

ROCKY MOUNTAIN ARSENAL

Land Use Control Monitoring Report for Fiscal Year 2022

**Revision 0
December 7, 2022**

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

Prepared by:



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ACRONYMS AND ABBREVIATIONS

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
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
NPTS	Northern Pathway Treatment System
NWR	National Wildlife Refuge
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
Refuge	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	Office of the State Engineer
SOP	Standard Operating Procedure
SSA	Southern Study Area
TCHD	Tri-County Health Department
USFWS	United States Fish and Wildlife Service
UXO	Unexploded Ordnance

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1.0 INTRODUCTION

As part of the long-term remedy at the Rocky Mountain Arsenal (RMA), land use controls, both institutional and engineering controls, 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 the monitoring and evaluation of the controls including follow up on any corrective actions from prior years. Section 8 describes 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 2022 (FY22), October 1, 2021 through September 30, 2022.

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, manufactured primarily 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 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 (USFWS) 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). 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 USFWS. 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 USFWS 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 USFWS 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 excluded uses, uses by right, conditional uses and temporary 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 were no changes to the LUCP in FY22.

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 (Navarro 2013) includes several other land use controls not identified in the ROD or FFA. The control, the source, and the applicability of the primary on-post land use controls and other on-post land use controls are presented below in Table 4.0-1 and Table 4.0-2, 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 4.0-1
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.

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

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

**Table 4.0-2
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 USFWS 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 4.0-1. These controls are applicable to property transferred from Army to the USFWS 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 USFWS 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 4.0-2 above. Table 4.1-1 presents how the other controls are implemented.

**Table 4.1-1
Implementation of Other RMA Land Use Controls**

Control	Implementation
Overnight occupational use	If USFWS anticipates activities by short-term workers they will submit a description of the activities to the RMA Committee for review and approval of overnight use (RMA Committee 2013). Emergency use of the RMA NWR bunkhouses is authorized without prior approval; however, notification to RMA Committee must be made within 72 hours of use. (Note: the bunkhouses have been removed and their use is no longer possible.)
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 of 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 USFWS 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 purpose. In addition, access control to the RMA NWR is maintained by the USFWS 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 USFWS 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.

**Table 4.1-1 (continued)
Implementation of Other RMA Land Use Controls**

Control	Implementation
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.
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 RCRA [Resource Conservation and Recovery Act]-Equivalent, 2-, and 3-Foot Covers Long-Term Care Plan (Navarro 2021a), Hazardous Waste Landfill Post-Closure Plan (Navarro 2019), Enhanced Hazardous Waste Landfill Post-Closure Plan (Navarro 2020b) and Basin F Post-Closure Plan (TtEC 2011a). 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 4.0-1. 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 excluded uses, uses by right, conditional uses and temporary 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 4.1-1 in the LUCP. These notification areas will be used until off-post groundwater is deleted from the NPL, unless there is agreement with the regulatory agencies to change the notification area.

In 2021, the Off-Post Well Notification Program was expanded to include the newly identified dieldrin plume area downgradient of the NWBCS. 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 the 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 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 Tri-County Health Department (TCHD), TCHD implements an off-post, private well groundwater monitoring program. The MOA defines responsibilities for TCHD to support the objectives of the RMA remediation program and includes private well sampling. Each year, TCHD 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 TCHD 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 select remedies and the overall 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, 2011c, 2013; Navarro 2017, 2020c). Monitoring of the markers is required once every five years. In addition, the Army or USFWS 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, the 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).

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* (TtEC 2011a)
- *Hazardous Waste Landfill Post-Closure Plan* (Navarro 2019)
- *Enhanced Hazardous Waste Landfill Post-Closure Plan* (Navarro 2020b).

Caps and covers have been monitored and evaluated in accordance with 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 2022d), ICS cover (Navarro 2022a), and Basin F cover (Navarro 2022b). 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 2021 Monitoring Report

There were three corrective actions indicated as a result of the monitoring and evaluation performed in FY21. The issues and corrective actions, along with the status of each issue, are presented in Table 7.1-1.

**Table 7.1-1
Status of Previous Corrective Actions and Follow-Up Actions**

2021 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.	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.
DIMP concentrations in private well 359D exceed the CBSG. Field investigation completed in July 2021 confirmed contamination.	Completion of the well 359D evaluation and identification of alternate water supply in accordance with the Off-post ROD.	The well 359D evaluation was completed in January 2022 with a recommendation to install a point-of-entry treatment system for the property. A system design was completed in June 2022. Installation is being coordinated with property owner and is expected to be completed in FY23.
Well 02529 was damaged and the casing was broken near ground surface.	Abandon well 02529 since it is no longer needed.	The well was closed and abandoned May 31, 2022.

