

ROCKY MOUNTAIN ARSENAL

Land Use Control Monitoring Report for Fiscal Year 2024

**Revision 1
May 1, 2025**

**U.S. Department of the Army
Shell Oil Company**

Prepared by:



Navarro Research and Engineering, Inc.

This page intentionally left blank.

TABLE OF CONTENTS

Section	Page
1.0 INTRODUCTION	1
2.0 RMA BACKGROUND	1
3.0 CHANGES TO LAND USE CONTROLS	3
4.0 ON-POST OPERABLE UNIT LAND USE CONTROLS	3
4.1 RMA Land Use Controls	5
4.2 Transferred Property	7
5.0 OFF-POST OPERABLE UNIT LAND USE CONTROLS	7
5.1 Off-Post Well Notification Program	7
5.2 Shell Property Deed Restrictions	8
5.3 Exposure Control and Alternate Water Supply	8
6.0 RMA ENGINEERING CONTROLS	9
6.1 Sanitary Sewers	9
6.2 Groundwater Remedy Structures	9
6.3 Caps and Covers	10
7.0 MONITORING AND EVALUATION	10
7.1 Status of Corrective Actions from 2023 Monitoring Report	10
7.2 On-Post Operable Unit Land Use Control Monitoring	11
7.2.1 RMA	11
7.2.2 Prairie Gateway	13
7.3 Off-Post Operable Unit Land Use Controls	15
7.3.1 State Engineer's Office Well Permit Notification	15
7.3.2 Shell Property Deed Restrictions	15
7.3.3 Exposure Control and Alternate Water Supply	15
7.4 RMA Engineering Controls	16
7.4.1 Groundwater Remedy Structures	16
7.4.2 Caps and Covers	16
7.4.3 Sanitary Sewers	16
8.0 NOTIFICATIONS	17
9.0 CORRECTIVE ACTIONS	18
10.0 CONCLUSION	18
11.0 REFERENCES	18

LIST OF TABLES

Table 4-1	Source and Applicability of the Primary On-Post OU Land Use Controls
Table 4-2	Source and Applicability of Other On-Post OU Land Use Controls
Table 4-3	Implementation of RMA Land Use Controls
Table 7-1	Status of Previous Corrective Actions
Table 7-2	Evaluation of RMA Land Use Controls for FY24
Table 7-3	Evaluation of Prairie Gateway Use Controls
Table 8-1	FY24 Notifications

LIST OF FIGURES

Figure 2-1	Rocky Mountain Arsenal Detail
------------	-------------------------------

ATTACHMENTS

Attachment 1	Site Inquiry and Field Inspection Checklists
--------------	--

ACRONYMS AND ABBREVIATIONS

ACHD	Adams County Health Department
ARAR	Applicable or Relevant and Appropriate Requirements
Army	United States Department of the Army
CBSG	Colorado Basic Standards for Groundwater
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSRG	Containment System Remediation Goal
DIMP	Diisopropyl methylphosphonate
ELF	Enhanced Hazardous Waste Landfill
EPA	United States Environmental Protection Agency
ES&H	Environmental Safety and Health
FFA	Federal Facility Agreement
FWS	United States Fish and Wildlife Service
FY	Fiscal Year
HWL	Hazardous Waste Landfill
ICS	Integrated Cover System
LTCP	RCRA-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan
LTMP	Long-Term Monitoring Plan for Groundwater and Surface Water
LUCP	Land Use Control Plan
MDEH	Material Documented as an Explosive Hazard
MOA	Memorandum of Agreement
NPL	National Priorities List
O&M	Operations and Maintenance
OGITS	Off-Post Groundwater Intercept and Treatment System
OU	Operable Unit
PUD	Planned Unit Development
RCRA	Resource Conservation and Recovery Act
RMA NWR	Rocky Mountain Arsenal National Wildlife Refuge
Refuge Act	Rocky Mountain Arsenal National Wildlife Refuge Act
RI/FS	Remedial Investigation/Feasibility Study
RMA	Rocky Mountain Arsenal
ROD	Record of Decision
SACWSD	South Adams County Water and Sanitation District
SEO	Colorado Division of Water Resources, a.k.a. Office of the State Engineer
SOP	Standard Operating Procedure
SSA	Southern Study Area
TCHD	Tri-County Health Department
UXO	Unexploded Ordnance

This page intentionally left blank.

1.0 INTRODUCTION

As part of the long-term remedy at the Rocky Mountain Arsenal (RMA), land use controls, both institutional and engineering, are utilized to ensure protectiveness. Pursuant to the Land Use Control Plan (LUCP) (Navarro 2013), the land use controls are monitored annually to ensure they are being implemented, remain effective, and are protective of human health and the environment.

Section 2 of this report summarizes relevant RMA background, Section 3 presents changes made to land use controls during the monitoring period, Sections 4 and 5 describe the applicable land use controls, and Section 6 discusses engineering controls. Section 7 discusses monitoring and evaluation of the controls including follow up on any corrective actions from prior years. Section 8 describes the required notifications. Section 9 presents corrective actions indicated by the monitoring and evaluation and Section 10 provides conclusions.

This evaluation covers the period for Fiscal Year 2024 (FY24), October 1, 2023 through September 30, 2024.

2.0 RMA BACKGROUND

The United States Department of the Army (Army) established RMA in 1942 to produce chemical warfare agents and incendiary munitions used in World War II. Following the war and through the early 1980s, the Army continued to use these facilities. Beginning in 1946, some RMA facilities were leased to private companies to manufacture industrial and agricultural chemicals. Shell Oil Company, the principal lessee, primarily manufactured pesticides at RMA from 1952 to 1982. Common industrial and waste disposal practices during those years resulted in significant levels of contamination. The principal contaminants include organochlorine pesticides, heavy metals, agent-degradation products and manufacturing by-products, and chlorinated and aromatic solvents.

The RMA was divided into the On-Post Operable Unit (OU) and Off-Post OU. On-Post sites that posed potential immediate risks to human health and the environment were addressed through Interim Response Actions. A Remedial Investigation/Feasibility Study (RI/FS) was conducted for the On-Post OU leading to the actions required by the On-Post Record of Decision (ROD) (FWENC 1996), as amended (TtEC 2005).

Contaminated groundwater migrated north and northwest of RMA prior to construction of the groundwater pump and treat systems. This necessitated the creation of the Off-Post OU followed by preparation of an RI/FS and the Off-Post ROD (HLA 1995).

Current and future land use for the On-Post OU is restricted by provisions in the Federal Facility Agreement (FFA) (EPA 1989) and the On-Post ROD. Surrounded by development, the On-Post OU provides a refuge for an abundant diversity of flora and fauna. For this reason, the site was designated as a future National Wildlife Refuge (NWR) in the Rocky Mountain Arsenal National Wildlife Refuge Act (Refuge Act) of 1992 (Public Law 1992). The FFA and the On-Post ROD

restrict future land use and prohibit certain activities such as agriculture, use of on-post groundwater as a drinking source, and consumption of fish and game taken at RMA.

As components of the On-Post OU remedy were completed, jurisdiction was administratively transferred to the United States Fish and Wildlife Service (FWS) or other parties after the United States Environmental Protection Agency (EPA) certified that all required response actions had been completed and the areas were deleted from the National Priorities List (NPL). These transfers are depicted on Figure 2.0-1. The Rocky Mountain Arsenal National Wildlife Refuge (Refuge) was officially established on April 21, 2004. To date, approximately 94 percent of RMA has been deleted from the NPL, and most of that property has been transferred to the FWS. The remaining property is retained by the Army for operations and maintenance (O&M) of landfill caps, including the Hazardous Waste Landfill (HWL) and Enhanced Hazardous Waste Landfill (ELF), the Integrated Cover System (ICS) soil covers, the Basin F soil cover, and groundwater treatment systems. The property transferred to the FWS remains subject to land use controls as described in Section 4. Groundwater has also been deleted in the eastern and southern perimeter areas of the RMA. However, groundwater underlying the central and northwestern portions of the site has not met remediation goals and remains on the NPL.

Other parties that received property transfers include Commerce City, South Adams County Water and Sanitation District (SACWSD) and units of local government. Commerce City purchased acreage at the southwest corner and west side of RMA now known as the “Prairie Gateway.” SACWSD received the property upon which the Klein Water Treatment Facility (Klein Property) is located. The Colorado Department of Transportation, Commerce City, and the City and County of Denver received 100-foot-wide strips of property for public road construction, hereinafter referred to as “100-Foot Highway Setbacks.” The Colorado Department of Transportation received a setback to the northwest boundary along Colorado Highway 2, Commerce City received a setback to the north boundary of RMA along 96th Avenue, and the City and County of Denver received a setback to the south boundary of RMA along 56th Avenue. In 2007, the FWS acquired approximately 148 acres of the Prairie Gateway for incorporation into the refuge. In return, approximately 28 acres of land in Section 33 and approximately 14 acres in the northeast corner of Section 20 were deeded to Commerce City.

The portions of the On-Post OU transferred to other parties (Commerce City, City and County of Denver, SACWSD, and Colorado Department of Transportation) are subject to land use restrictions prohibiting residential or industrial use, use of water as a source of potable water, hunting and fishing for consumptive use, and agricultural use. These restrictions have been incorporated into the deeds for the transferred property and visual inspection of transferred property is performed annually for adherence to these restrictions. In addition, the LUCP includes a commitment to review the Commerce City Planned Unit Development (PUD) for the Prairie Gateway. The PUD zoning process assigns uses by right, conditional uses, temporary uses, and excluded uses to each parcel within the unit.

