

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

Corrective Action Unit (CAU) Number: 404

CAU Description: Roller Coaster Lagoons and Trench (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV-11718-187 UC-702-ROTC 2 **Page** 1 **of** 8
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 404.

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 were changed due to conversion from North American Datum (NAD) 83 State Plane Central (m) to NAD 1983 for CAS TA-03-001-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: 404

CAU Description: Roller Coaster Lagoons and Trench (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV-11718-187 UC-702-ROTC 2 **Page** 2 **of** 8
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. 1998. Closure Report for Corrective Action Unit 404: Roller Coaster Sewage Lagoons and North Disposal Trench, Tonopah Test Range, Nevada, Rev. 0, DOE/NV-11718-187 UC-702. Las Vegas, NV.
- Addendum for CAU 404 CR (DOE/NV--11718-187-ADD), October 2008.
- ROTC CR-1 for CAU 404 CR (DOE/NV-11718-187), dated 11/21/2008.
- Addendum for CAU 404 CR (DOE/NV--11718-187-ADD-REV 1), February 2009.

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


Corrective Action Unit (CAU) Number: 404
CAU Description: Roller Coaster Lagoons and Trench (TTR)
CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV-11718-187 UC-702-ROTC 2 **Page** 3 **of** 8
Document Type Closure Report (CR) **Date** 11/19/2019

Approvals:

 _____
Tiff _____
Ac _____
En _____ program
Date 12/5/2019

_____ Date 12/9/19
Bill Wilborn
Deputy Program Manager, Operations
Environmental Management (EM) Nevada Program

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): | Administrative Only |
| Corrective Action Unit (CAU) Number & Description: | 404 - Roller Coaster Lagoons and Trench (TTR) |
| Corrective Action Site (CAS) Number & Description: | TA-03-001-TARC - Roller Coaster Lagoons |
| CAU/CAS Owner: | Industrial Sites - ER |
| Note: | N/A |

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

An FFACO UR is not identified for this site.

Section II. Administrative UR

Basis for Administrative UR

Summary Statement: This Administrative UR is established to protect workers should future land use result in increased exposure to site contaminants. Chemical contaminants are assumed to be present that exceed action levels under the Industrial Area (2,000 hours per year) exposure scenario. Surface is uncontaminated. Ending depth is unknown.

Administrative UR Physical Description

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

| UR Boundary | UR Point ¹ | Easting ² | Northing ² |
|---------------------------|-----------------------|----------------------|-----------------------|
| Admin Boundary | 1 | 523,909 | 4,175,165 |
| | 2 | 523,895 | 4,175,205 |
| | 3 | 523,938 | 4,175,220 |
| | 4 | 523,952 | 4,175,180 |
| | 5 | 523,909 | 4,175,165 |

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 1983 State Plane Nevada Central (meters), and rounded to the nearest meter; resultant 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:** _____
Depth Unit: Centimeters
Survey Source: GPS

Administrative UR Requirements

Administrative URs do not require onsite postings or other physical barriers, and they do not require periodic inspections or maintenance.

Site Controls:

This Administrative UR is recorded as described in **Section IV. Recordation Requirements** to restrict activities within the area defined 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.

Section III. Supporting Documentation

UR Source Document(s)

ROTC 2 for CAU 404 CR (DOE/NV-11718-187), dated 11/19/2019.

Addendum for CAU 404 CR (DOE/NV--11718-187-ADD-REV 1), February 2009.

ROTC CR-1 for CAU 404 CR (DOE/NV-11718-187), dated 11/21/2008.

Addendum for CAU 404 CR (DOE/NV--11718-187-ADD), October 2008.

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. 1998. Closure Report for Corrective Action Unit 404: Roller Coaster Sewage Lagoons and North Disposal Trench, Tonopah Test Range, Nevada, Rev. 0, DOE/NV-11718-187 UC-702. Las Vegas, NV.

Attachments

- Administrative UR Boundary Map (UTM, Zone 11, NAD 83 meters)

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

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



Date:

12/5/2019

Tiffany Gamero

Activity Lead

EM Nevada Program

523,900

523,950

4,175,250

4,175,200

4,175,150



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

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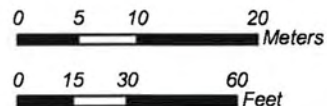


Source: Navarro GIS, 2019

**CAU 404, CAS TA-03-001-TARC
Roller Coaster Lagoons
Administrative UR Boundary**

Explanation

 Administrative UR



Coordinate System: NAD 1983 UTM Zone 11N, Meter

Supplemental Information Figure

Additional supplemental information on site features was not present in previous iterations of this Use Restriction (UR), therefore a supplemental information figure is not attached. If additional information on site features is required for this site, please contact the Federal Facility Agreement and Consent Order (FFACO) Database Administrator.