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 USFWS 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 USFWS pursuant to the Refuge Act, the *National Wildlife Refuge System Administration Act of 1966* (Public Law 1966) and its implementing

regulations. In addition, the USFWS completed a Comprehensive Conservation Plan in 2016, which provides the management plan for the RMA National Wildlife Refuge (USFWS 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 FY22 is presented below in Table 7.2.1-1. Unless otherwise noted, the evaluation is based on inquiries made to Army and USFWS managers. Copies of checklists for inquiries and site inspections are provided in Attachment 1.

**Table 7.2.1-1
Evaluation of RMA Land Use Controls for FY22**

Control	Evaluation
Prohibit residential development	No residential development has occurred.
Prohibit overnight occupational use	The bunkhouses have been removed and overnight use is no longer possible. The LUCP should be updated to eliminate discussion on bunkhouse use.
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	Taking of fish and game at RMA is prohibited and there is no evidence that consumption has occurred. In October 2021, the USFWS transferred 42 bison to the Wolakota Buffalo Range in Mission, South Dakota. The range manager provided written acknowledgement that human consumption is currently prohibited.
Preserve and manage wildlife habitats	The USFWS continues to manage wildlife habitat on RMA.
Prohibit major non-remedy alteration of RMA geophysical characteristics	There were no major non-remedy alterations of RMA geophysical characteristic in FY22.
Prohibit use of basements on RMA	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 2011b). Therefore, continued use of these basements is acceptable. Based upon inquiries of Army and USFWS personnel, no other basements are in use at RMA, and none were constructed in FY22.
Perform risk evaluation prior to new non-potable use of groundwater	There were no new non-potable uses of groundwater developed during FY22.

Table 7.2.1-1 (continued)
Evaluation of RMA Land Use Controls for FY22

Control	Evaluation
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 the next complete inspection is scheduled for FY24. One manhole marker, located along 72 nd Avenue, was buried during road improvements in FY22. See Section 7.4.3 for additional detail.
Maintain lake levels to support aquatic ecosystems	Based upon inquiries of USFWS personnel, the water levels in Lake Ladora and Lake Mary continue to support an aquatic ecosystem in accordance with the On-Post ROD. Lower Derby Lake was dry in most of FY22 due to persistent drought conditions.
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 of 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 2022a, 2022b, 2022d).
Protect groundwater remedial action structures	Monitoring of treatment systems is conducted during the course of 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 three trespass incidents resulting in broken locks or windows at the Off-Post Groundwater Intercept and Treatment System (OGITS), OGITS garage and Northern Pathway Treatment System; however, there was no damage to the treatment systems. Incident reports were completed, and local law enforcement was contacted to investigate the incidents at the two treatment plants. See Section 7.4.1 for additional detail.
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 USFWS personnel, there are no access issues associated with 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 USFWS 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 excluded uses, uses by right, conditional uses and temporary 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 use language in the next amendment to the PUD.

Evaluation of the Prairie Gateway PUD land use controls are presented below in Table 7.2.2-1.

**Table 7.2.2-1
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>
Prohibit agricultural activities	<p>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.</p> <p>Inspection of the property did not identify any agricultural uses.</p>
Prohibit use of groundwater or surface water as a source of potable water	<p>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 USFWS-owned well in Section 4. This well is used exclusively for nonpotable refuge purposes on RMA. A risk assessment was completed supporting use of this well for remedial actions and refuge management (FWENC 1998). In 2018, an evaluation of risk from potential exposure to 1,4-dioxane in groundwater was completed for nonpotable use of water from the well. The results of the evaluation indicate that no significant risks to human health are expected from use of groundwater from the well (Navarro 2018).</p> <p>Because permanent surface water features are absent on the Prairie Gateway, consumption is not a concern.</p>

7.3 Off-Post Operable Unit Land Use Controls

7.3.1 State Engineer’s Office Well Permit Notification

The TCHD conducts quarterly reviews of the State Engineer’s Office 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. TCHD identified 12 well permits approved for monitoring or dewatering wells during FY22 within the CSRG exceedance area, and the required notification language was verified to be included on the issued permits.

The most recent monitoring conducted for the off-post CSRG exceedance network was completed in FY22 and a revised CSRG exceedance map will be completed following the FY22 Annual Summary Report.

