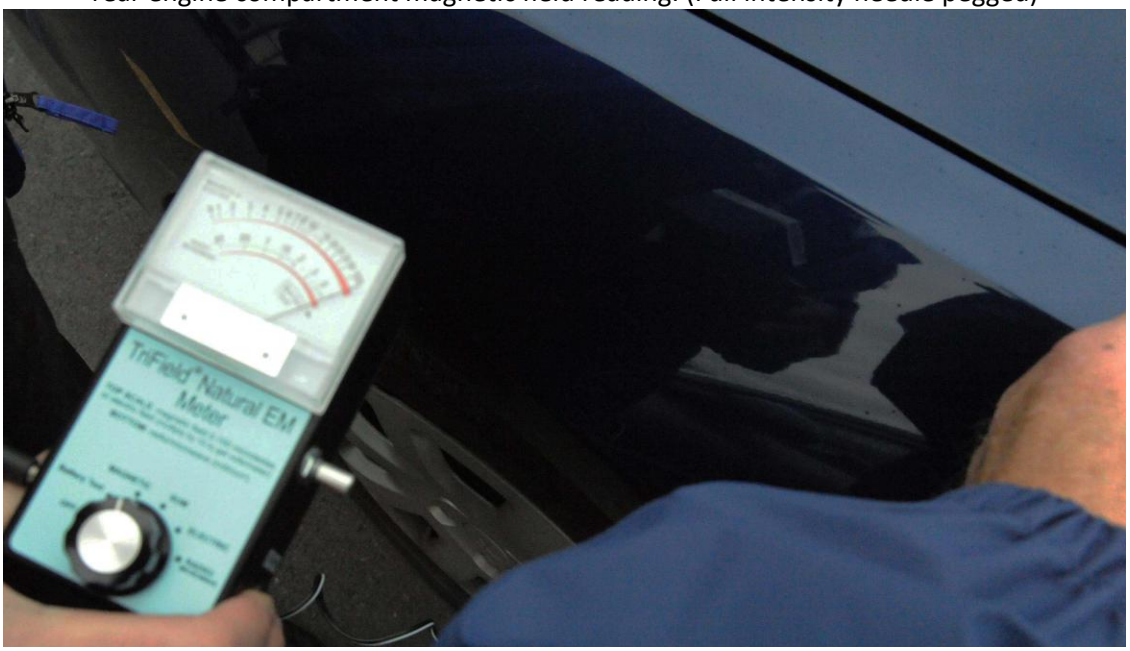
TEST Vehicle: This test vehicle was selected by serial number (VIN) and was located in Virginia. The Test vehicle was manufactured in the same plant, with run number 7 digits higher, indicating that both vehicles were manufactured in the same plant, on the same day with identical equipment. (paint color being the only difference).

Both the electro-static and electro-magnetic fields appear to have been dramatically affected. Specific meter readings (as to intensity) were not available, because the meter (pictured below) pegged the needle in the proximity of the SUBJECT VEHICLE. **Investigator changed the probe's orientation to see**

the effects on the change in the axis on the Subject vehicle, however the Tri-field meter needle went to max no matter which way the probe was aligned.

Investigator noted: The electrostatic charge was very strange in that it did not seem to discharge. Investigator grounded the Subject vehicle and it had no effect whatsoever. Investigator Modlin indicated he could feel the charge with his hand. It had a strange feeling unlike anything he had experienced in his 40 years of working with high voltage or RF fields.

SUBJECT VEHICLE - Driver's side (11-27-09) 36 hours after event
rear engine compartment magnetic field reading. (Full intensity needle pegged)



TEST VEHICLE - Driver's side
rear engine compartment magnetic field reading.

SUBJECT VEHICLE - Passenger's side (11-27-09) 36 hours after event
rear engine compartment magnetic field reading. (Full intensity needle pegged)

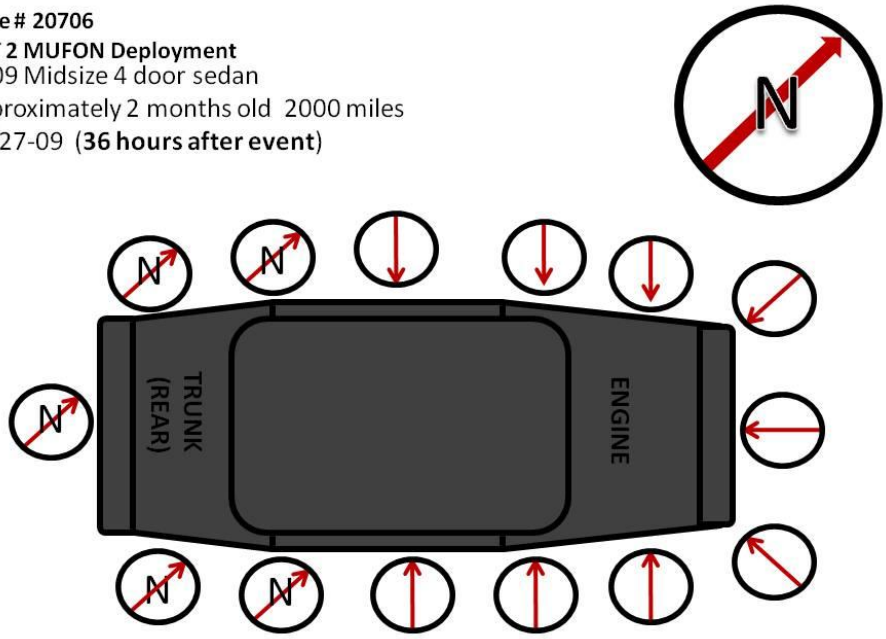
TEST VEHICLE - Passenger's side
rear engine compartment magnetic field reading