For the Off-Post OU, remediation of surface media is complete, and the surface media has been deleted from the NPL. However, groundwater in the Off-Post OU has not met remediation goals and remains on the NPL. Current and future land use of the Off-Post OU surface area has not been restricted, although groundwater use has been restricted in the Off-Post ROD (HLA 1995).

3.0 CHANGES TO LAND USE CONTROLS

The LUCP was completed in FY14 (Navarro 2013). The final LUCP identifies all land use control requirements in accordance with the RODs for both the On-Post and Off-Post OUs and provides the requirements for land use control maintenance, monitoring, and reporting. There was one change to the LUCP in FY24. With the dissolution of the Tri-County Health Department (TCHD), the Adams County Health Department (ACHD) assumed a support and oversight role for RMA. The LUCP was revised to change TCHD references to ACHD. OCN-LUCP-2023-002 was issued in November 2023 to document this revision.

4.0 ON-POST OPERABLE UNIT LAND USE CONTROLS

For the remainder of this report, the combination of RMA NWR property and property retained by the Army is referred to as the “RMA.”

Because the land use controls for the On-Post and Off-Post OUs differ, they are discussed separately. The discussion of On-Post OU controls is divided into primary controls and other controls.

The primary land use controls applicable to the On-Post OU originate in one or more of the following three sources:

- *Rocky Mountain Arsenal Federal Facility Agreement* (EPA 1989)
- *Rocky Mountain Arsenal National Wildlife Refuge Act of 1992* (Public Law 1992) [as modified by the *National Defense Authorization Act for Fiscal Year 2017* (Public Law 2016)]
- *Record of Decision for the On-Post Operable Unit* (FWENC 1996), as amended (TtEC 2005)

In addition, the LUCP includes several other land use controls not identified in the above documents. The control, source, and the applicability of the primary on-post land use controls and other on-post land use controls are presented below in Table 4-1 and Table 4-2, respectively. Land use controls for the Off-Post OU, discussed in Section 5.0, are identified in the *Record of Decision for the Off Post Operable Unit* (HLA 1995).

Table 4-1
Source and Applicability of the Primary On-Post OU Land Use Controls

Control	Source	Applicability
Prohibit residential development	FFA, On-Post ROD ¹	On-Post OU
Prohibit use of property for residential purposes	Refuge Act	Prairie Gateway and 100-Foot Highway Setbacks
Prohibit use of groundwater or surface water as a source of potable water	FFA, Refuge Act ² , On-Post ROD	On-Post OU
Perform risk evaluation prior to non-potable use of groundwater	On-Post ROD	RMA ³
Prohibit consumption of fish and game taken at RMA	FFA, On-Post ROD	On-Post OU
Prohibit hunting and fishing, except for non-consumptive use	Refuge Act	Prairie Gateway and 100-Foot Highway Setbacks
Prohibit non-remedy agricultural activities such as raising of livestock, crops or vegetables	FFA, Refuge Act ² , On-Post ROD	On-Post OU
Preserve and manage wildlife habitats to protect endangered species, migratory birds, and bald eagles	FFA	RMA ³
Prohibit major non-remedy alteration of the geophysical characteristics of the RMA if such alteration may likely have an adverse impact on the natural drainage of the Arsenal for floodplain management, recharge of groundwater, operation and maintenance of Response Action Structures, or protection of wildlife habitat(s).	FFA	RMA ³
Prohibit use of property for industrial purposes	Refuge Act	Prairie Gateway and 100-Foot Highway Setbacks
Provide access related to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions (including groundwater remedy structures and monitoring wells)	FFA, Refuge Act ²	On-Post OU

¹In addition, the National Wildlife Refuge System Administration Act of 1966 (Public Law 1966) precludes residential development on refuge lands.

²The Refuge Act applies only to the Prairie Gateway and 100-Foot Highway Setbacks.

³RMA consists of Army-retained property and the RMA NWR.

Table 4-2
Source and Applicability of Other On-Post OU Land Use Controls

Control	Source	Applicability
Prevent excavation of the Buried Lake Sediments Site (Southern Study Area [SSA] Site SSA-3b)	LUCP	Site SSA-3b
Protection of groundwater remedial action structures	LUCP	RMA
Lake level maintenance to support aquatic ecosystems	On-Post ROD	Lower Derby Lake, Lake Ladora and Lake Mary
Restriction for overnight occupational use	LUCP	RMA
Prohibition on construction and/or use of basements at RMA	LUCP, 1993 Army and FWS Letters (Spinks 1993, Walker 1993)	RMA
Access controls	LUCP, Army Plan PM-A-101 (Army 2016)	RMA
Activities management	LUCP, SOP ES&H.210 (Army 2017)	RMA
Access restrictions to ensure integrity of covers; prohibit activities that might damage or impair proper function of covers, including but not limited to, excavation, drilling, tilling, grading or construction	On-Post ROD, LUCP	RMA caps and covers (HWL, ELF, Basin F, and ICS)

4.1 RMA Land Use Controls

The primary land use controls applicable to the RMA (Army-retained property and the RMA NWR) are presented above in Table 4-1. These controls are applicable to property transferred from the Army to the FWS for refuge use and to the properties retained by the Army for O&M of caps and covers (HWL, ELF, Basin F and ICS) and groundwater treatment systems.

Implementation of the land use controls is described in the LUCP. The primary land use controls are implemented by the Army and FWS through enforcement of the restrictions identified in the ROD, FFA, and Refuge Act.

Other land use controls incorporated into the LUCP are presented in Table 4-2 above. Table 4-3 presents how the other controls are implemented.

Table 4-3
Implementation of Other RMA Land Use Controls

Control	Implementation
Prevent excavation of site SSA-3b	Site SSA-3b is located in Section 12 and contains buried contaminated sediment that was dredged from Upper and Lower Derby Lakes. Contaminated sediments remain at depths greater than three feet. Unplanned excavation of the site will be prevented using the intrusive activity process, markers delineating the restriction area, and worker training as required by the LUCP.
Protection of groundwater remedial action structures	Inspection requirements and the process to be used when damaged system components are identified are presented in the <i>Long-Term Monitoring Plan for Groundwater and Surface Water</i> (LTMP) (Navarro 2021b). Damaged system components and corrective actions performed will be documented in the Annual Summary Reports for Groundwater and Surface Water.
Lake level maintenance to support aquatic ecosystems	The On-Post ROD requires that water levels in Lower Derby Lake, Lake Ladora and Lake Mary be maintained to support aquatic ecosystems (FWENC 1996).
Prohibition on use of basements at RMA	Prior to building or using basements at RMA, the Army or FWS must prepare a feasibility study that addresses the impacts of the use of basements on human health and the environment and documents that the impacts from such use are minimal (Spinks 1993, Walker 1993).
Access Controls	At RMA, access controls described in the LUCP and Army Plan PM-A-101 are used to support the primary land use controls discussed above. These federally enforceable controls limit RMA access to those with legitimate purposes. In addition, access control to the RMA NWR is maintained by the FWS and is controlled by regulations governing the National Wildlife Refuge System (50 CFR Parts 25-29). One of the most significant aspects of these regulations is the fact that “No person shall trespass, including but not limited to entering, occupying, using, or being upon, any national wildlife refuge, except as specifically authorized in this Subchapter C or in other applicable Federal regulations” (50 CFR §25.21(a)). Access to areas of the RMA NWR that are not opened to the public is controlled using signs, regulations, and periodic monitoring by FWS Law Enforcement. The multiple layers of engineering controls include a perimeter fence, gate security, restrictions on visitor access, and remedy-specific systems. Site worker training is required before entry into closed areas of RMA.
Activities Management	Activity management at RMA includes site-specific and project-specific training to provide information relevant to site restrictions and hazards. Intrusive soil activity permits and utility locates are required before performing intrusive activities on site (Army 2017). In addition, signs are maintained as required by existing regulations, plans and procedures to provide visitors and workers with safety information and to advise them of entry into long-term remediation O&M areas.

Table 4-3 (continued)
Implementation of Other RMA Land Use Controls

Control	Implementation
Access restrictions to ensure integrity of covers; prohibit activities that might damage or impair proper function of covers, including but not limited to, excavation, drilling, tilling, grading or construction.	Access restrictions are maintained through engineering controls, which are monitored pursuant to the <i>RCRA [Resource Conservation and Recovery Act]-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan</i> (Navarro 2021a), <i>Hazardous Waste Landfill Post-Closure Plan</i> (Navarro 2019), <i>Enhanced Hazardous Waste Landfill Post-Closure Plan</i> (Navarro 2020a) and <i>Basin F Post-Closure Plan</i> (Navarro 2023). Prohibited activities require notification and a Non-Routine Action Plan or Corrective Measures Plan prior to performing these activities.
Provide access related to CERCLA response actions	The Refuge Act provides for Army access to Refuge property for any CERCLA response actions after transfer of jurisdiction.

4.2 Transferred Property

The primary land use controls applicable to transferred property are shown above in Table 4-1. These primary land use controls were included as deed restrictions when the property was transferred from the Army to other parties and no inspection requirements were identified. In 2020, the LUCP was revised to require visual inspections of transferred property to monitor for activities that could conflict with the land use restrictions. Monitoring activities for transferred property are discussed in Section 7.2. In addition, the LUCP includes a commitment to review the Commerce City PUD for the Prairie Gateway. The PUD zoning process assigns uses by right, conditional uses, temporary uses, and excluded uses to each parcel within the unit. For the Prairie Gateway, the PUD was originally approved by the Commerce City Council on June 6, 2005 and Amendment #1 was subsequently approved on April 7, 2008. The PUD excludes residential, agriculture and industrial uses throughout the PUD. The PUD also describes other excluded uses, most notably childcare centers.

