

MULTIPLE

PROJECT 10073 RECORD CARD

1. DATE 23 Nov 60		2. LOCATION Midwestern U. S.		12. CONCLUSIONS ☐ Was Balloon ☐ Probably Balloon ☐ Possibly Balloon ☐ Was Aircraft ☐ Probably Aircraft ☐ Possibly Aircraft ☐ Was Astronomical ☐ Probably Astronomical ☐ Possibly Astronomical ☒ Other <u>Tiros II.</u> ☐ Insufficient Data for Evaluation ☐ Unknown	
3. DATE-TIME GROUP Local <u>0615-1400</u> GMT <u>23/1115-1900Z</u>		4. TYPE OF OBSERVATION ☒ Ground-Visual ☐ Ground-Radar ☐ Air-Visual ☐ Air-Intercept Radar			
5. PHOTOS ☐ Yes ☒ No		6. SOURCE Military and Civilian			
7. LENGTH OF OBSERVATION Varied with different observers		8. NUMBER OF OBJECTS one and two	9. COURSE N		
10. BRIEF SUMMARY OF SIGHTING Bright white light, brighter than any star. Some witnesses reported one object; others two. Some reported object as being reddish white with a long white trail.			11. COMMENTS At the general times of the sightings, Tiros II was in horizontal flight and the third stage was in operation. The general descriptions by the witnesses match those given by missile men from experiences with other launchings. There is no evidence to indicate that the object observed was nothing more than Tiros II during its initial flight after launch.		

7. The now famous Mid-west sightings of November 23, 1960.

The midwest sightings of November 23, 1960, were concluded to be Tiros II during its initial launching phase from Cape Canaveral, Florida. The programming of this satellite was relatively flat trajectory at altitude on a Northeast azimuth. This launching was easily visible in the midwest and pilots reported seeing it from further west.

UPL ASB

HX

1ST LEAD UFO COLORADO SPRINGS (ASB)

CHICAGO, NOV 23 (UPI)--AN UNIDENTIFIED FLYING OBJECT SOARED OVER THE MIDWEST BEFORE DAWN TODAY AND WAS SEEN BY AIRPORT CONTROL TOWERS AND OTHER OBSERVERS FROM OHIO TO WISCONSIN.

THE OBJECT WAS DESCRIBED AS A BRIGHT LIGHT TRAVELING FROM WEST TO EAST.

AT COLORADO SPRINGS, COLO., THE COMBAT OPERATIONAL CENTER AT NORTH AMERICAN AIR DEFENSE COMMAND (NORAD) HEADQUARTERS SAID IT RECEIVED A REPORT OF THE OBJECT FROM THE 314TH AIR DIVISION AT MADISON, WIS. A SPOKESMAN SAID THE REPORT FROM TRUAX FIELD TERMED THE OBJECT OF UNCERTAIN SIZE, BALL SHAPE AND WHITE TO BELLISH-WHITE IN COLOR WITH A LONG WHITE TAIL. IT MADE NO NOTICEABLE SOUND.

NO ONE WAS ABLE TO TRACK IT BY RADAR.

DETROIT METROPOLITAN AIRPORT SAID IT BELIEVED THE LIGHT MIGHT HAVE BEEN CAUSED BY A HIGH FLYING JET PLANE RELEASING A CHAFF SHOWER IN A TEST OF RADAR JAMMING EQUIPMENT.

MIDWAY AIRPORT IN CHICAGO SAID THIS WAS A POSSIBLE EXPLANATION BUT ADDED, "WE'VE NEVER SEEN ANYTHING LIKE IT BEFORE AND DON'T KNOW WHAT IT WAS."

MICHIGAN STATE POLICE HEADQUARTERS AT EAST LANSING, MICH., SPECULATE THE LIGHT MIGHT HAVE BEEN A REFLECTION OF THE SUN ON A SCIENTIFIC BALLOON LAUNCHED EARLY TODAY FROM SIOUX FALLS, S. D., IN CONNECTION WITH A TIROS SATELLITE LAUNCHING AT CAPE CANAVERAL, FLA.

HOWEVER, THE BALLOON WAS REPORTED THREE HOURS AFTER THE SIGHTINGS AT 114,000 FEET ABOUT 15 MILES NORTHEAST OF KASON CITY, IOWA, WHICH RULED IT OUT AS THE OBJECT REPORTED. THE OBJECT SIGHTED NEAR THE GREAT LAKES WAS SEEN ABOUT 5:15 A.M. CST. THE BALLOON WAS LAUNCHED AT 3:50 A.M.

THE UNIDENTIFIED OBJECT WAS SIGHTED IN ILLINOIS, INDIANA, OHIO AND MICHIGAN.

THE FEDERAL AVIATION AGENCY CONTROL CENTER FOR CHICAGO SAID IT SAW SOME MYSTERIOUS BRIGHT LIGHTS HIGH IN THE SKY "THAT DIDN'T LOOK LIKE A METEOR FROM THOSE WE'VE SEEN BEFORE."

THE CONTROL CENTER AT CHICAGO'S O'HARE INTERNATIONAL AIRPORT WAS EQUALLY MYSTIFIED. "EVERYBODY HAS BEEN GETTING REPORTS ON IT, BUT WE DON'T KNOW WHAT IT WAS," THE TOWER SAID.

"IT WAS SOME SORT OF OBJECT WITH A CONE TRAIL BEHIND IT, TRAVELING WEST WEST TO EAST AND VISIBLE FOR ABOUT 10 MINUTES. I'VE NEVER SEEN ANYTHING LIKE IT BEFORE," A TECHNICIAN AT O'HARE SAID.

"I'VE SEEN SOME COMETS AND IT DIDN'T LOOK LIKE ONE TO ME. IT'S BEEN REPORTED AL OVER--DOWN SOUTH OF HERE AND IN THE EAST."

ANNOUNCERS AND ENGINEERS AT RADIO STATION CITY AT LANVILL, ILL., ALSO SAID THEY SAW A "BRIGHT LIGHT TRAVELING STRAIGHT EAST" AND REPORTED AVIATION OFFICIALS IN INDIANAPOLIS AND LAFAYETTE, IND., ALSO HAD SIGHTED THE OBJECT.

OTHER CITIES SIGHTING THE OBJECT INCLUDED KALAMAZOO, GRAND RAPIDS, PORT HURON AND SAGINAW, MICH., AND DAYTON, LIMA, TOLEDO AND CLEVELAND, OHIO.

THE AIR TRAFFIC CONTROL CENTER AT THE LIAO AIRPORT SAID THE OBJECT LOOKED "LIKE A BRIGHT STAR WITH A TAIL."

(INCLUDES PREVIOUS)

TPR 52ACSTFMM

AEROSPACE TECHNICAL INTELLIGENCE CENTER
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE
OHIO



REPLY TO
ATTN OF: AFCIN-4X2

SUBJECT: Extract from Duty Officers' Report

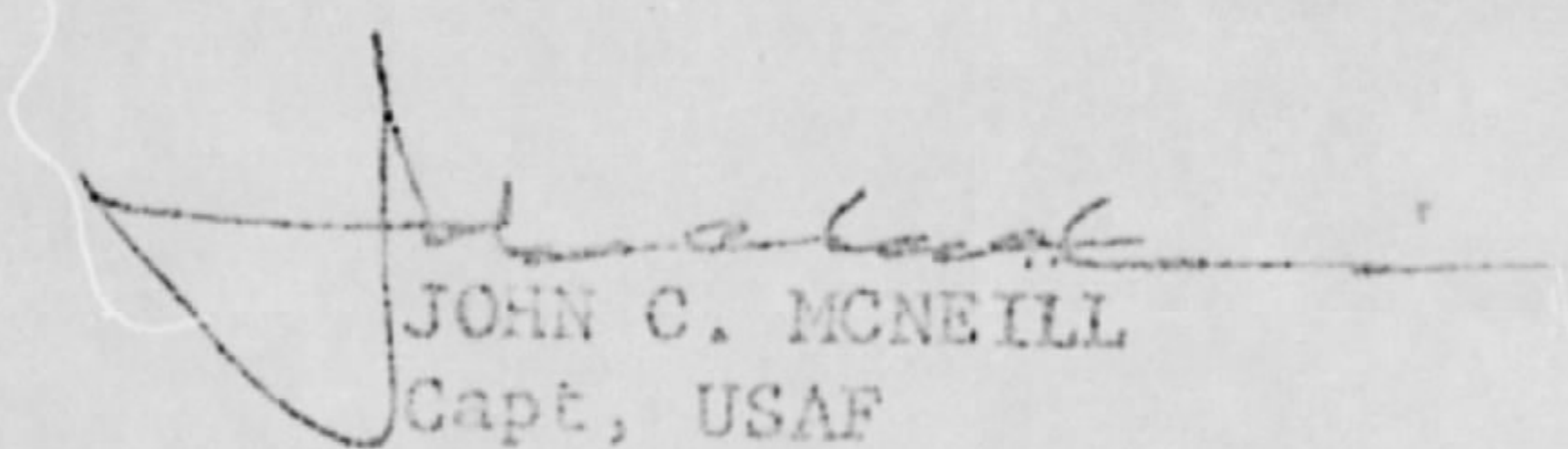
23 Nov 60

TO: AFCIN-4E2, Maj Friend

The following, extracted from 1/Lt Swortzel's Report dated 22 Nov 1960, is quoted for your information:

0630 hours, received calls on UFO. Told following people that further contact would be made with them:

Mr. [REDACTED] Control Twr, Vandalia Arpt.
Mr. [REDACTED] - WING Telephone BA 2-9882
Mr. [REDACTED] - WIBC TV, Muncie, Ind.


JOHN C. MCNEILL
Capt, USAF
AFCIN-4X2

AEROSPACE TECHNICAL INTELLIGENCE CENTER
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE
OHIO



REPLY TO
ATTN OF: AFCIN-4X2

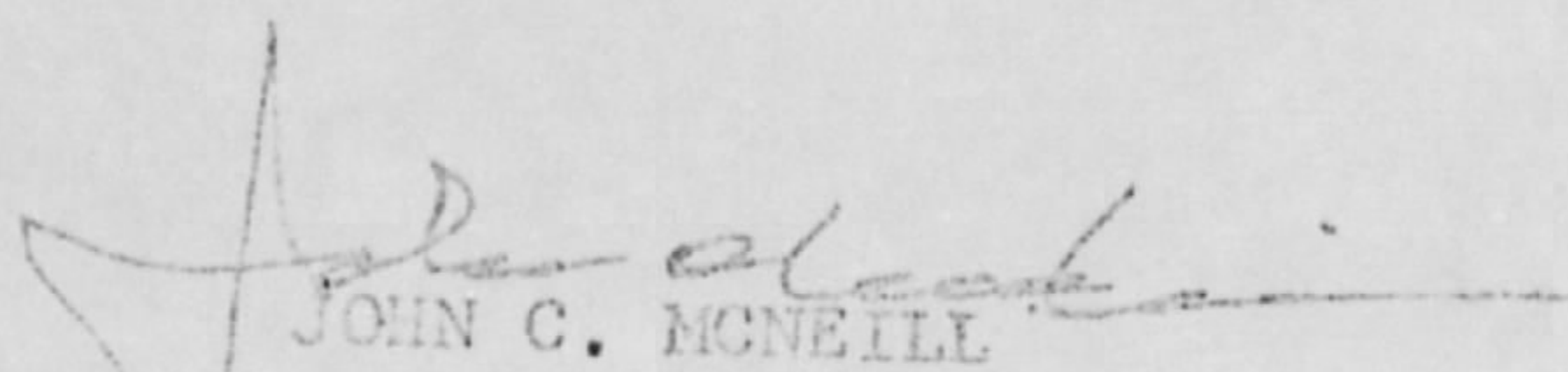
SUBJECT: Extract from Duty Officers' Report

25 Nov 60

TO: AFCIN-4E2, Maj Friend

The following, extracted from Capt Harrell's Report dated 23 Nov 60,
is quoted for your information:

1720 hours, received a call from Sergeant Heath, 3079th, that
Major Barrett (SAC) had called him since he had failed to
contact Sergeant Bolieu. Major Barrett stated that it was
not SAC 47s that dropped chaff around Selfridge.


JOHN C. MCNEILL
Capt, USAF
AFCIN-4X2

1 Atch
ATTC Fm 164

17

TELEPHONED
TO Capt. Harrell
NO. 71222
TIME 24/11/47
DATE 24 Nov 47
BY 54

NNNNCZCSQAS 74ZCJYD 783 1960 NOV 24 02 01

PP RJEDSO

DE RJEZDC 47

M 23213.2 ZEX

FM 551AFWCONWC OTIS AFB MASS

TO RJWFAL/ADC FNT AFB COLO

RJEZSN/26ADIV SAGE HANCOCK FLD SYRACUSE NY

RJEDSR/ATIC WRIGHT PATTERSON AFB DAYTON OHIO

RJEZNR/12 USAR AFCON WASH DC

RJEZNR/SECRETARY AF SATIS WASH DC

RJEZNR/12 AFM TRUAY FLD WISC

34

1-462 (470)
34 4XW

UNCLAS FROM 551 OIN 6.5E.

