



Post-Closure Inspection Report for the Tonopah Test Range and Nevada Test and Training Range, Nevada

For Calendar Year 2020

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Revision No.: 0

April 2021

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**POST-CLOSURE INSPECTION REPORT
FOR THE TONOPAH TEST RANGE AND
NEVADA TEST AND TRAINING RANGE, NEVADA

FOR CALENDAR YEAR 2020**

U.S. Department of Energy, Environmental Management Nevada Program
Las Vegas, Nevada

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**POST-CLOSURE INSPECTION REPORT
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NEVADA TEST AND TRAINING RANGE, NEVADA**

FOR CALENDAR YEAR 2020

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List of Acronyms and Abbreviations

BLM	Bureau of Land Management
CAS	Corrective action site
CAU	Corrective action unit
DOE	U.S. Department of Energy
FADL	Field Activity Daily Log
FFACO	<i>Federal Facility Agreement and Consent Order</i>
GIS	Geographic Information Systems
EM	Environmental Management
NAD	North American Datum
NDEP	Nevada Division of Environmental Protection
NTTR	Nevada Test and Training Range
TTR	Tonopah Test Range
UTM	Universal Transverse Mercator
UR	Use restriction
UXO	Unexploded ordnance

Executive Summary

This report provides the results of the annual post-closure use restriction (UR) inspections at corrective action sites (CASs) located on the Tonopah Test Range (TTR) and Nevada Test and Training Range (NTTR). This report covers post-closure UR inspections for calendar year 2020, and includes visual inspections and repair activities completed at the following corrective action units (CAUs):

- CAU 407, Roller Coaster RadSafe Area (TTR)
- CAU 424, Area 3 Landfill Complexes (TTR)
- CAU 453, Area 9 UXO Landfill (TTR)
- CAU 487, Thunderwell Site (TTR)

Note: CAU 400, Bomblet Pit and Five Points Landfill (TTR) (CASs TA-19-001-05PT, Ordnance Disposal Pit; and TA-55-00-TAB2, Ordnance Disposal Pit) no longer requires inspection and reporting, as described in the *Post-Closure Inspection Report for the Tonopah Test Range and Nevada Test and Training Range, Nevada for Calendar Year 2019*.

Site figures are included in [Appendix A](#). The Post-Closure Inspection Plans and Record of Technical Change modifying the requirements for each UR are included in [Appendix B](#). The Post-Closure Inspection Checklists are included in [Appendix C](#). Field Notes are included in [Appendix D](#).

[Appendix E](#), Inspection Photographs, does not include photographs because none were taken during the 2020 post-closure inspections. [Appendix F](#), Post-Closure Vegetation Monitoring Report, does not include any data because vegetation monitoring was not conducted or required at any CAU in 2020.

Visual inspections were conducted according to the post-closure requirements outlined in specific CAU and CAS URs, and approved by NDEP. The annual post-closure inspections for CASs associated with CAUs 407, 424, 453, and 487 were conducted on May 20, 2020. No maintenance or repair issues were noted at CAUs 487, or at CASs associated with CAU 424 (except CASs 03-08-002-A304 and 03-08-002-A308). Maintenance items and subsequent repairs include the following:

- **CAU 407**, CAS TA-23-001-TARC (Roller Coaster RadSafe Area): A UR sign was loose and was rehung during the inspection.
- **CAU 424**, CAS 03-08-002-A304 (Landfill Cell A3-4): The northeast monument needed a UR sign. The UR sign was attached to the monument on August 11, 2020.
- **CAU 424**, CAS 03-08-002-A308 (Landfill Cell A3-8): The southeast monument needed additional lava rock. The lava rock was added during the inspection.

- **CAU 453**, *CAS 09-55-001-0952 (Area 9 Landfill)*: Two animal burrows were noted in the western portion of the northern and southern trenches (one burrow per trench). The animal burrows were repaired on August 11, 2020.

1.0 Introduction

1.1 Scope and Objectives

This report includes visual annual inspection results, maintenance and repair activities, and recommendations for calendar year 2020 for use restrictions (URs) associated with corrective action sites (CASs) on the Tonopah Test Range (TTR) and Nevada Test and Training Range (NTTR) that are accessed through the TTR/NTTR main gate. The TTR is part of and is located on the NTTR. The locations of the CASs are shown in [Figure A-1](#) of [Appendix A](#).

The visual inspection of URs associated with the following corrective action units (CAUs) and CASs are included in this report:

- **CAU 407: Roller Coaster RadSafe Area (TTR)**
 - CAS TA-23-001-TARC: Roller Coaster RadSafe Area

- **CAU 424: Area 3 Landfill Complexes (TTR)**
 - CAS 03-08-001-A301: Landfill Cell A3-1
 - CAS 03-08-002-A302: Landfill Cell A3-2
 - CAS 03-08-002-A303: Landfill Cell A3-3
 - CAS 03-08-002-A304: Landfill Cell A3-4
 - CAS 03-08-002-A305: Landfill Cell A3-5
 - CAS 03-08-002-A306: Landfill Cell A3-6
 - CAS 03-08-002-A308: Landfill Cell A3-8

- **CAU 453: Area 9 UXO Landfill (TTR)**
 - CAS 09-55-001-0952: Area 9 Landfill

- **CAU 487: Thunderwell Site (TTR)**
 - CAS RG-26-001-RGRV: Thunderwell Site

Site figures are included in [Appendix A](#). Post-Closure Inspection Plans (a history of inspection requirements at each use restricted site) are included in [Appendix B](#). May 20, 2020, Post-Closure Inspection Checklists and subsequent August 11, 2020, site visit Field Activity Daily Logs (FADLs) are included in [Appendix C](#). Field notes are included in [Appendix D](#). [Appendix E](#), Photographs, does

not include any inspection photographs because none were taken or required during the 2020 post-closure inspections. [Appendix F](#), Post-Closure Vegetation Monitoring Report, does not include any data because vegetation monitoring was not conducted or required at any use restricted site in 2020.

Depending on specific UR requirements, post-closure UR inspections may include a visual inspection of some or all of the following physical controls:

- Fencing (is present and provides a barrier; at CAUs 407 and 453 only).
- Signs (are present and legible).
- Soil cover (completely covers material).
- Monuments (are present and standing).
- Markers (are present).

2.0 Inspection Results

Visual inspections were conducted on May 20, 2020. Some *Federal Facility Agreement and Consent Order* (FFACO) URs were updated during the preceding year by the U.S. Department of Energy (DOE) Environmental Management (EM) Program and approved by the Nevada Division of Environmental Protection (NDEP). Any changes in the inspection requirements are noted in [Appendix B](#).

2.1 CAU 407, Roller Coaster RadSafe Area (TTR)

Visual inspections are conducted according to the post-closure requirements for CAU 407, Roller Coaster RadSafe Area (TTR), CAS TA-23-001-TARC, Roller Coaster RadSafe Area, as described in the CAU 407 UR (DOE/EMNV, 2019a). The site is shown in [Figure A-2](#) of [Appendix A](#).

The visual inspection was conducted on May 20, 2020. All signs are legible. However, one sign was loose and was rehung during the inspection. No other issues or concerns were identified.

2.2 CAU 424, Area 3 Landfill Complexes (TTR)

Visual inspections are conducted according to the post-closure requirements for CAU 424, Area 3 Landfill Complexes (TTR), CAS 03-08-001-A301, Landfill Cell A3-1; CAS 03-08-002-A302, Landfill Cell A3-2; CAS 03-08-002-A303, Landfill Cell A3-3; CAS 03-08-002-A304, Landfill Cell A3-4; CAS 03-08-002-A305, Landfill Cell A3-5; CAS 03-08-002-A306, Landfill Cell A3-6; and CAS 03-08-002-A308, Landfill Cell A3-8, as described in the CAU 424 UR (DOE/EMNV, 2019b). The landfill locations are shown in [Figure A-3](#) of [Appendix A](#). The inspection was conducted on May 20, 2020.

Landfill Cell A3-1 (CAS 03-08-001-A301): All signs, monuments, survey markers are in good order. Markers denoted landfill identification, and Northings and Eastings. All corner monuments have warning signs. No issues were noted. The site is shown in [Figure A-4](#) of [Appendix A](#).

Landfill Cell A3-2 (CAS 03-08-002-A302): All signs, monuments, survey markers are in good order. Markers denoted landfill identification, and Northings and Eastings. All corner monuments have warning signs. No issues were noted. The site is shown in [Figure A-4](#) of [Appendix A](#).

Landfill Cell A3-3 (CAS 03-08-002-A303): All signs, monuments, survey markers (on the monuments), and ground survey markers are in good order. Markers embedded in aboveground monuments denoted landfill identification, and Northings and Eastings. All aboveground monuments have warning signs. All markers embedded in ground flush monuments denoted landfill identification, and Northings and Eastings. Two markers embedded in ground flush monuments (one per parcel) denoted warning. No issues were noted. The site is shown in [Figure A-5](#) of [Appendix A](#).

Landfill Cell A3-4 (CAS 03-08-002-A304): A UR sign needed to be hung on the northeast monument. All other signs, monuments, and survey markers are in good order. Markers denoted landfill identification, and Northings and Eastings. All monuments (except the northeast) have warning signs. A warning sign was mounted on the northeast monument on August 11, 2020. No other issues were noted. The site is shown in [Figure A-6](#) of [Appendix A](#).

Landfill Cell A3-5 (CAS 03-08-002-A305): All signs, monuments, and survey markers are in good order. Markers denoted landfill identification, and Northings and Eastings. All monuments have warning signs. No issues were noted. The site is shown in [Figure A-7](#) of [Appendix A](#).

Landfill Cell A3-6 (CAS 03-08-002-A306): The site is made up of two land parcels: a small triangle-shaped area to the east, and a rectangle-shaped area to the west. All signs, monuments, and survey markers are in good order. Markers denoted landfill identification, and Northings and Eastings. All monuments have warning signs. No issues were noted. The site is shown in [Figure A-8](#) of [Appendix A](#).

Landfill Cell A3-8 (CAS 03-08-002-A308): All ground survey monuments and markers are in good order. All markers embedded in ground flush monuments denoted landfill identification and Northings and Eastings. Two markers embedded in ground flush monuments denoted warnings (northwest and southeast markers). Additional colored marking rock was added to the southeast

ground survey marker during the inspection. No other issues were noted. The site is shown in [Figure A-9 of Appendix A](#).

2.3 CAU 453, Area 9 UXO Landfill (TTR)

Visual inspections are conducted according to the post-closure requirements for CAU 453, Area 9 UXO Landfill (TTR), CAS 09-55-001-0952, Area 9 Landfill, as described in the CAU 453 UR (DOE/EMNV, 2019c). The site is shown in [Figure A-10 of Appendix A](#). The inspection was conducted on May 20, 2020. All signs and monuments are in good order. Markers are embedded in the monuments located at the corners of each trench. The markers indicate CAU identification number only. Six monuments border the northern and southern trenches, and four monuments border the center trench. The perimeter fence is in good repair. UR signs are attached to the fence. Two animal burrows were noted in the western portion of the northern and southern trenches (one burrow per trench). The animal burrows were repaired on August 11, 2020.

2.4 CAU 487, Thunderwell Site (TTR)

Visual inspections are conducted according to the post-closure requirements for CAU 487, Thunderwell Site (TTR), CAS RG-26-001-RGRV, Thunderwell Site, as described in the CAU 487 UR (DOE/EMNV, 2019d). The site is shown in [Figure A-11 of Appendix A](#). The annual inspection was conducted on May 20, 2020. The site is made up of two land parcels: the eastern area of A-17 Anomaly, and the western area of A-8 Anomaly. All signs, monuments, and survey markers are in good order. Markers denote Northings and Eastings. All monuments have warning signs. No issues were noted.

3.0 Summary

Brief summaries of the annual visual inspections and proposed recommendations are outlined below.

3.1 CAU 407, Roller Coaster RadSafe Area (TTR)

One sign was loose and was rehung during the inspection. No other issues or concerns were identified, and no additional recommendations are proposed at CAS TA-23-001-TARC, Roller Coaster RadSafe Area.

3.2 CAU 424, Area 3 Landfill Complexes (TTR)

The following observations and recommendations for the seven CASs within CAU 424 during the May 20, 2020, inspection:

- **Landfill Cell A3-1 (CAS 03-08-001-A301).** No issues or concerns were identified, and no additional recommendations are proposed.
- **Landfill Cell A3-2 (CAS 03-08-002-A302).** No issues or concerns were identified, and no additional recommendations are proposed.
- **Landfill Cell A3-3 (CAS 03-08-002-A303).** No issues or concerns were identified, and no additional recommendations are proposed.
- **Landfill Cell A3-4 (CAS 03-08-002-A304).** All monuments (except the northeast) have warning signs. No other issues were noted. A warning sign was mounted on the northeast monument on August 11, 2020. No other issues or concerns were identified, and no additional recommendations are proposed.
- **Landfill Cell A3-5 (CAS 03-08-002-A305).** No issues or concerns were identified, and no additional recommendations are proposed.
- **Landfill Cell A3-6 (CAS 03-08-002-A306).** No issues or concerns were identified, and no additional recommendations are proposed.
- **Landfill Cell A3-8 (CAS 03-08-002-A308).** Although all ground survey monuments and markers are in good order, additional colored marking rock was added to the southeast ground survey marker during the inspection. No other issues or concerns were identified, and no additional recommendations are proposed.

3.3 CAU 453, Area 9 UXO Landfill (TTR)

Two animal burrows were noted in the western portion of the northern and southern trenches (one burrow per trench). The animal burrows were repaired on August 11, 2020. No other issues or concerns were identified, and no additional recommendations are proposed at CAS 09-55-001-0952, Area 9 Landfill.

3.4 CAU 487, Thunderwell Site (TTR)

No issues or concerns were identified, and no additional recommendations are proposed at CAS RG-26-001-RGRV, Thunderwell Site.

4.0 References

DOE/EMNV, see U.S. Department of Energy, Environmental Management Nevada Program.

U.S. Department of Energy, Environmental Management Nevada Program. 2019a. *Record of Technical Change to Closure Report for Corrective Action Unit 407: Roller Coaster RADSAFE Area, Tonopah Test Range, Nevada*, DOE/NV--694-rev 1; ROTC No. DOE/NV--694-rev 1-ROTC 1, 19 November. Las Vegas, NV.

U.S. Department of Energy, Environmental Management Nevada Program. 2019b. *Record of Technical Change to Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada*, Rev. 0, DOE/NV/11718--283; ROTC No. DOE/NV/11718--283-ROTC 1, 2 July. Las Vegas, NV.

U.S. Department of Energy, Environmental Management Nevada Program. 2019c. *Record of Technical Change to Closure Report for Corrective Action Unit 453: Area 9 UXO Landfill, Tonopah Test Range, Nevada*, DOE/NV/11718--284; ROTC No. DOE/NV/11718--284-ROTC 1, 19 November. Las Vegas, NV.

U.S. Department of Energy, Environmental Management Nevada Program. 2019d. *Record of Technical Change to Corrective Action Decision Document/Closure Report for Corrective Action Unit 487: Thunderwell Site, Tonopah Test Range, Nevada*, Rev. 0, DOE/NV--761; ROTC No. DOE/NV--761-ROTC 3, 19 November. Las Vegas, NV.

U.S. Department of Energy, Environmental Management Nevada Program. 2020. *Post-Closure Inspection Report for the Tonopah Test Range and Nevada Test and Training Range, Nevada for Calendar Year 2019*, DOE/EMNV--0015. Las Vegas, NV.