5.0 OFF-POST OPERABLE UNIT LAND USE CONTROLS

Land use controls, in the form of institutional controls, were established as part of the selected remedy for the Off-Post OU (HLA 1995). The Off-Post ROD identifies the objective of the institutional controls as “prevent the future use of groundwater exceeding remediation goals.” The required institutional controls include a well permit notification program, Shell Property deed restrictions, and exposure control with provisions for alternate water supply as described below. The LUCP provides greater detail on land use controls for the Off-Post OU.

5.1 Off-Post Well Notification Program

The On-Post and Off-Post RODs require the Army to provide the Colorado Office of the State Engineer (SEO) a map where monitoring identifies off-post groundwater that exceeds Containment System Remediation Goals (CSRGs). The Off-Post ROD also states that the SEO will then include a distinctive notice on each well permit application, related correspondence and any resulting well permit and drilling permit, where the off-post groundwater could potentially exceed CSRGs. Discussion with the SEO resulted in agreement for the SEO to provide the

required notification only on each approved well permit. This program is known as the Off-Post Well Notification Program.

In 2011, the Off-Post Well Notification Program was modified to include both the potential CSRG exceedance area and the historic area of contamination (PMRMA 2011). The historic off-post area of contamination is defined as the area of diisopropylmethyl phosphonate (DIMP) contamination based on the 0.392 ug/L detection limit identified in the Off-Post ROD. The two notification areas are shown on Figure 2.0-1. These notification areas will be used until off-post groundwater is deleted from the NPL, unless there is an agreement with the regulatory agencies to change the notification areas.

In 2021, the Off-Post Well Notification Program was expanded to include the newly identified dieldrin plume area downgradient of the Northwest Boundary Containment System. Approval of this revision is documented in OCN-LUCP-2021-001.

5.2 Shell Property Deed Restrictions

The Off-Post ROD requires a deed restriction that prohibits drilling new alluvial wells and use of deeper groundwater underlying the Shell Property, located adjacent to the northern boundary of RMA, for potable purposes until such groundwater no longer contains contamination in exceedance of groundwater treatment system CSRGs established in the ROD (HLA 1995). The deed restriction is defined in the *Declaration of Covenants among Shell, the United States, and the State of Colorado* dated February 2, 1996 (Shell 1996). The covenants were recorded by the Adams County Clerk and Recorder on June 11, 1996. These covenants “run with, and burden the land ... and are enforceable by the United States, through the Army and EPA [U. S. Environmental Protection Agency], and by the State.”

In September 2009, EPA completed a Ready for Reuse Determination for most of the Shell Property documenting that the property is ready for use for any purpose allowed under local land use and zoning laws (EPA 2009). The property remains subject to the restrictions specified in the Off-Post ROD. In September 2010, all the off-post surface media, including the Shell Property, was deleted from the NPL.

In addition, as part of the State of Colorado Natural Resource Damages Settlement, 100 acres of Shell Property were deeded to Commerce City for open space and for use as a stormwater retention area. A conservation easement has been placed on the property as part of the agreement, and the easement is held by Adams County. The conservation easement preserves the property's conservation values in perpetuity and opens the area for limited recreational use.

5.3 Exposure Control and Alternate Water Supply

The Off-Post ROD included exposure control and provision of alternate water supply for domestic well owners in the Off-Post OU. As part of these provisions, the ROD requires:

- Any user of a domestic well within the Off-Post OU that contains groundwater contaminants derived from RMA at concentrations that exceed the remediation goals or

Applicable or Relevant and Appropriate Requirements (ARARs) will be provided with an alternate water supply. Bottled water will be provided for cooking and drinking until a permanent alternate water supply is provided. Permanent alternate water supplies could include installation of a deep uncontaminated well or connection to a municipal potable water-supply system. This commitment applies to both users of existing domestic wells and users of wells that are lawfully drilled in the future.

As part of a Memorandum of Agreement (MOA) between the Army and Adams County Health Department, ACHD implements an off-post, private well groundwater monitoring program. The MOA defines responsibilities for ACHD to support the objectives of the RMA remediation program and includes private well sampling. Each year, ACHD coordinates with the Army, Shell, EPA, and Colorado Department of Public Health and Environment (CDPHE) to develop a list of private wells to sample to continue monitoring contamination in the off-post OU. Results from the private well sampling program are reviewed each year to evaluate whether there are groundwater contaminants derived from RMA at concentrations that exceed the Colorado Basic Standards for Groundwater (CBSGs). Sampling results are documented in an annual ACHD report or memorandum, which is included as an Appendix to the RMA Annual Summary Report for Groundwater and Surface Water.

6.0 RMA ENGINEERING CONTROLS

Engineering controls are used at RMA to enhance or complement both certain specific remedies and the overall selected remedy.

6.1 Sanitary Sewers

As part of the remedy for sanitary sewers at RMA, the On-Post ROD required concrete plugging of the void space within abandoned sanitary sewer manholes and placement of aboveground warning signs every 1,000 feet along remaining abandoned sanitary sewer lines to indicate their location underground. The warning sign requirement was achieved by including an engraved brass plate on each plugged manhole and at additional locations where manholes were more than 1,000 feet apart (RVO 1998; TtEC 2008, 2011b, 2013; Navarro 2017, 2020b). Monitoring of the markers is required once every five years. In addition, the Army or FWS will conduct utility locates to identify abandoned sewer locations prior to intrusive activities and will notify the regulatory agencies 14 days in advance of any excavation of the abandoned sanitary sewer line.

6.2 Groundwater Remedy Structures

As noted in the LUCP, protection of the groundwater remedial action structures including the treatment facilities, extraction/recharge systems, slurry walls, monitoring wells, and related infrastructure (e.g., electrical systems, instrumentation, access vaults) is part of the O&M of those systems. Inspection requirements and the process to be used when damaged system components are identified are presented in the *Long-Term Monitoring Plan for Groundwater and Surface Water* (Navarro 2021b). Damaged system components and corrective actions performed are documented in the Quarterly Treatment Plant Effluent Reports or Annual Summary Reports

for Groundwater and Surface Water. For this reason, groundwater remedy structures' engineering controls/O&M activities are not evaluated separately as part of this effort.

During development of the LUCP, a concern was identified related to potential public access to groundwater monitoring wells in the RMA NWR public use area. To minimize the potential for exposure to groundwater or damage to these wells, the Army identified wells within close proximity to hiking trails and placed locks on them. Inspection of these well locks is included in the land use control reporting (Section 7.4.1) and a listing of the wells is provided with the inspection record included in Attachment 1.

6.3 Caps and Covers

One purpose of the caps and covers at RMA is to prevent exposure to the contained wastes. In addition, the On-Post ROD requires access restrictions as part of long-term O&M. For caps and covers, engineering controls that include fences, signs and obelisks with plaques were installed during cap and cover construction and are monitored pursuant to the O&M plans. The O&M plans for the caps and covers areas include:

- *RCRA-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan (LTCP)* (Navarro 2021a) (for the ICS)
- *Basin F Post-Closure Plan* (Navarro 2023)
- *Hazardous Waste Landfill Post-Closure Plan* (Navarro 2019)
- *Enhanced Hazardous Waste Landfill Post-Closure Plan* (Navarro 2020a).

Caps and covers have been monitored and evaluated in accordance with the requirements provided in these plans. The monitoring results, as well as any corrective actions are reported and tracked in annual reports for the HWL and ELF RCRA caps (Navarro 2024d), ICS cover (Navarro 2024b), and Basin F cover (Navarro 2024a). No additional monitoring was performed under this effort.

7.0 MONITORING AND EVALUATION

Monitoring and evaluation of land use controls was conducted to ensure that land use control objectives are being met and that protectiveness is adequately maintained. The monitoring approach utilized was either site inspection, documentation review, or inquiries of responsible officials, depending on the type of land use or engineering control involved.

7.1 Status of Corrective Actions from 2023 Monitoring Report

There was one corrective action indicated as a result of the monitoring and evaluation performed in FY23. The issue, corrective action, and status are presented in Table 7-1.

Table 7-1
Status of Previous Corrective Actions and Follow-Up Actions

2023 Issue	Corrective Action	Status/Comments
Amendment #1 to the Prairie Gateway PUD includes, as a “use-by-right,” public gardening for Parcels 3 and 4 of Parcel D located in Section 33 (surrounding the Adams City High School). This issue was first identified in 2009. A letter requesting clarification of the issue was submitted to the Deputy City Manager in September 2010, and a follow-up letter was transmitted in March 2016. (Note: this issue was first identified in 2009 and is carried forward each year for follow up.)	Follow up and continued coordination with the Commerce City Planning Department to ensure that the next revision to the Prairie Gateway PUD resolves the issue of the public gardening use-by-right included in Amendment #1 to the PUD.	OPEN - The Army continues to coordinate with the Commerce City Planning Department to clarify use language on the next amendment to the PUD. Continued follow up is necessary to ensure that the next revision to the PUD will resolve this issue.

7.2 On-Post Operable Unit Land Use Control Monitoring

The following sections discuss monitoring results for RMA and the Prairie Gateway.

