



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

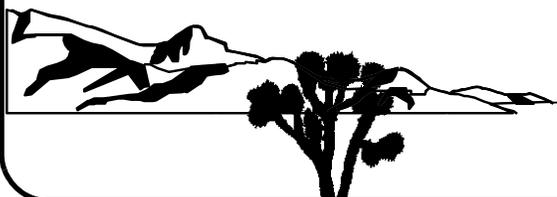
For Calendar Year 2018

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

FOR CALENDAR YEAR 2018

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

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

FOR CALENDAR YEAR 2018

Approved by: /s/ Tiffany Gamero

05/29/2019

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05/29/2019

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List of Acronyms and Abbreviations

BMP	Best management practice
CADD	Corrective action decision document
CAS	Corrective action site
CAU	Corrective action unit
CR	Closure report
DOE	U.S. Department of Energy
NDEP	Nevada Division of Environmental Protection
NNSA/NFO	U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office
NNSA/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office
NTTR	Nevada Test and Training Range
Pu	Plutonium
ROTC	Record of Technical Change
TTR	Tonopah Test Range
UR	Use restriction
UXO	Unexploded ordnance

Executive Summary

This report provides the results of the annual post-closure inspections conducted at the closed corrective action units (CAUs) located on the Tonopah Test Range (TTR) and Nevada Test and Training Range (NTTR) that are accessed through the TTR/NTTR Main Gate. This report covers calendar year 2018 and includes visual inspection and repair activities completed at the following CAUs:

- CAU 400, Bomblet Pit and Five Points Landfill (TTR)
- 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)

Site figures are included in [Appendix A](#). The Post-Closure Inspection Plans and subsequent correspondence modifying the requirements for each CAU are included in [Appendix B](#). The Post-Closure Inspection Checklists are included in [Appendix C](#). Field Notes are included in [Appendix D](#). Inspection Photographs are presented in [Appendix E](#). [Appendix F](#), Post-Closure Vegetation Monitoring Report, does not include any data because vegetation monitoring was not conducted at any CAU in 2018.

Visual inspections were conducted according to the post-closure plans in the approved closure reports and subsequent correspondence with the Nevada Division of Environmental Protection. The annual post-closure inspections for CAUs 407, 424, 453, and 487, as well as the best management practice inspection at CAU 400 were conducted on June 26, 2018. No maintenance or repair issues were noted at CAU 487. No vegetation deficiencies were noted at CAU 400.

Maintenance items and subsequent repairs include the following:

- **CAU 407**, Corrective Action Site (CAS) TA-23-001-TARC (Roller Coaster RadSafe Area): An animal burrow was discovered in the southeast corner of the cover. The cover was repaired during the week of October 8, 2018.
- **CAU 424**, CAS 03-08-001-A301 (Landfill Cell A3-1): An animal burrow was identified near the southwest monument. The cover was repaired during the week of October 8, 2018.
- **CAU 424**, CAS 03-08-002-A302 (Landfill Cell A3-2): A subsidence hole was identified near the south-center portion of the cell. A soil pile, from road maintenance, was also discovered on the cover. The soil pile was removed, and the subsidence hole was repaired during the week of October 8, 2018.

- **CAU 424**, CAS 03-08-002-A303 (Landfill Cell A3-3): The ground surface monuments associated with the triangular land parcel of the CAS need additional marking rock (i.e., lava rock). The large rectangular land parcel had no inspection issues. Lava rock was added to the ground surface monuments during the week of October 8, 2018.
- **CAU 424**, CAS 03-08-002-A304 (Landfill Cell A3-4): Nevada Division of Environmental Protection representatives requested a survey marker and use restriction sign be placed on top of the newly installed monument. The marker and sign are anticipated to be installed in 2019.
- **CAU 424**, CAS 03-08-002-A308 (Landfill Cell A3-8): The southwest ground surface monument could not be located. The monument was subsequently discovered during the week of October 8, 2018, and marking colored rock was placed over the monument.
- **CAU 453**, CAS 09-55-001-0952 (Area 9 Landfill): Three animal burrows were observed in each of the waste trenches. Also, the soil mound to the west of the trenches had deep runnels along the west side. The covers and soil mound were repaired during the week of October 8, 2018.

1.0 Introduction

1.1 Scope and Objectives

This report includes inspection results, maintenance and repair activities, and recommendations for calendar year 2018 for closed corrective action units (CAUs) 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 Nevada Test and Training Range. The locations of the CAUs are shown in [Figure A-1](#) of [Appendix A](#).

The following CAUs and corrective action sites (CASs) are included in this report:

- **CAU 400: Bomblet Pit and Five Points Landfill (TTR)**
 - CAS TA-19-001-05PT: Ordnance Disposal Pit
- **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 CAU) are included in [Appendix B](#). Post-Closure Inspection Checklists are

included in [Appendix C](#). Field Notes are included in [Appendix D](#). [Appendix E](#) presents inspection Photographs. [Appendix F](#), Post-Closure Vegetation Monitoring Report, does not include any data because vegetation monitoring was not conducted at any CAU in 2018.

Inspections consist of the following activities to evaluate and document the condition of the units:

- Photographs to document current conditions and note variances from previous inspections
- Inspection of fencing, signs, monuments, and/or markers to determine whether repairs and/or maintenance are needed
- Inspection of soil covers for indications of subsidence, erosion, or unauthorized use
- Vegetation survey to quantify the condition of vegetative covers (as needed)

2.0 Inspection Results

Inspections were conducted on June 26, 2018. The post-closure inspection plans were published in the applicable closure report (CR) for each CAU. Subsequent correspondence with the Nevada Division of Environmental Protection (NDEP) has on occasion modified the requirements (noted in [Appendix B](#)).

2.1 CAU 400, Bomblet Pit and Five Points Landfill (TTR)

The Five Points Landfill (CAS TA-19-001-05PT, Ordnance Disposal Pit) was cleaned closed in 1997 (DOE/NV, 1996). No use restrictions (URs) are required for this site. As part of site restoration, the CAS was vegetated in 1997 under the *Tonopah Test Range Closure Sites Revegetation Plan* (DOE/NV, 1997). Fencing was required for a minimum of five years and is still present. In correspondence dated March 20, 2014, NDEP approved the recommendation to conduct vegetation monitoring only on an as-needed basis if significant changes or concerns are noted during annual visual inspections (MacDougall, 2014). The site is shown in [Figure A-2](#) of [Appendix A](#).

A best management practice (BMP) visual inspection was conducted on June 26, 2018, at the Five Points Landfill. No problems were identified. There were no significant changes in vegetation at the site. Notes were recorded on the Field Activity Daily Log presented in [Appendix D](#). NDEP representatives, present during inspection, noted that the vegetation inspections at CAU 400 should end. A letter to NDEP requesting cessation to the BMP inspections will be submitted.

2.2 CAU 407, Roller Coaster RadSafe Area (TTR)

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 CR (NNSA/NV, 2001a) and subsequent correspondence. In correspondence dated March 20, 2014, NDEP approved the recommendation to conduct vegetation monitoring only on an as-needed basis if significant changes or concerns are noted during annual visual inspections (MacDougall, 2014). The site is shown in [Figure A-3](#) of [Appendix A](#).

The annual visual inspection was conducted on June 26, 2018. The cover near the southeast corner was disturbed by animal burrowing activities. The cover was repaired during the week of October 8, 2018. Vegetation status appeared to be similar to the vegetation status in the surrounding area.

2.3 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 CR (DOE/NV, 1999a) and subsequent correspondence. The landfill locations are shown in [Figure A-4](#) of [Appendix A](#). The annual inspection was conducted on June 26, 2018.

Landfill Cell A3-1 (CAS 03-08-001-A301): Animal burrows were found next to the southwest monument. The cover was repaired during the week of October 8, 2018. No other issues or concerns were identified, and no additional maintenance or repairs were required. Annual visual inspections should continue as scheduled. The site is shown in [Figure A-5](#) of [Appendix A](#).

Landfill Cell A3-2 (CAS 03-08-002-A302): Road maintenance waste (ditch scraping) was piled on the cell (south center), and a subsidence hole was identified near the south center of the cell as well. The subsidence hole was approximately 5 feet across. The cover was repaired during the week of October 8, 2018. No other issues or concerns were identified, and no additional maintenance or repairs were required. Annual visual inspections should continue as scheduled. The site is shown in [Figure A-5](#) of [Appendix A](#).

Landfill Cell A3-3 (CAS 03-08-002-A303): Additional marking rock (lava rock) is needed to supplement the marking rock at the ground surface monuments associated with the triangular portion of the CAS. Lava rock was added during the week of October 8, 2018. No problems were noted on the rectangle portion of the CAS. No other issues or maintenance repairs were noted. Annual visual inspections should continue as scheduled. The site is shown in [Figure A-6](#) of [Appendix A](#).

Landfill Cell A3-4 (CAS 03-08-002-A304): NDEP representatives (present during the inspection) requested the installation of a survey marker plate with monument information on the newly installed concrete monument, and the installation of a UR sign on the newly installed concrete monument. A survey marker and a UR sign were not installed in 2018, but are anticipated to be installed in 2019. No other issues or maintenance repairs were noted. Annual visual inspections should continue as scheduled. The site is shown in [Figure A-7 of Appendix A](#).

Landfill Cell A3-5 (CAS 03-08-002-A305): No problems were identified, and no maintenance or repairs were required. Annual visual inspections should continue as scheduled. The site is shown in [Figure A-8 of Appendix A](#).

Landfill Cell A3-6 (CAS 03-08-002-A306): No problems were identified, and no maintenance or repairs were required. Annual visual inspections should continue as scheduled. The site is shown in [Figure A-9 of Appendix A](#).

Landfill Cell A3-8 (CAS 03-08-002-A308): The southwest ground surface monument could not be located. Therefore, the condition of this monument could not be verified. Subsequently, the monument was located. The monument was covered by soil. The ground surface monument was found to be in good condition, and lava rock was replaced during the week of October 8, 2018. No other issues or maintenance repairs were noted. Annual visual inspections should continue as scheduled. The site is shown in [Figure A-10 of Appendix A](#).

2.4 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 CR (DOE/NV, 1999b) and subsequent correspondence. The site is shown in [Figure A-11 of Appendix A](#). The annual inspection was conducted on June 26, 2018. The cover was found disturbed by animal burrowing activities. A burrow was found within each of the three trenches (center portion of the north trench, east portion of the center trench, and west portion of the south trench). Additionally, runnels on the western edge of the soil mound were greater than 6 inches. The animal burrows and runnels were repaired during the week of October 8, 2018. No other issues or concerns were

identified, and no additional maintenance or repairs were required. Annual visual inspections should continue as scheduled.

2.5 CAU 487, Thunderwell Site (TTR)

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 Corrective Action Decision Document (CADD)/CR (NNSA/NV, 2001b), Record of Technical Change (ROTC) No. 2 (NNSA/NSO, 2004), and subsequent correspondence. The site is shown in [Figure A-12](#) of [Appendix A](#). The annual inspection was conducted on June 26, 2018. No problems were identified, and no maintenance or repairs were required. Annual visual inspections should continue as scheduled.

3.0 Summary

A brief summary of the annual visual inspections and proposed inspection requirements are outlined below.

3.1 CAU 400, Bomblet Pit and Five Points Landfill (TTR)

No problems were identified. NDEP representatives, present during inspection, noted that the vegetation inspections at CAU 400 should end. A letter to NDEP requesting cessation to the BMP inspections will be submitted.

3.2 CAU 407, Roller Coaster RadSafe Area (TTR)

An animal burrow was identified in southeast portion of the cover during the June 26, 2018, inspection. The site was repaired during the week of October 8, 2018. Annual post-closure inspections should continue as scheduled.