Appendix A

Site Figures

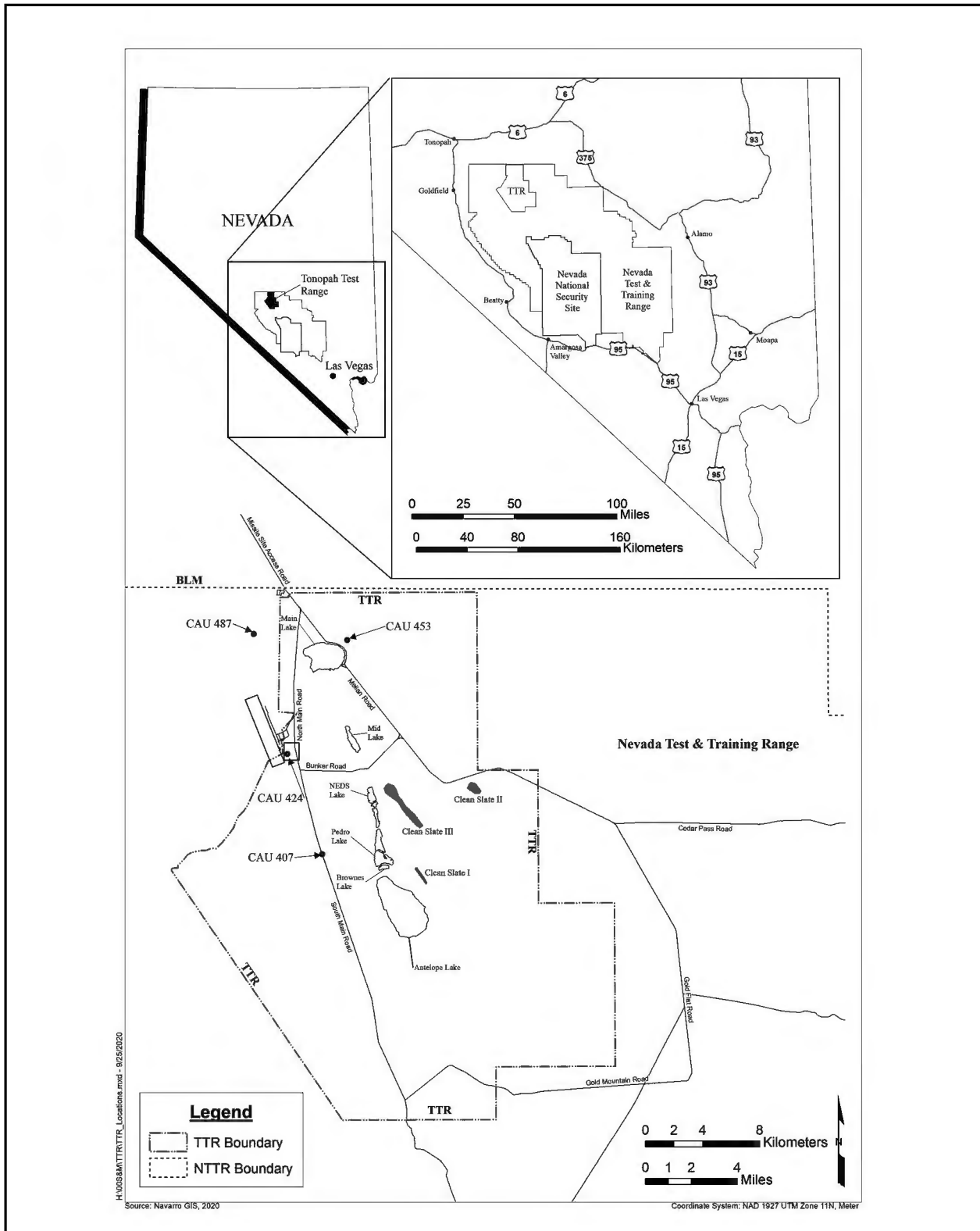


Figure A-1
TTR Post-Closure Monitoring Sites Location Map

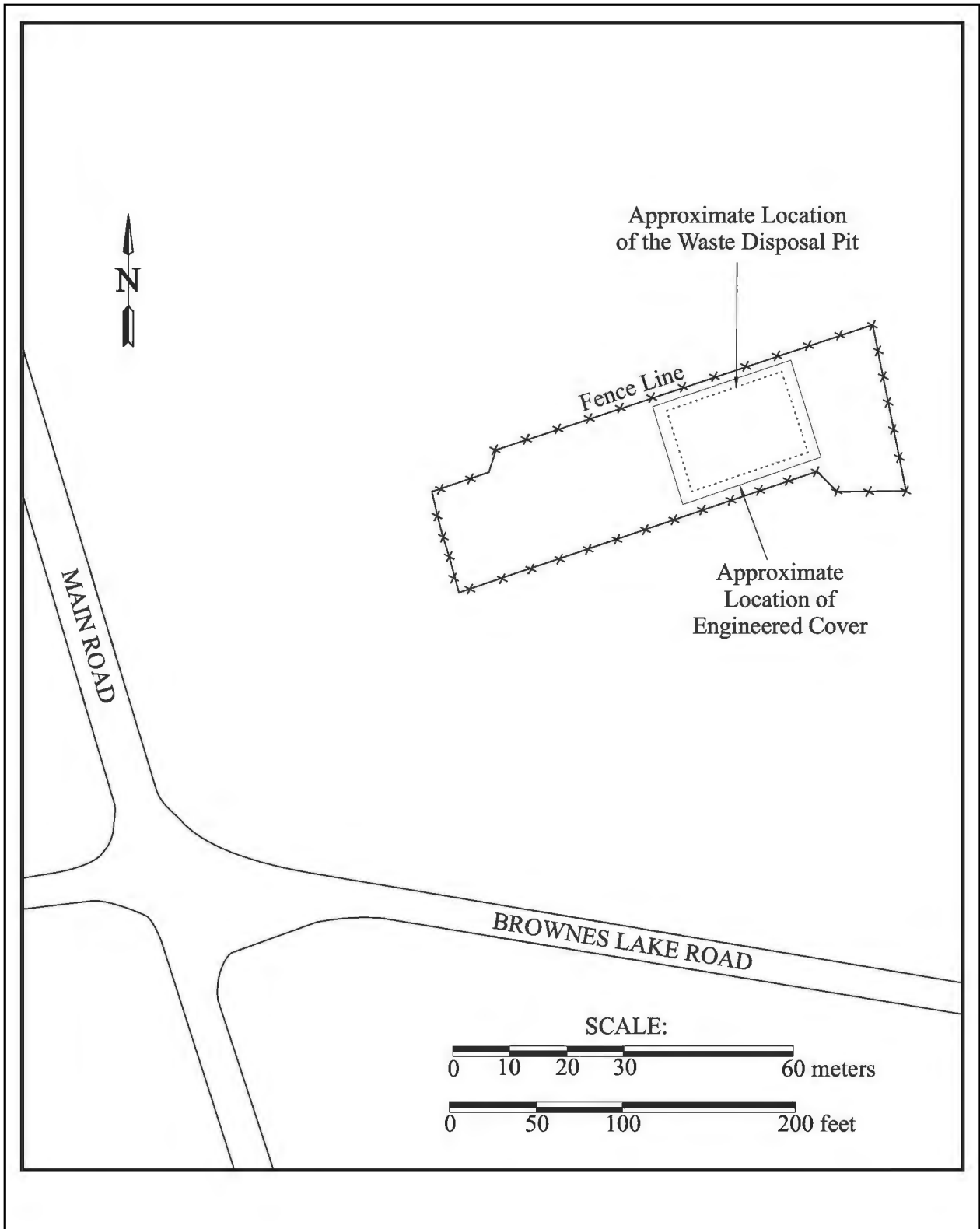


Figure A-2
CAU 407 Roller Coaster RadSafe Area Location Map

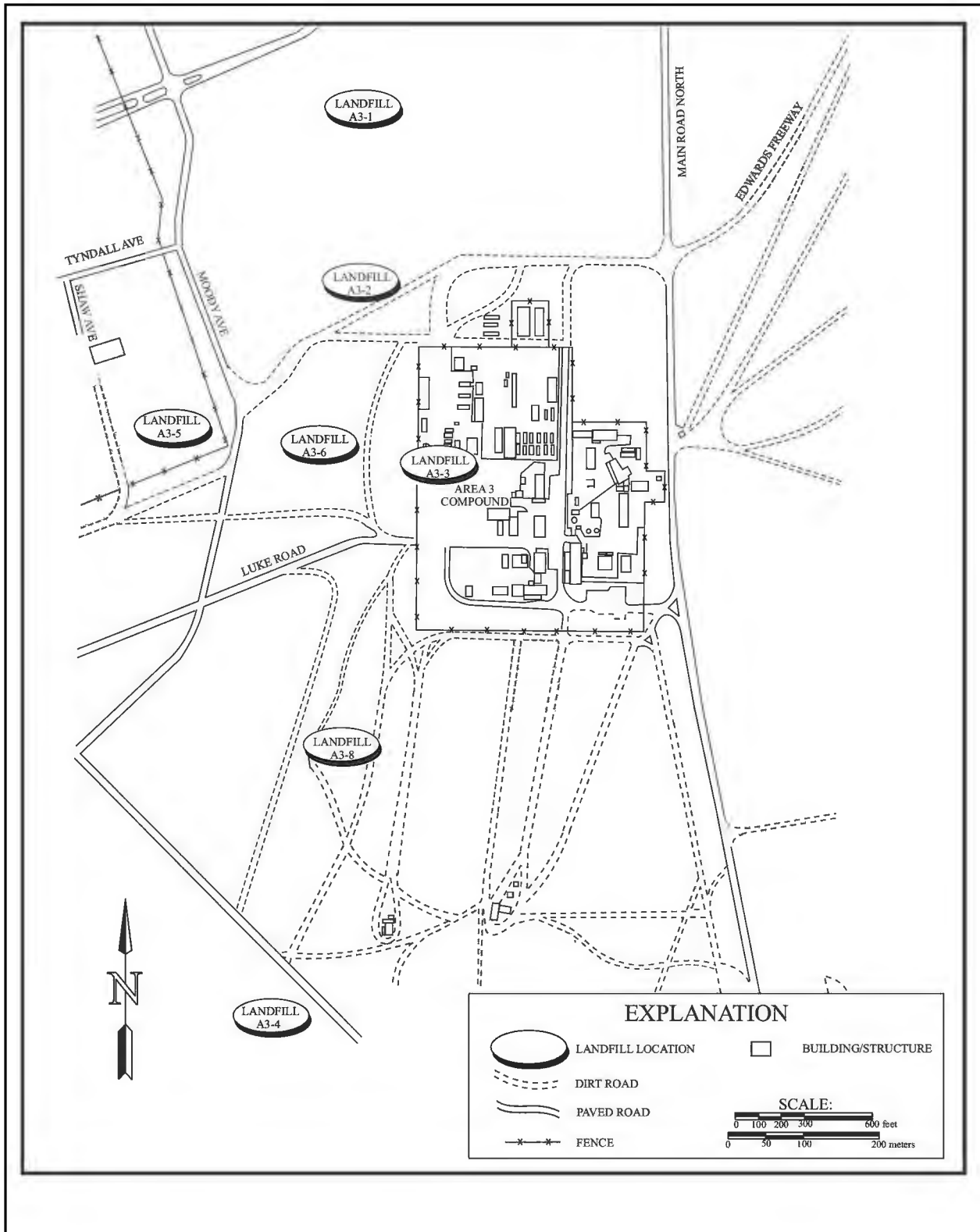


Figure A-3
CAU 424 Area 3 Landfill Complexes Location Map

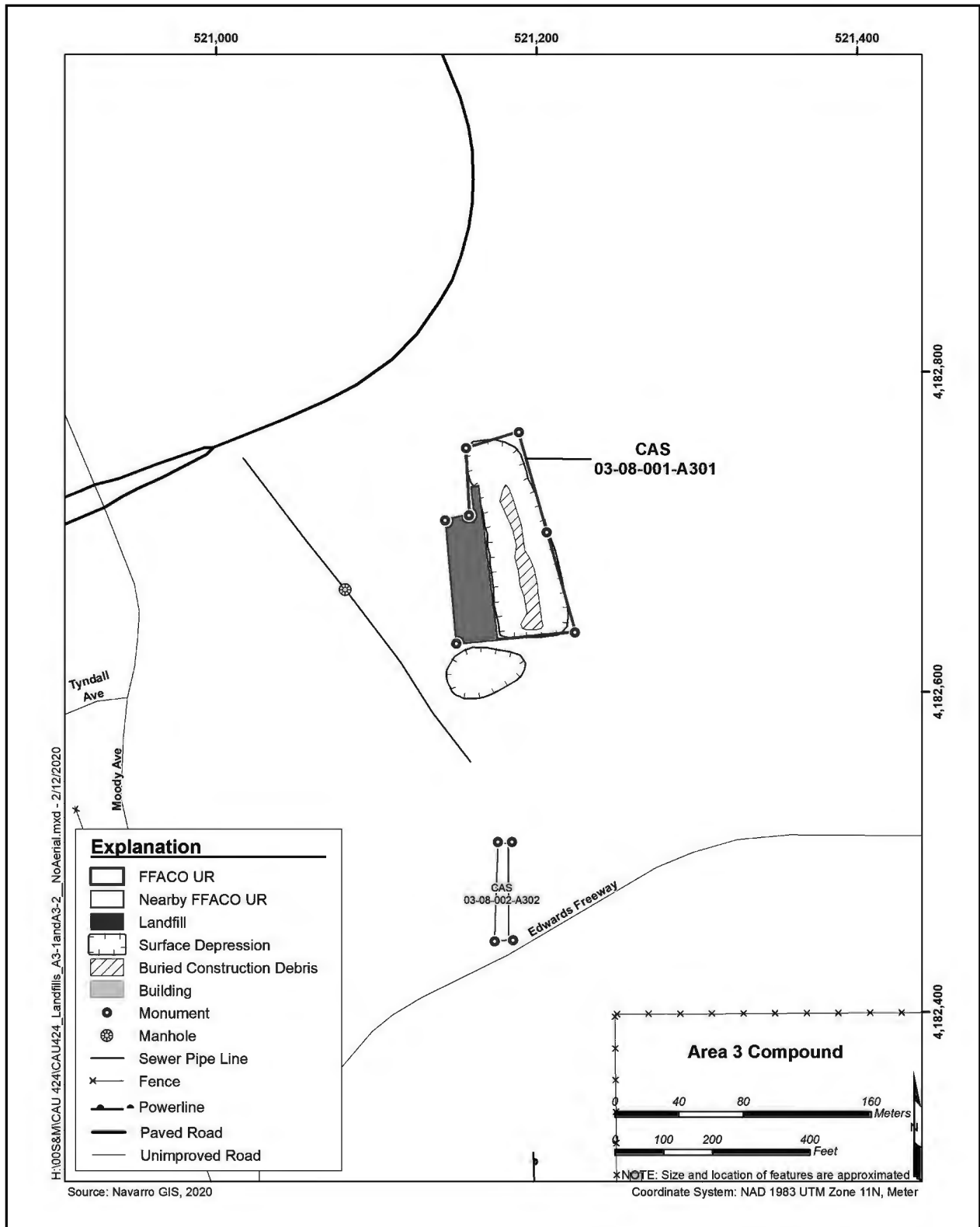


Figure A-4
CAU 424 Landfill Cells A3-1 and A3-2

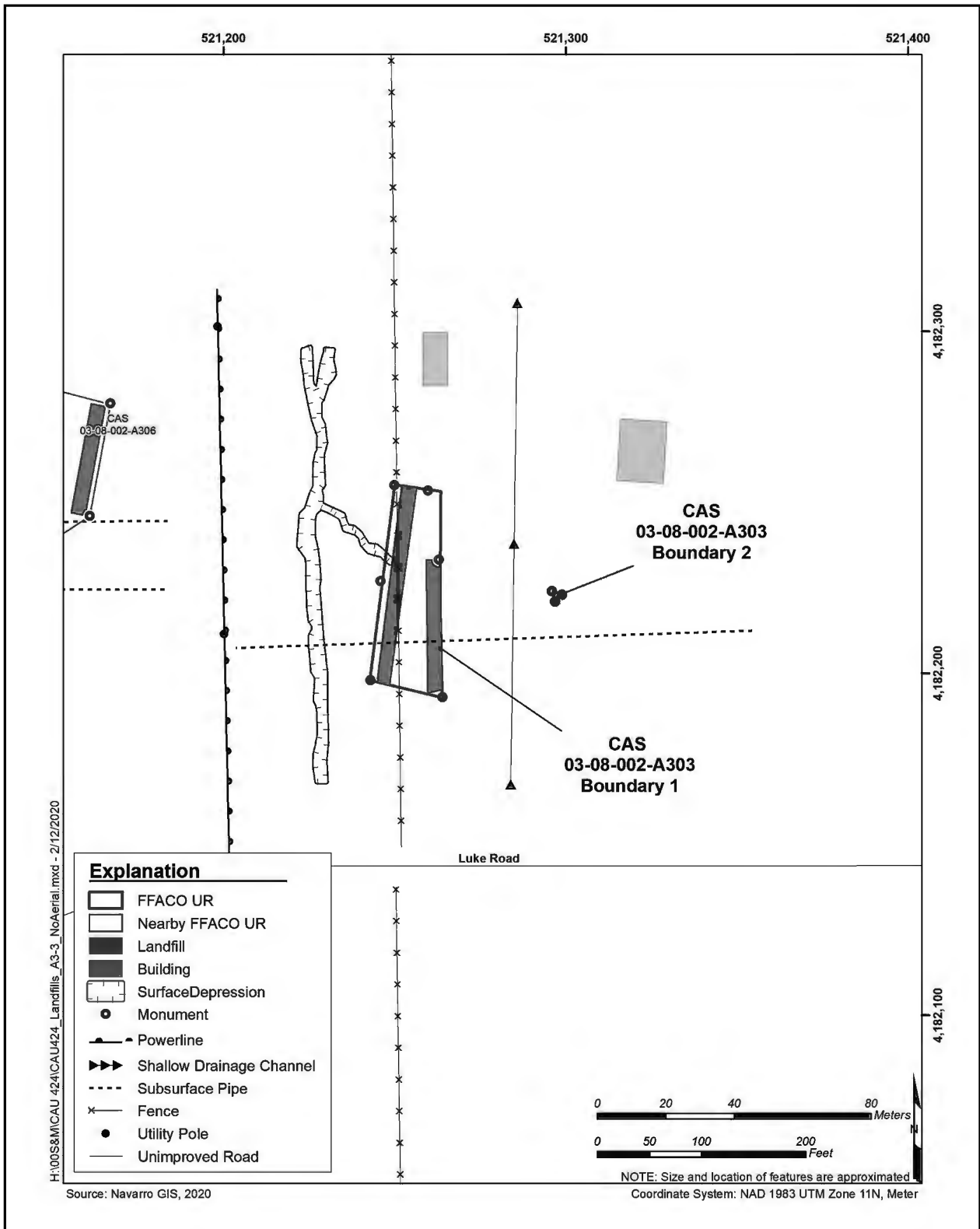


Figure A-5
CAU 424 Landfill Cell A3-3

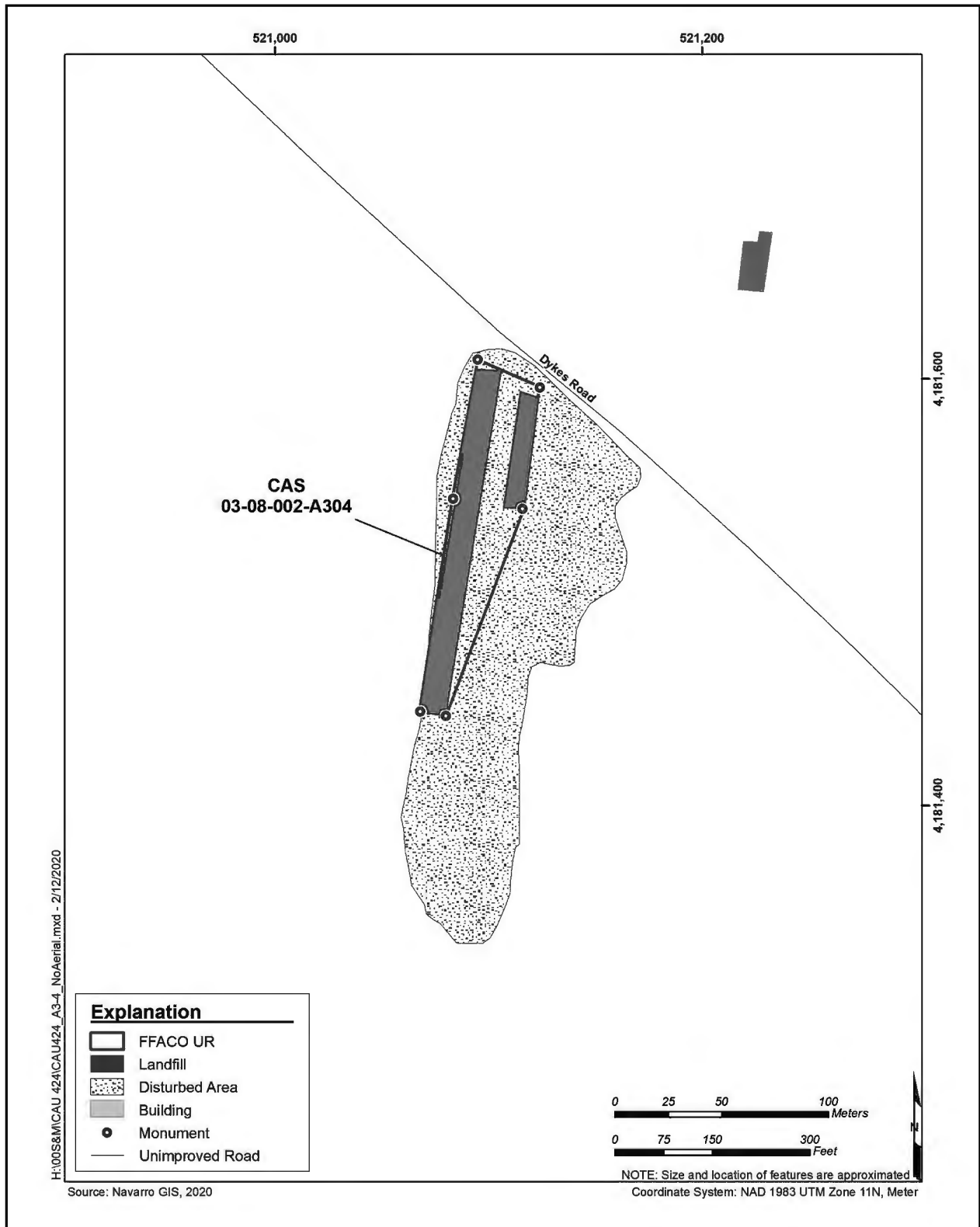


Figure A-6
CAU 424 Landfill Cell A3-4

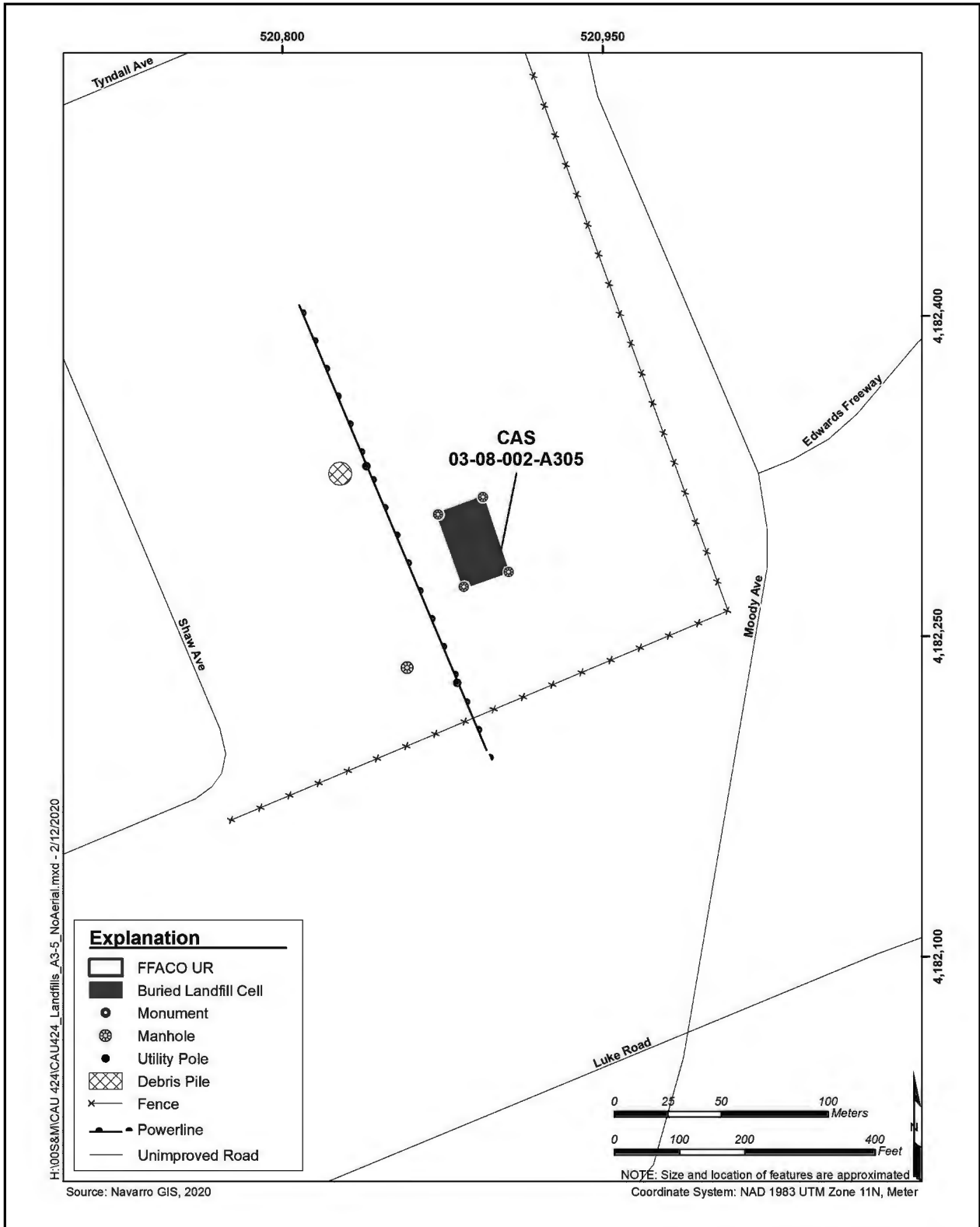


Figure A-7
CAU 424 Landfill Cell A3-5

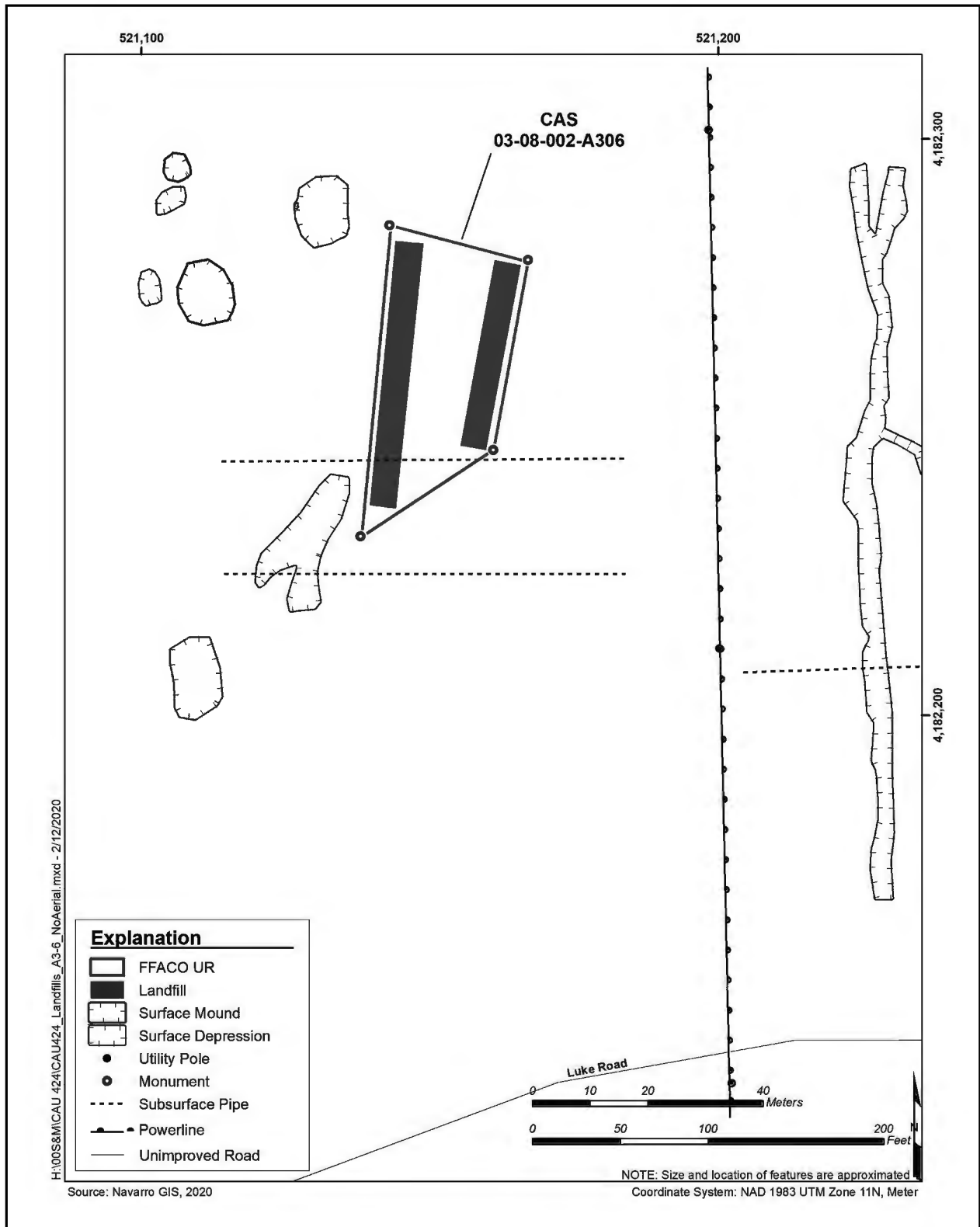


Figure A-8
CAU 424 Landfill Cell A3-6

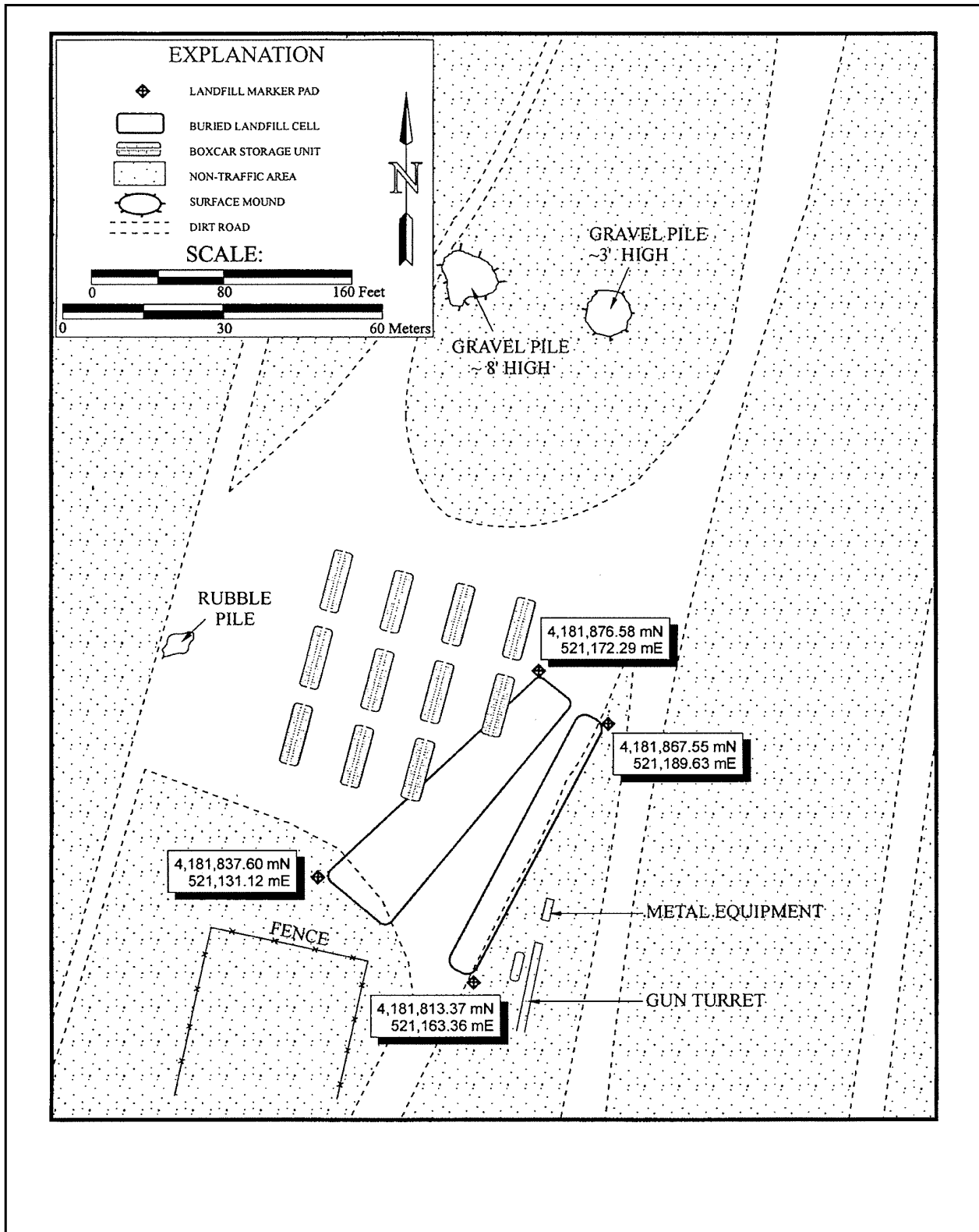


Figure A-9
CAU 424 Landfill Cell A3-8

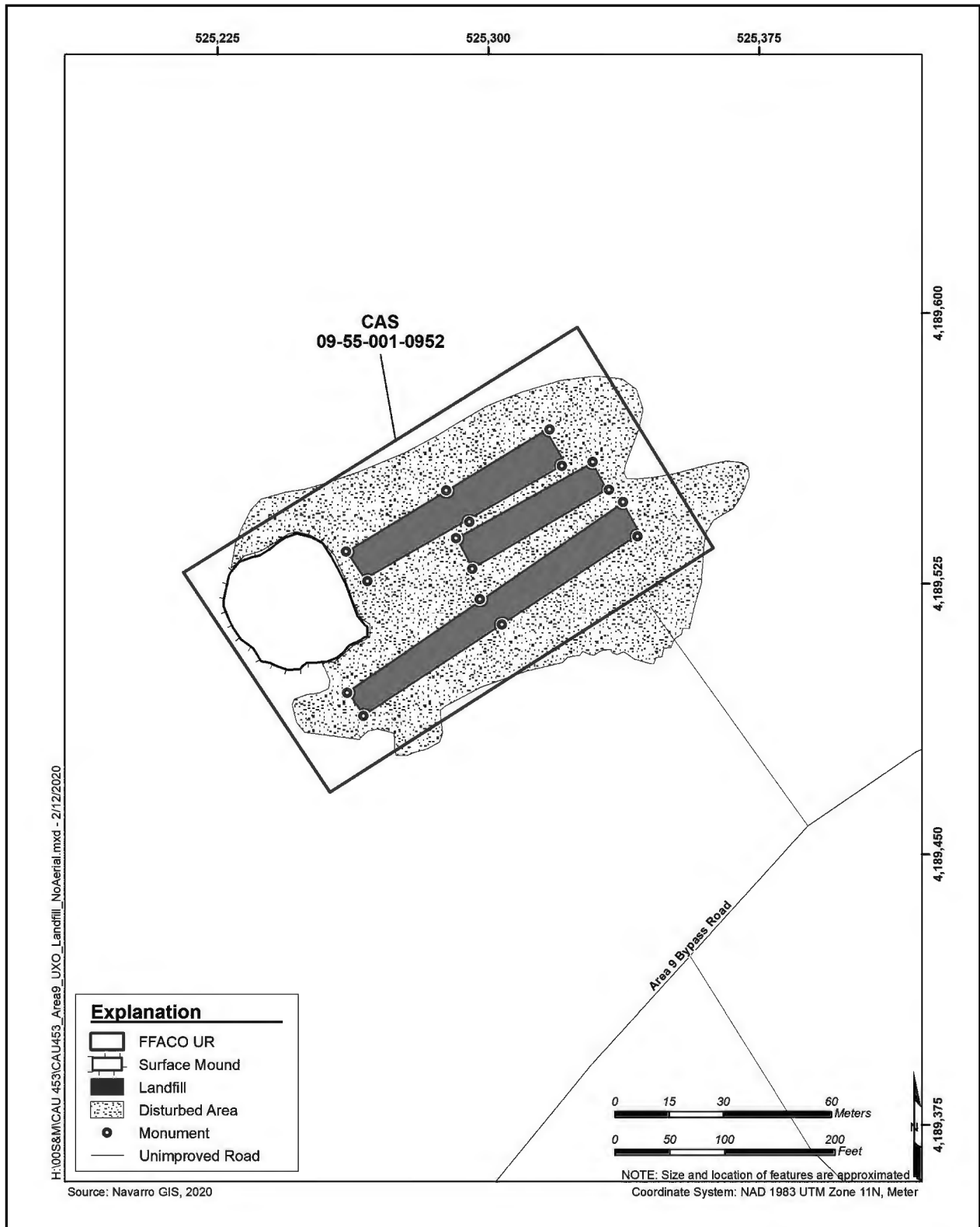


Figure A-10
CAU 453 Area 9 UXO Landfill Location Map

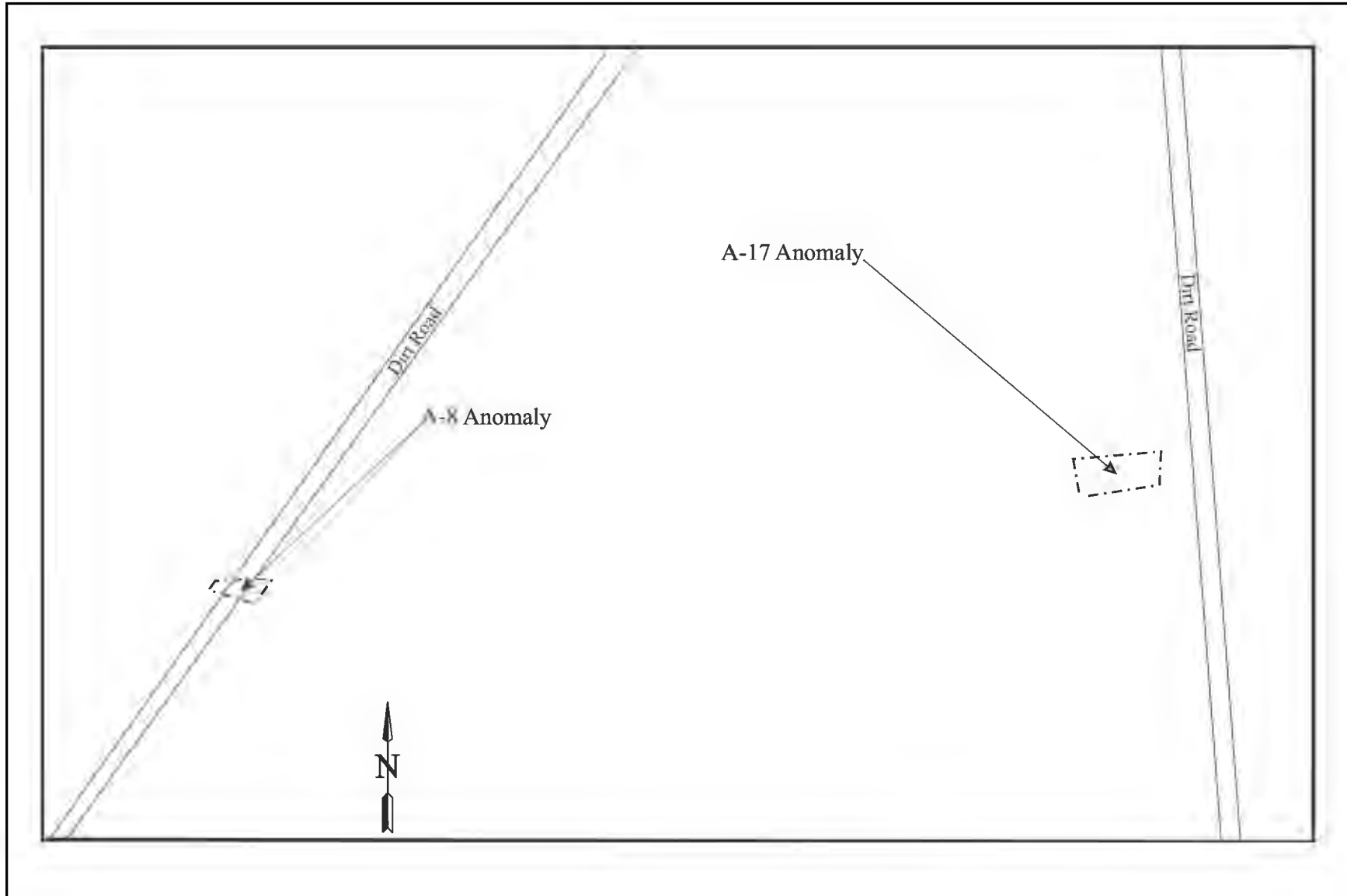


Figure A-11
CAU 487 Thunderwell Site Location Map

A.1.0 References

Navarro GIS, see Navarro Geographic Information Systems.

Navarro Geographic Information Systems. 2020. ESRI ArcGIS Software.

Appendix B

Post-Closure Inspection Plans

B.1.0 CAU 407, Roller Coaster RadSafe Area (TTR) Post-Closure Inspection Plan

The update of the UR for this site was submitted for approval on November 19, 2019, and was approved by NDEP on December 18, 2019 (DOE/EMNV, 2019a). The UR requirements and form for this CAU (CAS TA-23-001-TARC, Roller Coaster RadSafe Area) have been updated to list all the UR requirements including, but not limited to, post-closure site controls (e.g., signs, fencing), inspection and maintenance requirements, and Geographic Information Systems (GIS) coordinate information. The new UR form supersedes any information concerning corrective action and post-closure requirements in existing documentation. The updated UR form is located in [Attachment B-1](#).

Currently, annual visual inspections are conducted at CAU 407, CAS TA-23-001-TARC, Roller Coaster RadSafe Area, to document the following: fencing status (present and provides a barrier), sign status (present and legible), and soil cover status (covers the waste material).

B.2.0 CAU 424, Area 3 Landfill Complexes (TTR) Post-Closure Inspection Plan

The update of the UR for this site was submitted for approval on July 2, 2019, and was approved by NDEP on July 30, 2019 (DOE/EMNV, 2019b). The UR requirements and form for the CAU have been updated to list all the UR requirements including, but not limited to, post-closure site controls (e.g., signs, fencing), inspection and maintenance requirements, and GIS coordinate information for the following CASs:

- 03-08-001-A301, Landfill Cell A3-1
- 03-08-002-A302, Landfill Cell A3-2
- 03-08-002-A303, Landfill Cell A3-3
- 03-08-002-A304, Landfill Cell A3-4
- 03-08-002-A305, Landfill Cell A3-5
- 03-08-002-A306, Landfill Cell A3-6
- 03-08-002-A308, Landfill Cell A3-8

The new UR forms supersedes any information concerning corrective action and post-closure requirements in existing documentation. The updated UR forms are located in [Attachment B-1](#).

Currently, annual visual inspections are conducted at CASs associated with CAU 424 to document the following: marker status (present), sign status (present and legible), and soil cover status (must completely cover the waste material).

B.3.0 CAU 453, Area 9 UXO Landfill (TTR) Post-Closure Inspection Plan

The update of the UR for this site was submitted for approval on November 19, 2019, and was approved by NDEP on December 18, 2019 (DOE/EMNV, 2019c). The UR requirements and form for this CAU (CAS 09-55-001-0952, Area 9 Landfill) has been updated to list all the UR requirements including, but not limited to, post-closure site controls (e.g., signs, fencing), inspection and maintenance requirements, and GIS coordinate information. The new UR form supersedes any information concerning corrective action and post-closure requirements in existing documentation. The updated UR form is located in [Attachment B-1](#).

Currently, annual visual inspections are conducted at CAU 453, CAS 09-55-001-0952, Area 9 Landfill, to document the following: sign status (present and legible) and soil cover status (must completely cover the waste material).

B.4.0 CAU 487, Thunderwell Site (TTR) Post-Closure Inspection Plan

