

CASE FILE 51 / 237UAP00351

237UAP00351

Radar/correlation-focused public UAP report; score 54

NORMAL-OBJECT FAVORED

REPORT NO.	UAP-OM-51-237UAP00351	DISPOSITION	NORMAL-OBJECT FAVORED
PRIMARY CASE	237UAP00351	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2024-02-04T20:53:00+00:00	OBSERVER	28.65319, -93.86952
SOURCE CASE IDS	237UAP00351		

Abstract

This case file evaluates a reported UAP sighting against the available orbital-object layer. No compact same-launch group fully identifies the file by itself. The final disposition is assigned under a normal-object favored standard, where ordinary aerospace/orbital explanations are preferred when they reasonably fit the report.

This is a standalone independent analysis prepared from public-source records and public orbital datasets. It is not an official government determination, classification marking, or agency-authored report.

1. Executive Summary

237UAP00351 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate N895CA E550 ac581a at 58.3 km, azimuth 325.8 deg, elevation 11.55 deg, 6.54 min from report. Dense satellite presence alone is not treated as causation in this packet.

1.1 Key Findings

- Source score 54 based on: radar/primary-return language, negative official correlation, UAP/UFO language.
- Report time used: 2024-02-04T20:53:00+00:00.
- External object layer used: public LEO catalog objects.
- Disposition standard: NORMAL-OBJECT requires case-specific causal fit. Satellite density above the horizon is context only and cannot by itself resolve the report.
- Case-specific ordinary-object evidence: strong ADS-B aircraft candidate N895CA E550 ac581a at 58.3 km, azimuth 325.8 deg, elevation 11.55 deg, 6.54 min from report.
- Non-causal context / rejection screens: very dense orbital-object sky background; context only, not causation.
- Objects above horizon: 942; at/above 10 deg: 450.
- No compact same-launch/designator group survived the report threshold.
- No explicit Starlink/balloon wording was found in the source excerpt used for ranking.

1.2 Bottom Line

NORMAL-OBJECT FAVORED: A case-specific ordinary-object candidate exists from source language, orbital geometry, launch-object context, or compact trajectory grouping. Dense ordinary sky traffic alone is not treated as causation.

2. Source Control

The source-control table identifies the public report records reviewed for this case and lists public access links where available. The table is included so this PDF remains interpretable when distributed by itself.

CASE ID	REPORT DATE FIELD	FACILITY / TITLE	TEXT EXTRACT	PUBLIC PDF LINK
237UAP00351	20:53 02/04/2024 Callsign: NKS1337 Origin: MMUN	ZHU Operator: NKS Operator Type: Commercial	text extract present	237UAP00351.pdf

3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Aircraft reported an unidentified aerial phenomenon overfly them while NW bound at FL320, 110NM SE of IAH. The unknown phenomenon was silver and the size of a small business jet less than 1,000 feet above direction not given. 2143 UPDATE: ZHU reports, UAP was not observed on ATC facility radar system. AWO notified.
REPORT TIME USED	2024-02-04T20:53:00+00:00
OBSERVER COORDINATE USED	28.65319, -93.86952
OBSERVER SOURCE BASIS	aviation_offset:110NM SE of IAH (public text extract 237UAP00351)