**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:

 _____ **Date** 12/5/2019

Tiffan
Activ
Envir

_____ **Date** 12/9/19

Bill W
Depu
Envir

_____ **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



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



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Source: Navarro GIS, 2019

Explanation

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

0 10 20 40 Meters

0 40 80 160 Feet



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



Explanation

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

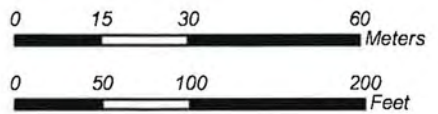
Source | Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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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**



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: | 03-08-001-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

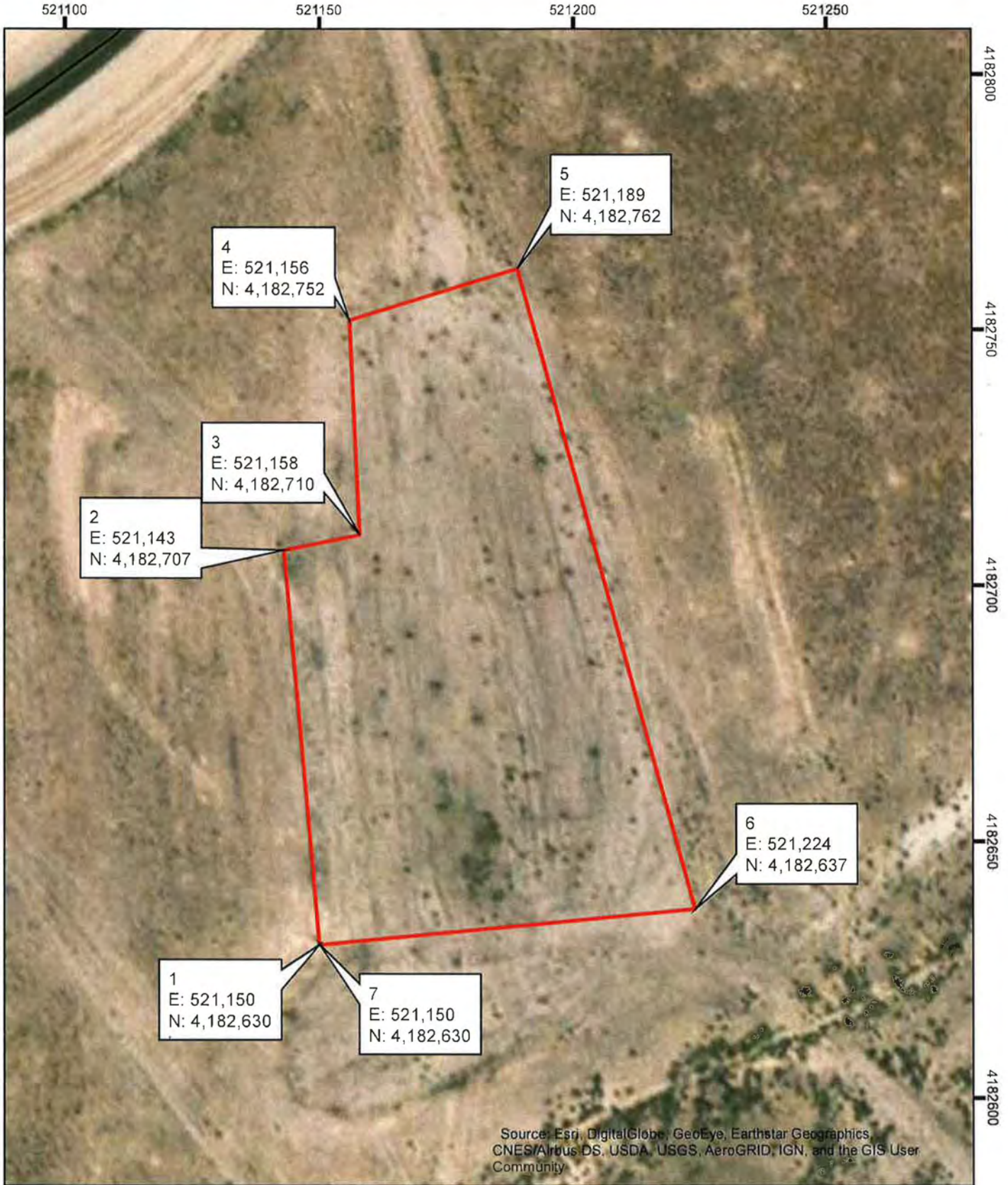
Section V. EM Nevada Program Approval


Tiffany Gamero

Activity Lead

EM Nevada Program

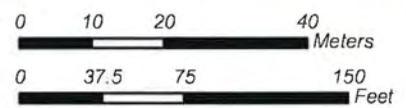
Date: 7/10/2019



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

Explanation

- FFACO UR
- Secondary Road



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



Explanation

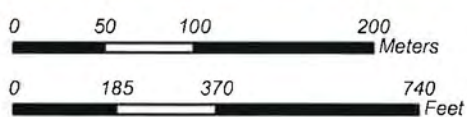
- FFACO UR
- Nearby FFACO UR
- Monument
- Buried Construction Debris
- Landfill
- Secondary Road

