

CASE FILE 72 / 237UAP00320

237UAP00320

Radar/correlation-focused public UAP report; score 50

HIGH-VALUE UNRESOLVED

REPORT NO.	UAP-OM-72-237UAP00320	DISPOSITION	HIGH-VALUE UNRESOLVED
PRIMARY CASE	237UAP00320	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2023-11-22T03:43:00+00:00	OBSERVER	40.11170, -100.47743
SOURCE CASE IDS	237UAP00320		

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

237UAP00320 was screened against historical public LEO catalog objects orbital elements at the extracted time and observer coordinate. The screen did not produce enough mundane evidence to close the case under the normal-object favored standard. Hard features retained for follow-up: radar/primary evidence.

1.1 Key Findings

- Source score 50 based on: radar/primary-return language, maneuvering/motion anomaly, UAP/UFO language.
- Report time used: 2023-11-22T03:43:00+00:00.
- External object layer used: public LEO catalog objects.
- Disposition standard: UNRESOLVED 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 N241WN B737 a235b7 at 15.4 km, azimuth 21.2 deg, elevation 36.05 deg, 3.05 min from report.
- Non-causal context / rejection screens: very dense orbital-object sky background; context only, not causation.
- Remaining hard features: radar/primary evidence.
- Objects above horizon: 1146; at/above 10 deg: 571.
- 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

HIGH-VALUE UNRESOLVED: Hard report features remain after the normal-object screens, such as primary/radar evidence, multiple witnesses, footage references, or motion language that still conflicts with the available object layer.

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
237UAP00320	03:43 11/22/2023 Callsign: ENY3567 Origin: DFW	ZDV Operator: ENY Operator Type: Commercial	text extract present	237UAP00320.pdf

3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Aircraft reported an unidentified aerial phenomenon off the left side while NW bound at FL340, 29NM SE of HCT "on the horizon". The unknown phenomenon was described as 3 white/yellow lights moving up and down vertically, as well as brightening and dimming. ATC facility radar systems showed stationery primary targets in the general vicinity. A person familiar with the area said there is a wind farm in that area.
REPORT TIME USED	2023-11-22T03:43:00+00:00
OBSERVER COORDINATE USED	40.11170, -100.47743
OBSERVER SOURCE BASIS	aviation_offset:29NM SE of HCT (public text extract 237UAP00320)

4. Methodology

1. **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.
2. **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.
3. **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.
4. **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.
5. **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.
6. **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	19898	HISTORICAL ELEMENT ROWS	19898
ABOVE HORIZON AT REPORT MINUTE	1146	AT/ABOVE 10 DEG	571
LARGEST SAME-SKY CLUSTER	568		

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 6277	119.16	82.93	963.92	westward, setting	72062C
NORAD 39829	167.77	82.09	1496.05	westward, setting	87020FD
NORAD 53136	184.55	80.85	548.84	westward, setting	22083E
NORAD 7827	106.75	78.22	1540.41	westward, setting	75045G
NORAD 41772	290.01	76.8	476.31	eastward, setting	16058C
NORAD 4615	84.68	76.11	1005.44	westward, setting	70025T
NORAD 7275	270.17	75.63	865.36	westward, setting	74025B
NORAD 37651	5.85	73.36	859.64	westward, setting	78026JN
NORAD 57243	200.74	72.05	588.18	westward, setting	23094AB
NORAD 55045	131.93	71.71	533.62	westward, setting	23001AN
NORAD 23790	232.22	71.35	1483.6	westward, setting	96009D
NORAD 30989	284.39	69.88	850.09	eastward, setting	99025BCF

5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	568	0.99-359.11 deg	10.0-82.93 deg	eastward, level, eastward, rising, eastward, setting, nearly fixed azimuth, rising, nearly fixed azimuth, setting, westward, level, westward, rising, westward, setting
2	3	32.65-35.39 deg	58.8-62.13 deg	

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
				eastward, rising, 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	30
TOP OWNERS	US: 13, CIS: 8, PRC: 6, AUS: 1, JOR: 1, UKR: 1		
OBJECT TYPES	PAYLOAD: 14, DEBRIS: 13, ROCKET BODY: 3		