4. Methodology

- Spacetime extraction.** The report time and observer coordinate were extracted from the public text report and normalized to UTC. Aviation fixes/radials were resolved during earlier preprocessing where applicable.
- External object dataset.** The object layer used historical Space-Track/TLE-derived public LEO catalog objects element rows. The analytic mode for this case is historical public LEO catalog objects element propagation and same-launch/designator sky grouping.
- Propagation.** Orbital elements were propagated to the report minute and observer location. For launch-object checks, samples around the report minute were retained. For Starlink group checks, objects above the horizon were clustered by sky position and filtered for same-launch groupings.
- Comparison.** The output was compared against the report's count of lights, direction cue, motion language, altitude/radar language, and whether the file itself already suggested a satellite explanation.
- Causation standard.** Mere object presence above the horizon is treated as background context only. A normal-object disposition requires a case-specific causal fit, such as a named launch object, a compact same-launch trajectory group, or source language that directly supports that object class.
- Disposition assignment.** *Identified* means a specific normal object fits the report spacetime and the hard reported features do not materially conflict. *Normal-object favored* means a case-specific ordinary aerospace/orbital candidate exists, but it is not a full named identification. *Insufficient* means the file is too thin to carry high anomaly value. *High-value unresolved* is used when radar, video, rapid maneuver, or multi-witness features remain after reasonable normal-object checks.

5. External Object Evidence

5.1 Search Volume and Density

This table is a screening layer only. Objects above the horizon show background opportunity; they do not establish causation unless a specific object or compact trajectory group matches the reported behavior.

PUBLIC LEO CATALOG OBJECTS CATALOG IDS CONSIDERED	19626	HISTORICAL ELEMENT ROWS	19626
ABOVE HORIZON AT REPORT MINUTE	942	AT/ABOVE 10 DEG	450
LARGEST SAME-SKY CLUSTER	446		

No compact same-launch/designator group survived the report threshold. In this condition, satellite density remains context only and cannot by itself resolve a report with hard features.

5.2 Same-Launch / Same-Designator Candidate Groups

#	LAUNCH DATE	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS	MEMBERS
No same-launch group identified.						

5.3 Primary Group Members

OBJECT	NORAD	LAUNCH	AZ	EL	RANGE KM	APPARENT MOTION	ELEMENT AGE H
No members available.							

5.4 Bright-Sky Context: Top public LEO catalog objects Objects by Elevation

OBJECT	AZ	EL	RANGE KM	APPARENT MOTION	LAUNCH DATE
NORAD 22282	278.72	86.18	1488.03	westward, setting	92092A
NORAD 41079	267.91	83.79	1059.65	eastward, setting	00055AN
NORAD 8181	194.17	80.81	1482.09	eastward, setting	74089AX
NORAD 57244	228.55	80.79	566.62	westward, setting	23094AC
NORAD 81817	8.56	78.31	666.27	eastward, setting	unknown
NORAD 5017	114.79	77.09	1449.52	westward, setting	71015L
NORAD 56164	150.38	76.18	970.86	eastward, setting	23050C
NORAD 43927	103.22	70.8	820.99	westward, setting	19002F
NORAD 40436	189.28	70.71	1068.49	eastward, setting	95015AN
NORAD 50472	131.99	70.61	1256.09	eastward, setting	21132D
NORAD 1477	217.85	69.75	878.91	eastward, setting	65020BB
NORAD 39483	231.43	69.5	1590.86	eastward, setting	13076A

5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	446	0.42-359.4 deg	10.0-86.18 deg	eastward, level, eastward, rising, eastward, setting, nearly fixed azimuth, setting, westward, level, westward, rising, westward, setting
2	4	268.79-286.06 deg	61.37-68.88 deg	eastward, setting, westward, setting

5.6 Space-Track SATCAT Enrichment

Space-Track SATCAT metadata was pulled as a cached subset for NORAD catalog IDs appearing in this packet's evidence tables. This section adds owner/type/status context to the propagated object candidates.