3.3 CAU 424, Area 3 Landfill Complexes (TTR)

The following observations and recommendations for the seven CASs within CAU 424 during the June 26, 2018, inspection:

- *Landfill Cell A3-1 (CAS 03-08-001-A301)*. An animal burrow was identified next to the southwest monument. The site was repaired during the week of October 8, 2018. Annual visual inspections should continue as scheduled.
- *Landfill Cell A3-2 (CAS 03-08-002-A302)*. Road maintenance waste was piled on the cell (south center), and a subsidence hole (south center) was also identified. The site was repaired during the week of October 8, 2018. Annual visual inspections should continue as scheduled.
- *Landfill Cell A3-3 (CAS 03-08-002-A303)*. Additional marking rock was added to the monuments at the triangular portion of the CAS during the week of October 8, 2018. Annual visual inspections should continue as scheduled.
- *Landfill Cell A3-4 (CAS 03-08-002-A304)*. NDEP requested the installation of a survey marker plate and a UR sign on the newly installed concrete monument. A survey marker and a UR sign are anticipated to be installed in 2019. Annual visual inspections should continue as scheduled.

- *Landfill Cell A3-5 (CAS 03-08-002-A305)*. No problems were identified. Annual visual inspections should continue as scheduled.
- *Landfill Cell A3-6 (CAS 03-08-002-A306)*. No problems were identified. Annual visual inspections should continue as scheduled.
- *Landfill Cell A3-8 (CAS 03-08-002-A308)*. Although the southwest monument could not be found during the inspection, the monument was located during the week of October 8, 2018. Marking rock was added to the monument. Annual visual inspections should continue as scheduled.

3.4 CAU 453, Area 9 UXO Landfill (TTR)

Animal burrows (center portion of north trench, center portion of center trench, and west portion of south trench) were repaired during the week of October 8, 2018. Runnels on the western edge of the soil mound were repaired during the week of October 8, 2018. Annual visual inspections should continue as scheduled.

3.5 CAU 487, Thunderwell Site (TTR)

No problems were identified. Annual visual inspections should continue as scheduled.

4.0 References

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

DOE/NV, see U.S. Department of Energy, Nevada Operations Office.

MacDougall, J., Nevada Department of Environmental Protection. 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.

NNSA/NSO, see U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office.

NNSA/NV, see U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office.

U.S. Department of Energy, Environmental Management Nevada Program. 2017. *Closure Report for Corrective Action Unit 415: Project 57 No. 1 Plutonium Dispersion (NTTR), Nevada Test and Training Range, Nevada*, DOE/NV--1581. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2004. *Record of Technical Change No. 2 for the Final Corrective Action Decision Document/Closure Report for Corrective Action Unit 487: Thunderwell Site, Tonopah Test Range, Nevada*, Rev. 0. Las Vegas, NV.

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

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

U.S. Department of Energy, Nevada Operations Office. 1996. *Closure Report for No. 400: Bomblet Pit and Five Points Landfill, Tonopah Test Range*, DOE/NV-459, UC-700. Las Vegas, NV.

U.S. Department of Energy, Nevada Operations Office. 1997. *Tonopah Test Range Closure Sites Revegetation Plan*, DOE/NV/11718-115, UC-702. Las Vegas, NV.

