ROCKY MOUNTAIN ARSENAL

ANNUAL COVERS REPORT FOR
INTEGRATED COVER SYSTEM 2024

Revision 0

November 19, 2024

U.S. Department of the Army

Shell Oil Company

Prepared by:

Navarro Research and Engineering, Inc.

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ACRONYMS

ACR	Annual Covers Report
AMA	Army Maintained Areas
FY24	Fiscal Year 2024
FY25	Fiscal Year 2025
ICS	Integrated Cover System
LTCP	Long-Term Care Plan
NRAP	Non-Routine Action Plan
NWS	National Weather Service
O&M	Operations and Maintenance
OCN	O&M Change Notice
RCRA	Resource Conservation and Recovery Act
SDT	Shell Disposal Trenches
SOP	Standard Operating Procedure

EXECUTIVE SUMMARY

This *2024 Annual Covers Report* (ACR) *for the Integrated Cover System* (ICS) at the Rocky Mountain Arsenal was prepared in accordance with the *RCRA-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan,* Revision 3 (LTCP) (Navarro 2021a). The purpose of this ACR is to document cover inspection results and maintenance activities performed on the ICS Army Maintained Area (AMA) during Fiscal Year 2024 (FY24) (i.e., October 1, 2023 to September 30, 2024), and to describe plans to improve or sustain cover conditions. Figure 1.0-1 illustrates the location of the ICS AMA within the Rocky Mountain Arsenal National Wildlife Refuge.

The ICS was in good condition throughout FY24. Cover deficiencies observed during the reporting period include areas of cover surface drainage interruption, noxious or undesirable weeds, damage to the perimeter fence, and erosion/settlement monument maintenance, all of which are typical for the site and will be addressed through maintenance activities.

Percolation was below the non-routine action trigger level and the compliance standard for all lysimeters except Lysimeters 001 and 003, located on the Shell Disposal Trenches (SDT) RCRA-Equivalent Cover. Lysimeters 001 and 003 exceeded the percolation compliance standard in July and June of 2023, respectively. However, both lysimeters came back into compliance during this reporting period in June of 2024.

Almost all cover soil thickness loss measurements were below the non-routine action trigger level and the compliance standard. Monument ER46 had 3.5 inches of soil thickness loss during the fall 2023 Type I inspection. The measurement exceeded the non-routine trigger level of greater than three inches and prompted the preparation of Non-Routine Action Plan (NRAP)-2023-004.

The 2024 Vegetation Performance Assessment was performed on the ICS RCRA-equivalent covers and on the ICS 2-foot and 3-foot soil covers. Total live vegetation values were well above the minimum compliance standard value for both areas. The two-year average and three-year average of total ground cover were also comfortably above the minimum compliance standard values.

In 2021, 93 acres of the ICS experienced poor vigor and growth by native perennial grasses, as documented in NRAP-2021-005. The area continued to be monitored for grass establishment and species diversity during the 2024 growing season and additional mowing and drill seeding will be performed on approximately 22 acres in October of 2024.

Routine inspections and maintenance of the ICS AMA will continue throughout Fiscal Year 2025 (FY25) in accordance with the requirements of the LTCP. In addition to routine maintenance activity, the Army recommends the following actions.

- The establishment of grass species on approximately 22 acres of the areas originally documented in NRAP-2021-005 will be mowed and drill seeded to decrease weedy species.
- The condition of the SDT RCRA-Equivalent Cover will continue to be monitored more closely than the rest of the ICS due to the intrusive repairs that were performed during 2020.

These recommendations will be discussed in the 2025 ICS ACR.

The ICS met the compliance standards for percolation, cover soil thickness, and vegetation in FY24. No corrective measures are planned for FY25.

Costs incurred performing Operations and Maintenance of the ICS AMA during FY24 equaled $80,143. The estimated FY25 budget is $113,509.

1.0 INTRODUCTION AND METHODOLOGY

This *2024 Annual Covers Report* (ACR) *for the Integrated Cover System* (ICS) at the Rocky Mountain Arsenal was prepared in accordance with the *RCRA-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan,* Revision 3 (LTCP) (Navarro 2021a). The purpose of this ACR is to document cover inspection results and maintenance activities performed on the ICS Army Maintained Area (AMA) during Fiscal Year 2024 (FY24) (i.e., October 1, 2023 to September 30, 2024), and to describe plans to improve or sustain cover conditions.

The ICS is currently in the Interim Operations and Maintenance (O&M) Period defined in Section 1.0 of the LTCP. This report addresses the fifteenth year of Interim O&M for the ICS since construction was completed in early 2010. Figure 1.0-1 illustrates the location of the ICS AMA within the Rocky Mountain Arsenal National Wildlife Refuge.

The Resource Conservation and Recovery Act (RCRA)-equivalent, 2-foot, and 3-foot covers and associated non-cover areas within the outside shoulder of the perimeter access road, collectively referred to as the ICS AMA, were inspected, monitored, repaired, and maintained in accordance with the LTCP, Revision 3. The results of inspections and monitoring of vegetation, percolation, and cover soil thickness were used to verify cover performance and to trigger cover maintenance and repair work.

2.0 INSPECTIONS AND MAINTENANCE

The procedure for inspecting soil cover conditions and infrastructure features is detailed in LTCP Standard Operating Procedure (SOP) 001, *Cover Conditions Inspections*. Routine maintenance and repair activities are listed in Table 3.2-1 of the LTCP, while conditions requiring non-routine actions are listed in Table 3.2-2 of the LTCP.

All inspections were performed in accordance with SOP 001 presented in Appendix A of the LTCP. A summary of inspections is provided in Table 2.0-1.

Table 2.0-1: Cover Inspections

Date	Inspection Type	Note
October 12, 2023	Type I with erosion/settlement monuments	Regularly scheduled semiannual inspection.
January 3, 2024	Type I	Regularly scheduled quarterly inspection.
April 4, 2024	Type II	Regularly scheduled semiannual inspection.
May 1, 2024	Post-Storm	1.27” of rain fell on April 27, 2024.
July 3, 2024	Type I	Regularly scheduled quarterly inspection.

Figure 2.0-1 illustrates the locations of routine activities performed on the ICS AMA. Completed inspection forms are provided in Appendix C of this report. Documentation of maintenance activities is provided in Appendix D of this report.

Summaries of observations and repairs are provided in Table 2.0-2. Summaries of vegetation management are provided in Table 2.0-4.

Table 2.0-2: ICS Inspection Observations and Repairs

Inspection Item	Observation	Action
Erosion rills, gullies, or sheet erosion	None	N/A
Conditions that could interrupt cover surface drainage (ponding areas, ruts, holes greater than 3" in diameter)	A hole greater than 3" was identified on the SDT cover. (Inspection Form: 10/12/23)	Repaired in November 2023.
Excessive animal trails	None	N/A
Widespread burrowing animal holes	None	N/A
Extensive linear cracks	None	N/A
Vandalism, or intrusive damage such as unplanned excavation, drilling, grading, damage to engineering or access controls	None	N/A
Bare area or areas of poor growth greater than 100 square feet	None	N/A
Areas of vegetation stress greater than 100 square feet (over grazing, discoloration, pedestalling)	None	N/A
Deep rooted, noxious, or undesirable weedy species	Cheatgrass observed around Monument ER39. (Inspection Form: 4/3/24)	Not addressed during this reporting period.
Excessive litter accumulation	None	N/A
The perimeter fence is damaged	None	The southwest section of perimeter fence was likely damaged by animal activity. This damage was not observed during an inspection. The

Inspection Item	Observation	Action
		damaged fence was repaired in September of 2024.
Debris has collected along the perimeter fence	None	N/A
Obelisks are damaged, not visible, or not legible	None	N/A
Warning signs are not legible from 25 feet	None	N/A
Damage to the Perimeter Access Road such as potholes, washouts, washboard, or burrowing	None	The west ICS perimeter road was graded in February 2024. This was not observed during an inspection.
Impeded drainage or ponding in the channel (siltation/debris present)	None	N/A
Inadequate protective vegetation	None	N/A
Erosion rills or gullies in the grass-lined channel	None	N/A
Cracked or degraded concrete	None	N/A
Expansion joint damage (missing caulk)	Caulk was identified to be missing from some of the expansion joints in Channel 11A. (Inspection Form: 10/12/23) Caulk was identified to be missing from some of the expansion joints in Channel 6. (Inspection Form: 1/3/24) Caulk was identified to be missing from some of the expansion joints in Channel 4. (Inspection Form: 5/1/24)	Began repairing the missing caulk from Channel 11A in August 2024, but this channel still requires repair. The other channels were not addressed during this reporting period.
Inhibited drainage from the soil to the concrete-lined channel	None	N/A
Subsidence or undercutting of the concrete-lined channel	None	N/A
Erosion/Settlement Monuments	Holes were identified on the south side of Monuments ER16 and ER38.	All holes were repaired in November 2023.

Inspection Item	Observation	Action
	Replace Carsonite marker for Monument ER82. Monument ER46 exceeds the non-routine trigger level. (Inspection Form: 10/12/23)	Carsonite marker for Monument ER82 was replaced in November 2023. Repaired the area around Monument ER46 in accordance with Non-Routine Action Plan (NRAP)-2023-004 in February 2024.
ICS Percolation Monitoring System Data Collection and Operation Form SOP 003-1	Lysimeters 003-007 would benefit to have the standing water pumped from inside of the manhole. (Inspection Form: 11/1/23) Lysimeters 011 and 015 would benefit to have the standing water pumped from inside of the manhole. (Inspection Form: 5/1/24)	Pumped the standing water from Lysimeter 003 in February 2024. The other lysimeters were not addressed during this reporting period.
Shell Disposal Trenches RCRA-Equivalent Cover Piezometers	Due to the continued percolation exceedance at Lysimeters 001 and 003, the piezometer water level monitoring was performed concurrently with the lysimeter percolation measurements and continued until compliance was restored in June of 2024.	See Table 2.0-3 for the SDT RCRA-Equivalent Cover piezometer measurements.

Table 2.0-3: SDT RCRA-Equivalent Cover Piezometer Measurements

Measurement Date	Water Column Within Piezometer (feet)			
	Piezometer 36251	Piezometer 36252	Piezometer 36253	Piezometer 36254
October 24, 2023	0.24	0.00	0.00	0.03
November 14, 2023	0.23	0.00	0.00	0.00
December 6, 2023	0.26	0.00	0.00	0.02
January 3, 2024	0.26	0.00	0.00	0.00
February 7, 2024	0.27	0.00	0.00	0.00
March 6, 2024	0.25	0.00	0.00	0.00

Measurement Date	Water Column Within Piezometer (feet)			
	Piezometer 36251	Piezometer 36252	Piezometer 36253	Piezometer 36254
April 3, 2024	0.23	0.00	0.00	0.00
May 1, 2024	0.21	0.00	0.00	0.00

The maintenance items listed below are focused on routine vegetation management to facilitate effective O&M of the ICS cover. These maintenance items were often observed independently of routinely scheduled inspections due to the timing of seasonal growth.

Table 2.0-4: ICS Vegetation Management

Task	Action	Date
Weed Control	Ground clear herbicide Plainview SC® was broadcast sprayed to working surfaces.	October 2023
Seeding	Navarro personnel hand raked the area over the Lysimeter 003 pan to prepare the seedbed. This area was then hand seeded.	February 2024
Weed control	Spot sprayed common mullein, thistles, yucca and whitetop using Escort XP and Vision.	June 2024

2.1 Precipitation and Weather Conditions

The rain gauge located west of the Lime Basins RCRA-Equivalent Cover, near the Lime Basins Metering Building collects precipitation data for the RMA. The precipitation measured at the Lime Basins gauge during FY24 was 11.31 inches. Precipitation data are provided in Appendix A. A significant rain event, greater than 1.0 inch in 24 hours, occurred on April 27, 2024.

Figures 2.1-1 and 2.1-2 illustrate the Rocky Mountain Region's monthly temperature and precipitation values for FY24 as published by the National Oceanic and Atmospheric Administration, National Weather Service (NWS) Forecast Office for Denver/Boulder, Colorado. Climate data reported by the NWS were collected at the Primary Local Climatological Data Site, located at the Denver International Airport. FY24 had near average temperatures and above normal spring precipitation in the Rocky Mountain Region.

3.0 PERCOLATION MONITORING ASSESSMENT

The ICS RCRA-equivalent covers use a network of 15 lysimeters to monitor deep percolation. Percolation is reported in millimeters, which is calculated by dividing the measured percolation volume by the area of the lysimeter pan, or 1,500 square feet (139.35 square meters).

The procedure for monitoring percolation is detailed in LTCP SOP 003, *Percolation Monitoring System Data Collection and Operation*. All lysimeter inspections were performed in accordance with SOP 003 and the inspection documentation is provided in Appendix C.

Quarterly submission of percolation monitoring results for all lysimeters were issued to the regulatory agencies. Each quarterly submittal included monthly measurements, 9-month cumulative totals, and 12-month cumulative totals. Percolation data for FY24 were transmitted in December of 2023 (Navarro 2023), March (Navarro 2024c), June (Navarro 2024d), and September of 2024 (Navarro 2024e).

The percolation measurements are presented in Table 3.0-1. Table 3.0-2 presents rolling nine-month percolation totals for comparison to the non-routine action trigger level of 1.0 mm in nine months, and Table 3.0-3 presents twelve-month rolling totals for comparison to the compliance standard of 1.3 mm in 12 months.

Table 3.0-1: Monthly Percolation Measurements

Lysimeter No.	Monthly Percolation Measurement (Liters)											
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
001	9	3.5	Trace	Trace	Trace	0	0	0	0	0	0	0
002	0	0	0	0	0	0	0	0	0	0	0	0
003	0.5	10	5	3	Trace	0	0	0	0	0	Trace	0.5
004		Trace						0		0		1
005		Trace						0		0		2
006		0						Trace		Trace		0
007		0						Trace		0		0
008		Trace						Trace		0		Trace
009		0						0		0		0
010		Trace						0		0		0
011		0						0		0		0
012		0						0		0		0
013		1						Trace		0		3
014		2						Trace		0		2
015		Trace						Trace		0		1

Note 1: Lysimeters 004 through 015 are inspected in May, July, September, and November.

Table 3.0-2: Rolling Nine-Month Percolation Totals

Lysimeter No.	Rolling Nine-Month Percolation Total (mm)											
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
001	1.96	1.98	1.98	1.98	1.98	0.91	0.48	0.29	0.09	0.03	0.00	0.00
002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
003	12.03	12.10	12.14	12.16	12.16	0.25	0.22	0.20	0.13	0.13	0.06	0.03
004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
010	0.79	0.79	0.79	0.79	0.79	0.79	0.00	0.00	0.00	0.00	0.00	0.00
011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
013	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.02
014	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.01	0.01	0.00	0.01
015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Note 1: Values highlighted in orange exceeded the non-routine action trigger level of 1.0 mm per 9 months.

Table 3.0-3: Rolling Twelve-Month Percolation Totals

Lysimeter No.	Rolling Twelve-Month Percolation Total (mm)											
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
001	1.96	1.98	1.98	1.98	1.98	1.98	1.98	1.98	0.91	0.48	0.29	0.09
002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
003	12.03	12.10	12.14	12.16	12.16	12.16	12.16	12.16	0.25	0.22	0.20	0.14
004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Lysimeter No.	Rolling Twelve-Month Percolation Total (mm)											
	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
005	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
010	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.00	0.00	0.00
011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
013	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03
014	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.03
015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Note 1: Values highlighted in red exceeded the performance standard of 1.3 mm/year.

As shown in Tables 3.0-2 and 3.0-3, most ICS lysimeters were below the non-routine action trigger level and compliance standard for the entire reporting period. However, in June of 2023 Lysimeter 003 exceeded the non-routine trigger level and the compliance standard. Meanwhile, Lysimeter 001 exceeded the non-routine trigger level in June of 2023, and the compliance standard in July of 2023. The percolation values from the summer of 2023 continued to impact the nine-month and twelve-month rolling totals of these two lysimeters into FY24. However, all lysimeters have met the compliance standard since June of 2024.

4.0 COVER SOIL THICKNESS

The ICS RCRA-equivalent covers and 3-Foot Soil Cover includes a network of 92 erosion/settlement monuments embedded within the cover soil. The monuments are generally positioned on a 500-foot grid, except for the SDT RCRA-Equivalent Cover area, where monuments are positioned at locations selected by the regulatory agencies during the design process. Cover soil thickness loss was measured at each of the monuments during the inspections in October of 2023 and April of 2024 in accordance with LTCP SOP 001, *Cover Conditions Inspections*. The measurements for each monument are provided on Table 4.0-1 and inspection documentation is provided in Appendix C.

Monument ER46 exceeded the non-routine action trigger level during the fall 2023 Type I inspection and prompted the preparation of NRAP-2023-004. In February 2024, the cover was repaired around Monument ER46 in accordance with the approved NRAP.

Table 4.0-1: Soil Cover Thickness Loss

Monument No.	Oct 11, 2023 Loss (in.)	Apr 3, 2024 Loss (in.)
ER01	1.00	0.50
ER02	1.25	1.00
ER03	0.00	0.00
ER04	2.75	2.25
ER05	1.25	1.00
ER06	2.00	1.75
ER07	0.00	0.00
ER08	2.25	1.75
ER09	1.50	1.25
ER10	1.50	0.75
ER11	1.00	1.00
ER12	1.00	0.00
ER13	1.50	1.00
ER14	1.25	0.50
ER15	0.00	0.00
ER16	2.25	1.75
ER17	0.25	0.00
ER18	0.00	0.00
ER19	0.00	0.00
ER20	1.50	0.75
ER21	0.75	0.00
ER22	1.25	0.75
ER23	1.00	0.50
ER24	0.00	0.00
ER25	1.25	1.00
ER26	0.00	0.00

Monument No.	Oct 11, 2023 Loss (in.)	Apr 3, 2024 Loss (in.)
ER47	2.25	1.75
ER48	1.25	0.50
ER49	1.00	0.50
ER50	1.25	0.25
ER51	0.75	0.25
ER52	0.50	0.00
ER53	1.00	1.00
ER54	0.00	0.00
ER55	1.25	0.75
ER56	0.00	0.00
ER57	0.50	0.25
ER58	1.50	1.25
ER59	1.00	0.00
ER60	2.00	1.75
ER61	0.25	0.00
ER62	0.75	0.25
ER63	1.75	2.00
ER64	1.50	1.50
ER65	1.75	1.50
ER66	1.75	1.50
ER67	0.50	0.00
ER68	1.50	0.50
ER69	1.00	0.75
ER70	0.25	0.00
ER71	1.00	0.75
ER72	2.00	1.50

Monument No.	Oct 11, 2023 Loss (in.)	Apr 3, 2024 Loss (in.)
ER27	1.00	0.25
ER28	1.25	1.00
ER29	2.00	1.50
ER30	3.00	2.75
ER31	3.00	2.50
ER32	0.25	0.25
ER33	1.25	1.00
ER34	2.25	1.75
ER35	1.75	1.50
ER36	1.75	2.00
ER37	2.50	2.25
ER38	2.75	2.50
ER39	2.00	1.25
ER40	0.75	0.00
ER41	2.75	1.50
ER42	1.25	0.75
ER43	1.00	1.75
ER44	2.75	2.00
ER45	1.50	1.00
ER46	3.25	1.50

Monument No.	Oct 11, 2023 Loss (in.)	Apr 3, 2024 Loss (in.)
ER73	1.50	1.00
ER74	0.25	0.00
ER75	0.00	0.00
ER76	2.00	2.00
ER77	0.50	0.25
ER78	1.50	1.00
ER79	0.00	0.00
ER80	1.00	1.00
ER81	1.50	1.00
ER82	1.00	1.00
ER83	0.25	0.00
ER84	1.75	1.75
ER85	0.75	0.25
ER86	0.00	0.00
ER87	0.00	0.00
ER88	1.25	1.00
ER89	1.75	1.50
ER90	1.25	1.50
ER91	1.25	1.00
ER92	0.25	0.00

All measurements were below the compliance standard of 0.5 foot.

5.0 VEGETATION PERFORMANCE

The 2024 Vegetation Performance Assessment was conducted in accordance with LTCP SOP 002, *Cover Vegetation Performance Assessment*. Vegetation data were collected and evaluated independently for each of the two cover groups; the ICS RCRA-equivalent covers group (10 transects sampled between September 16 and 17, 2024), and the 2-foot and 3-foot covers group (5 transects sampled on September 18, 2024). Figures 1 and 2 in Appendix B illustrate the transects that were sampled. The dates on which the assessments were conducted were inside the range specified in LTCP SOP 002.

Results of the assessment are summarized for ICS RCRA on Table 5.0-1 and for the ICS 2-foot 3-foot cover on Table 5.0-2. Appendix B includes additional tables that provide cover and frequency by species, expanded vegetation performance assessments providing two and three year running average comparisons, sample adequacy checks, and raw transect data. These tables meet the reporting requirements set forth by the *Revegetation of the Basin A Soil Cover*, developed during the Basin A dispute resolution process in 1999.

Table 5.0-1: ICS RCRA Vegetation Performance Assessment Summary

Performance Criterion and Evaluation	Annual Value	Was the criterion met?	Is this a compliance criterion?
Allowable Total Absolute Live Vegetation Cover ≥ 25%	76.8	Yes	Yes
Two Year Running Average for Total Absolute Ground Cover ≥ 50%	94.7	Yes	Yes
Three Year Running Average for Total Absolute Ground Cover ≥ 67%	93.7	Yes	Yes
Sample Adequacy ≤ 10	2.1	Yes	No
Relative Weed Cover ≤ 10%	5.99	Yes - Note 1	No

Note 1: The relative weed cover is less than 10 percent, therefore, subtracting all but 10 percent of the total live vegetation cover fraction that is comprised of weeds does not affect the Total Live Vegetation calculation.

The ICS RCRA-equivalent covers met all three vegetation-related compliance standards (i.e., total absolute live vegetation cover, two-year running average for total absolute ground cover, and three-year running average for total absolute ground cover).

Table 5.0-2: ICS 2-Foot 3-Foot Vegetation Performance Assessment Summary

Performance Criterion and Evaluation	Annual Value	Was the criterion met?	Is this a compliance criterion?
Allowable Total Absolute Live Vegetation Cover ≥ 25%	86.2	Yes	No
Two Year Running Average for Total Absolute Ground Cover ≥ 50%	96.6	Yes	No
Three Year Running Average for Total Absolute Ground Cover ≥ 67%	96.5	Yes	No
Sample Adequacy ≤ 5	0.83	Yes	No
Relative Weed Cover ≤ 10%	3.48	Yes - Note 1	No

Note 1: The relative weed cover is less than 10 percent, therefore, subtracting all but 10 percent of the total live vegetation cover fraction that is comprised of weeds does not affect the Total Live Vegetation calculation.

Warm and cool season species were prolific at the time the vegetation assessments were conducted. The cool season grasses were more dominant than they were in previous years, which may be attributed to early spring precipitation. Relative weed cover was low on both assessments and total absolute ground cover was above 95 percent for ICS RCRA and the ICS 2-foot and 3-foot covers. There did not appear to be excessive stress due to low soil moisture or biological stressors on the grassland community at the time of the assessment. Insects and other wildlife, such as small rodents, grassland birds and deer were observed in all areas.

5.1 Poor Vigor and Species Diversity

In May of 2021, the Army observed little or no growth of established perennial grasses over approximately 93 acres of the ICS and this issue was first documented in the 2021 ICS ACR (Navarro 2021c). NRAP-2021-005 (Navarro 2021b) was created to document the substandard condition of the 93 acres of vegetation and to propose how the vegetation would be improved. The affected areas were primarily located on the west side of the South Plants 3-Foot Soil Cover but extended east and north into the South Plants and Lime Basins RCRA-Equivalent Covers.

During the 2022 reporting period, these 93 acres were mowed, drill seeded and required weed control by herbicide application. During the 2023 growing season, additional maintenance was performed on approximately 37 of the original 93 acres. These areas were drill seeded in the spring and mowed in the summer of 2023.

The area continued to be monitored for grass establishment and species diversity during the 2024 growing season and additional mowing and drill seeding will be performed on approximately 22 acres in October of 2024. This activity will be reported in the 2025 ICS ACR.

6.0 NON-ROUTINE ACTIONS AND O&M CHANGES

7.0 Non-Routine Actions

The implementation of non-routine actions is described in the LTCP. The LTCP provides criteria for non-routine actions, and a mechanism for consultation between the parties and documentation of the consultative outcome. NRAP-2023-004 (Navarro 2024a) was the only NRAP prepared during this reporting period and is described in Section 4.0 of this ACR. The NRAP is provided in Appendix E.

7.1 O&M Changes

There was one O&M Change Notice (OCN) for ICS prepared during this reporting period. The OCN is included in Appendix F.

OCN-LTCP-2024-001 (Navarro 2024b) updates the language used in the LTCP for consistency with the United States Army's electronic records management system requirements. The various forms found in the LTCP were converted into fillable portable document format with

minor format changes that were intended to facilitate form usage. This OCN was approved in February 2024.

8.0 CONCLUSIONS AND CORRECTIVE MEASURES

The ICS met the compliance standards for percolation, cover soil thickness, and vegetation in FY24. No corrective measures are planned for FY25.

Routine inspections and maintenance of the ICS AMA will continue throughout Fiscal Year 2025 (FY25) in accordance with the requirements of the LTCP. In addition to routine maintenance activity, the Army recommends the following actions.