ACTION ADC, 26TH ADIV (SAGE), ATIC, ASST CHIEF OF STAFF HQ USAF,
AND CIS HQ USAF. UFO REPORT. PER PARA 15, AFR 24-2, UFO
SIGHTING REPORTED AS FOLLOWS: A. OBJECT DESCRIPTION (1) BRIGHT
LIGHT(S), WITH CONE OR TRIANGULAR TRAIL OF WAKE SEPARATED BY A
SPACE. (2) SIZE ESTIMATED BETWEEN HEAD OF PENCIL AND BASKET-
BALL FOR LIGHT, WITH TRAIL TEN TO FIFTEEN LONGER. (3) LIGHT
WHITE, TRAIL BLuish WHITE (4) TWO SIMILAR OBJECTS (5) MAN-
UEVERED OR MOVED IN ROUGHLY PARALLEL PATHS (6) NONE (7) SEE
(1) ONE AND (2) TWO ABOVE (8) NO SOUND INVOLVED IN SIGHTING

PAGE TWO RJFZDG 47

(9) LIGHTS MOVED AT TREMENDOUS SPEEDS B. COURSE DESCRIPTION:
(1) OBSERVED ALONG FLIGHT PATH OF OBSERVING AIRCRAFT (2) FIRST
OBJECT SIGHTED AT 2 O'CLOCK HIGH, APPEARED TO BE APPROACHING ON
NORTHWEST HEADING, MOVED UP AND NORTHWARD WITHIN AN ESTIMATED 20
DEGREES OF ARC OF SKY, CONSTANTLY VISIBLE UNTIL DISAPPEARANCE.
SECOND OBJECT APPEARED SHORTLY AFTER FIRST, MOVED IN ROUGHLY PARA-
LLFL COURSE, OBSERVED INTERMITTENTLY, CLIMBED ACROSS PATH OF FIRST
OBJECT TO HIGHER POSITION, BOTH DISAPPEARING TOGETHER. (3) DIS-
APPEARED AT POINT BETWEEN ZERO AND FIVE DEGREES ABOVE FLIGHT LEVEL.
(4) APPEARED ABOUT FIVE DEGREES APART (SEE (22) ABOVE). (5) VAN-
ISHED (6) OBSERVED OVER PERIOD OF EIGHT MINUTES C. MANNER
OBSERVATION: (1) AIR-VISUAL, NO CONTACT OR APS 42 OPERATING AT
TIME (2) NO OPTICAL AIDS (3) OBSERVED FROM COCKPIT OF EC121
AIRCRAFT NUMBER 523418 AT 15,000 FT, COMPASS HEADING 31 DEGREES,

D. TIME/DATE: (1) 231115Z (2) DAWN WITH ENOUGH LIGHT TO SEE BUILDINGS ON GROUND, NO MOON. E. LOCATION: AIRCRAFT DIRECTLY OVER CHICAGO HEIGHTS VOR RADIO 41 DEGREES 34 MINUTES NORTH, 87 DEGREES 34 MINUTES WEST. F. OBSERVERS: (1) CAPTAIN ROBERT L. ELDRED, 96TH AEW&CON SQ, AIRCRAFT COMMANDER, RELIABLE, FIRST UFO,

PAGE THREE RJEZDG 47

3 YEARS ALASKA EXPERIENCE WITH AURORA. (2) SSGT KENNETH M. CAIN, 96TH AEW&CON SQ, FLIGHT ENGINEER, RELIABLE. G. WEATHER: (1) WIND AT ALTITUDE ESTIMATED 7 KNOTS FROM 280 DEGREES, FLIGHT ALTITUDE TEMPERATURE -5 DEGREES CENTIGRADE UNCORRECTED, LIGHT CLEAR AIR TURBULENCE BEING EXPERIENCED. (2) NOT AVAILABLE (3) & (4) CAVU (5) NO CLOUDS OBSERVED (6) NEGATIVE (7) NOT AVAILABLE

H. OTHER ACTIVITY: AIRCRAFT WAS IN UHF CONTACT WITH ANOTHER AIRCRAFT OVER WALNUT RIDGE, ARKANSAS, AT 34000 FEET, IDENTIFIED AS PACER 91 WHO ALSO WAS OBSERVING THE LIGHTS ABOVE HIM.

I. NOT APPLICABLE, SIGHTING WAS REPORTED BY OBSERVING AIRCRAFT TO CHICAGO CENTER RADIO WITH WHOM A POSITION REPORT WAS BEING MADE. GROUND RADIO PERSONNEL REMARKED ALSO SIGHTING LIGHT FROM THEIR GROUND POSITION. K. PREPARING OFFICER: CAPTAIN KEITH H. MOREHOUSE, WING INTELLIGENCE OFFICER, 551ST AEW&CON WING.

COMMENT: NO KNOWN ASSOCIATED SIGHTING IN LOCAL AREA NEW ENGLAND.

L. NO PHYSICAL EVIDENCE OR PHOTOS.

BT

23/22 Z NOV RJEZDG

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1930 NOV 23 22 49

UCZCSQB635ZCAHA175

PP RJEDSQ

DE RJEDAH 34

P 231845Z ZEX

FM CADS TRUAX FLD WIS

TO RJWFAL/ADC ENT AFB COLO

RJEDSQ/ATIC WPAFB OHIO

RJEZHQ/HQ USAF WASHDC

RJEZHQ/SAFS WASHDC

BT

UNCLAS/CHOIN 11-3. FOR INTELLIGENCE. SAFS ATTN INFO SVCS. IMMEDIATE

63
 1 4E2 (440)
 3 4 411-11

ACTION REQUIRED. UFO. REFERENCE AFR 200-2, PAR 15.

A. (1) VARIED BETWEEN BALL AND SHAPLESS.

(2) UNKNOWN

(3) REDDISH WHITE

(4) ONE

(5) NONE

(6) NONE

(7) LONG WHITE TRAIL

(8) NONE

PAGE TWO RJEDAH 34

(9) VERY BRIGHT

B. (1) AIRLINE AND CONTROL TOWER REPORTS

(2) APPROX 15000 FT SOUTHEAST CHICAGO

(3) NORTHEAST INTO LAKE MICHIGAN

(4) SWUNG SOUTHWEST, THEN SOUTH

(5) FROM SOUTH TO NORTHEAST, THEN NORTH INTO LAKE MICHIGAN

(6) FOUR TO FIVE MINUTES

C. (1) VISUAL

(2) BINOCULARS

(3) NUMEROUS PILOT REPORTS TO ARTC (CHICAGO)

D. (1) 1124Z 23 NOV 60

(2) NIGHT

E. (1) CHICAGO ARTC

(2) CHICAGO, ILLINOIS

F. (1) MR. [REDACTED], AGE: 49, [REDACTED] ME, BERWYN, ILLINOIS

G. (1) CLEAR

(2) A. NW/8; B. 290/15; C. 260/25; D. 250/40; E. 250/60;
F. 250/105; G. 250/65; H. 60,000 FT: 250/45.

(3) NONE

PAGE THREE RJEDAH 34

(4) 15 PLUS

(5) NONE

(6) NONE

H. NONE

I. NONE - INSUFFICIENT TIME

J. NONE

K. MAJOR BILLY D WELCH, SR DIRECTOR, CHICAGO ADS

(2) REPORTS FROM SEVERAL SOURCES WERE CONSISTANT AS TO COLOR
OF OBJECT.

(3) UNKNOWN

L. NONE

M. NONE

REMARKS: O'HARE AND MIDWAY AIRPORTS TOWER OPERATORS AND SEVERAL
PERSONS IN CHICAGO ARTC WITNESSED THE OBJECT. CHICAGO ARTC ALSO
RECEIVED REPORTS FROM SEVERAL AIRCRAFT AND FROM PEORIA AND SPRING-
FIELD, ILLINOIS TOWERS. A CHECK WITH UNIV OF WISC METEOROLOGICAL
OBSERVATORY REVEALED NO METEORS OR OTHER OBJECTS THAT COINCIDED WITH
THE DISCRIPTION GIVEN. BUNKER HILL AFB, PERU, INDIANA, ALSO REPORTED
THIS OBJECT.

BT

NNNN

RECEIVED
CZCSQG43ZCAHA698

RR RJEDSQ

DE RJEDAH 56

1960 NOV 30 03 19

R 291715Z ZEX

31
4E26
3442A

FM HQ CADS TRUAX FLD WIS

TO ATIC WPAFB OHIO

BT

UNCLAS/CHOIN 11-4. FOR INTELLIGENCE. SUBJECT: UFO. REF MY
CHOIN 11-3, 23 NOV 60 AND TEL CONVERSATION WITH SGT BOLIU, ATIC.
CONTACT WITH INDIVIDUAL FAA TOWERS REVEALS THE FOLLOWING:
OHARE APT, CHICAGO: OBJECT FIRST SIGHTED 0520 CST 23 NOV 60
SOUTHEAST OF AIRPORT, FLEW 240 DEGREES, THEN 180 DEGREES. TURNED
080 DEGREES AND DISAPPEARED ON A COURSE OF 050 OVER LAKE
MICHIGAN. OBSERVER FEELS IT WAS NOT A BALLOON. IT FIRST APPEARED
TO BE AN AIRCRAFT WITH LANDING LIGHTS APPROACHING OBSERVER THEN
LIKE AN ACFT TAIL LIGHT RECEEDING FROM OBSERVER. OBSERVER: *atc*
MR [REDACTED] AGE: 30, [REDACTED], AURORA, ILLINOIS.

PAGE TWO RJEDAH 56

BUNKER HILL AFB, INDIANA: MSGT RIVIERA, NCOIC OF AACS DETACHMENT
REPORTS OBJECT WAS ON HEADING OF 090 DEGREES. APPEARED TO BE A
METEOR. ANOTHER AIRMAN SAME LOCATION THROUGHT IT LOOKED LIKE A
B-52. CAPITAL APT, SPRINGFIELD, ILLINOIS: OBSERVER WAS MR MARTIN T.
HUSAR, FAA CONTROLLER, LOG ENTRY READS: 1120Z, COMET LIKE
OBJECT OBSERVED ON EAST HORIZON. SEEMED TO BE LIGHT SIMILAR TO
ROCKET ENGINE WITH TRAIL THAT FANNED OUT BEHIND IT.
PEORIA APT, ILLINOIS: NO LOG ENTRY COVERING THIS SIGHTING
AND NO ONE THERE WAS AWARE OF IT.

ALL PARTIES ARE IN AGREEMENT THAT THE OBJECT WAS NOT A BALOON.

BT

29/1721Z NOV RJEDAH

NNNN

M

⑧

RE154

1960 NOV 23 22 48

ZCSQQD826ZCBWA439

PP RJEDSQ

DE RJEDBW 10

P 232130Z

FM DETROIT ADS CUSTER AFS MICH

TO RJWFAL/ADC ENT AFB COLO

RJEDAH/30 AIR DIV SAGE TRUAX FLD WISC

RJEDSQ/AEROSPACE TECHNICAL INTELLIGENCE CTR WRIGHT PATTERSON AFB
OHIO

RJEZHQ/HQ USAF AFCIN WASHINGTON 25 D C

RJEZHQ/SECRETARY OF THE AIR FORCE SAFIS WASH 25 DC

RJEDFJ/1 FTR WG SELFRIDGE AFB MICH

BT

UNCLASS DEOIN 3376.

SUBJ: UFO. BECAUSE OF PAUCITY OF DETAIL ON SIGNI-
FICANT POINTS, FORMAT IN PARAGRAPH 15, AFR 200-2,

IS NOT USED IN THIS REPORT. NUMEROUS REPORTS OF
UNIDENTIFIED FLYING OBJECT ACROSS LOWER PORTION
OF MICHIGAN RECEIVED AT THIS HEADQUARTERS UP TO
231430Z NOV 60. REPORTED OBSERVATIONS ALL

OCCURRED BETWEEN 231120Z AND 231400Z. FIRST

REPORTED SIGHTING WAS BY MR [REDACTED] (TELEPHONE

[REDACTED], OF RADIO STATION "[REDACTED]", KALAMAZOO

63
✓ 4 E 2 (UFO)
3 4 1XUW

PAGE HWO RJEDBW 10

HE REPORTED TWO BRIGHT LIGHTS OBSERVED EAST OF KALAMAZOO AT 1120ZM NO FURTHER DATA. NEXT REPORTED SIGHTINGS WERE VICINITY OF BATTLE CREEK BETWEEN 1130Z AND 1200Z. MOST REPORTS DESCRIBED A BRILLIANT, SHINY OBJECT, FLOATING TOWARD THE EAST-NORTHEAST OF BATTLE CREEK. SEVERAL REPORTS HERE DESCRIBED A FAN-SHAPED "TAIL" APPARENTLY HANGING FROM THE OBJECT. "TAIL" APPEARED TO OSCILLATE IN FLIGHT. NO FURTHER DATA. LAST REPORTED SIGHTINGS (MANY IN NUMBER) OCCURRED VICINITY OF DETROIT AND SELFRIDGE AFB APPROXIMATELY 1330Z TO 1400Z. OBJECT APPEARED TO RESEMBLE BALLOON ON NORTHEAST HEADING. NO FURTHER DATA.

COMMENTS OF PREPARING OFFICER: 1. NO UFO WAS TRACKED BY DETROIT AIR DEFENSE SECTOR FACILITIES DURING STATED TIME PERIODS. 2. A GENERAL TEMPERATURE INVERSION COVERED THE SECTOR AREA DURING THE MORNING. 3. WIND PATTERNS WERE SUCH THAT A BALLOON LAUNCHED IN AREA TO THE WEST AND NORTHWEST OF DETROIT SECTOR WOULD TRANSIT THE SECTOR

PAGE THREE RJEDBW 10

ALONG THE LINE KALAMAZOO-BATTLE CREEK-DETROIT.

PAGE TWO RJEDBW 10

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PAGE THREE RJEDBW 10

ALONG THE LINE KALAMAZOO-BATTLE CREEK-DETROIT.

PAGE THREE RJEDBW 10

ALONG THE LINE KALAMAZOO-BATTLE CREEK-DETROIT.