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

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

Appendix A

Site Figures

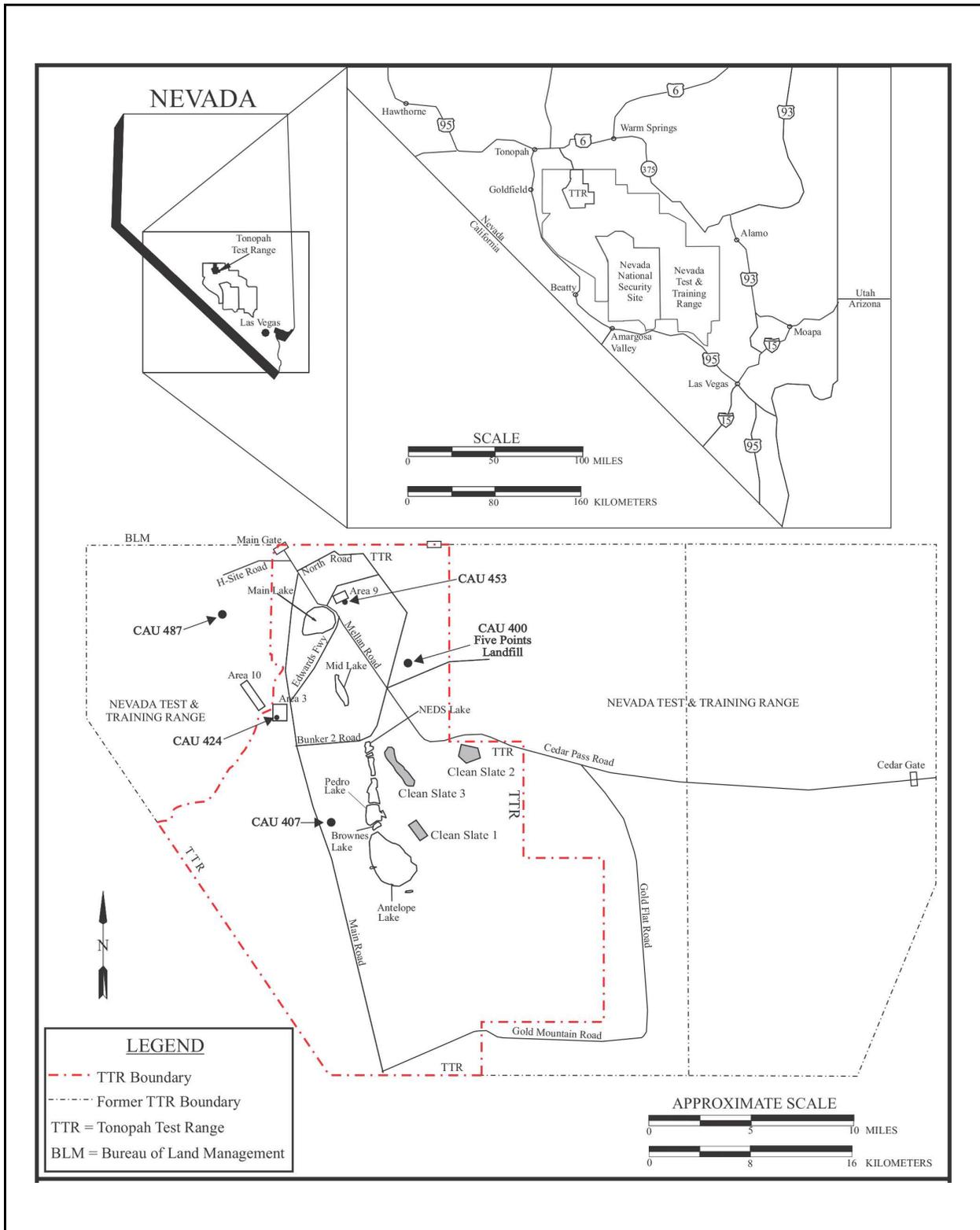


Figure A-1
Tonopah Test Range Post-Closure Monitoring Sites Location Map

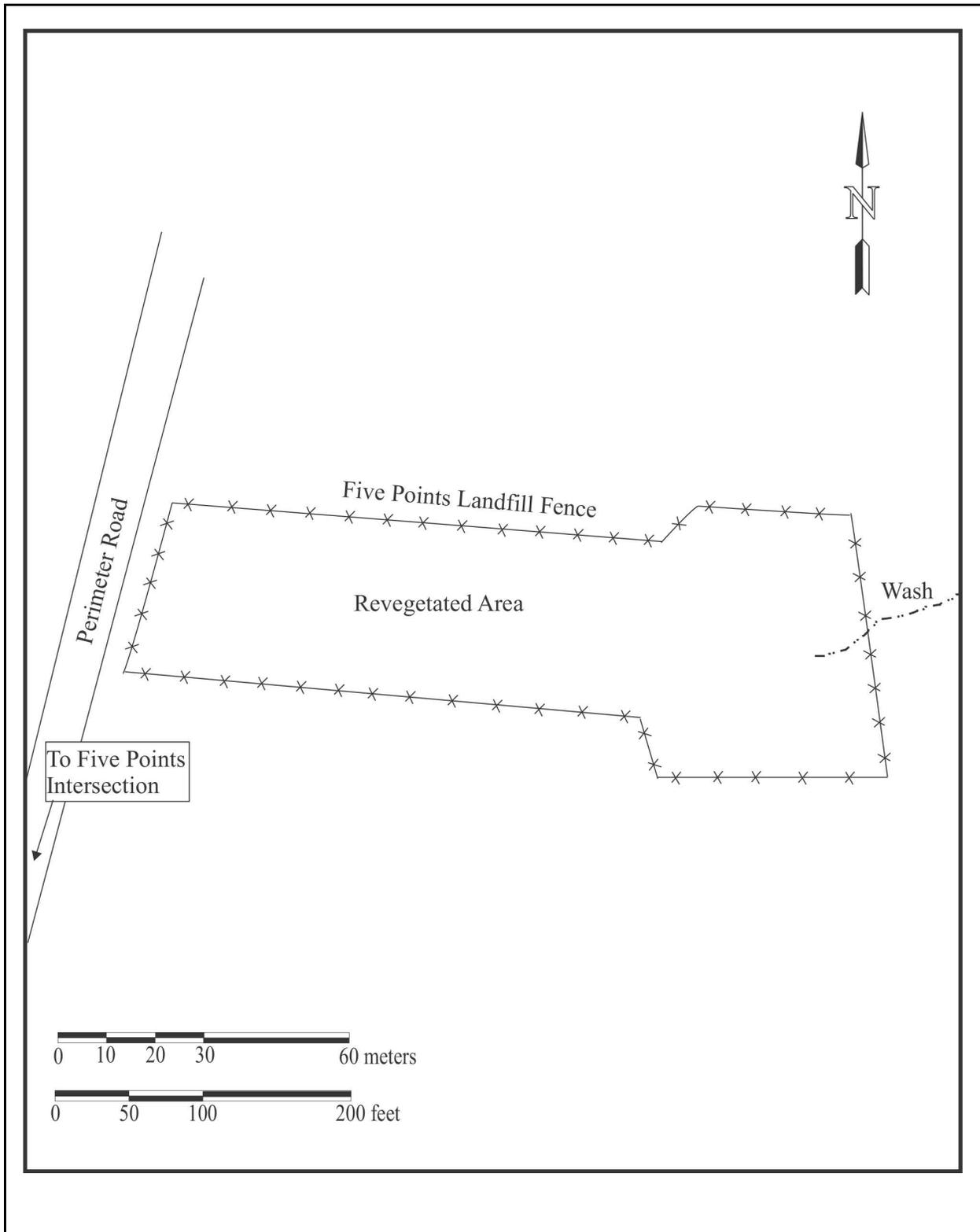


Figure A-2
CAU 400 Five Points Landfill Location Map

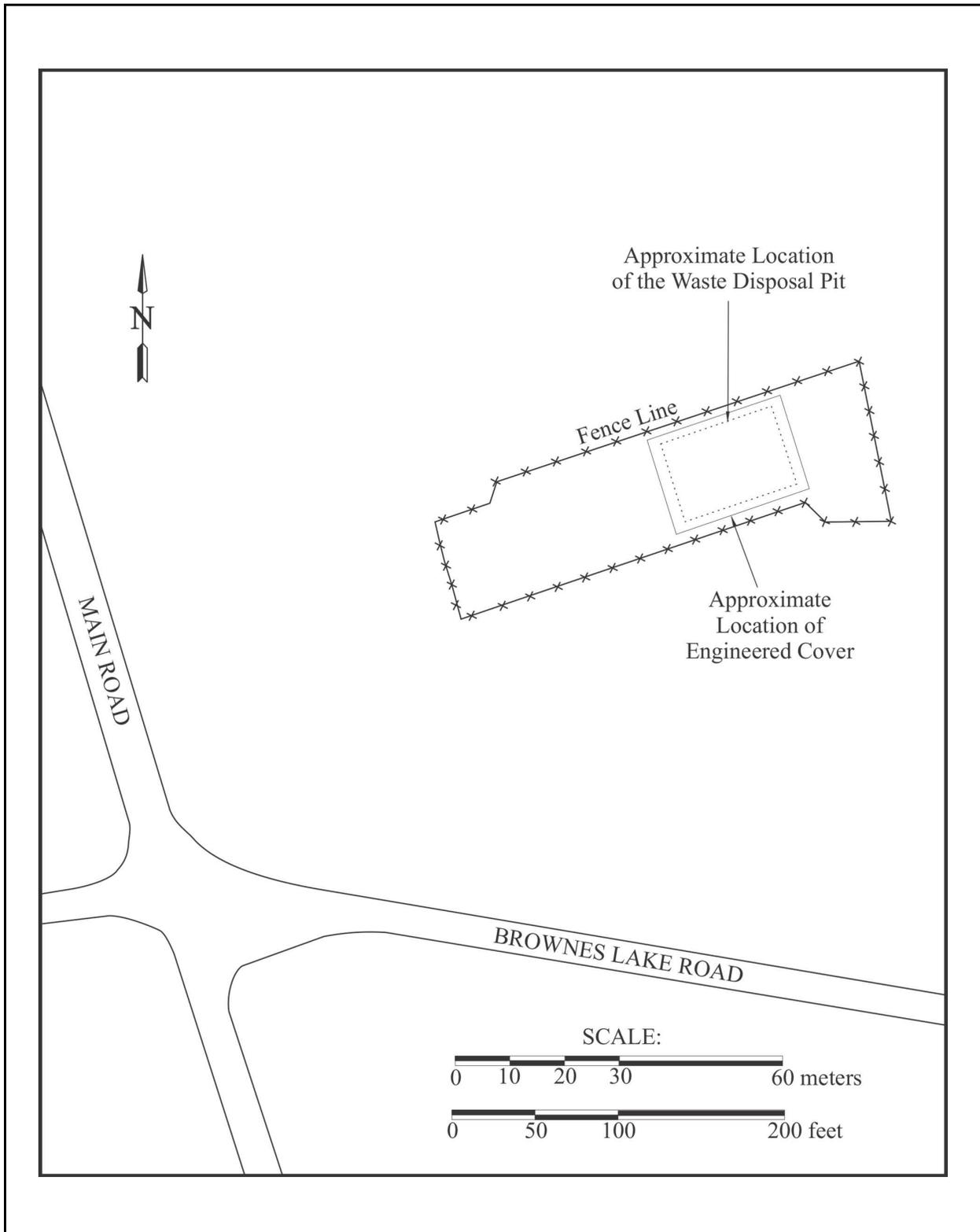


Figure A-3
CAU 407 Roller Coaster RadSafe Area Location Map