The update of the UR for this site was submitted for approval on November 19, 2019, and was approved by NDEP on December 18, 2019 (DOE/EMNV, 2019d). The UR requirements and form for this CAU (CAS RG-26-001-RGRV, Thunderwell Site) has been updated to list all the UR requirements including, but not limited to, post-closure site controls (e.g., signs, fencing), inspection and maintenance requirements, and GIS coordinate information. The new UR form supersedes any information concerning corrective action and post-closure requirements in existing documentation. The updated UR form is located in [Attachment B-1](#).

Currently, annual visual inspections are conducted at CAU 487, CAS RG-26-001-RGRV, Thunderwell Site, to document the following: monument status (present and standing) and sign status (present and legible).

B.5.0 References

DOE/EMNV, see U.S. Department of Energy, Environmental Management Nevada Program.

U.S. Department of Energy, Environmental Management Nevada Program. 2019a. *Record of Technical Change to Closure Report for Corrective Action Unit 407: Roller Coaster RADSAFE Area, Tonopah Test Range, Nevada*, DOE/NV--694-rev 1; ROTC No. DOE/NV--694-rev 1-ROTC 1, 19 November. Las Vegas, NV.

U.S. Department of Energy, Environmental Management Nevada Program. 2019b. *Record of Technical Change to Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada*, Rev. 0, DOE/NV/11718--283; ROTC No. DOE/NV/11718--283-ROTC 1, 2 July. Las Vegas, NV.

U.S. Department of Energy, Environmental Management Nevada Program. 2019c. *Record of Technical Change to Closure Report for Corrective Action Unit 453: Area 9 UXO Landfill, Tonopah Test Range, Nevada*, DOE/NV/11718--284; ROTC No. DOE/NV/11718--284-ROTC 1, 19 November. Las Vegas, NV.

U.S. Department of Energy, Environmental Management Nevada Program. 2019d. *Record of Technical Change to Corrective Action Decision Document/Closure Report for Corrective Action Unit 487: Thunderwell Site, Tonopah Test Range, Nevada*, Rev. 0, DOE/NV--761; ROTC No. DOE/NV--761-ROTC 3, 19 November. Las Vegas, NV.

Attachment B-1

Records of Technical Change to CAU URs

(75 Pages)

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 407

CAU Description: Roller Coaster RadSafe Area (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV--694-rev 1-ROTC 1 **Page** 1 **of** 10

Document Type Closure Report (CR) **Date** 11/19/2019

The following technical changes (including justification) are requested by:

Tiffany Gamero
Requestor Name

Long-Term Monitoring Activity Lead
Requestor Title

Description of Change:

1. This ROTC replaces the Use Restriction (UR) information listed in the documentation for CAU 407.

UR forms have been updated to list all UR requirements, including but not limited to: post-closure site controls (signs, fencing, etc.), inspection and maintenance requirements, and Geographic Information Systems (GIS) coordinate information. The UR requirements and form(s) included in this ROTC represent the current corrective action requirements for each Corrective Action Site (CAS) in this CAU and supersede information concerning corrective action and post-closure requirements in existing documentation.
2. UR boundary coordinate values changed due to conversion from North American Datum (NAD) 1927 to NAD 1983 for CAS TA-23-001-TARC.

Justification:

1. Some changes in the UR requirements from those found in closure documents have been subsequently modified in letters, memos, and inspection reports. This has resulted in difficulty in determining current post-closure requirements. A review of the post-closure requirements for this CAU has been conducted to ensure that all requirements have been identified and documented on the new UR form. The new UR form was developed to be inclusive of all requirements for long-term monitoring and standardize information contained in the URs consistent with current protocols.
2. UR boundary coordinates need to be in one standardized coordinate system.

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 407

CAU Description: Roller Coaster RadSafe Area (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV--694-rev 1-ROTC 1 **Page** 2 **of** 10

Document Type Closure Report (CR) **Date** 11/19/2019

Description of Change:

3. Removed the 7th coordinate pair listed in the original UR coordinate list.
4. Remove vegetation monitoring from the UR requirements.

Justification:

3. This coordinate pair caused a small inadvertent deflection in the boundary that is only notable when viewed at a larger scale. Removal of this coordinate pair more accurately depicts the original intended boundary.
4. In letter from C.D. Andres (Nevada Division of Environmental Protection [NDEP]) to B.R. Wilborn (EM Nevada Program) dated June 25, 2019, it was agreed that the UR requirement of vegetation monitoring could be removed as the current requirement for visual inspections of the soil cover would suffice to protect site workers from exposure to buried waste.