- The establishment of grass species on approximately 22 acres of the areas originally documented in NRAP-2021-005 will be mowed and drill seeded to decrease weedy species.
- The condition of the SDT RCRA-Equivalent Cover will continue to be monitored more closely than the rest of the ICS due to the intrusive repairs that were performed during 2020.

These recommendations will be discussed in the 2025 ICS ACR.

9.0 FY24 COSTS AND FY25 BUDGETS

Costs incurred performing Operations and Maintenance of the ICS AMA during FY24 equaled $80,143. The estimated FY25 budget is $113,509.

10.0 REFERENCES

Navarro (Navarro Research and Engineering, Inc.)

2024a (Jan 31) NRAP-2023-004.

2024b (Feb 27) OCN-LTCP-2024-001.

2024c (Mar 26) *Rocky Mountain Arsenal Integrated Cover System and Basin F Cover Lysimeter Monitoring Data, October 2023 through March 2024.*

2024d (Jun 06) *Rocky Mountain Arsenal Integrated Cover System and Basin F Cover Lysimeter Monitoring Data, January 2024 through June 2024*.

2024e (Sep 10) *Rocky Mountain Arsenal Integrated Cover System and Basin F Cover Lysimeter Monitoring Data, April 2024 through September 2024*.

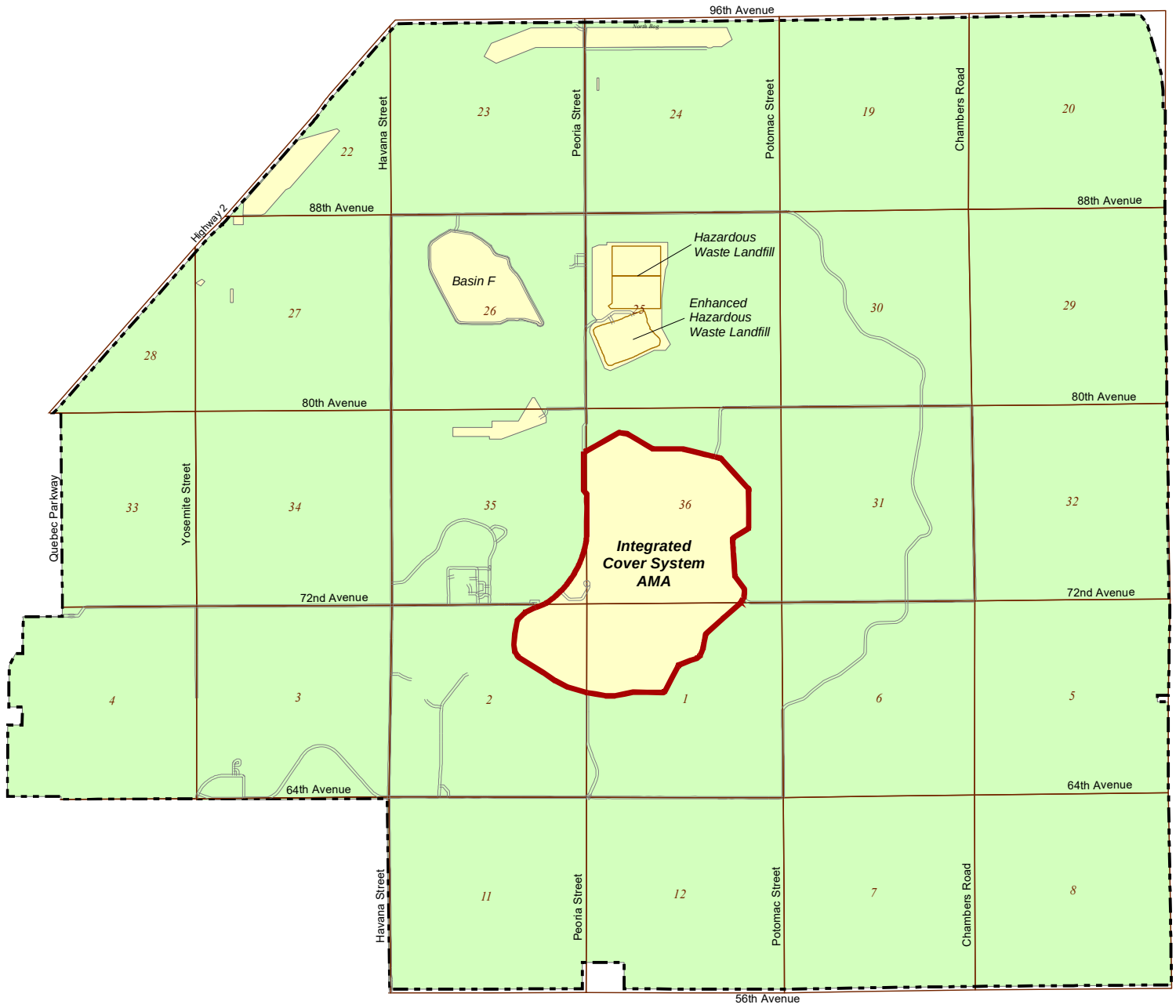
2023 (Dec 12) Rocky Mountain Arsenal Integrated Cover System and Basin F Cover Lysimeter Monitoring Data, July 2023 through December 2023.

2021a (Aug 12) *RCRA-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan*. Revision 3.

2021b (Oct 12) NRAP-2021-005.

2021c (Nov 17) *Annual Covers Report for Integrated Cover System 2021*. Revision 0.

FIGURES



Legend

- Rocky Mountain Arsenal Boundary
- Section Lines
- USFWS Managed Area
- Army Maintained Area
- Integrated Cover System AMA Area
- Paved Roads

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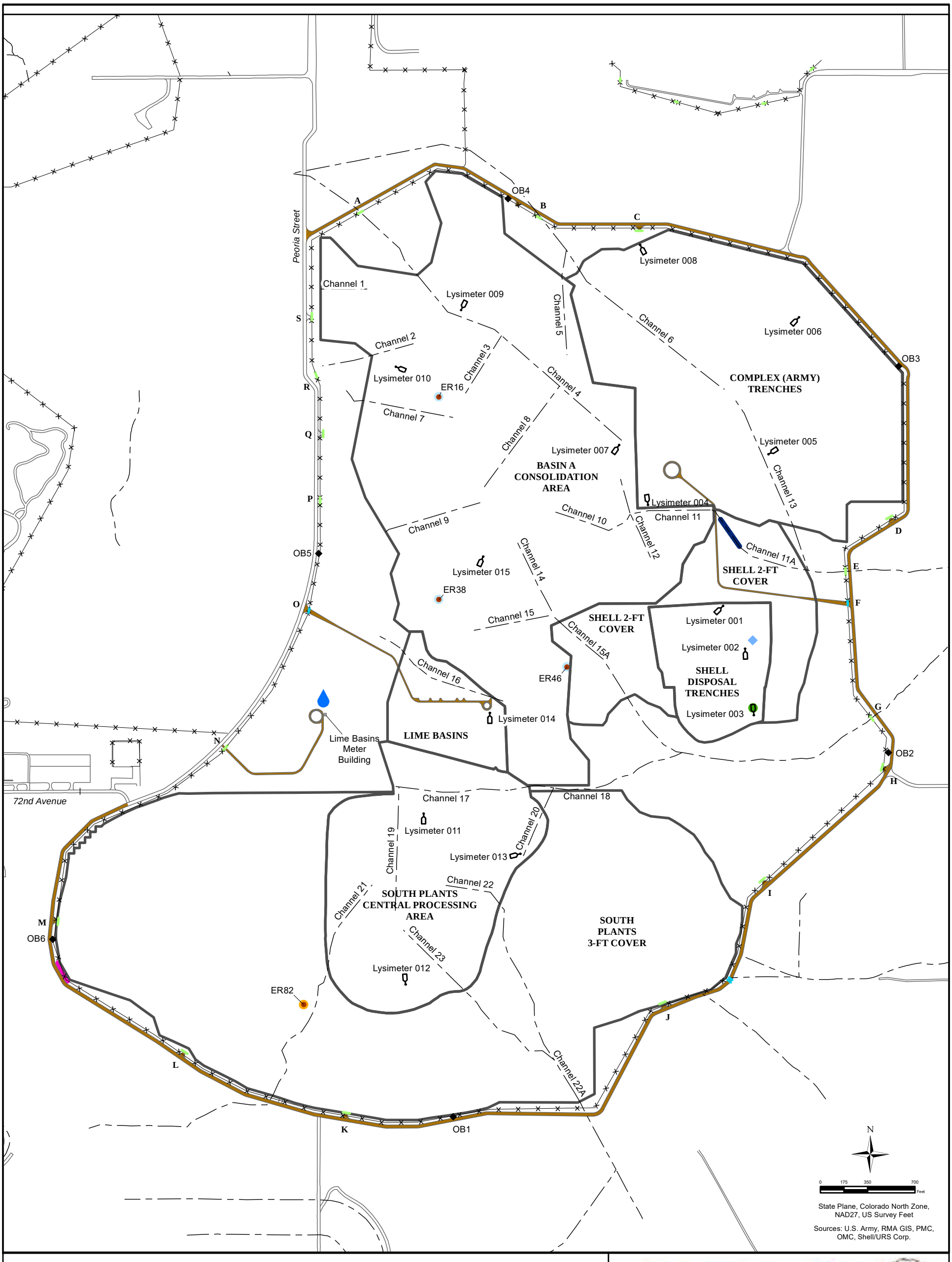
Figure 1.0-1

Site Location Map

M:projectsICSandBasinF_RoutineAndNonRoutineMaintenanceActivities\2023\
02/12/24 SiteLocationMap_Fig1.0-1_ICS.mxd



Legend

- Cover Boundary
- Perimeter Access Road
- Fence
- Cattle Guard
- Gate
- Channel Flow Line
- Lysimeter
- Erosion Monument
- Obelisk
- Rain Gauge
- Lysimeter Maintenance
- Repaired Cover Surface Drainage Interruption
- Erosion Monument Maintenance
- Carsonite Marker Maintenance
- Repaired Perimeter Fence Damage
- Repaired Expansion Joint Damage
- Ground Clear Herbicide Application Area
- G Labeled Gates and Cattle Guards

Note 1. The outside shoulder of the Perimeter Access Road defines the Army Maintained Area Boundary (AMA).
Note 2. The ICS Perimeter Road was maintained by a motor grader as needed.

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Figure 2.0-1

2024 Integrated Cover System
Routine and Non-Routine
Maintenance Activities

10/28/2024

M:\projects\ICSandBasinF_RoutineAndNonRoutineMaintenanceActivities\2024\ICS_RoutineMaintenanceActivities_Oct2024.mxd

Figure 2.1-1: Average Monthly Temperature for FY24

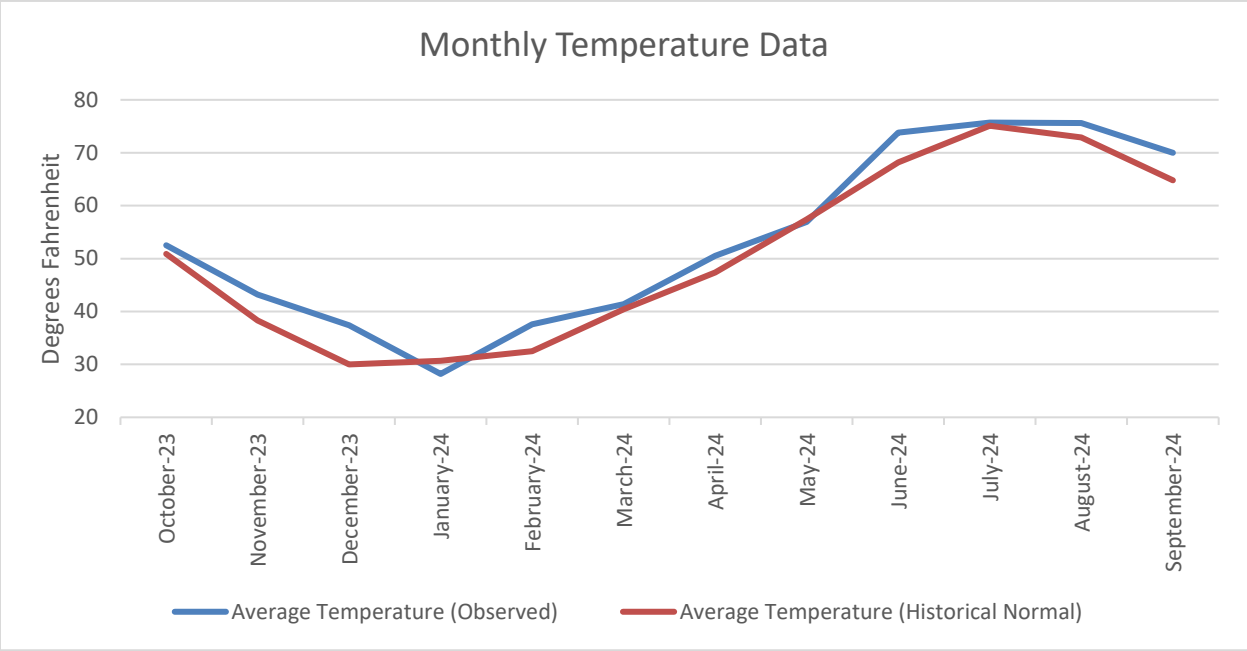
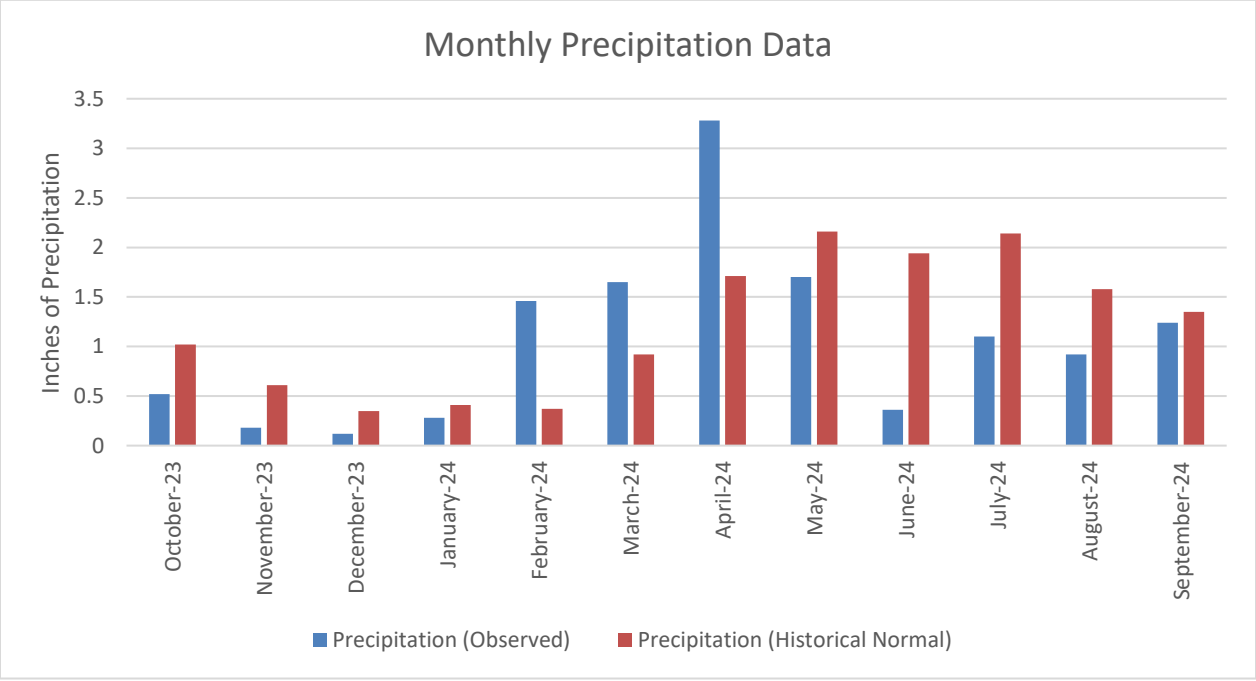


Figure 2.1-2: Average Monthly Precipitation for FY24



APPENDICES

A Precipitation Data (October 1, 2023 through September 30, 2024)

B 2024 Vegetation Performance Assessment Documentation

C Cover Inspection Documentation (October 1, 2023 through September 30, 2024)

D Maintenance and Repair Documentation (October 1, 2023 through September 30, 2024)

E Non-Routine Action Plans

F Operations and Maintenance Change Notices

Note: Software used to compile this report does not transfer electronic signatures, therefore, electronic forms provided in the following appendices are unsigned. Documentation with electronic signatures is available in the project files.

APPENDIX A

Precipitation Data

(October 1, 2023 through September 30, 2024)

Appendix A: Precipitation Data (October 1, 2023 through September 30, 2024)

Note 1: This table provides precipitation data for all dates when precipitation was recorded. For dates not shown, there was no recorded precipitation.

Note 2: The yellow highlighted boxes indicate that there was more than one inch of precipitation in a 24-hour period.

Date	Lime Basins Daily Precipitation (in.)
October 3, 2023	0.01
October 11, 2023	0.02
October 12, 2023	0.01
October 24, 2023	0.03
October 26, 2023	0.02
October 29, 2023	0.06
October 30, 2023	0.30
October 31, 2023	0.04
November 20, 2023	0.03
November 26, 2023	0.17
December 9, 2023	0.09
December 10, 2023	0.01
December 13, 2023	0.01
December 14, 2023	0.04
December 23, 2023	0.01
December 24, 2023	0.01
December 26, 2023	0.08
December 27, 2023	0.09
January 8, 2024	0.01
January 9, 2024	0.01
January 16, 2024	0.17
January 17, 2024	0.01
January 26, 2024	0.07
February 2, 2024	0.04
February 3, 2024	0.24
February 4, 2024	0.08
February 5, 2024	0.37
February 6, 2024	0.15
February 11, 2024	0.10
February 12, 2024	0.14
February 17, 2024	0.16
February 27, 2024	0.08
February 28, 2024	0.01
March 8, 2024	0.02
March 13, 2024	0.13
March 14, 2024	0.28
March 15, 2024	0.28
March 16, 2024	0.89
March 24, 2024	0.03
March 25, 2024	0.11

Date	Lime Basins Daily Precipitation (in.)
March 26, 2024	0.17
April 1, 2024	0.09
April 2, 2024	0.01
April 16, 2024	0.17
April 18, 2024	0.02
April 19, 2024	0.05
April 20, 2024	0.28
April 21, 2024	0.26
April 25, 2024	0.18
April 26, 2024	0.36
April 27, 2024	1.27
April 28, 2024	0.02
May 11, 2024	0.04
May 12, 2024	0.36
May 15, 2024	0.08
May 20, 2024	0.03
May 21, 2024	0.22
May 30, 2024	0.68
May 31, 2024	0.03
June 9, 2024	0.19
June 10, 2024	0.01
June 19, 2024	0.01
June 20, 2024	0.04
June 26, 2024	0.12
June 29, 2024	0.01
July 2, 2024	0.03
July 16, 2024	0.06
July 18, 2024	0.01
July 20, 2024	0.27
July 21, 2024	0.05
July 27, 2024	0.01
July 28, 2024	0.01
August 2, 2024	0.01
August 5, 2024	0.30
August 6, 2024	0.11
August 10, 2024	0.01
August 13, 2024	0.19
August 15, 2024	0.01
August 19, 2024	0.02
August 22, 2024	0.05

Appendix A: Precipitation Data (October 1, 2023 through September 30, 2024)

Date	Lime Basins Daily Precipitation (in.)
August 23, 2024	0.04
September 4, 2024	0.04
September 5, 2024	0.27
September 15, 2024	0.05
September 21, 2024	0.04
September 22, 2024	0.62
Total:	**11.31**

APPENDIX B

2024 Vegetation Performance Assessment Documentation

Table 5.0-1

Cover and Frequency summary for the ICS RCRA-Equivalent at Rocky Mountain Arsenal. Based on data from 10 sampling locations. 2024 data. +/- values equal the standard deviation. Incidental Species present within 1 meter on either side of the data transect, but not quantitatively encountered.

2024

Species	Mean Cover (%)	Relative Cover (%)	Range of Cover Values (%)	Percent Frequency (%)	Relative Frequency(%)	[2]Rank
COOL SEASON PERENNIAL GRASSES						
Hesperostipa comata	7.6	9.9	0 - 32.00	70.0	11.48	4.0
Pascopyrum smithii	33.2	43.23	5.00 - 66.00	100.0	16.39	1.0
Sub-Total	40.8	53.13				
WARM SEASON PERENNIAL GRASSES						
Bouteloua curtipendula	14.5	18.88	0 - 38.00	90.0	14.75	2.0
Buchloe dactyloides	5.0	6.51	0 - 13.00	90.0	14.75	5.0
Chondrosum gracile	10.0	13.02	0 - 27.00	90.0	14.75	3.0
Sporobolus airoides	1.3	1.69	0 - 7.00	40.0	6.56	8.0
Sub-Total	30.8	40.1				
ANNUAL AND BIENNIAL FORBS						
[1] Bassia sieversiana	2.8	3.65	0 - 8.00	90.0	14.75	6.0

Table 5.0-2	Vegetation Performance Assessment ICS RCRA-Equivalent Reporting Years 2022, 2023, 2024	2024

Reporting Year: 2022

Species	Mean Cover (%)	Relative Cover (%)	Range of Cover Values (%)	Percent Frequency (%)	Relative Frequency(%)	[2]Rank
COOL SEASON PERENNIAL GRASSES						
Hesperostipa comata	1.20	1.70	0 - 4.00	40.00	4.94	10
Pascopyrum smithii	10.20	14.49	0 - 32.00	90.00	11.11	4
Sub-Total	11.40	16.19				
WARM SEASON PERENNIAL GRASSES						
Bouteloua curtipendula	8.40	11.93	0 - 37.00	90.00	11.11	5
Buchloe dactyloides	5.20	7.39	0 - 16.00	80.00	9.88	6
Chondrosum gracile	11.90	16.90	0 - 31.00	90.00	11.11	3
Panicum virgatum	0.20	.28	0 - 2.00	10.00	1.23	13
Sporobolus airoides	1.80	2.56	0 - 10.00	50.00	6.17	8
Sporobolus cryptandrus	1.40	1.99	0 - 5.00	50.00	6.17	9
Sub-Total	28.90	41.05				
INTRODUCED PERENNIAL GRASSES						
Psathyrostachys juncea	0.20	.28	0 - 2.00	10.00	1.23	13

Sub-Total	0.20	0.28				
ANNUAL GRASSES						
[1] Bromus tectorum	0.50	.71	0 - 4.00	20.00	2.47	11
Sub-Total	0.50	0.71				
ANNUAL AND BIENNIAL FORBS						
Amaranthus arenicola	0.30	.43	0 - 2.00	20.00	2.47	12
[1] Bassia sieversiana	12.50	17.76	0 - 37.00	90.00	11.11	2
[1] Salsola collina	14.40	20.45	0 - 25.00	90.00	11.11	1
[1] Sisymbrium altissimum	2.10	2.98	0 - 5.00	70.00	8.64	7
Ximenesia encelioides	0.10	.14	0 - 1.00	10.00	1.23	14
Sub-Total	29.40	41.76				
SUM OF SPECIES COVER	70.40	100.0				

CRITERIA ASSESSMENT

Total Absolute Cover	91.80
Allowable Total Absolute Live Vegetation Cover 2022	47.94

Reporting Year: 2023

Species	Mean Cover (%)	Relative Cover (%)	Range of Cover Values (%)	Percent Frequency (%)	Relative Frequency(%)	[2]Rank
COOL SEASON PERENNIAL GRASSES						
Hesperostipa comata	1.40	1.66	0 - 8.00	40.00	4.55	10
Pascopyrum smithii	19.70	23.31	2.00 - 47.00	100.00	11.36	2
Sub-Total	21.10	24.97				
WARM SEASON PERENNIAL GRASSES						
Bouteloua curtipendula	11.20	13.25	0 - 27.00	90.00	10.23	3
Buchloe dactyloides	7.40	8.76	0 - 15.00	90.00	10.23	5
Chondrosum gracile	22.80	26.98	13.00 - 32.00	100.00	11.36	1
Panicum virgatum	0.10	.12	0 - 1.00	10.00	1.14	14
Schizachyrium scoparium	0.90	1.07	0 - 9.00	10.00	1.14	11
Sporobolus airoides	1.60	1.89	0 - 7.00	50.00	5.68	9
Sporobolus cryptandrus	1.80	2.13	0 - 5.00	60.00	6.82	8
Sub-Total	45.80	54.20				
ANNUAL GRASSES						
Eragrostis cilianensis	0.30	.36	0 - 1.00	30.00	3.41	13
Panicum capillare	4.90	5.80	0 - 17.00	80.00	9.09	6
Sub-Total	5.20	6.16				
ANNUAL AND BIENNIAL FORBS						

[1] Bassia sieversiana	9.30	11.01	2.00 - 23.00	100.00	11.36	4
Helianthus annuus	0.10	.12	0 - 1.00	10.00	1.14	14
[1] Melilotus officinale	0.80	.95	0 - 5.00	40.00	4.55	12
[1] Salsola collina	2.20	2.60	0 - 11.00	70.00	7.95	7
Sub-Total	12.40	14.68				
SUM OF SPECIES COVER	84.50	100.0				

CRITERIA ASSESSMENT

Total Absolute Cover	93.80
Allowable Total Absolute Live Vegetation Cover 2023	80.65