4. NO NOTAMS WERE RECEIVED AT DETROIT ADS CONCERNING A BALLOON LAUNCH. 5. TELEPHONE CHECKS WITH GENERAL MILLS, MINNEAPOLIS; U.S. WEATHER BUREAU, GREEN BAY; RAVEN INDUSTRIES, SIOUX FALLS; G. T. SCHJELDAHL CO, NORTHFIELD, MINN; UNIVERSITY OF MINNESOTA PHYSICS DEPARTMENT, MINNEAPLLIS; AND FERMI INSTITUTE OF UNIVERSITY OF CHICAGO ALL PROVED NEGATIVE AS REGARDS THEIR LAUNCHING OF BALLOONS WHICH COULD HAE BEEN THE OBJECT REPORTED SIGHTED IN MICHIGAN. 6. SUNRISE IN LOCAL AREA WAS AT 231239Z. 7. COMPLETE WEATHER AND WIND DATA WILL BE SUBMITTED IN FOLLOW-UP MESSAGE.

3. OBJECT SIGHTED APPEARS TO HAVE BEEN AN INSTRUMENTED BALLOON OF AS YET UNKNOWN ORIGIN.

BT

23/2132Z NOV RJEDBW

NNNN

RECEIVED

1960 DEC 1 22 27

RA153

MMCZCSQE4712CBWA737

RR RJEDSQ

DE RJEDBW 12

R 012000Z ZEX

FM DETROIT ADS CUSTER AFS MICH

TO RJWFAL/ADC ENT AFB COLO

RJEDAH/30 AIR DIV SAGE TRUAX FLD WISC

RJEDSQ/AEROSPACE TECHNICAL INTELLIGENCE CTR WRIGHT PATTERSON AFB OHIO

RJEZHQ/HQ USAF AFCIN WASH 25 D C

RJEDEFJ/1 FTR WG SELFRIDGE AFB MICH

AF GRNC

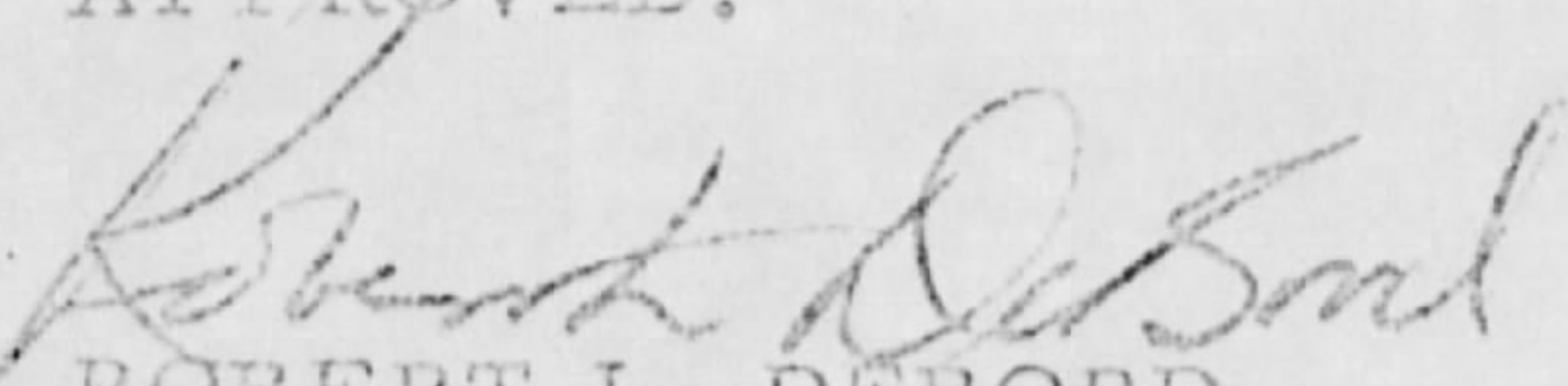
BT

UNCLASS DEOIN 3425. REF OUR MSG DEOIN 3375 DTD 23 NOV 60. THE FOLLOWING IS THE WEATHER FOR THE BATTLE CREEK AREA ON 23 NOV 60. AT 1100Z ON 23 NOV BTL WAS CLEAR 15 PLUS MILES VISIBILITY, SURFACE WIND NW AT SIX KNOTS. AT 1200Z BTL WAS CLEAR 15 PLUS MILES VISIBILITY, SURFACE WIND NW AT EIGHT KNOTS. WINDS ALOFT: 6000 FT-310/25; 10,000 FT-290/30; 16,000 FT-270/55; 20,000 FT-270/70; 30,000 FT-260/85; 50,000 FT-260/65; 80,000 FT-330/10. TEMPERATURE GRADIENT SHOWS: 1. INVERSION FROM SFC TO 3200 FT, TEMP ROSE 3 DEGREES C IN THIS INTERVAL. 2. A NORMAL LAPSE RATE FROM 3200 FT TO 12,000 FT. TEMP FELL 17 1/2 DEGREES C IN THIS INTERVAL. 3. INVERSION FROM 12,000 FT TO 13,500 FT, TEMP ROSE 3 DEGREES C IN THIS INTERVAL. 4. ALL ABOVE 13,500 FT IS NORMAL.

BT

21/2025Z NOV RJEDBW

UNCLASSIFIED
CLASSIFICATION

COUNTRY OF ACTIVITY REPORTING United States of America	REPORT NO. IR-34-60 3	(Leave blank)
AIR INTELLIGENCE INFORMATION REPORT		
COUNTRY OR AREA REPORT CONCERNS Scott AFB and Centralia, Illinois	DATE OF INFORMATION 23 Nov 1960	
ACTIVITY SUBMITTING REPORT 1405th ABW (MATS) Scott AFB, Ill	DATE OF COLLECTION 23 Nov 1960	SRI STATUS (If applicable) SRI NO. CANCELED/COMPLETE
PREPARING INDIVIDUAL William Y. McPherson	DATE OF REPORT 23 Nov 1960	SRI NO. CANCELED/INCOMPLETE
NAME OR DESCRIPTION OF SOURCE [REDACTED] and A/2C G. R. Hamilton	EVALUATION	SRI NO. ACTIVE ADDITIONAL INFORMATION ON (Date)
REFERENCES (EAIIR Subject, previous reports, etc., as applicable) None		
SUBJECT (Descriptive title. Use individual reports for separate subjects) (U) Unidentified Flying Object Report		
SUMMARY (Give summary which highlights the salient factors of narrative report. Begin narrative text on AF Form 112a unless report can be fully stated on AF Form 112. List inclosures, including number of copies) A report of an unidentified flying object was provided the Base Clearance Officer by [REDACTED], a civilian fireman at Scott AFB, and A/2C G. R. Hamilton, 11th AMTS, the morning of 23 November 1960. Another civilian employee, Mr. [REDACTED], Centralia, Illinois, provided a similar report to the Base Operations Officer when he reported for duty at the USAF Hospital, Scott AFB. All parties reported a bright object due East of Scott AFB, which appeared to hover for some time and then disappeared in a northeasterly direction. This object was also to the East of Centralia, Illinois, as reported by Mr. [REDACTED]. The St. Louis Air Route Traffic Control Section indicated there were no IFR flights in the area of the sightings at the time specified. The 798th AC&W Squadron, which has a 200 mile radar capability, reported no aircraft in the area of the sightings at the time specified. A St. Louis broadcast station indicated in a news summary that a scientific balloon was released in South Dakota early the morning of 23 November 1960. The U.S. Weather Bureau, St. Louis, Missouri had no knowledge of the balloon. Many other persons have been quoted by the press and radio in the St. Louis area as having seen a fiery object fall East of St. Louis, Missouri. This is considered to be a coincidence, however, as the objects described herein were a brilliant white, and were stationary during part of the sighting. The fiery object was a meteorite, according to radio reports. This headquarters is unable to determine the nature of the object, and is forwarding this information IAW paragraph 13b, AFR 200-2.		
APPROVED:  ROBERT L. DEBORD Lt Colonel, USAF Operations Officer		
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SUPPLEMENT TO AF FORM 112

ORIGINATING AGENCY

1405th ABW (MATS)

Scott AFB, Ill

REPORT NO.

IR-34-60

PAGE

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OF

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PAGES

a. Description of the Object:

- (1) Shape. Mr. [REDACTED] and A/2C Hamilton -- Star
Mr. [REDACTED] -- Reverse J (6)
- (2) Size. Star
- (3) Color. Bright white light. Brighter than any star.
- (4) Number. Mr. [REDACTED] and A/2C Hamilton -- Two
Mr. [REDACTED] -- one
- (5) Formation. Separated
- (6) Any discernible features or details.

Mr. [REDACTED] and A/2C Hamilton stated there was a beam of light aimed downward and to the South.

(7) Tail, trail or exhaust.

None.

(8) Sound.

None.

(9) Other pertinent or unusual features.

None.

b. Description of Course of Objects:

(1) What first called the attention of observer(s) to the object(s)?

Brilliance of object.

(2) Angle or elevation and azimuth of the object(s) when first observed.

Mr. [REDACTED] and A/2C Hamilton -- Elevation 30°, Azimuth 90°
Mr. [REDACTED] -- Elevation 45°, Azimuth 90°

(3) Angle or elevation and azimuth of object(s) upon disappearance.

Mr. [REDACTED] and A/2C Hamilton -- Elevation 30°, Azimuth 45°
Mr. [REDACTED] -- Elevation 45°, Azimuth 45°

(4) Description of flight path and maneuvers of object(s).

Hovered for few minutes, then moved rapidly towards NE and disappeared.

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SUPPLEMENT TO AF FORM 112

ORIGINATING AGENCY

1405th ABW (MATS)

Scott AFB, IL

REPORT NO.

IR-34-60 3

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OF

5

PAGES

(5) How did the object(s) disappear?

Instantaneously to the Northeast.

(6) How long was the object(s) visible. (Be specific, 5 minutes, 1 hour, etc)

Approximately five (5) minutes.

c. Manner of Observation:

(1) Use one or any combination of the following items:

Ground-visual, ground-electronic, air electronic. (If electronic, specify type of radar).

Ground-visual.

(2) Statement as to optical aids (telescopes, binoculars, and so forth) used and description thereof.

No optical aids.

(3) If the sighting is made while airborne, give type of aircraft, identification number, altitude, heading, speed and home station.

N/A

d. Time and Date of Sighting:

(1) Zulu time -- date group of sighting.

Mr. [REDACTED] and A/2C Hamilton -- 231130 Z

Mr. [REDACTED] -- 231115 Z

(2) Light conditions -- (Night, day, dawn, dusk).

Night.

e. Location of Observer(s). Exact latitude and longitude of each observer, and/or geographical position. A position with reference to a known landmark also should be given, such as "2 mi N of Deeville," "3 mi SW of Blue Lake". Typographical errors or "Garbling" often result in electrically transmitted messages, making location plots difficult or impossible.

Mr. [REDACTED] and A/2C Hamilton -- Flight Line at Scott AFB.

Mr. [REDACTED] -- Centralia, Illinois, approximately 45 miles East of Scott AFB.

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SUPPLEMENT TO AF FORM 112

ORIGINATING AGENCY

1405th ABW (MATS)

Scott AFB, IL

REPORT NO.

IR-34-60

PAGE 4

OF

5

PAGES

f. Identifying Information on Observer(s):

(1) Civilian - Name, age, mailing address, occupation.

Mr. [REDACTED]
 [REDACTED] Box 62,
 O'Fallon, Illinois
 Civilian Fireman, Scott AFB

Mr. [REDACTED]
 [REDACTED]
 Centralia, Illinois
 Janitor, USAF Hospital

(2) Military - Name, grade, organization, duty, and estimate of reliability.

A/2C G. R. Hamilton
 11th Aeromedical Transport Sq
 Scott AFB, Illinois
 Aircraft Mechanic
 Considered very reliable.

g. Weather and Winds - Aloft Conditions at Time & Place of Sightings:

(1) Observer(s) account of weather conditions.

Clear, but still dark

(2) Report from AWS, Scott AFB.

231100 Z

Surface	-- 360/6
6,000	-- 020/20
10,000	-- 270/25
16,000	-- 275/45
20,000	-- 270/55
30,000	-- 260/75
50,000	-- 265/60
80,000	-- 040/15

(3) Ceiling

231100 Z -- None.

(4) Visibility

231100 Z -- 10 miles.

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SUPPLEMENT TO AF FORM 112

ORIGINATING AGENCY

1405th ABW (MATS)
Scott AFB, Ill

REPORT NO.

IR-34-60

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(5) Amount of cloud cover

None.

(6) Thunderstorms

None.

(7) Temperature gradient

Normal on surface

Weak inversion to 10,000 ft

Standard aloft

h. Other Unusual Activity - None.

i. Interception Action - None.

j. Air Traffic - None.

k. Position Title and Comments of Preparing Officer.

If it can be determined that a scientific balloon was released in South Dakota early the morning of 23 November 1960, it is quite possible that the "jet stream" and wind direction shown above could have carried the balloon to the area of sighting, at the times reported. Change in altitude could account for the apparent change in direction and disappearance. Also, from previous knowledge of similar incidents, aerial photo flares can be seen for hundreds of miles. Inasmuch as Wright-Patterson AFB is northeast of Scott AFB, it is feasible that an ARDC test was being undertaken involving a photo flare.

l. Physical Evidence - None.

William Y. McPherson
WILLIAM Y. MCPHERSON

Civilian

Plans & Programs Officer

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JOINT MESSAGEFORM

SECURITY

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

40/100137
104

PRECEDENCE		1230 DEC 5 21 49		ACCOMMODATING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION	ROUTINE	TYPE MSG (Check)				
INFO		BOOK	MULTI	SINGLE		
FROM:					AF	MTGRPO-23-11-18E
						SECRET

ATTN W-P AFB

TO:

PATRICK AFB, FLA

Desired

UNCLASSIFIED

AFCIN-1E2x

12-3463-E

YOUR CLASSIFIED MSG MTGRPO-23-11-18E, DTD 23 NOV 60, REF TEST 3804,
WHAT WAS THE BURNING TIME OF EACH STAGE? AT WHAT ALTITUDE AND
TIME DID EACH STAGE BURN OUT?