5.7 Space-Track Metadata for Top Propagated Objects

NORAD	OBJECT NAME	TYPE	OWNER	LAUNCH DATE	DECAY DATE
6277	SL-8 DEB	DEBRIS	CIS	1972-08-16	n/a
39829	COSMOS 1823 DEB	DEBRIS	CIS	1987-02-20	n/a
53136	STARLINK-4152	PAYLOAD	US	2022-07-17	n/a
7827	COSMOS 738	PAYLOAD	CIS	1975-05-28	n/a
41772	SKYSAT C5	PAYLOAD	US	2016-09-16	n/a
4615	THORAD AGENA D DEB	DEBRIS	US	1970-04-08	n/a
7275	SL-3 R/B	ROCKET BODY	CIS	1974-04-24	n/a
37651	DELTA 1 DEB	DEBRIS	US	1978-03-05	n/a
57243	STARLINK-6346	PAYLOAD	US	2023-07-07	n/a
55045	CONTINUUM-1	PAYLOAD	AUS	2023-01-03	n/a
23790	COSMOS 2328	PAYLOAD	CIS	1996-02-19	n/a
30989	FENGYUN 1C DEB	DEBRIS	PRC	1999-05-10	n/a

5.9 NASA / NOAA / ADS-B Expansion Layer

NASA POWER/Horizons/DONKI batch context had not yet been written for this case at packet build time.

5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
ADSB.LOL HISTORICAL RELEASE LISTING	screened/present	planes-readsb-staging-0 1584.1 MiB; planes-readsb-prod-0 1586.0 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 adsblol/globe_history_2023 for 2023-11-22, then filter +/-60 min and 250 nmi around 40.1117,-100.4774.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00320 at 2023-11-22T03:43:00+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/2023/326/03/
GOES GLM LIGHTNING PREFIX	https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2023/326/03/

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KMCK	McCook Ben Nelson Regional Airport	14.50	40.21, -100.59
KLBF	North Platte Regional Airport Lee Bird Field	114.10	41.13, -100.68
KGLD	Goodland Municipal Airport	133.10	39.37, -101.70
KEAR	Kearney Regional Airport	142.10	40.73, -99.01
KHYS	Hays Regional Airport	174.70	38.84, -99.27

- KMCK: [IEM ASOS/METAR daily CSV query](#)
- KLBF: [IEM ASOS/METAR daily CSV query](#)
- KGLD: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072562	NORTH PLATTE/LEE BIRD; NE.	115.10	41.13, -100.70
USM00072451	DODGE CITY/MUN.; KS.	265.00	37.76, -99.97
USM00072558	VALLEY; NE.	371.50	41.32, -96.37
USM00072456	TOPEKA/MUN.; KS.	431.00	39.07, -95.63
USM00074646	LAMONT	468.80	36.60, -97.50

5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 10-10 statute miles; no precipitation was reported in the retained observations; no low broken/overcast cloud ceiling was evident in the retained station observations. 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
KMCK	14.50	2023-11-22T03:53:00 +00:00	10.00	CLR, M, M, M	290.00 / 7.00	KMCK 220353Z AUTO 29007KT 10SM CLR 00/M06 A3028 RMK AO2 SLP272 T00001061
KLBF	114.10	2023-11-22T03:53:00 +00:00	10.00	CLR, M, M, M	0.00 / 0.00	KLBF 220353Z AUTO 00000KT 10SM CLR M04/M07 A3025 RMK AO2 SLP264 T10391072
KGLD	133.10	2023-11-22T03:53:00 +00:00	10.00	CLR, M, M, M	250.00 / 7.00	KGLD 220353Z AUTO 25007KT 10SM CLR M02/M06