Schedule Impacts:

No impacts to schedule

ROTC applies to the following document(s):

- U.S. Department of Energy, Nevada Operations Office. 2001. Closure Report for Corrective Action Unit 407: Roller Coaster RADSAFE Area, Tonopah Test Range, Nevada, Rev. 1, DOE/NV--694-rev 1. Las Vegas, NV.

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 407

CAU Description: Roller Coaster RadSafe Area (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV--694-rev 1-ROTC 1 **Page** 3 **of** 10

Document Type Closure Report (CR) **Date** 11/19/2019

Approvals:

/s/ Tiffany Gamero

Date

12/5/2019

Tiffany Gamero

Activity Lead

Environmental Management (EM) Nevada Program

/s/ Wilhelm R. Wilborn

Date

12/9/19

Bill Wilborn

Deputy Program Manager, Operations

Environmental Management (EM) Nevada Program

/s/ Mark McLane

Date

12/18/19

FOR Christine Andres

Chief, Bureau of Federal Facilities

Nevada Division of Environmental Protection (NDEP)

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	407 - Roller Coaster RadSafe Area (TTR)
Corrective Action Site (CAS) Number & Description:	TA-23-001-TARC - Roller Coaster RadSafe Area
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to radiological and chemical contaminants that were released at this site. Radiological and chemical contaminants are assumed to be present that exceed action levels.

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary	1	523,571	4,174,596
	2	523,564	4,174,616
	3	523,598	4,174,628
	4	523,599	4,174,635
	5	523,637	4,174,650
	6	523,647	4,174,646
	7	523,654	4,174,616
	8	523,610	4,174,603
	9	523,606	4,174,608
	10	523,571	4,174,596

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR coordinate values presented herein were transformed from the North American Datum of 1927, and rounded to the nearest meter; resultant coordinates may not reflect the original precision of values contained within the source GIS data set.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Boundary Applies to: Subsurface

Starting Depth: 50 **Ending Depth:** _____

Depth Unit: Centimeters

Survey Source: GPS

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Fence	Present and provides barrier.
Signage	Present and legible.
Soil Cover	Must completely cover waste material.

Inspection Frequency: Annual

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: Surface is uncontaminated. Ending depth is unknown.

Section II. Administrative UR

An Administrative UR is not identified for this site.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section III. Supporting Documentation

UR Source Document(s)

ROTC 1 for CAU 407 CR (DOE/NV--694-rev 1), dated 11/19/2019.

Andres, C.D., Nevada Division of Environmental Protection, Bureau of Federal Facilities. 2019. Letter to B.R. Wilborn (EM Nevada Program) titled Request to Implement Changes to the Use Restriction Language for Corrective Action Unit (CAU) 407: Roller Coaster Radsafe Area, Tonopah Test Range, 25 June. Las Vegas, NV.

MacDougall, J., Nevada Division of Environmental Protection, Bureau of Federal Facilities. 2014. Letter to R.F. Boehlecke (NNSA/NFO) titled Acceptance of the Post Closure Inspection Report for 2013, Tonopah Test Range, Nevada, Federal Facility Agreement and Consent Order, 20 March. Las Vegas, NV.

Murphy, T.H., Nevada Division of Environmental Protection, Bureau of Federal Facilities. 2006. Letter to J.B. Jones (NNSA/NSO) titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 2001. Closure Report for Corrective Action Unit 407: Roller Coaster RADSAFE Area, Tonopah Test Range, Nevada, Rev. 1, DOE/NV--694-rev 1. Las Vegas, NV.

Attachments

- FFACO UR Boundary Map (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section V. EM Nevada Program Approval

/s/ Tiffany Gamero

Date:

12/5/2019


Tiffany Gamero

Activity Lead

EM Nevada Program

523,500

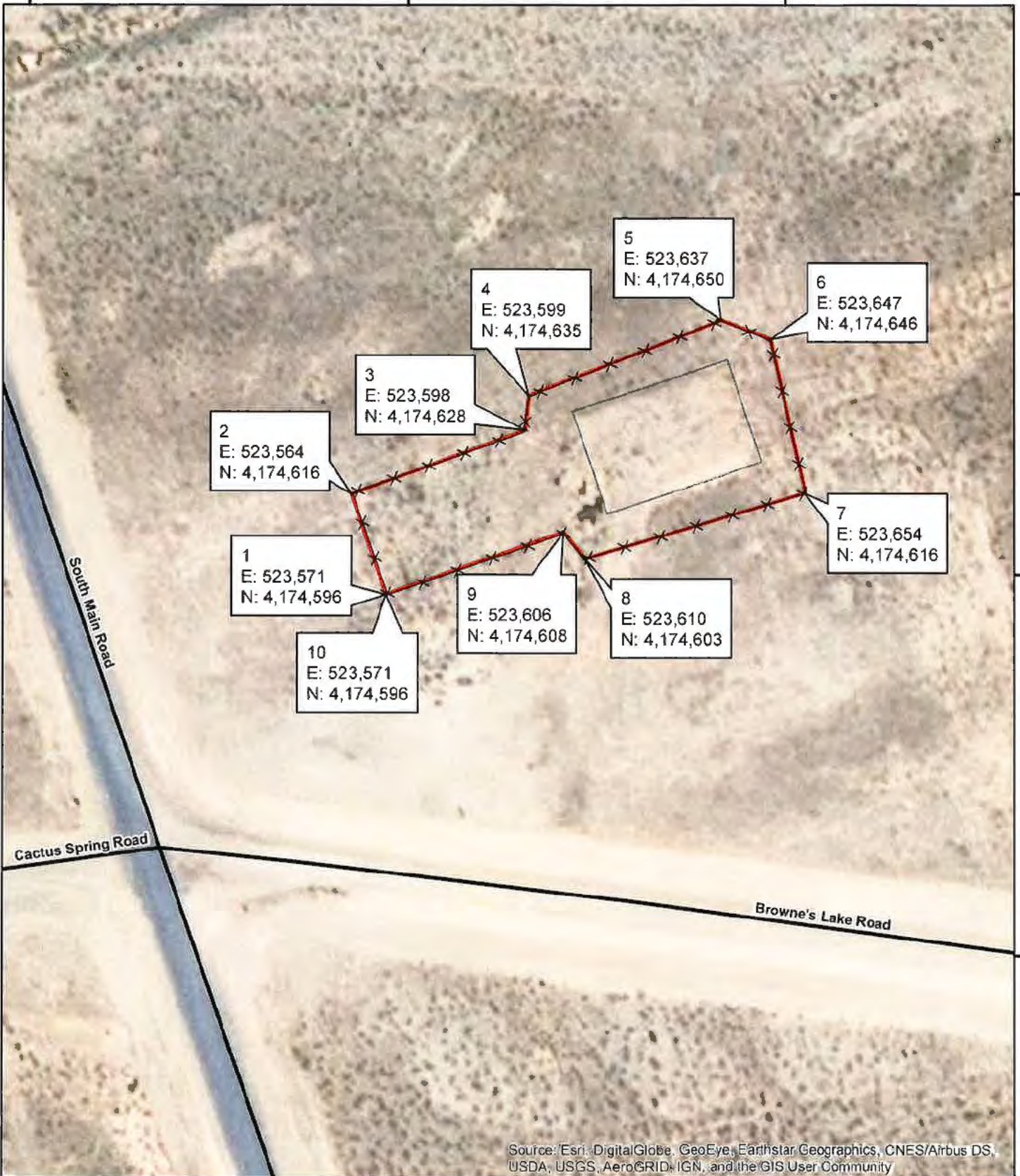
523,575

523,650

4,174,675

4,174,600

4,174,525



H:\407\GPS\CAS TA-23-001-TARC_FFACOUR.mxd - 7/24/2019

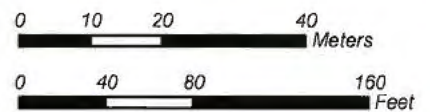


Source: Navarro GIS, 2019

Explanation

**CAU 407, CAS TA-23-001-TARC
Roller Coaster RadSafe Area
FFACO UR Boundary**

- FFAO UR
- Fence Line
- Approximate Location of Soil Cover
- Paved Road



Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

523,500

523,575

523,650








4,174,675

4,174,600

4,174,525

Explanation

-  FFACO UR
-  Fence Line
-  Approximate Location of Soil Cover
-  Existing Soil Pile
-  Paved Road

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Source: Navarro GIS, 2019

**CAU 407, CAS TA-23-001-TARC
Roller Coaster RadSafe Area
Supplemental Information
General Location of Site Features**

0 15 30 60
Meters

0 50 100 200
Feet

NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 424

CAU Description: Area 3 Landfill Complexes (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV/11718--283-ROTC 1 **Page** 1 **of** 45
Document Type Closure Report (CR) **Date** 07/02/2019

The following technical changes (including justification) are requested by:

Tiffany Gamero

Requestor Name

Long-Term Monitoring Activity Lead

Requestor Title

Description of Change:

1. This ROTC replaces the Use Restriction (UR) information listed in the documentation for CAU 424.

UR forms have been updated to list all UR requirements, including but not limited to: post-closure site controls (signs, fencing, etc.), inspection and maintenance requirements, and Geographic Information Systems (GIS) coordinate information. The UR requirements and form(s) included in this ROTC represent the current corrective action requirements for each Corrective Action Site (CAS) in this CAU and supersede information concerning corrective action and post-closure requirements in existing documentation.

Justification:

1. Some changes in the UR requirements from those found in closure documents have been subsequently modified in letters, memos, and inspection reports. This has resulted in difficulty in determining current post-closure requirements. A review of the post-closure requirements for this CAU has been conducted to ensure that all requirements have been identified and documented on the new UR form. The new UR form was developed to be inclusive of all requirements for long-term monitoring and standardize information contained in the URs consistent with current protocols.

Schedule Impacts:

No impacts to schedule.

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 424
CAU Description: Area 3 Landfill Complexes (TTR)
CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV/11718--283-ROTC 1 **Page** 2 **of** 45
Document Type Closure Report (CR) **Date** 07/02/2019

ROTC applies to the following document(s):

- U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--283. Las Vegas, NV.

Approvals:

/s/ Tiffany Gamero

Date 7/10/2019

Tiffany Gamero
Tiffany Gamero
Activity Lead
Environmental Management (EM) Nevada Program

/s/ Wilhelm R. Wilborn

Date 7/23/2019

Bill Wilborn
Bill Wilborn
Deputy Program Manager, Operations
Environmental Management (EM) Nevada Program

/s/ Mark McLane

Date 7/30/2019

FOR Christine Andres
Christine Andres
Chief, Bureau of Federal Facilities
Nevada Division of Environmental Protection (NDEP)

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	424 - Area 3 Landfill Complexes (TTR)
Corrective Action Site (CAS) Number & Description:	03-08-001-A301 - Landfill Cell A3-1
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to chemical contaminants that were released at this site. Chemical contaminants are assumed to be present that exceed final action levels under the Industrial Area (2,000 hours per year) exposure scenario.

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary	1	521,150	4,182,630
	2	521,143	4,182,707
	3	521,158	4,182,710
	4	521,156	4,182,752
	5	521,189	4,182,762
	6	521,224	4,182,637
	7	521,150	4,182,630

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR Coordinate values presented herein were captured in North American Datum of 1983, and rounded to the nearest meter when necessary; due to that rounding, coordinates may not reflect the original precision of values contained within the source GIS data set.

Boundary Applies to: Subsurface

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Starting Depth: 50 **Ending Depth:** 1,040
Depth Unit: Centimeters
Survey Source: GIS

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Markers	Present.
Signage	Present and legible.
Soil Cover	Must completely cover waste material.

Inspection Frequency: Annual

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: Surface is uncontaminated.

Section II. Administrative UR

An Administrative UR is not identified for this site.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section III. Supporting Documentation

UR Source Document(s)

ROTC 1 for CAU 424 CR (DOE/NV/11718--283), dated 07/02/2019.

Murphy, T.H, State of Nevada. 2006. Letter to J.B. Jones titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--283. Las Vegas, NV.

Attachments

- FFACO UR Boundary Map (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

Section V. EM Nevada Program Approval

/s/ Tiffany Gamero


Tiffany Gamero

Activity Lead

EM Nevada Program

Date: 7/10/2019

521100

521150

521200

521250

4182800

4182750

4182700

4182650

4182600

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



CAU 424, CAS 03-08-001-A301
Landfill Cell A3-1
FFACO UR Boundary

Explanation

-  FFACO UR
-  Secondary Road

0 10 20 40 Meters

0 37.5 75 150 Feet



Source: Navarro GIS, 2019

NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

521000

521200

521400

521600

4183000

4182800

4182600

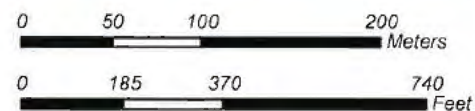
4182400



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**CAU 424, CAS 03-08-001-A301
Landfill Cell A3-1
Supplemental Information
General Location of Site Features**



NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

Source: Navarro GIS, 2019

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	424 - Area 3 Landfill Complexes (TTR)
Corrective Action Site (CAS) Number & Description:	03-08-002-A302 - Landfill Cell A3-2
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to chemical contaminants that were released at this site. Chemical contaminants are assumed to be present that exceed final action levels under the Industrial Area (2,000 hours per year) exposure scenario.

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary	1	521,174	4,182,444
	2	521,176	4,182,506
	3	521,182	4,182,505
	4	521,183	4,182,445
	5	521,174	4,182,444

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR Coordinate values presented herein were captured in North American Datum of 1983, and rounded to the nearest meter when necessary; due to that rounding, coordinates may not reflect the original precision of values contained within the source GIS data set.

Boundary Applies to: Subsurface

Starting Depth: 50 **Ending Depth:** 1,040

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Depth Unit: Centimeters

Survey Source: GIS

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Markers	Present.
Signage	Present and legible.
Soil Cover	Must completely cover waste material.

Inspection Frequency: Annual

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: Surface is uncontaminated.

Section II. Administrative UR

An Administrative UR is not identified for this site.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section III. Supporting Documentation

UR Source Document(s)

ROTC 1 for CAU 424 CR (DOE/NV/11718-283), dated 07/02/2019.

Murphy, T.H, State of Nevada. 2006. Letter to J.B. Jones titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--283. Las Vegas, NV.

Attachments

- FFACO UR Boundary Map (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

Section V. EM Nevada Program Approval

/s/ Tiffany Gamero


Tiffany Gamero

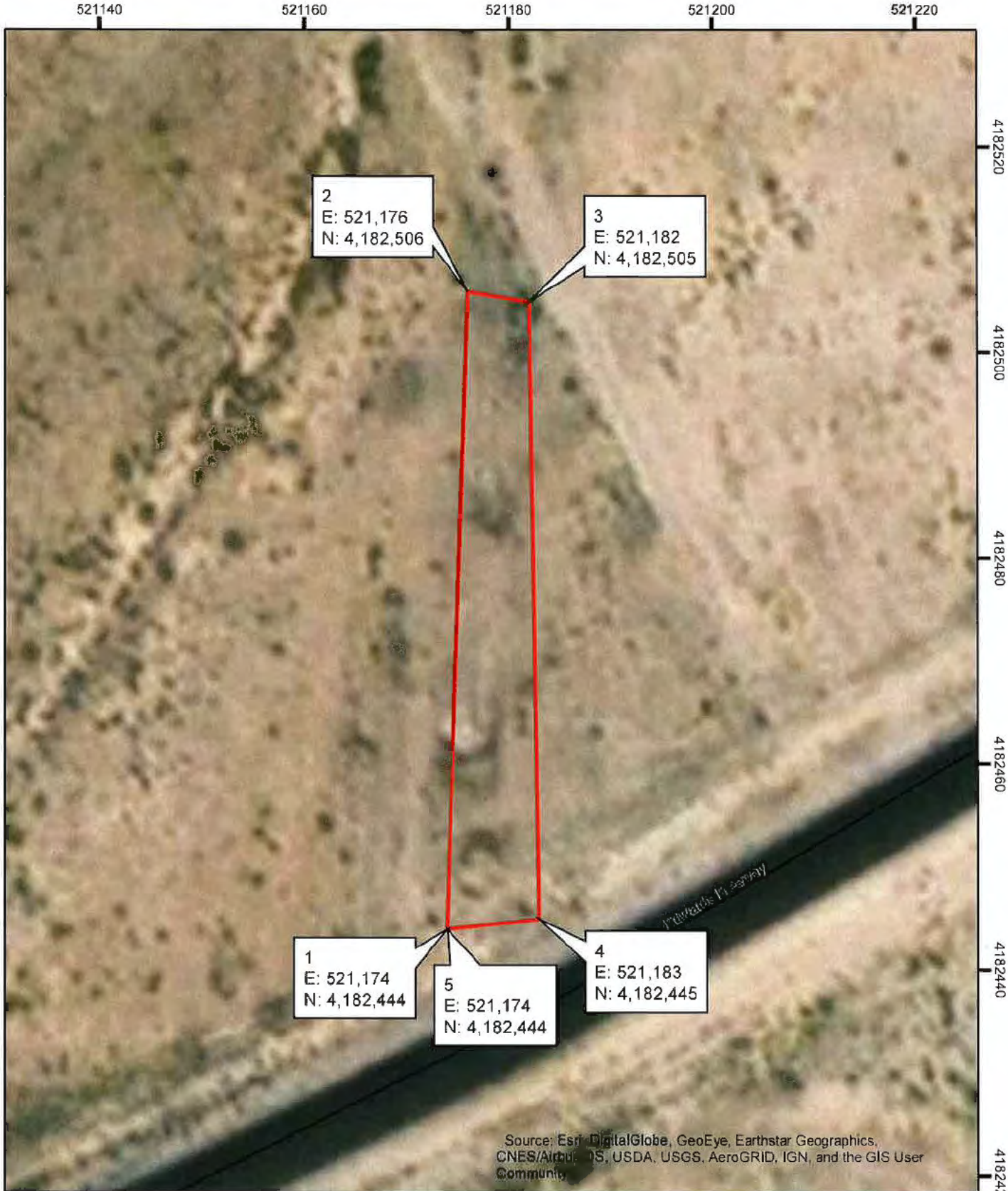
Activity Lead

EM Nevada Program

Date:

7/10/2019

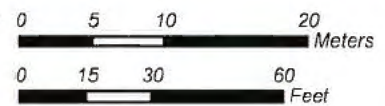
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CAU 424, CAS 03-08-002-A302
Landfill Cell A3-2
FFACO UR Boundary

Explanation

- FFACO UR
- Secondary Road



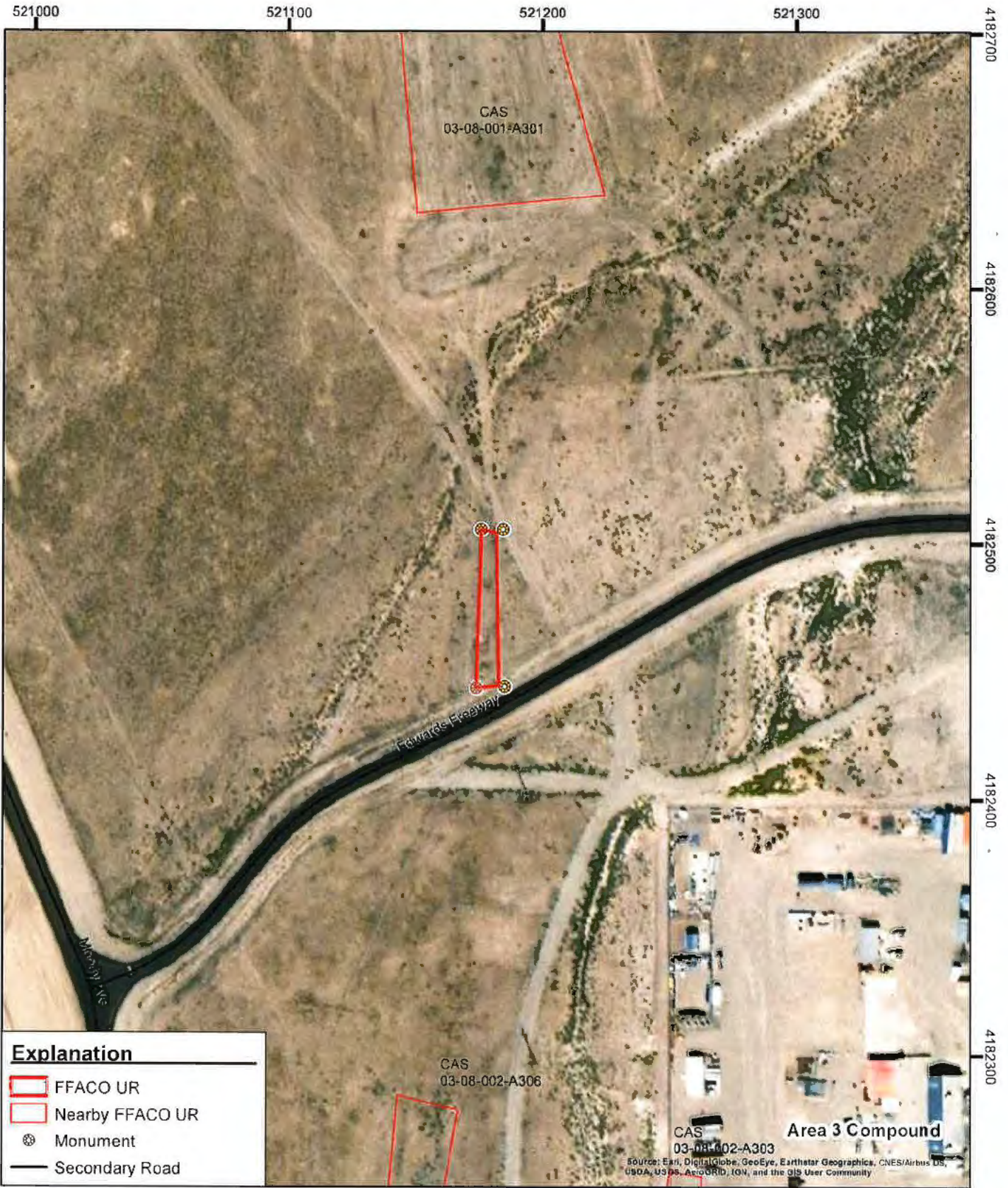
Source: Navarro GIS, 2019

NOTE: Size and location of features are approximated
 Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

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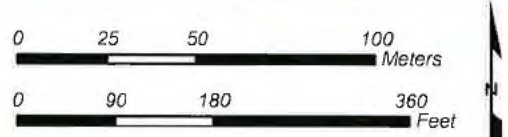
Explanation

- FFAO UR
- Nearby FFAO UR
- Monument
- Secondary Road



Source: Navarro GIS, 2019

**CAU 424, CAS 03-08-002-A302
Landfill Cell A3-2
Supplemental Information
General Location of Site Features**



NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	424 - Area 3 Landfill Complexes (TTR)
Corrective Action Site (CAS) Number & Description:	03-08-002-A303 - Landfill Cell A3-3
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to chemical contaminants that were released at this site. Chemical contaminants are assumed to be present that exceed final action levels under the Industrial Area (2,000 hours per year) exposure scenario.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary 1	1	521,264	4,182,193
	2	521,243	4,182,198
	3	521,246	4,182,227
	4	521,250	4,182,255
	5	521,263	4,182,253
	6	521,263	4,182,220
	7	521,264	4,182,193
FFACO Boundary 2	1	521,297	4,182,221
	2	521,296	4,182,224
	3	521,299	4,182,223
	4	521,297	4,182,221

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR Coordinate values presented herein were captured in North American Datum of 1983, and rounded to the nearest meter when necessary; due to that rounding, coordinates may not reflect the original precision of values contained within the source GIS data set.