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



**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



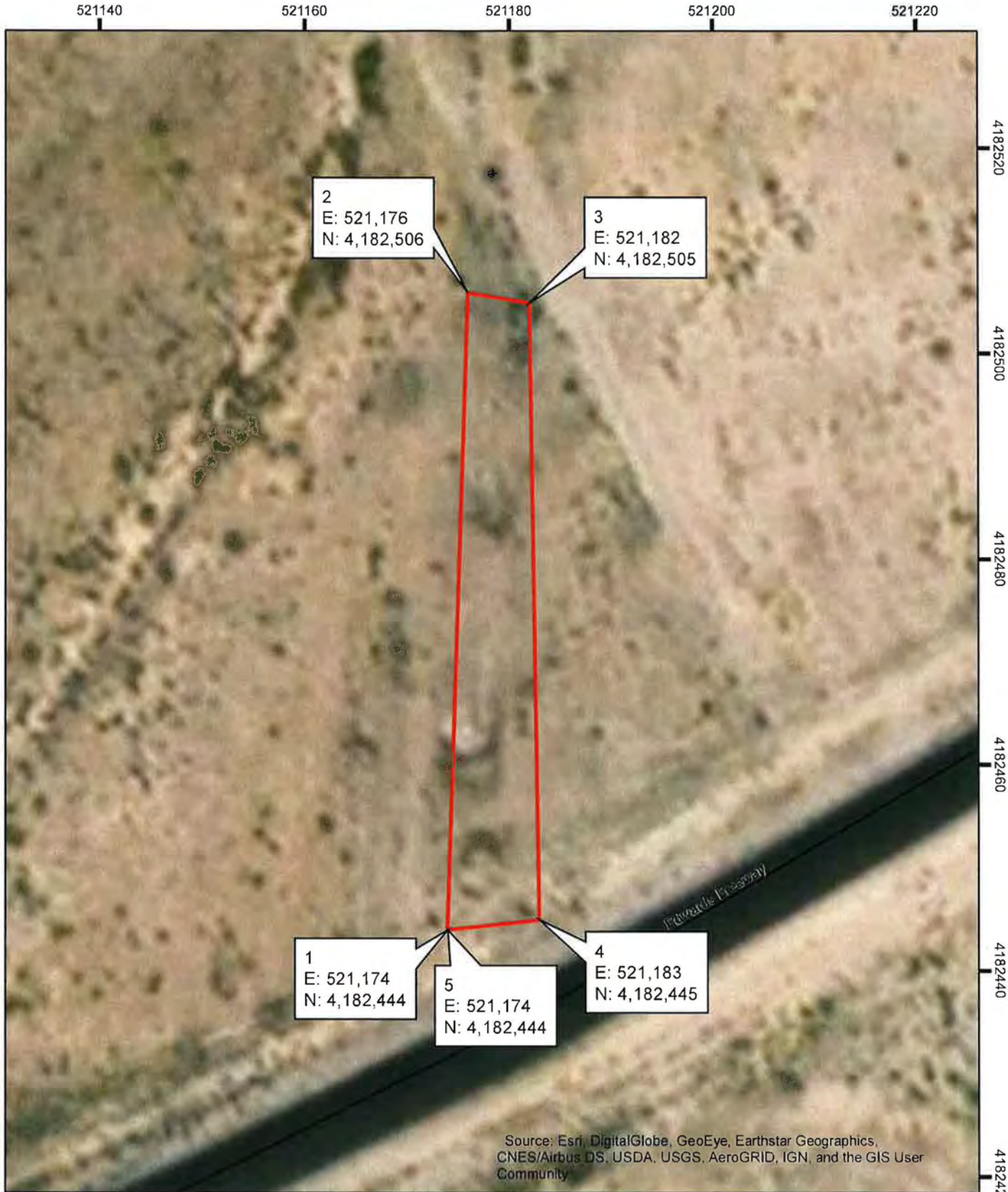
Tiffany Gamero

Activity Lead

EM Nevada Program

Date:

7/10/2019





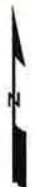
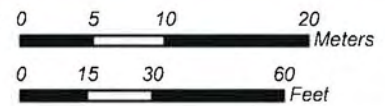
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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