STATION	DISTANCE KM	NEAREST OBS UTC	VIS SM	SKY	WIND DEG/KT	METAR
						A3030 RMK AO2 SLP275 T10171061

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 307.4 deg at 12.15 m/s; a passive balloon could drift about 87.5 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
USM00072562	NORTH PLATTE/ LEE BIRD; NE.	115.10	2023-11-22T00:00 :00+00:00	307.40	12.15	87.50	36.00 at 3325.00 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/2023/326/03/OR_ABI-L2-CMIPF-M6C01_G16_s20233260300207_e20233260309515_c20233260309573.nc](#)
- [ABI-L2-CMIPF/2023/326/03/OR_ABI-L2-CMIPF-M6C01_G16_s20233260310207_e20233260319515_c20233260319578.nc](#)
- [ABI-L2-CMIPF/2023/326/03/OR_ABI-L2-CMIPF-M6C01_G16_s20233260320207_e20233260329515_c20233260329563.nc](#)
- [ABI-L2-CMIPF/2023/326/03/OR_ABI-L2-CMIPF-M6C01_G16_s20233260330207_e20233260339515_c20233260339567.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2023/326/03/OR_GLM-L2-LCFA_G16_s20233260300000_e20233260300200_c20233260300219.nc](#)
- [GLM-L2-LCFA/2023/326/03/OR_GLM-L2-LCFA_G16_s20233260300200_e20233260300400_c20233260300424.nc](#)
- [GLM-L2-LCFA/2023/326/03/OR_GLM-L2-LCFA_G16_s20233260300400_e20233260301000_c20233260301020.nc](#)
- [GLM-L2-LCFA/2023/326/03/OR_GLM-L2-LCFA_G16_s20233260301000_e20233260301200_c20233260301220.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	2023-11-22T02:43:00+00:00 to 2023-11-22T04:43:00+00:00	RADIUS	250.00 nmi
TRACE FILES SCANNED	50769	TRACKS RETAINED	717
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	13	PLAUSIBLE CANDIDATES	55
REPORTING-AIRCRAFT TRACKS EXCLUDED	0	WEAK CANDIDATES	113

5.19 Top ADS-B Candidate Tracks

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
N241WN B737 a235b7	strong aircraft candidate	90.80	12.50	0.10	36975	21.20	36.05

7. Analytic Comparison

CRITERION	REPORT EVIDENCE	ANALYTIC TREATMENT
TIME CONSTRAINT	2023-11-22T03:43:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	40.11170, -100.47743	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	moving	Reported motion remains only partly explained; this is a principal reason for high-value unresolved status.
RADAR / OFFICIAL CHECK	not specified	Radar or hard maneuvering language is treated as a conflict/collection gap, not hand-waved away.
ANALYTIC DISPOSITION	unresolved	237UAP00320 was screened against historical public LEO catalog objects orbital elements at the extracted time and observer coordinate. The screen did not produce enough mundane evidence to close the case under the normal-object favored standard. Hard features retained for follow-up: radar/primary evidence.

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.
- This case is retained as high-value unresolved because the hardest reported behavior is not resolved by the current normal-object layers.

Appendix A. Public Report Text Extracts

237UAP00320

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON

Date: 03:43 11/22/2023
Status: Closed
POD: DEN
Reporting Facility: ZDV

Callsign: ENY3567
Aircraft: E170
Tail Number:
Operator: ENY

Origin: DFW
Destination: RAP
New Destination:
Operator Type: Commercial
Paged: YES

REMARKS

Aircraft reported an unidentified aerial phenomenon off the left side while NW bound at FL340, 29NM SE of HCT "on the horizon". The unknown phenomenon was described as 3 white/yellow lights moving up and down vertically, as well as brightening and dimming. ATC facility radar systems showed stationery primary targets in the general vicinity. A person familiar with the area said there is a wind farm in that area.