Reporting Year: 2024

Species	Mean Cover (%)	Relative Cover (%)	Range of Cover Values (%)	Percent Frequency (%)	Relative Frequency(%)	[2]Rank
COOL SEASON PERENNIAL GRASSES						
Hesperostipa comata	7.60	9.90	0 - 32.00	70.00	11.48	4
Pascopyrum smithii	33.20	43.23	5.00 - 66.00	100.00	16.39	1

Sub-Total	40.80	53.13				
WARM SEASON PERENNIAL GRASSES						
Bouteloua curtipendula	14.50	18.88	0 - 38.00	90.00	14.75	2
Buchloe dactyloides	5.00	6.51	0 - 13.00	90.00	14.75	5
Chondrosum gracile	10.00	13.02	0 - 27.00	90.00	14.75	3
Sporobolus airoides	1.30	1.69	0 - 7.00	40.00	6.56	8
Sub-Total	30.80	40.10				
ANNUAL AND BIENNIAL FORBS						
[1] Bassia sieversiana	2.80	3.65	0 - 8.00	90.00	14.75	6
Conyza canadensis	0.60	.78	0 - 5.00	20.00	3.28	9
[1] Melilotus officinale	0.20	.26	0 - 2.00	10.00	1.64	10
[1] Salsola collina	1.60	2.08	0 - 16.00	10.00	1.64	7
Sub-Total	5.20	6.77				
SUM OF SPECIES COVER	76.80	100.0				

CRITERIA ASSESSMENT

Total Absolute Cover	95.50
Allowable Total Absolute Live Vegetation Cover 2024	76.80

Two year running average for Total Absolute Cover	94.65
Three year running average for Total Absolute Cover	93.7

[1] Weedy Species

[2] Based on total cover

[3] Based on 1st hit data

Conyza canadensis	0.6	.78	0 - 5.00	20.0	3.28	9.0
[1] Melilotus officinale	0.2	.26	0 - 2.00	10.0	1.64	10.0
[1] Salsola collina	1.6	2.08	0 - 16.00	10.0	1.64	7.0
Sub-Total	5.2	6.77				
SUM OF SPECIES COVER	76.8	100.0				

[3]Total Absolute Mean Vegetation Cover	76.80	+/-3.47
[3]Total Absolute Mean Litter Cover	18.70	+/-4.46
[3]Total Absolute Mean Bare Soil	4.70	+/-2.25
[3]Total Absolute Mean Weedy Cover	4.60	+/-2.32
Total Absolute Ground Cover	95.50	+/-2.32
Relative Weed Cover	5.99	
Relative Allowable Weed Cover	10.0	
Relative Non-Allowable Cover by Weeds	0.00	
Non-Allowable Absolute Weedy Cover	0.00	
Allowable Total Absolute Live Vegetation Cover	76.80	
Mean Number of Species/Sample	6.2	
Mean Species Density/100sq. meters	8.00	+/-0.52

Incidental Species
i.e < 0.01 Mean Cover

Bassia sieversiana
Buchloe dactyloides
Chondrosum gracile
Conyza canadensis
Dyssodia papposa
Helianthus annuus
Hesperostipa comata
Lactuca serriola
Schizachyrium scoparium
Solanum rostratum
Sporobolus airoides
Ximenesia encelioides

[1] Weedy Species

[2] Based on total cover

[3] Based on 1st hit data

Sample Adequacy Check

ICS RCRA-Equivalent

Year : 2024

Transect	Hits
10 :	81
11 :	85
16 :	69
19 :	78
25 :	79
28 :	69
34 :	77
37 :	62
41 :	78
51 :	89

Sample Adequacy = 2.1

(Mean value: 76.7, Sample Variance: 8.04, One Tailed Value: 1.383)

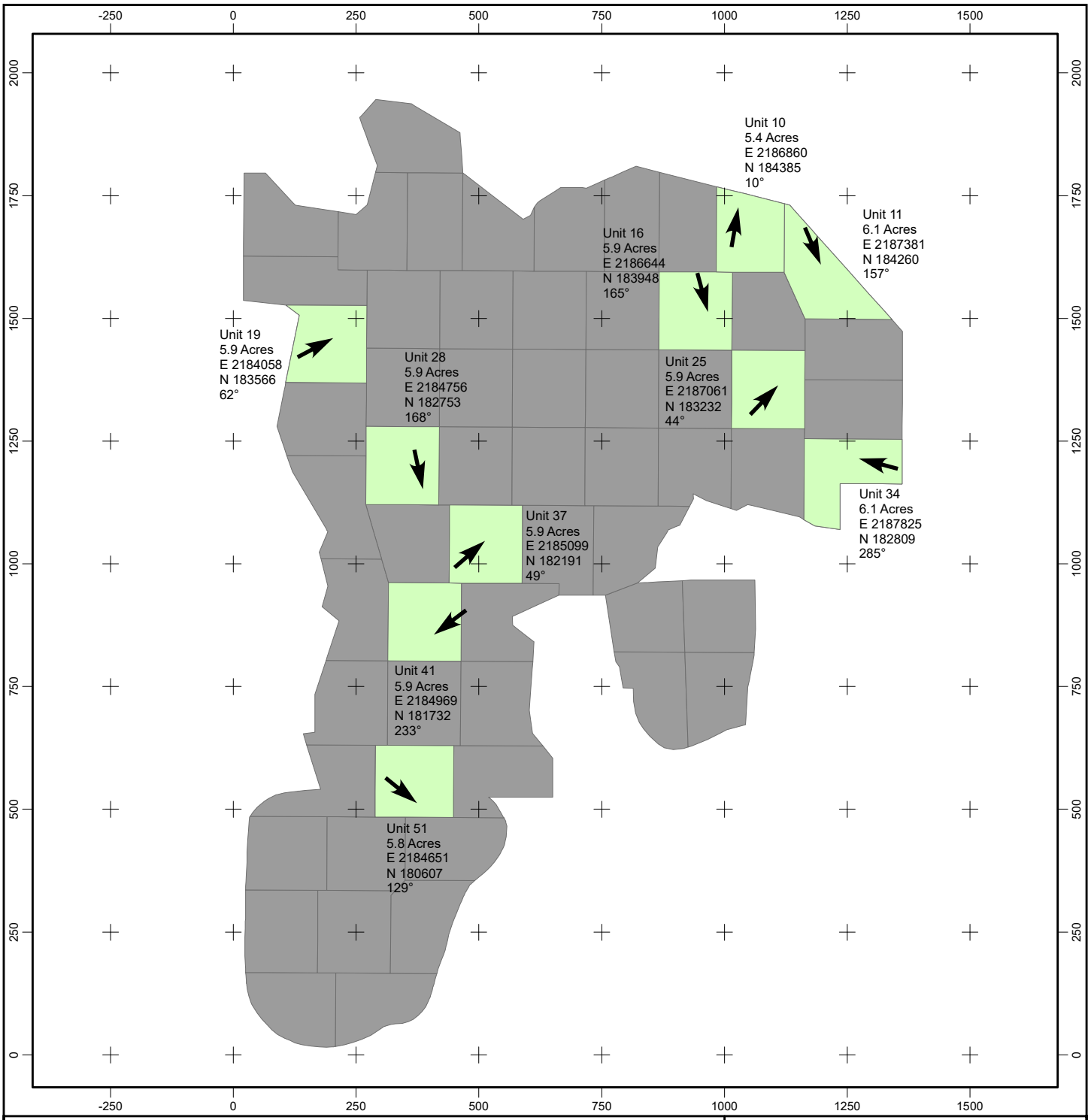
Table 5.0-4 - ICS RCRA-Equivalent Cover
Raw Data Report

Sampled by: Kimberly Hoffman
Sample Date(s): 9/17/2024

1 - Only plant species that were hit or observed along the transect are recorded in this table.
Blank boxes indicate the species was not present on the transect.
2 - Species with cover values of 0.1 were species observed within the 100 meter zone associated with each transect, but not recorded in the quantitative data collection for each transect.
3 - # of species/100sq meter zone

	Transects									
SPECIES/Other	**10**	**11**	**16**	**19**	**25**	**28**	**34**	**37**	**41**	**51**
BARE SOIL	1.0	4.0	1.0	3.0	4.0	4.0	2.0	3.0	19.0	5.0
LITTER	18.0	11.0	30.0	19.0	17.0	27.0	21.0	35.0	3.0	6.0
BASSIA SIEVERSIANA	1.0	1.0	4.0	4.0	0.1	8.0	2.0	4.0	2.0	2.0
BOUTELOUA CURTIPENDULA	1.0	25.0	16.0	7.0	22.0	6.0	22.0	8.0	38.0	
BUCHLOE DACTYLOIDES	6.0	8.0	1.0	3.0	13.0	1.0	9.0	3.0	6.0	0.1
CHONDROSUM GRACILE	5.0	8.0	10.0	15.0	27.0	4.0	13.0	5.0	13.0	0.1
CONYZA CANADENSIS		0.1	0.1	5.0	0.1	1.0	0.1	0.1		
DYSSODIA PAPPOSA			0.1		0.1		0.1			
HELIANTHUS ANNUUS						0.1		0.1		
HESPEROSTIPA COMATA		10.0	1.0	8.0	0.1	6.0	5.0		14.0	32.0
LACTUCA SERRIOLA			0.1							
MELILOTUS OFFICINALE								2.0		
PASCOPYRUM SMITHII	66.0	30.0	38.0	36.0	16.0	43.0	19.0	40.0	5.0	39.0
SALSOLA COLLINA										16.0
SCHIZACHYRIUM SCOPARIUM									0.1	
SOLANUM ROSTRATUM										0.1
SPOROBOLUS AIROIDES	2.0	3.0			1.0		7.0	0.1	0.1	
XIMENESIA ENCELIOIDES			0.1							
Total Hits plus Incidental Species:	**100.0**	**100.1**	**101.4**	**100.0**	**100.4**	**100.1**	**100.2**	**100.3**	**100.2**	**100.3**
Species Density:	**6**	**8**	**10**	**7**	**9**	**8**	**9**	**9**	**8**	**7**

[3] Sample Mean: 8.1, Variance: 1.2



Legend

- Sampled Unit
- Non-Sampled Unit
- Transect Location and Bearing

N

250 meter grid shown for reference
Coordinates are listed in
Colorado State Plane
North Zone (NAD 1927)

0 50 100 200 300 400

Meters

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Appendix B, Figure 1

ICS RCRA-Equivalent Cover
(340.95 Acres)
2024 Random Transect
Survey Locations

M:\projects\OMC\Vegetation\mxds\ICS_RCRA_2024.mxd
8/14/2024


ICS
UNIT 10


ICS
UNIT 11


ICS
UNIT 16


ICS
UNIT 19


ICS
UNIT 25


ICS
UNIT 28


ICS
UNIT 34


ICS
UNIT 37


ICS
UNIT 41


ICS
UNIT 51

Table 5.0-5

Cover and Frequency summary for the 2 Foot and 3 Foot at Rocky Mountain Arsenal. Based on data from 5 sampling locations. 2024 data. +/- values equal the standard deviation. Incidental Species present within 1 meter on either side of the data transect, but not quantitatively encountered.

2024

Species	Mean Cover (%)	Relative Cover (%)	Range of Cover Values (%)	Percent Frequency (%)	Relative Frequency(%)	[2]Rank
COOL SEASON PERENNIAL GRASSES						
Hesperostipa comata	15.8	18.33	4.00 - 37.00	100.0	14.29	2.0
Pascopyrum smithii	45.2	52.44	16.00 - 76.00	100.0	14.29	1.0
Sub-Total	61.0	70.77				
WARM SEASON PERENNIAL GRASSES						
Bouteloua curtipendula	8.6	9.98	0 - 24.00	60.0	8.57	3.0
Buchloe dactyloides	4.0	4.64	0 - 8.00	80.0	11.43	5.0
Chondrosum gracile	5.6	6.5	0 - 13.00	80.0	11.43	4.0
Panicum virgatum	2.6	3.02	0 - 12.00	40.0	5.71	6.0
Schizachyrium scoparium	0.4	.46	0 - 2.00	20.0	2.86	10.0
Sporobolus airoides	0.8	.93	0 - 3.00	40.0	5.71	8.0
Sub-Total	22.0	25.53				

ANNUAL AND BIENNIAL FORBS						
[1] Bassia sieversiana	0.6	.7	0 - 1.00	60.0	8.57	9.0
Helianthus annuus	0.2	.23	0 - 1.00	20.0	2.86	11.0
[1] Salsola collina	2.4	2.78	1.00 - 5.00	100.0	14.29	7.0
Sub-Total	3.2	3.71				
SUM OF SPECIES COVER	86.2	100.01				

[3]Total Absolute Mean Vegetation Cover	86.20	+/-3.54
[3]Total Absolute Mean Litter Cover	11.40	+/-2.68
[3]Total Absolute Mean Bare Soil	2.60	+/-1.33
[3]Total Absolute Mean Weedy Cover	3.00	+/-1.45
Total Absolute Ground Cover	97.60	+/-1.42
Relative Weed Cover	3.48	
Relative Allowable Weed Cover	10.0	
Relative Non-Allowable Cover by Weeds	0.00	
Non-Allowable Absolute Weedy Cover	0.00	
Allowable Total Absolute Live Vegetation Cover	86.20	
Mean Number of Species/Sample	7	
Mean Species Density/100sq. meters	8.00	+/-2.05

Incidental Species
i.e < 0.01 Mean Cover

Bassia sieversiana
Chondrosum gracile
Melilotus officinale
Panicum capillare
Panicum virgatum
Solanum rostratum
Sporobolus airoides
Tragopogon dubius
Ximenesia encelioides

[1] Weedy Species

[2] Based on total cover

[3] Based on 1st hit data

Table 5.0-6 | **Vegetation Performance Assessment 2 Foot and 3 Foot Reporting Years 2022, 2023, 2024** | **2024**

Reporting Year: 2022

Species	Mean Cover (%)	Relative Cover (%)	Range of Cover Values (%)	Percent Frequency (%)	Relative Frequency(%)	[2]Rank
COOL SEASON PERENNIAL GRASSES						
Hesperostipa comata	1.20	1.67	0 - 5.00	40.00	5.56	9
Pascopyrum smithii	22.00	30.56	14.00 - 30.00	100.00	13.89	1
Sub-Total	23.20	32.23				
WARM SEASON PERENNIAL GRASSES						
Bouteloua curtipendula	2.00	2.78	0 - 7.00	40.00	5.56	7
Buchloe dactyloides	1.80	2.50	0 - 5.00	80.00	11.11	8
Chondrosum gracile	7.00	9.72	2.00 - 17.00	100.00	13.89	4
Panicum virgatum	0.20	.28	0 - 1.00	20.00	2.78	10
Sporobolus airoides	2.80	3.89	0 - 7.00	60.00	8.33	6
Sporobolus cryptandrus	12.40	17.22	1.00 - 25.00	100.00	13.89	3
Sub-Total	26.20	36.39				

ANNUAL AND BIENNIAL FORBS						
Amaranthus arenicola	1.20	1.67	0 - 6.00	20.00	2.78	9
[1] Bassia sieversiana	4.20	5.83	0 - 11.00	60.00	8.33	5
[1] Salsola collina	17.20	23.89	5.00 - 32.00	100.00	13.89	2
Sub-Total	22.60	31.39				
SUM OF SPECIES COVER	72.00	100.0				

CRITERIA ASSESSMENT	
Total Absolute Cover	96.40
Allowable Total Absolute Live Vegetation Cover 2022	57.80

Reporting Year: 2023

Species	Mean Cover (%)	Relative Cover (%)	Range of Cover Values (%)	Percent Frequency (%)	Relative Frequency(%)	[2]Rank
COOL SEASON PERENNIAL GRASSES						
Hesperostipa comata	5.20	6.18	0 - 23.00	60.00	6.82	5

Pascopyrum smithii	25.20	29.93	0 - 54.00	80.00	9.09	1
Sub-Total	30.40	36.11				
WARM SEASON PERENNIAL GRASSES						
Bouteloua curtipendula	4.60	5.46	1.00 - 10.00	100.00	11.36	6
Buchloe dactyloides	1.60	1.90	0 - 5.00	60.00	6.82	9
Chondrosum gracile	10.40	12.35	1.00 - 20.00	100.00	11.36	3
Schizachyrium scoparium	0.60	.71	0 - 3.00	20.00	2.27	10
Sporobolus airoides	3.00	3.56	0 - 14.00	40.00	4.55	7
Sporobolus cryptandrus	10.40	12.35	0 - 38.00	80.00	9.09	3
Sub-Total	30.60	36.33				
ANNUAL GRASSES						
Panicum capillare	6.60	7.84	0 - 13.00	80.00	9.09	4
Sub-Total	6.60	7.84				
ANNUAL AND BIENNIAL FORBS						
[1] Bassia sieversiana	2.60	3.09	0 - 7.00	80.00	9.09	8
Descurainia incana	0.40	.48	0 - 1.00	40.00	4.55	11
Helianthus annuus	0.20	.24	0 - 1.00	20.00	2.27	12
Machaeranthera tanacetifolia	0.20	.24	0 - 1.00	20.00	2.27	12
[1] Salsola collina	12.60	14.96	0 - 50.00	40.00	4.55	2
Solanum rostratum	0.20	.24	0 - 1.00	20.00	2.27	12
Tragopogon dubius	0.20	.24	0 - 1.00	20.00	2.27	12
Ximenesia encelioides	0.20	.24	0 - 1.00	20.00	2.27	12

Sub-Total	16.60	19.73
SUM OF SPECIES COVER	84.20	100.0

CRITERIA ASSESSMENT

Total Absolute Cover	95.60
Allowable Total Absolute Live Vegetation Cover 2023	77.42

Reporting Year: 2024

Species	Mean Cover (%)	Relative Cover (%)	Range of Cover Values (%)	Percent Frequency (%)	Relative Frequency(%)	[2]Rank
COOL SEASON PERENNIAL GRASSES						
Hesperostipa comata	15.80	18.33	4.00 - 37.00	100.00	14.29	2
Pascopyrum smithii	45.20	52.44	16.00 - 76.00	100.00	14.29	1
Sub-Total	61.00	70.77				
WARM SEASON PERENNIAL GRASSES						

Bouteloua curtipendula	8.60	9.98	0 - 24.00	60.00	8.57	3
Buchloe dactyloides	4.00	4.64	0 - 8.00	80.00	11.43	5
Chondrosum gracile	5.60	6.50	0 - 13.00	80.00	11.43	4
Panicum virgatum	2.60	3.02	0 - 12.00	40.00	5.71	6
Schizachyrium scoparium	0.40	.46	0 - 2.00	20.00	2.86	10
Sporobolus airoides	0.80	.93	0 - 3.00	40.00	5.71	8
Sub-Total	22.00	25.53				
ANNUAL AND BIENNIAL FORBS						
[1] Bassia sieversiana	0.60	.70	0 - 1.00	60.00	8.57	9
Helianthus annuus	0.20	.23	0 - 1.00	20.00	2.86	11
[1] Salsola collina	2.40	2.78	1.00 - 5.00	100.00	14.29	7
Sub-Total	3.20	3.71				
SUM OF SPECIES COVER	86.20	100.0				

CRITERIA ASSESSMENT

Total Absolute Cover	97.60
Allowable Total Absolute Live Vegetation Cover 2024	86.20
Two year running average for Total Absolute Cover	96.6

Three year running average for Total Absolute Cover	96.53

[1] Weedy Species

[2] Based on total cover

[3] Based on 1st hit data

Sample Adequacy Check

2 Foot and 3 Foot

Year : 2024

Transect	Hits
101 :	77
105 :	89
106 :	88
115 :	89
119 :	87

Sample Adequacy = 0.83

(Mean value: 86, Sample Variance: 5.1, One Tailed Value: 1.533)

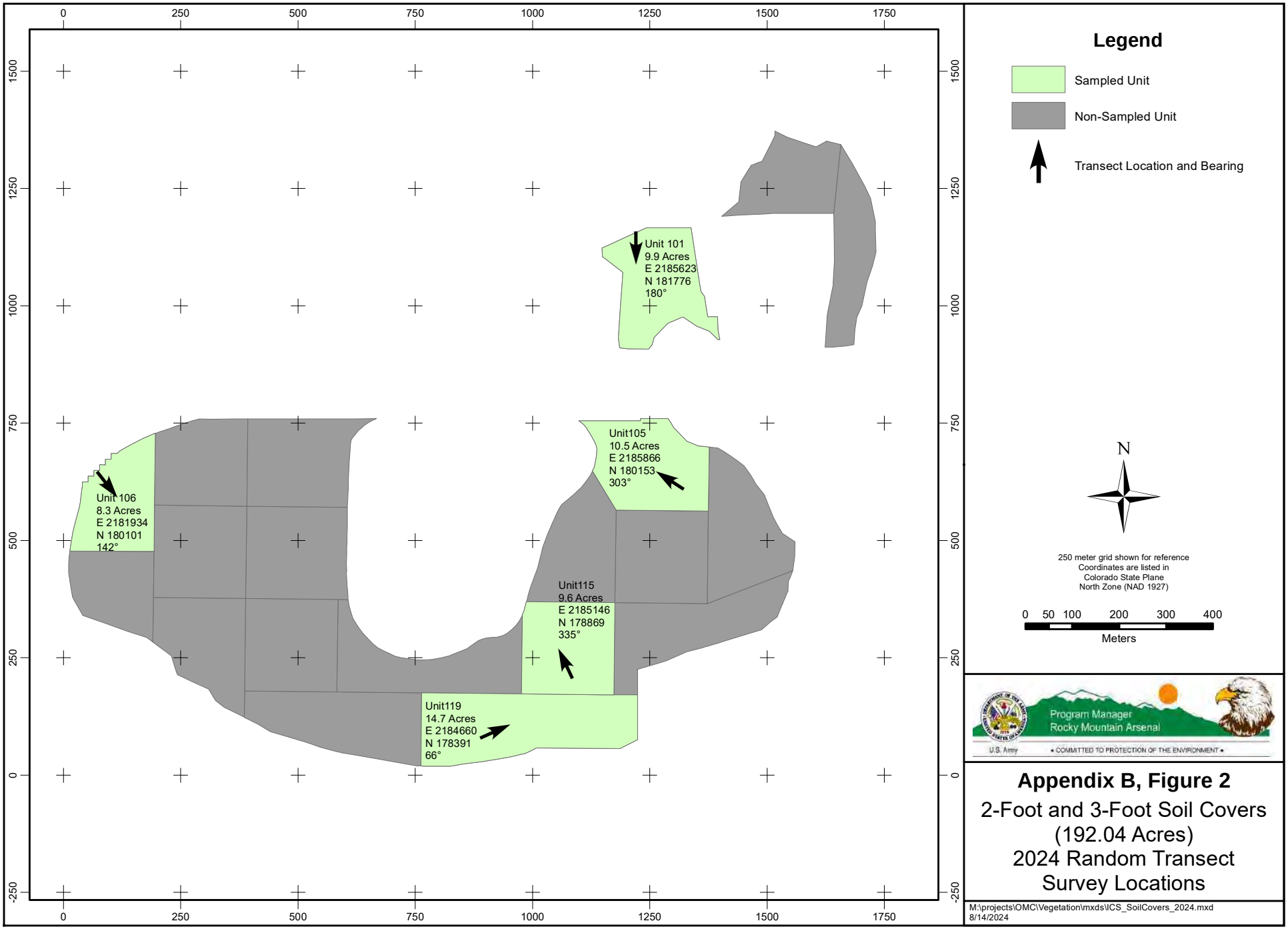
Table 5.0-8 - 2 Foot and 3 Foot Cover
Raw Data Report

Sampled by: Kimberly Hoffman
Sample Date(s): 9/17/2024

1 - Only plant species that were hit or observed along the transect are recorded in this table.
Blank boxes indicate the species was not present on the transect.
2 - Species with cover values of 0.1 were species observed within the 100 meter zone associated with each transect, but not recorded in the quantitative data collection for each transect.
3 - # of species/100sq meter zone

	Transects				
SPECIES/Other	**101**	**105**	**106**	**115**	**119**
BARE SOIL	5.0	2.0	4.0		2.0
LITTER	18.0	9.0	8.0	11.0	11.0
BASSIA SIEVERSIANA		0.1	1.0	1.0	1.0
BOUTELOUA CURTIPENDULA	24.0	16.0			3.0
BUCHLOE DACTYLOIDES	8.0	5.0	2.0		5.0
CHONDROSUM GRACILE	6.0	13.0	0.1	1.0	8.0
HELIANTHUS ANNUUS	1.0				
HESPEROSTIPA COMATA	4.0	18.0	4.0	37.0	16.0
MELILOTUS OFFICINALE	0.1				
PANICUM CAPILLARE	0.1				
PANICUM VIRGATUM	12.0	1.0			0.1
PASCOPYRUM SMITHII	16.0	35.0	76.0	47.0	52.0
SALSOLA COLLINA	1.0	1.0	5.0	3.0	2.0
SCHIZACHYRIUM SCOPARIUM	2.0				
SOLANUM ROSTRATUM		0.1			
SPOROBOLUS AIROIDES	3.0		0.1		1.0
TRAGOPOGON DUBIUS		0.1			
XIMENESIA ENCELIOIDES		0.1			
Total Hits plus Incidental Species:	**100.2**	**100.4**	**100.2**	**100.0**	**101.1**
Species Density:	**12**	**11**	**7**	**5**	**9**