Explanation

-  FFACO UR
-  Secondary Road



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

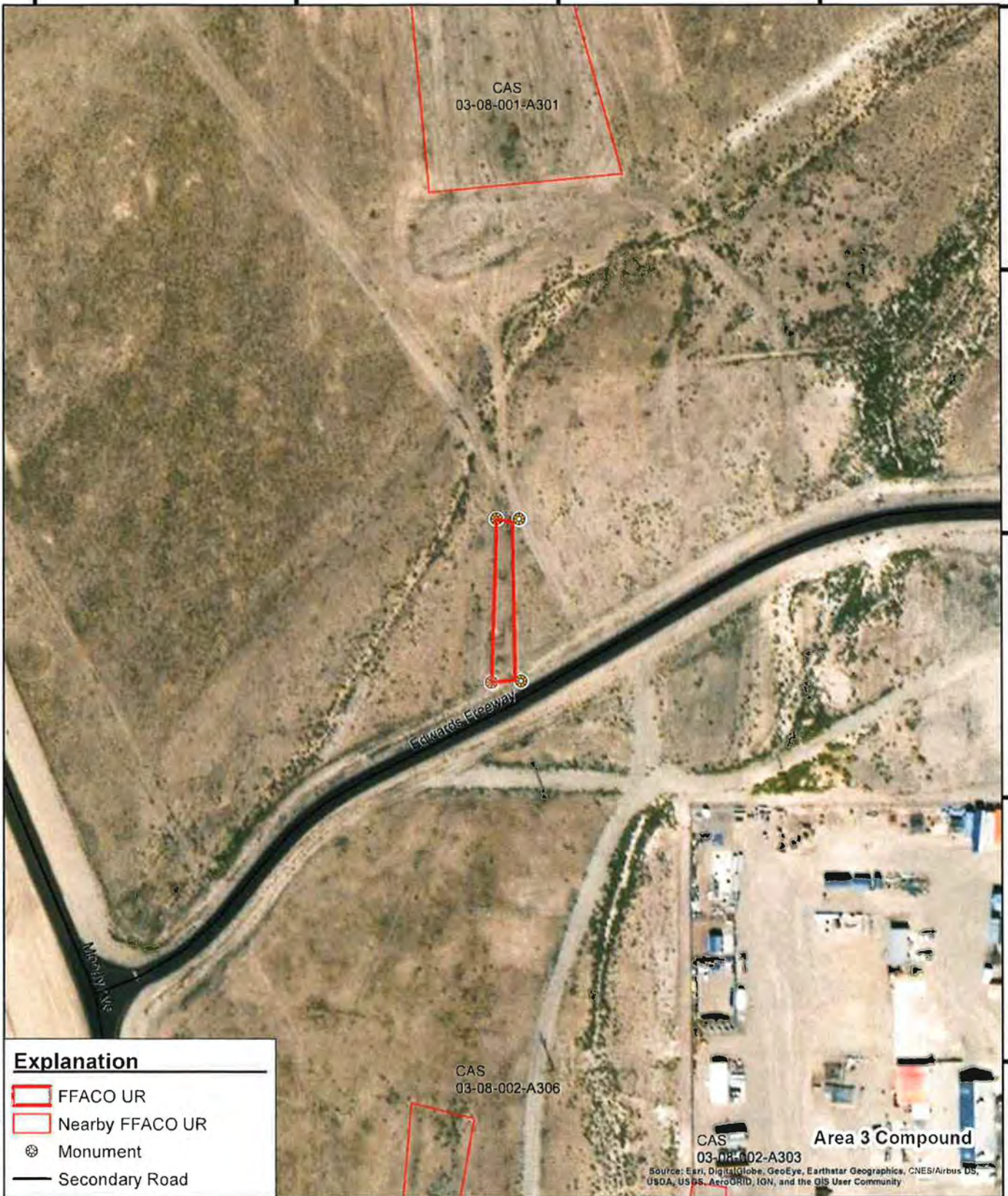
4182700

4182600

4182500

4182400

4182300



Explanation

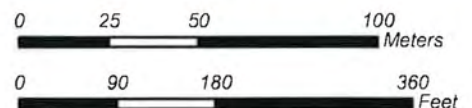
- FFACO UR
- Nearby FFACO UR
- Monument
- Secondary Road

H:\424\GIS\CAS03-08-002-A302_SUPP.mxd Page: 03-00-002-A302



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:

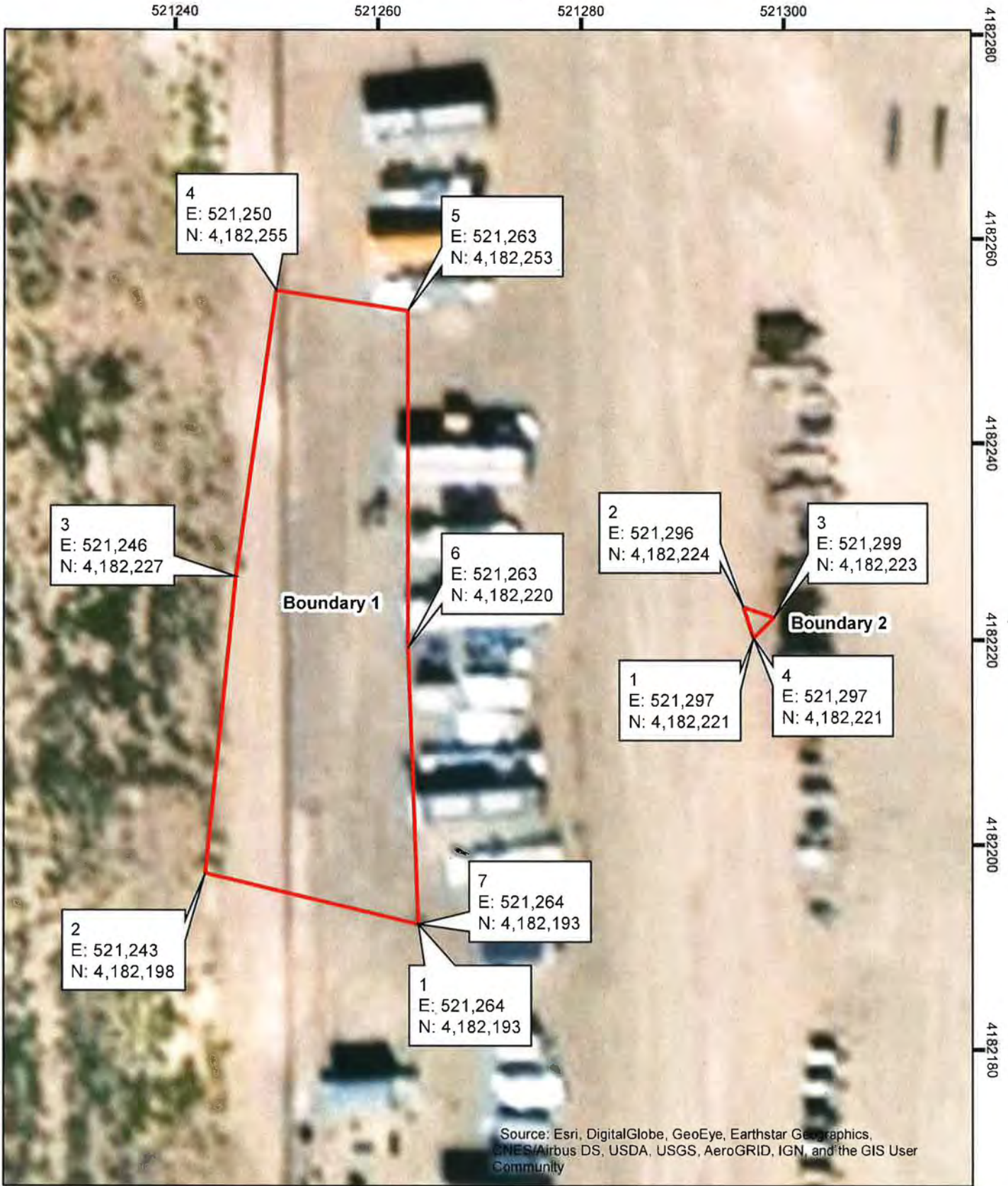
- FFACO Database
- NNSA M&O Contractor GIS
- USAF (Nellis Air Force Base Range Operations) GIS
- EM Nevada Program CAU/CAS Files