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": "2023-11-22T03:43:00+00:00",
  "source_excerpt": "Aircraft reported an unidentified aerial phenomenon off the left side while NW bound at FL340, 29NM SE of HCT \\'on the horizon\\'. The unknown phenomenon was described as 3 white/yellow lights moving up and down vertically, as well as brightening and dimming. ATC facility radar systems showed stationery primary targets in the general vicinity. A person familiar with the area said there is a wind farm in that area.",
  "historical_starlink_element_rows": 19898,
  "observer": {
    "lat": 40.111701999559884,
    "lon": -100.47742682628689,
    "source": "aviation_offset:29NM SE of HCT (public text extract 237UAP00320)"
  },
  "case_id": "237UAP00320",
  "starlink_above_horizon_at_report_time": 1146,
  "starlink_catalog_ids_considered": 19898,
  "largest_same-sky_cluster_count": 568,
  "starlink_at_or_above_10_deg": 571,
  "top_starlinks": [
    {
      "azimuth_deg": 119.16,
      "azimuth_plus_2m_deg": 13.17,
      "azimuth_plus_5m_deg": 9.13,
      "element_age_hours": 10.77,
      "element_epoch": "2023-11-22T14:29:05.119008+00:00",
      "elevation_deg": 82.93,
      "elevation_plus_2m_deg": 47.46,
      "elevation_plus_5m_deg": 17.0,
      "epoch_altitude_km": 955.56,
      "ground_track_bearing_deg": 6.4,
      "ground_track_label": "N",
      "launch_date": "72062C",
      "launch_designator": "72062C",
      "name": "NORAD 6277",
      "norad_id": "6277",
      "range_km": 963.92,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 39.6545,
      "subpoint_lon": -99.4281
    },
    {
      "azimuth_deg": 167.77,
      "azimuth_plus_2m_deg": 163.41,
      "azimuth_plus_5m_deg": 163.18,
      "element_age_hours": 18.14,
      "element_epoch": "2023-11-21T09:34:31.321632+00:00",
      "elevation_deg": 82.09,
      "elevation_plus_2m_deg": 53.68,
      "elevation_plus_5m_deg": 26.88,
      "epoch_altitude_km": 1484.94,
      "ground_track_bearing_deg": 162.66,
      "ground_track_label": "SSE",
      "launch_date": "87020FD",
      "launch_designator": "87020FD",
      "name": "NORAD 39829",
      "norad_id": "39829",
      "range_km": 1496.05,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 38.6417,
      "subpoint_lon": -100.0711
    },
    {
      "azimuth_deg": 184.55,
      "azimuth_plus_2m_deg": 53.33,
      "azimuth_plus_5m_deg": 51.19,
      "element_age_hours": 4.54,
      "element_epoch": "2023-11-22T08:15:21.077280+00:00",
      "elevation_deg": 80.85,
      "elevation_plus_2m_deg": 31.32,
      "elevation_plus_5m_deg": 5.99,
      "epoch_altitude_km": 545.9,
      "ground_track_bearing_deg": 48.91,
      "ground_track_label": "NE",
      "launch_date": "22083E",
      "launch_designator": "22083E",
      "name": "NORAD 53136",
      "norad_id": "53136",
      "range_km": 548.84,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 39.39,
      "subpoint_lon": -100.5515
    }
  ]
}
```