[3] Sample Mean: 8.8, Variance: 2.86



Appendix B, Figure 2

2-Foot and 3-Foot Soil Covers
(192.04 Acres)
2024 Random Transect
Survey Locations

M:\projects\OMC\Vegetation\mxds\ICS_SoilCovers_2024.mxd
8/14/2024


2-ft/3-ft
UNIT 101


2-ft/3-ft
UNIT 105


2-ft/3-ft
UNIT 106


2-ft/3-ft
UNIT 115


2-ft/3-ft
UNIT 119

APPENDIX C

Cover Inspection Documentation

(October 1, 2023 through September 30, 2024)

Type I w/ ER
KS1
10/12-23 Monuments

Form SOP 001-1
ICS Inspection Form

Inspector Names: M. Jones, K. Hoffman, V. Steinort **Date(s):** 10-12-23 **Time of Inspection:** 0800

Type I inspection ☐ **Type II inspection** ☑ **Post-Storm inspection** ☐

Drive-around Post-Storm Inspection:
Drive-around inspection date (taken from Logbook): N/A
*Note: Post-storm event inspection items are indicated with a * next to the Inspection Item number.*

Date(s) of Significant Storm Event: N/A

Total Precipitation (in): N/A

Inspection Conditions:
Previous 24-hour precipitation: 0 Weather Conditions: 50's, overcast, calm, winds (Acceptable/Unacceptable for Inspection ***(circle one)***

Attachments: ☑ Photographs ☐ Figures ☐ Other

INSPECTION ITEM		CONDITION PRESENT			REPEAT OR CHRONIC CONDITION			INSPECTION NOTE	CONFIRMATION THAT ACTION IS COMPLETE (Initial and Date)
		Y	N	N/A	Y	N	N/A		
1.0	**Surface Conditions**								
1.1*	Erosion rills, gullies, or sheet erosion		✓				✓	none	
1.2*	Conditions that could interrupt cover surface drainage (ponding areas, ruts, hole greater than 3" in diameter)	✓				✓		Note 1.	Repaired November 2023. MJ 10/23/24
1.3	Excessive animal trails		✓				✓	none	
1.4	Widespread burrowing animal holes		✓				✓	none	
1.5*	Extensive linear cracks		✓				✓	none	

S-1

Form SOP 001-1
ICS Inspection Form

INSPECTION ITEM		CONDITION IS PRESENT			REPEAT OR CHRONIC CONDITION			INSPECTION NOTE	CONFIRMATION THAT ACTION IS COMPLETE (Initial and Date)
		Y	N	N/A	Y	N	N/A		
1.0	**Surface Conditions (Continued)**								
1.6	Vandalism, or intrusive damage such as unplanned excavation, drilling, grading, damage to engineering or access controls		✓				✓	none	
2.0	**Vegetative Cover**								
2.1	Bare area or areas of poor growth greater than 100 square feet		✓				✓	none	
2.2	Areas of vegetation stress greater than 100 square feet (over grazing, discoloration, pedestalling)		✓				✓	none	
2.3	Deep rooted, noxious or undesirable weedy species		✓				✓	none	
2.4	Excessive litter accumulation		✓				✓	none	
3.0	**Engineering and Access Controls**								
3.1	The perimeter fence is damaged		✓				✓	none	
3.2	Debris has collected along the perimeter fence		✓				✓	none	
3.3	Obelisks are damaged, not visible, or not legible		✓				✓	none	
3.4	Warning signs are not legible from 25 feet		✓				✓	none	
3.5*	Damage to the Perimeter Access Road such as potholes, washouts, washboard, or burrowing		✓				✓	none	

Form SOP 001-1
ICS Inspection Form

4.0 Surface Drainage Controls: *Were the following conditions observed during the inspection of the stormwater drainage controls? (circle all that apply)*

INSPECTION ITEM	CHANNEL NUMBER																								
	1	2	3	4	5	6	7	8	9	10	11	11A	12	13	14	15	15A	16	17	18	19	20	21	22	23
4.1* Impeded drainage or ponding in the channel (siltation/debris present)	Y (N)	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y (N)
4.2* Inadequate protective vegetation	Y (N)	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y (N)
4.3* Erosion rills or gullies in the grass-lined channel	Y (N)	Y (N)	Y (N)			Y (N)	Y N	Y N	Y N	Y (N)			Y (N)		Y (N)	Y (N)		Y (N)		Y (N)	Y N	Y N	Y (N)		Y (N)
4.4* Cracked or degraded concrete				Y (N)	Y (N)	Y (N)					Y (N)	Y N	Y N	Y (N)		Y (N)	Y N	Y N	Y N	Y (N)				Y (N)	
4.5* Expansion joint damage (missing caulk)				Y (N)	Y N	Y (N)					Y (N)	Y (Y) N	Y (N)	Y (N)		Y (N)	Y N	Y N	Y N	Y (N)				Y (N)	
4.6* Inhibited drainage from the soil to the concrete-lined channel				Y (N)	Y N	Y (N)					Y (N)	Y N	Y N	Y (N)		Y (N)	Y N	Y N	Y N	Y (N)				Y (N)	
4.7* Subsidence or undercutting of the concrete-lined channel				Y (N)	Y N	Y (N)					Y (N)	Y N	Y N	Y (N)		Y (N)	Y N	Y N	Y N	Y (N)				Y (N)	

4.5: see Note 2.

~~Repaired February 2024.~~

MJ 10/23/24

Form SOP 001-1
ICS Inspection Form

5.0 Erosion/Settlement Monuments: *Inspect monuments for damage and legibility, and record the soil thickness loss, if any. Perform during spring Type II and fall Type I inspections.*

INSPECTION ITEM	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08	ER09	ER10	ER11	ER12	ER13	ER14	ER15	ER16	ER17	ER18	ER19
5.1 Was the monument free of damage and legible?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5.2 Measured Soil Thickness Loss (inches)	1	1.25	Ø	2.75	1.25	2	Ø	2.25	1.5	1.5	1	1	1.5	1.25	Ø	2.25	0.25	Ø	Ø

INSPECTION ITEM	ER20	ER21	ER22	ER23	ER24	ER25	ER26	ER27	ER28	ER29	ER30	ER31	ER32	ER33	ER34	ER35	ER36	ER37	ER38
5.1 Was the monument free of damage and legible?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5.2 Measured Soil Thickness Loss (inches)	1.5	0.75	1.25	1	Ø	1.25	Ø	1	1.25	2	3	3	0.25	1.25	2.25	1.75	1.75	2.5	2.75

INSPECTION ITEM	ER39	ER40	ER41	ER42	ER43	ER44	ER45	ER46	ER47	ER48	ER49	ER50	ER51	ER52	ER53	ER54	ER55	ER56	ER57
5.1 Was the monument free of damage and legible?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5.2 Measured Soil Thickness Loss (inches)	2	0.75	2.75	1.25	1	2.75	1.5	3.25	2.25	1.25	1	1.25	0.75	0.5	1	Ø	1.25	Ø	0.5

INSPECTION ITEM	ER58	ER59	ER60	ER61	ER62	ER63	ER64	ER65	ER66	ER67	ER68	ER69	ER70	ER71	ER72	ER73	ER74	ER75	ER76
5.1 Was the monument free of damage and legible?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5.2 Measured Soil Thickness Loss (inches)	1.5	1	2	0.75	0.75	1.75	1.5	1.75	1.75	0.5	1.5	1	0.25	1	2	1.5	0.25	Ø	2

INSPECTION ITEM	ER77	ER78	ER79	ER80	ER81	ER82	ER83	ER84	ER85	ER86	ER87	ER88	ER89	ER90	ER91	ER92
5.1 Was the monument free of damage and legible?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5.2 Measured Soil Thickness Loss (inches)	0.5	1.5	Ø	1	1.5	1	0.25	1.75	0.75	Ø	Ø	1.25	1.75	1.25	1.25	0.25

Form SOP 001-1
ICS Inspection Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations with GPS coordinates, and photographs as needed. Provide attachments as appropriate.

Note 1: A hole greater than 3" was identified at coordinates N 39 49.8724 W 104 50.1200. This hole is on the SDT cover. Please see attached Photo #1.

Note 2: An expansion joint is missing caulk in channel 114 at coordinates N 39 49.9432 W 104 50.1521.

Comments for ER: Hole present on south side of monuments ER16 and ER 38. Replace carsonite marker for ER 82. Repaired November 2023. MJ 10/23/24

- ER 46 exceeds the non-routine trigger level. It appears there is erosion to the NE of the monument 4/5-10 feet. See attached Photo #2. An NRAP will be prepared. Repaired February 2024. MJ 10/23/24

Inspector	
Name: Kim Hoffman	Signature and Date: Kim Hoffman 10-16-23
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	Signature and Date: 10/26/23
Covers Manager Confirmation of Completed Actions	
Name:	Signature and Date:

- Photo #1: Hole identified on the SDT Cover

Photo #2: ICS ER 46

Form SOP 001-1
ICS Inspection Form

Inspector Names: M. Jones, K. Hoffman **Date(s):** 1-3-24 **Time of Inspection:** 0800

Type I inspection ☑ **Type II inspection** ☐ **Post-Storm inspection** ☐

Drive-around Post-Storm Inspection:

Drive-around inspection date (taken from Logbook): N/A

*Note: Post-storm event inspection items are indicated with a * next to the Inspection Item number.*

Date(s) of Significant Storm Event: N/A

Total Precipitation (in): N/A

Inspection Conditions:

Previous 24-hour precipitation: Ø Weather Conditions: sunny, calm, mid 30's Acceptable/Unacceptable for Inspection ***(circle one)***

Attachments: ☐ Photographs ☐ Figures ☐ Other

INSPECTION ITEM	CONDITION PRESENT			REPEAT OR CHRONIC CONDITION			INSPECTION NOTE	CONFIRMATION THAT ACTION IS COMPLETE (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Surface Conditions								
1.1* Erosion rills, gullies, or sheet erosion		✓				✓	none	
1.2* Conditions that could interrupt cover surface drainage (ponding areas, ruts, hole greater than 3" in diameter)		✓				✓	none	
1.3 Excessive animal trails		✓				✓	none	
1.4 Widespread burrowing animal holes		✓				✓	none	
1.5* Extensive linear cracks		✓				✓	none	

Form SOP 001-1
ICS Inspection Form

	INSPECTION ITEM	CONDITION IS PRESENT			REPEAT OR CHRONIC CONDITION			INSPECTION NOTE	CONFIRMATION THAT ACTION IS COMPLETE (Initial and Date)
		Y	N	N/A	Y	N	N/A		
1.0	**Surface Conditions (Continued)**								
1.6	Vandalism, or intrusive damage such as unplanned excavation, drilling, grading, damage to engineering or access controls		✓				✓	none	
2.0	**Vegetative Cover**								
2.1	Bare area or areas of poor growth greater than 100 square feet		✓				✓	none	
2.2	Areas of vegetation stress greater than 100 square feet (over grazing, discoloration, pedestalling)		✓				✓	none	
2.3	Deep rooted, noxious or undesirable weedy species		✓				✓	none	
2.4	Excessive litter accumulation		✓				✓	none	
3.0	**Engineering and Access Controls**								
3.1	The perimeter fence is damaged		✓				✓	none	
3.2	Debris has collected along the perimeter fence		✓				✓	none	
3.3	Obelisks are damaged, not visible, or not legible		✓				✓	none	
3.4	Warning signs are not legible from 25 feet		✓				✓	none	
3.5*	Damage to the Perimeter Access Road such as potholes, washouts, washboard, or burrowing		✓				✓	none	

Form SOP 001-1
ICS Inspection Form

4.0 Surface Drainage Controls: *Were the following conditions observed during the inspection of the stormwater drainage controls? (circle all that apply)*

	INSPECTION ITEM	CHANNEL NUMBER																								
		1	2	3	4	5	6	7	8	9	10	11	11A	12	13	14	15	15A	16	17	18	19	20	21	22	23
4.1*	Impeded drainage or ponding in the channel (siltation/debris present)	Y (N)	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y (N)
4.2*	Inadequate protective vegetation	Y (N)	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y (N)
4.3*	Erosion rills or gullies in the grass-lined channel	Y (N)	Y N	Y (N)			Y (N)	Y N	Y N	Y N	Y (N)			Y (N)		Y (N)	Y (N)		Y (N)		Y (N)	Y N	Y N	Y (N)		Y (N)
4.4*	Cracked or degraded concrete				Y N	Y N	Y N					Y N	Y N	Y N	Y N		Y N	Y N	Y N	Y N	Y N				Y N	
4.5*	Expansion joint damage (missing caulk)				Y (N)	Y (N)	(Y) N					Y (N)	(Y) N	Y (N)	Y (N)		Y (N)	Y N	Y N	Y N	Y (N)				Y (N)	
4.6*	Inhibited drainage from the soil to the concrete-lined channel				Y (N)	Y N	Y (N)					Y (N)	Y N	Y N	Y (N)		Y (N)	Y N	Y N	Y N	Y (N)				Y (N)	
4.7*	Subsidence or undercutting of the concrete-lined channel				Y (N)	Y N	Y (N)					Y (N)	Y N	Y N	Y (N)		Y (N)	Y N	Y N	Y N	Y (N)				Y (N)	

4.5: caulk is missing from some of the expansion joints on channels 6 and 11A.

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ICS Inspection Form

5.0 Erosion/Settlement Monuments: *Inspect monuments for damage and legibility, and record the soil thickness loss, if any. Perform during spring Type II and fall Type I inspections.*

INSPECTION ITEM	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08	ER09	ER10	ER11	ER12	ER13	ER14	ER15	ER16	ER17	ER18	ER19
5.1 Was the monument free of damage and legible?	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
5.2 Measured Soil Thickness Loss (inches)																			

INSPECTION ITEM	ER20	ER21	ER22	ER23	ER24	ER25	ER26	ER27	ER28	ER29	ER30	ER31	ER32	ER33	ER34	ER35	ER36	ER37	ER38
5.1 Was the monument free of damage and legible?	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
5.2 Measured Soil Thickness Loss (inches)																			

INSPECTION ITEM	ER39	ER40	ER41	ER42	ER43	ER44	ER45	ER46	ER47	ER48	ER49	ER50	ER51	ER52	ER53	ER54	ER55	ER56	ER57
5.1 Was the monument free of damage and legible?	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
5.2 Measured Soil Thickness Loss (inches)																			

INSPECTION ITEM	ER58	ER59	ER60	ER61	ER62	ER63	ER64	ER65	ER66	ER67	ER68	ER69	ER70	ER71	ER72	ER73	ER74	ER75	ER76
5.1 Was the monument free of damage and legible?	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
5.2 Measured Soil Thickness Loss (inches)																			

INSPECTION ITEM	ER77	ER78	ER79	ER80	ER81	ER82	ER83	ER84	ER85	ER86	ER87	ER88	ER89	ER90	ER91	ER92
5.1 Was the monument free of damage and legible?	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
5.2 Measured Soil Thickness Loss (inches)																

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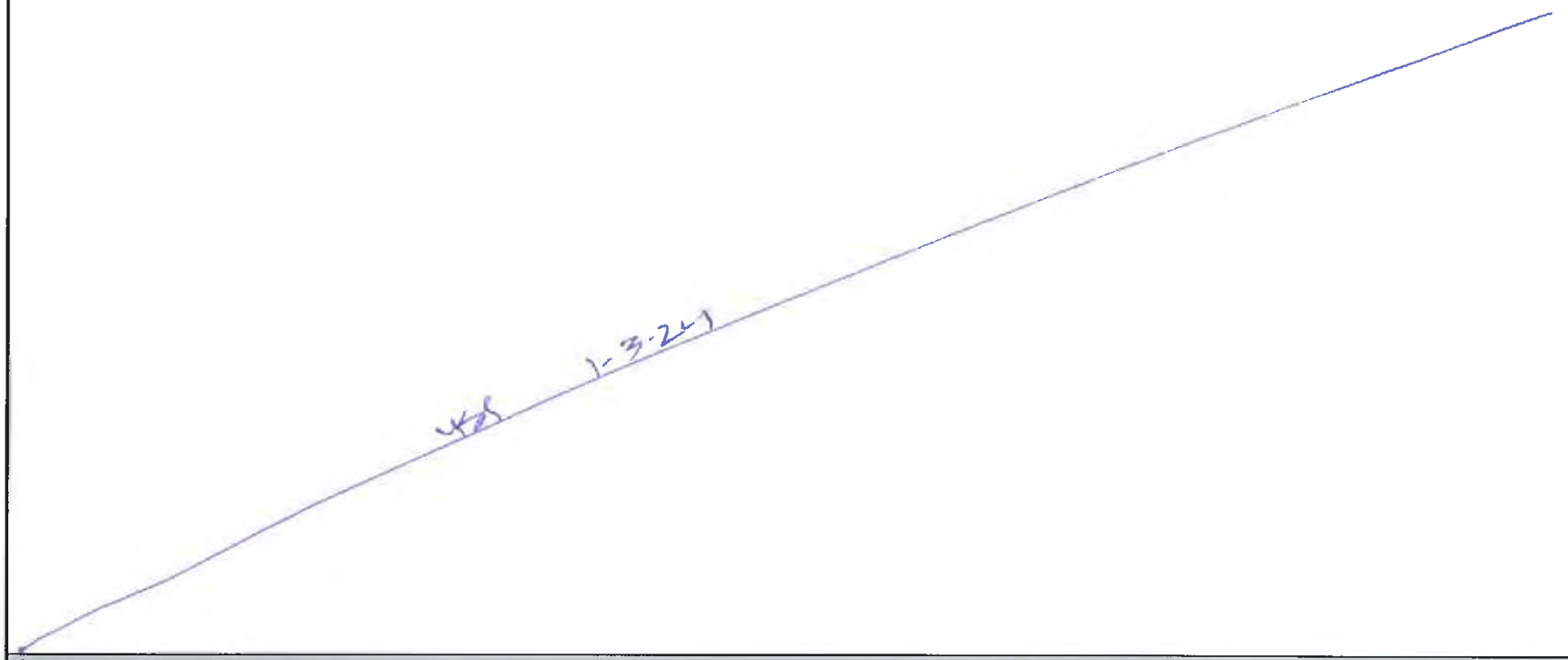
ICS Inspection Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations with GPS coordinates, and photographs as needed. Provide attachments as appropriate.



Inspector	
Name: Kim Hoffman	**Signature and Date:** Kim Hoffman 1-3-24
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	**Signature and Date:** 1/18/24
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

Form SOP 001-1
ICS Inspection Form

Inspector's Names: M. Jones, K. Hoffman, V. Stewart, J. Chisholm	**Inspection Date(s):** 4/3/24
Inspection Type: ☐ Type I ☑ Type II ☐ Post-Storm	
Drive-around Post-Storm Inspection Date (taken from Logbook): N/A *Note: Post-storm event inspection items are indicated with a * next to the Inspection Item number.*	**Date(s) of Significant Storm Event:** N/A **Total Precipitation (in):** N/A
Inspection Conditions: Previous 24-hour precipitation: 0	Weather Conditions: sunny, warm, calm winds
Attachments: ☐ Photographs ☐ Figures ☐ Other	

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Surface Conditions								
1.1* Erosion rills, gullies, or sheet erosion	○	◉	○	○	○	◉	none	
1.2* Conditions that could interrupt cover surface drainage (ponding areas, ruts, hole greater than 3" in diameter)	◉	○	○	○	◉	○	All holes encountered on the inspection were backfilled during the inspection. No further action necessary.	
1.3 Excessive animal trails	○	◉	○	○	○	◉	none	
1.4 Widespread burrowing animal holes	○	◉	○	○	○	◉	none	
1.5* Extensive linear cracks	○	◉	○	○	○	◉	none	
1.6 Vandalism, or intrusive damage such as unplanned excavation, drilling, grading, damage to engineering or access controls	○	◉	○	○	○	◉	none	

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ICS Inspection Form

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
2.0 Vegetative Cover								
2.1 Bare area or areas of poor growth greater than 100 square feet	○	◉	○	○	○	◉	none	
2.2 Areas of vegetation stress greater than 100 square feet (over grazing, discoloration, pedestalling)	○	◉	○	○	○	◉	none	
2.3 Deep rooted, noxious or undesirable weedy species	◉	○	○	○	◉	○	Cheatgrass around ER39.	
2.4 Excessive litter accumulation	○	◉	○	○	○	◉	none	
3.0 Engineering and Access Controls								
3.1 The perimeter fence is damaged	○	◉	○	○	○	◉	none	
3.2 Debris has collected along the perimeter fence	○	◉	○	○	○	◉	none	
3.3 Obelisks are damaged, not visible, or not legible	○	◉	○	○	○	◉	none	
3.4 Warning signs are not legible from 25 feet	○	◉	○	○	○	◉	none	
3.5* Damage to the Perimeter Access Road such as potholes, washouts, washboard, or burrowing	○	◉	○	○	○	◉	none	

Form SOP 001-1
ICS Inspection Form

4.0 Surface Drainage Controls: *Were the following conditions observed during the inspection of the stormwater drainage controls? Check all that apply.*

Inspection Item	Channel Number																								
	1	2	3	4	5	6	7	8	9	10	11	11A	12	13	14	15	15A	16	17	18	19	20	21	22	23
4.1* Impeded drainage or ponding in the channel (siltation/debris present)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.2* Inadequate protective vegetation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.3* Erosion rills or gullies in the grass-lined channel	☐	☐	☐			☐	☐	☐	☐	☐			☐		☐	☐		☐		☐	☐	☐	☐		☐
4.4* Cracked or degraded concrete				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	
4.5* Expansion joint damage (missing caulk)				☐	☐	☒					☐	☒	☐	☐		☐	☐	☐	☐	☐				☐	
4.6* Inhibited drainage from the soil to the concrete-lined channel				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	
4.7* Subsidence or undercutting of the concrete-lined channel				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	

Form SOP 001-1
ICS Inspection Form

5.0 Erosion/Settlement Monuments: *Inspect monuments and record the soil thickness loss, if any. Perform during spring Type II and fall Type I inspections.*

Inspection Item	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08	ER09	ER10	ER11	ER12	ER13	ER14	ER15	ER16	ER17	ER18	ER19
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)	0.5	1	0	2.25	1	1.75	0	1.75	1.25	0.75	1	0	1	0.5	0	1.75	0	0	0

Inspection Item	ER20	ER21	ER22	ER23	ER24	ER25	ER26	ER27	ER28	ER29	ER30	ER31	ER32	ER33	ER34	ER35	ER36	ER37	ER38
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)	0.75	0	0.75	0.5	0	1	0	0.25	1	1.5	2.75	2.5	0.25	1	1.75	1.5	2	2.25	2.5

Inspection Item	ER39	ER40	ER41	ER42	ER43	ER44	ER45	ER46	ER47	ER48	ER49	ER50	ER51	ER52	ER53	ER54	ER55	ER56	ER57
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)	1.25	0	1.5	0.75	1.75	2	1	1.5	1.75	0.5	0.5	0.25	0.25	0	1	0	0.75	0	0.25

Inspection Item	ER58	ER59	ER60	ER61	ER62	ER63	ER64	ER65	ER66	ER67	ER68	ER69	ER70	ER71	ER72	ER73	ER74	ER75	ER76
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)	1.25	0	1.75	0	0.25	2	1.5	1.5	1.5	0	0.5	0.75	0	0.75	1.5	1	0	0	2

Inspection Item	ER77	ER78	ER79	ER80	ER81	ER82	ER83	ER84	ER85	ER86	ER87	ER88	ER89	ER90	ER91	ER92
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)	0.25	1	0	1	1	1	0	1.75	0.25	0	0	1	1.5	1.5	1	0

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ICS Inspection Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations with GPS coordinates, and photographs as needed. Provide attachments as appropriate.

No other inspection notes.