Section V. EM Nevada Program Approval



Tiffany Gamero
Activity Lead
EM Nevada Program

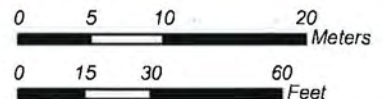
Date: 7/10/2019



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

Explanation

FFACO UR



Supplemental Information Figure

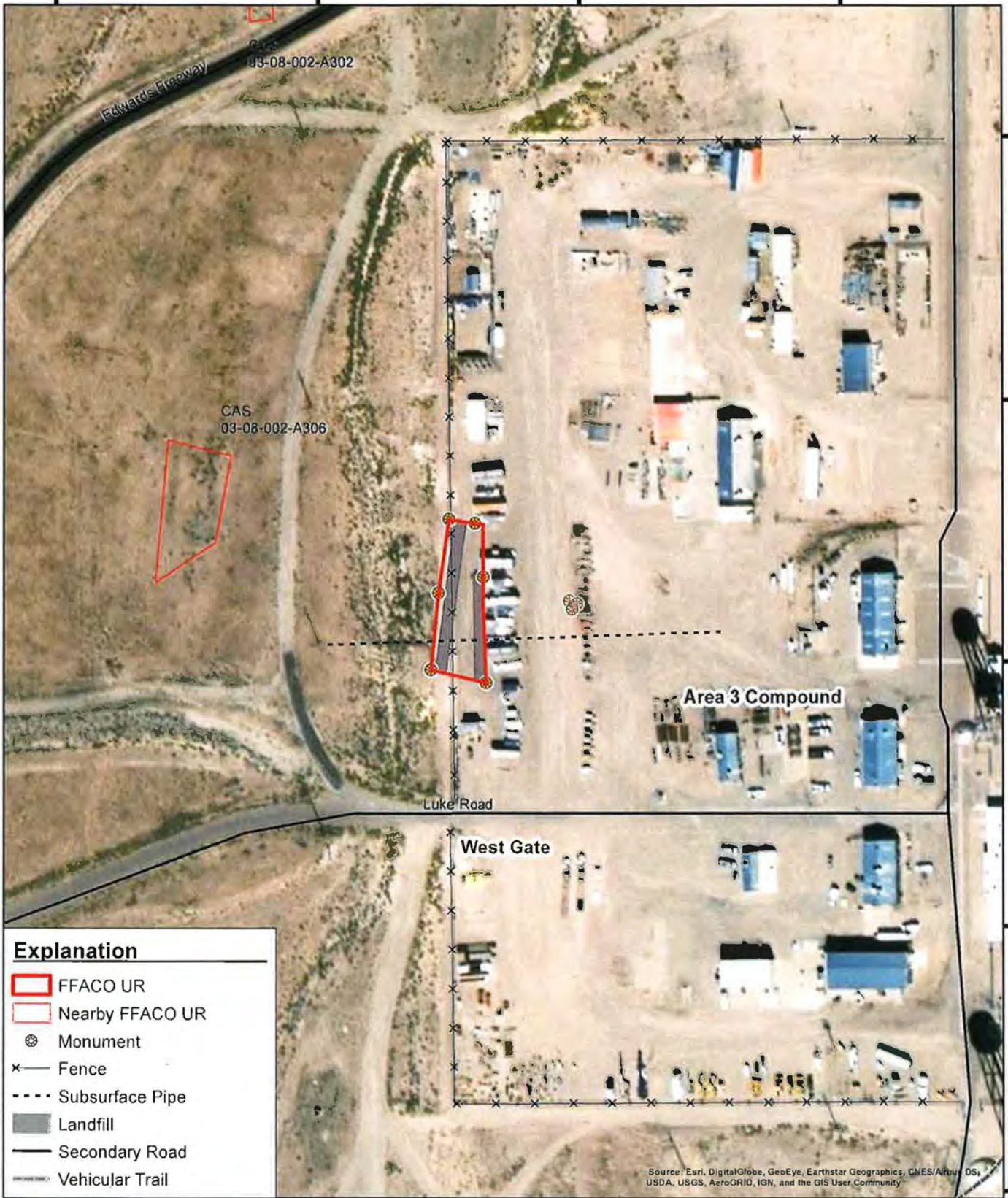
The attached supplemental information figure(s) are included to capture site feature information that was available in previous iterations of this Use Restriction (UR) to prevent loss of that information.

521100

521200

521300

521400



4182400

4182300

4182200

4182100

4182000

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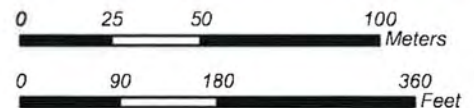
Explanation

- 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



**CAU 424, CAS 03-08-002-A303
Landfill Cell A3-3
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-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


Tiffany Gamero
Activity Lead
EM Nevada Program

Date: 7/10/2017

521050

521100

521150



4181600

4181550

4181500

4181450

4
E: 521,095
N: 4,181,609

5
E: 521,124
N: 4,181,596

3
E: 521,083
N: 4,181,543

6
E: 521,116
N: 4,181,539

2
E: 521,068
N: 4,181,444

1
E: 521,080
N: 4,181,442

7
E: 521,080
N: 4,181,442



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

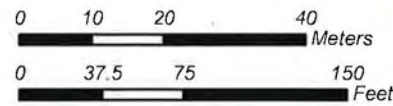
H:\424\GPS\CAS03-08-002-A304_FFACO.mxd - 3/26/2019 Page: 03-08-002-A304_FFACO_UR



**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

4181600


4181500

4181400

4181300



Explanation

-  FFAO UR
-  Monument
-  Landfill
-  Secondary Road

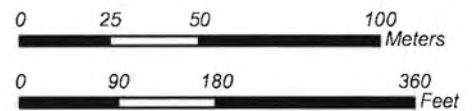
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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

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


Tiffany Gamero

Activity Lead

EM Nevada Program

Date: 7/10/2019

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

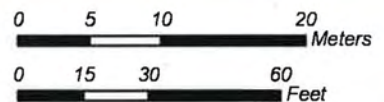
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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

Explanation

 FFACO UR



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

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-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


Tiffany Gamero

Activity Lead

EM Nevada Program

Date: 7/10/2019

521120 521140 521160 521180 521200

4182300
4182280
4182260
4182240
4182220



2
E: 521,143
N: 4,182,285

3
E: 521,167
N: 4,182,279

4
E: 521,161
N: 4,182,246

1
E: 521,138
N: 4,182,231

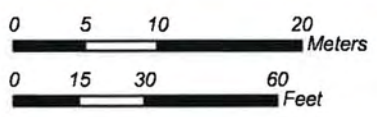
5
E: 521,138
N: 4,182,231

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



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

Explanation
 FFACO UR



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

Mobby Ave

Luke Road

CAS
03-08-002-A303

CAS
03-08-002-A303

Area 3 Compound







4182400

4182300

4182200

4182100

Explanation

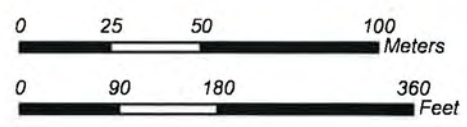
-  FFACO UR
-  Nearby FFACO UR
-  Monument
-  Subsurface Pipe
-  Landfill
-  Secondary Road