Classification Cancelled

Auth. [Signature]
By [Signature]
D. [Signature]
AFR 2054 Par 2-17a
3 Jan 68

DATE	TIME
2	1300
MONTH	YEAR
DEC	1960

SYMBOL	
AFCIN-1E2x	
TYPED NAME AND TITLE (Signature, if required)	
Major Robert J. Friend	
PHONE	69216
PAGE NO.	1
NR. OF PAGES	1
SECRETARY'S SIGNATURE	
[Signature]	

RECEIVED

SIGNATURE

TYPED (or facsimile) NAME AND TITLE

for:
PHILIP G. EVANS
Colonel, USAF
Deputy for Science and Components

DD FORM 1 MAY 55 173

REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

RECEIVED

SQB501

ADC 896FQB850FQK&87

RR RJEDSQ

DE RJEXFQT 32C

R 062115Z

FM AFMTC PATRICK AFB FLA

TO AFTIC WPAFB OHIO

BT

FROM MTGTPO-06-12-07E. REF URMSG AFCIN-4E2X
12-346-E U. TEST 3804 LAUNCH OF DELTA III-TIROS II-THOR 245

THE BURNING TIMES ARE AS FOLLOWS:

MAIN ENGINE CUTOFF 157.4 SEC ALTITUDE 62.6 NM; SECOND STAGE
IGNITION 161.4 SEC ALTITUDE 65.6 NM; SECOND STAGE ENGINE
CUTOFF 273.2 SEC ALTITUDE 182.3 NM; THIRD STAGE IGNITION 720.5
ALTITUDE 381.8 NM (NOMINAL); THIRD ENGINE CUTOFF 758.5 SEC
ALTITUDE 380 NM (NOMINAL).

BT

06/2210ZDEC RJEXFQT

Classification Cancelled

Parent PDP
Child Cancelled

AFR 2051, Para 2-17e
3 Jan 68

NN

2. At about 0820, called Mr. [REDACTED] an observer who was on first duty in the control tower at Cox Municipal Airport. He said that the object was seen to the ~~Northwest~~ East Southeast of his position and appeared to be over W-P AFB. He said that it appeared to be burning, and last seen to the East. This coincides with the position of Tiroc II.

1900Z 17 miles W E. of Oshkosh

~~_____~~ 6015014
49794

RAVEN INDUSTRIES

PHOENIX, S. DAK.
(Sioux Falls)

AFCTN-432x

WFO Sighting (Mr [REDACTED])

SAFOI-3d (L/Col Tacker)

1. Reference attached copy of a letter to the Aerospace Technical Intelligence Center from Mr [REDACTED], dated 8 December 1960. Mr [REDACTED] is the Aviation Writer for a Painesville, Ohio newspaper called "[REDACTED]".
2. Specific information concerning the launching of Tiroc II; such as ignition times, burning times of the various stages, and altitudes of burn out are legitimate classified information.
3. Mr [REDACTED] should be advised that during its initial flight path Tiroc II did not pass over Ohio. The initial heading was generally northeast from Cape Canaveral and the flight path would have been generally parallel to the east coast of the United States and averaged approximately 200 miles at sea. The classified data of the firing does reveal the fact that it was high enough to be seen from locations as far west as Chicago. At the general time of the sightings, 0625 EST, Tiroc II was in horizontal flight and the third stage was in operation. The general descriptions by the witnesses also matches those given by missile men from experiences with other launchings.
4. Only one balloon launching, other than regular weather balloons, could be determined for 23 November 1960. This balloon was launched by Raven Industries from Sioux Falls, South Dakota at 0950Z on 23 November 1960. This balloon was of the Skyhook type, reached a diameter of 159 feet and flew at an altitude of 115,000 feet. The flight path of this balloon was generally east from Sioux Falls to Lone Rock, Wisconsin where it turned generally northeast to Oshkosh, Wisconsin, where it resumed its eastward flight path to Manistee, Michigan, at which point it was brought down. The flight was terminated at 2113Z on 23 November 1960.
5. There was a general temperature inversion over Michigan on the morning of 23 November 1960. It is possible that the atmospheric optics associated with this phenomena, coupled with the excitement generated by the early morning viewings of Tiroc II, could be responsible for the large number of reports subsequent to the Tiroc II event.

6. It is the AFIC opinion that the sightings which occurred at approximately 0625 EST were due to the viewing of the launching of Tiroc II. In the absence of sufficient data, the subsequent sighting cannot be tied to a specific incident or event and, therefore, must remain unidentified.

7. Mr. [REDACTED] address is:

Mr. [REDACTED]
[REDACTED]
Painesville, Ohio

FOR THE COMMANDER:

Leo J. Antoszyk USAF
fe PHILIP G. EVANS
Colonel, USAF
Deputy for Science and Components

2 Atch:
1. Cy ltr 3 Dec 60
sgnd [REDACTED]
2. Newspaper clipping

COORDINATION:

AFCIN-4E2x *Robert J. [REDACTED]* Date *16 Dec 60*

AFCIN-4E2 *H. S. Martin* Date *12/19/60*

[illegible]

Dec. 8, 1960

Commanding General
Aerospace Technical Intelligence Center
Wright-Patterson Air Force Base, Ohio

Dear Sir:

[illegible]

Aviation Writer

Describe Object!

2 Area Men Report UFO

"I never saw anything like it before!"

Earl Reid Jr., of Montville, one of three men from the Diamond Alkali Co. who saw an unidentified flying object early this morning, added that it was "as bright as the moon, shaped like a comet and moving at a good rate of speed."

The object was spotted as he drove up Rt. 86 along Moody Hollow Hill at 6:30 a.m. "It was between two clouds, just as it was beginning to get light. It was bigger than the crescent moon.

"I watched it for about 10 seconds," Mr. Reid went on. "When I got to the stop light I looked again, but it was

gone."

"The thing had a round head, like a comet, and a tail that was pointed down."

He explained that he didn't think too much about it until he got to work. Then, several fellow employes, including his foreman, Donald Kalbaugh, remarked about it, he said.

Mr. Kalbaugh, 46 Lakeview Dr., Painesville Township Park, said he saw it twice. "The first time was when I stepped out the door and started for the car, about 6:20 a.m. It was curved, like it was making a turn. When I looked again, the tail was straight. Altogether I saw it for about a minute."

AF IN : 402 (23 NOV 60) DEPARTMENT OF THE AIR FORCE
ACTION : CIN-14 STAFF MESSAGE DIVISION
INFO : OOP-3, SAFS-3 UNCLASSIFIED MESSAGE
INCOMING (21)

NNNN

SMD A196

CZCHQD886ZCYJF457

PP RJEZHQ

DE RJEDAH 34

P 231845Z ZEX

FM CADS TRUAX FLD WIS

TO RJWFAL/ADC ENT AFB COLO

RJEDSO/ATIC WPAFB OHIO

RJEZHQ/HQ USAF WASHDC

RJEZHQ/SAFS WASHDC

BT

UNCLAS/CHOIN 11-3. FOR INTELLIGENCE. SAFS ATTN INFO SVCS. IMMEDIATE
ACTION REQUIRED. UFO. REFERENCE AFR 200-2, PAR 15.

A. (1) VARIED BETWEEN BALL AND SHAPLESS.

(2) UNKNOWN

(3) REDDISH WHITE

(4) ONE

(5) NONE

(6) NONE

(7) LONG WHITE TRAIL

(8) NONE

DEPARTMENT OF THE AIR FORCE
STAFF MESSAGE DIVISION
UNCLASSIFIED MESSAGE

I N C O M I N G

AF IN : 402 (23 Nov 60)

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PAGE TWO RJEDAH 34

(9) VERY BRIGHT

B. (1) AIRLINE AND CONTROL TOWER REPORTS

(2) APPROX 15000 FT SOUTHEAST CHICAGO

(3) NORTHEAST INTO LAKE MICHIGAN

(4) SWUNG SOUTHWEST, THEN SOUTH

(5) FROM SOUTH TO NORTHEAST, THEN NORTH INTO LAKE MICHIGAN

(6) FOUR TO FIVE MINUTES

C. (1) VISUAL

(2) BINOCULARS

(3) NUMEROUS PILOT REPORTS TO ARTC (CHICAGO)

D. (1) 1124Z 23 NOV 60

(2) NIGHT

E. (1) CHICAGO ARTC

(2) CHICAGO, ILLINOIS

F. (1) MR. P [REDACTED] AGE: 49, [REDACTED] BERWYN, ILLINOIS
WATCH SUPERVISOR, CHICAGO ARTC. CONSIDERED VERY RELIABLE.

G. (1) CLEAR

(2) A. NW/8; B. 290/15; C. 260/25; D. 250/40; E. 250/60;

F. 250/105; G. 250/65; H. 60,000 FT: 250/45.

(3) NONE

DEPARTMENT OF THE AIR FORCE
STAFF MESSAGE DIVISION
UNCLASSIFIED MESSAGE

I N C O M I N G

AM IN : 402 (23 Nov 60)

Page 3 of 3

PAGE THREE RJEDAH 34

(4) 15 PLUS

(5) NONE

(6) NONE

H. NONE

I. NONE - INSUFFICIENT TIME

J. NONE

K. MAJOR BILLY D WELCH, SR DIRECTOR, CHICAGO ADS

(2) REPORTS FROM SEVERAL SOURCES WERE CONSISTANT AS TO COLOR
OF OBJECT.

(3) UNKNOWN

L. NONE

M. NONE

REMARKS: O'HARE AND MIDWAY AIRPORTS TOWER OPERATORS AND SEVERAL
PERSONS IN CHICAGO ARTC WITNESSED THE OBJECT. CHICAGO ARTC ALSO
RECEIVED REPORTS FROM SEVERAL AIRCRAFT AND FROM PEORIA AND SPRING-
FIELD, ILLINOIS TOWERS. A CHECK WITH UNIV OF WISC METEOROLOGICAL
OBSERVATORY REVEALED NO METEORS OR OTHER OBJECTS THAT COINCIDED WITH
THE DISCRIPTION GIVEN. BUNKER HILL AFB, PERU, INDIANA, ALSO REPORTED
THIS OBJECT.

BT

23/1846Z NOV RJEDAH

DEPARTMENT OF THE AIR FORCE
STAFF MESSAGE DIVISION
UNCLASSIFIED MESSAGE

AF IN : 368 (23 Nov 60) **INCOMING**
ACTION : CIN-14
INFO : OOP-3, (SAFS-3) (21)

Ref
01

SMD A192

CZCH9C132ZCYJD125

PP RJEZHQ

DE RJEDBW 10

P 232130Z

FM DETROIT ADS CUSTER AFS MICH

TO RJWFAL/ADC ENT AFB COLO

RJEDAH/30 AIR DIV SAGE TRUAX FLD WISC

RJEDSO/AEROSPACE TECHNICAL INTELLIGENCE CTR WRIGHT PATTERSON AFB
OHIO

RJEZHQ/HQ USAF AFCIN WASHINGTON 25 D C

RJEZHQ/SECRETARY OF THE AIR FORCE SAFIS WASH 25 DC

RJEDFJ/1 FIR WG SELFRIDGE AFB MICH

BT

UNCLASS DEOIN 3376.

SUBJ: UFO. BECAUSE OF PAUCITY OF DETAIL ON SIGNI-
FICANT POINTS, FORMAT IN PARAGRAPH 15, AFR 200-2,
IS NOT USED IN THIS REPORT. NUMEROUS REPORTS OF
UNIDENTIFIED FLYING OBJECT ACROSS LOWER PORTION
OF MICHIGAN RECEIVED AT THIS HEADQUARTERS UP TO
231430Z NOV 60. REPORTED OBSERVATIONS ALL
OCCURRED BETWEEN 231120Z AND 231400Z. FIRST
REPORTED SIGHTING WAS BY MR [REDACTED] TELEPHONE
[REDACTED], OF RADIO STATION "[REDACTED]", KALAMAZOO

DEPARTMENT OF THE AIR FORCE
STAFF MESSAGE DIVISION
UNCLASSIFIED MESSAGE

I N C O M I N G

AF IN : 368 (23 Nov 60)

Page 2 of 3

PAGE HWO RJEDBW 10

HE REPORTED TWO BRIGHT LIGHTS OBSERVED EAST OF KALAMAZOO AT 1120Z NO FURTHER DATA. NEXT REPORTED SIGHTINGS WERE VICINITY OF BATTLE CREEK BETWEEN 1130Z AND 1200Z. MOST REPORTS DESCRIBED A BRILLIANT, SHINY OBJECT, FLOATING TOWARD THE EAST-NORTHEAST OF BATTLE CREEK. SEVERAL REPORTS HERE DESCRIBED A FAN-SHAPED "TAIL" APPARENTLY HANGING FROM THE OBJECT. "TAIL" APPEARED TO OSCILLATE IN FLIGHT. NO FURTHER DATA. LAST REPORTED SIGHTINGS (MANY IN NUMBER) OCCURRED VICINITY OF DETROIT AND SELFRIDGE AFB APPROXIMATELY 1330Z TO 1400Z. OBJECT APPEARED TO RESEMBLE BALLOON ON NORTHEAST HEADING. NO FURTHER DATA.