Inspector		
Name: Kim Hoffman	**Signature and Date:**	
Covers Manager Review of Inspection Documentation		
Name: Michael W. Jones	**Signature and Date:**	
Covers Manager Confirmation of Completed Actions		
Name: Michael W. Jones	**Signature and Date:**	

Form SOP 001-1
ICS Inspection Form

Inspector's Names: M. Jones, K. Cable, V. Stewart	**Inspection Date(s):** 5/1/24
Inspection Type: ☐ Type I ☐ Type II ☑ Post-Storm	
Drive-around Post-Storm Inspection Date (taken from Logbook): 4/30/24 *Note: Post-storm event inspection items are indicated with a * next to the Inspection Item number.*	**Date(s) of Significant Storm Event:** 4/27/24 **Total Precipitation (in):** 1.27
Inspection Conditions: Previous 24-hour precipitation: 0	Weather Conditions: windy, mostly sunny, 50's
Attachments: ☐ Photographs ☐ Figures ☐ Other	

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Surface Conditions								
1.1* Erosion rills, gullies, or sheet erosion	○	◉	○	○	○	◉	none	
1.2* Conditions that could interrupt cover surface drainage (ponding areas, ruts, hole greater than 3" in diameter)	○	◉	○	○	○	◉	none	
1.3 Excessive animal trails	○	○	◉	○	○	◉	N/A	
1.4 Widespread burrowing animal holes	○	○	◉	○	○	◉	N/A	
1.5* Extensive linear cracks	○	◉	○	○	○	◉	none	
1.6 Vandalism, or intrusive damage such as unplanned excavation, drilling, grading, damage to engineering or access controls	○	○	◉	○	○	◉	N/A	

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ICS Inspection Form

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
2.0 Vegetative Cover								
2.1 Bare area or areas of poor growth greater than 100 square feet	○	○	◉	○	○	◉	N/A	
2.2 Areas of vegetation stress greater than 100 square feet (over grazing, discoloration, pedestalling)	○	○	◉	○	○	◉	N/A	
2.3 Deep rooted, noxious or undesirable weedy species	○	○	◉	○	○	◉	N/A	
2.4 Excessive litter accumulation	○	○	◉	○	○	◉	N/A	
3.0 Engineering and Access Controls								
3.1 The perimeter fence is damaged	○	○	◉	○	○	◉	N/A	
3.2 Debris has collected along the perimeter fence	○	○	◉	○	○	◉	N/A	
3.3 Obelisks are damaged, not visible, or not legible	○	○	◉	○	○	◉	N/A	
3.4 Warning signs are not legible from 25 feet	○	○	◉	○	○	◉	N/A	
3.5* Damage to the Perimeter Access Road such as potholes, washouts, washboard, or burrowing	○	◉	○	○	○	◉	none	

Form SOP 001-1
ICS Inspection Form

4.0 Surface Drainage Controls: *Were the following conditions observed during the inspection of the stormwater drainage controls? Check all that apply.*

Inspection Item	Channel Number																								
	1	2	3	4	5	6	7	8	9	10	11	11A	12	13	14	15	15A	16	17	18	19	20	21	22	23
4.1* Impeded drainage or ponding in the channel (siltation/debris present)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.2* Inadequate protective vegetation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.3* Erosion rills or gullies in the grass-lined channel	☐	☐	☐			☐	☐	☐	☐	☐			☐		☐	☐		☐		☐	☐	☐	☐		☐
4.4* Cracked or degraded concrete				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	
4.5* Expansion joint damage (missing caulk)				☒	☐	☒					☐	☒	☐	☐		☐	☐	☐	☐	☐				☐	
4.6* Inhibited drainage from the soil to the concrete-lined channel				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	
4.7* Subsidence or undercutting of the concrete-lined channel				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	

Form SOP 001-1
ICS Inspection Form

5.0 Erosion/Settlement Monuments: *Inspect monuments and record the soil thickness loss, if any. Perform during spring Type II and fall Type I inspections.*

Inspection Item	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08	ER09	ER10	ER11	ER12	ER13	ER14	ER15	ER16	ER17	ER18	ER19
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER20	ER21	ER22	ER23	ER24	ER25	ER26	ER27	ER28	ER29	ER30	ER31	ER32	ER33	ER34	ER35	ER36	ER37	ER38
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER39	ER40	ER41	ER42	ER43	ER44	ER45	ER46	ER47	ER48	ER49	ER50	ER51	ER52	ER53	ER54	ER55	ER56	ER57
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER58	ER59	ER60	ER61	ER62	ER63	ER64	ER65	ER66	ER67	ER68	ER69	ER70	ER71	ER72	ER73	ER74	ER75	ER76
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER77	ER78	ER79	ER80	ER81	ER82	ER83	ER84	ER85	ER86	ER87	ER88	ER89	ER90	ER91	ER92
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																

Form SOP 001-1
ICS Inspection Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations with GPS coordinates, and photographs as needed. Provide attachments as appropriate.

No other inspection notes.

Inspector	
Name: Kim Hoffman	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	**Signature and Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

Form SOP 001-1
ICS Inspection Form

Inspector's Names: M. Jones, D. Connolly	**Inspection Date(s):** 7/3/24
Inspection Type: ☑ Type I ☐ Type II ☐ Post-Storm	
Drive-around Post-Storm Inspection Date (taken from Logbook): N/A *Note: Post-storm event inspection items are indicated with a * next to the Inspection Item number.*	**Date(s) of Significant Storm Event:** N/A **Total Precipitation (in):** N/A
Inspection Conditions: Previous 24-hour precipitation: 0	Weather Conditions: calm winds, 80's, sunny
Attachments: ☐ Photographs ☐ Figures ☐ Other	

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Surface Conditions								
1.1* Erosion rills, gullies, or sheet erosion	○	◉	○	○	○	◉	none	
1.2* Conditions that could interrupt cover surface drainage (ponding areas, ruts, hole greater than 3" in diameter)	○	◉	○	○	○	◉	none	
1.3 Excessive animal trails	○	◉	○	○	○	◉	none	
1.4 Widespread burrowing animal holes	○	◉	○	○	○	◉	none	
1.5* Extensive linear cracks	○	◉	○	○	○	◉	none	
1.6 Vandalism, or intrusive damage such as unplanned excavation, drilling, grading, damage to engineering or access controls	○	◉	○	○	○	◉	none	

Form SOP 001-1
ICS Inspection Form

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
2.0 Vegetative Cover								
2.1 Bare area or areas of poor growth greater than 100 square feet	○	◉	○	○	○	◉	none	
2.2 Areas of vegetation stress greater than 100 square feet (over grazing, discoloration, pedestalling)	○	◉	○	○	○	◉	none	
2.3 Deep rooted, noxious or undesirable weedy species	○	◉	○	○	○	◉	none	
2.4 Excessive litter accumulation	○	◉	○	○	○	◉	none	
3.0 Engineering and Access Controls								
3.1 The perimeter fence is damaged	○	◉	○	○	○	◉	none	
3.2 Debris has collected along the perimeter fence	○	◉	○	○	○	◉	none	
3.3 Obelisks are damaged, not visible, or not legible	○	◉	○	○	○	◉	none	
3.4 Warning signs are not legible from 25 feet	○	◉	○	○	○	◉	none	
3.5* Damage to the Perimeter Access Road such as potholes, washouts, washboard, or burrowing	○	◉	○	○	○	◉	none	

Form SOP 001-1
ICS Inspection Form

4.0 Surface Drainage Controls: *Were the following conditions observed during the inspection of the stormwater drainage controls? Check all that apply.*

Inspection Item	Channel Number																								
	1	2	3	4	5	6	7	8	9	10	11	11A	12	13	14	15	15A	16	17	18	19	20	21	22	23
4.1* Impeded drainage or ponding in the channel (siltation/debris present)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.2* Inadequate protective vegetation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.3* Erosion rills or gullies in the grass-lined channel	☐	☐	☐			☐	☐	☐	☐	☐			☐		☐	☐		☐		☐	☐	☐	☐		☐
4.4* Cracked or degraded concrete				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	
4.5* Expansion joint damage (missing caulk)				☒	☐	☒					☐	☒	☐	☐		☐	☐	☐	☐	☐				☐	
4.6* Inhibited drainage from the soil to the concrete-lined channel				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	
4.7* Subsidence or undercutting of the concrete-lined channel				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	

Form SOP 001-1
ICS Inspection Form

5.0 Erosion/Settlement Monuments: *Inspect monuments and record the soil thickness loss, if any. Perform during spring Type II and fall Type I inspections.*

Inspection Item	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08	ER09	ER10	ER11	ER12	ER13	ER14	ER15	ER16	ER17	ER18	ER19
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER20	ER21	ER22	ER23	ER24	ER25	ER26	ER27	ER28	ER29	ER30	ER31	ER32	ER33	ER34	ER35	ER36	ER37	ER38
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER39	ER40	ER41	ER42	ER43	ER44	ER45	ER46	ER47	ER48	ER49	ER50	ER51	ER52	ER53	ER54	ER55	ER56	ER57
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER58	ER59	ER60	ER61	ER62	ER63	ER64	ER65	ER66	ER67	ER68	ER69	ER70	ER71	ER72	ER73	ER74	ER75	ER76
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER77	ER78	ER79	ER80	ER81	ER82	ER83	ER84	ER85	ER86	ER87	ER88	ER89	ER90	ER91	ER92
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																

Form SOP 001-1
ICS Inspection Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations with GPS coordinates, and photographs as needed. Provide attachments as appropriate.

No other inspection notes.

Inspector	
Name: K. Hoffman	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	**Signature and Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector Name(s): Michael W. Jones / Nicole Luka	Inspection Date(s): 10/4/2023

Conditions:
Previous 24-Hour Precipitation: 0" Weather Conditions: Sunny / Warm (Acceptable/Unacceptable for Inspection ***(circle one)***

INSPECTION ITEM	CONDITION IS PRESENT			REPEAT OR CHRONIC CONDITION			OBSERVATION Indicate recommended action, if required.	CONFIRMATION THAT ACTION IS COMPLETE (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components		X				X		
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole		X				X		
1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here. Quantity removed from the PCM (liters): N/A								

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	9	006 (CAT)	N/A	011 (SP)	N/A
002 (SDT)	0	007 (Basin A)	N/A	012 (SP)	N/A
003 (SDT)	0.5	008 (CAT)	N/A	013 (SP)	N/A
004 (CAT)	N/A	009 (Basin A)	N/A	014 (LB)	N/A
005 (CAT)	N/A	010 (Basin A)	N/A	015 (Basin A)	N/A

Form SOP 003-1

ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.

MJ 10/11/23

Inspector		
Name: Michael W. Jones	**Signature:**	**Date:** 10/11/23
Covers Manager Review of Inspection Documentation		
Name: Kim Hoffman	**Signature:**	**Date:** 10-26-23
Covers Manager Confirmation of Completed Actions		
Name: N/A	**Signature:** N/A	**Date:** N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector Name(s): M. Jones, K. Hoffman, N. Stewart **Inspection Date(s):** 11-1-23

Conditions:
Previous 24-Hour Precipitation: ∅ Weather Conditions: overcast, calm, windy, 40's Acceptable/Unacceptable for Inspection *(circle one)*

INSPECTION ITEM	CONDITION IS PRESENT			REPEAT OR CHRONIC CONDITION			OBSERVATION Indicate recommended action, if required.	CONFIRMATION THAT ACTION IS COMPLETE (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components		✓				✓	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole		✓				✓	none	
1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here. Quantity removed from the PCM (liters): ∅								

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	3.5	006 (CAT)	∅	011 (SP)	∅
002 (SDT)	∅	007 (Basin A)	∅	012 (SP)	∅
003 (SDT)	10	008 (CAT)	trace	013 (SP)	1
004 (CAT)	trace	009 (Basin A)	∅	014 (LB)	2
005 (CAT)	trace	010 (Basin A)	trace	015 (Basin A)	trace

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.

Lysimeters 003-007 would benefit to have the standing water pumped from inside the manhole.

Inspector		
Name: Kim Hoffman	**Signature:**	**Date:** 11-1-23
Covers Manager Review of Inspection Documentation		
Name: Michael W. Jones	**Signature:**	**Date:** 11/16/23
Covers Manager Confirmation of Completed Actions		
Name: N/A	**Signature:** N/A	**Date:** N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector Name(s): M. Jones, K. Hoffman, V. Stewart **Inspection Date(s):** 12-6-23

Conditions:
Previous 24-Hour Precipitation: 0 Weather Conditions: sunny, calm winds, 50's Acceptable/Unacceptable for Inspection ***(circle one)***

INSPECTION ITEM	CONDITION IS PRESENT			REPEAT OR CHRONIC CONDITION			OBSERVATION Indicate recommended action, if required.	CONFIRMATION THAT ACTION IS COMPLETE (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components		✓				✓	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole		✓				✓	none	

1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here. Quantity removed from the PCM (liters): 0

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	trace	006 (CAT)	N/A	011 (SP)	N/A
002 (SDT)	0	007 (Basin A)	N/A	012 (SP)	N/A
003 (SDT)	5	008 (CAT)	N/A	013 (SP)	N/A
004 (CAT)	N/A	009 (Basin A)	N/A	014 (LB)	N/A
005 (CAT)	N/A	010 (Basin A)	N/A	015 (Basin A)	N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection **Notes:** For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.

Lysimeter 003 would benefit to have the standing water removed from inside of the manhole.

Inspector		
Name: Kim Hoffman	**Signature:**	**Date:** 12-6-23
Covers Manager Review of Inspection Documentation		
Name: Michael W. Jones	**Signature:**	**Date:** 1/8/24
Covers Manager Confirmation of Completed Actions		
Name: N/A	**Signature:** N/A	**Date:** N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector Name(s): M. Jones, K. Hoffman | **Inspection Date(s):** 1-3-24

Conditions:
Previous 24-Hour Precipitation: Ø Weather Conditions: sunny, calm winds, 30's (Acceptable/Unacceptable for Inspection ***(circle one)***)

INSPECTION ITEM	CONDITION IS PRESENT			REPEAT OR CHRONIC CONDITION			OBSERVATION Indicate recommended action, if required.	CONFIRMATION THAT ACTION IS COMPLETE (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components		✓				✓	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole		✓				✓	none	
1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here. Quantity removed from the PCM (liters): Ø								

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	trace	006 (CAT)	N/A	011 (SP)	N/A
002 (SDT)	Ø	007 (Basin A)	N/A	012 (SP)	N/A
003 (SDT)	3	008 (CAT)	N/A	013 (SP)	N/A
004 (CAT)	N/A	009 (Basin A)	N/A	014 (LB)	N/A
005 (CAT)	N/A	010 (Basin A)	N/A	015 (Basin A)	N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.

Lysimeter 003 would benefit to have the standing water pumped from inside the manhole.

Inspector		
Name: Kim Hoffman	Signature:	Date: 1-3-24
Covers Manager Review of Inspection Documentation		
Name: Michael W. Jones	Signature:	Date: 1/18/24
Covers Manager Confirmation of Completed Actions		
Name: N/A	Signature: N/A	Date: N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector Name(s): M. Jones & K. Hoffman, J. Chisholm | **Inspection Date(s):** 2-7-24

Conditions:
Previous 24-Hour Precipitation: Ø | Weather Conditions: overcast, breezy, 30s | Acceptable/Unacceptable for Inspection ***(circle one)***

INSPECTION ITEM	CONDITION IS PRESENT			REPEAT OR CHRONIC CONDITION			OBSERVATION Indicate recommended action, if required.	CONFIRMATION THAT ACTION IS COMPLETE (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components		✓				✓	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole		✓				✓	none	
1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here. Quantity removed from the PCM (liters): Ø								

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	trace	006 (CAT)	N/A	011 (SP)	N/A
002 (SDT)	Ø	007 (Basin A)	N/A	012 (SP)	N/A
003 (SDT)	trace	008 (CAT)	N/A	013 (SP)	N/A
004 (CAT)	N/A	009 (Basin A)	N/A	014 (LB)	N/A
005 (CAT)	N/A	010 (Basin A)	N/A	015 (Basin A)	N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.

2-7-24

Inspector		
Name: Kim Hoffman	**Signature:**	**Date:** 2-7-24
Covers Manager Review of Inspection Documentation		
Name: Michael W. Jones	**Signature:**	**Date:** 2/7/24
Covers Manager Confirmation of Completed Actions		
Name: N/A	**Signature:** N/A	**Date:** N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector's Names: M. Jones, K. Hoffman, V. Stewart, J. Chisholm	**Inspection Date(s):** 3/6/24
Inspection Conditions: Previous 24-hour precipitation: 0"	Weather Conditions: sunny, calm winds, 40's

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components	○	◉	○	○	○	◉	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole	○	◉	○	○	○	◉	none	

1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here.

Quantity removed from the PCM (liters): N/A

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	0	006 (CAT)	N/A	011 (SP)	N/A
002 (SDT)	0	007 (Basin A)	N/A	012 (SP)	N/A
003 (SDT)	0	008 (CAT)	N/A	013 (SP)	N/A
004 (CAT)	N/A	009 (Basin A)	N/A	014 (LB)	N/A
005 (CAT)	N/A	010 (Basin A)	N/A	015 (Basin A)	N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate. None		
Inspector		
Name: Kim Hoffman	**Signature and Date:**	
Covers Manager Review of Inspection Documentation		
Name: Michael W. Jones	**Signature And Date:**	
Covers Manager Confirmation of Completed Actions		
Name:	**Signature and Date:**	

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector's Names: M. Jones, K. Hoffman, V. Stewart, J. Chisholm	**Inspection Date(s):** 4/3/24
Inspection Conditions: Previous 24-hour precipitation: 0	Weather Conditions: sunny, warm, calm winds

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components	○	◉	○	○	○	◉	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole	○	◉	○	○	○	◉	none	

1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here.

Quantity removed from the PCM (liters): 0

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	0	006 (CAT)	N/A	011 (SP)	N/A
002 (SDT)	0	007 (Basin A)	N/A	012 (SP)	N/A
003 (SDT)	0	008 (CAT)	N/A	013 (SP)	N/A
004 (CAT)	N/A	009 (Basin A)	N/A	014 (LB)	N/A
005 (CAT)	N/A	010 (Basin A)	N/A	015 (Basin A)	N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate. None	
Inspector	
Name: K. Hoffman	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	**Signature And Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector's Names: M. Jones, K. Cable, V. Stewart	**Inspection Date(s):** 5/1/24
Inspection Conditions: Previous 24-hour precipitation: 0	Weather Conditions: windy, 50's, partly sunny

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components	○	◉	○	○	○	◉	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole	○	◉	○	○	○	◉	none	

1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here.

Quantity removed from the PCM (liters): 0

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	0	006 (CAT)	Trace	011 (SP)	0
002 (SDT)	0	007 (Basin A)	Trace	012 (SP)	0
003 (SDT)	0	008 (CAT)	Trace	013 (SP)	Trace
004 (CAT)	0	009 (Basin A)	0	014 (LB)	Trace
005 (CAT)	0	010 (Basin A)	0	015 (Basin A)	Trace

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.	
Lysimeters 004, 005, 006, 007, 011, and 015 would benefit to have the standing water pumped from inside of the manhole.	
Inspector	
Name: Kim Hoffman	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	**Signature And Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector's Names: M. Jones, K. Hoffman, J. Chisholm	**Inspection Date(s):** 6/5/24
Inspection Conditions: Previous 24-hour precipitation: 0	Weather Conditions: sunny, calm winds, 70's

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components	○	◉	○	○	○	◉	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole	○	◉	○	○	○	◉	none	

1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here.

Quantity removed from the PCM (liters): 0

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	0	006 (CAT)	N/A	011 (SP)	N/A
002 (SDT)	0	007 (Basin A)	N/A	012 (SP)	N/A
003 (SDT)	0	008 (CAT)	N/A	013 (SP)	N/A
004 (CAT)	N/A	009 (Basin A)	N/A	014 (LB)	N/A
005 (CAT)	N/A	010 (Basin A)	N/A	015 (Basin A)	N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.	
None	
Inspector	
Name: Kim Hoffman	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	**Signature And Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector's Names: M. Jones, D. Connolly	**Inspection Date(s):** 7/3/24
Inspection Conditions: Previous 24-hour precipitation: 0	Weather Conditions: sunny, calm winds, 80's

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components	○	◉	○	○	○	◉	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole	○	◉	○	○	○	◉	none	

1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here.

Quantity removed from the PCM (liters): 0

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	0	006 (CAT)	Trace	011 (SP)	0
002 (SDT)	0	007 (Basin A)	0	012 (SP)	0
003 (SDT)	0	008 (CAT)	0	013 (SP)	0
004 (CAT)	0	009 (Basin A)	0	014 (LB)	0
005 (CAT)	0	010 (Basin A)	0	015 (Basin A)	0

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.	
Lysimeters 004, 005, 006, 007, 011, and 015 would benefit to have the standing water pumped from inside of the manhole.	
Inspector	
Name: Kim Hoffman	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	**Signature And Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector's Names: K. Hoffman, V. Stewart, J. Chisholm, S. Williams	**Inspection Date(s):** 8/7/24
Inspection Conditions: Previous 24-hour precipitation: 0.11"	Weather Conditions: sunny, warm, slight breeze

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components	○	◉	○	○	○	◉	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole	○	◉	○	○	○	◉	none	

1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here.

Quantity removed from the PCM (liters): 0

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	0	006 (CAT)	N/A	011 (SP)	N/A
002 (SDT)	0	007 (Basin A)	N/A	012 (SP)	N/A
003 (SDT)	Trace	008 (CAT)	N/A	013 (SP)	N/A
004 (CAT)	N/A	009 (Basin A)	N/A	014 (LB)	N/A
005 (CAT)	N/A	010 (Basin A)	N/A	015 (Basin A)	N/A

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.	
None	
Inspector	
Name: Kim Hoffman	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	**Signature And Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector's Names: M. Jones, K. Hoffman, J. Chisholm	**Inspection Date(s):** 9/4/24
Inspection Conditions: Previous 24-hour precipitation: 0	Weather Conditions: sunny, warm, calm winds

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components	○	◉	○	○	○	◉	none	
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole	○	◉	○	○	○	◉	none	

1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here.

Quantity removed from the PCM (liters): N/A

2.0 Percolation Collection

Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)	Lysimeter Number	Measured Water Volume (liter)
001 (SDT)	0	006 (CAT)	0	011 (SP)	0
002 (SDT)	0	007 (Basin A)	0	012 (SP)	0
003 (SDT)	0.5	008 (CAT)	Trace	013 (SP)	3
004 (CAT)	1	009 (Basin A)	0	014 (LB)	2
005 (CAT)	2	010 (Basin A)	0	015 (Basin A)	1

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.	
Lysimeters 004, 005, 006, 007, 011, and 015 would benefit to have the standing water pumped from inside of the manhole.	
Inspector	
Name: Kim Hoffman	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name: Michael W. Jones	**Signature And Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

APPENDIX D

Maintenance and Repair Documentation

(October 1, 2023 through September 30, 2024)

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor/Partner: Weed Wranglers	Project: ICS O&M
Task: maintenance/repair	Date: 10/23/23
Weather AM: acceptable	Weather PM: acceptable
Activities Inspected and Observed:	
Weed Wranglers sprayed Plainview SC® and surfactant as a ground clear herbicide. The roads, entrances to gates, and other working surfaces were sprayed around ICS.	
Summary Meetings and Discussions Held or Attended, including Job Safety:	
N/A	
Comments:	
N/A	
Additional Documentation Submitted:	
N/A	
Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Landfills and Covers Lead/Navarro
Signature: [signature]	Date: 10-23-23
Reviewer Name: Michael Jones	Title/company: Landfills and Covers Manager/Navarro
Signature: [signature]	Date: 10/26/23

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor/Partner: N/A	Project ICS O&M
Task: maintenance/repair	Date: 10/24/23
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

OMC personnel measured the (4) SDT piezometers due to percolation exceedances at Lysimeters 001 and 003.
36251: 0.24 feet
36252: dry
36253: dry
36254: 0.03 feet

Summary Meetings and Discussions Held or Attended, including Job Safety:

N/A

Comments:

N/A

Additional Documentation Submitted:

N/A

Sign Off:

Inspector Name: Kim Hoffman	Title/company: Landfills and Covers Lead/Navarro
Signature: Kim Hoffman	Date: 12-27-23
Reviewer Name: Michael Jones	Title/company: Landfills and Covers Manager/Navarro
Signature:	Date: 1/8/24

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor/Partner: N/A	Project: ICS O&M
Task: maintenance/repair	Date: 11/14/23
Weather AM: acceptable	Weather PM: acceptable
Activities Inspected and Observed:	
OMC personnel measured the (4) SDT piezometers due to percolation exceedances at Lysimeters 001 and 003. 36251: 0.23 feet 36252: dry 36253: dry 36254: dry	
Summary Meetings and Discussions Held or Attended, including Job Safety:	
N/A	
Comments:	
N/A	
Additional Documentation Submitted:	
N/A	
Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Landfills and Covers Lead/Navarro
Signature: [signature]	Date: 12-27-23
Reviewer Name: Michael Jones	Title/company: Landfills and Covers Manager/Navarro
Signature: [signature]	Date: 1/8/24

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor/Partner: N/A	Project: ICS O&M
Task: maintenance/repair	Date: 11/21/23
Weather AM: acceptable	Weather PM: acceptable
Activities Inspected and Observed:	
OMC personnel repaired the holes identified on the SDT cover, south side of ER16, and south side of ER38 that were identified during the fall 2023 Tye I inspection, dated October 12, 2023. These holes were backfilled with cover soil form the Long Term Stockpile and hand seeded. The Carsonite marker to ER82 was also replaced. This item was also identified during the October 2023 Type I inspection.	
Summary Meetings and Discussions Held or Attended, including Job Safety:	
N/A	
Comments:	
N/A	
Additional Documentation Submitted:	
N/A	
Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Landfills and Covers Lead/Navarro
Signature: Kim Hoffman	Date: 12-27-23
Reviewer Name: Michael Jones	Title/company: Landfills and Covers Manager/Navarro
Signature:	Date: 1/8/24

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor/Partner. N/A	Project: ICS O&M
Task. maintenance/repair	Date: 12/6/23
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

OMC personnel measured the (4) SDT piezometers due to percolation exceedances at Lysimeters 001 and 003.
36251: 0.26 feet
36252: dry
36253: dry
36254: 0.02 feet

Summary Meetings and Discussions Held or Attended, including Job Safety:

N/A

Comments:

N/A

Additional Documentation Submitted:

N/A

Sign Off:

Inspector Name: Kim Hoffman	Title/company: Landfills and Covers Lead/Navarro
Signature: [signature]	Date: 12-27-23
Reviewer Name: Michael Jones	Title/company: Landfills and Covers Manager/Navarro
Signature: [signature]	Date: 1/8/24

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: maintenance	Date: 1/3/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Navarro personnel measured the four SDT piezometers due to percolation exceedance at Lysimeters 001 and 003. The piezometers will continue to be measured until percolation compliance is restored.
36251: 0.26 feet
36252: dry
36253: dry
36254: dry

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: maintenance	Date: 2/1/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Navarro personnel pumped the standing water from the Lysimeter 003 manhole. Approximately 105 liters were removed.
Navarro also raked the litter over the Lysimeter 003 pan to prepare the seedbed. The area was then hand seeded. Where soil was exposed, the seed was raked to ensure good soil contact.