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 FY22, 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 TCHD, are reviewed each year to evaluate whether there are groundwater contaminants derived from RMA in domestic wells at concentrations that exceed the CBSGs. During FY22, eight private wells were sampled.

In FY22, DIMP concentrations were less than the method reporting limit or below the CBSG in all wells sampled except well 359D. The sample collected by TCHD in September had a concentration of 15.3 micrograms/liter ($\mu\text{g/L}$), above the CBSG of 8 $\mu\text{g/L}$. Due to the continued exceedance of the CBSG, bottled water is being provided to the residents of the property. An evaluation of well 359D conditions and options for alternate water supply was completed during FY20 (Navarro 2020a); however, a permanent solution could not be recommended without additional information. An investigation of well 359D was completed in July 2021 to evaluate potential differences in groundwater quality between the two well screen intervals present in the well (Navarro 2021c). DIMP was detected above the CBSG in both intervals. An evaluation report was completed in January 2022, which included a recommendation for installation of a point-of-entry treatment system due to continued levels of DIMP above the CBSG (Navarro 2022f). A system design was completed in June 2022 (Navarro 2022e) and coordination with the property owner for system installation is ongoing. Installation of the point-of-entry system as a permanent solution is included as a corrective action in Section 9.0.

TCHD also sampled five private wells for dieldrin. Dieldrin was detected in two wells; however, concentrations were below the Practical Quantitation Limit. Although there is not a current drinking water standard, TCHD also sampled four private wells for 1,4-dioxane. In FY22, 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. One well was identified with some damage to the PVC casing due to prior

controlled burn activity and two wells were noted with missing labels. These items were corrected following the inspection and no further action is required.

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 July 20, 2022 (*Fiscal Year 2021 Annual Summary Report for Groundwater and Surface Water* (Navarro 2022c)).

There were three trespass incidents involving the groundwater treatment systems in FY22. On February 17, 2022, OMC personnel conducting an inspection of the Off-Post Groundwater Intercept and Treatment System (OGITS) noticed that the access door to the OGITS garage structure had the padlock and hasp sheared off the door frame, appearing as though someone had kicked the door in. Although the alarm system recorded the intrusion at 2:15 am, the system did not notify on-call personnel because the auto dialer was awaiting parts for repair. Review of security camera footage showed an unknown pickup truck parked at the plant at the time of the alarm. Inspection of the building indicated nothing was taken from the garage or the premises.

On August 8, 2022, OMC personnel responded to an entry door alarm at the Northern Pathway Treatment System (NPTS). Review of security camera footage showed a pickup truck with no license plates parked at the plant at the time of the alarm. An individual can be seen drilling the lock, prying open the door and subsequently entering the building. The interior camera showed the individual remained inside less than two minutes and did not remove anything or disturb the plant equipment. Local law enforcement was contacted to investigate the incident.

On September 5, 2022, OMC personnel responded to an alarm at the OGITS and noted that the entry gate was off its hinges and the entry door glass had been broken. Local law enforcement was contacted, and they cleared the building upon arrival. Subsequent inspection revealed that nothing was missing. The OGITS was not in operation at this time as treatment has been relocated to the First Creek Treatment System and NPTS. Review of security camera footage showed a pickup truck had backed through the gate on the perimeter fence and then attempted to back through the entry door. An individual then broke the glass on the entry door and entered the building, remaining inside approximately three minutes. Law enforcement was provided the license plate number, but it was found to be tied to a stolen vehicle.

Incident reports were completed for each event with review of protocols for on-site personnel responding to intrusion alarms. Copies of completed incident reports are provided in Attachment 2. No corrective actions were identified. There was no damage to the treatment systems inside the plants during these events and no exposure to contaminated groundwater occurred.

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 2022a, 2022b, 2022d) 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 most recent complete inspection was performed in FY19; therefore, no site-wide inspection was conducted during this monitoring period. The next inspection is scheduled for FY24.

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 FY22.

From April through June 2022, the USFWS installed a new culvert under 72nd Avenue near the location where the abandoned sanitary sewer crosses under the road. The sewer also runs parallel to the south side of the road within the construction zone. Disturbance of the sewer was not expected based on the planned construction activities; however, the regulatory agencies were notified of the planned work. The sanitary sewer was not disturbed during construction. However, plugged manhole #6, located south of the road, was buried during final grading around the new culvert. The manhole was uncovered to expose the sewer marker plaque, but the existing concrete plug needs to be extended to the new ground surface where a new plaque can be installed. This work will be completed in FY23.