PACKET SATCAT SUBSET ROWS	5370	FETCHED	2026-05-19T01:19:50+00:00
THIS CASE NORAD IDS CHECKED	30	SATCAT ROWS MATCHED	29
TOP OWNERS	US: 12, CIS: 11, PRC: 4, UK: 2		
OBJECT TYPES	DEBRIS: 15, PAYLOAD: 13, ROCKET BODY: 1		

5.7 Space-Track Metadata for Top Propagated Objects

NORAD	OBJECT NAME	TYPE	OWNER	LAUNCH DATE	DECAY DATE
22282	COSMOS 2226	PAYLOAD	CIS	1992-12-22	n/a
41079	NOAA 16 DEB	DEBRIS	US	2000-09-21	n/a
8181	THORAD DELTA 1 DEB	DEBRIS	US	1974-11-15	n/a
57244	STARLINK-5610	PAYLOAD	US	2023-07-07	n/a
5017	COSMOS 397 DEB	DEBRIS	CIS	1971-02-25	n/a
56164	CHECKMATE 4	PAYLOAD	US	2023-04-02	n/a
43927	IRIDIUM 172	PAYLOAD	US	2019-01-11	n/a
40436	DMSP 5D-2 F13 DEB	DEBRIS	US	1995-03-24	n/a
50472	ONEWEB-0392	PAYLOAD	UK	2021-12-27	n/a
1477	SL-8 DEB	DEBRIS	CIS	1965-03-15	n/a
39483	COSMOS 2488	PAYLOAD	CIS	2013-12-25	n/a
31816	FENGYUN 1C DEB	DEBRIS	PRC	1999-05-10	n/a

5.9 NASA / NOAA / ADS-B Expansion Layer

This source layer adds free NASA context that was previously missing from most packet cases. It is contextual evidence; it does not replace aircraft, satellite, balloon, or radar causation tests.

HOURLY UTC	2024020420
CLOUD AMOUNT	17.88%
PRECIPITATION	0.0 mm/hr
10 M WIND	11.2 m/s
TEMPERATURE	18.44 C
RELATIVE HUMIDITY	65.03%
DONKI +/-1 DAY	CME: unavailable; FLR: unavailable; GST: unavailable; HSS: unavailable; IPS: unavailable; MPC: unavailable; RBE: unavailable; SEP: unavailable; WSAEnliSimulations: unavailable

5.10 Horizons Sky Geometry Context

OBJECT	AZ	EL	APP MAG
Sun	222.37	33.29	-26.77
Moon	254.37	-28.11	-9.23
Venus	239.55	7.71	-3.93
Mars	234.33	14.20	1.34
Jupiter	102.94	48.26	-2.32

OBJECT	AZ	EL	APP MAG
Saturn	202.03	48.38	0.99

- Sun elevation was 33.3 deg, so this was daylight geometry, not a dark-sky sighting.
- Moon was below horizon at elevation -28.1 deg.
- Planets above horizon: Venus (7.7 deg), Mars (14.2 deg), Jupiter (48.3 deg), Saturn (48.4 deg).
- NASA POWER cloud amount for the hour was 17.88%, with precipitation 0.0 mm/hr.

5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
ADSB.LOL HISTORICAL RELEASE LISTING	screened/present	planes-readsb-staging-0 1500.0 MiB; planes-readsb-prod-0 1494.0 MiB
ADSB TRACKS DOWNLOADED	not yet exhausted	Requires targeted extraction from large daily history archives before claiming aircraft exhaustion.
NOAA GOES IMAGERY	not yet exhausted	Needed for cloud/lightning visual context.
NOAA GOES ABI/GLM MANIFEST	screened/present	Public S3 object availability for the report hour.
NOAA NEXRAD WEATHER RADAR	not yet exhausted	Weather radar only; not ATC radar.
NOAA IGRA RADIOSONDE	screened/present	Needed for balloon drift plausibility.
ASOS/METAR WEATHER OBSERVATIONS	screened/present	Nearest station surface observations around report time.

- ADSB.lol historical: extract aircraft traces from adslol/globe_history_2024 for 2024-02-04, then filter +/-60 min and 250 nmi around 28.6532,-93.8695.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00351 at 2024-02-04T20:53:00+00:00.
- NOAA GOES: pull nearest ABI/GLM products for the UTC hour and render cloud/lightning map.
- NOAA NEXRAD: select nearest radar stations and render Level-II/III weather radar sweep around event time.
- NOAA IGRA: find nearest radiosonde station launches bracketing the event and model wind drift for balloon-like descriptions.
- Space-Track gp_history/decay: fetch exact historical element rows and decay/reentry status for top candidate NORAD IDs.