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

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**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

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

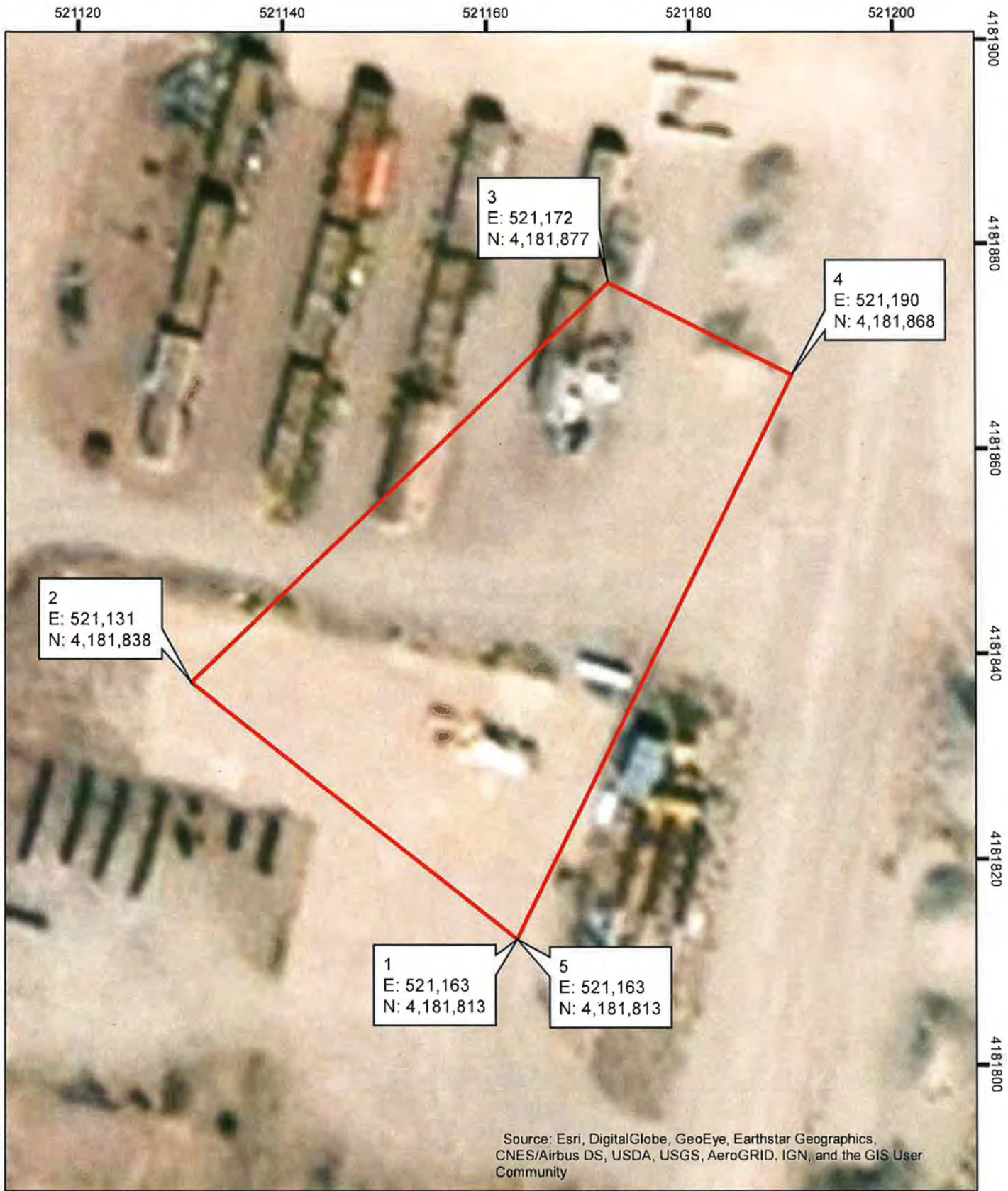
Section V. EM Nevada Program Approval


Tiffany Garner

Activity Lead

EM Nevada Program

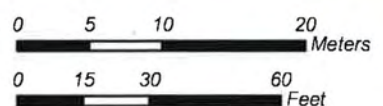
Date: 7/10/2019



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

Explanation

FFACO UR



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.

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

Corrective Action Unit (CAU) Number: 426

CAU Description: Cactus Spring Waste Trenches (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV/11718-226-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 426.

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) 83 State Plane Central (m) to NAD 1983 for CAS RG-08-001-RGCS.

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: 426

CAU Description: Cactus Spring Waste Trenches (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV/11718-226-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. 1998. Closure Report for Corrective Action Unit 426: Cactus Spring Waste Trenches, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718-226. Las Vegas, NV.