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 FY22 are presented below in Table 8.0-1. The source for each notification requirement is also noted in parentheses.

**Table 8.0-1
FY22 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 were no changes to the LUCP in FY22, so no notification was required.
Violation of a land use control that compromises remedy integrity (LUCP)	No land use control violation resulted in compromise to remedy integrity. There were three trespass incidents associated with RMA treatment system buildings; however, there was no damage to the treatment systems requiring notification. See Section 7.4.1 for additional detail.

Notification Requirement	Notes
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 FY22, so no notification was required. The bunkhouses have been abandoned and are no longer in use.
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 FY22, so no notification was required. Construction of a new culvert on 72 nd Avenue took place near the location where the abandoned sanitary sewer crosses under the road. Although the sewer was not expected to be encountered, the regulatory agencies were notified on April 20, 2022 of the potential for disturbance during construction. See Section 7.4.3 for additional detail.
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.
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 unexploded ordnance (UXO) or repeated discovery of Material Documented as an Explosive Hazard (MDEH) within same area (LUCP)	There was no discovery of UXO or MDEH so no notification was required.

9.0 CORRECTIVE ACTIONS

There are four corrective actions 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.
- Installation of the well 359D point-of-entry treatment system to address continued presence of DIMP in exceedance of the CBSG. Completion expected in FY23.
- Revise the LUCP to remove discussion of bunkhouses and overnight uses. Completion expected in FY23.

- Extend the concrete plug for manhole #6 to existing ground surface and install a new plaque. Completion expected in FY23.

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.
- 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.

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.)

- 2022a (Nov. 17) *Annual Covers Report for Integrated Cover System 2022.* Revision 0.
- 2022b (Nov. 21) *2022 Basin F Cover and Groundwater Monitoring Report.* Revision 0.
- 2022c (July 20) *Fiscal Year 2021 Annual Summary Report for Groundwater and Surface Water.* Revision 0.
- 2022d (June 17) *2022 RCRA Landfills and Groundwater Monitoring Report.* Revision 0.
- 2022e (June 9) *Off-Post Private Well 359D Treatment System Design Report.* Revision 0.
- 2022f (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.
- 2021c (Mar. 30) *Off-Post Private Well 359D Investigation Work Plan.* Revision 0.
- 2020a (July 30) *Evaluation Report for Off-Post Private Well 359D.* Revision 0.
- 2020b (Apr. 2) *Enhanced Hazardous Waste Landfill Post-Closure Plan.* Revision 1.
- 2020c (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.*

RMA Committee

2013 (Aug.) *Decision Document DD-29 Short-Term Use of Bunkhouses.*

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 (Oct. 6) *Basin F Post-Closure Plan. Revision 0*

2011b (Sept. 23) *2010 Five-Year Review Report for Rocky Mountain Arsenal. Revision 0.*

2011c (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.*

USFWS (U.S. Fish & Wildlife Service)

- 2016 (Dec.) Comprehensive Conservation Plan
- 1995 (Aug.) *Final Environmental Impact Statement. Rocky Mountain Arsenal National Wildlife Refuge.*

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

ATTACHMENT 1

**Rocky Mountain Arsenal
Land Use Control Annual Inspection Checklist**

Evaluation Period: October 1, 2021 - September 30, 2022	Completed by: Charles Scharmann	SCHARMANN.CHARLES.T.12292 80275	Digitally signed by SCHARMANN.CHARLES.T.122920275 Date: 2022.10.17 11:31:00 -0500
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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 checked="" 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 checked="" type="checkbox"/> No	
Is there any evidence of consumption of fish or wildlife taken on RMA?	Army USFWS	<input type="checkbox"/> Yes <input checked="" 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 checked="" type="checkbox"/> No	
Have there been any agricultural activities on RMA?	Army USFWS	<input type="checkbox"/> Yes <input checked="" 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 checked="" 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 checked="" type="checkbox"/> No	

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

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 checked="" 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	This is determined by Tr-County Health Department as part of their records search.
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Well 359D continues to show DIMP above the 8 ppb limit in the ROD. Bottled water is being provided and a new point-of-use treatment system will be installed for the house.