5.12 Weather, Imagery, and Balloon Query Plan

This plan identifies the concrete free sources needed for the next case-specific weather and balloon checks. These are not treated as completed exclusions until the data are downloaded and plotted.

GOES SATELLITE	GOES16
GOES ABI PREFIX	https://noaa-goes16.s3.amazonaws.com/ABI-L2-CMIPF/2024/035/20/
GOES GLM LIGHTNING PREFIX	https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2024/035/20/

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KGLS	Scholes International At Galveston Airport	118.00	29.27, -94.86
KBPT	Jack Brooks Regional Airport	145.00	29.95, -94.02
KLBX	Texas Gulf Coast Regional Airport	163.10	29.11, -95.46
KEFD	Ellington Airport	164.10	29.61, -95.16
KLCH	Lake Charles Regional Airport	175.30	30.13, -93.22

- KGLS: [IEM ASOS/METAR daily CSV query](#)
- KBPT: [IEM ASOS/METAR daily CSV query](#)
- KLBX: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072240	LAKE CHARLES/MUN.; LA.	175.50	30.13, -93.22
USM00072251	CORPUS CHRISTI/INT.; TX.	369.30	27.78, -97.51
USM00072248	SHREVEPORT/REG.; LA.	422.30	32.45, -93.84
USM00072233	SLIDELL/MUN. LA	433.90	30.34, -89.83
USM00072250	BROWNSVILLE/INT.; TX	464.30	25.92, -97.42

5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 10-10 statute miles; no precipitation was reported in the retained observations; low/broken/overcast cloud layers were present in at least one observation. Surface ASOS/METAR observations describe airport-level weather and visibility; they do not by themselves prove conditions at the sighting altitude or line of sight.

STATION	DISTANCE KM	NEAREST OBS UTC	VIS SM	SKY	WIND DEG/KT	METAR
KGLS	118.00	2024-02-04T20:52:00 +00:00	10.00	FEW07000, M, M, M	290.00 / 15.00	KGLS 042052Z AUTO 29015G27KT 10SM FEW070 21/08 A2956 RMK AO2 PK WND 28027/2050 SLP010 T02110083 55012
KBPT	145.00	2024-02-04T20:53:00 +00:00	10.00	CLR, M, M, M	290.00 / 13.00	KBPT 042053Z 29013G21KT 10SM CLR 21/06 A2952 RMK AO2 SLP996 T02110056 55012 \$
KLBX	163.10	2024-02-04T20:53:00 +00:00	10.00	CLR, M, M, M	330.00 / 17.00	KLBX 042053Z AUTO 33017G31KT 10SM CLR 21/05 A2958 RMK AO2 PK WND 33031/2051 SLP016 T02110050 56014

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 208.0 deg at 19.74 m/s; a passive balloon could drift about 142.1 km in two hours under this crude layer-average model. Radiosonde winds are sparse station soundings; balloon drift remains approximate without launch time, ascent rate, object altitude, and exact line-of-sight bearing.

STATION	NAME	DISTANCE KM	SOUNDING UTC	MEAN DRIFT BEARING	MEAN SPEED M/S	2H DRIFT KM	MAX WIND
USM00072240	LAKE CHARLES/MUN.; LA.	175.50	2024-02-05T00:00:00+00:00	208.00	19.74	142.10	36.00 at 22019.00 m

5.17 NOAA GOES ABI/GLM Public File Manifest

GOES public S3 objects are listed for the report hour where available. This is an availability manifest, not yet a rendered satellite image.