7.2.1 RMA

The land use controls applicable to the RMA were monitored using inquiries of Army and FWS personnel and site inspections. The Army continues to manage all Army-retained property including the landfills (HWL and ELF), ICS, Basin F cover, and groundwater treatment systems. The Refuge is managed by the FWS pursuant to the Refuge Act, the *National Wildlife Refuge System Administration Act of 1966* (Public Law 1966) and its implementing regulations. In addition, the FWS completed a Comprehensive Conservation Plan in 2016, which provides the management plan for the RMA National Wildlife Refuge (FWS 2016).

No changes have occurred that might compromise the integrity and efficacy of remedy systems or allow otherwise prohibited activities to occur. A summary of the evaluation of RMA Land Use Controls for FY24 is presented below in Table 7-2. Unless otherwise noted, the evaluation is based on inquiries made to Army and FWS managers. Copies of checklists for inquiries and site inspections are provided in Attachment 1.

Table 7-2
Evaluation of RMA Land Use Controls for FY24

Control	Evaluation
Prohibit residential development	No residential development has occurred.
Prohibit use of groundwater or surface water as a source of potable water	Groundwater and surface water have not been used as potable water.
Prohibit agricultural activities	No agricultural activities have occurred.
Prohibit consumption of fish and game taken on the RMA	<p>Taking of fish and game at RMA is prohibited and there is no evidence that consumption has occurred.</p> <p>In October 2021, FWS transferred 42 bison to the Wolakota Buffalo Range in Mission, South Dakota. The range manager provided confirmation that human consumption is currently prohibited and has not occurred.</p>
Preserve and manage wildlife habitats	FWS continues to manage wildlife habitat on RMA; however, overgrazing by bison is having a negative impact on habitat. FWS has completed tissue studies and a risk assessment to evaluate a possible change to the land use restriction on consumption of game. Removal of this restriction would provide additional bison transfer flexibility to help mitigate habitat impacts. Results are pending EPA and Army review. FWS will continue to utilize all available tools to manage the bison population to minimize detrimental impacts to habitat.
Prohibit major non-remedy alteration of RMA geophysical characteristics	There were no major non-remedy alterations of RMA geophysical characteristic in FY24.
Prohibit use of basements on RMA	<p>There are two basements on site with occasional use for facility operations and maintenance, one at Building 112, Communications, and one at Building 371, Lake Ladora Pump House. Evaluation of groundwater in the vicinity of these buildings indicates there are no volatile organic compounds present in these areas at levels that could pose a threat to indoor air (TtEC 2011a). Therefore, continued use of these basements is acceptable.</p> <p>Based upon inquiries of Army and FWS personnel, no other basements are in use at RMA, and none were constructed in FY24.</p>
Perform risk evaluation prior to new non-potable use of groundwater	There were no new non-potable uses of groundwater developed during FY24.
Verify presence of aboveground markers indicating the location of abandoned sanitary sewers	Inspection of the sanitary sewer markers is required once every five years. The last inspection was conducted in FY19, and a complete inspection was completed for FY24. One manhole, #67D, was buried during grading activities along a newly installed water supply line. The area was regraded in November 2024 to expose the manhole marker. See Section 7.4.3 for detail.

Table 7-2 (continued)
Evaluation of RMA Land Use Controls for FY24

Control	Evaluation
Maintain lake levels to support aquatic ecosystems	Based upon inquiries of FWS personnel, the water levels in Lake Ladora and Lake Mary continue to support an aquatic ecosystem in accordance with the On-Post ROD.
Prevent excavation of site SSA-3b	Site SSA-3b was inspected for presence of markers and evidence of disturbance. All markers described in the LUCP were present and no evidence of disturbance in the area was observed.
Restrict access to ensure integrity of caps/covers; prohibit activities that might damage or impair the proper function of the covers	Engineering controls were maintained on the caps and covers to provide access restrictions. There were no activities or trespass incidents that resulted in damage to the caps/covers. Monitoring was completed as required under the relevant plans and the results were provided in annual monitoring reports (Navarro 2024a, 2024b, 2024d).
Protect groundwater remedial action structures	Monitoring of the treatment systems is conducted during normal O&M activities. Repairs are made as needed and reported in the Quarterly Effluent Reports and Annual Summary Reports. Well locks in the public use areas were inspected and all were intact. There were no trespass incidents associated with the treatment plants in FY24.
Maintain access controls to prevent exposure and maintain remedy integrity	There were no trespass incidents that threatened the integrity or effectiveness of the remedy or created any potential for exposure. Overall, project-specific access controls continue to provide adequate control to limit access to remediation areas to authorized personnel only.
Provide activities management	Intrusive activities require completion of an Intrusive Activity Permit prior to excavation. Project-specific training continues to provide coordination for activity management. In addition, signs were maintained to provide visitors and workers with safety information and to advise them of entry into long-term remediation facilities or waste containment areas.
Provide access related to CERCLA response actions	Based upon inquiries of Army and FWS personnel, there are no access issues associated with the performance of required response actions.

7.2.2 Prairie Gateway

The land use controls noted in Section 4.2 are applicable to the property transferred from the Army or FWS to Commerce City or other state or local government agencies. For the Prairie Gateway, appropriate deed restrictions incorporating the FFA and ROD LUCs were included when the property was transferred to Commerce City. In addition, Commerce City implemented a PUD for the Prairie Gateway, which assigns uses by right, conditional uses, temporary uses, and excluded uses to each parcel within the unit (Commerce City 2005). The PUD excludes residential, agricultural and industrial uses throughout the PUD. However, the Prairie Gateway PUD and Amendment #1 to the PUD include potential uses that appear inconsistent with the residential restriction. These uses include bed & breakfasts, hotels, motels, public confinement

facilities, halfway houses, correctional institutions, and group homes. Although Commerce City received a determination from CDPHE that development of hotels does not constitute residential use for purposes of the land use restrictions on the property (CDPHE 2013), the remaining uses identified in the PUD were not addressed. In addition, Amendment #1 includes, as a use-by-right, “(p)ublic gardening and similar cultivation of land, nursery, and supplementary to the primary public use” for some parcels (Commerce City 2008).

In December 2016, Congress passed the *National Defense Authorization Act for Fiscal Year 2017* (Public Law 2016), which modified the Refuge Act to include provisions for Commerce City to modify or remove the restriction that prohibits the use of the property for residential or industrial use, provided a determination is made that the property will be protective of human health and the environment for the proposed use with an adequate margin of safety following the modification or removal of the restriction. The determination can be made after completion of a risk assessment and any response actions necessary to protect human health and the environment to allow for the proposed use.

The Army continues to meet regularly with the Commerce City Planning Department to maintain open communications regarding land use control issues, and potential changes to the PUD are discussed at these meetings. Planning Department personnel have consistently confirmed their awareness of the residential and agricultural use exclusions for the Prairie Gateway, have confirmed that these uses would not be approved while the restrictions were in force, and stated that this issue will be corrected at the next revision to the Prairie Gateway PUD. The Army will continue to coordinate with the Planning Department to clarify the use language in the next amendment to the PUD.

Evaluation of the Prairie Gateway PUD land use controls are presented below in Table 7-3.

Table 7-3
Evaluation of Prairie Gateway PUD

Control	Evaluation
Prohibit use of property for residential purposes or prohibit residential development	<p>Deed restrictions are in place to preclude residential development, and the PUD prohibition on residential use is being enforced (Commerce City 2005, as amended). However, the Prairie Gateway PUD and Amendment #1 to the PUD include potential uses that may conflict with the residential use restriction.</p> <p>The Army continues to meet regularly with the Commerce City Planning Department to maintain open communications regarding land use control issues and potential PUD revisions. Since residential uses identified in the PUD would be preceded by a risk assessment approved by EPA, there is no corrective action necessary for this issue.</p> <p>Inspection of the property did not identify any residential uses.</p>
Prohibit use of property for industrial purposes	<p>Deed restrictions are in place, and the Prairie Gateway PUD prohibition on industrial use is being enforced (Commerce City 2005, 2008). Inspection of the property did not identify any industrial uses.</p>

Table 7-3
Evaluation of Prairie Gateway PUD (continued)

Control	Evaluation
Prohibit agricultural activities	Deed restrictions are in place; however, the Prairie Gateway PUD includes a use-by-right for public gardening. Follow up is identified as a corrective action in Section 9.0 to ensure that the next revision to the Prairie Gateway PUD incorporates changes to preserve this restriction by removing the use-by-right for public gardening. Inspection of the property did not identify any agricultural uses.
Prohibit use of groundwater or surface water as a source of potable water	There is no use of groundwater or surface water as a source of potable water at Prairie Gateway PUD. All rights to groundwater beneath the Prairie Gateway PUD were transferred and are now owned and controlled by SACWSD, except the FWS-owned well in Section 4. This well is used exclusively for nonpotable refuge purposes on RMA. Risk assessments performed in 1998 and 2018 indicate that no significant risks to human health are expected from use of groundwater from the well (FWENC 1998, Navarro 2018). Because permanent surface water features are absent on the Prairie Gateway, consumption is not a concern.

7.3 Off-Post Operable Unit Land Use Controls

7.3.1 State Engineer's Office Well Permit Notification

The ACHD conducts quarterly reviews of the Colorado Division of Water Resources well permits under the existing MOA and in accordance with the process outlined in the 2005 Five-Year Review Report (Army 2007) and provides the completed permits to the Army. The ACHD review did not identify any well permits issued during FY24 within the CSRG notification areas.

The most recent CSRG exceedance map was completed in November 2023 based on monitoring completed in FY22. Another round of monitoring was conducted for the off-post CSRG exceedance network in FY24. An updated CSRG exceedance map will be completed in FY25.