**Rocky Mountain Arsenal
Land Use Control Annual Inspection Checklist**

Evaluation Period: October 1, 2021 - September 30, 2022	Completed by: DAVID LUCAS	DAVID LUCAS <small>Digitally signed by DAVID LUCAS Date: 2022.11.14 11:49:28 -07'00'</small>
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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 checked="" 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 checked="" 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 checked="" type="checkbox"/> No	
Is there any evidence of consumption of fish or wildlife taken on RMA?	Army USFWS	<input type="checkbox"/> Yes <input checked="" 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 checked="" 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ONGOING DROUGHT AND LACK OF WATER AVAILABILITY CONTINUES TO IMPACT HABITATS
Have there been any major non-remedy alterations of RMA hydrogeologic characteristics?	Army USFWS	<input type="checkbox"/> Yes <input checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" type="checkbox"/> No	ONGOING DROUGHT AND LACK OF WATER AVAILABILITY CONTINUES TO IMPACT HABITATS
Has there been any dredging performed in Lower Derby Lake?	USFWS	<input type="checkbox"/> Yes <input checked="" 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: October 1, 2021 - September 30, 2022	Completed by: Scott Ache
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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 checked="" type="checkbox"/> No	Inspection completed October 5, 2022
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 checked="" 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 checked="" type="checkbox"/> No	Inspection completed October 5, 2022
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Inspection completed October 13, 2022
Have there been any activities on the caps/covers that impact the integrity of the containment?	Site inspection	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are abandoned sanitary sewer markers present and readable?	Site inspection	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Manhole MH-6 buried during road construction. Manhole uncovered but needs to be extended to final surface.
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 checked="" type="checkbox"/> No	
Are groundwater monitoring wells in the Refuge Public Use Area locked?	Site inspection	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Inspection completed October 4, 2022.
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	

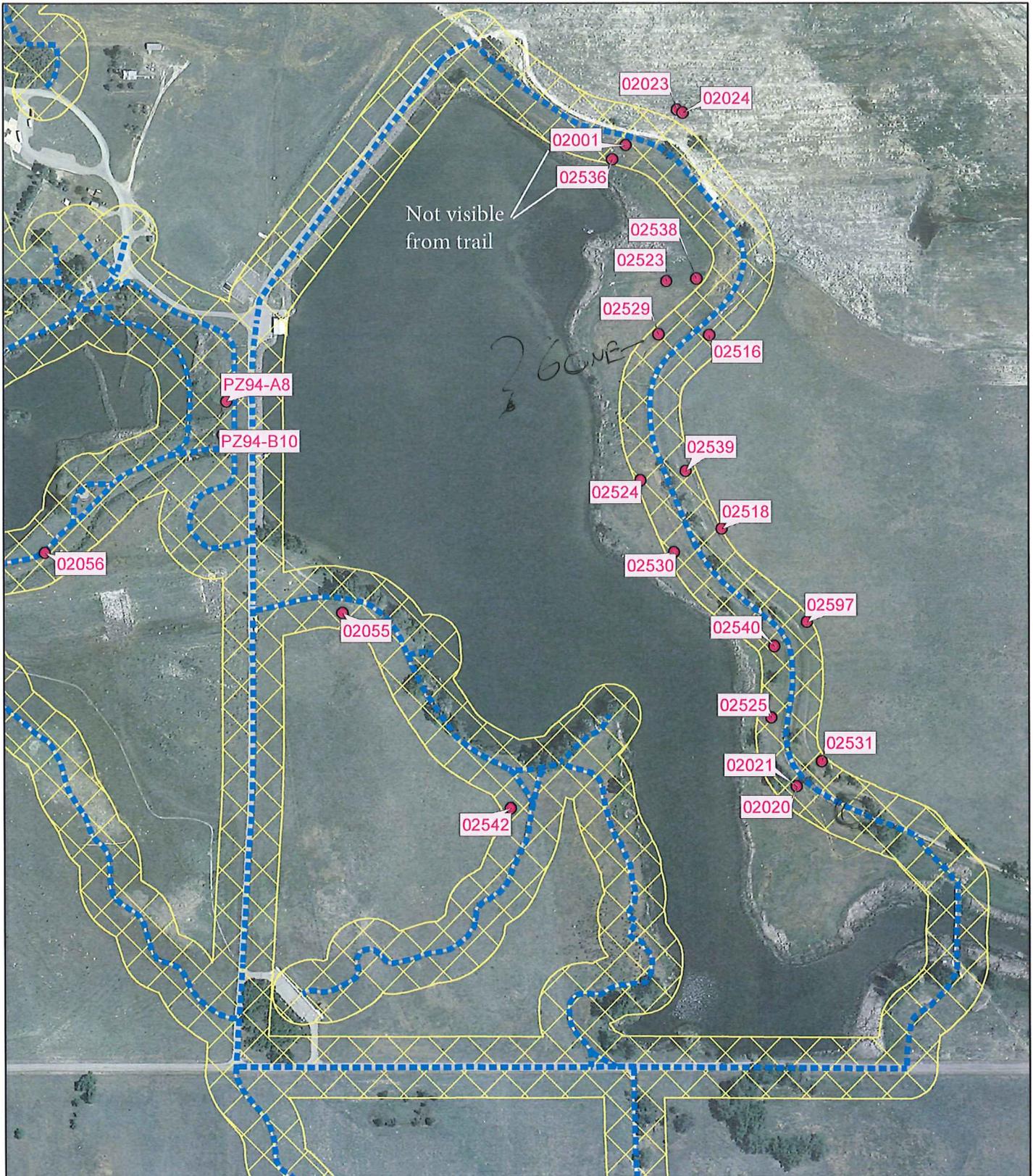
Land Use Control Requirement	Inquiry/ Evaluation	Assessment	Comment/Corrective Action
Were there any violations of land use controls resulting in release of hazardous materials, exposure to hazardous materials, or damage to remedy structures?	Army USFWS	<input type="checkbox"/> Yes <input type="checkbox"/> 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Well 359D continues to exceed the CSRG for DIMP. Bottled water is being provided. Evaluation of the existing well did not provide sufficient information to warrant well replacement and a point-of-entry treatment system design was completed to provide a permanent alternate water source. Installation is expected in FY23.