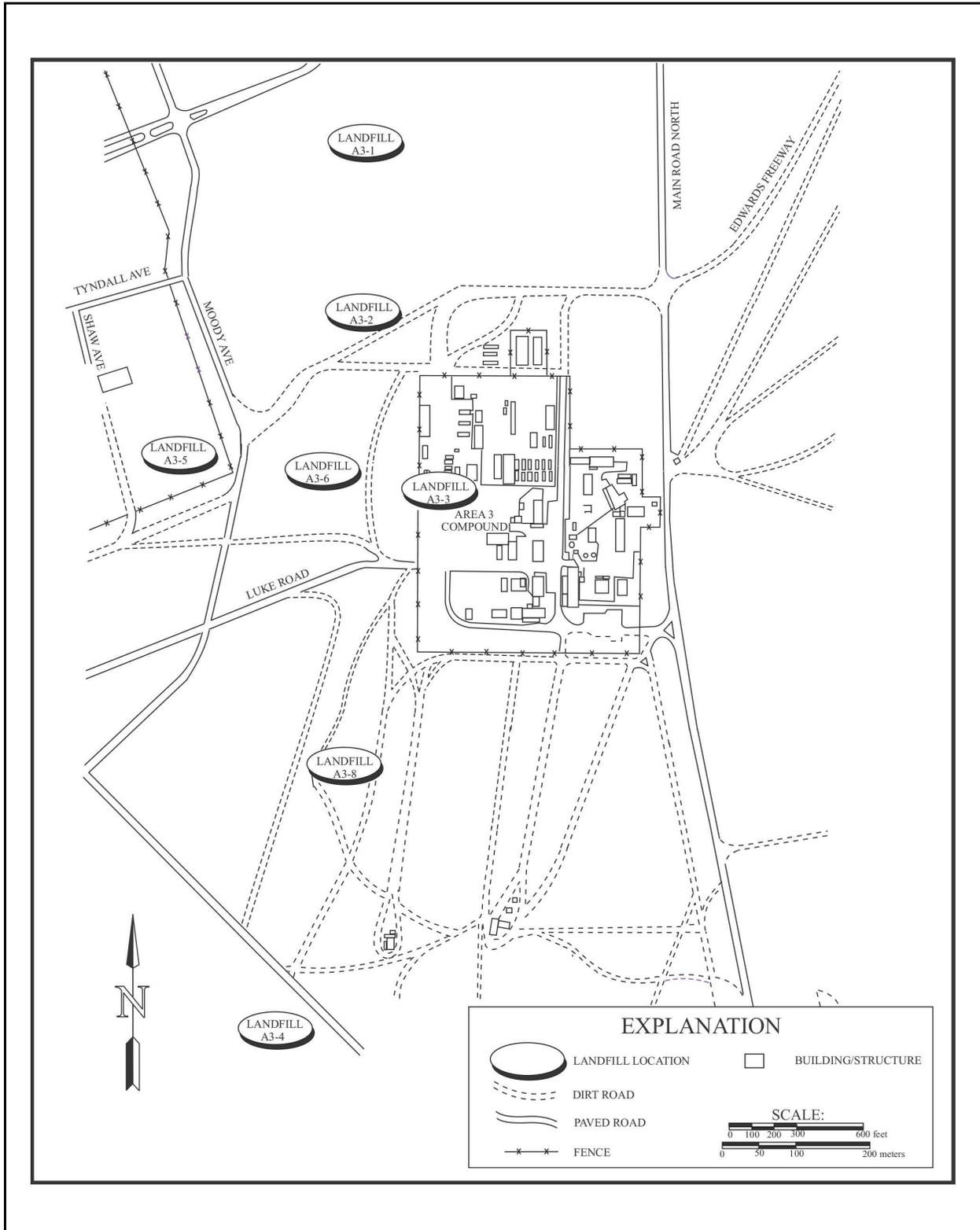


Figure A-4
CAU 424 Area 3 Landfill Complexes Location Map

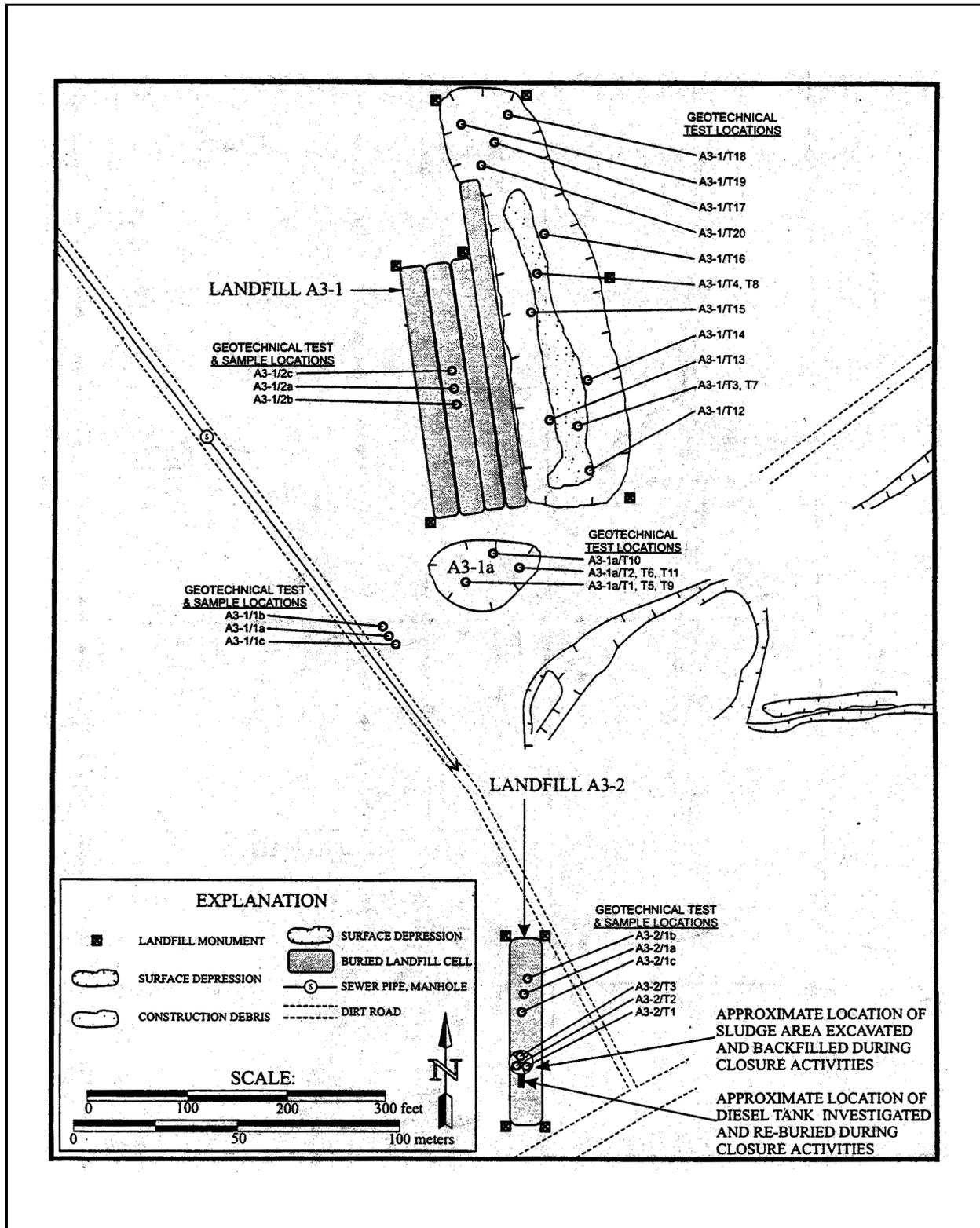


Figure A-5
CAU 424 Landfills A3-1 and A3-2

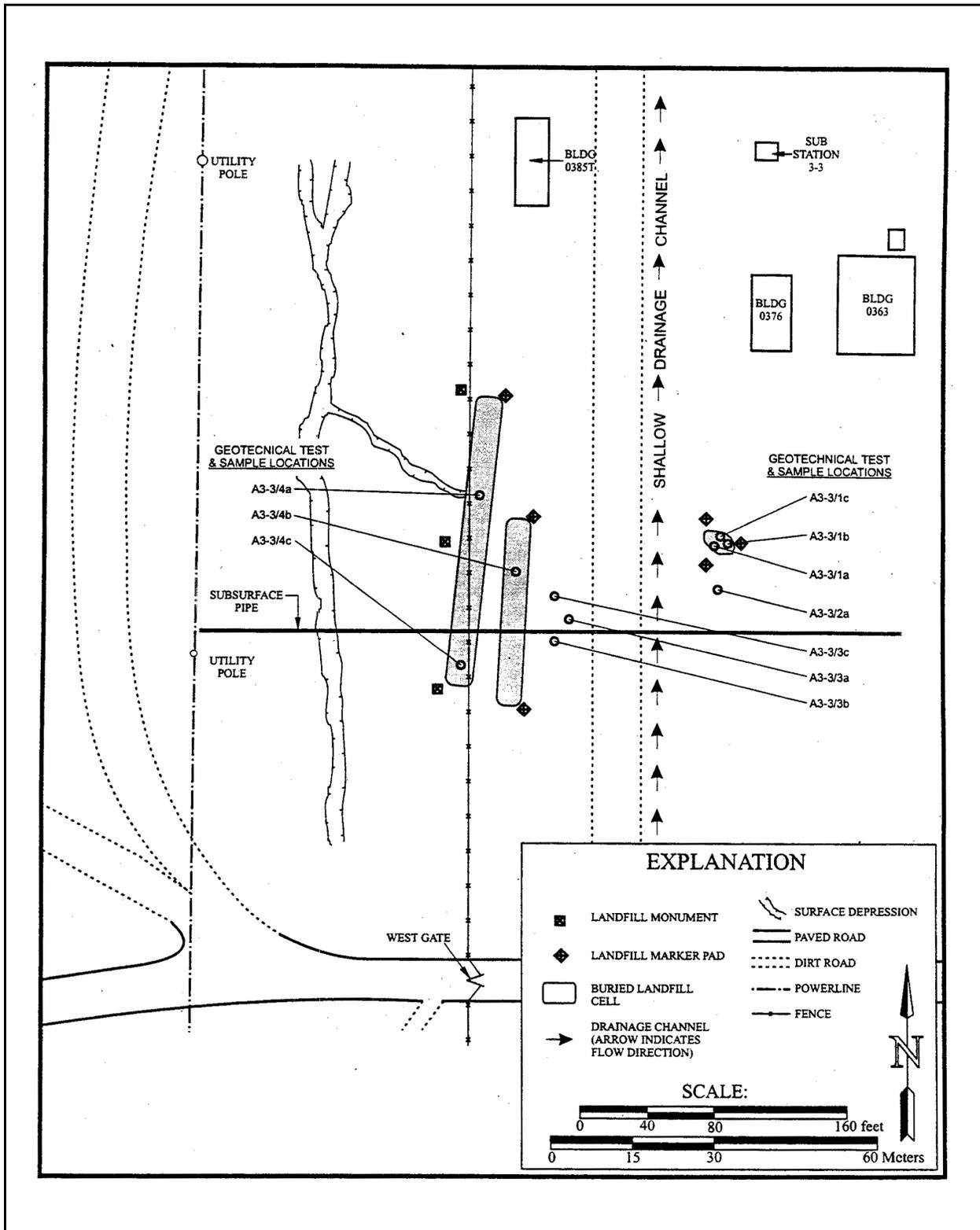


Figure A-6
 CAU 424 Landfill A3-3

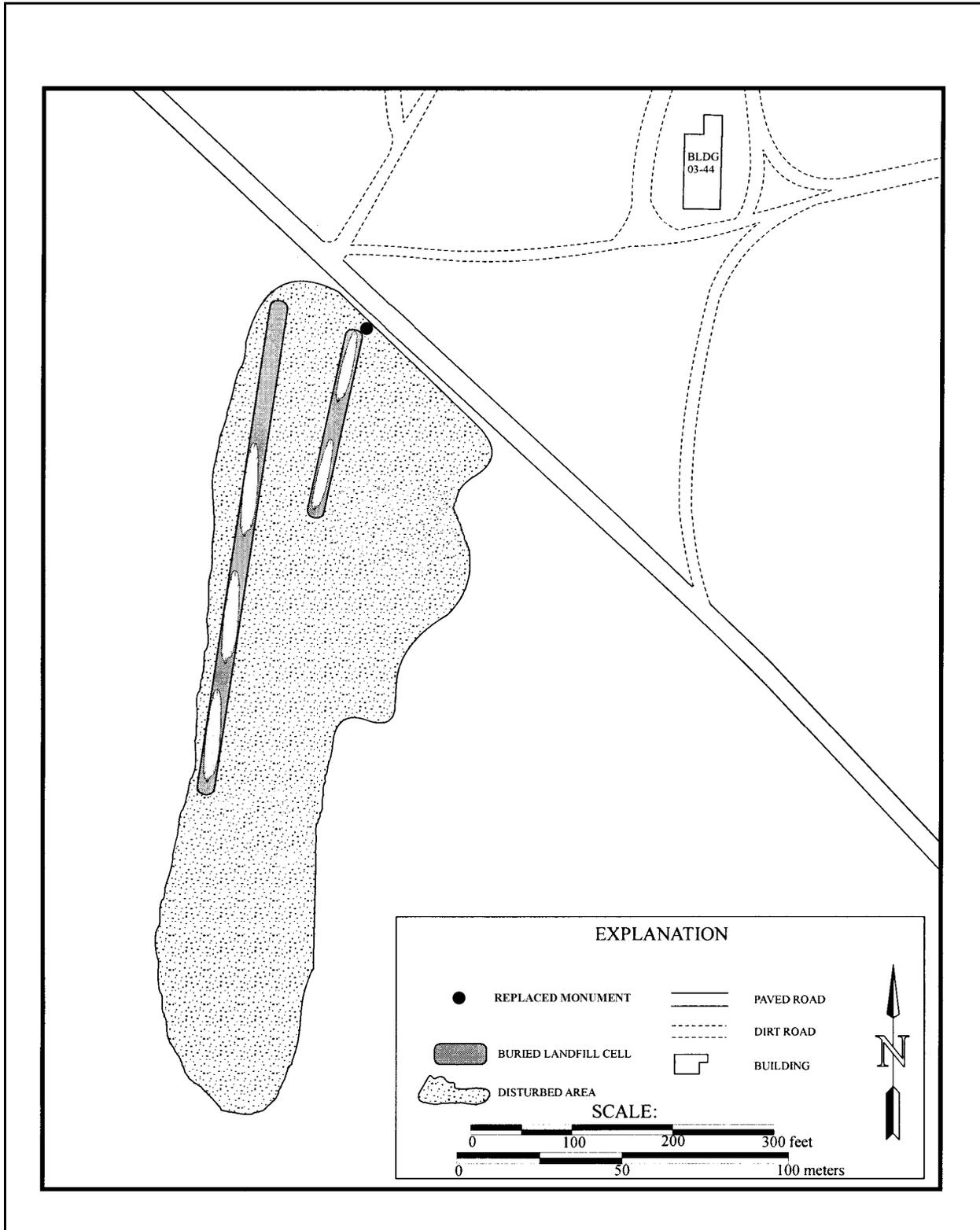


Figure A-7
CAU 424 Landfill A3-4

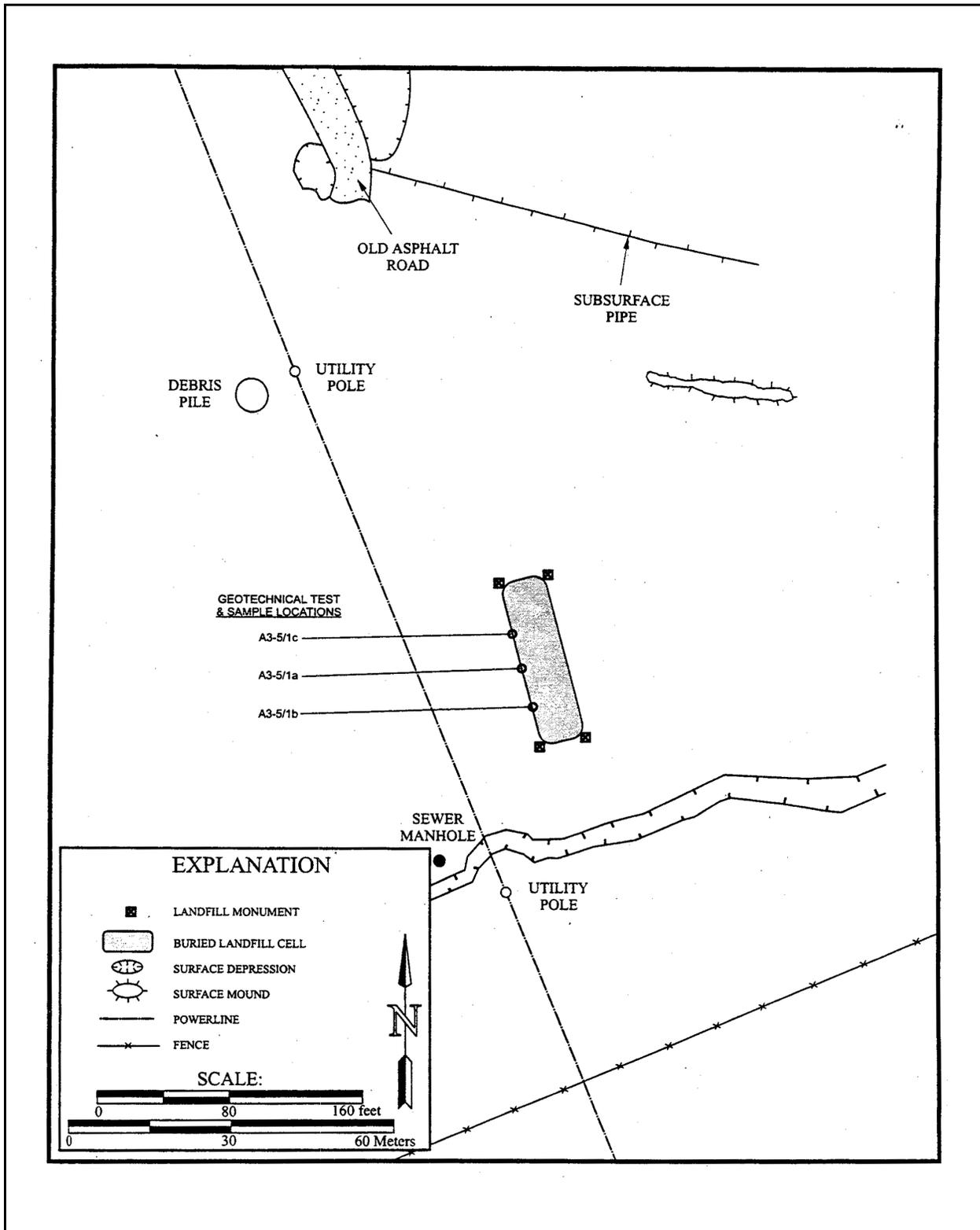


Figure A-8
CAU 424 Landfill A3-5

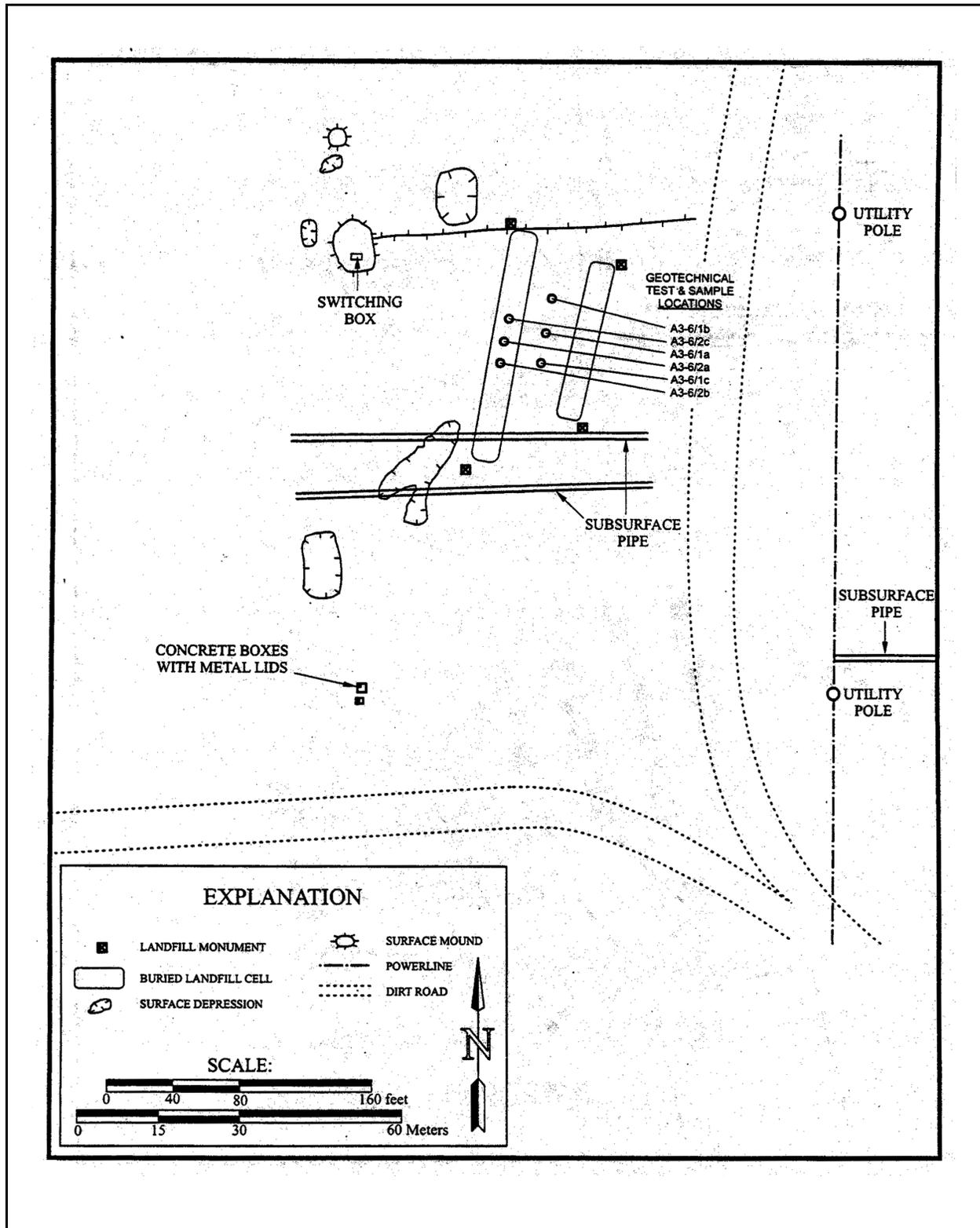