COMMENTS OF PREPARING OFFICER: 1. NO UFO WAS TRACKED BY DETROIT AIR DEFENSE SECTOR FACILITIES DURING STATED TIME PERIODS. 2. A GENERAL TEMPERATURE INVERSION COVERED THE SECTOR AREA DURING THE MORNING. 3. WIND PATTERNS WERE SUCH THAT A BALLOON LAUNCHED IN AREA TO THE WEST AND NORTHWEST OF DETROIT SECTOR WOULD TRANSIT THE SECTOR

DEPARTMENT OF THE AIR FORCE
STAFF MESSAGE DIVISION
UNCLASSIFIED MESSAGE
I N C O M I N G

AF IN : 368 (23 Nov 60)

Page 3 of 3

PAGE THREE RJEDBW 10

ALONG THE LINE KALAMAZOO-BATTLE CREEK-DETROIT.

4. NO NOTAMS WERE RECEIVED AT DETROIT ADS CONCERNING A BALLOON LAUNCH. 5. TELEPHONE CHECKS

WITH GENERAL MILLS, MINNEAPOLIS; U.S. WEATHER

BBUREAU, GREEN BAY; RAVEN INDUSTRIES, SIOUX FALLS;

G. T. SCHJELDAHL CO, NORTHFIELD, MINN; UNIVERSITY

OF MINNESOTA PHYSICS DEPARTMENT, MINNEAPLLIS;

AND FERMI INSTITUTE OF UNIVERSITY OF CHICAGO ALL

PROVED NEGATIVE AS REGARDS THEIR LAUNCHING

OF BALLOONS WHICH COULD HAE BEEN THE OBJECT

REPORTED SIGHTED IN MICHIGAN. 6. SUNRISE IN LOCAL

AREA WAS AT 231239Z. 7. COMPLETE WEATHER AND WIND

DATA WILL BE SUBMITTED IN FOLLOW-UP MESSAGE.

8. OBJECT SIGHTED APPEARS TO HAVE BEEN AN

INSTRUMENTED BALLOON OF AS YET UNKNOWN ORIGIN.

BT

23/2132Z NOV RJEDBW

DEPARTMENT OF THE AIR FORCE
STAFF MESSAGE DIVISION
UNCLASSIFIED MESSAGE

INCOMING
K/cem

N

AF IN : 615 (24 Nov 60)
ACTION : CIN-14
INFO : SAFS-3, OOP-3 (21)

SMD A021

ZCHQB145ZCDGA2-1

PP RJEZHQ

DE RJEZDG 47

P 232130Z ZEX

FM 551AEWCONWG OTIS AFB MASS

TO RJWFAL/ADC ENT AFB COLO

RJEZSN/2SADIV SAGE HANCOCK FLD SYRACUSE NY

RJEDSQ/ATIC WRIGHT PATTERSON AFB DAYTON OHIP

RJEZHQ/HQ USAF AFCIN WASH DC

RJEZHQ/SECRETARY AF SATIS WASH DC

INFO RJEDAH/30TH ADIV TRUAX FLD WISC

BT

UNCLAS FROM 551 OIN 6058.

ACTION ADC, 26TH ADIV (SAGE), ATIC, ASST CHIEF OF STAFF HQ USAF,
AND OIS HQ USAF. UFO REPORT. PER PARA 15, AFR 200-2, UFO
SIGHTING REPORTED AS FOLLOWS: A. OBJECT DESCRIPTION (1) BRIGHT
LIGHT(S), WITH CONE OR TRIANGULAR TRAIL OF WAKE SEPARATED BY A
SPACE. (2) SIZE ESTIMATED BETWEEN HEAD OF PENCIL AND BASKET-
BALL FOR LIGHT, WITH TRAIL TEN TO FIFTEEN LONGER. (3) LIGHT
WHITE, TRAIL BLUISH WHITE (4) TWO SIMILAR OBJECTS (5) MAN-
UEVERED OR MOVED IN ROUGHLY PARALLEL PATHS (6) NONE (7) SEE
(1) ONE AND (2) TWO ABOVE (8) NO SOUND INVOLVED IN SIGHTING

DEPARTMENT OF THE AIR FORCE
STAFF MESSAGE DIVISION
UNCLASSIFIED MESSAGE

I N C O M I N G

AF IN : 615 (24 Nov 60)

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PAGE TWO RJEZDG 47

(9) LIGHTS MOVED AT TREMENDOUS SPEEDS B. COURSE DESCRIPTION:
(1) OBSERVED ALONG FLIGHT PATH OF OBSERVING AIRCRAFT (2) FIRST
OBJECT SIGHTED AT 2 O'CLOCK HIGH, APPEARED TO BE APPROACHING ON
NORTHWEST HEADING, MOVED UP AND NORTHWARD WITHIN AN ESTIMATED 20
DEGREES OF ARC OF SKY, CONSTANTLY VISIBLE UNTIL DISAPPEARANCE.
SECOND OBJECT APPEARED SHORTLY AFTER FIRST, MOVED IN ROUGHLY PARA-
LLEL COURSE, OBSERVED INTERMITTENTLY, CLIMBED ACROSS PATH OF FIRST
OBJECT TO HIGHER POSITION, BOTH DISAPPEARING TOGETHER. (3) DIS-
APPEARED AT POINT BETWEEN ZERO AND FIVE DEGREES ABOVE FLIGHT LEVEL.
(4) APPEARED ABOUT FIVE DEGREES APART (SEE (2) ABOVE). (5) VAN-
ISHED (6) OBSERVED OVER PERIOD OF EIGHT MINUTES C. MANNER
OBSERVATION: (1) AIR-VISUAL, NO CONTACT ON APS 42 OPERATING AT
TIME (2) NO OPTICAL AIDS (3) OBSERVED FROM COCKPIT OF RC121
AIRCRAFT NUMBER 523418 AT 15000 FT, COMPASS HEADING 091 DEGREES,
SPEED 220 KNOTS-TAS, HOME STATION AND DESTINATION OTIS AFB, MASS.
D. TIME/DATE: (1) 231115Z (2) DAWN WITH ENOUGH LIGHT TO SEE
BUILDINGS ON GROUND, NO MOON. E. LOCATION: AIRCRAFT DIRECTLY
OVER CHICAGO HEIGHTS VOR RADIO 41 DEGREES 31 MINUTES NORTH, 87
DEGREES 34 MINUTES WEST. F. OBSERVERS: (1) CAPTAIN ROBERT L.
ELDRED, 960TH AEW&CON SQ, AIRCRAFT COMMANDER, RELIABLE, FIRST UFO,

DEPARTMENT OF THE AIR FORCE
STAFF MESSAGE DIVISION
UNCLASSIFIED MESSAGE

I N C O M I N G

AF IN : 615 (24 Nov 60)

Page 3 of 3

PAGE THREE RJEZDG 47

2 YEARS ALASKA EXPERIENCE WITH AURORA. (2) SSGT KENNETH M. CAIN, 960TH AEW&CON SQ, FLIGHT ENGINEER, RELIABLE. G. WEATHER: (1) WIND AT ALTITUDE ESTIMATED 70 KNOTS FROM 280 DEGREES, FLIGHT ALTITUDE TEMPERATURE -5 DEGREES CENTIGRADE UNCORRECTED, LIGHT CLEAR AIR TURBULENCE BEING EXPERIENCED. (2) NOT AVAILABLE (3) & (4) CAVU (5) NO CLOUDS OBSERVED (6) NEGATIVE (7) NOT AVAILABLE

H. OTHER ACTIVITY: AIRCRAFT WAS IN UHF CONTACT WITH ANOTHER AIRCRAFT OVER WALNUT RIDGE, ARKANSAS, AT 34000 FEET, IDENTIFIED AS PACER 91 WHO ALSO WAS OBSERVING THE LIGHTS ABOVE HIM.

I. NOT APPLICABLE, SIGHTING WAS REPORTED BY OBSERVING AIRCRAFT TO CHICAGO CENTER REDIO WITH WHOM A POSITION REPORT WAS BEING MADE. GROUND RADIO PERSONNEL REMARKED ALSO SIGHTING LIGHT FROM THEIR GROUND POSITION. K. PREPARING OFFICER: CAPTAIN KEITH H.

MOREHOUSE, WING INTELLIGENCE OFFICER, 551ST AEW&CON WING.

COMMENT: NO KNOWN ASSOCIATED SIGHTING IN LOCAL AREA NEW ENGLAND.

1. NO PHYSICAL EVIDENCE OR PHOTOS.

BT

23/2200Z NOV RJEZDG

1965

[illegible]

DATE: 10/13/1964

U.S. DEPARTMENT OF COMMERCE
BUREAU OF WEATHER
STATION Indian (Indo) (Indo) (Indo) (Indo)

NOV 23 1911

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NOV 2 1966

[illegible]

CLARK, George A. 1872

STANLEY B. ROSE, JR. (GOLFING)

SURFACE AND TIDE OBSERVATIONS
 STATION PITTSBURGH, PA. TIDE GAUGE NO. 0 NOV 22 1901

TIME	TIDE	TEMP.	WIND	WAVE	SEA	WIND DIRECTION										TIDE
						N	NE	E	SE	S	SW	W	NW	W	W	
1	4.40	72	0	0	0											0
2	4.40	72	0	0	0											0
3	4.40	72	0	0	0											0
4	4.40	72	0	0	0											0
5	4.40	72	0	0	0											0
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7	4.40	72	0	0	0											0
8	4.40	72	0	0	0											0
9	4.40	72	0	0	0											0
10	4.40	72	0	0	0											0
11	4.40	72	0	0	0											0
12	4.40	72	0	0	0											0
13	4.40	72	0	0	0											0
14	4.40	72	0	0	0											0
15	4.40	72	0	0	0											0
16	4.40	72	0	0	0											0
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98	4.40	72	0	0	0											0
99	4.40	72	0	0	0											0
100	4.40	72	0	0	0											0

TIME	TIDE	TEMP.	WIND	WAVE	SEA	N	NE	E	SE	S	SW	W	NW	W	W	TIDE
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29	4.40	72	0	0	0											0