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

Corrective Action Unit (CAU) Number: 426

CAU Description: Cactus Spring Waste Trenches (TTR)

CAU Owner: Industrial Sites - Environmental Restoration (ER)

ROTC No. DOE/NV/11718-226-ROTC 1 **Page** 3 **of** 9

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

Approvals:



Date 12/5/2019

Tiffany
Activity
Environ _____ program

Date 12/9/19

Bill Wil
Deputy
Environ _____ program

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: | 426 - Cactus Spring Waste Trenches (TTR) |
| Corrective Action Site (CAS) Number & Description: | RG-08-001-RGCS - Waste Trenches |
| 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 | 516,370 | 4,174,941 |
| | 2 | 516,339 | 4,174,952 |
| | 3 | 516,351 | 4,174,983 |
| | 4 | 516,379 | 4,174,972 |
| | 5 | 516,370 | 4,174,941 |

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 1983 State Plane Nevada Central (meters), and rounded to the nearest meter; resultant coordinates may not reflect the original precision of values contained within the source GIS data set.

Boundary Applies to: Subsurface

Starting Depth: 1 **Ending Depth:** 5

Depth Unit: Meters

Survey Source: GPS

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 |
|---------|----------|
| N/A | N/A |

Inspection Frequency: N/A

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 426 CR (DOE/NV/11718-226), dated 11/12/2019.

MacDougall, J., Nevada Division of Environmental Protection, Bureau of Federal Facilities. 2011. Letter to R.F. Boehlecke (NNSA/NSO) titled Acceptance of the Post Closure Inspection Report for 2010, Tonopah Test Range, Nevada, Federal Facility Agreement and Consent Order, 8 April. Las Vegas, NV.

MacDougall, J., Nevada Division of Environmental Protection, Bureau of Federal Facilities. 2010. Letter to R.F. Boehlecke (NNSA/NSO) titled Acceptance of the Post Closure Inspection Report for 2009, Tonopah Test Range, Nevada, Federal Facility Agreement and Consent Order, 15 July. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1998. Closure Report for Corrective Action Unit 426: Cactus Spring Waste Trenches, Tonopah Test Range, Nevada, Rev. 0, DOE/NV/11718-226. 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



Tiffany Gamero
Activity Lead
EM Nevada Program

Date: 12/5/2019

516,320

516,360

4,175,000

4,174,960

4,174,920

3
E: 516,351
N: 4,174,983

4
E: 516,379
N: 4,174,972

2
E: 516,339
N: 4,174,952

1
E: 516,370
N: 4,174,941

5
E: 516,370
N: 4,174,941

Old Jeep Trail

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

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**CAU 426, CAS RG-08-001-RGCS
Waste Trenches
FFACO UR Boundary**

Explanation
FFACO UR
Trail



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.

516,150

516,225

516,300

516,375

516,450

4,175,125

4,175,050

4,174,975

4,174,900

4,174,825

4,174,750



Explanation

- FFACO UR
- Fence
- Landfill
- Paved Road
- Unimproved Road
- Trail

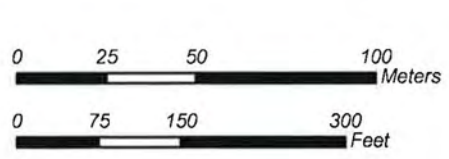
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**CAU 426, CAS RG-08-001-RGCS
Waste Trenches
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: 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:

 _____ Date 12/5/2019
Tiff _____
Act _____
Env _____ ogram

 _____ Date 12/9/19
Bill _____
De _____
Env _____ ogram

 _____ 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: | 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

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


Tiffany Gamero
Activity Lead
EM Nevada Program

Date:

12/5/2019

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

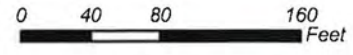
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**CAU 453, CAS 09-55-001-0952
Area 9 Landfill
FFACO UR Boundary**

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

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: 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:



Date 12/5/2019

Date 12/9/19

Date 12/10/19

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: | 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


Tiffany Gamero

Activity Lead

EM Nevada Program

Date:

12/5/2019

518,460

518,520

4,190,020

4,189,960

Ave 57

3
E: 518,476
N: 4,189,977

4
E: 518,506
N: 4,189,977

2
E: 518,472
N: 4,189,972

5
E: 518,496
N: 4,189,964

1
E: 518,496
N: 4,189,964

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 |

0 5 10 20 Meters

0 20 40 80 Feet



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

2
E: 518,938
N: 4,190,040

3
E: 518,985
N: 4,190,044

1
E: 518,942
N: 4,190,020

5
E: 518,942
N: 4,190,020

4
E: 518,985
N: 4,190,026

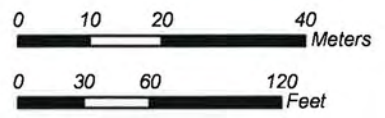
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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

| 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.

518,400





518,800

4,190,400

4,190,000

4,189,600

Explanation

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



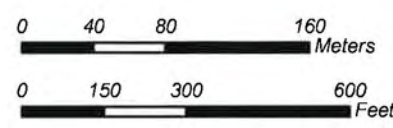
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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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