Boundary Applies to: Subsurface

Starting Depth: 50

Ending Depth: 1,040

Depth Unit: Centimeters

Survey Source: GIS

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Markers	Present.
Signage	Present and legible.
Soil Cover	Must completely cover waste material.

Inspection Frequency: Annual

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: Surface is uncontaminated. The use restriction signs in the paved area are embedded in flush-mounted markers.

Section II. Administrative UR

An Administrative UR is not identified for this site.

Section III. Supporting Documentation

UR Source Document(s)

ROTC 1 for CAU 424 CR (DOE/NV/11718--283), dated 07/02/2019.

Murphy, T.H, State of Nevada. 2006. Letter to J.B. Jones titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--283. Las Vegas, NV.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Attachments

- FFACO UR Boundary Map (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

Section V. EM Nevada Program Approval

/s/ Tiffany Gamero

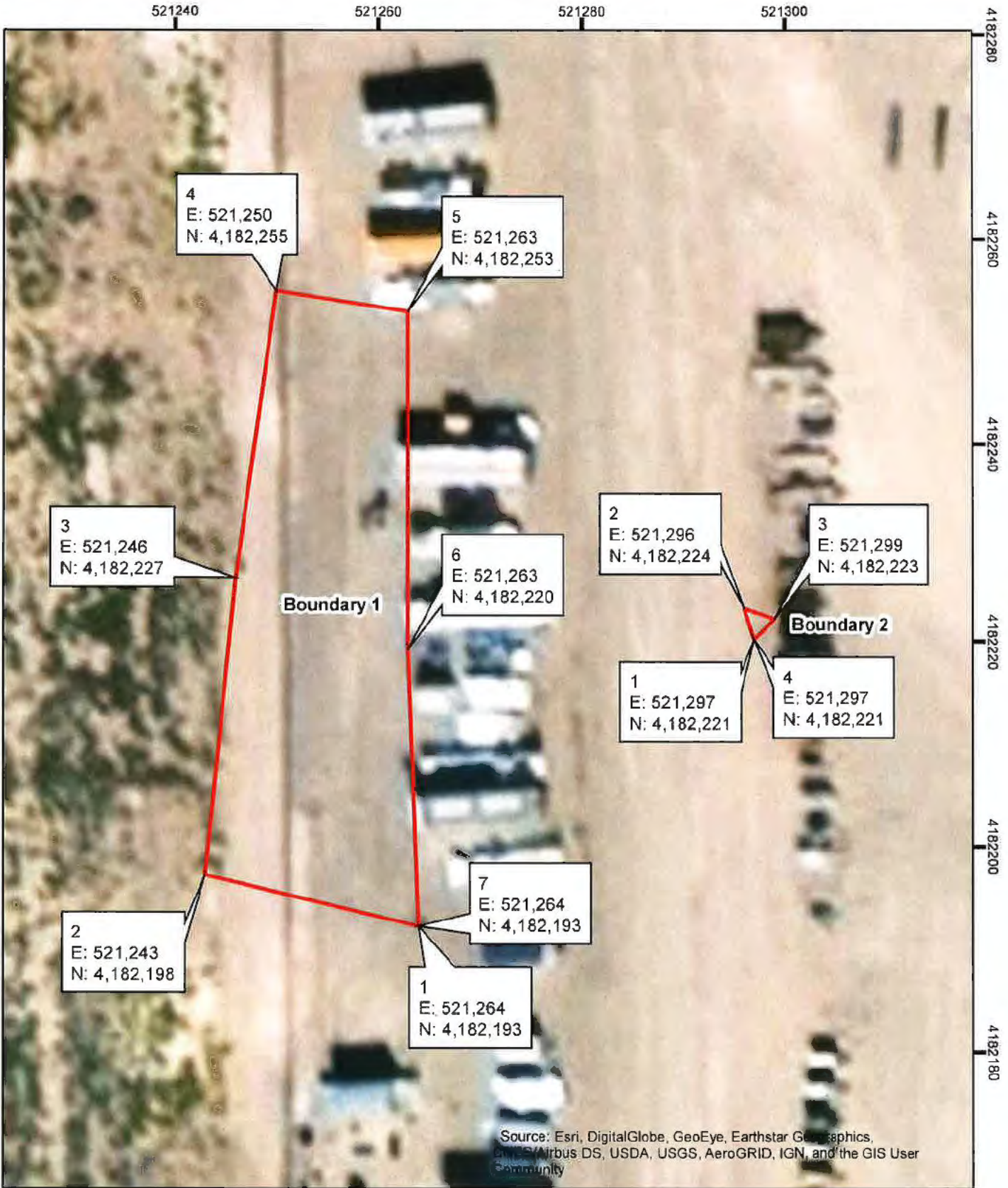

Tiffany Gamero

Activity Lead

EM Nevada Program

Date:





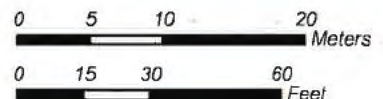
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNR/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



CAU 424, CAS 03-08-002-A303
Landfill Cell A3-3
FFACO UR Boundary

Explanation

FFACO UR



Source: Navarro GIS, 2019

NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

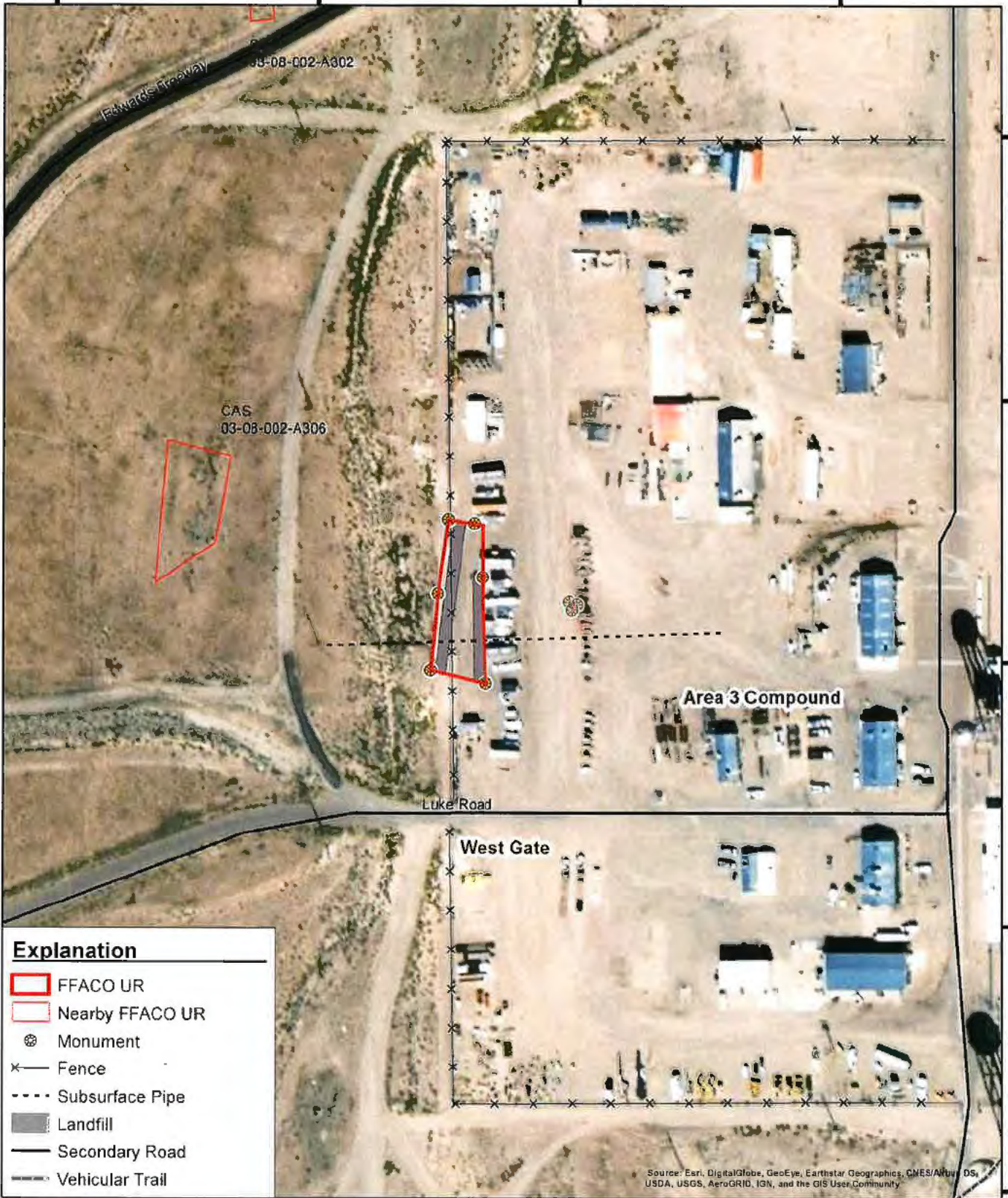
The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

521100

521200

521300

521400



4182400

4182300

4182200

4182100

4182000

Explanation

- FFAO UR
- Nearby FFAO UR
- Monument
- Fence
- Subsurface Pipe
- Landfill
- Secondary Road
- Vehicular Trail

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Source: Navarro GIS, 2019

CAU 424, CAS 03-08-002-A303
Landfill Cell A3-3
Supplemental Information
General Location of Site Features

0 25 50 100
 Meters

0 90 180 360
 Feet

NOTE: Size and location of features are approximated
 Coordinate System: NAD 1983 UTM Zone 11N, Meter

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	424 - Area 3 Landfill Complexes (TTR)
Corrective Action Site (CAS) Number & Description:	03-08-002-A304 - Landfill Cell A3-4
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to chemical contaminants that were released at this site. Chemical contaminants are assumed to be present that exceed final action levels under the Industrial Area (2,000 hours per year) exposure scenario.

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary	1	521,080	4,181,442
	2	521,068	4,181,444
	3	521,083	4,181,543
	4	521,095	4,181,609
	5	521,124	4,181,596
	6	521,116	4,181,539
	7	521,080	4,181,442

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR Coordinate values presented herein were captured in North American Datum of 1983, and rounded to the nearest meter when necessary; due to that rounding, coordinates may not reflect the original precision of values contained within the source GIS data set.

Boundary Applies to: Subsurface

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Starting Depth: 50 **Ending Depth:** 1,040
Depth Unit: Centimeters
Survey Source: GIS

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Markers	Present.
Signage	Present and legible.
Soil Cover	Must completely cover waste material.

Inspection Frequency: Annual

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: Surface is uncontaminated.

Section II. Administrative UR

An Administrative UR is not identified for this site.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section III. Supporting Documentation

UR Source Document(s)

ROTC 1 for CAU 424 CR (DOE/NV/11718--283), dated 07/02/2019.

Murphy, T.H, State of Nevada. 2006. Letter to J.B. Jones titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--283. Las Vegas, NV.

Attachments

- FFACO UR Boundary Map (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

Section V. EM Nevada Program Approval

/s/ Tiffany Gamero


Tiffany Gamero

Activity Lead

EM Nevada Program

Date: 7/10/2017

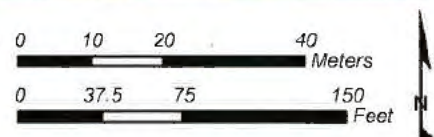


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**CAU 424, CAS 03-08-002-A304
Landfill Cell A3-4
FFACO UR Boundary**

Explanation	
	FFACO UR
	Secondary Road



Source: Navarro GIS, 2019

NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

521000

521100

521200

4181700

4181500

4181500

4181400

4181300



Explanation

-  FFAO UR
-  Monument
-  Landfill
-  Secondary Road

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**CAU 424, CAS 03-08-002-A304
Landfill Cell A3-4
Supplemental Information
General Location of Site Features**

0 25 50 100
Meters

0 90 180 360
Feet

NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

U.S. Department of Energy, Environmental Management Nevada Program

Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	424 - Area 3 Landfill Complexes (TTR)
Corrective Action Site (CAS) Number & Description:	03-08-002-A305 - Landfill Cell A3-5
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to chemical contaminants that were released at this site. Chemical contaminants are assumed to be present that exceed final action levels under the Industrial Area (2,000 hours per year) exposure scenario.

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary	1	520,885	4,182,273
	2	520,873	4,182,307
	3	520,894	4,182,315
	4	520,906	4,182,280
	5	520,885	4,182,273

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR Coordinate values presented herein were captured in North American Datum of 1983, and rounded to the nearest meter when necessary; due to that rounding, coordinates may not reflect the original precision of values contained within the source GIS data set.

Boundary Applies to: Subsurface

Starting Depth: 50 **Ending Depth:** 1,040

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Depth Unit: Centimeters

Survey Source: GIS

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Markers	Present.
Signage	Present and legible.
Soil Cover	Must completely cover waste material.

Inspection Frequency: Annual

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: Surface is uncontaminated.

Section II. Administrative UR

An Administrative UR is not identified for this site.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section III. Supporting Documentation

UR Source Document(s)

ROTC 1 for CAU 424 CR (DOE/NV/11718--283), dated 07/02/2019.

Murphy, T.H, State of Nevada. 2006. Letter to J.B. Jones titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--283. Las Vegas, NV.

Attachments

- FFACO UR Boundary Map (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

Section V. EM Nevada Program Approval

/s/ Tiffany Gamero


Tiffany Gamero

Activity Lead

EM Nevada Program

Date: 7/10/2019

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520860

520880

520900

520920

4182340

4182320

4182300

4182280

4182260

4182240



2
E: 520,873
N: 4,182,307

3
E: 520,894
N: 4,182,315

4
E: 520,906
N: 4,182,280

1
E: 520,885
N: 4,182,273

5
E: 520,885
N: 4,182,273

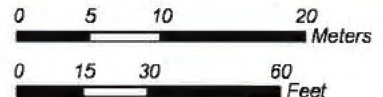
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



CAU 424, CAS 03-08-002-A305
Landfill Cell A3-5
FFACO UR Boundary

Explanation

 FFACO UR



NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

Source: Navarro GIS, 2019

Supplemental Information Figure

The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

520700

520800

520900

521000



Explanation

-  FFACO UR
-  Monument
-  Fence
-  Landfill
-  Secondary Road

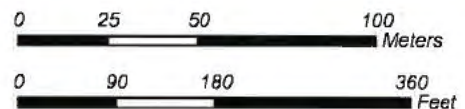
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Source: Navarro GIS, 2019

CAU 424, CAS 03-08-002-A305
Landfill Cell A3-5
Supplemental Information
General Location of Site Features



NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	424 - Area 3 Landfill Complexes (TTR)
Corrective Action Site (CAS) Number & Description:	03-08-002-A306 - Landfill Cell A3-6
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to chemical contaminants that were released at this site. Chemical contaminants are assumed to be present that exceed final action levels under the Industrial Area (2,000 hours per year) exposure scenario.

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary	1	521,138	4,182,231
	2	521,143	4,182,285
	3	521,167	4,182,279
	4	521,161	4,182,246
	5	521,138	4,182,231

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR Coordinate values presented herein were captured in North American Datum of 1983, and rounded to the nearest meter when necessary; due to that rounding, coordinates may not reflect the original precision of values contained within the source GIS data set.

Boundary Applies to: Subsurface

Starting Depth: 50

Ending Depth: 1,040

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Depth Unit: Centimeters _____

Survey Source: GIS _____

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Markers	Present.
Signage	Present and legible.
Soil Cover	Must completely cover waste material.

Inspection Frequency: Annual _____

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: Surface is uncontaminated.

Section II. Administrative UR

An Administrative UR is not identified for this site.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section III. Supporting Documentation

UR Source Document(s)

ROTC 1 for CAU 424 CR (DOE/NV/11718--283), dated 07/02/2019.

Murphy, T.H, State of Nevada. 2006. Letter to J.B. Jones titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--283. Las Vegas, NV.

Attachments

- FFACO UR Boundary Map (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

Section V. EM Nevada Program Approval

/s/ Tiffany Gamero


Tiffany Gamero

Activity Lead

EM Nevada Program

Date: 7/10/2019

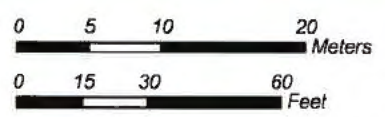
521120 521140 521160 521180 521200

4182300
4182280
4182260
4182240
4182220



CAU 424, CAS 03-08-002-A306
Landfill Cell A3-6
FFACO UR Boundary

Explanation
 FFACO UR



Source: Navarro GIS, 2019

NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

521000

521100

521200

521300

CAS
03-08-002-A302

Edwards Freeway

Morisy Ave

Luke Road

CAS
03-08-002-A303

CAS
03-08-002-A303

Area 3 Compound

4182400

4182300

4182200

4182100

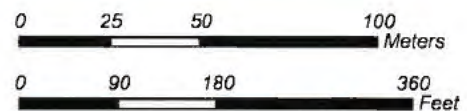
Explanation

-  FFACO UR
-  Nearby FFACO UR
-  Monument
-  Subsurface Pipe
-  Landfill
-  Secondary Road

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNR Aero, USGS, USDA, Swire, AeroGRID, IGN, and the GIS User Community



CAU 424, CAS 03-08-002-A306
Landfill Cell A3-6
Supplemental Information
General Location of Site Features



NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

H:\424\GIS\CAS\03-08-002-A306_SUPP.mxd - 1/27/2019 Page: 03-08-002-A306

Source: Navarro GIS, 2019

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	424 - Area 3 Landfill Complexes (TTR)
Corrective Action Site (CAS) Number & Description:	03-08-002-A308 - Landfill Cell A3-8
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to chemical contaminants that were released at this site. Chemical contaminants are assumed to be present that exceed final action levels under the Industrial Area (2,000 hours per year) exposure scenario.

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary	1	521,163	4,181,813
	2	521,131	4,181,838
	3	521,172	4,181,877
	4	521,190	4,181,868
	5	521,163	4,181,813

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR Coordinate values presented herein were captured in North American Datum of 1983, and rounded to the nearest meter when necessary; due to that rounding, coordinates may not reflect the original precision of values contained within the source GIS data set.

Boundary Applies to: Subsurface

Starting Depth: 50

Ending Depth: 1,040

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Depth Unit: Centimeters

Survey Source: GIS

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Markers	Present.
Signage	Present and legible.
Soil Cover	Must completely cover waste material.

Inspection Frequency: Annual

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: Surface is uncontaminated.

Section II. Administrative UR

An Administrative UR is not identified for this site.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section III. Supporting Documentation

UR Source Document(s)

ROTC 1 for CAU 424 CR (DOE/NV/11718--283), dated 07/02/2019.

Murphy, T.H, State of Nevada. 2006. Letter to J.B. Jones titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--283. Las Vegas, NV.