SATELLITE	GOES16	BUCKET	noaa-goes16
ABI SAMPLE FILES	12	GLM SAMPLE FILES	12

ABI sample objects:

- [ABI-L2-CMIPF/2024/035/20/OR_ABI-L2-CMIPF-M6C01_G16_s20240352000209_e20240352009517_c20240352009577.nc](#)
- [ABI-L2-CMIPF/2024/035/20/OR_ABI-L2-CMIPF-M6C01_G16_s20240352010209_e20240352019517_c20240352019575.nc](#)

- [ABI-L2-CMIPF/2024/035/20/OR_ABI-L2-CMIPF-M6C01_G16_s20240352020209_e20240352029517_c20240352029570.nc](#)
- [ABI-L2-CMIPF/2024/035/20/OR_ABI-L2-CMIPF-M6C01_G16_s20240352030209_e20240352039517_c20240352039574.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2024/035/20/OR_GLM-L2-LCFA_G16_s20240352000000_e20240352000200_c20240352000214.nc](#)
- [GLM-L2-LCFA/2024/035/20/OR_GLM-L2-LCFA_G16_s20240352000200_e20240352000400_c20240352000416.nc](#)
- [GLM-L2-LCFA/2024/035/20/OR_GLM-L2-LCFA_G16_s20240352000400_e20240352001000_c20240352001018.nc](#)
- [GLM-L2-LCFA/2024/035/20/OR_GLM-L2-LCFA_G16_s20240352001000_e20240352001200_c20240352001219.nc](#)

5.18 ADSB.lol Historical Aircraft Track Extraction

This layer uses the downloaded ADSB.lol daily history archive to test actual aircraft tracks near the report coordinate and minute. It is not treated as a primary-radar substitute; it is a transponder/receiver-derived aircraft screen.

ARCHIVE WINDOW	2024-02-04T19:38:00+00:00 to 2024-02-04T22:08:00+00:00	RADIUS	300.00 nmi
TRACE FILES SCANNED	34045	TRACKS RETAINED	1200
SUPPORT STATUS	aircraft strong candidate present	BEST-CANDIDATE NOTE	ordinary-object favored if the report's count, color, direction, and motion can be reconciled with the candidate track(s).
STRONG CANDIDATES	1	PLAUSIBLE CANDIDATES	63
REPORTING-AIRCRAFT TRACKS EXCLUDED	2	WEAK CANDIDATES	155

5.19 Top ADS-B Candidate Tracks

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
N895CA E550 ac581a	strong aircraft candidate	65.83	58.30	0.15	40000	325.80	11.55
N95UP H25B ad341e	plausible aircraft candidate	61.63	112.50	0.02	37900	321.00	5.36
N76532 B738 aa56f7	plausible aircraft candidate	59.05	118.30	0.05	35025	355.80	4.49
N922DZ B739 acc5fb	plausible aircraft candidate	49.71	97.90	0.06	33000	314.30	4.88
N27252 B38M a2b10c	plausible aircraft candidate	49.28	115.10	1.75	26000	359.10	3.43
N925WN B737 acd2be	plausible aircraft candidate	47.98	158.40	0.06	39000	10.20	3.41
N862UP BE30 abd815	plausible aircraft candidate	46.18	117.80	0.04	4775	298.40	0.03
N446FX E545 a5617a	plausible aircraft candidate	46.00	92.40	0.00	40000	334.20	5.79

6. Annotated Evidence Figure



Generated figure copied from the local evidence-plot output. It is included as an analytic visualization, not as original sensor imagery.

7. Analytic Comparison

CRITERION	REPORT EVIDENCE	ANALYTIC TREATMENT
TIME CONSTRAINT	2024-02-04T20:53:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	28.65319, -93.86952	Directly used as observer point for azimuth/elevation/range computation.
COUNT / PATTERN	three-object/light language present	No compact same-launch count match; retained for unresolved report features.
MOTION LANGUAGE	not explicit	Apparent motion labels in the object table provide a plausible but not definitive comparison.
RADAR / OFFICIAL CHECK	not observed on ATC radar	No ATC radar return can be consistent with distant orbital objects or visual aircraft-light hypotheses, but it does not prove the match.
ANALYTIC DISPOSITION	normal-object	237UAP00351 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate N895CA E550 ac581a at 58.3 km, azimuth 325.8 deg, elevation 11.55 deg, 6.54 min from report. Dense satellite presence alone is not treated as causation in this packet.