```

},
{
  "azimuth_deg": 106.75,
  "azimuth_plus_2m_deg": 36.6,
  "azimuth_plus_5m_deg": 24.86,
  "element_age_hours": 10.06,
  "element_epoch": "2023-11-22T13:46:41.622240+00:00",
  "elevation_deg": 78.22,
  "elevation_plus_2m_deg": 58.86,
  "elevation_plus_5m_deg": 30.71,
  "epoch_altitude_km": 1475.46,
  "ground_track_bearing_deg": 17.68,
  "ground_track_label": "NNE",
  "launch_date": "75045G",
  "launch_designator": "75045G",
  "name": "NORAD 7827",
  "norad_id": "7827",
  "range_km": 1540.41,
  "sky_motion_label": "westward, setting",
  "subpoint_lat": 39.4176,
  "subpoint_lon": -97.6495
},
{
  "azimuth_deg": 290.01,
  "azimuth_plus_2m_deg": 343.45,
  "azimuth_plus_5m_deg": 347.23,
  "element_age_hours": 0.18,
  "element_epoch": "2023-11-22T03:32:25.159488+00:00",
  "elevation_deg": 76.8,
  "elevation_plus_2m_deg": 21.91,
  "elevation_plus_5m_deg": 1.53,
  "epoch_altitude_km": 463.7,
  "ground_track_bearing_deg": 348.15,
  "ground_track_label": "NNW",
  "launch_date": "16058C",
  "launch_designator": "16058C",
  "name": "NORAD 41772",
  "norad_id": "41772",
  "range_km": 476.31,
  "sky_motion_label": "eastward, setting",
  "subpoint_lat": 40.4187,
  "subpoint_lon": -101.6003
},
{
  "azimuth_deg": 84.68,
  "azimuth_plus_2m_deg": 357.89,
  "azimuth_plus_5m_deg": 348.91,
  "element_age_hours": 0.07,
  "element_epoch": "2023-11-22T03:47:06.996768+00:00",
  "elevation_deg": 76.11,
  "elevation_plus_2m_deg": 46.83,
  "elevation_plus_5m_deg": 17.09,
  "epoch_altitude_km": 956.25,
  "ground_track_bearing_deg": 344.01,
  "ground_track_label": "NNW",
  "launch_date": "70025T",
  "launch_designator": "70025T",
  "name": "NORAD 4615",
  "norad_id": "4615",
  "range_km": 1005.44,
  "sky_motion_label": "westward, setting",
  "subpoint_lat": 40.2606,
  "subpoint_lon": -98.0279
},
{
  "azimuth_deg": 270.17,
  "azimuth_plus_2m_deg": 187.22,
  "azimuth_plus_5m_deg": 179.16,
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  "elevation_plus_5m_deg": 13.31,
  "epoch_altitude_km": 836.44,
  "ground_track_bearing_deg": 171.96,
  "ground_track_label": "S",
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  "launch_designator": "74025B",
  "name": "NORAD 7275",
  "norad_id": "7275",
  "range_km": 865.36,
  "sky_motion_label": "westward, setting",
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"elevation_plus_5m_deg": 9.56,
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"ground_track_bearing_deg": 112.26,
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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: 237UAP00320
TIME AND OBSERVER COORDINATE	extracted	2023-11-22T03:43:00+00:00 at 40.11170, -100.47743
ORBITAL OBJECT PROPAGATION	screened	public LEO catalog objects
SPACE-TRACK SATCAT METADATA	screened	30 NORAD IDs checked; 30 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	not exhausted	Hourly weather, sky geometry, and space-weather context where local JSON is present
AIRCRAFT/ADS-B LAYER	screened	50769 trace files scanned; 717 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	high-value unresolved	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. *237UAP00320.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-615/493468575/237UAP00320.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>
7. Space-Track.org. *Public source for the underlying U.S. Space Surveillance Network TLE distribution referenced by the historical TLE archive*. <https://www.space-track.org/>
8. Space-Track.org. *API documentation for SATCAT and catalog metadata classes used for local enrichment*. <https://www.space-track.org/documentation#/api>
9. ADSB.lol. *Interactive API documentation and OpenAPI definition*. <https://api.adsb.lol/docs>
10. ADSB.lol. *Historical open-data release documentation*. <https://www.adsb.lol/docs/open-data/historical/>
11. OpenSky Network. *REST API documentation*. <https://openskynetwork.github.io/opensky-api/rest.html>
12. OpenSky Network. *Historical data via Trino documentation*. <https://openskynetwork.github.io/opensky-api/trino.html>
13. NASA GIBS. *Global Imagery Browse Services API documentation*. <https://nasa-gibs.github.io/gibs-api-docs/>
14. NASA Earthdata. *Common Metadata Repository search API documentation*. <https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html>
15. NOAA / AWS Open Data. *GOES public dataset registry*. <https://registry.opendata.aws/noaa-goes/>
16. NOAA / AWS Open Data. *NEXRAD public dataset registry*. <https://registry.opendata.aws/noaa-nexrad/>
17. NOAA NCEI. *Integrated Global Radiosonde Archive*. <https://www.ncei.noaa.gov/products/weather-balloon/integrated-global-radiosonde-archive>
18. Iowa Environmental Mesonet. *ASOS/AWOS/METAR data download service*. <https://mesonet.agron.iastate.edu/request/download.phtml>
19. Celestrak. *Spacetrack Report No. 3: Models for propagation of NORAD element sets*. <https://celestrak.org/NORAD/documentation/spacetrk.pdf>
20. Celestrak. *Supplemental GP element sets documentation and current endpoint index*. <https://celestrak.org/NORAD/elements/supplemental/>