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: maintenance	Date: 2/7/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Navarro personnel measured the four SDT piezometers due to percolation exceedances at Lysimeters 001 and 003. The piezometers will continue to be measured until percolation compliance is restored.
36251: 0.27 feet
36252: dry
36253: dry
36254: dry

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: maintenance	Date: 2/21/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Navarro personnel repaired the area around ER46. The cover soil loss was localized around the monument. The depression was filled with approximately 1-2" of cover soil. The newly placed soil was graded with a rake and then foot compacted. Once the area was inspected to ensure a visually even surface that drains and prevents ponding, the area was hand seeded. Photos were taken of the finished repair.

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

Attached photos

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

ER 46 repair

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: maintenance	Date: 2/29/24
Weather AM: acceptable	Weather PM: acceptable
Activities Inspected and Observed:	
Navarro personnel graded the west ICS perimeter road to alleviate washboard.	
Summary Meetings and Discussions Held or Attended, including Job Safety:	
None	
Comments:	
None	
Additional Documentation Submitted:	
None	
Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: maintenance	Date: 3/6/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Navarro personnel measured the four SDT piezometers due to percolation exceedances at Lysimeters 001 and 003. The piezometers will continue to be monitored until percolation compliance is restored.
36251: 0.25 feet
35252: dry
36253: dry
36254: dry

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: maintenance	Date: 4/3/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Navarro personnel measured the four SDT piezometers due to percolation exceedances at Lysimeters 001 and 003. The piezometers will continue to be monitored until percolation compliance is restored.
362651: 0.23 feet
36252: dry
36253: dry
36254: dry

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: inspection	Date: 4/30/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Navarro personnel performed a drive around inpsection due to the RMA receiving 1.27" of rain on 4/27/24. No observations were noted.

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: maintenance	Date: 5/1/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Navarro personnel measured the four SDT piezometers due to percolation exceedances at Lysimeters 001 and 003. The percolation at Lysimeters 001 and 003 is expected to fall back into compliance in June of 2024. If so, these piezometers will no longer need to be measured since percolation compliance is restored.
36251: 0.21 feet
36252: dry
36253: dry
36254: dry

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

May of 2024 was the last monthly measurement of the piezometers due to percolation compliance being restored in June of 2024.

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: Weed Wranglers	Project: ICS
Task: herbicide	Date: 6/19/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Weed Wranglers spot sprayed annual broadleaf species using Escort XP and Vision. Weed Wranglers identified and sprayed common mullein, thistles, yucca and whitetop. Approximately 1/3 of ICS was observed and sprayed today.

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: Weed Wranglers	Project: ICS
Task: herbicide	Date: 6/20/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Weed Wranglers spot sprayed annual broadleaf species using Escort XP and Vision. Weed Wranglers identified and sprayed common mullein, thistles, and yucca. Approximately 1/3 of ICS was observed and sprayed today.

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: Weed Wranglers	Project: ICS
Task: herbicide	Date: 6/26/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Weed Wranglers completed the spot spraying of annual broadleaf species using Escort XP and Vision. Weed Wranglers identified and sprayed common mullein, thistles, yucca and whitetop. Approximately 1/3 of ICS was observed and sprayed today.

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

CONTRACTOR DAILY QUALITY CONTROL REPORT

Project Information	
Subcontractor: N/A	Project: ICS
Task: maintenance	Date: 8/8/24
Weather AM: acceptable	Weather PM: acceptable

Activities Inspected and Observed:

Navarro personnel began repairing the expansion joints missing caulk in Channel 11A. These joints were thoroughly cleaned from debris and sediment and the backfilled with a product called Trim-a-slab. This channel was not completed today.

Summary Meetings and Discussions Held or Attended, including Job Safety:

None

Comments:

None

Additional Documentation Submitted:

None

Sign Off:	
Inspector Name: Kim Hoffman	Title/company: Inspector/Navarro
Signature and Date:	
Reviewer Name: Michael W. Jones	Title/company: Task Manager/Navarro
Signature and Date:	

APPENDIX E

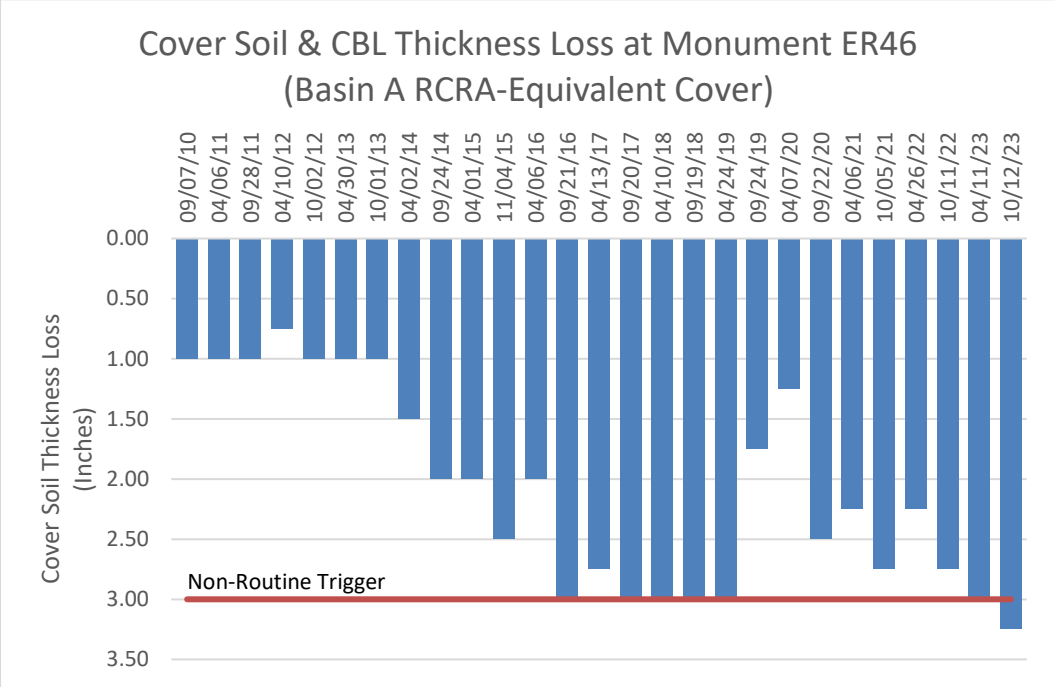
Non-Routine Action Plans

NRAP Number	**NRAP-2023-004**
Applicable Design(s)	☐ SDT Remediation Project RCRA-Equivalent Cover Construction – Record Documents ☒ ICS Design Project – Record Documents ☐ Basin F/Basin F Exterior Remediation Project – Part 2 (Basin F Cover) – Record Documents
Applicable Design Document(s)	☐ Drawing Number/Title/Revision: ☐ Spec. Number /Title/Revision: ☒ Plan Title/Revision: RCRA-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan (LTCP), Revision 3
Description of the Condition Requiring Action	During the Type I inspection of the Integrated Cover System (ICS) performed on October 12, 2023, the cover soil thickness loss measurement at erosion/settlement monument ER46 was 3.25 inches. According to Section 3.5 and Table 3.2-2 of the LTCP, an erosion/settlement monument measurement in excess of three inches requires regulatory agency notification and triggers the consultative process. This NRAP has been prepared in accordance with Section 3.5.3 of the LTCP to document the outcome of the consultative process.
Description of the Action	**Evaluation:** Cover soil thickness loss is measured at each erosion/settlement monument semiannually in April and October. During the inspection of the ICS performed on October 12, 2023, cover soil thickness loss at erosion/settlement monument ER46 was 3.25 inches. Monument ER46 is located in the southern portion of the Basin A RCRA-Equivalent Cover, adjacent to the western section of the Shell 2-Foot Soil Cover. Refer to Figure 1 for a site map showing the general area of ER46 within the ICS. The monument is positioned mid-slope on a northeast aspect. **<u>Cover Construction Data for ER46</u>** Cover soil near ER46 was placed in February of 2008. According to field action item FAI-BC2-003 (TtEC 2008), dated March 13, 2008, *"Some of the Erosion/Settlement Monuments placed in South Basin A during RCRA-Equivalent Cover construction were installed on the top of Capillary Barrier Material."* The design required the base of the monument to be installed below the capillary barrier layer (CBL). Monument ER46 was one of the monuments that were initially installed incorrectly. Monument ER46 was excavated and re-installed in accordance with the design requirements. FAI-BC2-003 was closed out on March 24, 2008. Construction photos indicate that the contractor used a backhoe to excavate around the monuments during removal and re-installation. The area impacted by the excavation had a diameter of six to eight feet at the surface and was as deep as necessary to remove the cover soil and CBL layers. The methods used to backfill the excavations are not provided in the project records, however it is likely that foot traffic was the only compaction effort applied to the replaced soil. The cover soil moisture and density were tested during cover construction in accordance with the design requirements. Construction records indicate that 12 soil density tests were performed within 100 feet of ER46. These tests included two tests that exceeded the specified density and required rework. The average density of the passing tests was 82% of the maximum Standard Proctor density, which was within the specified range of 75% to 85%. Soil density test results are provided in Table 3. Soil density was not tested adjacent to the monuments after they were re-installed because the monuments would influence the results of the tests. According to LTCP Table SOP 001-1, the cover soil and CBL thickness at ER46 was 5.2 feet, or 62.4 inches when cover construction was complete. This thickness exceeded the maximum design thickness of 4.75 feet (4.25 feet minimum, with an upper tolerance of +0.5 feet). The nonconforming condition was documented during the cover construction project in nonconformance report NCR-BAC2-015, dated February 23, 2009 (TtEC 2009b). The condition was accepted as-is after a field inspection confirmed that "*…the final grade, as constructed, meets the design requirements to be a uniform, visually even surface that drains and prevents*

ponding." The resolution was documented in design change notice DCN-ICSC-095, dated February 27, 2009 (TtEC 2009a).

Soil Thickness Loss Measurements at ER46

Since cover construction was completed in 2010 soil loss measurements at ER46 have varied from 0.75 inches, up to 3.0 inches, as shown on the chart below. The measurement collected in October of 2023 was the first that exceeded 3.0 inches. Tabulated soil thickness loss data are provided in Table 1.



Surface Conditions Near ER46

Field conditions around monument ER46 were evaluated by the Army on October 12 and 24, and November 13 and 14, 2023. Photos 1 and 2 show the condition of the area surrounding ER46 in October of 2023 when the non-routine trigger level was exceeded. The vegetation in the area was thick and composed of a combination of perennial grasses and annual weedy species. Some local settlement was evident adjacent to the monument, but there was no evidence of cracking or soil erosion, either caused by wind or precipitation.

On November 14, 2023, the Army evaluated the topography immediately surrounding the monument. Loose vegetation was removed from the area and a nine-foot-long steel straight edge was placed directly on the cover surface to check for local undulations. It was evident that the surface was uneven and included both low areas and high areas within the vicinity of the monument. Photos 3 and 4 show the straight edge and the variations in the soil surface. The vertical irregularities measured as much as +/-1 inch from the general grade in the area.

Representativeness of ER46

On November 13, 2023, the Army collected topographical survey data on the slope where ER46 is located. The surveyed area measured approximately 400 feet by 400 feet and used a 100-foot survey grid with supplemental grade break survey points to define the top of the slope to the west of ER46. The survey points corresponded with the ICS Design survey coordinates so that current conditions could easily be compared with cover construction survey data that were reported in the *Final Report – Construction Quality Assurance for the Integrated Cover System RCRA-Equivalent Cover Construction* (CQAE Cert Report) (Golder 2010) issued in September 2010.

Table 2 includes the design survey coordinates, CQAE Cert Report data, and data collected in November of 2023. The survey data indicates changes in elevation ranging from an increase of 0.20 feet (2.35 inches) to a decrease of 0.78 feet (9.32 inches). The average change in elevation among the 21 survey grid points is a decrease of 0.12 feet (1.42 inches).

Figure 2 shows the topography of the surveyed area following cover construction in 2009 and the topography in November of 2023. Figure 3 shows the change in topography between 2009 and 2023 and provides an illustrated representation of the changes in elevation that are tabulated in Table 2.

The Army also surveyed the top of ER46 to determine the monument's change in elevation since 2010. According to the data collected on November 13, 2023, the elevation of ER46 has dropped 0.21 feet (2.53 inches), which is more than the average value of the surrounding area, but within the range of values collected on the 100-foot survey grid. Therefore, the elevation of ER46 is representative of the surrounding cover soil surface.

Conclusions

Based on observations made during the field inspections performed in October and November of 2023, there is no indication of erosion either near monument ER46 or in the general area of the RCRA-equivalent cover that is represented by the monument. The soil thickness loss is localized settlement around the monument itself, which is understandable considering the disturbance of the cover soil that was required to reinstall the monument after cover construction.

Local depressions around erosion/settlement monuments have been common on the ICS and other RMA covers during the O&M period. The depressions are typically attributed to the settlement of soil that was placed around the monuments by hand to avoid disturbance by heavy equipment during cover construction. The surface around ER46 is more irregular than other monuments, but the cause is likely the same.

The thickness of the RCRA-equivalent cover exceeded the design tolerances in this area after construction. Even after accounting for the 3.25 inches of thickness loss, the cover soil/CBL layer is over 59 inches thick, which exceeds the minimum design thickness of 51 inches (4.25 feet). Therefore, the cover is expected to perform as intended, even after the loss of soil thickness recorded in October of 2023.

References

Golder (Golder Associates, Inc.)

2010 (Sep 2) *Final Report – Construction Quality Assurance for the Integrated Cover System RCRA-Equivalent Cover Construction*. Revision 0.

TtEC (Tetra Tech EC, Inc.)

2009a (Feb 27) Design Change Notice DCN-ICSC-095.

2009b (Feb 23) Nonconformance Report NCR-BAC2-013.

2008 (Mar 13) Field Action Item FAI-BC2-003.

Recommended Action:

Since the loss of cover soil thickness is a localized issue around the monument itself, the depression around the monument will be filled with cover soil to a level that is representative of the surrounding area. A straight edge will be used to span the affected area and provide guide to prevent overfilling the area.

Adding one to two inches of soil around the monument will prevent ponding in the localized depression and return the soil thickness loss measurement at ER46 to its historical range. Bare soil in the repair area will be compacted with foot traffic and hand seeded. The repaired area will be inspected to ensure a visually even surface that drains and prevents ponding.

	Material Requirements: Cover soil from the long-term cover soil stockpile and seed consistent with cover requirements.	
	Performance Criteria: None	
	Does the action deviate from the requirements of the applicable design package(s)? ☐ Yes ☒ No If so, provide rationale for the deviation from the design package(s). **Rationale:**	
Closeout Requirements	Is a multi-Agency post-action inspection required? ☐ Yes ☒ No Are modifications to monitoring or inspection frequencies required? ☐ Yes ☒ No Others:_____	
Consultation Record	Consultation Date: October 19, 2023 (email), October 25, 2023 (meeting), January 24, 2024 (meeting) Consultation Method: Notification email and Landfills and Covers O&M status meetings. Consulted Parties: EPA, CDPHE, ACHD	
Attached Exhibits	☐ None ☐ Inspection Form(s) ☐ Map of Affected Area ☐ Correspondence	☐ Supplemental Work Plan(s) ☐ Rationale for Deviation From Design ☐ Modified Inspection Frequencies ☒ Others: Table 1: Soil Thickness Loss Measurements at ER46 Table 2: ER46 Slope Topographical Survey Data Table 3: Soil Density Tests Near ER46 Photo 1: October 2023 Field Conditions Photo 2: October 2023 Measurement Photo 3: Local Surface Variations Photo 4: Local Surface Assessment Figure 1: Project Location Figure 2: 2009 Final Grade Contours and 2023 Existing Contours Figure 3: Change in Surface Conditions 2009 to 2023

Approvals

Signature indicates the Parties are in consensus and concur with the proposed action and closeout requirements.

Cover Manager, or Designee Signature & Date:	Army Project Manager, or Designee Signature & Date:

EPA Signature & Date:	CDPHE Signature & Date:	ACHD Signature & Date:

Table 1: Soil Thickness Loss Measurements at ER46

Measurement Date	Loss (in)
September 7, 2010	1.00
April 6, 2011	1.00
September 28, 2011	1.00
April 10, 2012	0.75
October 2, 2012	1.00
April 30, 2013	1.00
October 1, 2013	1.00
April 2, 2014	1.50
September 24, 2014	2.00
April 1, 2015	2.00
November 4, 2015	2.50
April 6, 2016	2.00
September 21, 2016	3.00
April 13, 2017	2.75
September 20, 2017	3.00
April 10, 2018	3.00
September 19, 2018	3.00
April 24, 2019	3.00
September 24, 2019	1.75
April 7, 2020	1.25
September 22, 2020	2.50
April 6, 2021	2.25
October 5, 2021	2.75
April 26, 2022	2.25
October 11, 2022	2.75
April 11, 2023	3.00
October 12, 2023	3.25

Table 2: ER46 Slope Topographical Survey Data

	ICS Design			CQAE Cert Report Record Condition		November 13, 2023 Topo Survey		
Point #	Northing	Easting	Elevation	Elevation	Soil + CBL Thickness	Elevation	Change in Elevation (ft)	Change in Elevation (in)
21164	181475.6	2185162.9	5266.0	5266.11	4.34	5266.22	0.11	1.36
21187	181540.3	2185195.4	5264.0	5264.06	4.68	5263.99	-0.07	-0.83
21188	181539.6	2185187.4	5264.0	5264.21	4.57	5264.25	0.04	0.49
21228	181609.9	2185223.8	5262.0	5262.11	4.40	5261.74	-0.37	-4.42
21311	181679.5	2185252.2	5260.0	5260.10	4.25	5259.87	-0.23	-2.74
23909	181400.0	2185200.0	5267.1	5266.79	4.45	5266.83	0.04	0.46
23910	181500.0	2185200.0	5264.8	5265.09	4.65	5265.04	-0.05	-0.59
23911	181600.0	2185200.0	5262.3	5262.54	4.45	5262.13	-0.41	-4.91
23953	181300.0	2185300.0	5267.3	5266.88	4.58	5267.05	0.17	2.04
23954	181400.0	2185300.0	5264.5	5264.83	4.56	5264.87	0.04	0.52
23955	181500.0	2185300.0	5262.6	5262.78	4.36	5262.84	0.06	0.71
23956	181600.0	2185300.0	5260.7	5260.92	4.31	5260.59	-0.33	-3.92
23957	181700.0	2185300.0	5258.6	5258.59	4.35	5258.34	-0.25	-2.94
23997	181300.0	2185400.0	5264.3	5264.63	4.72	5264.82	0.19	2.31
23998	181400.0	2185400.0	5262.5	5262.80	4.64	5262.70	-0.10	-1.21
23999	181500.0	2185400.0	5260.6	5260.22	4.35	5260.42	0.20	2.35
24000	181600.0	2185400.0	5258.7	5258.61	4.44	5258.26	-0.35	-4.16
24001	181700.0	2185400.0	5256.6	5256.56	4.47	5256.16	-0.40	-4.75
24040	181400.0	2185500.0	5260.4	5260.27	4.71	5260.53	0.26	3.11
24041	181500.0	2185500.0	5258.5	5258.62	4.60	5257.84	-0.78	-9.32
24042	181600.0	2185500.0	5256.4	5256.29	4.45	5256.01	-0.28	-3.34
24043	181700.0	2185500.0	5253.8			5253.53		
24083	181400.0	2185600.0	5258.0			5257.38		
24084	181500.0	2185600.0	5255.9			5255.11		
24085	181600.0	2185600.0	5253.6			5253.79		
24128	181500.0	2185700.0	5253.0			5253.10		
ER46	181500.0	2185450.0		5259.20		5258.99	-0.21	-2.53

Table 3: Soil Density Tests Near ER46

Summary of Nuclear Gauge Density Tests Results Criterion: 75-85% of Standard Proctor																
Test Number	Date	Test Location			Proctor Information			Gauge Information				Difference from OMC	Pass/Fail	Comments	Outlying Test	Distance to ER46 (ft)
		Work Area	Northing	Easting	Zone	SPRV	OMCRV	Wet Density	Moisture Content	Dry Density	Compaction					
QC-RC-DT-113	03/26/08	2152	181540.01	2185470.66	2 (BA 9C/10)	109.1	16.4	99.8	7.9	92.4	85%	8.5	Pass			44.92
QC-RC-DT-117	03/26/08	2134	181414.05	2185421.69	3 (BA10)	112.6	15.3	99.8	10.0	90.7	81%	5.3	Pass			90.66
QC-RC-DT-118	03/26/08	2134	181451.99	2185447.92	3 (BA10)	112.6	15.3	110.3	12.8	97.8	87%	2.5	Fail			48.31
QC-RC-DT-118A	03/27/08	2134	181453.80	2185449.00	3 (BA10)	112.6	15.3	100.6	10.3	91.2	81%	5	Pass	1		46.47
QC-RC-DT-119	03/26/08	2134	181444.19	2185426.09	3 (BA10)	112.6	15.3	101.9	9.9	92.7	82%	5.4	Pass	2		60.85
QC-RC-DT-120	03/26/08	2134	181466.66	2185443.89	3 (BA10)	112.6	15.3	103.6	10.4	93.0	83%	4.9	Pass	2		34.11
QC-RC-DT-121	03/26/08	2134	181454.80	2185465.26	3 (BA10)	112.6	15.3	108.9	12.1	97.2	86%	3.2	Fail	2		48.05
QC-RC-DT-121A	03/27/08	2134	181455.30	2185464.00	3 (BA10)	112.6	15.3	101.7	9.8	92.7	82%	5.5	Pass	1		47.18
QC-RC-DT-122	03/26/08	2134	181436.54	2185455.01	3 (BA10)	112.6	15.3	104.7	12.0	93.5	83%	3.3	Pass	2		63.95
QC-RC-DT-123	03/26/08	2134	181469.13	2185467.37	3 (BA10)	112.6	15.3	100.7	11.9	90.0	80%	3.4	Pass	2		35.79
QC-RC-DT-124	03/26/08	2134	181461.71	2185478.20	3 (BA10)	112.6	15.3	102.4	11.4	91.9	82%	3.9	Pass	2		47.94
QC-RC-DT-125	03/26/08	2134	181441.82	2185472.00	3 (BA10)	112.6	15.3	100.7	11.0	90.7	81%	4.3	Pass			62.55

Comments:
1- Retest of a failing test
2- Delineation test
3- Outlier test

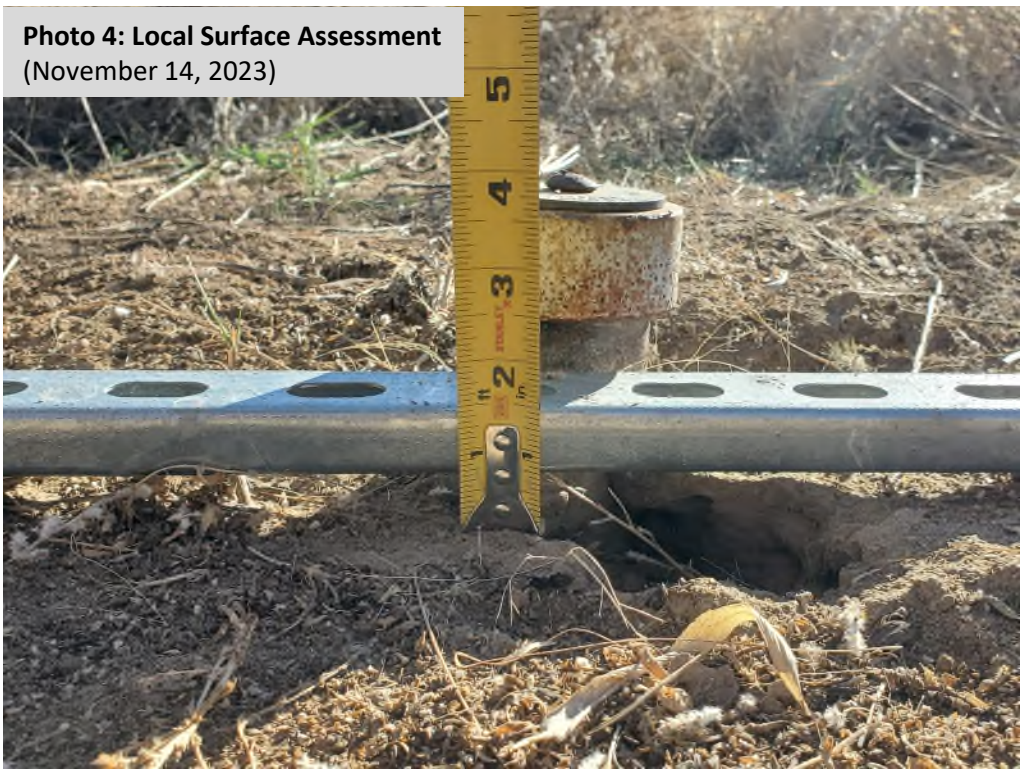
BA 9C - Borrow Area 9C
BA10 - Borrow Area 10
DT - Density Test
OMC - Optimum Moisture Content
OMCRV - Optimum Moisture Content Reference Value
QC - Quality Control
RC - RCRA-Equivalent Cover
SPRV - Standard Proctor Reference Value

Photo 1: October 2023 Field Conditions
(October 12, 2023)

Photo 2: October 2023 Measurement
(October 12, 2023)

Photo 3: Local Surface Variations
(November 14, 2023)

Photo 4: Local Surface Assessment
(November 14, 2023)



LEGEND

COVER BOUNDARY

ROAD

COLORADO STATE PLANE

0 500 1000

SCALE IN FEET

Program Manager
Rocky Mountain Arsenal
U.S. Army
COMMITTED TO PROTECTION OF THE ENVIRONMENT

ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO

NAVARRO
Research and Engineering, Inc.