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SURFACE LAYER OBSERVATION

| STATION | TIME | WIND | WAVE | TEMP | WIND | WAVE | TEMP | WIND | WAVE | TEMP | WIND | WAVE | TEMP | WIND | WAVE | TEMP | WIND | WAVE | TEMP |
|---------|
| 1 | 0800 | 14 | 11 | 18 | 0 | 10 | 17 | 2 | 10 | 17 | 2 | 10 | 17 | 2 | 10 | 17 | 2 | 10 | 17 |
| 2 | 0800 | 15 | 12 | 19 | 0 | 11 | 18 | 3 | 11 | 18 | 3 | 11 | 18 | 3 | 11 | 18 | 3 | 11 | 18 |
| 3 | 0800 | 16 | 13 | 20 | 0 | 12 | 19 | 4 | 12 | 19 | 4 | 12 | 19 | 4 | 12 | 19 | 4 | 12 | 19 |
| 4 | 0800 | 17 | 14 | 21 | 0 | 13 | 20 | 5 | 13 | 20 | 5 | 13 | 20 | 5 | 13 | 20 | 5 | 13 | 20 |
| 5 | 0800 | 18 | 15 | 22 | 0 | 14 | 21 | 6 | 14 | 21 | 6 | 14 | 21 | 6 | 14 | 21 | 6 | 14 | 21 |
| 6 | 0800 | 19 | 16 | 23 | 0 | 15 | 22 | 7 | 15 | 22 | 7 | 15 | 22 | 7 | 15 | 22 | 7 | 15 | 22 |
| 7 | 0800 | 20 | 17 | 24 | 0 | 16 | 23 | 8 | 16 | 23 | 8 | 16 | 23 | 8 | 16 | 23 | 8 | 16 | 23 |
| 8 | 0800 | 21 | 18 | 25 | 0 | 17 | 24 | 9 | 17 | 24 | 9 | 17 | 24 | 9 | 17 | 24 | 9 | 17 | 24 |
| 9 | 0800 | 22 | 19 | 26 | 0 | 18 | 25 | 10 | 18 | 25 | 10 | 18 | 25 | 10 | 18 | 25 | 10 | 18 | 25 |
| 10 | 0800 | 23 | 20 | 27 | 0 | 19 | 26 | 11 | 19 | 26 | 11 | 19 | 26 | 11 | 19 | 26 | 11 | 19 | 26 |
| 11 | 0800 | 24 | 21 | 28 | 0 | 20 | 27 | 12 | 20 | 27 | 12 | 20 | 27 | 12 | 20 | 27 | 12 | 20 | 27 |
| 12 | 0800 | 25 | 22 | 29 | 0 | 21 | 28 | 13 | 21 | 28 | 13 | 21 | 28 | 13 | 21 | 28 | 13 | 21 | 28 |
| 13 | 0800 | 26 | 23 | 30 | 0 | 22 | 29 | 14 | 22 | 29 | 14 | 22 | 29 | 14 | 22 | 29 | 14 | 22 | 29 |
| 14 | 0800 | 27 | 24 | 31 | 0 | 23 | 30 | 15 | 23 | 30 | 15 | 23 | 30 | 15 | 23 | 30 | 15 | 23 | 30 |
| 15 | 0800 | 28 | 25 | 32 | 0 | 24 | 31 | 16 | 24 | 31 | 16 | 24 | 31 | 16 | 24 | 31 | 16 | 24 | 31 |
| 16 | 0800 | 29 | 26 | 33 | 0 | 25 | 32 | 17 | 25 | 32 | 17 | 25 | 32 | 17 | 25 | 32 | 17 | 25 | 32 |
| 17 | 0800 | 30 | 27 | 34 | 0 | 26 | 33 | 18 | 26 | 33 | 18 | 26 | 33 | 18 | 26 | 33 | 18 | 26 | 33 |
| 18 | 0800 | 31 | 28 | 35 | 0 | 27 | 34 | 19 | 27 | 34 | 19 | 27 | 34 | 19 | 27 | 34 | 19 | 27 | 34 |
| 19 | 0800 | 32 | 29 | 36 | 0 | 28 | 35 | 20 | 28 | 35 | 20 | 28 | 35 | 20 | 28 | 35 | 20 | 28 | 35 |
| 20 | 0800 | 33 | 30 | 37 | 0 | 29 | 36 | 21 | 29 | 36 | 21 | 29 | 36 | 21 | 29 | 36 | 21 | 29 | 36 |
| 21 | 0800 | 34 | 31 | 38 | 0 | 30 | 37 | 22 | 30 | 37 | 22 | 30 | 37 | 22 | 30 | 37 | 22 | 30 | 37 |
| 22 | 0800 | 35 | 32 | 39 | 0 | 31 | 38 | 23 | 31 | 38 | 23 | 31 | 38 | 23 | 31 | 38 | 23 | 31 | 38 |
| 23 | 0800 | 36 | 33 | 40 | 0 | 32 | 39 | 24 | 32 | 39 | 24 | 32 | 39 | 24 | 32 | 39 | 24 | 32 | 39 |
| 24 | 0800 | 37 | 34 | 41 | 0 | 33 | 40 | 25 | 33 | 40 | 25 | 33 | 40 | 25 | 33 | 40 | 25 | 33 | 40 |
| 25 | 0800 | 38 | 35 | 42 | 0 | 34 | 41 | 26 | 34 | 41 | 26 | 34 | 41 | 26 | 34 | 41 | 26 | 34 | 41 |
| 26 | 0800 | 39 | 36 | 43 | 0 | 35 | 42 | 27 | 35 | 42 | 27 | 35 | 42 | 27 | 35 | 42 | 27 | 35 | 42 |
| 27 | 0800 | 40 | 37 | 44 | 0 | 36 | 43 | 28 | 36 | 43 | 28 | 36 | 43 | 28 | 36 | 43 | 28 | 36 | 43 |
| 28 | 0800 | 41 | 38 | 45 | 0 | 37 | 44 | 29 | 37 | 44 | 29 | 37 | 44 | 29 | 37 | 44 | 29 | 37 | 44 |
| 29 | 0800 | 42 | 39 | 46 | 0 | 38 | 45 | 30 | 38 | 45 | 30 | 38 | 45 | 30 | 38 | 45 | 30 | 38 | 45 |
| 30 | 0800 | 43 | 40 | 47 | 0 | 39 | 46 | 31 | 39 | 46 | 31 | 39 | 46 | 31 | 39 | 46 | 31 | 39 | 46 |
| 31 | 0800 | 44 | 41 | 48 | 0 | 40 | 47 | 32 | 40 | 47 | 32 | 40 | 47 | 32 | 40 | 47 | 32 | 40 | 47 |
| 32 | 0800 | 45 | 42 | 49 | 0 | 41 | 48 | 33 | 41 | 48 | 33 | 41 | 48 | 33 | 41 | 48 | 33 | 41 | 48 |
| 33 | 0800 | 46 | 43 | 50 | 0 | 42 | 49 | 34 | 42 | 49 | 34 | 42 | 49 | 34 | 42 | 49 | 34 | 42 | 49 |
| 34 | 0800 | 47 | 44 | 51 | 0 | 43 | 50 | 35 | 43 | 50 | 35 | 43 | 50 | 35 | 43 | 50 | 35 | 43 | 50 |
| 35 | 0800 | 48 | 45 | 52 | 0 | 44 | 51 | 36 | 44 | 51 | 36 | 44 | 51 | 36 | 44 | 51 | 36 | 44 | 51 |
| 36 | 0800 | 49 | 46 | 53 | 0 | 45 | 52 | 37 | 45 | 52 | 37 | 45 | 52 | 37 | 45 | 52 | 37 | 45 | 52 |
| 37 | 0800 | 50 | 47 | 54 | 0 | 46 | 53 | 38 | 46 | 53 | 38 | 46 | 53 | 38 | 46 | 53 | 38 | 46 | 53 |
| 38 | 0800 | 51 | 48 | 55 | 0 | 47 | 54 | 39 | 47 | 54 | 39 | 47 | 54 | 39 | 47 | 54 | 39 | 47 | 54 |
| 39 | 0800 | 52 | 49 | 56 | 0 | 48 | 55 | 40 | 48 | 55 | 40 | 48 | 55 | 40 | 48 | 55 | 40 | 48 | 55 |
| 40 | 0800 | 53 | 50 | 57 | 0 | 49 | 56 | 41 | 49 | 56 | 41 | 49 | 56 | 41 | 49 | 56 | 41 | 49 | 56 |
| 41 | 0800 | 54 | 51 | 58 | 0 | 50 | 57 | 42 | 50 | 57 | 42 | 50 | 57 | 42 | 50 | 57 | 42 | 50 | 57 |
| 42 | 0800 | 55 | 52 | 59 | 0 | 51 | 58 | 43 | 51 | 58 | 43 | 51 | 58 | 43 | 51 | 58 | 43 | 51 | 58 |
| 43 | 0800 | 56 | 53 | 60 | 0 | 52 | 59 | 44 | 52 | 59 | 44 | 52 | 59 | 44 | 52 | 59 | 44 | 52 | 59 |
| 44 | 0800 | 57 | 54 | 61 | 0 | 53 | 60 | 45 | 53 | 60 | 45 | 53 | 60 | 45 | 53 | 60 | 45 | 53 | 60 |
| 45 | 0800 | 58 | 55 | 62 | 0 | 54 | 61 | 46 | 54 | 61 | 46 | 54 | 61 | 46 | 54 | 61 | 46 | 54 | 61 |
| 46 | 0800 | 59 | 56 | 63 | 0 | 55 | 62 | 47 | 55 | 62 | 47 | 55 | 62 | 47 | 55 | 62 | 47 | 55 | 62 |
| 47 | 0800 | 60 | 57 | 64 | 0 | 56 | 63 | 48 | 56 | 63 | 48 | 56 | 63 | 48 | 56 | 63 | 48 | 56 | 63 |
| 48 | 0800 | 61 | 58 | 65 | 0 | 57 | 64 | 49 | 57 | 64 | 49 | 57 | 64 | 49 | 57 | 64 | 49 | 57 | 64 |
| 49 | 0800 | 62 | 59 | 66 | 0 | 58 | 65 | 50 | 58 | 65 | 50 | 58 | 65 | 50 | 58 | 65 | 50 | 58 | 65 |
| 50 | 0800 | 63 | 60 | 67 | 0 | 59 | 66 | 51 | 59 | 66 | 51 | 59 | 66 | 51 | 59 | 66 | 51 | 59 | 66 |
| 51 | 0800 | 64 | 61 | 68 | 0 | 60 | 67 | 52 | 60 | 67 | 52 | 60 | 67 | 52 | 60 | 67 | 52 | 60 | 67 |
| 52 | 0800 | 65 | 62 | 69 | 0 | 61 | 68 | 53 | 61 | 68 | 53 | 61 | 68 | 53 | 61 | 68 | 53 | 61 | 68 |
| 53 | 0800 | 66 | 63 | 70 | 0 | 62 | 69 | 54 | 62 | 69 | 54 | 62 | 69 | 54 | 62 | 69 | 54 | 62 | 69 |
| 54 | 0800 | 67 | 64 | 71 | 0 | 63 | 70 | 55 | 63 | 70 | 55 | 63 | 70 | 55 | 63 | 70 | 55 | 63 | 70 |
| 55 | 0800 | 68 | 65 | 72 | 0 | 64 | 71 | 56 | 64 | 71 | 56 | 64 | 71 | 56 | 64 | 71 | 56 | 64 | 71 |
| 56 | 0800 | 69 | 66 | 73 | 0 | 65 | 72 | 57 | 65 | 72 | 57 | 65 | 72 | 57 | 65 | 72 | 57 | 65 | 72 |
| 57 | 0800 | 70 | 67 | 74 | 0 | 66 | 73 | 58 | 66 | 73 | 58 | 66 | 73 | 58 | 66 | 73 | 58 | 66 | 73 |
| 58 | 0800 | 71 | 68 | 75 | 0 | 67 | 74 | 59 | 67 | 74 | 59 | 67 | 74 | 59 | 67 | 74 | 59 | 67 | 74 |
| 59 | 0800 | 72 | 69 | 76 | 0 | 68 | 75 | 60 | 68 | 75 | 60 | 68 | 75 | 60 | 68 | 75 | 60 | 68 | 75 |
| 60 | 0800 | 73 | 70 | 77 | 0 | 69 | 76 | 61 | 69 | 76 | 61 | 69 | 76 | 61 | 69 | 76 | 61 | 69 | 76 |
| 61 | 0800 | 74 | 71 | 78 | 0 | 70 | 77 | 62 | 70 | 77 | 62 | 70 | 77 | 62 | 70 | 77 | 62 | 70 | 77 |
| 62 | 0800 | 75 | 72 | 79 | 0 | 71 | 78 | 63 | 71 | 78 | 63 | 71 | 78 | 63 | 71 | 78 | 63 | 71 | 78 |
| 63 | 0800 | 76 | 73 | 80 | 0 | 72 | 79 | 64 | 72 | 79 | 64 | 72 | 79 | 64 | 72 | 79 | 64 | 72 | 79 |
| 64 | 0800 | 77 | 74 | 81 | 0 | 73 | 80 | 65 | 73 | 80 | 65 | 73 | 80 | 65 | 73 | 80 | 65 | 73 | 80 |
| 65 | 0800 | 78 | 75 | 82 | 0 | 74 | 81 | 66 | 74 | 81 | 66 | 74 | 81 | 66 | 74 | 81 | 66 | 74 | 81 |
| 66 | 0800 | 79 | 76 | 83 | 0 | 75 | 82 | 67 | 75 | 82 | 67 | 75 | 82 | 67 | 75 | 82 | 67 | 75 | 82 |
| 67 | 0800 | 80 | 77 | 84 | 0 | 76 | 83 | 68 | 76 | 83 | 68 | 76 | 83 | 68 | 76 | 83 | 68 | 76 | 83 |
| 68 | 0800 | 81 | 78 | 85 | 0 | 77 | 84 | 69 | 77 | 84 | 69 | 77 | 84 | 69 | 77 | 84 | 69 | 77 | 84 |
| 69 | 0800 | 82 | 79 | 86 | 0 | 78 | 85 | 70 | 78 | 85 | 70 | 78 | 85 | 70 | 78 | 85 | 70 | 78 | 85 |
| 70 | 0800 | 83 | 80 | 87 | 0 | 79 | 86 | 71 | 79 | 86 | 71 | 79 | 86 | 71 | 79 | 86 | 71 | 79 | 86 |
| 71 | 0800 | 84 | 81 | 88 | 0 | 80 | 87 | 72 | 80 | 87 | 72 | 80 | 87 | 72 | 80 | 87 | 72 | 80 | 87 |
| 72 | 0800 | 85 | 82 | 89 | 0 | 81 | 88 | 73 | 81 | 88 | 73 | 81 | 88 | 73 | 81 | 88 | 73 | 81 | 88 |
| 73 | 0800 | 86 | 83 | 90 | 0 | 82 | 89 | 74 | 82 | 89 | 74 | 82 | 89 | 74 | 82 | 89 | 74 | 82 | 89 |
| 74 | 0800 | 87 | 84 | 91 | 0 | 83 | 90 | 75 | 83 | 90 | 75 | 83 | 90 | 75 | 83 | 90 | 75 | 83 | 90 |
| 75 | 0800 | 88 | 85 | 92 | 0 | 84 | 91 | 76 | 84 | 91 | 76 | 84 | 91 | 76 | 84 | 91 | 76 | 84 | 91 |
| 76 | 0800 | 89 | 86 | 93 | 0 | 85 | 92 | 77 | 85 | 92 | 77 | 85 | 92 | 77 | 85 | 92 | 77 | 85 | 92 |
| 77 | 0800 | 90 | 87 | 94 | 0 | 86 | 93 | 78 | 86 | 93 | 78 | 86 | 93 | 78 | 86 | 93 | 78 | 86 | 93 |
| 78 | 0800 | 91 | 88 | 95 | 0 | 87 | 94 | 79 | 87 | 94 | 79 | 87 | 94 | 79 | 87 | 94 | 79 | 87 | 94 |
| 79 | 0800 | 92 | 89 | 96 | 0 | 88 | 95 | 80 | 88 | 95 | 80 | 88 | 95 | 80 | 88 | 95 | 80 | 88 | 95 |
| 80 | 0800 | 93 | 90 | 97 | 0 | 89 | 96 | 81 | 89 | 96 | 81 | 89 | 96 | 81 | 89 | 96 | 81 | 89 | 96 |
| 81 | 0800 | 94 | 91 | 98 | 0 | 90 | 97 | 82 | 90 | 97 | 82 | 90 | 97 | 82 | 90 | 97 | 82 | 90 | 97 |
| 82 | 0800 | 95 | 92 | 99 | 0 | 91 | 98 | 83 | 91 | 98 | 83 | 91 | 98 | 83 | 91 | 98 | 83 | 91 | 98 |
| 83 | 0800 | 96 | 93 | 100 | 0 | 92 | 99 | 84 | 92 | 99 | 84 | 92 | 99 | 84 | 92 | 99 | 84 | 92 | 99 |
| 84 | 0800 | 97 | 94 | 101 | 0 | 93 | 100 | 85 | 93 | 100 | 85 | 93 | 100 | 85 | 93 | 100 | 85 | 93 | 100 |
| 85 | 0800 | 98 | 95 | | | | | | | | | | | | | | | | |