Figure A-9
CAU 424 Landfill A3-6

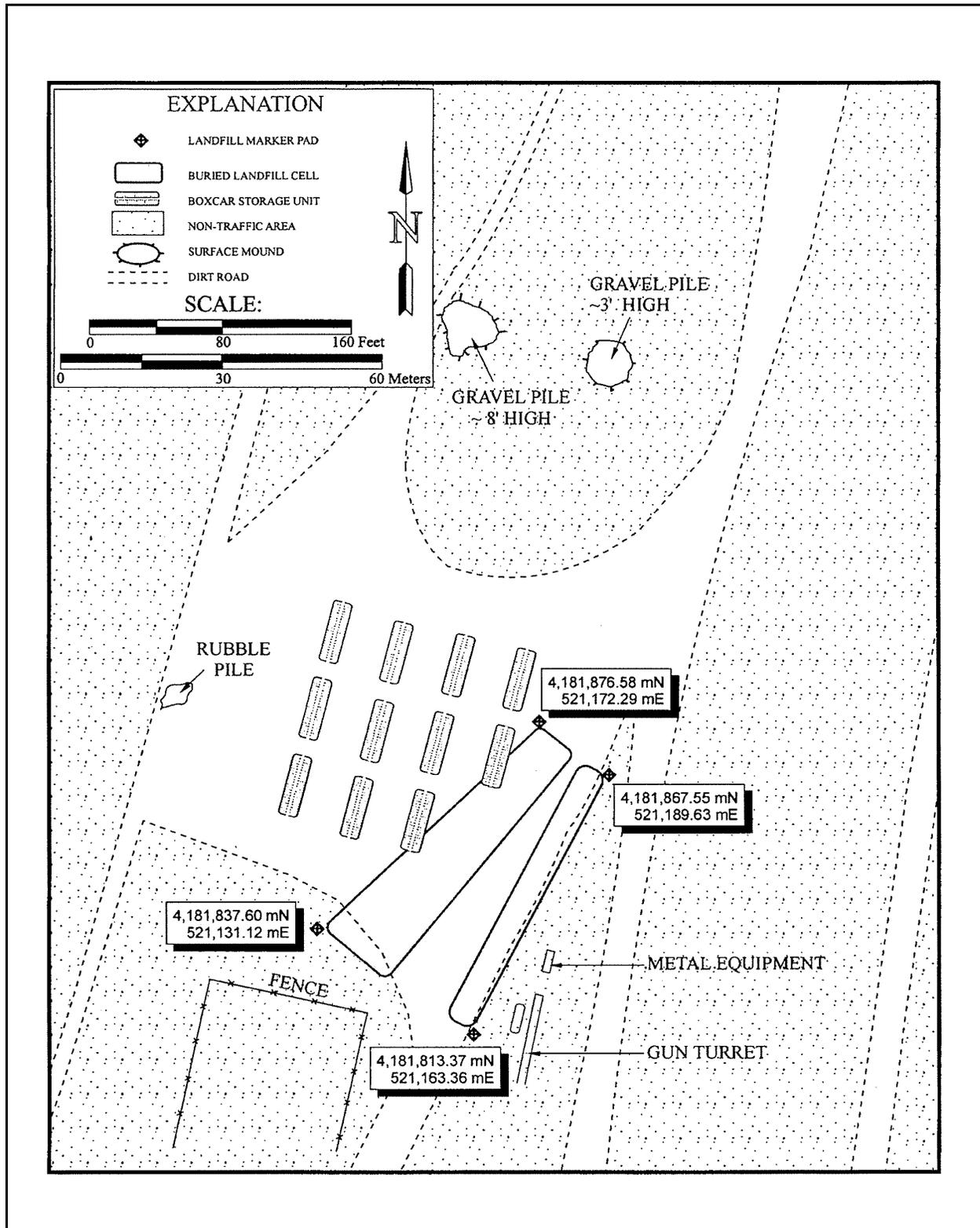


Figure A-10
CAU 424 Landfill A3-8

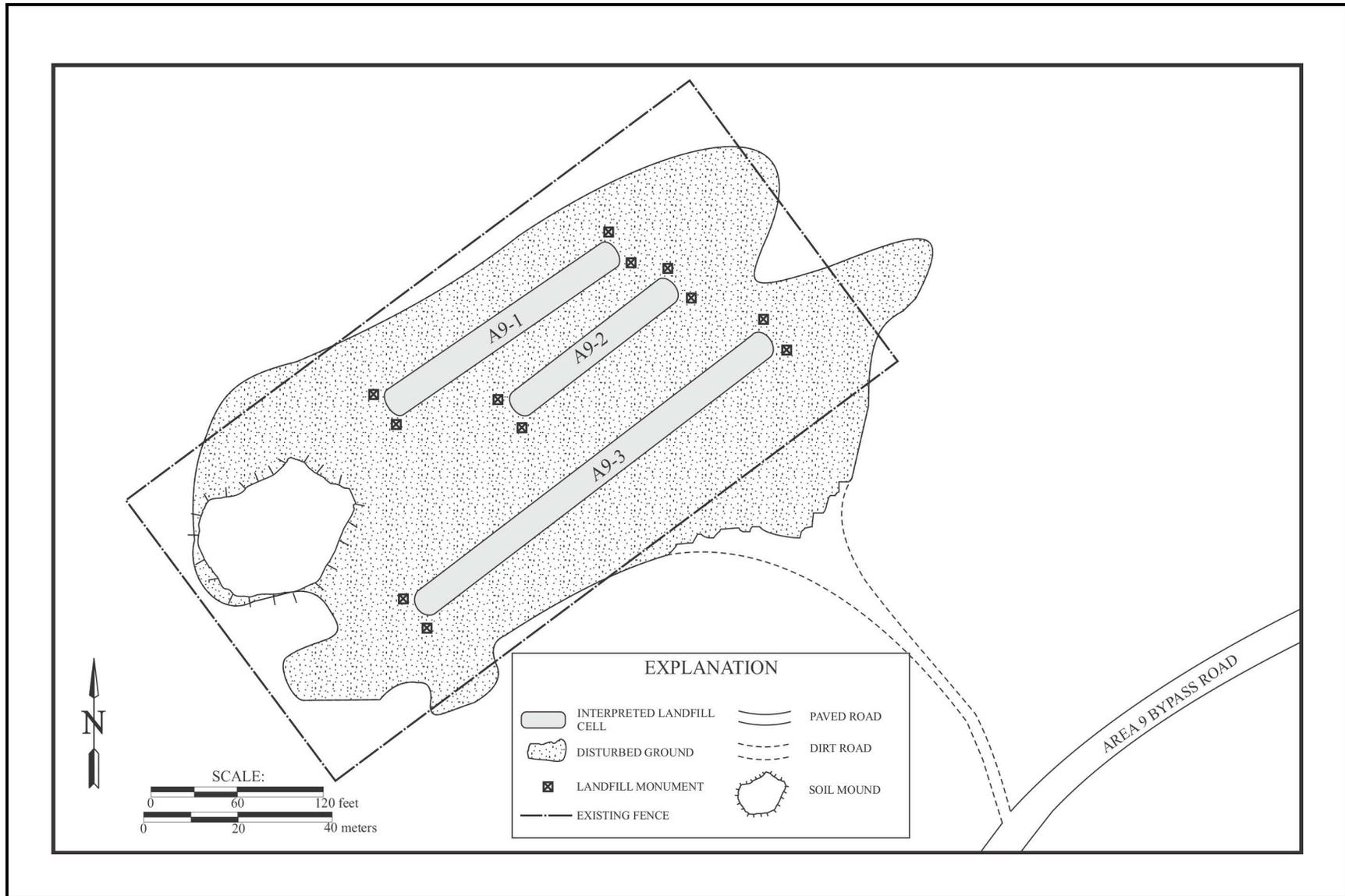


Figure A-11
CAU 453 Area 9 UXO Landfill Location Map

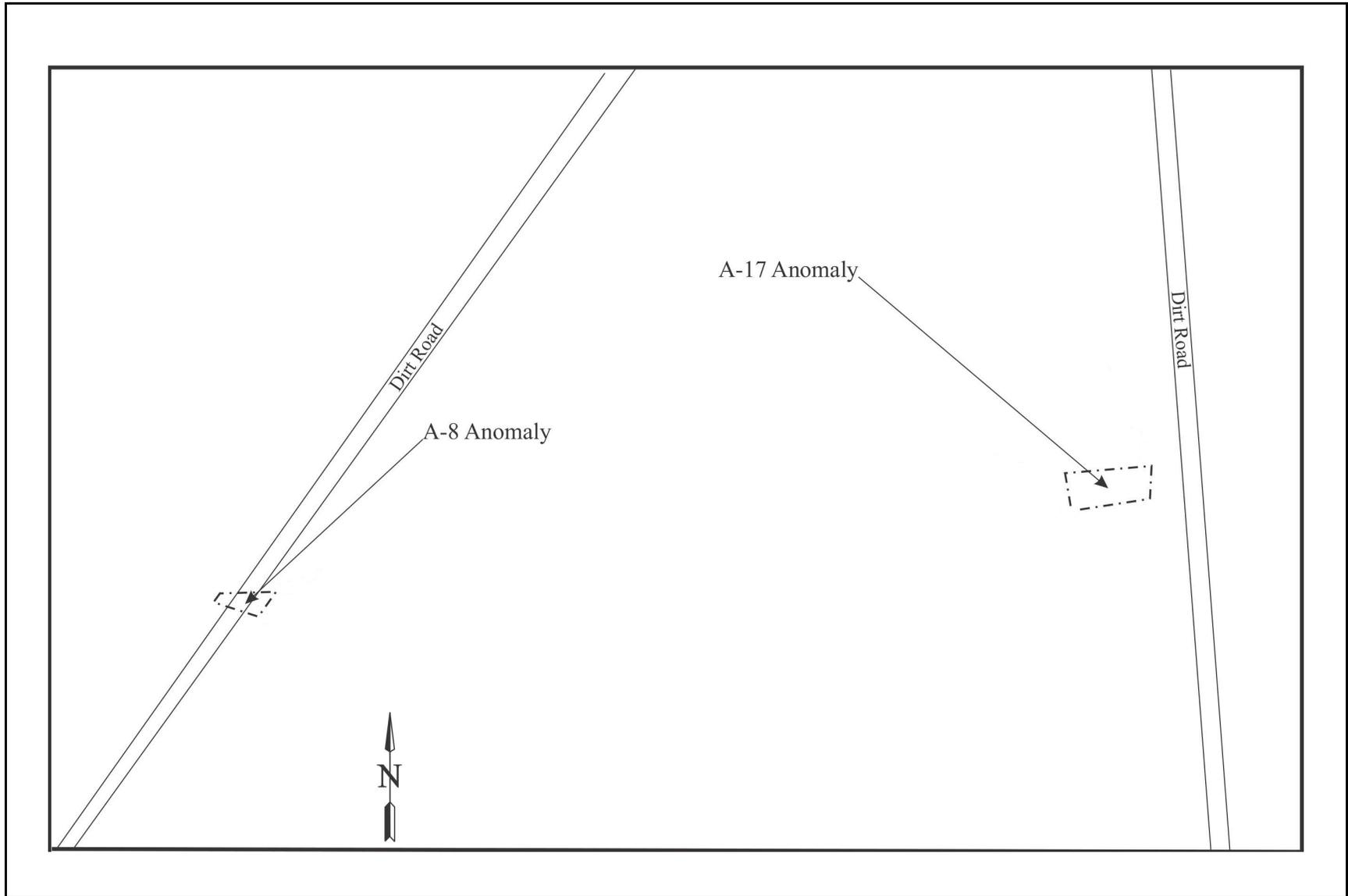


Figure A-12
CAU 487 Thunderwell Site Location Map

Appendix B

Post-Closure Inspection Plans

B.1.0 CAU 400, Bomblet Pit and Five Points Landfill (TTR) Post-Closure Inspection Plan