7.3.2 Shell Property Deed Restrictions

The deed restriction prohibiting drilling new alluvial wells and use of deeper groundwater underlying the Shell Property for potable purposes was recorded in June 1996 and remains in place. As of the close of FY24, no alluvial wells have been constructed and use of the deeper groundwater has not occurred.

7.3.3 Exposure Control and Alternate Water Supply

Results from the private well sampling program, implemented by ACHD, are reviewed each year to evaluate whether there is groundwater contamination derived from RMA in domestic wells at concentrations that exceed the CBSGs. During FY24, 14 private wells were sampled.

In FY24, DIMP concentrations were less than the method reporting limit or below the CBSG in all wells sampled except well 359D. The sample collected by ACHD in July had a concentration

of 12.2 micrograms/liter ($\mu\text{g/L}$), above the CBSG of 8 $\mu\text{g/L}$. An investigation of well 359D was completed in July 2021 as part of the ongoing effort to identify a permanent solution for an alternate water supply. An evaluation report, completed in January 2022, included a recommendation for installation of a point-of-entry treatment system due to continued levels of DIMP above the CBSG (Navarro 2022b). A system design was completed in June 2022 (Navarro 2022a) and installation of the point-of-entry system as a permanent solution was included as a corrective action in the FY22 report. The Army met several times with the well owner to coordinate system installation. However, the property owner declined to allow the Army to install the system. Due to the continued exceedance of the CBSG, bottled water is provided to the residents of the property.

ACHD also sampled three private wells for organochlorine pesticides. Dieldrin was detected in one well; however, the concentration was below the Practical Quantitation Limit. Although there is not a current drinking water standard, ACHD also sampled six private wells for 1,4-dioxane. In FY24, 1,4-dioxane concentrations were below the CBSG of 0.35 $\mu\text{g/L}$ in the wells sampled.

7.4 RMA Engineering Controls

7.4.1 Groundwater Remedy Structures

As noted in Section 6.2, certain wells within the RMA NWR public use area require well locks to minimize the potential for exposure to groundwater or damage to these wells. Each well was inspected to verify that locks were in place and that there had been no disturbance of the wells. All well locks in the public use area were present. There was no evidence of tampering with any of the wells.

Other groundwater remedy structures are monitored pursuant to the LTMP and have not been evaluated separately as part of this effort. The monitoring results, as well as any corrective actions, are reported and tracked in the Annual Summary Reports. The most recent report was finalized on August 13, 2024 (*Fiscal Year 2023 Annual Summary Report for Groundwater and Surface Water* (Navarro 2024c)).

7.4.2 Caps and Covers

As noted in Section 6.3, fences, signs, and obelisks with plaques were installed during cap and cover construction and are being monitored in accordance with the applicable O&M plans. The monitoring results, as well as any corrective actions, are reported and tracked in the annual reports (Navarro 2024a, 2024b, 2024d) and are therefore not evaluated separately as part of this report. There were no issues identified that indicate damage to the cap/cover controls or potential for exposure to contained wastes.

7.4.3 Sanitary Sewers

Based on the durability of the brass markers and the infrequency of intrusive work, field inspection of the sanitary sewer markers is required on a five-year cycle. The previous complete inspection was performed in FY19; therefore, a site-wide inspection was conducted during this monitoring period. A copy of the inspection checklist is included in Attachment 1.

The land use control requirements for the abandoned sanitary sewers include a notification requirement prior to excavation or disturbance of the sewer. There were no excavations involving the abandoned sanitary sewer during FY24. The next inspection is scheduled for FY29.

8.0 NOTIFICATIONS

The LUCP and On-Post ROD Amendment (TtEC 2005) include notification obligations for violations of land use controls, changes to the LUCP, or certain activities with specific notification requirements. Notification activities during FY24 are presented below in Table 8-1. The source for each notification requirement is also noted in parentheses.

**Table 8-1
FY24 Notifications**

Notification Requirement	Notes
Violation of a land use control that results in a release of hazardous materials or actual exposure of personnel to hazardous materials (LUCP)	No land use control violation resulted in a release of hazardous material or actual exposure of personnel to hazardous materials, so no notification or reporting was required.
Changes to the LUCP (LUCP, ROD Amendment)	There was one change to the LUCP in FY24. With the dissolution of the Tri-County Health Department (TCHD), the Adams County Health Department (ACHD) assumed a support and oversight role for RMA. OCN-LUCP-2023-002 was issued to revise references from TCHD to ACHD.
Violation of land use control that compromises remedy integrity (LUCP)	No land use control violation resulted in compromise to remedy integrity. There were no trespass incidents associated with RMA treatment systems in FY24.
Activity inconsistent with land use control requirements or objectives (ROD Amendment, LUCP)	No activities inconsistent with land use control requirements or objectives were identified.
Actions that may interfere with land use controls (ROD Amendment, LUCP)	No activities were identified that would interfere with land use controls, so no notification was required.
Emergency overnight stay on site (LUCP)	There were no emergency stays during FY24, so no notification was required. The bunkhouses have been abandoned and removed from RMA.
Excavation of the Buried Lake Sediments Site SSA-3b (LUCP)	There was no excavation at site SSA-3b, so no notification was required.
Excavation of abandoned sanitary sewer line (LUCP)	There were no excavations involving the abandoned sanitary sewer during FY24, so no notification was required.
Dredging in Lower Derby Lake (LUCP)	No dredging occurred so no notification was required.
Changes to the LUCP or proposed land use changes inconsistent with land use control objectives of the selected remedy (ROD Amendment, LUCP)	There were no changes to land use inconsistent with land use control objectives of the selected remedy.

Table 8-1
FY24 Notifications (continued)

Notification Requirement	Notes
Activity that might damage or impair the proper function of the caps/covers (LUCP)	Notifications were made in accordance with the post-closure plans or Long-Term Care Plan.
Discovery of Material Potentially Presenting an Explosive Hazard (MPPEH) (SOP ES&H.217, Army 2015)	There was no discovery of MPPEH so no notification was required.

9.0 CORRECTIVE ACTIONS

There is one corrective action identified based on the monitoring and evaluation performed this year:

- Follow up and continued coordination with the Commerce City Planning Department to ensure that the next revision to the Prairie Gateway PUD resolves the issue of the public gardening use-by-right included in Amendment #1 to the PUD.

10.0 CONCLUSION

The land use controls required by the FFA, Refuge Act, On-Post ROD, Off-Post ROD, and LUCP remain effective and continue to be protective of human health and the environment.

11.0 REFERENCES

Army (U.S. Department of the Army)

- 2017 (Mar. 17) *Intrusive Soil Activity RMA SOP: ES&H.210*. Revision 5.
- 2016 (June 6) *Rocky Mountain Arsenal Access Plan PM-A-101*. Revision 5.
- 2015 (Oct. 21) *Munitions Response Plan RMA SOP: ES&H.217*. Revision 1.
- 2007 (Nov.) *Final 2005 Five-Year Review Report for Rocky Mountain Arsenal*. Revision 0.

CFR (Code of Federal Regulations - U.S. National Archives and Records Administration)

Title 50. Wildlife and Fisheries. Chapter I, Subchapter C, Parts 25-29.

CDPHE (Colorado Department of Public Health and Environment)

- 2013 (Mar. 28) Letter to James Hayes, Commerce City Deputy City Manager, regarding concurrence on hotel development of the former Western Tier Parcel of the Rocky Mountain Arsenal.

Commerce City (Commerce City, Colorado)

- 2008 (Apr. 7) *Prairie Gateway PUD Zone Document Amendment 1*.
- 2005 (June 6) *Prairie Gateway PUD Zone Document*.

EPA (U.S. Environmental Protection Agency)

- 2009 (Sept. 3) *Ready for Reuse Determination for a Portion of the Shell Property Within the Offpost Operable Unit of the Rocky Mountain Arsenal National Priorities List Site.*
- 1989 (Feb. 17) *Federal Facility Agreement for the Rocky Mountain Arsenal. Pursuant to CERCLA Section 120, Docket No. CERCLA VIII-89-13.*

FWENC (Foster Wheeler Environmental Corporation)

- 1998 (June) *Risk Assessment for Section 4 Water Supply Wells Rocky Mountain Arsenal.*
- 1996 (June) *Record of Decision for the On-Post Operable Unit, Rocky Mountain Arsenal, Commerce City, Colorado. Prepared for the Program Manager for Rocky Mountain Arsenal.*

FWS (U.S. Fish & Wildlife Service)

- 2016 (Dec.) *Comprehensive Conservation Plan*

HLA (Harding Lawson Associates)

- 1995 (Dec.) *Rocky Mountain Arsenal Off-post Operable Unit Final Record of Decision, Rocky Mountain Arsenal, Commerce City, Colorado. Prepared for the Program Manager for Rocky Mountain Arsenal.*

Navarro (Navarro Research and Engineering, Inc.)