8. Caveats, Limitations, and Collection Gaps

- No raw cockpit video, ATC replay, radar plot, or witness interview transcript was reviewed unless explicitly stated in the public source text.
- Aviation-derived coordinates can represent a nearby fix/radial or report point, not necessarily the actual line-of-sight intercept point.
- Starlink visibility depends on illumination, observer altitude, atmospheric conditions, and apparent brightness; this analysis tests geometry, not photometry. No brightness model is used unless explicitly stated elsewhere in the case file.
- TLE propagation is appropriate for screening and reconstruction but is not a substitute for authoritative operational ephemerides.
- When many satellites are above the horizon, generic presence is weak evidence and is not treated as causation. The report emphasizes named launch-object checks or compact same-launch trajectory groups.
- Normal-object favored is not the same as a perfect named-object identification; it requires a case-specific ordinary-object candidate stronger than simple object density.

Appendix A. Public Report Text Extracts

237UAP00351

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON

Date: 20:53 02/04/2024
Status: Closed
POD: DEN
Reporting Facility: ZHU

Callsign: NKS1337
Aircraft: A320
Tail Number:
Operator: NKS

Origin: MMUN
Destination: IAH
New Destination:
Operator Type: Commercial
Paged: YES

REMARKS

Aircraft reported an unidentified aerial phenomenon overfly them while NW bound at FL320, 110NM SE of IAH. The unknown phenomenon was silver and the size of a small business jet less than 1,000 feet above direction not given. 2143 UPDATE: ZHU reports, UAP was not observed on ATC facility radar system. AWO notified.