CAS TA-55-001-TAB2, Ordnance Disposal Pit (aka Bomblet Pit), and CAS TA-19-001-05PT, Ordnance Disposal Pit (aka Five Points Landfill) were clean closed in 1996 as described in the *Closure Report for CAU No. 400: Bomblet Pit and Five Points Landfill, Tonopah Test Range* (DOE/NV, 1996a) that was approved in 1997. There are no URs at either CAS.

Restoration and revegetation were required at the site as described in the 1996 *Streamlined Approach for Environmental Restoration Plan, CAU No. 400: Bomblet Pit and Five Points Landfill, Tonopah Test Range* (DOE/NV, 1996b), Section 3.7: “Efforts will be made to revegetate the Five Points Landfill. A site survey has been conducted to assess the potential for revegetation, topsoil replacement, and seeding with native plant species.”

The revegetation plan is described in the 1997 *Tonopah Test Range Closure Sites Revegetation Plan* (DOE/NV, 1997). This report states that fences should remain in place for a minimum of five years.

In the letter “Request to Reduce Frequency of Tonopah Test Range (TTR) Post-Closure Monitoring Inspections from Semi-Annual to Annual Site Inspections for the Following CAUs: 400, 404, 407, 423, 424, 426, 427, 453, 487” dated November 28, 2006, the U.S. Department of Energy (DOE), National Nuclear Security Administration Nevada Site Office (NNSA/NSO) noted that CAU 400 was being inspected semi-annually as a BMP to document vegetation growth and inspect the integrity of site fencing (Jones, 2006). NNSA/NSO requested that the inspection frequency be reduced to annual. This request was approved by NDEP in the December 5, 2006, letter “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” (Murphy, 2006).

In the 2014 *Post-Closure Inspection Report for the Tonopah Test Range, Nevada for Calendar Year 2013* (NNSA/NFO, 2014), the DOE, National Nuclear Security Administration Nevada Field Office (NNSA/NFO) requested a reduction in vegetation monitoring at the site from annual to an as-needed basis. This change was approved in the March 20, 2014, letter “Acceptance of the Post-Closure Inspection Report for 2013, Tonopah Test Range, Nevada, Federal Facility Agreement and Consent

Order” (MacDougall, 2014). The last annual vegetation monitoring was conducted in 2013. Future vegetation monitoring will be conducted “when significant changes are noted during the annual visual inspections.”

Currently, annual visual inspections are conducted at CAS TA-19-001-05PT, Ordnance Disposal Pit, Five Points Landfill as a BMP to determine whether there have been significant changes to the condition of the vegetation prompting the need for vegetation monitoring.

B.2.0 CAU 407, Roller Coaster RadSafe Area (TTR) Post-Closure Inspection Plan

The *Closure Report for Corrective Action Unit 407: Roller Coaster RADSAFE Area, Tonopah Test Range, Nevada* (NNSA/NV, 2001a) was approved in 2002 and required quarterly inspections the first six months after the construction of a cover followed by two years of semi-annual inspections. Following these inspections, the inspection frequency would be determined by NDEP based on the results of these inspections.

In the letter “Request to Reduce Frequency of Tonopah Test Range (TTR) Post-Closure Monitoring Inspections from Semi-Annual to Annual Site Inspections for the Following CAUs: 400, 404, 407, 423, 424, 426, 427, 453, 487” dated November 28, 2006, NNSA/NSO noted that CAU 407 was being inspected semi-annually and requested that the inspection frequency be reduced to annual (Jones, 2006). This request was approved by NDEP in the December 5, 2006, letter “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” (Murphy, 2006).

In the 2014 *Post-Closure Inspection Report for the Tonopah Test Range, Nevada for Calendar Year 2013* (NNSA/NFO, 2014), NNSA/NFO requested a reduction in vegetation monitoring at the site from annual to an as-needed basis. This change was approved in the March 20, 2014, letter “Acceptance of the Post-Closure Inspection Report for 2013, Tonopah Test Range, Nevada, Federal Facility Agreement and Consent Order” (MacDougall, 2014). The last annual vegetation monitoring was conducted in 2014. Future vegetation monitoring will be conducted “when significant changes are noted during the annual visual inspections.”

Currently, annual visual inspections are conducted at CAU 407 to document the condition of the cover, fencing, and postings; and to determine whether there have been significant changes to the condition of the vegetation prompting the need for a vegetation monitoring. Any identified maintenance and repair requirements are remedied within 90 working days of discovery.

B.3.0 CAU 424, Area 3 Landfill Complexes (TTR) Post-Closure Inspection Plan

The *Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada* (DOE/NV, 1999a) was approved in 1999; required semi-annual inspections; and noted that additional nonscheduled inspections may be required after severe weather events such as heavy rainfall, flash flooding, and high winds.

In the letter “Request to Reduce Frequency of Tonopah Test Range (TTR) Post-Closure Monitoring Inspections from Semi-Annual to Annual Site Inspections for the Following CAUs: 400, 404, 407, 423, 424, 426, 427, 453, 487” dated November 28, 2006, NNSA/NSO noted that CAU 424 was being inspected semi-annually and requested that the inspection frequency be reduced to annual (Jones, 2006). This request was approved by NDEP in the December 5, 2006, letter “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” (Murphy, 2006).

Currently, annual visual inspections are conducted at CAU 424 to document the condition of the landfill covers, monuments, and postings. Any identified maintenance and repair requirements are remedied within 90 working days of discovery.

B.4.0 CAU 453, Area 9 UXO Landfill (TTR) Post-Closure Inspection Plan

The *Closure Report for Corrective Action Unit 453: Area 9 UXO Landfill, Tonopah Test Range, Nevada* (DOE/NV, 1999b) was approved in 1999; required semi-annual inspections; and noted that additional nonscheduled inspections may be required after severe weather events such as heavy rainfall, flash flooding, and high winds.

In the letter “Request to Reduce Frequency of Tonopah Test Range (TTR) Post-Closure Monitoring Inspections from Semi-Annual to Annual Site Inspections for the Following CAUs: 400, 404, 407, 423, 424, 426, 427, 453, 487” dated November 28, 2006, NNSA/NSO noted that CAU 453 was being inspected semi-annually and requested that the inspection frequency be reduced to annual (Jones, 2006). This request was approved by NDEP in the December 5, 2006, letter “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” (Murphy, 2006).

Currently, annual visual inspections are conducted at CAU 453 to document the condition of the landfill cover, fencing, monuments, and postings. Any identified maintenance and repair requirements are remedied within 90 working days of discovery.

B.5.0 CAU 487, Thunderwell Site (TTR) Post-Closure Inspection Plan

The ROTC No. 2 (NNSA/NSO, 2004) for the final *Corrective Action Decision Document/Closure Report for Corrective Action Unit 487: Thunderwell Site, Tonopah Test Range, Nevada* (NNSA/NV, 2001b) required semi-annual inspections.

In the letter “Request to Reduce Frequency of Tonopah Test Range (TTR) Post-Closure Monitoring Inspections from Semi-Annual to Annual Site Inspections for the Following CAUs: 400, 404, 407, 423, 424, 426, 427, 453, 487” dated November 28, 2006, NNSA/NSO noted that CAU 487 was being inspected semi-annually and requested that the inspection frequency be reduced to annual (Jones, 2006). This request was approved by NDEP in the December 5, 2006, letter “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” (Murphy, 2006).

Currently, annual visual inspections are conducted at CAU 487 to document the condition of the monuments and postings, and to look for indications of ground disturbance.

B.6.0 References

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

DOE/NV, see U.S. Department of Energy, Nevada Operations Office.

Jones, J.B., U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2006. Letter to T. Murphy (NDEP) titled “Request to Reduce Frequency of Tonopah Test Range (TTR) Post-Closure Monitoring Inspections from Semi-Annual to Annual Site Inspections for the Following CAUs: 400, 404, 407, 423, 424, 426, 427, 453, 487,” 28 November. Las Vegas, NV.

MacDougall, J., Nevada Department of Environmental Protection. 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 Department of Environmental Protection. 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.

NNSA/NFO, see U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office.

NNSA/NSO, see U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office.

NNSA/NV, see U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office.

U.S. Department of Energy, Environmental Management Nevada Program. 2017. *Post-Closure Inspection Report for the Tonopah Test Range, Nevada, for Calendar Year 2016*, DOE/NV--1561. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office. 2014. *Post-Closure Inspection Report for the Tonopah Test Range, Nevada for Calendar Year 2013*, Rev. 0, DOE/NV--1517. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office. 2001a. *Closure Report for Corrective Action Unit 407: Roller Coaster RADS SAFE Area, Tonopah Test Range, Nevada*, DOE/NV--694-Rev 1. Las Vegas, NV.

- U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office. 2001b. *Corrective Action Decision Document/Closure Report for Corrective Action Unit 487: Thunderwell Site, Tonopah Test Range, Nevada*, DOE/NV--761. Las Vegas, NV.
- U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2004. *Record of Technical Change No. 2 for the Final Corrective Action Decision Document/Closure Report for Corrective Action Unit 487: Thunderwell Site, Tonopah Test Range, Nevada*, Rev. 0. Las Vegas, NV.
- U.S. Department of Energy, Nevada Operations Office. 1996a. *Closure Report for CAU No. 400: Bomblet Pit and Five Points Landfill, Tonopah Test Range*, Rev. 0, DOE/NV--459. Las Vegas, NV.
- U.S. Department of Energy, Nevada Operations Office. 1996b. *Streamlined Approach for Environmental Restoration Plan, CAU No. 400: Bomblet Pit and Five Points Landfill, Tonopah Test Range*, Rev. 0, DOE/NV--424. Las Vegas, NV.
- U.S. Department of Energy, Nevada Operations Office. 1997. *Tonopah Test Range Closure Sites Revegetation Plan*, DOE/NV/11718-115 UC-702. Las Vegas, NV.
- U.S. Department of Energy, Nevada Operations Office. 1999a. *Closure Report for Corrective Action Unit 424: Area 3 Landfill Complex, Tonopah Test Range, Nevada*, DOE/NV/11718--283. Las Vegas, NV.
- U.S. Department of Energy, Nevada Operations Office. 1999b. *Closure Report for Corrective Action Unit 453: Area 9 UXO Landfill, Tonopah Test Range, Nevada*, DOE/NV/11718--284. Las Vegas, NV.