- 2024a (Nov. 19) *2024 Basin F Cover and Groundwater Monitoring Report. Revision 0.*
- 2024b (Nov. 19) *Annual Covers Report for Integrated Cover System 2024. Revision 0.*
- 2024c (Aug. 13) *Fiscal Year 2023 Annual Summary Report for Groundwater and Surface Water. Revision 0.*
- 2024d (June 20) *2024 RCRA Landfills and Groundwater Monitoring Report. Revision 0.*
- 2023 (Apr. 10) *Basin F Post-Closure Plan. Revision 2.*
- 2022a (June 9) *Off-Post Private Well 359D Treatment System Design Report. Revision 0.*
- 2022b (Jan. 25) *Field Investigation Report for Off-Post Private Well 359D. Revision 0.*
- 2021a (Aug. 12) *RCRA-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan. Revision 3.*
- 2021b (May 27) *Long-Term Monitoring Plan for Groundwater and Surface Water. Revision 1.*
- 2020a (Apr. 2) *Enhanced Hazardous Waste Landfill Post-Closure Plan. Revision 1.*

- 2020b (Feb. 27) *Sanitary Sewer Manhole Plugging Project – Phase II Construction Completion Report. Addendum 3.* Revision 0.
- 2019 (Dec. 2) *Hazardous Waste Landfill Post-Closure Plan.* Revision 4.
- 2018 (Mar. 5) *Risk Evaluation of 1,4-Dioxane for Nonpotable Use of Groundwater from Section 4 Wells.* Revision
- 2017 (Feb. 23) *Sanitary Sewer Manhole Plugging Project – Phase II Construction Completion Report. Addendum 2.* Revision 0.
- 2013 (Oct. 10) *Land Use Control Plan.* Revision 0.

PMRMA (Program Manager Rocky Mountain Arsenal)

- 2011 (Mar. 31) *Decision Document Off-Post Groundwater Notification Area.*

Public Law

- 2016 (Dec.) *National Defense Authorization Act for Fiscal Year 2017.* Public Law 114-328. Section 2829C.
- 1992 (Oct.) *Rocky Mountain Arsenal National Wildlife Refuge Act of 1992.* Public Law 102-402.
- 1966 (Oct.) *National Wildlife Refuge System Administration Act of 1966.* Public Law 89-669.

RVO (Remediation Venture Office for Rocky Mountain Arsenal)

- 1998 (Aug. 3) *Sanitary and Chemical Sewer Plugging Project Construction Completion Report.*

Shell (Shell Oil Company)

- 1996 (Feb.) *Declaration of Covenants. Final Deed Restrictions on the Shell Property North of RMA.*

Spinks, John L. Jr. (Deputy Regional Director, U.S. Fish and Wildlife Service)

- 1993 (Feb. 3) *Letter to Jack McGraw, Acting Regional Administrator of EPA Region VIII, regarding the Construction of Buildings with Basements at RMA.*

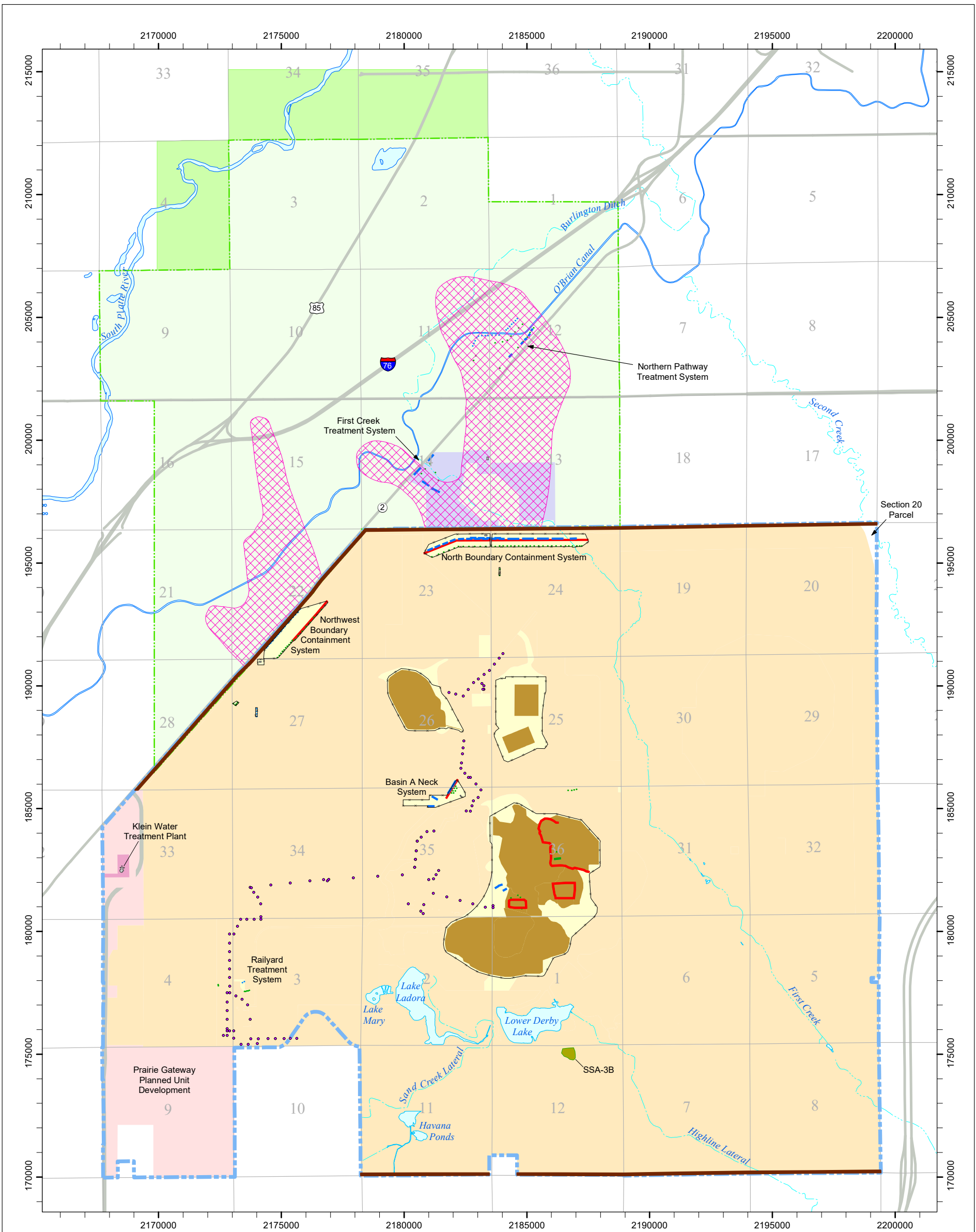
TtEC (Tetra Tech EC Inc.)

- 2013 (Mar. 25) *Sanitary Sewer Manhole Plugging Project – Phase II Construction Completion Report. Addendum 1.* Revision 0.
- 2011a (Sept. 23) *2010 Five-Year Review Report for Rocky Mountain Arsenal.* Revision 0.

- 2011b (June 3) *Miscellaneous RMA Structure Demolition and Removal Project – Phase IV and SQI Extension Sanitary Sewer Manhole Plugging Construction Completion Report. Revision 0.*
- 2008 (Dec. 10) *Sanitary Sewer Manhole Plugging Project – Phase II Final Construction Completion Report. Revision 0.*
- 2005 (Oct. 20) *Amendment to the Record of Decision for the On-Post Operable Unit, Rocky Mountain Arsenal Federal Facility Site, Section 36 Lime Basins Remediation, Basin F Principal Threat Soil Remediation.*

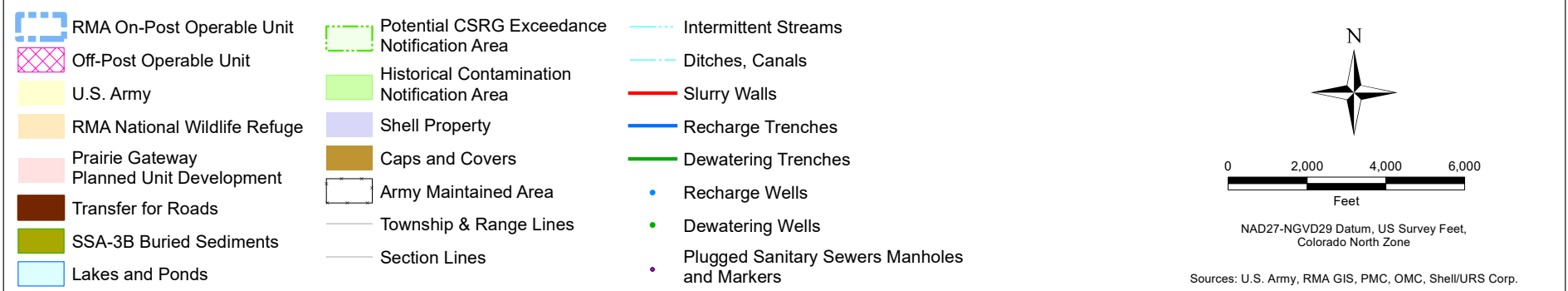
Walker, D. Lewis (Deputy Assistant Secretary of the Army, Environment, Safety and Occupational Health)

- 1993 (Feb. 3) Letter to Jack McGraw, Acting Regional Administrator of EPA Region VIII, regarding the Construction of Buildings with Basements at RMA.