Appendix B. Computational Evidence Digest

This appendix preserves the principal computed values used in the assessment, shortened to the fields most relevant to audit and review.

```
{
  "report_time_utc": "2024-02-04T20:53:00+00:00",
  "source_excerpt": "Aircraft reported an unidentified aerial phenomenon overfly them while NW bound at FL320, 110NM SE of IAH.
The unknown phenomenon was silver and the size of a small business jet less than 1,000 feet above direction not given. 2143
UPDATE: ZHU reports, UAP was not observed on ATC facility radar system. AWO notified.",
  "historical_starlink_element_rows": 19626,
  "observer": {
    "lat": 28.653186557251075,
    "lon": -93.86951516425967,
    "source": "aviation_offset:110NM SE of IAH (public text extract 237UAP00351)"
  },
  "case_id": "237UAP00351",
  "starlink_above_horizon_at_report_time": 942,
  "starlink_catalog_ids_considered": 19626,
  "largest_same-sky_cluster_count": 446,
  "starlink_at_or_above_10_deg": 450,
  "top_starlinks": [
    {
      "azimuth_deg": 278.72,
      "azimuth_plus_2m_deg": 172.27,
      "azimuth_plus_5m_deg": 168.56,
      "element_age_hours": 0.21,
      "element_epoch": "2024-02-04T20:40:28.329600+00:00",
      "elevation_deg": 86.18,
      "elevation_plus_2m_deg": 60.87,
      "elevation_plus_5m_deg": 30.74,
      "epoch_altitude_km": 1485.09,
      "ground_track_bearing_deg": 165.46,
      "ground_track_label": "SSE",
      "launch_date": "92092A",
      "launch_designator": "92092A",
      "name": "NORAD 22282",
      "norad_id": "22282",
      "range_km": 1488.03,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 28.7606,
      "subpoint_lon": -94.6826
    },
    {
      "azimuth_deg": 267.91,
      "azimuth_plus_2m_deg": 339.81,
      "azimuth_plus_5m_deg": 344.49,
      "element_age_hours": 0.14,
      "element_epoch": "2024-02-04T20:44:24.637920+00:00",
      "elevation_deg": 83.79,
      "elevation_plus_2m_deg": 47.44,
      "elevation_plus_5m_deg": 17.73,
      "epoch_altitude_km": 855.58,
      "ground_track_bearing_deg": 346.41,
      "ground_track_label": "NNW",
      "launch_date": "00055AN",
      "launch_designator": "00055AN",
      "name": "NORAD 41079",
      "norad_id": "41079",
      "range_km": 1059.65,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 28.6172,
      "subpoint_lon": -94.8742
    },
    {
      "azimuth_deg": 194.17,
      "azimuth_plus_2m_deg": 196.7,
      "azimuth_plus_5m_deg": 197.3,
      "element_age_hours": 0.14,
      "element_epoch": "2024-02-04T20:44:39.662880+00:00",
      "elevation_deg": 80.81,
      "elevation_plus_2m_deg": 51.35,
      "elevation_plus_5m_deg": 24.49,
      "epoch_altitude_km": 1458.51,
      "ground_track_bearing_deg": 197.08,
      "ground_track_label": "SSW",
      "launch_date": "74089AX",
      "launch_designator": "74089AX",
      "name": "NORAD 8181",
      "norad_id": "8181",
      "range_km": 1482.09,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 26.97,
      "subpoint_lon": -94.3441
    }
  ],
}
```

```

{
  "azimuth_deg": 228.55,
  "azimuth_plus_2m_deg": 132.53,
  "azimuth_plus_5m_deg": 129.17,
  "element_age_hours": 2.2,
  "element_epoch": "2024-02-04T18:41:00.933792+00:00",
  "elevation_deg": 80.79,
  "elevation_plus_2m_deg": 30.81,
  "elevation_plus_5m_deg": 6.14,
  "epoch_altitude_km": 565.42,
  "ground_track_bearing_deg": 126.42,
  "ground_track_label": "SE",
  "launch_date": "23094AC",
  "launch_designator": "23094AC",
  "name": "NORAD 57244",
  "norad_id": "57244",
  "range_km": 566.62,
  "sky_motion_label": "westward, setting",
  "subpoint_lat": 28.154,
  "subpoint_lon": -94.5056
},
{
  "azimuth_deg": 8.56,
  "azimuth_plus_2m_deg": 149.43,
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  "ground_track_bearing_deg": 173.81,
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Appendix C. Source Exhaustion Checklist

This checklist records which source layers were actually applied to this individual report. It separates checked evidence from unexhausted collection gaps so the disposition is auditable when the PDF is read alone.

SOURCE LAYER	STATUS	CASE-SPECIFIC NOTE
NARA PUBLIC UAP/FAA REPORT	reviewed	Source IDs: 237UAP00351
TIME AND OBSERVER COORDINATE	extracted	2024-02-04T20:53:00+00:00 at 28.65319, -93.86952
ORBITAL OBJECT PROPAGATION	screened	public LEO catalog objects