Public Use Area Monitoring Well Inspection

Inspection Date: 10/4/22

Inspected By: S. Ache

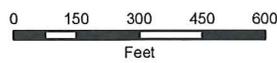
Well	Northing	Easting	Lock Present	Comment
02020	176272	2181444	✓	
02021	176272	2181444	✓	
02023	178475	2181054	✓	
02024	178466	2181072	✓	
02055	176836	2179948	✓	
02056	177032	2178970	✓	
02516	177739	2181159	✓	
02518	177109	2181200	✓	tag missing
02523	177914	2181017	✓	
02524	177267	2180931	✓	
02525	176495	2181361	✓	
02529	177742	2180991	NA	well closed
02530	177033	2181041	✓	not labeled
02531	176353	2181527	✓	
02538	177923	2181117	✓	
02539	177296	2181080	✓	
02540	176728	2181372	✓	PVC bent
02542	176201	2180501	✓	
02597	176806	2181478	✓	
03008	176036	2174093	✓	
PZ94-A8	177524	2179566	✓	
PZ94-B10	177415	2179555	✓	



Legend

- Selected Open Wells
- - - - Hiking Trails
- 100ft Buffers Around Trails

**Rocky Mountain Arsenal
Hiking Trails and Open Wells**



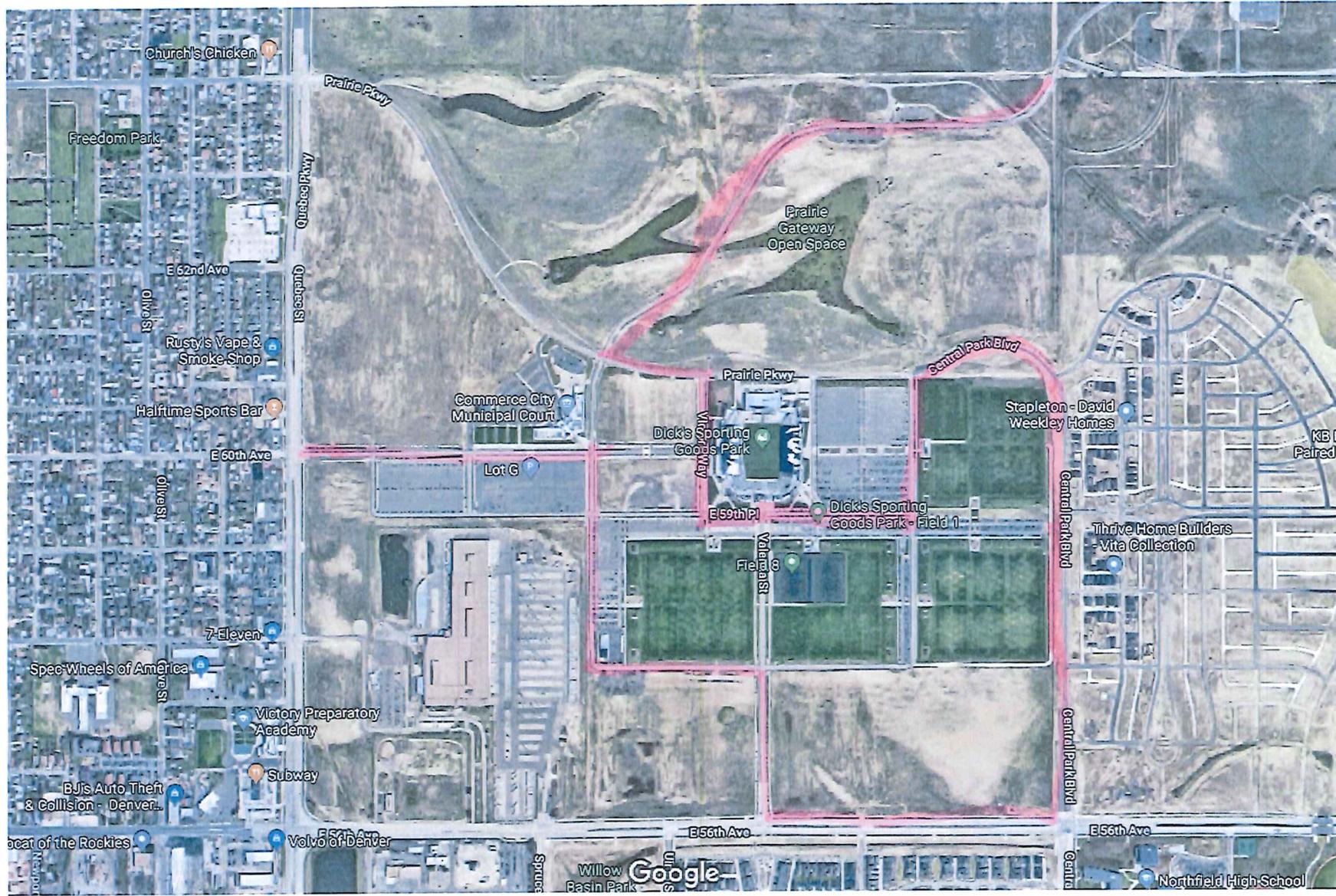
Sources: U.S. Army, RMA GIS,
OMC, Shell/AECOM
State Plane, Colorado North Zone,
NAD27, US Survey Feet

WELL ABANDONMENT AND CLOSURE FORM

Well ID: 02529	Aquifer: Unconfined	Closure Date: 5/31/2022
State Permitted Well? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>	Permit Number: N/A	
RMAED Information	Field Information	
TOC Elevation (ft): 5228.75	Last Known Depth to Water (ft bgs): 10	Sand Type: Colorado Silica 10-20
Casing Diameter (in): 2	Last Known Total Depth (ft TOC): 12.5	
Ground Elevation (ft): 5225.86	Sand Bottom (ft bgs): 12.5	Sand Amount Used (bags/ weight): 0.5 bags, 25 lbs
Casing Stick-up (ft): 2.8	Sand Top (ft bgs): 3.5	
Screen Length (ft): 5	Bentonite Bottom (ft bgs): 3.5	Bentonite Type: Chips