1. DEPARTMENT OF AGRICULTURE
 2. BUREAU OF PLANT INDUSTRY
 3. DIVISION OF ENTOMOLOGY
 4. FIELD STATION
 5. STATION NO. 1000
 6. DATE 1917

| NO. | DATE | LOCALITY | PLANT | INSECT | REMARKS |
|-----|------|----------|-------|--------|---------|
| 1 | 1917 | ... | ... | ... | ... |
| 2 | 1917 | ... | ... | ... | ... |
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| 100 | 1917 | ... | ... | ... | ... |

17/4/20

317

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|----------------------------|--|---------------------------|--|---------------------------------|--|
| Date: _____
Time: _____ | | Wind: _____
Age: _____ | | Location: _____
State: _____ | |
|----------------------------|--|---------------------------|--|---------------------------------|--|

| Time | Temp | Wind | Age | Location | State |
|-------|------|------|-----|----------|-------|
| 1:00 | 75 | 10 | 10 | 10 | 10 |
| 1:15 | 74 | 11 | 11 | 11 | 11 |
| 1:30 | 73 | 12 | 12 | 12 | 12 |
| 1:45 | 72 | 13 | 13 | 13 | 13 |
| 2:00 | 71 | 14 | 14 | 14 | 14 |
| 2:15 | 70 | 15 | 15 | 15 | 15 |
| 2:30 | 69 | 16 | 16 | 16 | 16 |
| 2:45 | 68 | 17 | 17 | 17 | 17 |
| 3:00 | 67 | 18 | 18 | 18 | 18 |
| 3:15 | 66 | 19 | 19 | 19 | 19 |
| 3:30 | 65 | 20 | 20 | 20 | 20 |
| 3:45 | 64 | 21 | 21 | 21 | 21 |
| 4:00 | 63 | 22 | 22 | 22 | 22 |
| 4:15 | 62 | 23 | 23 | 23 | 23 |
| 4:30 | 61 | 24 | 24 | 24 | 24 |
| 4:45 | 60 | 25 | 25 | 25 | 25 |
| 5:00 | 59 | 26 | 26 | 26 | 26 |
| 5:15 | 58 | 27 | 27 | 27 | 27 |
| 5:30 | 57 | 28 | 28 | 28 | 28 |
| 5:45 | 56 | 29 | 29 | 29 | 29 |
| 6:00 | 55 | 30 | 30 | 30 | 30 |
| 6:15 | 54 | 31 | 31 | 31 | 31 |
| 6:30 | 53 | 32 | 32 | 32 | 32 |
| 6:45 | 52 | 33 | 33 | 33 | 33 |
| 7:00 | 51 | 34 | 34 | 34 | 34 |
| 7:15 | 50 | 35 | 35 | 35 | 35 |
| 7:30 | 49 | 36 | 36 | 36 | 36 |
| 7:45 | 48 | 37 | 37 | 37 | 37 |
| 8:00 | 47 | 38 | 38 | 38 | 38 |
| 8:15 | 46 | 39 | 39 | 39 | 39 |
| 8:30 | 45 | 40 | 40 | 40 | 40 |
| 8:45 | 44 | 41 | 41 | 41 | 41 |
| 9:00 | 43 | 42 | 42 | 42 | 42 |
| 9:15 | 42 | 43 | 43 | 43 | 43 |
| 9:30 | 41 | 44 | 44 | 44 | 44 |
| 9:45 | 40 | 45 | 45 | 45 | 45 |
| 10:00 | 39 | 46 | 46 | 46 | 46 |
| 10:15 | 38 | 47 | 47 | 47 | 47 |
| 10:30 | 37 | 48 | 48 | 48 | 48 |
| 10:45 | 36 | 49 | 49 | 49 | 49 |
| 11:00 | 35 | 50 | 50 | 50 | 50 |
| 11:15 | 34 | 51 | 51 | 51 | 51 |
| 11:30 | 33 | 52 | 52 | 52 | 52 |
| 11:45 | 32 | 53 | 53 | 53 | 53 |
| 12:00 | 31 | 54 | 54 | 54 | 54 |
| 12:15 | 30 | 55 | 55 | 55 | 55 |
| 12:30 | 29 | 56 | 56 | 56 | 56 |
| 12:45 | 28 | 57 | 57 | 57 | 57 |
| 13:00 | 27 | 58 | 58 | 58 | 58 |
| 13:15 | 26 | 59 | 59 | 59 | 59 |
| 13:30 | 25 | 60 | 60 | 60 | 60 |
| 13:45 | 24 | 61 | 61 | 61 | 61 |
| 14:00 | 23 | 62 | 62 | 62 | 62 |
| 14:15 | 22 | 63 | 63 | 63 | 63 |
| 14:30 | 21 | 64 | 64 | 64 | 64 |
| 14:45 | 20 | 65 | 65 | 65 | 65 |
| 15:00 | 19 | 66 | 66 | 66 | 66 |
| 15:15 | 18 | 67 | 67 | 67 | 67 |
| 15:30 | 17 | 68 | 68 | 68 | 68 |
| 15:45 | 16 | 69 | 69 | 69 | 69 |
| 16:00 | 15 | 70 | 70 | 70 | 70 |
| 16:15 | 14 | 71 | 71 | 71 | 71 |
| 16:30 | 13 | 72 | 72 | 72 | 72 |
| 16:45 | 12 | 73 | 73 | 73 | 73 |
| 17:00 | 11 | 74 | 74 | 74 | 74 |
| 17:15 | 10 | 75 | 75 | 75 | 75 |
| 17:30 | 9 | 76 | 76 | 76 | 76 |
| 17:45 | 8 | 77 | 77 | 77 | 77 |
| 18:00 | 7 | 78 | 78 | 78 | 78 |
| 18:15 | 6 | 79 | 79 | 79 | 79 |
| 18:30 | 5 | 80 | 80 | 80 | 80 |
| 18:45 | 4 | 81 | 81 | 81 | 81 |
| 19:00 | 3 | 82 | 82 | 82 | 82 |
| 19:15 | 2 | 83 | 83 | 83 | 83 |
| 19:30 | 1 | 84 | 84 | 84 | 84 |
| 19:45 | 0 | 85 | 85 | 85 | 85 |
| 20:00 | 0 | 86 | 86 | 86 | 86 |
| 20:15 | 0 | 87 | 87 | 87 | 87 |
| 20:30 | 0 | 88 | 88 | 88 | 88 |
| 20:45 | 0 | 89 | 89 | 89 | 89 |
| 21:00 | 0 | 90 | 90 | 90 | 90 |
| 21:15 | 0 | 91 | 91 | 91 | 91 |
| 21:30 | 0 | 92 | 92 | 92 | 92 |
| 21:45 | 0 | 93 | 93 | 93 | 93 |
| 22:00 | 0 | 94 | 94 | 94 | 94 |
| 22:15 | 0 | 95 | 95 | 95 | 95 |
| 22:30 | 0 | 96 | 96 | 96 | 96 |
| 22:45 | 0 | 97 | 97 | 97 | 97 |
| 23:00 | 0 | 98 | 98 | 98 | 98 |
| 23:15 | 0 | 99 | 99 | 99 | 99 |
| 23:30 | 0 | 100 | 100 | 100 | 100 |
| 23:45 | 0 | 101 | 101 | 101 | 101 |
| 24:00 | 0 | 102 | 102 | 102 | 102 |

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|--------------------------------|--|------------------------------------|--|
| Total: _____
Average: _____ | | Remarks: _____
Signature: _____ | |
|--------------------------------|--|------------------------------------|--|

WINDS Aloft COMPUTATION SHEET

(TYPE IN ALPHABETIC)

DATE

STATION

TIME

MOON

23/1/65

1700

LOCATION

Altitude

Direction

Wind

Speed

Direction

Speed

Direction

Speed

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[Faint, illegible handwritten notes]

James M. Smith
1844

WINDS ALOFT COMBINATION SHEET

10/15/20

0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400

| Altitude | Wind Dir | Wind Spd | Temp | Dew Pt | Rel Hum | Clouds |
|----------|----------|----------|-------|--------|---------|--------|
| 0 | | | | | | |
| 100 | 090 | 10 | 15.0 | 12.0 | 80 | 0 |
| 200 | 090 | 10 | 14.0 | 11.0 | 75 | 0 |
| 300 | 090 | 10 | 13.0 | 10.0 | 70 | 0 |
| 400 | 090 | 10 | 12.0 | 9.0 | 65 | 0 |
| 500 | 090 | 10 | 11.0 | 8.0 | 60 | 0 |
| 600 | 090 | 10 | 10.0 | 7.0 | 55 | 0 |
| 700 | 090 | 10 | 9.0 | 6.0 | 50 | 0 |
| 800 | 090 | 10 | 8.0 | 5.0 | 45 | 0 |
| 900 | 090 | 10 | 7.0 | 4.0 | 40 | 0 |
| 1000 | 090 | 10 | 6.0 | 3.0 | 35 | 0 |
| 1100 | 090 | 10 | 5.0 | 2.0 | 30 | 0 |
| 1200 | 090 | 10 | 4.0 | 1.0 | 25 | 0 |
| 1300 | 090 | 10 | 3.0 | 0.0 | 20 | 0 |
| 1400 | 090 | 10 | 2.0 | -1.0 | 15 | 0 |
| 1500 | 090 | 10 | 1.0 | -2.0 | 10 | 0 |
| 1600 | 090 | 10 | 0.0 | -3.0 | 5 | 0 |
| 1700 | 090 | 10 | -1.0 | -4.0 | 0 | 0 |
| 1800 | 090 | 10 | -2.0 | -5.0 | 0 | 0 |
| 1900 | 090 | 10 | -3.0 | -6.0 | 0 | 0 |
| 2000 | 090 | 10 | -4.0 | -7.0 | 0 | 0 |
| 2100 | 090 | 10 | -5.0 | -8.0 | 0 | 0 |
| 2200 | 090 | 10 | -6.0 | -9.0 | 0 | 0 |
| 2300 | 090 | 10 | -7.0 | -10.0 | 0 | 0 |
| 2400 | 090 | 10 | -8.0 | -11.0 | 0 | 0 |
| 2500 | 090 | 10 | -9.0 | -12.0 | 0 | 0 |
| 2600 | 090 | 10 | -10.0 | -13.0 | 0 | 0 |
| 2700 | 090 | 10 | -11.0 | -14.0 | 0 | 0 |
| 2800 | 090 | 10 | -12.0 | -15.0 | 0 | 0 |
| 2900 | 090 | 10 | -13.0 | -16.0 | 0 | 0 |
| 3000 | 090 | 10 | -14.0 | -17.0 | 0 | 0 |
| 3100 | 090 | 10 | -15.0 | -18.0 | 0 | 0 |
| 3200 | 090 | 10 | -16.0 | -19.0 | 0 | 0 |
| 3300 | 090 | 10 | -17.0 | -20.0 | 0 | 0 |
| 3400 | 090 | 10 | -18.0 | -21.0 | 0 | 0 |
| 3500 | 090 | 10 | -19.0 | -22.0 | 0 | 0 |
| 3600 | 090 | 10 | -20.0 | -23.0 | 0 | 0 |
| 3700 | 090 | 10 | -21.0 | -24.0 | 0 | 0 |
| 3800 | 090 | 10 | -22.0 | -25.0 | 0 | 0 |
| 3900 | 090 | 10 | -23.0 | -26.0 | 0 | 0 |
| 4000 | 090 | 10 | -24.0 | -27.0 | 0 | 0 |
| 4100 | 090 | 10 | -25.0 | -28.0 | 0 | 0 |
| 4200 | 090 | 10 | -26.0 | -29.0 | 0 | 0 |
| 4300 | 090 | 10 | -27.0 | -30.0 | 0 | 0 |
| 4400 | 090 | 10 | -28.0 | -31.0 | 0 | 0 |
| 4500 | 090 | 10 | -29.0 | -32.0 | 0 | 0 |
| 4600 | 090 | 10 | -30.0 | -33.0 | 0 | 0 |
| 4700 | 090 | 10 | -31.0 | -34.0 | 0 | 0 |
| 4800 | 090 | 10 | -32.0 | -35.0 | 0 | 0 |
| 4900 | 090 | 10 | -33.0 | -36.0 | 0 | 0 |
| 5000 | 090 | 10 | -34.0 | -37.0 | 0 | 0 |
| 5100 | 090 | 10 | -35.0 | -38.0 | 0 | 0 |
| 5200 | 090 | 10 | -36.0 | -39.0 | 0 | 0 |
| 5300 | 090 | 10 | -37.0 | -40.0 | 0 | 0 |
| 5400 | 090 | 10 | -38.0 | -41.0 | 0 | 0 |
| 5500 | 090 | 10 | -39.0 | -42.0 | 0 | 0 |
| 5600 | 090 | 10 | -40.0 | -43.0 | 0 | 0 |
| 5700 | 090 | 10 | -41.0 | -44.0 | 0 | 0 |
| 5800 | 090 | 10 | -42.0 | -45.0 | 0 | 0 |
| 5900 | 090 | 10 | -43.0 | -46.0 | 0 | 0 |
| 6000 | 090 | 10 | -44.0 | -47.0 | 0 | 0 |
| 6100 | 090 | 10 | -45.0 | -48.0 | 0 | 0 |
| 6200 | 090 | 10 | -46.0 | -49.0 | 0 | 0 |
| 6300 | 090 | 10 | -47.0 | -50.0 | 0 | 0 |
| 6400 | 090 | 10 | -48.0 | -51.0 | 0 | 0 |
| 6500 | 090 | 10 | -49.0 | -52.0 | 0 | 0 |
| 6600 | 090 | 10 | -50.0 | -53.0 | 0 | 0 |
| 6700 | 090 | 10 | -51.0 | -54.0 | 0 | 0 |
| 6800 | 090 | 10 | -52.0 | -55.0 | 0 | 0 |
| 6900 | 090 | 10 | -53.0 | -56.0 | 0 | 0 |
| 7000 | 090 | 10 | -54.0 | -57.0 | 0 | 0 |
| 7100 | 090 | 10 | -55.0 | -58.0 | 0 | 0 |
| 7200 | 090 | 10 | -56.0 | -59.0 | 0 | 0 |
| 7300 | 090 | 10 | -57.0 | -60.0 | 0 | 0 |
| 7400 | 090 | 10 | -58.0 | -61.0 | 0 | 0 |
| 7500 | 090 | 10 | -59.0 | -62.0 | 0 | 0 |
| 7600 | 090 | 10 | -60.0 | -63.0 | 0 | 0 |
| 7700 | 090 | 10 | -61.0 | -64.0 | 0 | 0 |
| 7800 | 090 | 10 | -62.0 | -65.0 | 0 | 0 |
| 7900 | 090 | 10 | -63.0 | -66.0 | 0 | 0 |
| 8000 | 090 | 10 | -64.0 | -67.0 | 0 | 0 |
| 8100 | 090 | 10 | -65.0 | -68.0 | 0 | 0 |
| 8200 | 090 | 10 | -66.0 | -69.0 | 0 | 0 |
| 8300 | 090 | 10 | -67.0 | -70.0 | 0 | 0 |
| 8400 | 090 | 10 | -68.0 | -71.0 | 0 | 0 |
| 8500 | 090 | 10 | -69.0 | -72.0 | 0 | 0 |
| 8600 | 090 | 10 | -70.0 | -73.0 | 0 | 0 |
| 8700 | 090 | 10 | -71.0 | -74.0 | 0 | 0 |
| 8800 | 090 | 10 | -72.0 | -75.0 | 0 | 0 |
| 8900 | 090 | 10 | -73.0 | -76.0 | 0 | 0 |
| 9000 | 090 | 10 | -74.0 | -77.0 | 0 | 0 |
| 9100 | 090 | 10 | -75.0 | -78.0 | 0 | 0 |
| 9200 | 090 | 10 | -76.0 | -79.0 | 0 | 0 |
| 9300 | 090 | 10 | -77.0 | -80.0 | 0 | 0 |
| 9400 | 090 | 10 | -78.0 | -81.0 | 0 | 0 |
| 9500 | 090 | 10 | -79.0 | -82.0 | 0 | 0 |
| 9600 | 090 | 10 | -80.0 | -83.0 | 0 | 0 |
| 9700 | 090 | 10 | -81.0 | -84.0 | 0 | 0 |
| 9800 | 090 | 10 | -82.0 | -85.0 | 0 | 0 |
| 9900 | 090 | 10 | -83.0 | -86.0 | 0 | 0 |
| 10000 | 090 | 10 | -84.0 | -87.0 | 0 | 0 |