SPACE-TRACK SATCAT METADATA	screened	30 NORAD IDs checked; 29 matched in local SATCAT subset
LAUNCH-OBJECT/SUPGP LAYER	not applicable	not a launch-object case
NASA/JPL KNOWN SMALL-BODY LAYER	not selected	CAD/Horizons secondary screen included when this case had NEO-relevant timing/geometry
NASA POWER/HORIZONS/DONKI CONTEXT	screened	Hourly weather, sky geometry, and space-weather context where local JSON is present
AIRCRAFT/ADS-B LAYER	screened	34045 trace files scanned; 1200 tracks retained; aircraft strong candidate present
NOAA GOES IMAGERY LAYER	not exhausted	Cloud/lightning imagery layer for the report hour
NOAA GOES ABI/GLM MANIFEST	screened	Public S3 object listing for the report hour
NOAA/NEXRAD WEATHER RADAR LAYER	not exhausted	Weather radar only; not ATC/primary radar
NOAA IGRA RADIOSONDE LAYER	screened	Balloon drift plausibility layer
ASOS/METAR SURFACE WEATHER	screened	Nearest station visibility, cloud, wind, precipitation, and METAR observations
WEATHER/BALLOON SOURCE PLAN	planned	Nearest weather-airport, GOES, and radiosonde queries are listed where local plan JSON is present
FINAL ANALYTIC DISPOSITION	normal-object favored	Presence-only satellite density is context only; a stronger case-specific fit is required for normal-object disposition

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2. National Archives and Records Administration. *Record Group 615: Unidentified Anomalous Phenomena Records Collection*. <https://www.archives.gov/research/topics/uaps/rg-615>
3. National Archives and Records Administration. *Bulk Downloads for Records Related to Unidentified Anomalous Phenomena (UAPs)*. <https://www.archives.gov/research/catalog/catalog-bulk-downloads/uap-bulk-download>
4. National Archives Catalog. *Records from the Federal Aviation Administration Relating to Unidentified Anomalous Phenomena, National Archives Identifier 493468575*. <https://catalog.archives.gov/id/493468575>
5. National Archives direct digital object. *237UAP00351.pdf, FAA UAP report record copied from RG 615 bulk digital objects*. <https://s3.dualstack.us-east-1.amazonaws.com/NARAprodstorage/lz/electronic-records/rg-615/493468575/237UAP00351.pdf>
6. Hugging Face dataset. *oxzoid/space-track-tle-history: historical TLE archive used for public LEO catalog objects screening*. <https://huggingface.co/datasets/oxzoid/space-track-tle-history>
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8. Space-Track.org. *API documentation for SATCAT and catalog metadata classes used for local enrichment*. <https://www.space-track.org/documentation#/api>
9. NASA POWER. *Hourly point API documentation for meteorological context*. <https://power.larc.nasa.gov/docs/services/api/temporal/hourly/>
10. NASA/JPL Solar System Dynamics. *Horizons API documentation for observer geometry and apparent magnitude queries*. <https://ssd-api.jpl.nasa.gov/doc/horizons.html>
11. NASA. *DONKI space weather API documentation*. <https://api.nasa.gov/>
12. ADSB.lol. *Interactive API documentation and OpenAPI definition*. <https://api.adsb.lol/docs>
13. ADSB.lol. *Historical open-data release documentation*. <https://www.adsb.lol/docs/open-data/historical/>
14. OpenSky Network. *REST API documentation*. <https://openskynetwork.github.io/opensky-api/rest.html>
15. OpenSky Network. *Historical data via Trino documentation*. <https://openskynetwork.github.io/opensky-api/trino.html>
16. NASA GIBS. *Global Imagery Browse Services API documentation*. <https://nasa-gibs.github.io/gibs-api-docs/>
17. NASA Earthdata. *Common Metadata Repository search API documentation*. <https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html>
18. NOAA / AWS Open Data. *GOES public dataset registry*. <https://registry.opendata.aws/noaa-goes/>
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20. NOAA NCEI. *Integrated Global Radiosonde Archive*. <https://www.ncei.noaa.gov/products/weather-balloon/integrated-global-radiosonde-archive>
21. Iowa Environmental Mesonet. *ASOS/AWOS/METAR data download service*. <https://mesonet.agron.iastate.edu/request/download.phtml>
22. Celestrak. *Spacetrack Report No. 3: Models for propagation of NORAD element sets*. <https://celestrak.org/NORAD/documentation/spacetrk.pdf>
23. Celestrak. *Supplemental GP element sets documentation and current endpoint index*. <https://celestrak.org/NORAD/elements/supplemental/>