Screen Top (ft bgs): 7	Bentonite Top (ft bgs): Surface	
Casing Depth (ft bgs): 14.8	Casing Cut at Least 2 feet below grade: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Bentonite Amount Used: 0.5 bags, 25 lbs
Bedrock Depth (ft bgs): Not encountered		
Easting: 2180991	Permanent Cap Installed: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Northing: 177742	Site Backfilled: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Comments: Located northeast and adjacent to Lake Ladora. Well cut off at surface. Plugged with bentonite at surface.		
Preparer Name and Signature: Carol Rieger <i>Carol Rieger</i>		Date: 6/17/2022

*In the case of a damaged well, field information shall be completed to the extent possible.

Inspection completed by S. Ache 10/4/22



ATTACHMENT 2



RMA Incident/Near Miss Report

1.) Report Number: 2022-001

2.) Report Date: 2/23/2022

3.) Report Type: (circle one) Incident or Near Miss

4.) Report Category: (circle all appropriate categories)

- Biological, Chemical Exposure, Confined Space, Electrical/Mechanical, Equipment Related, Ergonomic, Excavation, Fire Safety, Hand/Dermal, Haz Com, Home Safety, Lockout/Tagout, Other - Stop Work, PPE, Slips, Trips, Falls, Spill/Release, Tools, Vehicle Related, Weather Related, Welding/Cutting/Grinding, Wellness, Work Space, Munition Related, Security Breach

5.) Your Name: Gayle A. Lammers Phone: 720-625-3614

Date/Time of occurrence: 2/22/22 1:30 pm

Location: Off-Post Groundwater Intercept Treatment System (OGITS)

Date/Time of Verbal Notification to Army Program Manager, if applicable:

Informed Army Program Manager on 2/22/22 at approximately 15:25.