Follow Up Investigation (12-16-09) Electromagnetic-Electrostatic Effects: during the follow up investigation Investigators repeated the electro-static and electro-magnetic fields tests on the Subject Vehicle. The vehicle was parked in the same spot and orientation as when the tests were conducted in the initial deployment. **Investigators found that the magnetic field dissipated to approximately 60% of original value after 20 days on the Subject Vehicle**

Compass Readings

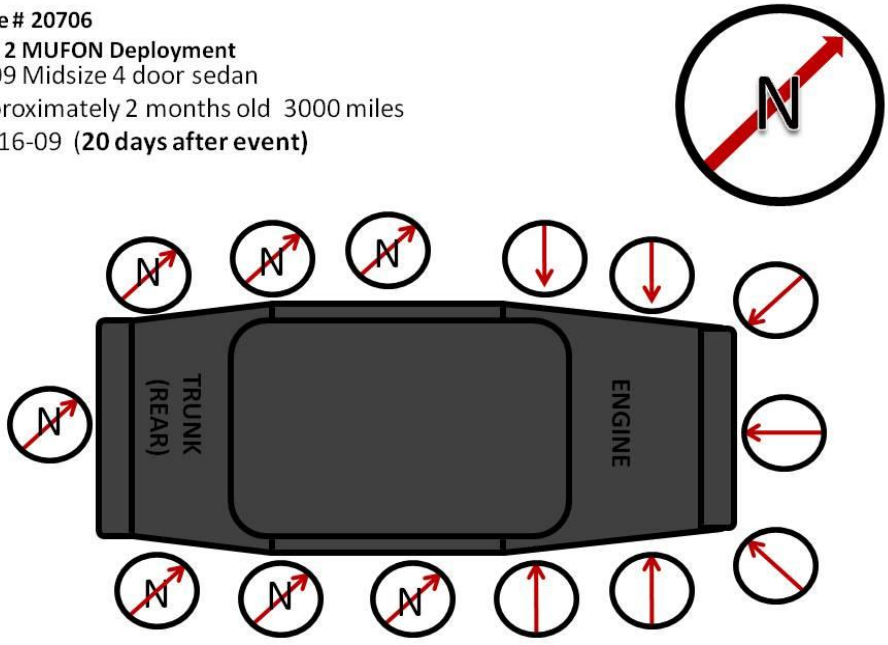
Compass Readings were taken around the Subject vehicle during the initial investigation (36 hours after event) and 20 days later, during the follow up investigation. **Investigators noted that the affected area of the vehicle moved forward as the Magnetic field dissipated** (see illustrations).

Case # 20706
CAT 2 MUFON Deployment
2009 Midsize 4 door sedan
approximately 2 months old 2000 miles
11-27-09 (**36 hours after event**)



Note: the vehicle as parked in the same spot and orientation for both test readings

Case # 20706
CAT 2 MUFON Deployment
2009 Midsize 4 door sedan
approximately 2 months old 3000 miles
12-16-09 (**20 days after event)**



Follow Up Investigation (12-17-09) Police interview. Investigators interviewed a New York State Trooper who is assigned to patrol the general area where this incident occurred. Investigators spoke with Officer A. B. Maillet several miles from the scene of the event. The officer indicated that he patrols the affected area and works at night. He was not aware of any activity related to the event in question. He did acknowledge that he had heard radio traffic about lights in the Sky at night that was later reported to be a balloon, which was 4 days after the event.

Note: The witness said that it seems like the car is actually driving faster now…almost as if he got a free tune up. Investigators submitted that the cause of the increase performance could be due to engine brake-in

Note: for unknown reasons, it appears that at some point during the investigation, Modlin's Nikon D700 battery failed and the backup battery also failed. Modlin recalls, however, that at all areas which he checked on the witness' vehicle, the EMF meter remained at maximum reading as long as the meter was within 3 inches of the witnesses' car. Modlin has no explanation for the camera's multiple battery failure. The batteries were charged beforehand and normally will take over 1000 photos with GPS enabled. The first photos were taken at the site of the event. Modlin checked the camera's batteries after taking pictures at the site of the event and a 94% charge remained. Modlin then returned to the witness' home to take photos of his two month old 2009 car. Modlin took over 100 photos of the witness' car. Only 12 photos documenting the magnetic testing and none of the EMF testing turned out. Modlin then tested the exact same car model in a car dealer's lot with a digital camera ("test vehicle.")

Location of Event

Summary: The investigators did not notice any major contradictions in witness testimony, nor did the witness appear to falter in any of the questions of detail.

- Investigators found this witness to be highly credible. He was still visibly shaken from his encounter.

- The witness denies any medical conditions or taking any medications that affect his ability to think or concentrate.

- The investigators questioned for the possibility of lost time, without any indication of such, evident from the witness testimony.

- This Investigation yields a reliance primarily on a single witness testimony of events.

- Independent evidence was a electromagnetic and electrostatic effects on the effected vehicle as compared to test vehicle of identical make and model. There was significant electromagnetic effect on the subject vehicle after 20 days as noted during follow up investigation.

- Natural phenomenon was ruled out as a possibility because of the proximity to the witness, movement patterns, and contact/effects of the witness.

- A radiological survey was conducted and readings in the affected area were consistent with the background readings in the unaffected control area.

- Local law enforcement officer was interviewed and no additional witnesses were discovered.

Modlin / Lang
MUFON STAR Team
END REPORT