Attachments

- FFACO UR Boundary Map (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

Section V. EM Nevada Program Approval

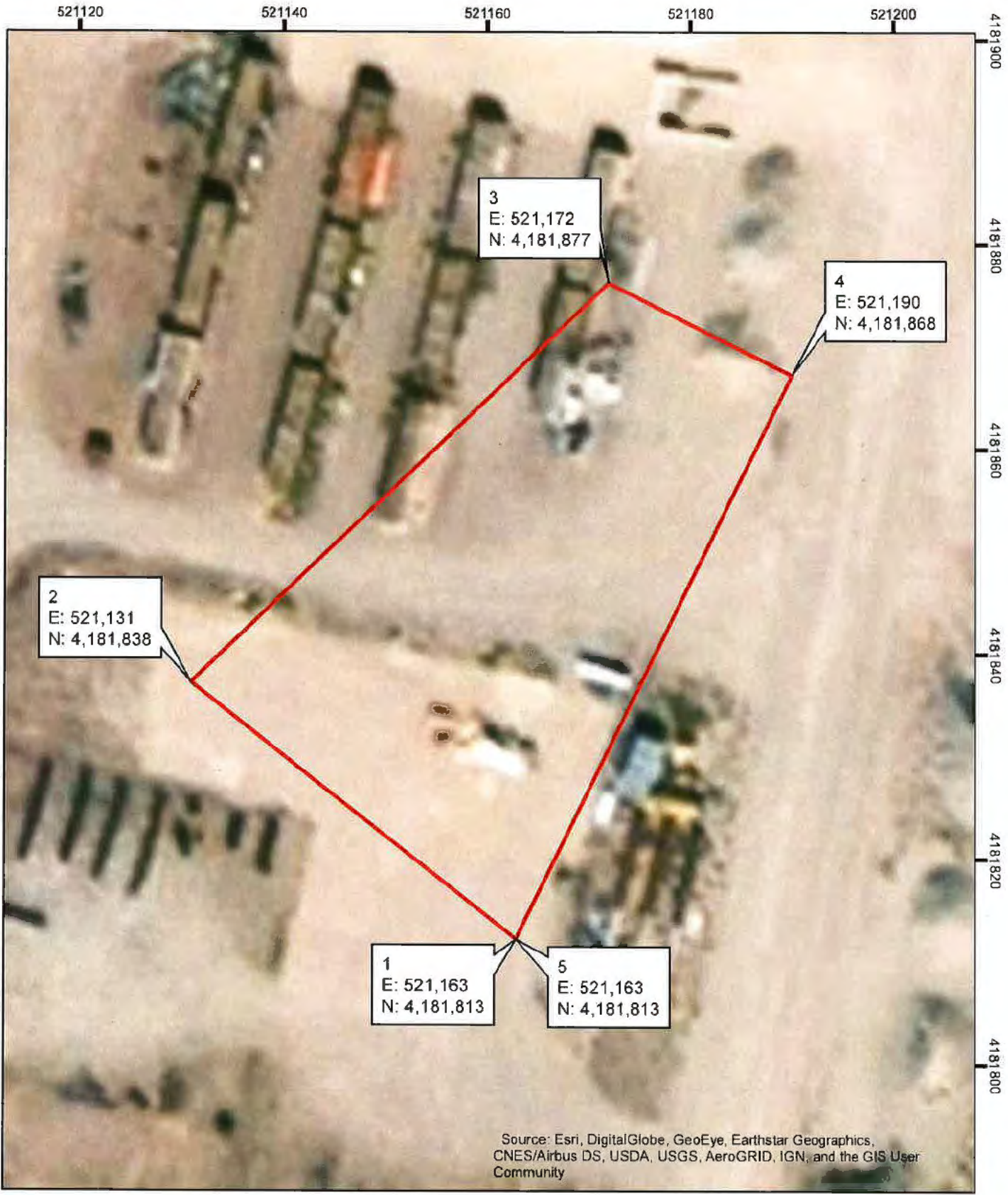
/s/ Tiffany Gamero


Tiffany Gamero

Activity Lead

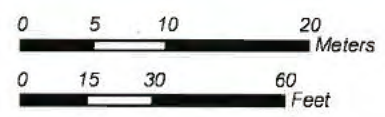
EM Nevada Program

Date: 7/10/2019



CAU 424, CAS 03-08-002-A308
Landfill Cell A3-8
FFACO UR Boundary

Explanation
 FFACO UR



Source: Navarro GIS, 2019

NOTE: Size and location of features are approximated
 Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

521000 521100 521200 521300 4182200 4182100 4182000 4181900 4181800

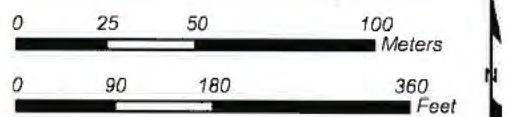


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**CAU 424, CAS 03-08-002-A308
Landfill Cell A3-8
Supplemental Information
General Location of Site Features**



NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

Source: Navarro GIS, 2019

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 453

CAU Description: Area 9 UXO Landfill (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV/11718--284-ROTC 1 **Page** 1 **of** 9
Document Type Closure Report (CR) **Date** 11/19/2019

The following technical changes (including justification) are requested by:

Tiffany Gamero

Requestor Name

Long-Term Monitoring Activity Lead

Requestor Title

Description of Change:

1. This ROTC replaces the Use Restriction (UR) information listed in the documentation for CAU 453.

UR forms have been updated to list all UR requirements, including but not limited to: post-closure site controls (signs, fencing, etc.), inspection and maintenance requirements, and Geographic Information Systems (GIS) coordinate information. The UR requirements and form(s) included in this ROTC represent the current corrective action requirements for each Corrective Action Site (CAS) in this CAU and supersede information concerning corrective action and post-closure requirements in existing documentation.

2. Removed requirements for monuments and fencing from CAS 09-55-001-0952.

Justification:

1. Some changes in the UR requirements from those found in closure documents have been subsequently modified in letters, memos, and inspection reports. This has resulted in difficulty in determining current post-closure requirements. A review of the post-closure requirements for this CAU has been conducted to ensure that all requirements have been identified and documented on the new UR form. The new UR form was developed to be inclusive of all requirements for long-term monitoring and standardize information contained in the URs consistent with current protocols.
2. Monuments and fencing were used to hold UR signs. Signs will be secured using any means necessary to meet the requirement that signs are present and legible. Also, fencing is not needed to prevent inadvertent exposure to contamination as the surface of the site is not contaminated.

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 453

CAU Description: Area 9 UXO Landfill (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV/11718--284-ROTC 1 **Page** 2 **of** 9
Document Type Closure Report (CR) **Date** 11/19/2019

Schedule Impacts:

No impacts to schedule.

ROTC applies to the following document(s):

- U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 453: Area 9 UXO Landfill, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--284. Las Vegas, NV.

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 453

CAU Description: Area 9 UXO Landfill (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV/11718--284-ROTC 1 **Page** 3 **of** 9
Document Type Closure Report (CR) **Date** 11/19/2019

Approvals:

/s/ Tiffany Gamero

Tiffany Gamero
Activity Lead
Environmental Management (EM) Nevada Program

Date 12/5/2019

/s/ Wilhelm R. Wilborn

Bill Wilborn
Deputy Program Manager, Operations
Environmental Management (EM) Nevada Program

Date 12/9/19

/s/ Mark McLane

Christine Andres
Chief, Bureau of Federal Facilities
Nevada Division of Environmental Protection (NDEP)

Date 12/18/19

For

U.S. Department of Energy, Environmental Management Nevada Program

Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	453 - Area 9 UXO Landfill (TTR)
Corrective Action Site (CAS) Number & Description:	09-55-001-0952 - Area 9 Landfill
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to chemical contaminants that were released at this site. Unexploded ordnance (UXO) is assumed to be present.

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary	1	525,256	4,189,467
	2	525,216	4,189,528
	3	525,325	4,189,596
	4	525,362	4,189,535
	5	525,256	4,189,467

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR Coordinate values presented herein were captured in North American Datum of 1983, and rounded to the nearest meter when necessary; due to that rounding, coordinates may not reflect the original precision of values contained within the source GIS data set.

Boundary Applies to: Subsurface

Starting Depth: 20

Ending Depth: 300

Depth Unit: Centimeters

Survey Source: GPS

CAU 453 / CAS 09-55-001-0952

UR is effective upon acceptance by NDEP.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Signage	Present and legible.
Soil Cover	Must completely cover waste material.

Inspection Frequency: Annual _____

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: Surface is uncontaminated.

Section II. Administrative UR

An Administrative UR is not identified for this site.

Section III. Supporting Documentation

UR Source Document(s)

ROTC 1 for CAU 453 CR (DOE/NV/11718--284), dated 11/19/2019.

Murphy, T.H., Nevada Division of Environmental Protection, Bureau of Federal Facilities. 2006. Letter to J.B. Jones (NNSA/NSO) titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1999. Closure Report for Corrective Action Unit 453: Area 9 UXO Landfill, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718--284. Las Vegas, NV.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Attachments

- FFACO UR Boundary Map (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

Section V. EM Nevada Program Approval

/s/ Tiffany Gamero

Date:

12/5/2019

Tiffany Gamero

Activity Lead

EM Nevada Program

525,225

525,300

525,375

4,189,675

4,189,600

4,189,525

4,189,450



2
E: 525,216
N: 4,189,528

3
E: 525,325
N: 4,189,596

4
E: 525,362
N: 4,189,535

1
E: 525,256
N: 4,189,467

5
E: 525,256
N: 4,189,467

Area 9 Bypass Road

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

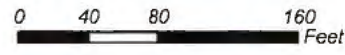
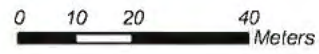
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**CAU 453, CAS 09-55-001-0952
Area 9 Landfill
FFACO UR Boundary**

Explanation

- FFACO UR
- Unimproved Road



Source: Navarro GIS, 2019

Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

525,150

525,225

525,300

525,375

525,450

4,189,675

4,189,600

4,189,525

4,189,450

4,189,375



Explanation

-  FFACO UR
-  Surface Mound
-  Landfill
-  Monument
-  Unimproved Road

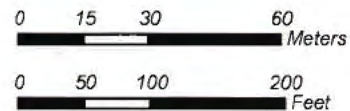
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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CAU 453, CAS 09-55-001-0952
Area 9 Landfill
Supplemental Information
General Location of Site Features

Source: Navarro GIS, 2019



NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 487

CAU Description: Thunderwell Site (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV--761-ROTC 3 **Page** 1 of 11
Document Type Corrective Action Decision Document/Closure Report (CADD/CR) **Date** 11/19/2019

The following technical changes (including justification) are requested by:

Tiffany Gamero

Requestor Name

Long-Term Monitoring Activity Lead

Requestor Title

Description of Change:

1. This ROTC replaces the Use Restriction (UR) information listed in the documentation for CAU 487.

UR forms have been updated to list all UR requirements, including but not limited to: post-closure site controls (signs, fencing, etc.), inspection and maintenance requirements, and Geographic Information Systems (GIS) coordinate information. The UR requirements and form(s) included in this ROTC represent the current corrective action requirements for each Corrective Action Site (CAS) in this CAU and supersede information concerning corrective action and post-closure requirements in existing documentation.
2. UR boundary coordinate values changed due to conversion from North American Datum (NAD) 1927 to NAD 1983 for CAS RG-26-001-RGRV.

Justification:

1. Some changes in the UR requirements from those found in closure documents have been subsequently modified in letters, memos, and inspection reports. This has resulted in difficulty in determining current post-closure requirements. A review of the post-closure requirements for this CAU has been conducted to ensure that all requirements have been identified and documented on the new UR form. The new UR form was developed to be inclusive of all requirements for long-term monitoring and standardize information contained in the URs consistent with current protocols.
2. UR boundary coordinates need to be in one standardized coordinate system.

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 487

CAU Description: Thunderwell Site (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV--761-ROTC 3 **Page** 2 **of** 11
Document Type Corrective Action Decision Document/Closure Report (CADD/CR) **Date** 11/19/2019

Schedule Impacts:

No impacts to schedule.

ROTC applies to the following document(s):

- U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office. 2001. Corrective Action Decision Document/Closure Report for Corrective Action Unit 487: Thunderwell Site, Tonopah Test Range, Nevada, Rev. 0, DOE/NV--761. Las Vegas, NV.
- ROTC 1 for CAU 487 CADD/CR (DOE/NV--761), dated 12/11/2002.
- ROTC 2 for CAU 487 CADD/CR (DOE/NV--761), signed 06/30/2004.

**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO)
RECORD OF TECHNICAL CHANGE (ROTC)**

Corrective Action Unit (CAU) Number: 487

CAU Description: Thunderwell Site (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV--761-ROTC 3 **Page** 3 **of** 11

Document Type Corrective Action Decision Document/Closure Report (CADD/CR) **Date** 11/19/2019

Approvals:

/s/ Tiffany Gamero

Tiffany Gamero
Tiffany Gamero
Activity Lead
Environmental Management (EM) Nevada Program

Date 12/5/2019

/s/ Wilhelm R. Wilborn

Bill Wilborn
Bill Wilborn
Deputy Program Manager, Operations
Environmental Management (EM) Nevada Program

Date 12/9/19

/s/ Mark McLane

Christine Andres
FOR Christine Andres
Chief, Bureau of Federal Facilities
Nevada Division of Environmental Protection (NDEP)

Date 12/18/19

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

General Information

Use Restriction (UR) Type(s):	FFACO Only
Corrective Action Unit (CAU) Number & Description:	487 - Thunderwell Site (TTR)
Corrective Action Site (CAS) Number & Description:	RG-26-001-RGRV - Thunderwell Site
CAU/CAS Owner:	Industrial Sites - ER
Note:	N/A

Section I. Federal Facility Agreement and Consent Order (FFACO) UR

Basis for FFACO UR

Summary Statement: This FFACO UR is established to protect workers from inadvertent exposure to uncontaminated debris.

FFACO UR Physical Description

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Boundary	UR Point ¹	Easting ²	Northing ²
FFACO Boundary 1	1	518,496	4,189,964
	2	518,472	4,189,972
	3	518,476	4,189,977
	4	518,506	4,189,977
	5	518,496	4,189,964
FFACO Boundary 2	1	518,942	4,190,020
	2	518,938	4,190,040
	3	518,985	4,190,044
	4	518,985	4,190,026
	5	518,942	4,190,020

¹UR Points are listed clockwise beginning at the southernmost point. If multiple points share the southernmost Northing coordinate, the easternmost point is listed as Point 1.

²UR coordinate values presented herein were transformed from the North American Datum of 1927, and rounded to the nearest meter; resultant coordinates may not reflect the original precision of values contained within the source GIS data set.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Boundary Applies to: Both Surface and Subsurface

Depth is unknown.

Survey Source: GPS

FFACO UR Requirements

Site Controls:

This FFACO UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area by the coordinates listed above and depicted in the attached figure without prior notification of NDEP unless the activities are conducted under the provisions of 10 CFR, Part 835, Occupational Radiation Protection and 10 CFR, Part 851, Worker Safety and Health Program.

Control	Criteria
Monuments	Present and standing.
Signage	Present and legible.

Inspection Frequency: Annual

Additional Considerations:

Consideration	Criteria
None	None

Requirements Comments: N/A

Section II. Administrative UR

An Administrative UR is not identified for this site.

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section III. Supporting Documentation

UR Source Document(s)

ROTC 3 for CAU 487 CADD/CR (DOE/NV--761), dated 11/19/2019.

Murphy, T.H., Nevada Division of Environmental Protection, Bureau of Federal Facilities. 2006. Letter to J.B. Jones (NNSA/NSO) titled NNSA/NSO Request to Reduce the Frequency of Post-Closure Monitoring of Corrective Action Units (CAU) 400, 404, 407, 423, 424, 426, 427, 453, and 487 at Tonopah Test Range (TTR), Nevada, 5 December, Las Vegas, NV.

ROTC 2 for CAU 487 CADD/CR (DOE/NV--761), signed 06/30/2004.

ROTC 1 for CAU 487 CADD/CR (DOE/NV--761), dated 12/11/2002.

U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office. 2001. Corrective Action Decision Document/Closure Report for Corrective Action Unit 487: Thunderwell Site, Tonopah Test Range, Nevada, Rev. 0, DOE/NV--761. Las Vegas, NV.

Attachments

- FFACO UR Boundary Maps (UTM, Zone 11, NAD 83 meters)
- Supplemental Information Figure (UTM, Zone 11, NAD 83 meters)

Section IV. Recordation Requirements

Recordation:

The above UR(s) are recorded in the:

- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

U.S. Department of Energy, Environmental Management Nevada Program Use Restriction Information

Section V. EM Nevada Program Approval

/s/ Tiffany Gamero

Date:

12/5/2019



Tiffany Gamero

Activity Lead

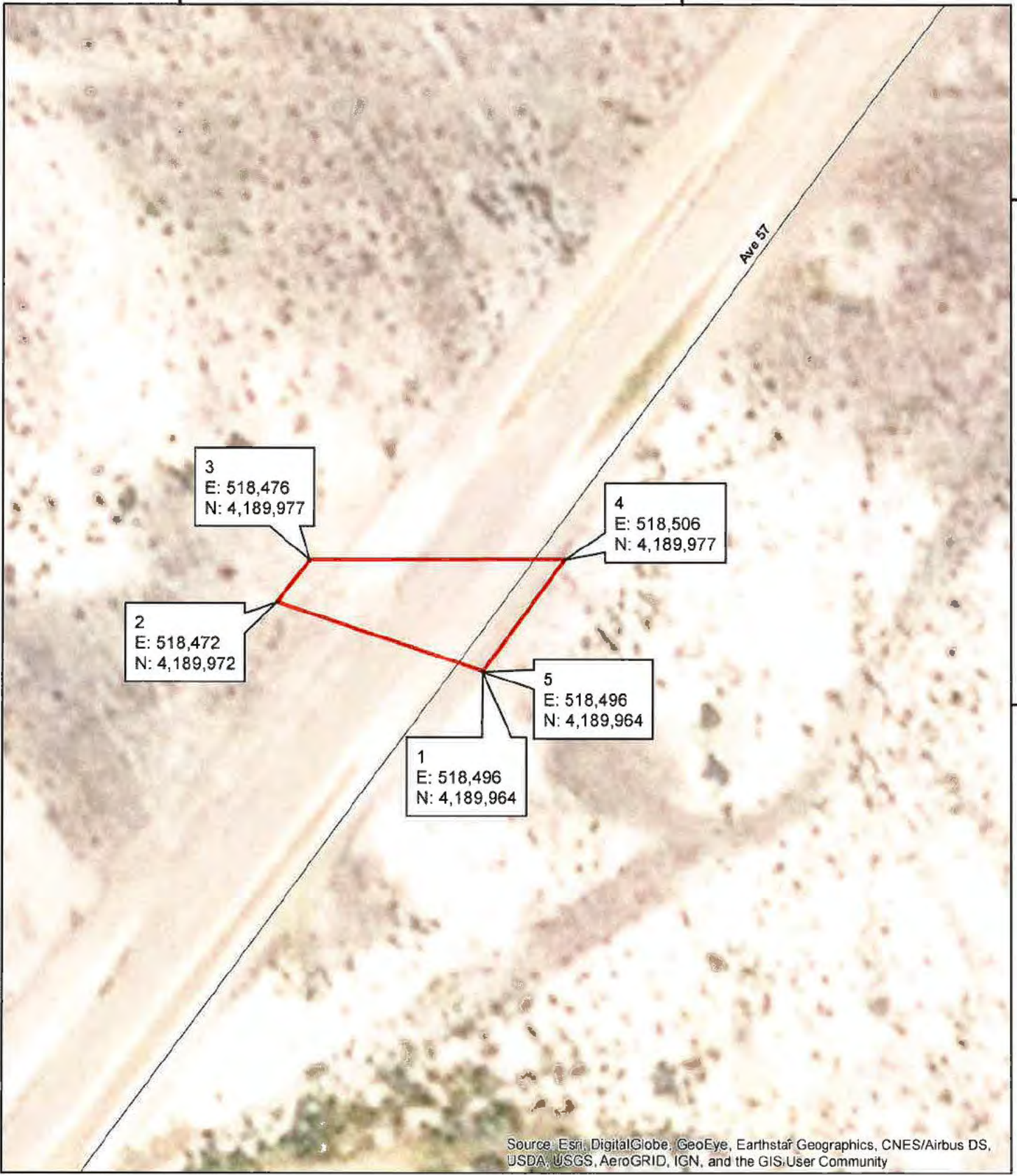
EM Nevada Program

518,460

518,520

4,190,020

4,189,960



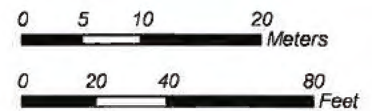
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**CAU 487, CAS RG-26-001-RGRV
Thunderwell Site
FFACO UR Boundary 1**

Explanation
 FFACO UR
 Unimproved Road



Source: Navarro GIS, 2019

Coordinate System: NAD 1983 UTM Zone 11N, Meter

518,925

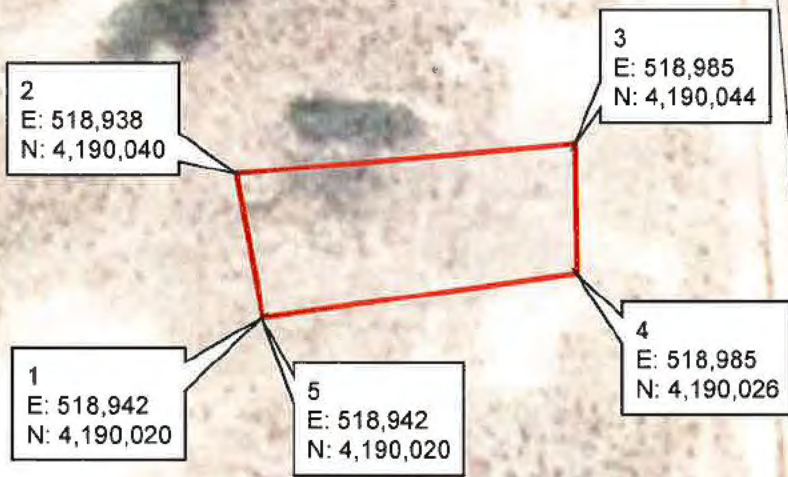
519,000

519,075

4,190,125

4,190,050

4,189,975



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

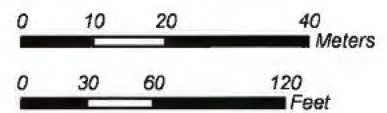
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Source: Navarro GIS, 2019