Rocky Mountain Arsenal Detail

Figure 2-1



ATTACHMENT 1

Rocky Mountain Arsenal Land Use Control Annual Inspection Checklist

Evaluation Period:	Completed by:
--------------------	---------------

Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Primary Land Use Controls			
Has there been any residential development on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Were there any overnight occupational uses on site? If so, were the required notifications provided to the RAs?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any evidence of residential use on the Prairie Gateway?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any changes to the Prairie Gateway Planned Unit Development? If so, are the required land use restrictions still in place?	CCPD	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any potable use of groundwater or surface water on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any evidence of consumption of fish or wildlife taken on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any evidence of hunting or fishing on the land transferred in accordance with the Refuge Act?	Army	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any agricultural activities on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any agricultural activities on the land transferred in accordance with the Refuge Act?	Army, Site Inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has USFWS identified any issues preventing wildlife habitats from being maintained on RMA?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any major non-remedy alterations of RMA hydrogeologic characteristics?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Other Land Use Controls			
Has there been any new nonpotable use of groundwater on RMA? If so, was a risk assessment completed for such use?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Have any basements been constructed? If so, was a risk assessment completed for such use?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any excavation at site SSA-3b? If so, was the appropriate notification made to the RAs?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the markers at site SSA-3b present and readable?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any activities on the caps/covers that impact the integrity of the containment?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are abandoned sanitary sewer markers present and readable?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Was there any excavation of sanitary sewers? If so, was the appropriate notification made to the RAs?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any damage to groundwater remedy structures?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are groundwater monitoring wells in the Refuge Public Use Area locked?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any breach of access controls that resulted in exposure to hazardous materials or damage to remedy structures?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any changes to the Refuge Public Use Area that result in open access to areas with MPPEH potential?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Were there any requests for access to mineral rights on RMA? If so, was the appropriate notification made to the RAs?	Army	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Was any RMA property released from federal ownership? If so, was the CERCLA 120(h) process completed?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	

Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Were there any violations of land use controls resulting in release of hazardous materials, exposure to hazardous materials, or damage to remedy structures?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the water levels in Lower Derby Lake, Lake Ladora and Lake Mary maintained to support an aquatic ecosystem?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any dredging performed in Lower Derby Lake?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Off-Post Operable Unit			
Have any groundwater well permits been issued in the off-post notification areas? If so, do the permits include the required notifications?	Army	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Were any domestic wells within the Off-Post OU identified as containing groundwater contaminants derived from RMA at concentrations that exceed the limits specified in the ROD? If so, was an alternate water supply provided?	Data review	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	

Rocky Mountain Arsenal Land Use Control Annual Inspection Checklist

Evaluation Period:	Completed by:
--------------------	---------------

Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Primary Land Use Controls			
Has there been any residential development on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Were there any overnight occupational uses on site? If so, were the required notifications provided to the RAs?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any evidence of residential use on the Prairie Gateway?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any changes to the Prairie Gateway Planned Unit Development? If so, are the required land use restrictions still in place?	CCPD	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any potable use of groundwater or surface water on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any evidence of consumption of fish or wildlife taken on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any evidence of hunting or fishing on the land transferred in accordance with the Refuge Act?	Army	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any agricultural activities on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any agricultural activities on the land transferred in accordance with the Refuge Act?	Army, Site Inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has USFWS identified any issues preventing wildlife habitats from being maintained on RMA?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any major non-remedy alterations of RMA hydrogeologic characteristics?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Other Land Use Controls			
Has there been any new nonpotable use of groundwater on RMA? If so, was a risk assessment completed for such use?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Have any basements been constructed? If so, was a risk assessment completed for such use?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any excavation at site SSA-3b? If so, was the appropriate notification made to the RAs?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the markers at site SSA-3b present and readable?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any activities on the caps/covers that impact the integrity of the containment?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are abandoned sanitary sewer markers present and readable?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Was there any excavation of sanitary sewers? If so, was the appropriate notification made to the RAs?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any damage to groundwater remedy structures?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are groundwater monitoring wells in the Refuge Public Use Area locked?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any breach of access controls that resulted in exposure to hazardous materials or damage to remedy structures?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any changes to the Refuge Public Use Area that result in open access to areas with MPPEH potential?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Were there any requests for access to mineral rights on RMA? If so, was the appropriate notification made to the RAs?	Army	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Was any RMA property released from federal ownership? If so, was the CERCLA 120(h) process completed?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	

Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Were there any violations of land use controls resulting in release of hazardous materials, exposure to hazardous materials, or damage to remedy structures?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the water levels in Lower Derby Lake, Lake Ladora and Lake Mary maintained to support an aquatic ecosystem?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any dredging performed in Lower Derby Lake?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Off-Post Operable Unit			
Have any groundwater well permits been issued in the off-post notification areas? If so, do the permits include the required notifications?	Army	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Were any domestic wells within the Off-Post OU identified as containing groundwater contaminants derived from RMA at concentrations that exceed the limits specified in the ROD? If so, was an alternate water supply provided?	Data review	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	

Rocky Mountain Arsenal Land Use Control Annual Inspection Checklist

Evaluation Period:	Completed by:
--------------------	---------------

Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Primary Land Use Controls			
Has there been any residential development on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Were there any overnight occupational uses on site? If so, were the required notifications provided to the RAs?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any evidence of residential use on the Prairie Gateway?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any changes to the Prairie Gateway Planned Unit Development? If so, are the required land use restrictions still in place?	CCPD	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any potable use of groundwater or surface water on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any evidence of consumption of fish or wildlife taken on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any evidence of hunting or fishing on the land transferred in accordance with the Refuge Act?	Army	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any agricultural activities on RMA?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any agricultural activities on the land transferred in accordance with the Refuge Act?	Army, Site Inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has USFWS identified any issues preventing wildlife habitats from being maintained on RMA?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any major non-remedy alterations of RMA hydrogeologic characteristics?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Other Land Use Controls			
Has there been any new nonpotable use of groundwater on RMA? If so, was a risk assessment completed for such use?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Have any basements been constructed? If so, was a risk assessment completed for such use?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any excavation at site SSA-3b? If so, was the appropriate notification made to the RAs?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the markers at site SSA-3b present and readable?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any activities on the caps/covers that impact the integrity of the containment?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are abandoned sanitary sewer markers present and readable?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Was there any excavation of sanitary sewers? If so, was the appropriate notification made to the RAs?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any damage to groundwater remedy structures?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are groundwater monitoring wells in the Refuge Public Use Area locked?	Site inspection	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any breach of access controls that resulted in exposure to hazardous materials or damage to remedy structures?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have there been any changes to the Refuge Public Use Area that result in open access to areas with MPPEH potential?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Were there any requests for access to mineral rights on RMA? If so, was the appropriate notification made to the RAs?	Army	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Was any RMA property released from federal ownership? If so, was the CERCLA 120(h) process completed?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	

Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Were there any violations of land use controls resulting in release of hazardous materials, exposure to hazardous materials, or damage to remedy structures?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the water levels in Lower Derby Lake, Lake Ladora and Lake Mary maintained to support an aquatic ecosystem?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has there been any dredging performed in Lower Derby Lake?	USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Off-Post Operable Unit			
Have any groundwater well permits been issued in the off-post notification areas? If so, do the permits include the required notifications?	Army	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
Were any domestic wells within the Off-Post OU identified as containing groundwater contaminants derived from RMA at concentrations that exceed the limits specified in the ROD? If so, was an alternate water supply provided?	Data review	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	

Public Use Area Monitoring Well Inspection

Inspection Date: 9/24/24Inspected By: S. Ache

Well	Northing	Easting	Lock Present	Comment
02020	176272	2181444	✓	
02021	176272	2181444	✓	
02023	178475	2181054	✓	
02024	178466	2181072	✓	
02055	176836	2179948	✓	
02056	177032	2178970	✓	
02516	177739	2181159	✓	
02518	177109	2181200	✓	
02523	177914	2181017	✓	
02524	177267	2180931	✓	
02525	176495	2181361	✓	
02530	177033	2181041	✓	
02531	176353	2181527	✓	
02538	177923	2181117	✓	
02539	177296	2181080	✓	
02540	176728	2181372	✓	
02542	176201	2180501	✓	
02597	176806	2181478	✓	
03008	176036	2174093	✓	
PZ94-A8	177524	2179566	✓	
PZ94-B10	177415	2179555	✓	