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: <u>6/26/18</u>	Reason for Inspection: <u>Annual</u>
Date of Last Post-Closure Inspection: <u>5-23-17</u>	Reason for Last Post-Closure Inspection: <u>Annual</u>
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro	
Inspector: <u>Juan Alvarado</u>	Date: <u>6/26/18</u> <u>12/14/19</u>

A. GENERAL INSTRUCTIONS

- The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection. Entry into the fenced area is not required for the inspection.

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Large animal burrow in SE portion of cap.</u>
2. Were maintenance or repairs performed since the last inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Burrow filled in 4/9/2018</u>

C. SITE INSPECTION (To be completed during the site visit)	YES	NO	EXPLANATION (required if shaded box is checked)
1. Adjacent Offsite Features:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Site Markers:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there damage to or a break in the fencing or fenceposts?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Are all use restriction signs legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Waste Unit Cover:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there evidence of settling or cracking, erosion, human or large animal intrusion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Large animal burrow SE corner.</u>
b. Is there trash or debris within the fenced area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Are there any other issues not specifically described in this checklist?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Photograph Documentation:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have photographs of the site been taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Multiple photos</u>

D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Is there an imminent hazard to the integrity of the landfill cover?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

2. Field Conclusions and Repair or Maintenance Recommendations:

A new badger hole is located near hole from last year (~10' away). The signs and fence are in good condition. Vegetation is similar to surrounding vegetation.

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

Printed Name: <u>Dawn Sickerman</u>	Date: <u>2-13-19</u>
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POST-CLOSURE INSPECTION CHECKLIST

CAU 424, Area 3 Landfill Complexes (TTR) – CAS 03-08-001-A301, Landfill Cell A3-1

Inspection Date: 6/26/18	Reason for Inspection: Annual
Date of Last Post-Closure Inspection: 5-23-17	Reason for Last Post-Closure Inspection: Annual
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Project, Navarro	
Inspector: Juan Alvarado	Date: 6/26/2018

A. GENERAL INSTRUCTIONS

- The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection.

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)			
1. Adjacent Offsite Features (Landfill A3-1):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?		X	
2. Site Markers (Landfill A3-1):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have any of the monuments been disturbed or damaged?		X	
b. Are all signs legible?	X		
c. How many damaged or missing signs need to be replaced or how many down or loose signs need to be re-hung?		0	
3. Waste Unit Cover (Landfill A3-1):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there evidence of subsidence, erosion unauthorized use, etc.?	X		Animal burrow next to SW monument
b. Are there any other issues not specifically described in this checklist?		X	
4. Photograph Documentation:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have the photographs of the site been taken?	X		animal burrow

D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Is there an imminent hazard to the integrity of the landfills?		X	

2. Field Conclusions and Repair or Maintenance Recommendations:

Generally the site is in good condition, large burrow entrances next to SW monument. No other issues.

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

Printed Name: Dawn Siekern	Date: 2-13-19
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POST-CLOSURE INSPECTION CHECKLIST

CAU 424, Area 3 Landfill Complexes (TTR) – CAS 03-08-002-A302, Landfill Cell A3-2

Inspection Date: 6/26/18	Reason for Inspection: Annual
Date of Last Post-Closure Inspection: 5-23-17	Reason for Last Post-Closure Inspection: Annual
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Project, Navarro	
Inspector: Juan Alvarado	Date: 6/26/18

A. GENERAL INSTRUCTIONS

- *The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.*
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection.

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)
1. Adjacent Offsite Features (Landfill A3-2):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?	X		Road maintenance waste (ditch scraping) piled on cell (south center of cell)
2. Site Markers (Landfill A3-2):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have any of the monuments been disturbed or damaged?		X	
b. Are all signs legible?	X		
c. How many damaged or missing signs need to be replaced or how many down or loose signs need to be re-hung?			0
3. Waste Unit Cover (Landfill A3-2):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there evidence of subsidence, erosion unauthorized use, etc.?	X		Subsidence hole near south center portion of cell ~5' across
b. Are there any other issues not specifically described in this checklist?		X	
4. Photograph Documentation:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have the photographs of the site been taken?	X		subsidence hole

D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Is there an imminent hazard to the integrity of the landfills?		X	

2. Field Conclusions and Repair or Maintenance Recommendations:

A subsidence hole (~5' across and 3' deep) has appeared. Also a waste pile from road drainage ditch maintenance. Both items were located in the south central portion of cell.

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

Printed Name: **Dawn Siekerman** Date: **2-14-19**

POST-CLOSURE INSPECTION CHECKLIST

CAU 424, Area 3 Landfill Complexes (TTR) – CAS 03-08-002-A303, Landfill Cell A3-3

Inspection Date: 6-26-2018	Reason for Inspection: Annual
Date of Last Post-Closure Inspection: 5-23-17	Reason for Last Post-Closure Inspection: Annual
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Project, Navarro	
Inspector: Juan Alvarado	Date: 6/26/18

A. GENERAL INSTRUCTIONS

- *The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.*
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection.

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)

1. Adjacent Offsite Features (Landfill A3-3):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?		X	
2. Site Markers (Landfill A3-3):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have any of the monuments been disturbed or damaged?	X		<i>Triangle parcel needs lower rock large rectangular parcel is OK</i>
b. Are all signs legible?	X		
c. How many damaged or missing signs need to be replaced or how many down or loose signs need to be re-hung?		0	
3. Waste Unit Cover (Landfill A3-3):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there evidence of subsidence, erosion unauthorized use, etc.?		X	
b. Are there any other issues not specifically described in this checklist?		X	
4. Photograph Documentation:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have the photographs of the site been taken?	X		<i>lower rock</i>

D. FIELD CONCLUSIONS

	YES	NO	EXPLANATION (required if shaded box is checked)
1. Is there an imminent hazard to the integrity of the landfills?		X	
2. Field Conclusions and Repair or Maintenance Recommendations: <i>va 6/26/18</i>			
<i>Generally the site is in good condition. Extra ground flush markers/monuments of east cell need lower rock at marker/monument locations.</i>			

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

Printed Name: Dawn Sickerman	Date: 2-15-17
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POST-CLOSURE INSPECTION CHECKLIST

CAU 424, Area 3 Landfill Complexes (TTR) – CAS 03-08-002-A304, Landfill Cell A3-4

Inspection Date: <u>6/26/18</u>	Reason for Inspection: <u>Annual</u>
Date of Last Post-Closure Inspection: <u>5-23-17</u>	Reason for Last Post-Closure Inspection: <u>Annual</u>
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Project, Navarro	
Inspector: <u>Juan Alvarado</u>	Date: <u>6/26/18</u>

A. GENERAL INSTRUCTIONS

- The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection.

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<u>monument not installed</u>
2. Were maintenance or repairs performed since the last inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>SE monument installed. An area of subsidence killed in repairs 7/9/18</u>

C. SITE INSPECTION (To be completed during the site visit)			
1. Adjacent Offsite Features (Landfill A3-4):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Site Markers (Landfill A3-4):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have any of the monuments been disturbed or damaged?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Are all signs legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c. How many damaged or missing signs need to be replaced or how many down or loose signs need to be re-hung?		<u>0</u>	<u>However, NDEP asks for land survey medication placed on new monument</u>
3. Waste Unit Cover (Landfill A3-4):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there evidence of subsidence, erosion unauthorized use, etc.? <u>yes 6/26/18</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>but repaired last summer per 6/26/18</u>
b. Are there any other issues not specifically described in this checklist?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Photograph Documentation:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have the photographs of the site been taken?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>none required</u>

D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Is there an imminent hazard to the integrity of the landfills?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Field Conclusions and Repair or Maintenance Recommendations: <u>Generally the site is in good condition. No subsidence issues were noted. The new monument was in place. NDEP requested that land survey marker be placed on top of the monument (as the other monuments have). Also a sign (on) be added (attached).</u>			

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

Printed Name: <u>Dawn Sielerman</u>	Date: <u>2-15-19</u>
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POST-CLOSURE INSPECTION CHECKLIST

CAU 424, Area 3 Landfill Complexes (TTR) – CAS 03-08-002-A305, Landfill Cell A3-5

Inspection Date: <u>6/26/18</u>	Reason for Inspection: <u>Annual</u>
Date of Last Post-Closure Inspection: <u>5-23-17</u>	Reason for Last Post-Closure Inspection: <u>Annual</u>
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Project, Navarro	
Inspector: <u>Juan Alvarado</u>	Date: <u>6/26/18</u>

A. GENERAL INSTRUCTIONS

- The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection.

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)

1. Adjacent Offsite Features (Landfill A3-5):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?		X	
2. Site Markers (Landfill A3-5):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have any of the monuments been disturbed or damaged?		X	
b. Are all signs legible?	X		
c. How many damaged or missing signs need to be replaced or how many down or loose signs need to be re-hung?		0	
3. Waste Unit Cover (Landfill A3-5):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there evidence of subsidence, erosion unauthorized use, etc.?		X	
b. Are there any other issues not specifically described in this checklist?		X	
4. Photograph Documentation:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have the photographs of the site been taken?		X	<u>none needed</u>

D. FIELD CONCLUSIONS

	YES	NO	EXPLANATION (required if shaded box is checked)
1. Is there an imminent hazard to the integrity of the landfills?		X	
2. Field Conclusions and Repair or Maintenance Recommendations: <u>No issues.</u>			

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

Printed Name: <u>Dawn Sielkerman</u>	Date: <u>2-15-19</u>
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POST-CLOSURE INSPECTION CHECKLIST

CAU 424, Area 3 Landfill Complexes (TTR) – CAS 03-08-002-A306, Landfill Cell A3-6

Inspection Date: <u>6/26/18</u>	Reason for Inspection: <u>Annual</u>
Date of Last Post-Closure Inspection: <u>5-23-17</u>	Reason for Last Post-Closure Inspection: <u>Annual</u>
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Project, Navarro	
Inspector: <u>Juan Alvarado</u>	Date: <u>6/26/18</u>

A. GENERAL INSTRUCTIONS

- *The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.*
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection.

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)

1. Adjacent Offsite Features (Landfill A3-6):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?		X	
2. Site Markers (Landfill A3-6):			
a. Have any of the monuments been disturbed or damaged?		X	
b. Are all signs legible?	X		
c. How many damaged or missing signs need to be replaced or how many down or loose signs need to be re-hung?		0	
3. Waste Unit Cover (Landfill A3-6):			
a. Is there evidence of subsidence, erosion unauthorized use, etc.?		X	
b. Are there any other issues not specifically described in this checklist?		X	
4. Photograph Documentation:			
a. Have the photographs of the site been taken?		X	<u>none reported</u>

D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Is there an imminent hazard to the integrity of the landfills?		X	
2. Field Conclusions and Repair or Maintenance Recommendations: <u>no issues.</u>			

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

Printed Name: <u>Dawn Siekerman</u>	Date: <u>2-15-19</u>
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POST-CLOSURE INSPECTION CHECKLIST

CAU 424, Area 3 Landfill Complexes (TTR) – CAS 03-08-002-A308, Landfill Cell A3-8

Inspection Date: 6/26/18	Reason for Inspection: Annual
Date of Last Post-Closure Inspection: 5-23-17	Reason for Last Post-Closure Inspection: Annual
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Project, Navarro	
Inspector: Juan Alvarado	Date: 6/26/18

A. GENERAL INSTRUCTIONS

- The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection.

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 checked="" type="checkbox"/>	<input type="checkbox"/>	Both eastern markers/monuments near lava rock
2. Were maintenance or repairs performed since the last inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rock added 4/9/18

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

1. Adjacent Offsite Features (Landfill A3-8):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Moving debris around, moving lava rock
2. Site Markers (Landfill A3-8):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have any of the monuments been disturbed or damaged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	can't find SW corner due to grading activities
b. Are all signs legible?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NH NO SIGNS
c. How many damaged or missing signs need to be replaced or how many down or loose signs need to be re-hung?	<input type="checkbox"/>	<input type="checkbox"/>	0
3. Waste Unit Cover (Landfill A3-8):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there evidence of subsidence, erosion unauthorized use, etc.?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Are there any other issues not specifically described in this checklist?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	lava rock to be placed at SW corner, corner to be fixed
4. Photograph Documentation:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have the photographs of the site been taken?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not needed

D. FIELD CONCLUSIONS

	YES	NO	EXPLANATION (required if shaded box is checked)
1. Is there an imminent hazard to the integrity of the landfills?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Field Conclusions and Repair or Maintenance Recommendations:			
Need to locate SW corner, check monument condition, add lava rock.			