PROJECT NAME

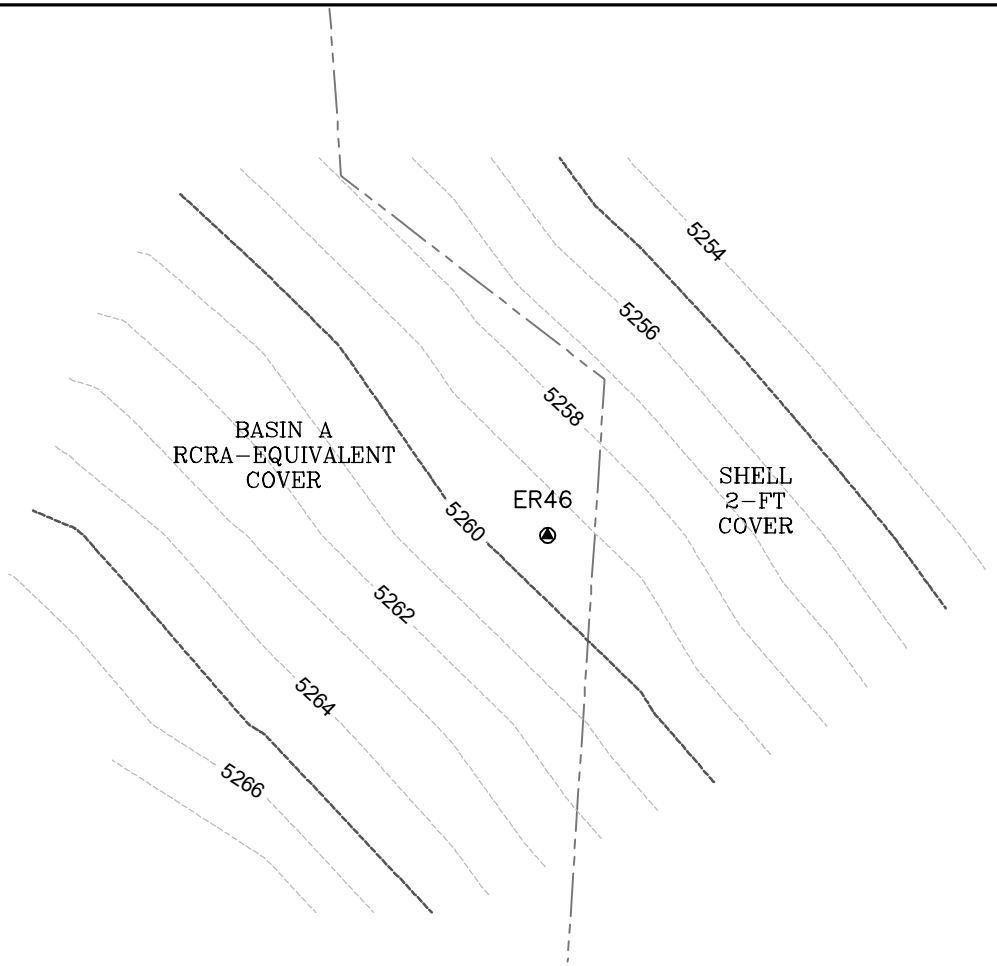
NRAP-2023-004

TITLE

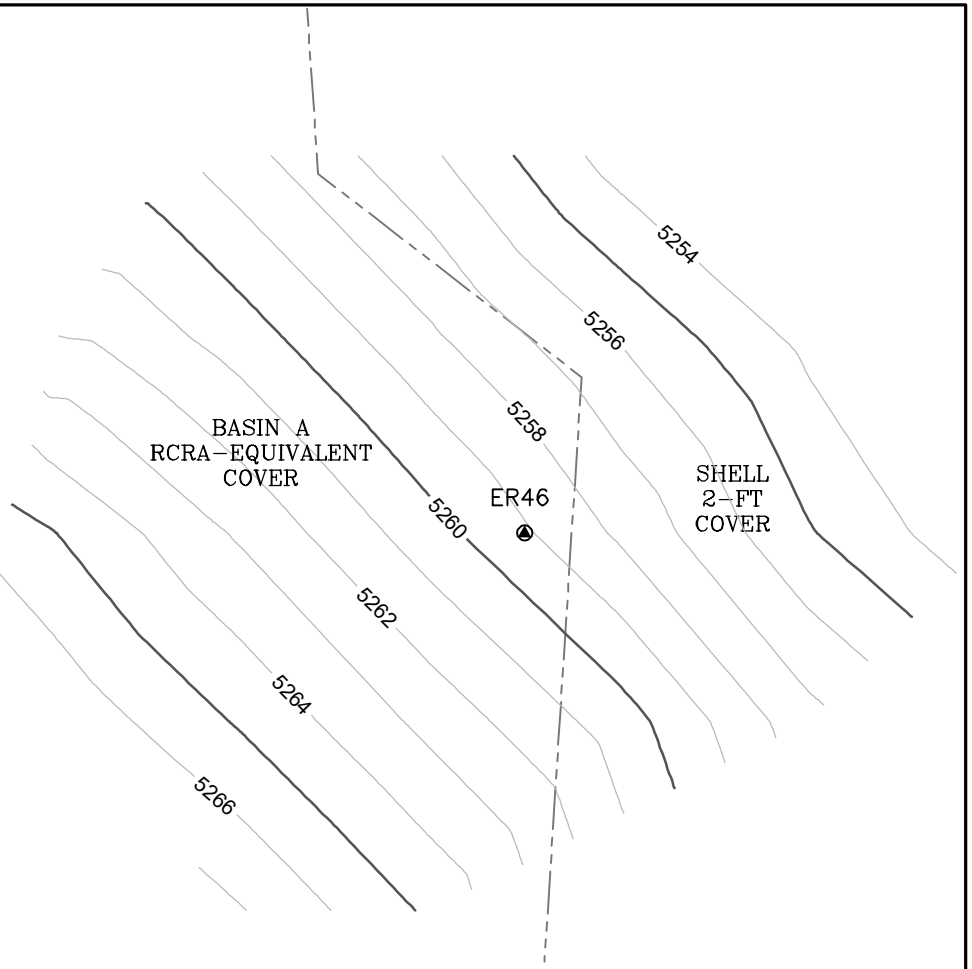
PROJECT LOCATION

CAD FILE:	DATE	FIG. NO.
Fig1_NRAP2023004.dwg	01.16.24	1

C:\USERS\GILBERTS\DOCUMENTS\ER46 ON ICS\FOR JEREMY\FROM JEREMY\FIG1_NRAP2023004.DWG



2009 FINAL COVER CONSTRUCTION CONTOURS



2023 EXISTING CONTOURS

LEGEND

COVER BOUNDARY

ER46 EROSION MONUMENT

COLORADO STATE PLANE

0 50 100

SCALE IN FEET

Program Manager
Rocky Mountain Arsenal
U.S. Army • COMMITTED TO PROTECTION OF THE ENVIRONMENT •

ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO

NAVARRO
Research and Engineering, Inc.

PROJECT NAME

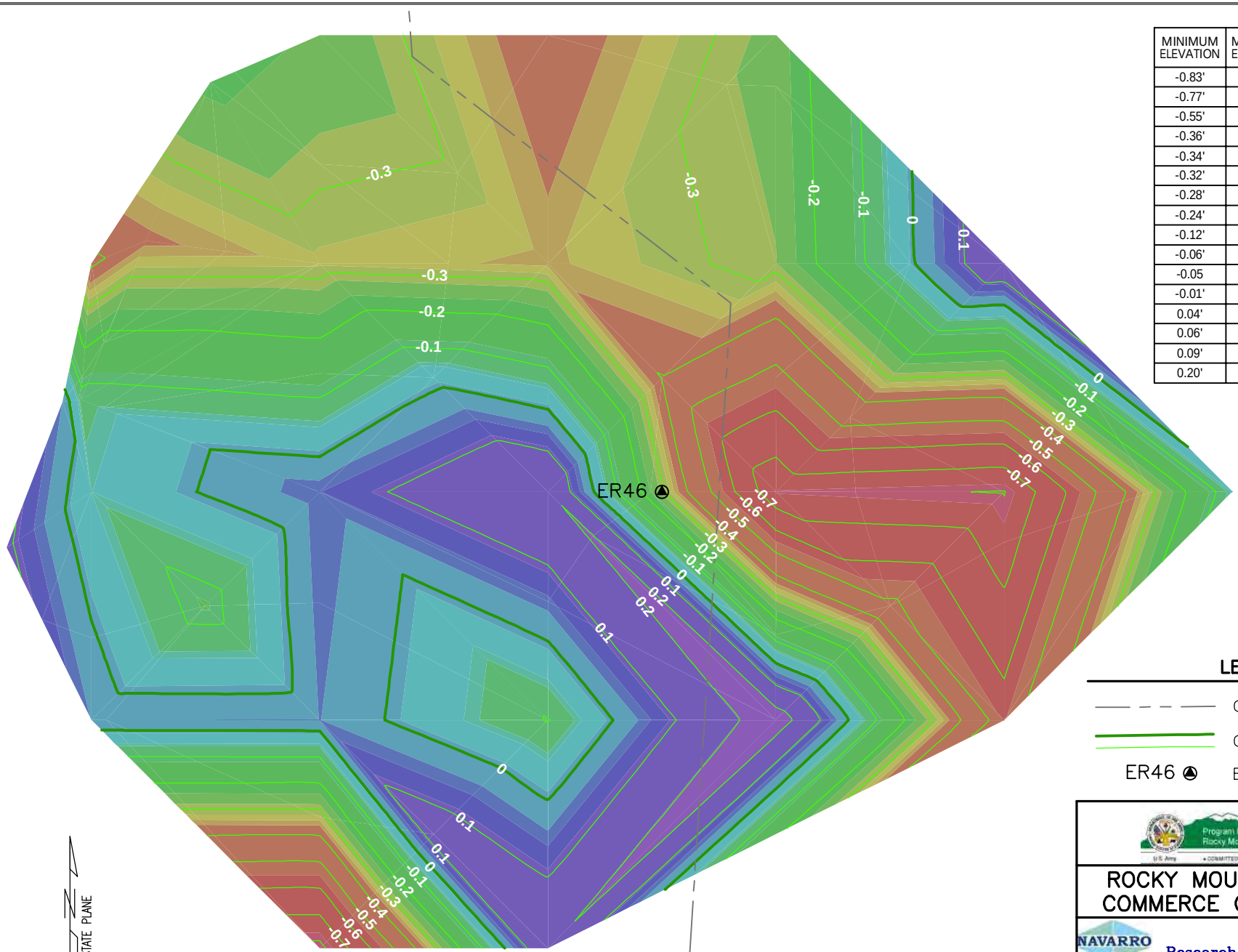
NRAP–2023–004

TITLE

2009 FINAL GRADE CONTOURS
AND 2023 EXISTING CONTOURS

CAD FILE:	DATE	FIG. NO.
Fig2_NRAP2023004.dwg	01.16.24	2

C:\USERS\GILBERTS\DOCUMENTS\ER46 ON ICS\FOR JEREMY\FROM JEREMY\FIG2_NRAP2023004.DWG



MINIMUM ELEVATION	MAXIMUM ELEVATION
-0.83'	-0.77'
-0.77'	-0.55'
-0.55'	-0.36'
-0.36'	-0.34'
-0.34'	-0.32'
-0.32'	-0.28'
-0.28'	-0.24'
-0.24'	-0.12'
-0.12'	-0.06'
-0.06'	-0.05'
-0.05	-0.01'
-0.01'	0.04'
0.04'	0.06'
0.06'	0.09'
0.09'	0.20'
0.20'	0.26'

LEGEND

COVER BOUNDARY

CUT/FILL CONTOURS

ER46 EROSION MONUMENT

COLORADO STATE PLANE

0 30 60

SCALE IN FEET

Program Manager
Rocky Mountain Arsenal

ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO

NAVARRO
Research and Engineering, Inc.

PROJECT NAME

NRAP–2023–004

TITLE

CHANGE IN SURFACE CONDITIONS
2009 TO 2023

CAD FILE:	DATE	FIG. NO.
Fig3_NRAP2023004.dwg	01.22.24	3

C:\USERS\GILBERTS\DOCUMENTS\ER46 ON ICS\FOR JEREMY\FROM JEREMY\FIG3_NRAP2023004.DWG

APPENDIX F

Operations and Maintenance Change Notices

ROCKY MOUNTAIN ARSENAL
O&M CHANGE NOTICE

WBS Number: 4.01.03.24		OCN Number: **OCN-LTCP-2024-001**
Affected Plan/Procedure	☐ HWL Post-Closure Plan	☐ Long-Term Monitoring Plan for GW & Surface Water
	☐ ELF Post-Closure Plan	☐ Land Use Controls Plan
	☐ Basin F Post-Closure Plan	☐ RVO SOP No. _____:
	☒ Long-Term Care Plan	☐ Other:

Recommended disposition: _____ Modification (required for HWL, ELF, and Basin F Post-Closure Plans)

Describe proposed change (Exact change in redlined/strike-through format preferred. Provide below or in attachment):	Reason for change:
This OCN updates the language used in the LTCP for consistency with the U.S. Army's electronic records management system requirements. The various forms found in the LTCP have been converted into fillable PDF forms with minor format changes that are intended to facilitate form usage. Forms in other electronic formats may also be used as they become available. Signature blocks on the Non-Routine Action Plan (NRAP) template and the Percolation Assessment Form have replaced references to Tri-County Health Department (TCHD) with Adams County Health Department (ACHD). Redline/strike-through text for the LTCP is attached, with fillable PDF forms.	In accordance with the Office of Management and Budget Memorandum M-19-21, the U.S. Army has transitioned to a paperless records management system. The language used in Revision 3 of the LTCP assumes that paper forms would be used to document O&M activities, that hardcopy reports would be produced annually, and that hardcopy project files would be maintained by the O&M contractor and transmitted to the Army annually. This OCN updates the LTCP to allow for electronic O&M recordkeeping.

Exhibits attached: ☐ None ☒ List:

- LTCP, Revision 3 with redline/strike-through text (affected pages only)
- Forms in fillable PDF format:
  - Form 3.5.3-1 – Non-Routine Action Plant Template
  - Form 3.6.1-1 – Percolation Assessment Form
  - Form SOP 001-1 – ICS Cover Inspection Form
  - Form SOP 001-2 – ICS Cover Perimeter Survey Monument Inspection Form
  - Form SOP 003-1 – ICS Percolation Monitoring System Data Collection and Operation Form

Originator: Michael W. Jones	Date: February 15, 2024

Final Approval:

Navarro Project Manager Signature and Date	Army Project Manager Signature and Date
Navarro Project Engineer Signature and Date (required for record drawing/design changes)	Navarro Regulatory Compliance Manager Signature and Date

Regulatory Approvals:

EPA Signature and Date	CDPHE Signature and Date	ACHD Signature and Date

vi. Prohibit major alteration of RMA hydrogeologic characteristics if such alteration may likely have an adverse impact on natural drainage for floodplain management, recharge of groundwater, operation of Response Action Structures, or protection of wildlife habitat

E. Engineering Controls present, maintained, and in good repair (Section 2.3)
   i. Soil cover boundaries delineated by cover perimeter survey monuments
   ii. Cover fence outside the cover boundaries
   iii. Warning signs posted every 500 feet outside of the cover fence
   iv. Large obelisks outside of the cover fence
   v. Soil erosion and settlement monuments on the RCRA-equivalent and 3-foot covers
   vi. Survey plats of the cover areas filed and recorded with Adams County, Colorado

3. **O&M Period.** This is the long-term period of monitoring and maintenance conducted after the O&F determination. Monitoring and maintenance will be conducted during this period according to this LTCP.

Compliance began on April 21, 2015, at the start of the sixth year after construction was completed. The three compliance standards noted in Item 2.C above are discussed in further detail, and established quantitatively, in Section 3.6.

1.1 Document Organization

Information is presented within this LTCP as follows:

- Section 2 presents a general description of the ICS.
- Section 3 describes the requirements for implementing long-term O&M inspection, monitoring, maintenance, and reporting activities.
- Section 4 describes the anticipated schedule for the long-term care period.
- Section 5 provides a list of references used in this document.

~~Documents contained within the appendices of this plan are maintained and available at the Document Tracking Center (DTC), currently located in Building 129 at RMA.~~

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1.2 Document Maintenance

The point of contact for RMA is the Army Project Manager (APM), U.S. Army, Rocky Mountain Arsenal, 7270 Kingston Parkway~~6550 Gateway Road, Building 129~~, Commerce City, Colorado, 80022-1748. ~~The street address for Building 129 is 7270 Kingston Parkway, Commerce City, Colorado, 80022.~~ The Army is responsible for ensuring those activities, including reporting requirements to regulatory agencies, as defined in this LTCP, are implemented. Long-term care records, including inspection reports, maintenance and repair records, percolation monitoring results, evaluations, plans of action, and summary reports, will be maintained ~~at RMA in the project files or~~ electronically by the Army ~~(e.g., spreadsheets, databases)~~. The project ~~files~~ reports generated by Army contractors will be transferred to the

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Army and stored in accordance with Army Records Management Standards~~at least annually for permanent storage to the RMA DTC in Building 129~~.

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When changes to any of the LTCP documents are proposed, the Army will submit the revised document to the regulatory agencies for review and approval prior to implementation. Review and the approval of LTCP revisions will follow the process provided for document review in the *Federal Facility Agreement for the Rocky Mountain Arsenal* (FFA) (EPA 1989), or another equivalent document if superseded. LTCP revisions may typically be considered following preparation of an *Annual Covers Report for ICS*, during the CERCLA Five Year Review, or as a result of performance standards not being achieved.

1.3 Roles and Responsibilities

The Army has established an integrated management team with the capabilities required to implement long-term care activities on the RCRA-equivalent, 2-foot, and 3-foot covers. The organizational structure, functional responsibilities, minimum qualifications, lines of communication, and interfaces for O&M of the ICS AMA are identified in the following subsections.

The Army's covers management team may include all, or some, of the staff positions described in the following subsections, but will include competent personnel who meet the minimum qualifications. Individuals may fill multiple roles if the minimum qualifications for those roles are met.

1.3.1 Army Project Manager

The Army representative, who is the APM, is responsible for reporting to the regulatory agencies and for directing implementation of this LTCP. The Covers Manager (described below) serves at the direction and discretion of the APM. The APM also is responsible for the coordination of activities and agreements with other government organizations, such as the U.S. Fish and Wildlife Service (USFWS) and others.

1.3.2 Covers Manager

A Covers Manager directs day-to-day implementation of the LTCP requirements and will report to the APM. The Covers Manager will have five years of project management experience and be knowledgeable in methods for maintenance and repair of vegetative covers. The Covers Manager must review and be familiar with the intent of the SDT Cover Design (TtEC 2006) and the ICS Design Package (TtEC 2007). The Covers Manager may also call upon the services of experts to consult on various issues such as prairie grassland management, cover soil conditions, percolation monitoring, or corrective measure implementation. Responsibilities of the Covers Manager include the following:

- Obtaining resources for inspection, maintenance, and repair activities.
- Ensuring that staff members are qualified and trained in accordance with the requirements in this LTCP.
- Arranging for inspection, maintenance, and repair equipment.
- Scheduling inspection, maintenance, and repair activities.
- Obtaining technical support (e.g., Vegetation Expert) as necessary.

maintenance locations. The report will also have an appendix that includes all of the inspection and maintenance records and data collected for the year. ~~The information in the appendix may be provided on a compact disk.~~

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The *Annual Covers Report for ICS* will summarize the results of percolation monitoring including the 12-month rolling evaluation throughout the reporting period and comparison to the percolation standard. The *Annual Covers Report for ICS* will summarize the results of the annual vegetation performance assessment as compared with the standards, maintenance and repair activities that occurred during the reporting period, and, if needed, recommended measures to sustain or improve vegetative conditions on the covers. In addition, Section VI will include a map showing the vegetation sample locations and the sample adequacy calculations. Reporting details for the annual vegetation performance assessment are defined in Appendix B.

The *Annual Covers Report for ICS* will cover the period from October through September and will be submitted to the regulatory agencies within 60 days following the completion of the vegetation performance assessment, or by November 30th of each year. A separate annual report will be prepared for Basin F as required by Section 3.9 of the Basin F PCP. The annual reporting for the Basin F RCRA-Equivalent Cover is identical to that required for the ICS RCRA-equivalent covers, and also includes groundwater monitoring assessment and data. If the Basin F Post-Closure Period ends before the CERCLA O&M period, Basin F Post-Closure Plan long-term O&M requirements, including requirements for groundwater monitoring and assessment, will be incorporated into and continue as part of the CERCLA O&M requirements in the LTCP. If this occurs, all sections of the Basin F Post-Closure Plan, excepting Section 1.4, Section 4.0, and the last sentence of the second paragraph of Section 6.1 of Appendix B, would be implemented as part of the LTCP.

Regular meetings shall be held semiannually with the regulatory agencies to review all inspections, routine and non-routine maintenance, and repairs conducted during that 6-month period. The meeting shall be held within 30 days of the April Type II and October Type I inspections.

ROCKY MOUNTAIN ARSENAL
RCRA-EQUIVALENT, 2-, AND 3-FOOT COVERS
LONG-TERM CARE
STANDARD OPERATING PROCEDURE

SOP NO.	001
TITLE	Cover Conditions Inspections
DATE	August 2021
PURPOSE	To describe the procedures for inspecting, monitoring and documenting cover conditions.
RELATED SOPs AND PLANS	SOP 002 *Cover Vegetation Performance Assessment* SOP 003 *Percolation Monitoring System Data Collection and Operation* *RCRA-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan*
FREQUENCY	Type II inspections will be performed in April and if necessary following prescribed burns. Type I Inspections will be performed in January, July, and October, unless otherwise determined by the Covers Manager. Type I Inspections will also be performed after significant storm events (>1 inch of precipitation per 24-hour period). Cover Perimeter Survey Monument Inspections will be performed once every five years prior to the CERCLA Five-Year Review.
HEALTH & SAFETY	Implement health and safety requirements described in the *PM-A-102: RMA Emergency Management Contingency Plan,* Contractor's Health and Safety Plan, and task-specific Job Hazard Analyses.
FIELD EQUIPMENT	All-terrain vehicle (ATV) Mobile Phone Permanent black marker Global Positioning System device (GPS) with sub-meter accuracy Digital Camera Clipboard and appropriate forms (optional) Binoculars (optional)

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ROCKY MOUNTAIN ARSENAL
RCRA-EQUIVALENT, 2-, AND 3-FOOT COVERS
LONG-TERM CARE
STANDARD OPERATING PROCEDURE

SOP NO. 003

TITLE Percolation Monitoring System Data Collection and Operation

DATE August 2021

PURPOSE To describe the procedures for monitoring lysimeter manhole conditions and for measuring percolation collected by the RCRA-equivalent cover percolation monitoring system.

RELATED SOPs AND PLANS
SOP 001 *Cover Conditions Inspections*
SOP 002 *Cover Vegetation Performance Assessment*
RCRA-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan

FREQUENCY Four times per year. The scheduled lysimeter inspections will be conducted in May, July, September, and November. Additional measurements may be taken in response to weather, inspection conditions, non-routine action trigger exceedances, or compliance standard exceedances.

If a lysimeter reaches the non-routine action trigger level (1.0 mm/year over a nine-month period), that specific lysimeter will be subject to monthly monitoring. The duration of monthly monitoring will be determined as data are evaluated.

Due to corrective action repairs made at the Shell Disposal Trenches RCRA-Equivalent Cover in the fall of 2019, Lysimeters 001, 002, and 003 will be inspected monthly from January 2020 until December 2025. After this period, Lysimeters 001, 002, and 003 will be inspected at the same frequency as the other ICS lysimeters.

HEALTH & SAFETY Implement health and safety requirements described in the *PM-A-102: RMA Emergency Management Contingency Plan, RMA Health and Safety Plan,* Contractor's Health and Safety Plan, and task-specific Job Hazard Analyses. Comply with confined space entry permit requirements when applicable.