Sanitary Sewer Manhole and Marker Inspection, September 2024

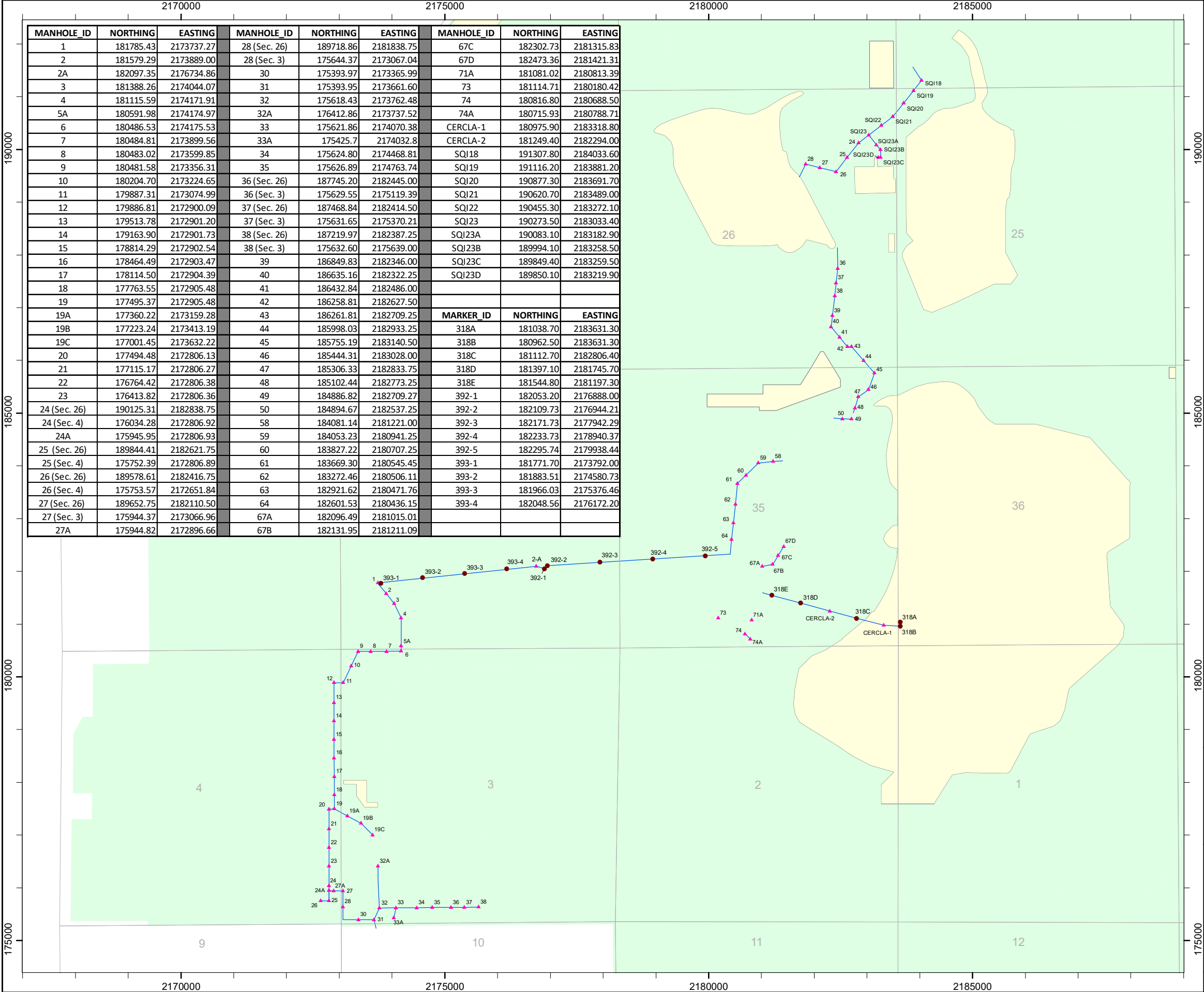
MANHOLE_ID	Section	EASTING	NORTHING	Field Locate	Notes
MH-10	3	2173224.65	180204.70	✓	
MH-11	3	2173074.99	179887.31	✓	
MH-19A	3	2173159.28	177360.22	✓	
MH-19B	3	2173413.19	177223.24	✓	
MH-19C	3	2173632.22	177001.45	✓	
MH-27-3	3	2173066.96	175944.37	✓	
MH-28-3	3	2173067.04	175644.37	✓	
MH-30-3	3	2173365.99	175393.97	✓	
MH-31-3	3	2173661.60	175393.95	✓	
MH-32-3	3	2173762.48	175618.43	✓	
MH-32A	3	2173737.52	176412.86	✓	
MH-33-3	3	2174070.38	175621.86	✓	
MH-33A	3	2173984.98	175457.52	✓	
MH-34-3	3	2174468.81	175624.80	✓	
MH-35-3	3	2174763.74	175626.89	✓	
MH-36-3	3	2175119.39	175629.55	✓	
MH-37-3	3	2175370.21	175631.65	✓	
MH-38-3	3	2175639.00	175632.60	✓	
MH-6	3	2174175.53	180486.53	✓	
MH-7	3	2173899.56	180484.81	✓	
MH-8	3	2173599.85	180483.02	✓	
MH-9	3	2173356.31	180481.58	✓	
MH-12	4	2172900.09	179886.81	✓	
MH-13	4	2172901.20	179513.78	✓	
MH-14	4	2172901.73	179163.90	✓	
MH-15	4	2172902.54	178814.29	✓	
MH-16	4	2172903.47	178464.49	✓	
MH-17	4	2172904.39	178114.50	✓	
MH-18	4	2172905.48	177763.55	✓	
MH-19	4	2172905.48	177495.37	✓	
MH-20	4	2172806.13	177494.48	✓	
MH-21	4	2172806.27	177115.17	✓	
MH-22	4	2172806.38	176764.42	✓	
MH-23	4	2172806.36	176413.82	✓	
MH-24-4	4	2172806.92	176034.28	✓	
MH-24A	4	2172806.93	175945.95	✓	
MH-25-4	4	2172806.89	175752.39	✓	
MH-26-4	4	2172651.84	175753.57	✓	
MH-27A	4	2172896.66	175944.82	✓	
SQ18	24	2184033.60	191307.80	✓	
SQ19	25	2183881.20	191116.20	✓	
SQ120	25	2183691.70	190877.30	✓	
MH-24-26	26	2182838.75	190125.31	✓	
MH-25-26	26	2182621.75	189844.41	✓	

Sanitary Sewer Manhole and Marker Inspection, September 2024

MANHOLE_ID	Section	EASTING	NORTHING	Field Locate	Notes
MH-26-26	26	2182416.75	189578.61	✓	
MH-27-26	26	2182110.50	189652.75	✓	
MH-28-26	26	2181838.75	189718.86	✓	
MH-36-26	26	2182445.00	187745.20	✓	
MH-37-26	26	2182414.50	187468.84	✓	
MH-38-26	26	2182387.25	187219.97	✓	
MH-39	26	2182346.00	186849.83	✓	
MH-40	26	2182322.25	186635.16	✓	
MH-41	26	2182486.00	186432.84	✓	
MH-42	26	2182627.50	186258.81	✓	
MH-43	26	2182709.25	186261.81	✓	
MH-44	26	2182933.25	185998.03	✓	
SQI21	26	2183489.00	190620.70	✓	
SQI22	26	2183272.10	190455.30	✓	
SQI23	26	2183033.40	190273.50	✓	
SQI23A	26	2183182.90	190083.10	✓	
SQI23B	26	2183258.50	189994.10	✓	excess dirt removed
SQI23C	26	2183259.50	189849.40	✓	
SQI23D	26	2183219.90	189850.10	✓	
MH-1	34	2173737.27	181785.43	✓	
MH-2	34	2173889.00	181579.29	✓	
MH-2A	34	2176734.86	182097.35	✓	
MH-3	34	2174044.07	181388.26	✓	
MH-392-1	34	2176888.00	182053.20	✓	
MH-392-2	34	2176944.21	182109.73	✓	
MH-392-3	34	2177942.29	182171.73	✓	
MH-393-1	34	2173792.00	181771.70	✓	
MH-393-2	34	2174580.73	181883.51	✓	
MH-393-3	34	2175376.46	181966.03	✓	
MH-393-4	34	2176172.20	182048.56	✓	
MH-4	34	2174171.91	181115.59	✓	
MH-5A	34	2174174.97	180591.98	✓	
CERCLA-1	35	2183318.80	180975.90	✓	
CERCLA-2	35	2182294.00	181249.40	✓	
MH-318A	35	2183631.30	181038.70	✓	
MH-318B	35	2183631.30	180962.50	✓	
MH-318C	35	2182806.40	181112.70	✓	excess dirt removed
MH-318D	35	2181745.70	181397.10	✓	
MH-318E	35	2181197.30	181544.80	✓	
MH-392-4	35	2178940.37	182233.73	✓	
MH-392-5	35	2179938.44	182295.74	✓	
MH-45	35	2183140.50	185755.19	✓	
MH-46	35	2183028.00	185444.31	✓	excess dirt removed
MH-47	35	2182833.75	185306.33	✓	

Sanitary Sewer Manhole and Marker Inspection, September 2024

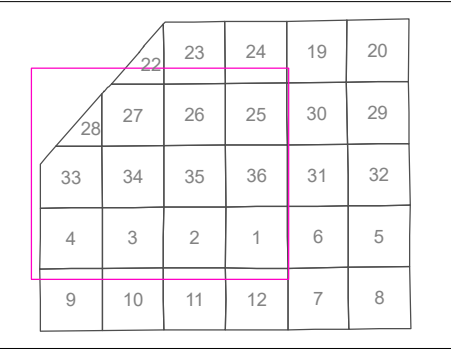
MANHOLE_ID	Section	EASTING	NORTHING	Field Locate	Notes
MH-48	35	2182773.25	185102.44	✓	
MH-49	35	2182709.27	184886.82	✓	
MH-50	35	2182537.25	184894.67	✓	
MH-58	35	2181221.00	184081.14	✓	
MH-59	35	2180941.25	184053.23	✓	
MH-60	35	2180707.25	183827.22	✓	
MH-61	35	2180545.40	183669.30	✓	
MH-62	35	2180506.10	183272.50	✓	
MH-63	35	2180471.80	182921.60	✓	
MH-64	35	2180436.20	182601.50	✓	
MH-67A	35	2181015.01	182096.49	✓	
MH-67B	35	2181211.09	182131.95	✓	
MH-67C	35	2181315.83	182302.73	✓	
MH-67D	35	2181421.31	182473.36	✓	burred 6-8 inches dirt / area regraded
MH-71A	35	2180813.50	181081.10	✓	
MH-73	35	2180180.42	181114.71	✓	
MH-74	35	2180688.50	180816.80	✓	
MH-74A	35	2180788.70	180715.90	✓	excess dirt removed



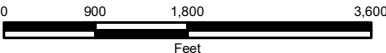
Abandoned Sanitary Sewer and Manhole Locations

Legend

- RMA (U.S. Army Retained Area)
- USFWS National Wildlife Refuge
- Section Lines
- Abandoned Sewer Pipe
- Sanitary Sewer Manholes (Plugged)
- Sanitary Sewer Location Markers



RMA Locator Map



NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, OMC, Shell/AECOM



Abandoned Sanitary Sewer and Manhole Locations September 2024

Figure A-1