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

Printed Name: Dawn Siekerman	Date: 2-15-19
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POST-CLOSURE INSPECTION CHECKLIST

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

Inspection Date: <u>6/26/18</u>	Reason for Inspection: <u>Annual</u>
Date of Last Post-Closure Inspection: <u>5-23-17</u>	Reason for Last Post-Closure Inspection: <u>Annual</u>
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro	
Inspector: <u>Juan Alvarado</u>	Date: <u>6/26/18</u>

A. GENERAL INSTRUCTIONS

- The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection.

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<u>5 large animal burrows</u>
2. Were maintenance or repairs performed since the last inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>13 animal burrows filled in 1/9/18.</u>

C. SITE INSPECTION (To be completed during the site visit)			
1. Adjacent Offsite Features:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Site Markers:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there damage to fencing or fenceposts?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Have any boundary monuments been disturbed or damaged?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Are all signs legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
d. How many damaged or missing signs need to be replaced or how many down or loose signs need to be re-hung?		<u>0</u>	
3. Use Restricted Area:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there evidence of subsidence, erosion unauthorized use, etc.?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>Req'd 4/26/18 Annals on west fence increased beyond 6"</u>
b. Is there evidence of human or large animal intrusion onto the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>3 badger holes are in 3 transects</u>
c. Are there any other issues not specifically described in this checklist?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Photograph Documentation:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have the photographs of the site been taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

D. FIELD CONCLUSIONS	YES	NO	EXPLANATION (required if shaded box is checked)
1. Is there an imminent hazard to the integrity of the landfill cover?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Field Conclusions and Repair or Maintenance Recommendations: <u>General site in good condition. Annals on west edge of cap. need to be filled in. 3 burrows in all 3 transects. East portion of center cell, center portion in north cell, western portion in south cell.</u>			

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

Printed Name: <u>Dawn Sielerman</u>	Date: <u>2-15-19</u>
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POST-CLOSURE INSPECTION CHECKLIST

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

Inspection Date: <u>06-26-2018</u>	Reason for Inspection: <u>Annual</u>
Date of Last Post-Closure Inspection: <u>5-23-17</u>	Reason for Last Post-Closure Inspection: <u>Annual</u>
Responsible Entity: Navarro, Nevada National Security Site, Mercury, Nevada	
Responsible Facility Owner: Pat Matthews, Environmental Restoration Manager, Navarro	
Inspector: <u>Juan Alvarado</u>	Title: Env Sci II ^{7/1/19} Date: <u>6/26/18</u>

A. GENERAL INSTRUCTIONS

- The site inspection is an inspection of the site including the perimeters and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
- Documentation must be legible. If a shaded box is checked, add detailed comments to document the results of the site inspection. Information provided should be of sufficient detail to enable reconstruction of observations regarding field conditions. The completed checklist is part of the field record of the inspection.

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)

1. Adjacent Offsite Features (A8 and A17 Anomalies):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Are there any new activities or offsite features that could potentially affect the site?		X	
2. Site Markers (A8 and A17 Anomalies):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have any boundary monuments been disturbed or damaged?		X	
b. Are all signs legible?	X		
c. How many damaged or missing signs need to be replaced or how many down or loose signs need to be re-hung?	0		
3. Use Restricted Area (A8 and A17 Anomalies):	YES	NO	EXPLANATION (required if shaded box is checked)
a. Is there evidence of subsidence, erosion unauthorized use, etc.?		X	
b. Are there any other issues not specifically described in this checklist?		X	
4. Photograph Documentation:	YES	NO	EXPLANATION (required if shaded box is checked)
a. Have the photographs of the site been taken?		X	<u>more required</u>

D. FIELD CONCLUSIONS AND REPAIR OR MAINTENANCE RECOMMENDATIONS:

no issues @ A8 no issues @ A17

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

Printed Name: <u>Dawn Siekerman</u>	Date: <u>2-15-19</u>
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Appendix D

Field Notes

(4 Pages)

FIELD ACTIVITY DAILY LOG

DAILY LOG	DATE	6	26	18
	SHEET	1	OF	4

4/26/18

PROJECT NAME: Pre -and Post-Closure Monitoring, TTR/NTTR CAUs WCP# NAV-SM-TTRNTTR-323 Rev. 03		PROJECT NO.: IN15-994
FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units		
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:		
<p>0515 left down</p> <p>0530 arrival tee hole start cooler drink & ice</p> <p>0535 arrive Navarro transition attempt to call Costa Rica, J, call doesn't go through. met w/ Henry, M. obtained video and instructions all channels pass; autos-st bezw Sundin - keep video here ceder - Navarro channel</p> <p>also 1/0 camera. felt phone may w/ mark B.</p> <p>0620 arrive down</p> <p>0720 NOEP & OOE LM arrive (M McLean, J Costa Rica) and Kent. LM</p> <p>0725 POO & TS3 note on E toward permit not OGTIA because if water goes over rock must be lined (but likes OGTIA path)</p> <p>0740 Report for 48)</p> <p>0800 Arrive 487 AB no issue w pic</p> <p>0815 Arrive 487 AB 17 no issue no pic</p>		
VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.	
None	None	
WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:	
Sunny 70'-80'C calm	None	
PERSONNEL ON SITE:		
Juan Alvarado / Henry Gramedo / Mark McLean / Justin Lata Nica / Ken Krie		
SIGNATURE	DATE:	
/s/ Juan Alvarado	4/26/18	

FIELD ACTIVITY DAILY LOG

(CONTINUATION SHEET)

DAILY LOG	DATE	6	26	18
	SHEET 2	OF		41

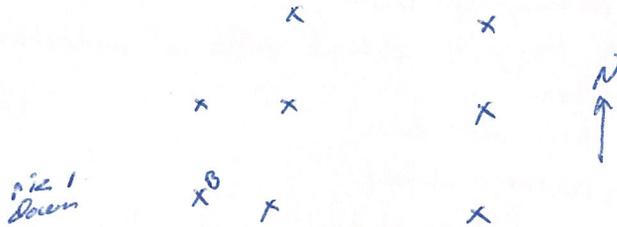
PROJECT NAME: Post-Closure Monitoring, RCRA Corrective Action Units ~~TTR/UTTR~~ CAU'S
 WCP# NAV-SM-TTRNTR-323 Rev. 03 *for 5/6/19*

PROJECT NO.: IN15-994

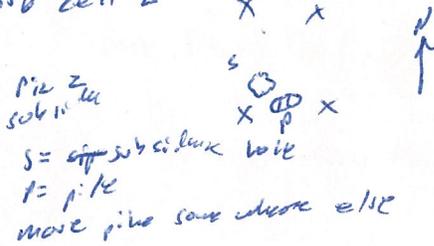
FIELD ACTIVITY SUBJECT: Inspection of RCRA Corrective Action Units ~~TTR/UTTR~~ CAU'S
for 5/6/19

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0828 Arrive 424 cell 2, walk to cell 1
 cell 1



0856 cell 2



0871

0919 cell 5 someone had device access
 no issues
 * From NAEV for landfills what are the edges of landfills? markers/perimeter
 must be enough for casual worker
 no pic

0939 arrive cell 6 no issues #6

0945 arrive cell 3 outside

0951 arrive cell 3 inside small triangle needs heavy rock all
 pic 3 lookout

1000 break

1014 arrive cell 8

could not find →

FIELD ACTIVITY DAILY LOG

na 5/6/19

DAILY LOG	DATE	6	26	18
	SHEET	1/3	OF	4

na 6/26/18

PROJECT NAME: Pre- and Post-Closure Monitoring, TTR/NTTR CAUs WCP# NAV-SM-TTRNTTR-323 Rev. 03		PROJECT NO.: IN15-994
FIELD ACTIVITY SUBJECT: Inspection of TTR Corrective Action Units		
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: <p>1052 Arrive Cell 4 install new manhole & local</p> <p>1107 Arrive 407</p> <p>1150 arrive CS11</p>		
VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS. None	
WEATHER CONDITIONS: Sunny 70-90's calm	IMPORTANT TELEPHONE CALLS: None	
PERSONNEL ON SITE: JA Leidos / TG DOE EM / MM DOE P / JCR DOE P / KK DOE LM		
SIGNATURE /s/ Juan Alvarado	DATE: 6/26/18	

FIELD ACTIVITY DAILY LOG

(CONTINUATION SHEET)

DAILY LOG	DATE	6	26	18
	SHEET	4	OF	4

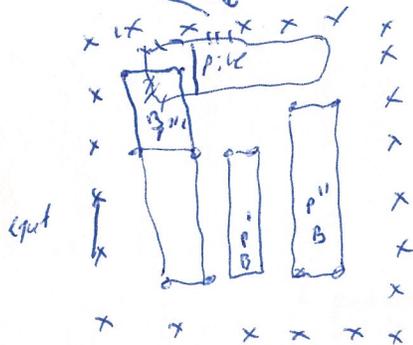
PROJECT NAME: Post-Closure Monitoring, RCRA Corrective Action Units TTR/UTTR CAS'S
 WCP# NAV-SM-TTRNTR-323 Rev. 03 4/26 5/6/19 PROJECT NO.: IN15-994

FIELD ACTIVITY SUBJECT: Inspection of RCRA Corrective Action Units TTR/UTTR CAS'S
4/26 5/6/19

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

1221 arrive @ 5:15
 WDEP agrees to end via letter. Fence can come down
 no photos no issues

1240 arrive 453 P^{iv} tunnels (60")



- Pⁱ - Pic 6 hadger hole center tunnel
- Pⁱⁱ - Pic 7 " " north tunnel
- Pⁱⁱⁱ - Pic 8 " " south tunnel
- P^{iv} - Pic 9 tunnel
- Pic 10 tunnels

- 1320 at Navarro trailer
- 1) stop area 400 (remove fence) north cas's
 - 2) stop photo (as a requirement)
 - 3) markers/signs the number is not specified, so will not report
 - 4) From WDEP - may be issues w/ vegetation and 570 inspection
 so clean close 407
 487
 453 - why
 - 5) Navarro/Leider - intent was to inform
 - 6) WDEP would like a meeting (week 7/16, 17, 23, 24, 25)

Appendix E

Photographs

**Table E-1
 Key to Appendix E Photographs**

CAU	Date	Figure Number	Description
407	06/26/2018	E-1	Facing Northwest, Animal Burrow
424	06/26/2018	E-2	Landfill Cell A3-1, Facing Ground, Animal Burrow
	06/26/2018	E-3	Landfill Cell A3-2, Facing Ground, Subsidence Hole
	06/26/2018	E-4	Landfill Cell A3-3, East Cell, Facing Ground, Lack of Lava Rock
453	06/26/2018	E-5	Facing Ground, Center Trench, Animal Burrow



06/26/2018 (PIRDY-57-221842)

**Figure E-1
 CAU 407, Facing Northwest, Animal Burrow**



06/26/2018 (PIRDY-57-221835)

Figure E-2
CAU 424, Landfill Cell A3-1, Facing Ground, Animal Burrow



06/26/2018 (PIRDY-57-221834)

Figure E-3
CAU 424, Landfill Cell A3-2, Facing Ground, Subsidence Hole



06/26/2018 (PIRDY-57-221836)

Figure E-4
CAU 424, Landfill Cell A3-3, East Cell, Facing Ground, Lack of Lava Rock



06/26/2018 (PIRDY-57-221838)

Figure E-5
CAU 453, Facing Ground, Center Trench, Animal Burrow

Appendix F

Post-Closure Vegetation Monitoring Report

Note: Post-closure vegetation was not conducted in 2018.

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