CAU 487, CAS RG-26-001-RGRV
Thunderwell Site
FFACO UR Boundary 2

Explanation	
	FFACO UR
	Unimproved Road



Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

518,400





518,800

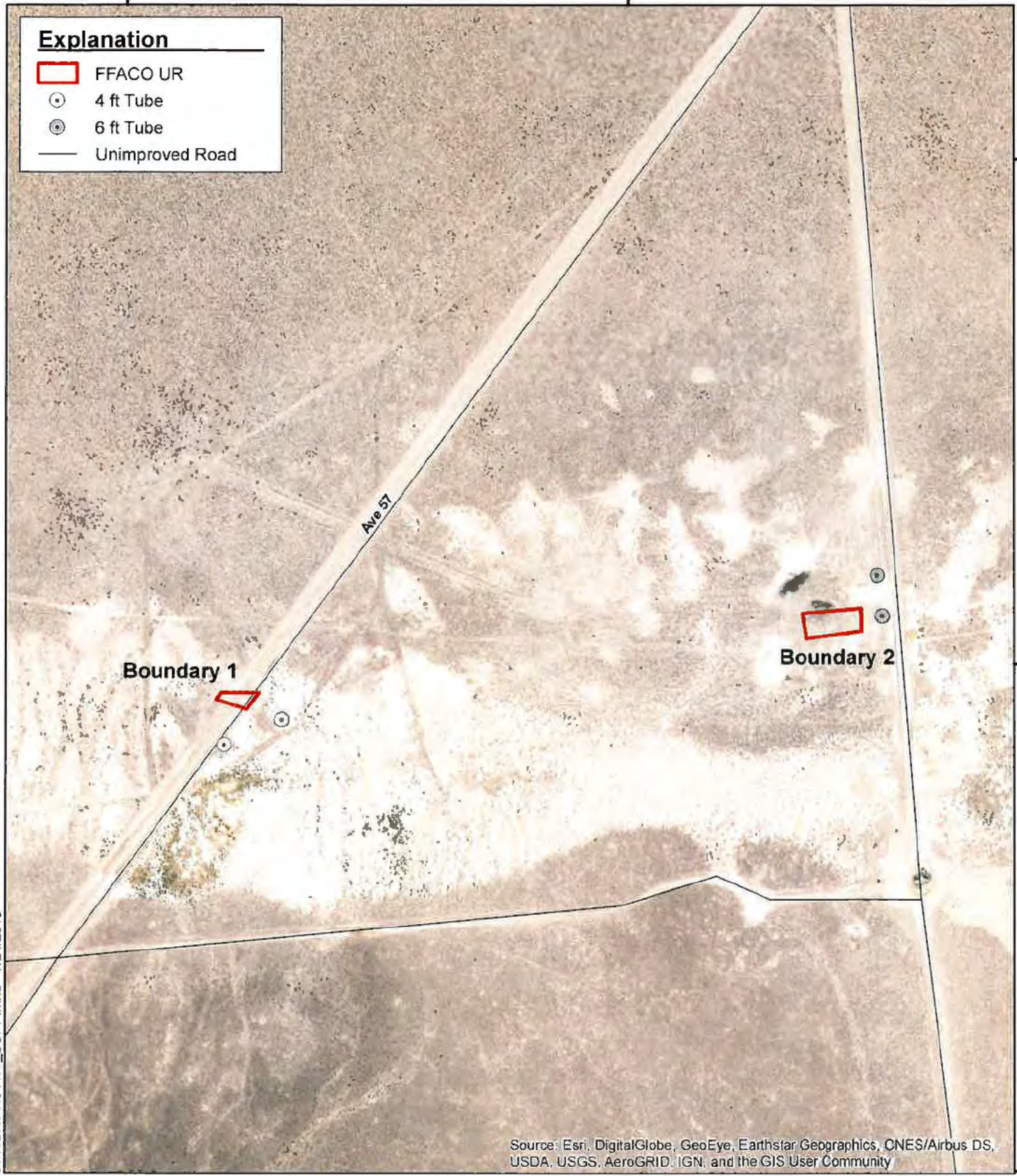
4,190,400

4,190,000

4,189,600

Explanation

-  FFAO UR
-  4 ft Tube
-  6 ft Tube
-  Unimproved Road



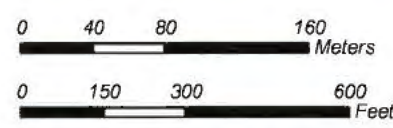
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**CAU 487, CAS RG-26-001-RGRV
Thunderwell Site
Supplemental Information
General Location of Site Features**

Source: Navarro GIS, 2019



NOTE: Size and location of features are approximated
Coordinate System: NAD 1983 UTM Zone 11N, Meter

Appendix C
Post-Closure Inspection Checklists
(10 Pages)

POST-CLOSURE INSPECTION CHECKLIST

**CAU 407, ROLLER COASTER RADSAFE AREA (TTR) –
CAS TA-23-001-TARC, ROLLER COASTER RADSAFE AREA**

Inspection Date: 5/20/2020 Reason for Inspection: earthquake/Annual

Date of Last Post-Closure Inspection: 6/5/2017 Reason for Last Post-Closure Inspection: Annual

Responsible Entity: Navarro

Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro

A. GENERAL INSTRUCTIONS

- Visual inspection includes features described in this checklist.
- Field notes are not required if the checklist and associated attachments adequately describe site conditions.
- Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?	X		<u>fence was down near SE corner</u>
2. Were maintenance or repairs performed since the last inspection?		X	

C. SITE INSPECTION (To be completed during the site visit)

UR Signs:	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are use restriction signs present and legible?	X		
2. Are markers present?		X	<u>no markers are associated w/ 407</u>
Waste Unit Cover/Fence:	YES	NO	EXPLANATION (required if shaded box is checked)
1. Does the soil cover completely cover the waste material?	X		
2. Is a fence present and does it provides a sufficient barrier?	X		

D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Have photographs of the site been taken?		X	
2. Are there any other issues not specifically described in this checklist?		X	

Notes: Site was in general good condition. One UR sign was loose but no heavy debris inspection.

E. INSPECTION PERSONNEL:

Inspector (Printed Name): Juan Alvarez

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.

Printed Name: Dawn Siekerman

Date: 06-09-2020

POST-CLOSURE INSPECTION CHECKLIST

CAU 424, AREA 3 LANDFILL COMPLEXES (TTR) – CAS 03-08-001-A301, LANDFILL CELL A3-1

Inspection Date: 5/20/2020	Reason for Inspection: earthquake / Annual
Date of Last Post-Closure Inspection: 6/5/2019	Reason for Last Post-Closure Inspection: Annual
Responsible Entity: Navarro	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro	

- A. GENERAL INSTRUCTIONS**
- Visual inspection includes features described in this checklist.
 - Field notes are not required if the checklist and associated attachments adequately describe site conditions.
 - Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?		X	
2. Were maintenance or repairs performed since the last inspection?		X	
C. SITE INSPECTION (To be completed during the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
UR Signs/Landfill Markers:			
1. Are use restriction signs present and legible?	X		
2. Are markers present?	X		
Waste Unit Cover:			
1. Does the soil cover completely cover the waste material?	X		
D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are there any other issues not specifically described in this checklist?		X	
2. Have photographs of the site been taken?		X	

Notes: earthquake = 6.5 on 5/15/2020 site in good condition no issues.

E. INSPECTION PERSONNEL:

Inspector (Printed Name): Juan A. Navarro

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.

Printed Name: Dawn Siekerman Date: 06-09-2020

POST-CLOSURE INSPECTION CHECKLIST

CAU 424, AREA 3 LANDFILL COMPLEXES (TTR) – CAS 03-08-002-A302, LANDFILL CELL A3-2

Inspection Date: *5/20/2020*

Reason for Inspection: *earthquake/Annual*

Date of Last Post-Closure Inspection: *6/5/19*

Reason for Last Post-Closure Inspection: *Annual*

Responsible Entity: *Navarro*

Responsible Facility Owner: *Pat Matthews, Environmental Restoration Manager, Navarro*

A. GENERAL INSTRUCTIONS

- Visual inspection includes features described in this checklist.
- Field notes are not required if the checklist and associated attachments adequately describe site conditions.
- Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)

	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Were maintenance or repairs performed since the last inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

	YES	NO	EXPLANATION (required if shaded box is checked)
--	-----	----	---

1. Were anomalies or trends detected on previous inspections?

2. Were maintenance or repairs performed since the last inspection?

C. SITE INSPECTION (To be completed during the site visit)

	YES	NO	EXPLANATION (required if shaded box is checked)
UR Signs/Landfill Markers:			
1. Are use restriction signs present and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Are markers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Waste Unit Cover:			
1. Does the soil cover completely cover the waste material?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

UR Signs/Landfill Markers:

1. Are use restriction signs present and legible?

2. Are markers present?

Waste Unit Cover:

1. Does the soil cover completely cover the waste material?

D. FIELD CONCLUSIONS

	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are there any other issues not specifically described in this checklist?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Have photographs of the site been taken?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

1. Are there any other issues not specifically described in this checklist?

2. Have photographs of the site been taken?

Notes: *earthquake fee = 6.5 on 5/15/20* *Site is in good condition, no issues*

E. INSPECTION PERSONNEL:

Inspector (Printed Name): *Juan Alvarez*

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.

Printed Name: *Dawn Siekerman*

Date: *06-09-2020*

POST-CLOSURE INSPECTION CHECKLIST

CAU 424, AREA 3 LANDFILL COMPLEXES (TTR) – CAS 03-08-002-A303, LANDFILL CELL A3-3

Inspection Date: 5/20/2020 Reason for Inspection: earthquake / Annual

Date of Last Post-Closure Inspection: 6/5/2019 Reason for Last Post-Closure Inspection: Annual

Responsible Entity: Navarro

Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro

A. GENERAL INSTRUCTIONS

- Visual inspection includes features described in this checklist.
- Field notes are not required if the checklist and associated attachments adequately describe site conditions.
- Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Were maintenance or repairs performed since the last inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

C. SITE INSPECTION (To be completed during the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
UR Signs/Landfill Markers:			
1. Are use restriction signs present and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Are markers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Waste Unit Cover:			
1. Does the soil cover completely cover the waste material?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are there any other issues not specifically described in this checklist?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Have photographs of the site been taken?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Notes: Earth quake = 6.5 on 5/15/2020 site is in good condition, no issues

E. INSPECTION PERSONNEL:

Inspector (Printed Name): Juan Alvarado

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.

Printed Name: Dawn Siekerman

Date: 06-09-2020

POST-CLOSURE INSPECTION CHECKLIST

CAU 424, AREA 3 LANDFILL COMPLEXES (TTR) – CAS 03-08-002-A304, LANDFILL CELL A3-4

Inspection Date: 5/20/2020 Reason for Inspection: earthquake / Annual

Date of Last Post-Closure Inspection: 6/5/19 Reason for Last Post-Closure Inspection: Annual

Responsible Entity: Navarro

Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro

A. GENERAL INSTRUCTIONS

- Visual inspection includes features described in this checklist.
- Field notes are not required if the checklist and associated attachments adequately describe site conditions.
- Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?	X		A OR sign is needed on the NE mon.
2. Were maintenance or repairs performed since the last inspection?		X	
C. SITE INSPECTION (To be completed during the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
UR Signs/Landfill Markers:			
1. Are use restriction signs present and legible?		X	A UR sign is needed on the NE
2. Are markers present?	X		monument
Waste Unit Cover:			
1. Does the soil cover completely cover the waste material?	X		
D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are there any other issues not specifically described in this checklist?		X	
2. Have photographs of the site been taken?		X	

Notes: cloth guake = 6.5 on 5/15/2020 Other than the OR sign on the NE monument the site is in good condition.

6-11-2020

UR sign was affixed to the monument on 8-11-2020 (ds).

E. INSPECTION PERSONNEL:

Inspector (Printed Name): Juan Alvarado

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.

Printed Name: Dawn Siekerman

Date: 06-09-2020

POST-CLOSURE INSPECTION CHECKLIST

CAU 424, AREA 3 LANDFILL COMPLEXES (TTR) – CAS 03-08-002-A305, LANDFILL CELL A3-5

Inspection Date: 5/20/2020 Reason for Inspection: corruptive / Annual

Date of Last Post-Closure Inspection: 6/5/19 Reason for Last Post-Closure Inspection: Annual

Responsible Entity: Navarro

Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro

A. GENERAL INSTRUCTIONS

- Visual inspection includes features described in this checklist.
- Field notes are not required if the checklist and associated attachments adequately describe site conditions.
- Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)

	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?		X	
2. Were maintenance or repairs performed since the last inspection?		X	

C. SITE INSPECTION (To be completed during the site visit)

	YES	NO	EXPLANATION (required if shaded box is checked)
UR Signs/Landfill Markers:			
1. Are use restriction signs present and legible?	X		
2. Are markers present?	X		
Waste Unit Cover:			
1. Does the soil cover completely cover the waste material?	X		

D. FIELD CONCLUSIONS

	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are there any other issues not specifically described in this checklist?		X	
2. Have photographs of the site been taken?		X	

Notes: corruptive = 6.5 on 5/15/20 site is in good condition, no issues

E. INSPECTION PERSONNEL:

Inspector (Printed Name): Juan Alvarado

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.

Printed Name: Dawn Siekerman Date: 06-09-2020

POST-CLOSURE INSPECTION CHECKLIST

CAU 424, AREA 3 LANDFILL COMPLEXES (TTR) – CAS 03-08-002-A306, LANDFILL CELL A3-6

Inspection Date: 5/20/20	Reason for Inspection: earthquake / Annual
Date of Last Post-Closure Inspection: 6/5/19	Reason for Last Post-Closure Inspection: Annual
Responsible Entity: Navarro	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro	

A. GENERAL INSTRUCTIONS

- Visual inspection includes features described in this checklist.
- Field notes are not required if the checklist and associated attachments adequately describe site conditions.
- Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?		X	
2. Were maintenance or repairs performed since the last inspection?		X	
C. SITE INSPECTION (To be completed during the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
UR Signs/Landfill Markers:			
1. Are use restriction signs present and legible?	X		
2. Are markers present?	X		
Waste Unit Cover:			
1. Does the soil cover completely cover the waste material?	X		
D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are there any other issues not specifically described in this checklist?		X	
2. Have photographs of the site been taken?		X	

Notes: earthquake = 6.5 on 5/15/2020 Site in good conditions, no issues

E. INSPECTION PERSONNEL:

Inspector (Printed Name): *Juan Alvarado*

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.

Printed Name: *Dawn Siekerman* Date: *06-09-2020*

POST-CLOSURE INSPECTION CHECKLIST

CAU 424, AREA 3 LANDFILL COMPLEXES (TTR) – CAS 03-08-002-A308, LANDFILL CELL A3-8

Inspection Date: 5/20/2020	Reason for Inspection: earthquake / Annual
Date of Last Post-Closure Inspection: 6/5/19	Reason for Last Post-Closure Inspection: Annual
Responsible Entity: Navarro	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro	

A. GENERAL INSTRUCTIONS

- Visual inspection includes features described in this checklist.
- Field notes are not required if the checklist and associated attachments adequately describe site conditions.
- Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?	X		minor king rock gravel on SF
2. Were maintenance or repairs performed since the last inspection?	X		manometer found and rock added in 10/2019
C. SITE INSPECTION (To be completed during the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
UR Signs/Landfill Markers:			
1. Are use restriction signs present and legible?	X		
2. Are markers present?	X		colored rock added to SE manometer along PCT
Waste Unit Cover:			
1. Does the soil cover completely cover the waste material?	X		
D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are there any other issues not specifically described in this checklist?		X	
2. Have photographs of the site been taken?		X	

Notes: earthquake = 6.5
 Colored marking rock was added to the SE gravel flash manometer along the PCT.
 Site was left with no issues

E. INSPECTION PERSONNEL:

Inspector (Printed Name): Jean Alvarado

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.

Printed Name: Dawn Siekerman Date: 06-09-2020

POST-CLOSURE INSPECTION CHECKLIST

CAU 453, AREA 9 UXO LANDFILL (TTR) – CAS 09-55-001-0952, AREA 9 LANDFILL

Inspection Date: 5/20/20	Reason for Inspection: earth quake / Annual
Date of Last Post-Closure Inspection: 6/5/19	Reason for Last Post-Closure Inspection: Annual
Responsible Entity: Navarro	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro	

A. GENERAL INSTRUCTIONS

- Visual inspection includes features described in this checklist.
- Field notes are not required if the checklist and associated attachments adequately describe site conditions.
- Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?		X	
2. Were maintenance or repairs performed since the last inspection?		X	
C. SITE INSPECTION (To be completed during the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
UR Signs/Monuments:			
1. Are use restriction signs present and legible?	X		
Waste Unit Cover:			
1. Does the soil cover completely cover the waste material?	X		
D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are there any other issues not specifically described in this checklist?	X		2 animal burrows in D and S trenches
2. Have photographs of the site been taken?		X	

Notes: earthquake = 6.5 on 5/15/2020 A animal burrow in both the north and south trenches needs to be filled.
no other issues.

11-23-2020

Animal burrows were filled in on 8-11-2020 (ds)

E. INSPECTION PERSONNEL: Juan Alvarez
Inspector (Printed Name):

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.
Printed Name: Dawn Siekerman Date: 06-09-2020

POST-CLOSURE INSPECTION CHECKLIST

CAU 487, THUNDERWELL SITE (TTR) – CAS RG-26-001-RGRV, THUNDERWELL SITE

Inspection Date: <i>5/26/2020</i>	Reason for Inspection: <i>Earthquake / Annual</i>
Date of Last Post-Closure Inspection: <i>6/5/2019</i>	Reason for Last Post-Closure Inspection: <i>Annual</i>
Responsible Entity: Navarro	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro	

A. GENERAL INSTRUCTIONS

- Visual inspection includes features described in this checklist.
- Field notes are not required if the checklist and associated attachments adequately describe site conditions.
- Photographs are not required but may be taken to document maintenance/repair needs, anomalous features, or new features (such as changes in adjacent area land use).

B. PREPARATION (To be completed prior to the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
1. Were anomalies or trends detected on previous inspections?		X	
2. Were maintenance or repairs performed since the last inspection?		X	
C. SITE INSPECTION (To be completed during the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
UR Signs/Monuments: (A8 and A17 Anomalies)			
1. Are use restrictions signs present and legible?	X		
2. Are the monuments and markers present and standing (upright not loose or leaning)?	X		
D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Are there any other issues not described in this checklist?		X	
2. Have photographs of the site been taken?		X	

Notes: *Earthquake = 6.5 on 5/18/20 site is in good condition, no issues*

E. INSPECTION PERSONNEL:

Inspector (Printed Name): *Juan Alvarado*

F. VERIFICATION: I have reviewed this checklist and attachments and have verified that they are complete.

Printed Name: *Dawn Siekerman* Date: *06-09-2020*

Appendix D

Field Notes

(8 Pages)

FIELD ACTIVITY DAILY LOG

DAILY LOG	DATE	5	20	2020
	SHEET	1	OF	6

PROJECT NAME: Pre- and Post-Closure Monitoring, TTR/NTR CAUs WCP# NAV-SM-TTRNTR-323 Rev. 05		PROJECT NO.: LN19-812
FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units <i>for Annual and Earthquake effects</i>		
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: SAFETY NOTES: OBEY ALL DOE TTR/NTR AND EM SITE DIRECTIVES AND OPERATING CONTRACTOR (I.E., NAVARRO) SITE DIRECTIVES. OBEY ALL CURRENT COVID-19 GUIDANCE.		
<p>0500 Depart NSF Dan Henry and Pat Matthews and Juan Alvarado, 2 vehicles</p> <p>0800 Arrive TTR</p> <p>0820 arrive Roundwood 100 + TSB</p> <p>0930 487 no issues, 8 signs 2/mount, 4 W/E markers no wrong markers A-8</p> <p>0940 487 8-17 no issues 8 signs 2/mount (4) 4 W/E markers no wrong markers</p> <p>1000 424 LF-1 no issue 5 signs 6 markers, 4 moun</p> <p>1012 424 LF-2 no issue 4 signs 4 markers, 4 moun</p> <p>1019 424 LF-5 no issue 4 signs 4 markers, 4 moun</p> <p>1027 424 LF-6 no issue " " "</p> <p>1030 424 LF-3 2 panels large 3 24g mount w/signs 3 of mount 3/4 w/ W/E mount small 3 panel flush mount 3 W/E/w/ 1 wrong</p> <p>1050 @ mechanic shop</p>		
VISITORS ON SITE: <i>None</i>	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS. <i>This PCM is for the Annual PCI's and a recap of 6.5 earthquake on 5/15/2020 molt after strict S.O on 5/20/2020</i>	
WEATHER CONDITIONS: <i>interley 50's mostly wavy</i>	IMPORTANT TELEPHONE CALLS: <i>None</i>	
PERSONNEL ON SITE: <i>Dan Henry Pat Matthews Juan Alvarado</i>		
SIGNATURE <i>/s/ Juan Alvarado</i>	DATE: <i>5/20/2020</i>	

FIELD ACTIVITY DAILY LOG

(CONTINUATION SHEET)