FIELD EQUIPMENT
Mobile Phone
ATV (as field conditions permit)
Clipboard and appropriate forms (optional)
Global Positioning System Device (GPS)
Portable manhole ladder (for maintenance and repairs only)

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Form 3.5.3-1
Non-Routine Action Plan Template

NRAP Number	**NRAP-**	
Applicable Design(s)	☐ SDT Remediation Project RCRA-Equivalent Cover Construction – Record Documents ☐ ICS Design Project – Record Documents	
Applicable Design Document(s)	☐ Drawing Number/Title/Revision: ☐ Spec. Number /Title/Revision: ☐ Plan Title/Revision:	
Description of the Condition Requiring Action		
Description of the Action	Action:	
	Material Requirements:	
	Performance Criteria:	
	Does the action deviate from the requirements of the applicable design package(s)? ☐ Yes ☐ No If so, provide rationale for the deviation from the design package(s).	
Closeout Requirements	Is a multi-Agency post-action inspection required? ☐ Yes ☐ No Are modifications to monitoring or inspection frequencies required? ☐ Yes ☐ No Others: _____	
Consultation Record	Consultation Date: Consultation Method: Consulted Parties:	
Attached Exhibits	☐ None ☐ Inspection Form(s) ☐ Map of Affected Area ☐ Correspondence	☐ Supplemental Work Plan(s) ☐ Rationale for Deviation From Design ☐ Modified Inspection Frequencies ☐ Others:_____

Approvals
Signature indicates the Parties are in consensus and concur with the proposed action and closeout requirements.

Covers Manager, or Designee Signature & Date:	Army Project Manager, or Designee Signature & Date:

EPA Signature & Date:	CDPHE Signature & Date:	ACHD Signature & Date:

Form 3.6.1-1
Percolation Assessment Form

PERCOLATION EVENT INFORMATION	
Assessment Form Number:	**Lysimeter Number:**
Percolation Quantity:	**Percolation Date Range:**

Applicable Design:
- ☐ SDT Remediation Project RCRA-Equivalent Cover Construction – Record Documents
- ☐ ICS Design Project – Record Documents
- ☐ Basin F/Basin F Exterior Remediation Project – Part 2 (Basin F Cover) – Record Documents

	Y	N	
The percolation performance standard is 1.3 mm/year. Has the lysimeter exceeded the performance standard previously?	◯	◯	Date(s) of previous performance standard exceedance(s).

PERCOLATION ASSESSMENT

Inspect Cover Surface Conditions

Assessment Item	Assessment Complete?		Non-Typical Condition Identified?		Description of Non-Typical Condition(s)	Condition Repaired?		
	Y	N	Y	N		Y	N	N/A
Inspect the area for macro-features such as holes, cracks, or animal burrows.	◯	◯	◯	◯		◯	◯	◯
Inspect the surface for depressions.	◯	◯	◯	◯		◯	◯	◯
Survey the area to identify potential ponding or slope abnormalities.	◯	◯	◯	◯		◯	◯	◯
Inspect the area for large bare areas or sparse vegetation.	◯	◯	◯	◯		◯	◯	◯
Inspect the area for weedy species or other undesirable vegetation.	◯	◯	◯	◯		◯	◯	◯
Collect vegetation transect sample data.	◯	◯	◯	◯		◯	◯	◯

Form 3.6.1-1
Percolation Assessment Form

Review Construction and Maintenance Records					
Assessment Item	**Assessment Complete?**		**Non-Typical Condition Identified?**		**Description of Non-Typical Condition(s)**
	Y	**N**	**Y**	**N**	
Review construction records for atypical activities or test results.	◯	◯	◯	◯	
Review Annual Covers Reports for previously-documented issues.	◯	◯	◯	◯	
Review O&M inspection records for recurring issues.	◯	◯	◯	◯	
Review maintenance activities for potential disturbances.	◯	◯	◯	◯	
Review non-routine work performed in the area.	◯	◯	◯	◯	

Evaluate Other Data Sources			
Assessment Item	**Assessment Complete?**		**Summarize Data Evaluation Findings**
	Y	**N**	
Evaluate previous percolation data for similar patterns at the same location.	◯	◯	
Compare lysimeter performance to the Melchior study for RCRA-equivalence.	◯	◯	

Form 3.6.1-1
Percolation Assessment Form

Assessment Item	Assessment Complete? Y	Assessment Complete? N	Summarize Data Evaluation Findings
Review data collected by other lysimeters over the same period.	◯	◯	
Review recent weather patterns for extreme conditions including drought and historic rain events.	◯	◯	

ATTACHMENTS

☐ None	☐ Maintenance Records	List:
☐ Topographical Survey Data	☐ Previous Percolation Data	
☐ Map of Affected Area	☐ Percolation Data from Other Lysimeters	
☐ Vegetation Assessment Data	☐ Meteorological Data	
☐ Photos	☐ Correspondence	
☐ Construction Records	☐ Other	
☐ Inspection Records		

CONCLUSIONS

Form 3.6.1-1
Percolation Assessment Form

PATH FORWARD (Check all that apply)	
☐ Continue monitoring ☐ Initiate cover repairs ☐ Prepare Investigation Schedule ☐ Prepare Corrective Measures Plan of Action ☐ Other	Provide description if necessary.

APPROVALS		
Cover Manager, or Designee Signature and Date:	APM, or Designee Signature and Date:	Other:
EPA Signature and Date:	CDPHE Signature and Date:	ACHD Signature and Date:

Form SOP 001-1
ICS Inspection Form

Inspector's Names:	**Inspection Date(s):**
Inspection Type: ☐ Type I ☐ Type II ☐ Post-Storm	
Drive-around Post-Storm Inspection Date (taken from Logbook): *Note: Post-storm event inspection items are indicated with a * next to the Inspection Item number.*	**Date(s) of Significant Storm Event:** **Total Precipitation (in):**
Inspection Conditions: Previous 24-hour precipitation: Weather Conditions:	
Attachments: ☐ Photographs ☐ Figures ☐ Other	

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
1.0 Surface Conditions								
1.1* Erosion rills, gullies, or sheet erosion	○	○	○	○	○	○		
1.2* Conditions that could interrupt cover surface drainage (ponding areas, ruts, hole greater than 3" in diameter)	○	○	○	○	○	○		
1.3 Excessive animal trails	○	○	○	○	○	○		
1.4 Widespread burrowing animal holes	○	○	○	○	○	○		
1.5* Extensive linear cracks	○	○	○	○	○	○		
1.6 Vandalism, or intrusive damage such as unplanned excavation, drilling, grading, damage to engineering or access controls	○	○	○	○	○	○		

Form SOP 001-1
ICS Inspection Form

Inspection Item	Condition Present			Repeat or Chronic Condition			Inspection Note	Confirm Completed Actions (Initial and Date)
	Y	N	N/A	Y	N	N/A		
2.0 Vegetative Cover								
2.1 Bare area or areas of poor growth greater than 100 square feet	◯	◯	◯	◯	◯	◯		
2.2 Areas of vegetation stress greater than 100 square feet (over grazing, discoloration, pedestalling)	◯	◯	◯	◯	◯	◯		
2.3 Deep rooted, noxious or undesirable weedy species	◯	◯	◯	◯	◯	◯		
2.4 Excessive litter accumulation	◯	◯	◯	◯	◯	◯		
3.0 Engineering and Access Controls								
3.1 The perimeter fence is damaged	◯	◯	◯	◯	◯	◯		
3.2 Debris has collected along the perimeter fence	◯	◯	◯	◯	◯	◯		
3.3 Obelisks are damaged, not visible, or not legible	◯	◯	◯	◯	◯	◯		
3.4 Warning signs are not legible from 25 feet	◯	◯	◯	◯	◯	◯		
3.5* Damage to the Perimeter Access Road such as potholes, washouts, washboard, or burrowing	◯	◯	◯	◯	◯	◯		

Form SOP 001-1
ICS Inspection Form

4.0 Surface Drainage Controls: *Were the following conditions observed during the inspection of the stormwater drainage controls? Check all that apply.*																									
Inspection Item	**Channel Number**																								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**11A**	**12**	**13**	**14**	**15**	**15A**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
4.1* Impeded drainage or ponding in the channel (siltation/debris present)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.2* Inadequate protective vegetation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4.3* Erosion rills or gullies in the grass-lined channel	☐	☐	☐			☐	☐	☐	☐	☐			☐		☐	☐		☐		☐	☐	☐	☐		☐
4.4* Cracked or degraded concrete				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	
4.5* Expansion joint damage (missing caulk)				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	
4.6* Inhibited drainage from the soil to the concrete-lined channel				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	
4.7* Subsidence or undercutting of the concrete-lined channel				☐	☐	☐					☐	☐	☐	☐		☐	☐	☐	☐	☐				☐	

Form SOP 001-1
ICS Inspection Form

5.0 Erosion/Settlement Monuments: *Inspect monuments and record the soil thickness loss, if any. Perform during spring Type II and fall Type I inspections.*

Inspection Item	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08	ER09	ER10	ER11	ER12	ER13	ER14	ER15	ER16	ER17	ER18	ER19
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER20	ER21	ER22	ER23	ER24	ER25	ER26	ER27	ER28	ER29	ER30	ER31	ER32	ER33	ER34	ER35	ER36	ER37	ER38
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER39	ER40	ER41	ER42	ER43	ER44	ER45	ER46	ER47	ER48	ER49	ER50	ER51	ER52	ER53	ER54	ER55	ER56	ER57
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER58	ER59	ER60	ER61	ER62	ER63	ER64	ER65	ER66	ER67	ER68	ER69	ER70	ER71	ER72	ER73	ER74	ER75	ER76
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																			

Inspection Item	ER77	ER78	ER79	ER80	ER81	ER82	ER83	ER84	ER85	ER86	ER87	ER88	ER89	ER90	ER91	ER92
5.1 Monument is damaged or illegible *Check all that apply.*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5.2 Measured Soil Thickness Loss (inches)																

Form SOP 001-1
ICS Inspection Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations with GPS coordinates, and photographs as needed. Provide attachments as appropriate.	
Inspector	
Name:	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name:	**Signature and Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

Inspector's Names:	**Inspection Date(s):**
Inspection Conditions: Previous 24-hour precipitation: Weather Conditions:	
Attachments: ☐ Photographs ☐ Figures ☐ Survey Report ☐ Other	

CPSM Number	***Check all that apply.***				
	Monument has been located.	**Monument has been disturbed.**	**Monument is intact.**	**Monument is legible.**	**Monument requires repair.**
CPSM-1	☐	☐	☐	☐	☐
CPSM-2	☐	☐	☐	☐	☐
CPSM-3	☐	☐	☐	☐	☐
CPSM-4	☐	☐	☐	☐	☐
CPSM-5	☐	☐	☐	☐	☐
CPSM-6	☐	☐	☐	☐	☐
CPSM-7	☐	☐	☐	☐	☐
CPSM-8	☐	☐	☐	☐	☐
CPSM-9	☐	☐	☐	☐	☐
CPSM-10	☐	☐	☐	☐	☐
CPSM-11	☐	☐	☐	☐	☐
CPSM-12	☐	☐	☐	☐	☐
CPSM-13	☐	☐	☐	☐	☐
CPSM-14	☐	☐	☐	☐	☐
CPSM-15	☐	☐	☐	☐	☐
CPSM-16	☐	☐	☐	☐	☐
CPSM-17	☐	☐	☐	☐	☐
CPSM-18	☐	☐	☐	☐	☐
CPSM-19	☐	☐	☐	☐	☐
CPSM-20	☐	☐	☐	☐	☐
CPSM-21	☐	☐	☐	☐	☐
CPSM-22	☐	☐	☐	☐	☐
CPSM-23	☐	☐	☐	☐	☐

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

CPSM Number	*Check all that apply.*				
	Monument has been located.	**Monument has been disturbed.**	**Monument is intact.**	**Monument is legible.**	**Monument requires repair.**
CPSM-24	☐	☐	☐	☐	☐
CPSM-25	☐	☐	☐	☐	☐
CPSM-26	☐	☐	☐	☐	☐
CPSM-27	☐	☐	☐	☐	☐
CPSM-28	☐	☐	☐	☐	☐
CPSM-29	☐	☐	☐	☐	☐
CPSM-30	☐	☐	☐	☐	☐
CPSM-31	☐	☐	☐	☐	☐
CPSM-32	☐	☐	☐	☐	☐
CPSM-33	☐	☐	☐	☐	☐
CPSM-34	☐	☐	☐	☐	☐
CPSM-35	Location is in concrete channel outlet. No monument present.				
CPSM-36	☐	☐	☐	☐	☐
CPSM-37	☐	☐	☐	☐	☐
CPSM-38	☐	☐	☐	☐	☐
CPSM-39	☐	☐	☐	☐	☐
CPSM-40	☐	☐	☐	☐	☐
CPSM-41	☐	☐	☐	☐	☐
CPSM-42	☐	☐	☐	☐	☐
CPSM-43	☐	☐	☐	☐	☐
CPSM-44	☐	☐	☐	☐	☐
CPSM-45	☐	☐	☐	☐	☐
CPSM-46	☐	☐	☐	☐	☐
CPSM-47	☐	☐	☐	☐	☐
CPSM-48	☐	☐	☐	☐	☐
CPSM-49	☐	☐	☐	☐	☐

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

CPSM Number	*Check all that apply.*				
	Monument has been located.	Monument has been disturbed.	Monument is intact.	Monument is legible.	Monument requires repair.
CPSM-50	☐	☐	☐	☐	☐
CPSM-51	☐	☐	☐	☐	☐
CPSM-52	☐	☐	☐	☐	☐
CPSM-53	☐	☐	☐	☐	☐
CPSM-54	☐	☐	☐	☐	☐
CPSM-55	☐	☐	☐	☐	☐
CPSM-56	☐	☐	☐	☐	☐
CPSM-57	☐	☐	☐	☐	☐
CPSM-58	☐	☐	☐	☐	☐
CPSM-59	☐	☐	☐	☐	☐
CPSM-60	☐	☐	☐	☐	☐
CPSM-61	☐	☐	☐	☐	☐
CPSM-62	☐	☐	☐	☐	☐
CPSM-63	☐	☐	☐	☐	☐
CPSM-64	☐	☐	☐	☐	☐
CPSM-65	☐	☐	☐	☐	☐
CPSM-66	☐	☐	☐	☐	☐
CPSM-67	☐	☐	☐	☐	☐
CPSM-68	☐	☐	☐	☐	☐
CPSM-69	☐	☐	☐	☐	☐
CPSM-70	☐	☐	☐	☐	☐
CPSM-71	☐	☐	☐	☐	☐
CPSM-72	☐	☐	☐	☐	☐
CPSM-73	☐	☐	☐	☐	☐
CPSM-74	☐	☐	☐	☐	☐
CPSM-75	☐	☐	☐	☐	☐

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

CPSM Number	*Check all that apply.*				
	Monument has been located.	Monument has been disturbed.	Monument is intact.	Monument is legible.	Monument requires repair.
CPSM-76	☐	☐	☐	☐	☐
CPSM-77	☐	☐	☐	☐	☐
CPSM-78	☐	☐	☐	☐	☐
CPSM-79	☐	☐	☐	☐	☐
CPSM-80	☐	☐	☐	☐	☐
CPSM-81	☐	☐	☐	☐	☐
CPSM-82	☐	☐	☐	☐	☐
CPSM-83	☐	☐	☐	☐	☐
CPSM-84	☐	☐	☐	☐	☐
CPSM-85	☐	☐	☐	☐	☐
CPSM-86	☐	☐	☐	☐	☐
CPSM-87	☐	☐	☐	☐	☐
CPSM-88	☐	☐	☐	☐	☐
CPSM-89	☐	☐	☐	☐	☐
CPSM-90	☐	☐	☐	☐	☐
CPSM-91	☐	☐	☐	☐	☐
CPSM-92	☐	☐	☐	☐	☐
CPSM-93	☐	☐	☐	☐	☐
CPSM-94	☐	☐	☐	☐	☐
CPSM-95	☐	☐	☐	☐	☐
CPSM-96	☐	☐	☐	☐	☐
CPSM-97	☐	☐	☐	☐	☐
CPSM-98	☐	☐	☐	☐	☐
CPSM-99	☐	☐	☐	☐	☐
CPSM-100	☐	☐	☐	☐	☐
CPSM-101	☐	☐	☐	☐	☐

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

CPSM Number	*Check all that apply.*				
	Monument has been located.	**Monument has been disturbed.**	**Monument is intact.**	**Monument is legible.**	**Monument requires repair.**
CPSM-102	☐	☐	☐	☐	☐
CPSM-103	☐	☐	☐	☐	☐
CPSM-104	☐	☐	☐	☐	☐
CPSM-105	☐	☐	☐	☐	☐
CPSM-106	☐	☐	☐	☐	☐
CPSM-107	☐	☐	☐	☐	☐
CPSM-108	Location is in concrete channel outlet. No monument present.				
CPSM-109	☐	☐	☐	☐	☐
CPSM-110	☐	☐	☐	☐	☐
CPSM-111	☐	☐	☐	☐	☐
CPSM-112	☐	☐	☐	☐	☐
CPSM-113	☐	☐	☐	☐	☐
CPSM-114	☐	☐	☐	☐	☐
CPSM-115	☐	☐	☐	☐	☐
CPSM-116	☐	☐	☐	☐	☐
CPSM-117	☐	☐	☐	☐	☐
CPSM-118	☐	☐	☐	☐	☐
CPSM-119	☐	☐	☐	☐	☐
CPSM-120	☐	☐	☐	☐	☐
CPSM-121	☐	☐	☐	☐	☐
CPSM-122	☐	☐	☐	☐	☐
CPSM-123	☐	☐	☐	☐	☐
CPSM-124	☐	☐	☐	☐	☐
CPSM-125	☐	☐	☐	☐	☐
CPSM-126	☐	☐	☐	☐	☐
CPSM-127	☐	☐	☐	☐	☐

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

CPSM Number	*Check all that apply.*				
	Monument has been located.	**Monument has been disturbed.**	**Monument is intact.**	**Monument is legible.**	**Monument requires repair.**
CPSM-128	☐	☐	☐	☐	☐
CPSM-129	☐	☐	☐	☐	☐
CPSM-130	☐	☐	☐	☐	☐
CPSM-131	☐	☐	☐	☐	☐
CPSM-132	☐	☐	☐	☐	☐
CPSM-133	☐	☐	☐	☐	☐
CPSM-134	☐	☐	☐	☐	☐
CPSM-135	☐	☐	☐	☐	☐
CPSM-136	☐	☐	☐	☐	☐
CPSM-137	☐	☐	☐	☐	☐
CPSM-138	☐	☐	☐	☐	☐
CPSM-139	☐	☐	☐	☐	☐
CPSM-140	☐	☐	☐	☐	☐
CPSM-141	☐	☐	☐	☐	☐
CPSM-142	☐	☐	☐	☐	☐
CPSM-143	☐	☐	☐	☐	☐
CPSM-144	☐	☐	☐	☐	☐
CPSM-145	☐	☐	☐	☐	☐
CPSM-146	☐	☐	☐	☐	☐
CPSM-147	☐	☐	☐	☐	☐
CPSM-148	☐	☐	☐	☐	☐
CPSM-149	☐	☐	☐	☐	☐
CPSM-150	Location is on concrete base of fence post. No monument present.				
CPSM-151	Location is on concrete base of fence post. No monument present.				
CPSM-152	☐	☐	☐	☐	☐
CPSM-153	☐	☐	☐	☐	☐

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

CPSM Number	*Check all that apply.*				
	Monument has been located.	Monument has been disturbed.	Monument is intact.	Monument is legible.	Monument requires repair.
CPSM-154	☐	☐	☐	☐	☐
CPSM-155	☐	☐	☐	☐	☐
CPSM-156	☐	☐	☐	☐	☐
CPSM-157	☐	☐	☐	☐	☐
CPSM-158	☐	☐	☐	☐	☐
CPSM-159	☐	☐	☐	☐	☐
CPSM-160	☐	☐	☐	☐	☐
CPSM-161	☐	☐	☐	☐	☐
CPSM-162	☐	☐	☐	☐	☐
CPSM-163	☐	☐	☐	☐	☐
CPSM-164	☐	☐	☐	☐	☐
CPSM-165	☐	☐	☐	☐	☐
CPSM-166	☐	☐	☐	☐	☐
CPSM-167	☐	☐	☐	☐	☐
CPSM-168	☐	☐	☐	☐	☐
CPSM-169	☐	☐	☐	☐	☐
CPSM-170	☐	☐	☐	☐	☐
CPSM-171	☐	☐	☐	☐	☐
CPSM-172	☐	☐	☐	☐	☐
CPSM-173	☐	☐	☐	☐	☐
CPSM-174	☐	☐	☐	☐	☐
CPSM-175	☐	☐	☐	☐	☐
CPSM-176	☐	☐	☐	☐	☐
CPSM-177	☐	☐	☐	☐	☐
CPSM-178	☐	☐	☐	☐	☐
CPSM-179	☐	☐	☐	☐	☐

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

CPSM Number	*Check all that apply.*				
	Monument has been located.	**Monument has been disturbed.**	**Monument is intact.**	**Monument is legible.**	**Monument requires repair.**
CPSM-180	☐	☐	☐	☐	☐
CPSM-181	☐	☐	☐	☐	☐
CPSM-182	☐	☐	☐	☐	☐
CPSM-183	☐	☐	☐	☐	☐
CPSM-184	☐	☐	☐	☐	☐
CPSM-185	☐	☐	☐	☐	☐
CPSM-186	☐	☐	☐	☐	☐
CPSM-187	☐	☐	☐	☐	☐
CPSM-188	☐	☐	☐	☐	☐
CPSM-189	☐	☐	☐	☐	☐
CPSM-190	☐	☐	☐	☐	☐
CPSM-191	☐	☐	☐	☐	☐
CPSM-192	☐	☐	☐	☐	☐
CPSM-193	☐	☐	☐	☐	☐
CPSM-194	☐	☐	☐	☐	☐
CPSM-195	Location is in concrete channel outlet. No monument present.				
CPSM-196	☐	☐	☐	☐	☐
CPSM-197	☐	☐	☐	☐	☐
CPSM-198	☐	☐	☐	☐	☐
CPSM-199	☐	☐	☐	☐	☐
CPSM-200	☐	☐	☐	☐	☐
CPSM-201	☐	☐	☐	☐	☐
CPSM-202	☐	☐	☐	☐	☐
CPSM-203	☐	☐	☐	☐	☐
CPSM-204	☐	☐	☐	☐	☐
CPSM-205	☐	☐	☐	☐	☐

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

CPSM Number	*Check all that apply.*				
	Monument has been located.	**Monument has been disturbed.**	**Monument is intact.**	**Monument is legible.**	**Monument requires repair.**
CPSM-206	☐	☐	☐	☐	☐
CPSM-207	☐	☐	☐	☐	☐
CPSM-208	☐	☐	☐	☐	☐
CPSM-209	☐	☐	☐	☐	☐
CPSM-210	☐	☐	☐	☐	☐
CPSM-211	☐	☐	☐	☐	☐
CPSM-212	☐	☐	☐	☐	☐
CPSM-213	☐	☐	☐	☐	☐
CPSM-214	☐	☐	☐	☐	☐
CPSM-215	☐	☐	☐	☐	☐
CPSM-216	☐	☐	☐	☐	☐
CPSM-217	☐	☐	☐	☐	☐
CPSM-218	☐	☐	☐	☐	☐
CPSM-219	☐	☐	☐	☐	☐
CPSM-220	☐	☐	☐	☐	☐
CPSM-221	☐	☐	☐	☐	☐
CPSM-222	☐	☐	☐	☐	☐
CPSM-213	☐	☐	☐	☐	☐
CPSM-224	☐	☐	☐	☐	☐
CPSM-225	☐	☐	☐	☐	☐
CPSM-226	☐	☐	☐	☐	☐
CPSM-227	☐	☐	☐	☐	☐
CPSM-228	☐	☐	☐	☐	☐

Form SOP 001-2
ICS Cover Perimeter Survey Monument Inspection Form

Inspection Notes:		
Inspector		
Name:	**Signature and Date:**	
Covers Manager Review of Inspection Documentation		
Name:	**Signature and Date:**	
Covers Manager Confirmation of Completed Actions		
Name:	**Signature and Date:**	

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspector's Names:	**Inspection Date(s):**
Inspection Conditions: Previous 24-hour precipitation:	Weather Conditions:

Inspection Item	**Condition Present**			**Repeat or Chronic Condition**			**Inspection Note**	**Confirm Completed Actions (Initial and Date)**
	Y	**N**	**N/A**	**Y**	**N**	**N/A**		
1.0 Percolation Collection Manhole (PCM) Condition								
1.1 Damage to the PCM or internal components	○	○	○	○	○	○		
1.2 Accumulation of a quantity of water greater than that caused by natural condensation in the manhole	○	○	○	○	○	○		
1.3 If the water level observed in the PCM impacts the ability to measure percolation, remove water accumulated in the PCM, and record the quantity here. Quantity removed from the PCM (liters):								

2.0 Percolation Collection

Lysimeter Number	**Measured Water Volume** (liter)	**Lysimeter Number**	**Measured Water Volume** (liter)	**Lysimeter Number**	**Measured Water Volume** (liter)
001 (SDT)		006 (CAT)		011 (SP)	
002 (SDT)		007 (Basin A)		012 (SP)	
003 (SDT)		008 (CAT)		013 (SP)	
004 (CAT)		009 (Basin A)		014 (LB)	
005 (CAT)		010 (Basin A)		015 (Basin A)	

Form SOP 003-1
ICS Percolation Monitoring System Data Collection and Operation Form

Inspection Notes: For areas with deficiencies, provide identifying labels for deficient areas, descriptions of deficiencies, approximate dimensions of the areas, locations, and photographs. Provide attachments as appropriate.	
Inspector	
Name:	**Signature and Date:**
Covers Manager Review of Inspection Documentation	
Name:	**Signature And Date:**
Covers Manager Confirmation of Completed Actions	
Name:	**Signature and Date:**