WINDS ALOFT COMBINATION SHEET

UNITED STATES OF AMERICA
 DEPARTMENT OF COMMERCE
 BUREAU OF MARINE FISHERIES
 WASHINGTON, D. C.
 OFFICE OF THE ASSISTANT COMMISSIONER
 OF FISHERIES

VESSEL NAME
 CAPTAIN
 DATE
 TIME
 PLACE

| NO. | TIME | WIND | WAVE | TEMP. | WIND | WAVE | TEMP. | WIND | WAVE | TEMP. |
|-----|------|------|------|-------|------|------|-------|------|------|-------|
| 1 | 1000 | | | | | | | | | |
| 2 | 1010 | | | | | | | | | |
| 3 | 1020 | | | | | | | | | |
| 4 | 1030 | | | | | | | | | |
| 5 | 1040 | | | | | | | | | |
| 6 | 1050 | | | | | | | | | |
| 7 | 1100 | | | | | | | | | |
| 8 | 1110 | | | | | | | | | |
| 9 | 1120 | | | | | | | | | |
| 10 | 1130 | | | | | | | | | |
| 11 | 1140 | | | | | | | | | |
| 12 | 1150 | | | | | | | | | |
| 13 | 1200 | | | | | | | | | |
| 14 | 1210 | | | | | | | | | |
| 15 | 1220 | | | | | | | | | |
| 16 | 1230 | | | | | | | | | |
| 17 | 1240 | | | | | | | | | |
| 18 | 1250 | | | | | | | | | |
| 19 | 1300 | | | | | | | | | |
| 20 | 1310 | | | | | | | | | |
| 21 | 1320 | | | | | | | | | |
| 22 | 1330 | | | | | | | | | |
| 23 | 1340 | | | | | | | | | |
| 24 | 1350 | | | | | | | | | |
| 25 | 1400 | | | | | | | | | |
| 26 | 1410 | | | | | | | | | |
| 27 | 1420 | | | | | | | | | |
| 28 | 1430 | | | | | | | | | |
| 29 | 1440 | | | | | | | | | |
| 30 | 1450 | | | | | | | | | |
| 31 | 1500 | | | | | | | | | |
| 32 | 1510 | | | | | | | | | |
| 33 | 1520 | | | | | | | | | |
| 34 | 1530 | | | | | | | | | |
| 35 | 1540 | | | | | | | | | |
| 36 | 1550 | | | | | | | | | |
| 37 | 1600 | | | | | | | | | |
| 38 | 1610 | | | | | | | | | |
| 39 | 1620 | | | | | | | | | |
| 40 | 1630 | | | | | | | | | |
| 41 | 1640 | | | | | | | | | |
| 42 | 1650 | | | | | | | | | |
| 43 | 1700 | | | | | | | | | |
| 44 | 1710 | | | | | | | | | |
| 45 | 1720 | | | | | | | | | |
| 46 | 1730 | | | | | | | | | |
| 47 | 1740 | | | | | | | | | |
| 48 | 1750 | | | | | | | | | |
| 49 | 1800 | | | | | | | | | |
| 50 | 1810 | | | | | | | | | |
| 51 | 1820 | | | | | | | | | |
| 52 | 1830 | | | | | | | | | |
| 53 | 1840 | | | | | | | | | |
| 54 | 1850 | | | | | | | | | |
| 55 | 1900 | | | | | | | | | |
| 56 | 1910 | | | | | | | | | |
| 57 | 1920 | | | | | | | | | |
| 58 | 1930 | | | | | | | | | |
| 59 | 1940 | | | | | | | | | |
| 60 | 1950 | | | | | | | | | |
| 61 | 2000 | | | | | | | | | |
| 62 | 2010 | | | | | | | | | |
| 63 | 2020 | | | | | | | | | |
| 64 | 2030 | | | | | | | | | |
| 65 | 2040 | | | | | | | | | |
| 66 | 2050 | | | | | | | | | |
| 67 | 2100 | | | | | | | | | |
| 68 | 2110 | | | | | | | | | |
| 69 | 2120 | | | | | | | | | |
| 70 | 2130 | | | | | | | | | |
| 71 | 2140 | | | | | | | | | |
| 72 | 2150 | | | | | | | | | |
| 73 | 2200 | | | | | | | | | |
| 74 | 2210 | | | | | | | | | |
| 75 | 2220 | | | | | | | | | |
| 76 | 2230 | | | | | | | | | |
| 77 | 2240 | | | | | | | | | |
| 78 | 2250 | | | | | | | | | |
| 79 | 2300 | | | | | | | | | |
| 80 | 2310 | | | | | | | | | |
| 81 | 2320 | | | | | | | | | |
| 82 | 2330 | | | | | | | | | |
| 83 | 2340 | | | | | | | | | |
| 84 | 2350 | | | | | | | | | |
| 85 | 2400 | | | | | | | | | |
| 86 | 2410 | | | | | | | | | |
| 87 | 2420 | | | | | | | | | |
| 88 | 2430 | | | | | | | | | |
| 89 | 2440 | | | | | | | | | |
| 90 | 2450 | | | | | | | | | |
| 91 | 2500 | | | | | | | | | |
| 92 | 2510 | | | | | | | | | |
| 93 | 2520 | | | | | | | | | |
| 94 | 2530 | | | | | | | | | |
| 95 | 2540 | | | | | | | | | |
| 96 | 2550 | | | | | | | | | |
| 97 | 2600 | | | | | | | | | |
| 98 | 2610 | | | | | | | | | |
| 99 | 2620 | | | | | | | | | |
| 100 | 2630 | | | | | | | | | |
| 101 | 2640 | | | | | | | | | |
| 102 | 2650 | | | | | | | | | |
| 103 | 2700 | | | | | | | | | |
| 104 | 2710 | | | | | | | | | |
| 105 | 2720 | | | | | | | | | |
| 106 | 2730 | | | | | | | | | |
| 107 | 2740 | | | | | | | | | |
| 108 | 2750 | | | | | | | | | |
| 109 | 2800 | | | | | | | | | |
| 110 | 2810 | | | | | | | | | |
| 111 | 2820 | | | | | | | | | |
| 112 | 2830 | | | | | | | | | |
| 113 | 2840 | | | | | | | | | |
| 114 | 2850 | | | | | | | | | |
| 115 | 2900 | | | | | | | | | |
| 116 | 2910 | | | | | | | | | |
| 117 | 2920 | | | | | | | | | |
| 118 | 2930 | | | | | | | | | |
| 119 | 2940 | | | | | | | | | |
| 120 | 2950 | | | | | | | | | |
| 121 | 3000 | | | | | | | | | |
| 122 | 3010 | | | | | | | | | |
| 123 | 3020 | | | | | | | | | |
| 124 | 3030 | | | | | | | | | |
| 125 | 3040 | | | | | | | | | |
| 126 | 3050 | | | | | | | | | |
| 127 | 3100 | | | | | | | | | |
| 128 | 3110 | | | | | | | | | |
| 129 | 3120 | | | | | | | | | |
| 130 | 3130 | | | | | | | | | |
| 131 | 3140 | | | | | | | | | |
| 132 | 3150 | | | | | | | | | |
| 133 | 3200 | | | | | | | | | |
| 134 | 3210 | | | | | | | | | |
| 135 | 3220 | | | | | | | | | |
| 136 | 3230 | | | | | | | | | |
| 137 | 3240 | | | | | | | | | |
| 138 | 3250 | | | | | | | | | |
| 139 | 3300 | | | | | | | | | |
| 140 | 3310 | | | | | | | | | |
| 141 | 3320 | | | | | | | | | |
| 142 | 3330 | | | | | | | | | |
| 143 | 3340 | | | | | | | | | |
| 144 | 3350 | | | | | | | | | |
| 145 | 3400 | | | | | | | | | |
| 146 | 3410 | | | | | | | | | |
| 147 | 3420 | | | | | | | | | |
| 148 | 3430 | | | | | | | | | |
| 149 | 3440 | | | | | | | | | |
| 150 | 3450 | | | | | | | | | |
| 151 | 3500 | | | | | | | | | |
| 152 | 3510 | | | | | | | | | |
| 153 | 3520 | | | | | | | | | |
| 154 | 3530 | | | | | | | | | |
| 155 | 3540 | | | | | | | | | |
| 156 | 3550 | | | | | | | | | |
| 157 | 3600 | | | | | | | | | |
| 158 | 3610 | | | | | | | | | |
| 159 | 3620 | | | | | | | | | |
| 160 | 3630 | | | | | | | | | |
| 161 | 3640 | | | | | | | | | |
| 162 | 3650 | | | | | | | | | |
| 163 | 3700 | | | | | | | | | |
| 164 | 3710 | | | | | | | | | |
| 165 | 3720 | | | | | | | | | |
| 166 | 3730 | | | | | | | | | |
| 167 | 3740 | | | | | | | | | |
| 168 | 3750 | | | | | | | | | |
| 169 | 3800 | | | | | | | | | |
| 170 | 3810 | | | | | | | | | |
| 171 | 3820 | | | | | | | | | |
| 172 | 3830 | | | | | | | | | |
| 173 | 3840 | | | | | | | | | |
| 174 | 3850 | | | | | | | | | |
| 175 | 3900 | | | | | | | | | |
| 176 | 3910 | | | | | | | | | |
| 177 | 3920 | | | | | | | | | |
| 178 | 3930 | | | | | | | | | |
| 179 | 3940 | | | | | | | | | |
| 180 | 3950 | | | | | | | | | |
| 181 | 4000 | | | | | | | | | |
| 182 | 4010 | | | | | | | | | |
| 183 | 4020 | | | | | | | | | |
| 184 | 4030 | | | | | | | | | |
| 185 | 4040 | | | | | | | | | |
| 186 | 4050 | | | | | | | | | |
| 187 | 4100 | | | | | | | | | |
| 188 | 4110 | | | | | | | | | |
| 189 | 4120 | | | | | | | | | |
| 190 | 4130 | | | | | | | | | |
| 191 | 4140 | | | | | | | | | |
| 192 | 4150 | | | | | | | | | |
| 193 | 4200 | | | | | | | | | |
| 194 | 4210 | | | | | | | | | |
| 195 | 4220 | | | | | | | | | |
| 196 | 4230 | | | | | | | | | |
| 197 | 4240 | | | | | | | | | |
| 198 | 4250 | | | | | | | | | |
| 199 | 4300 | | | | | | | | | |
| 200 | 4310 | | | | | | | | | |
| 201 | 4320 | | | | | | | | | |
| 202 | 4330 | | | | | | | | | |
| 203 | 4340 | | | | | | | | | |
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| 205 | 4400 | | | | | | | | | |
| 206 | 4410 | | | | | | | | | |
| 207 | 4420 | | | | | | | | | |
| 208 | 4430 | | | | | | | | | |
| 209 | 4440 | | | | | | | | | |
| 210 | 4450 | | | | | | | | | |
| 211 | 4500 | | | | | | | | | |

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