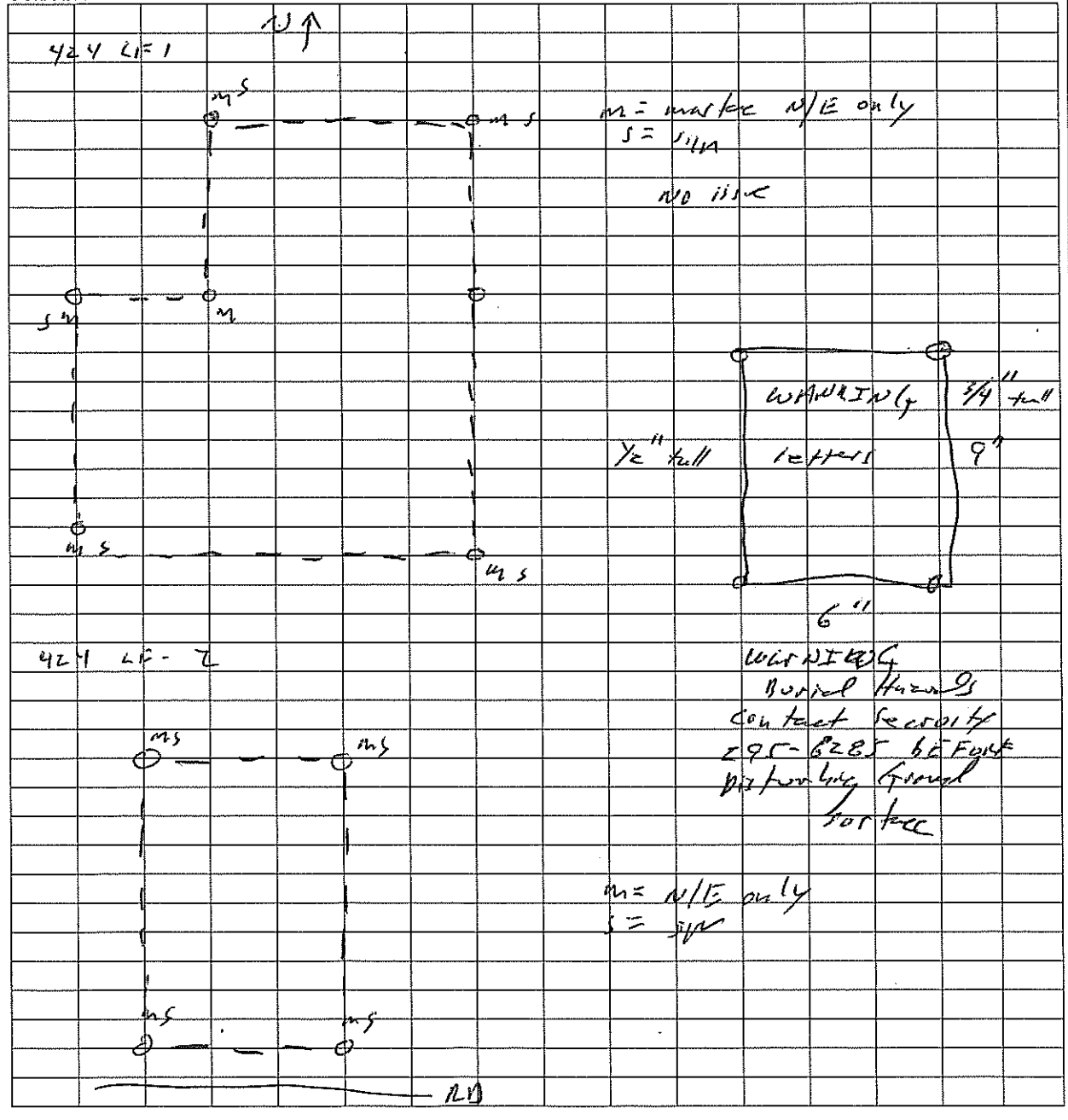
DAILY LOG	DATE	5	20	2020
	SHEET	2	OF	6

PROJECT NAME: Pre- and Post-Closure Monitoring, TTR/NTR CAUs
WCP# NAV-SM-TTRNTR-323 Rev. 05

PROJECT NO.: LN19-812

FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: SAFETY NOTES: OBEY ALL DOE TTR/NTR AND EM SITE DIRECTIVES AND OPERATING CONTRACTOR (I.E., NAVARRO) SITE DIRECTIVES. OBEY ALL CURRENT COVID-19 GUIDANCE.



FIELD ACTIVITY DAILY LOG

(CONTINUATION SHEET)

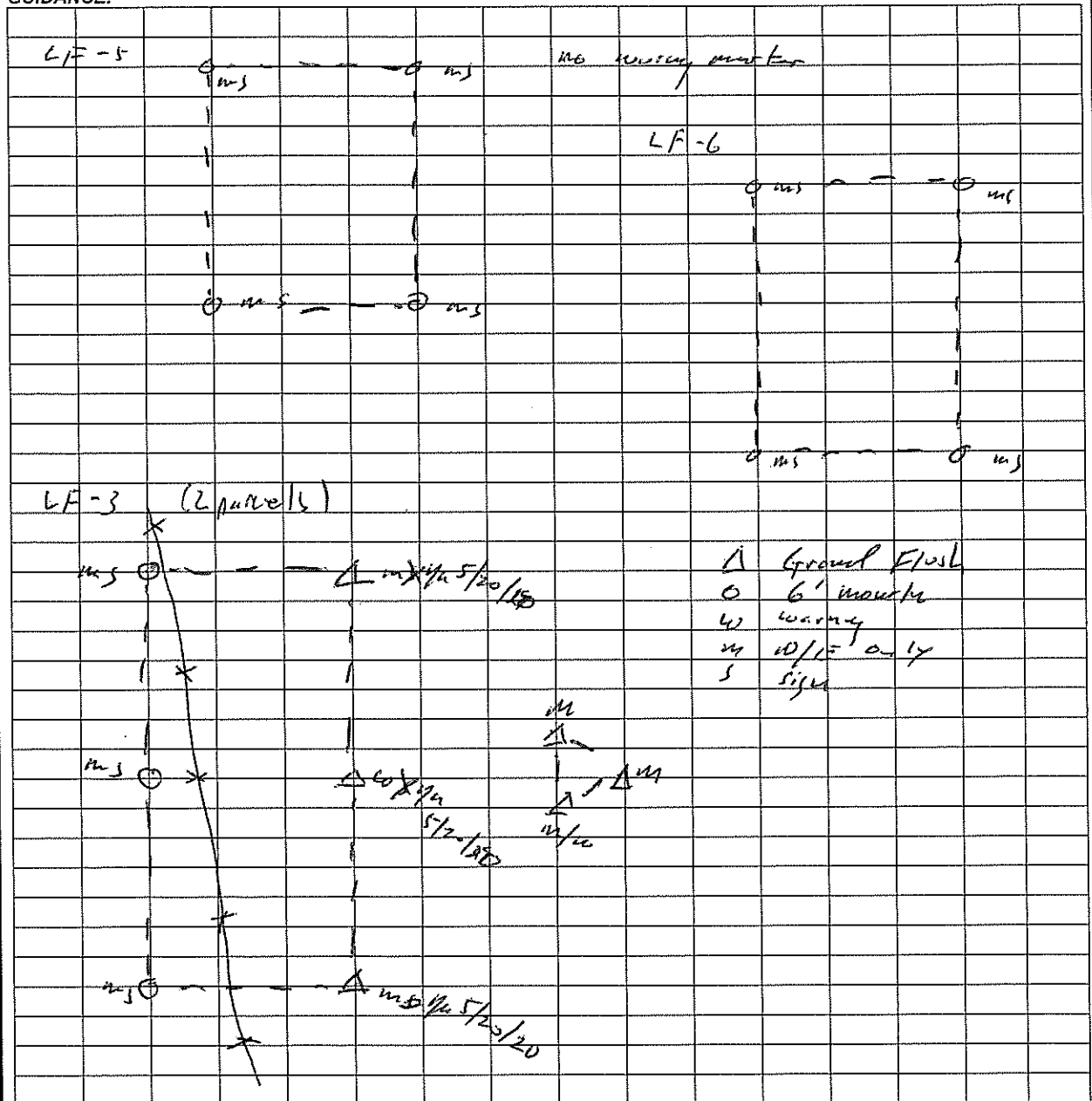
DAILY LOG	DATE	5	20	2020
	SHEET	3	OF	6

PROJECT NAME: Pre- and Post-Closure Monitoring, TTR/NTTR CAUs
WCP# NAV-SM-TTRNTTR-323 Rev. 05

PROJECT NO.: LN19-812

FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: SAFETY NOTES: OBEY ALL DOE TTR/NTTR AND EM SITE DIRECTIVES AND OPERATING CONTRACTOR (I.E., NAVARRO) SITE DIRECTIVES. OBEY ALL CURRENT COVID-19 GUIDANCE.



FIELD ACTIVITY DAILY LOG

(CONTINUATION SHEET)

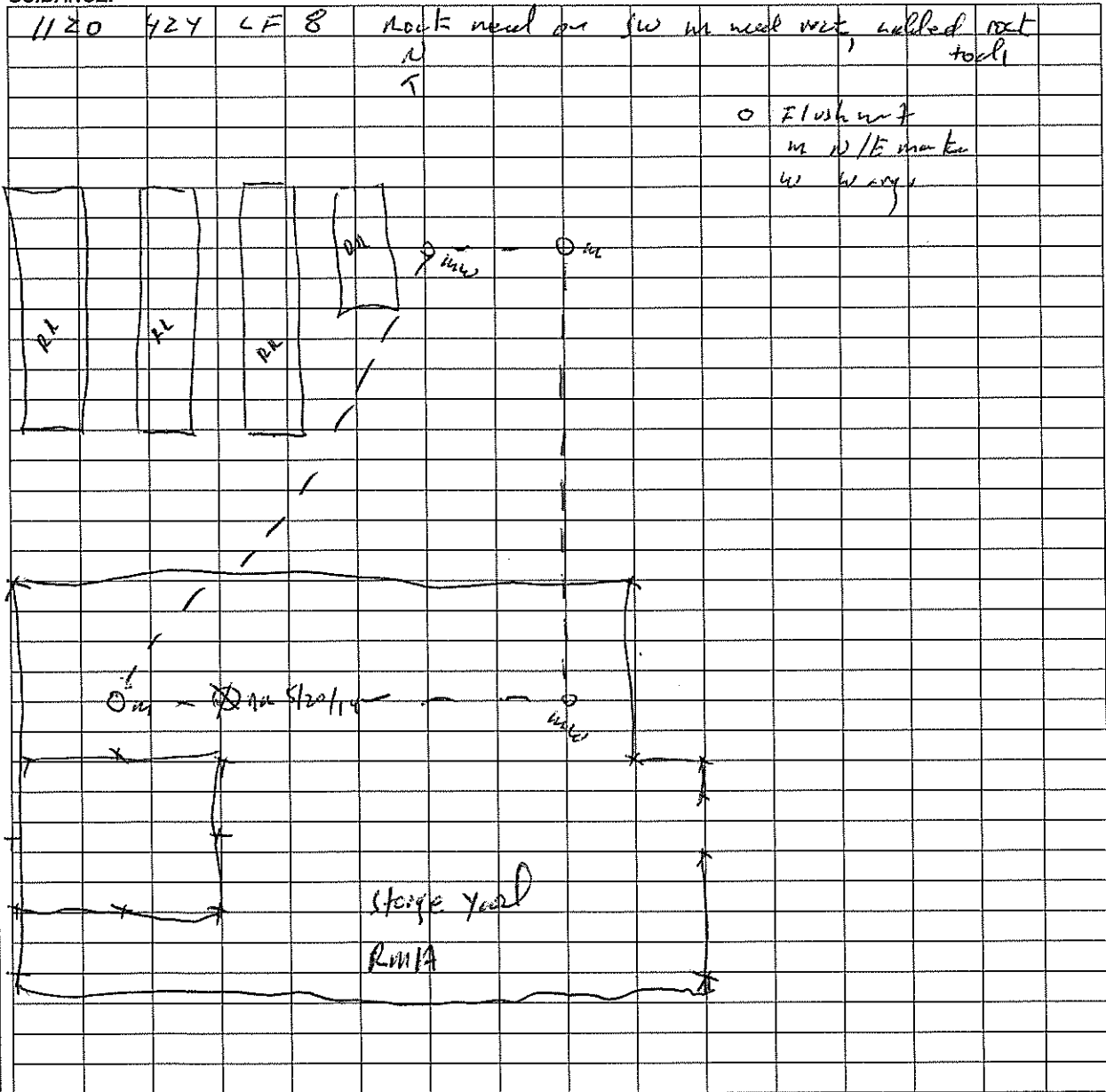
DAILY LOG	DATE	5	20	2020
	SHEET 4	OF		6

PROJECT NAME: Pre- and Post-Closure Monitoring, TTR/NTTR CAUs
WCP# NAV-SM-TTRNTTR-323 Rev. 05

PROJECT NO.: LN19-812

FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: SAFETY NOTES: OBEY ALL DOE TTR/NTTR AND EM SITE DIRECTIVES AND OPERATING CONTRACTOR (I.E., NAVARRO) SITE DIRECTIVES. OBEY ALL CURRENT COVID-19 GUIDANCE.



FIELD ACTIVITY DAILY LOG

(CONTINUATION SHEET)

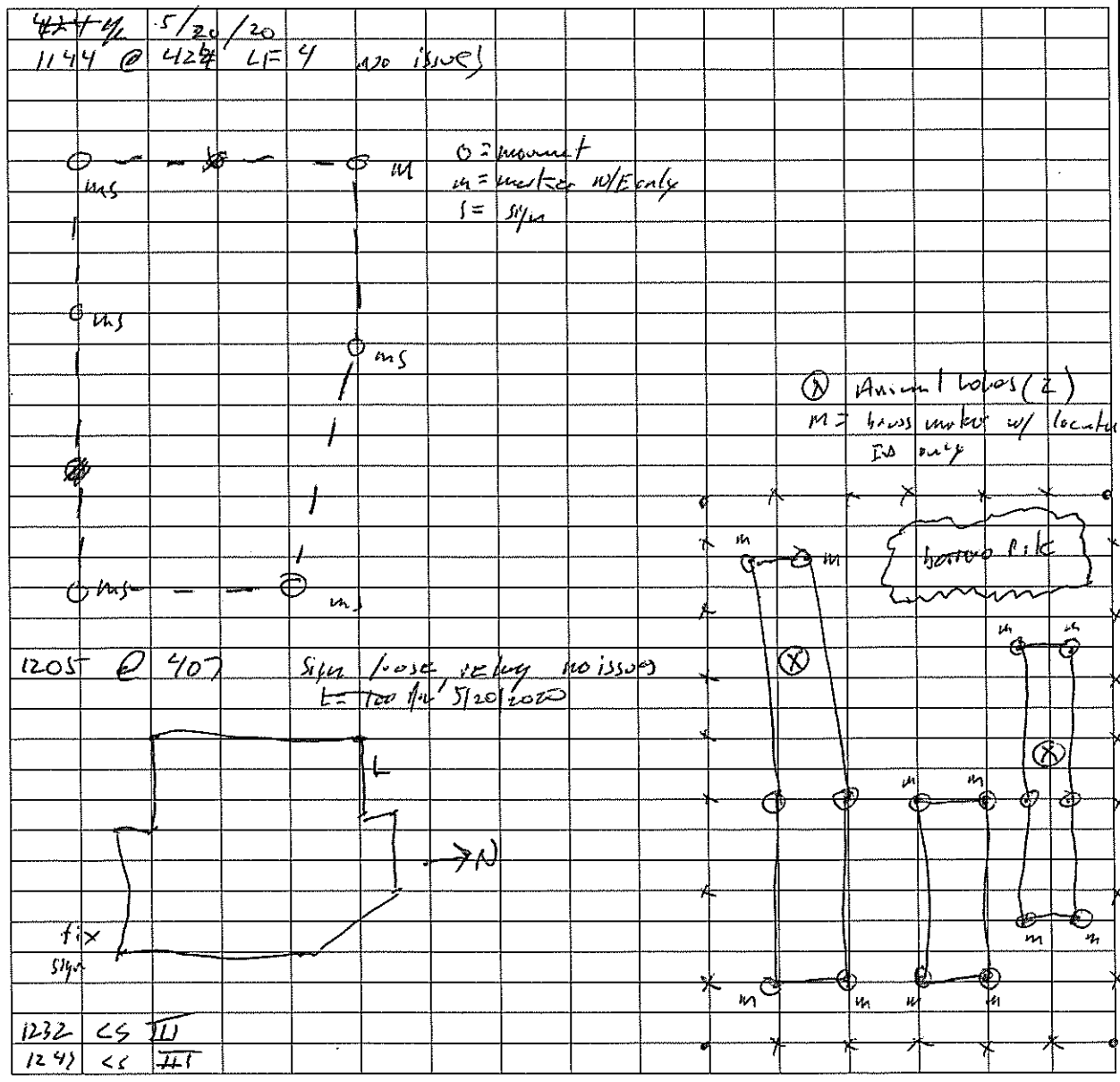
DAILY LOG	DATE	5	20	2020
	SHEET 5	OF		6

PROJECT NAME: Pre- and Post-Closure Monitoring, TTR/NTTR CAUs
WCP# NAV-SM-TTRNTR-323 Rev. 05

PROJECT NO.: LN19-812

FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: SAFETY NOTES: OBEY ALL DOE TTR/NTTR AND EM SITE DIRECTIVES AND OPERATING CONTRACTOR (I.E., NAVARRO) SITE DIRECTIVES. OBEY ALL CURRENT COVID-19 GUIDANCE.



FIELD ACTIVITY DAILY LOG

(CONTINUATION SHEET)

DAILY LOG	DATE	5-	20	2020
	SHEET 6		OF	6

PROJECT NAME: Pre- and Post-Closure Monitoring, TTR/NTTR CAUs WCP# NAV-SM-TTRNTTR-323 Rev. 05	PROJECT NO.: LN19-812
FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units	
<p>DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: SAFETY NOTES: OBEY ALL DOE TTR/NTTR AND EM SITE DIRECTIVES AND OPERATING CONTRACTOR (I.E., NAVARRO) SITE DIRECTIVES. OBEY ALL CURRENT COVID-19 GUIDANCE.</p> <p>1300 CB II</p> <p>1330 depart trailer</p> <p>1340 @ 452 2 animals in 1+3 newer west ends 16 mounts</p> <p>1350²⁴ 6 on 1, 4 on 2, 6 on 3 middle mounts on #3 have no ^{5/20} marks</p> <p>1405 depart 453</p> <p>1430 depart site</p> <p>Note: Recon office truck Deere trucks Did not share tools maintained safe (6') distance when out side of vehicle used hand signals in vehicles w/ more than 1 person</p>	

FIELD ACTIVITY DAILY LOG

DAILY LOG	DATE	8	11	2020
	SHEET	1	OF	✓

PROJECT NAME: Pre- and Post-Closure Monitoring, TTR/NTR CAUS WCP# NAV-SM-TTRNTR-323 Rev. 05		PROJECT NO.: LN19-812
FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units		
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: SAFETY NOTES: OBEY ALL DOE TTR/NTR AND EM SITE DIRECTIVES AND OPERATING CONTRACTOR (I.E., NAVARRO) SITE DIRECTIVES. OBEY ALL CURRENT COVID-19 GUIDANCE.		
<p>0515 left Tonopah</p> <p>0600 Arrive TTR gate</p> <p>0620 @ trailers</p> <p>POD-site tour and report CAUs 453 + 424 LF4</p> <p>get ice</p> <p>get scales and wire bundles</p> <p>LM - Ken Kneie, Patty Gallo, Jackie Retrello</p> <p>0732 POD + TTR</p> <p>0800 @ Sandra's H&S report</p> <p>0905 left for Billy SZO (TTR)</p> <p>@ Billy SZO - Discussion of property "owners" NTR, TTR, TTRC</p> <p>USAF would like to lump all sites together rather than piecemeal</p> <p>USAF personnel Tom Jacobs, Roger Christensen + Michael Kice w/ TM</p> <p>James Neilly TTRC</p>		
VISITORS ON SITE:	DOE LM w/ Navarro + Leidos OSIAF NTR and TTRC see above	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS. This was not a PCI, site tour and report trip only
WEATHER CONDITIONS:	Sunny clear High 80-90's	IMPORTANT TELEPHONE CALLS: None
PERSONNEL ON SITE: Juan Alvarado Scott Krueger Mark Burmeister		
SIGNATURE	/s/ Juan Alvarado	DATE: 8/11/20

FIELD ACTIVITY DAILY LOG

(CONTINUATION SHEET)

DAILY LOG	DATE	8	11	2020
	SHEET 2	OF		2

PROJECT NAME: Pre- and Post-Closure Monitoring, TTR/NTR CAUS WCP# NAV-SM-TTRNTR-323 Rev. 05	PROJECT NO.: LN19-812
FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units	
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: SAFETY NOTES: OBEY ALL DOE TTR/NTR AND EM SITE DIRECTIVES AND OPERATING CONTRACTOR (I.E., NAVARRO) SITE DIRECTIVES. OBEY ALL CURRENT COVID-19 GUIDANCE.	
1005	TSA w/ USAF
1020	To CAU 407 w/ LHM and NTR fixed loose pipe
1115	@ CAU 453 w/ LHM and NTR removed animal barriers, zoned and 2 new holes NTR says report
1200	@ CAU 487 w/ LHM and TTR
1205	@ CAU 487 #8
1215	@ CAU 487 #17 TTR reports
1237	@ CAU 424 #2 + #1 Mike + Scott report to fix LF #4 CAU 424 windsheild torn w/ LHM of #8, #4, #5, #6 and #3 (inside compound)
1313	back @ trailer
1420	LHM went to speak w/ Jerry Ellison (Navarro)
1430	No other questions report trailer leave site.

Appendix E

Photographs

Note: No photographs were taken during the 2020 inspections.

Appendix F

Post-Closure Vegetation Monitoring Report

Note: Post-closure vegetation was not conducted in 2020.

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