6.) Description of Incident or Near Miss:

When doing inspections of the Off-Post Groundwater Intercept Treatment System (OGITS), noticed the access door to the OGITS garage structure had the padlock sheared off the door frame. The door looked as if someone had kicked it in breaking the padlock hasp.

7.) Immediate corrective actions taken: (Describe actions and who initiated them):

Notified the Facilities Maintenance Supervisor of the breached door to the garage and requested an inventory of the garage to determine if there was any missing equipment or parts. Notified the Facilities Engineer to investigate security camera footage and discussed the situation with the Deputy Project Manager after initial review of the garage and camera recording around 3:00 pm.

It appears nothing was taken from the garage or the premises. The camera recording shows an unknown white Ford pickup on the premises on Thursday, 2/17/2022 at 2:15 am. The intrusion alarm was recorded on the treatment plant alarm summary as being in alarm at 2:17 am on 2/17/22. The intrusion alarm did not call out due to repairs being completed on the auto dialer system.

8.) What are your recommended actions to prevent recurrence?

All items of value will be relocated from the garage structure to inside the OGITS plant building or B-887. Repairs to the auto dialer system will be completed immediately following parts arrival.

9.) Reviews & Assignments

Health & Safety Review: *Low Greer* Date: 2/23/2022

Supervisor/Task Manager Review: *[Signature]* Date 2/23/2022

Program Manager Review: *Anthony LaChance* Date: 2/23/2022

Are Follow-Up Actions Required? (circle) YES **NO**

If YES, Identify Action(s) and Responsible Party:

10.) cc. Health & Safety Manager for H&S files
Employee(s) Assigned Follow-Up Action(s)



Fence cut to gain access from the south to the First Creek road

Repaired hasp that had been broken off to gain access to garage.



Screenshot of Security Camera Footage – Looking at garage from OGITS plant



RMA Incident/Near Miss Report

1.) Report Number: 2022-013

2.) Report Date: 8/9/2022

3.) Report Type: (circle one) Incident or Near Miss

4.) Report Category: (circle all appropriate categories)

Biological	Chemical Exposure	Confined Space	Electrical/Mechanical
Equipment Related	Ergonomic	Excavation	Fire Safety
Hand/Dermal	Haz Com	Home Safety	Lockout/Tagout
Other-Property Loss	PPE	Slips, Trips, Falls	Spill/Release
Tools	Vehicle Related	Weather Related	Welding/Cutting/Grinding
Wellness	Work Space	Munition Related	<input checked="" type="checkbox"/> Security Breach

5.) Your Name: Lou Greer

Phone: 720-625-3627

Date/Time of occurrence: 8/8/22 at 12:00 noon

Location: Northern Pathway (NP) Treatment Building

Date/Time of Verbal Notification to Army Program Manager, if applicable:

Left voice message 8/8/22 at approximately 1:00 pm

6.) Description of Incident or Near Miss:

The Primary On-Call Operator received notice of an alarm at the NP Treatment Building at 12:01 pm. He contacted the Secondary On-Call Operator and said he would check it out. Upon arrival at 12:18 pm he noticed the west roll-up door was open but nobody was around. He did not notice that anything was missing or damaged so he closed the door, re-armed the security system, and left the building secured.

7.) Immediate corrective actions taken: (Describe actions and who initiated them):

The Primary On-Call Operator contacted the Operations Manager to report the situation. The Operations Manager got with Eric Kasperbauer to review video footage at the time of the alarm and observed a maroon, dually truck approach the building from the west. The truck circled the building and stopped in front of the west access door. The truck had no license plates. A passenger got out of the truck and can be seen "drilling" the door lock and then prying open the door. From an interior camera the perpetrator is clearly seen entering the building and proceeding towards the table at the north end. He seems to notice the camera in the northeast corner and maybe hears the pre-alarm beeping of the alarm system and tries to pull his shirt up over his face. He is not long at the table and leaves the building in well under two minutes of being inside. After viewing the video footage I contacted the OMC Program Manager and left a message for the Army Program Manager. I then called Adams County Dispatch on their non-emergency number and they said they would have an officer contact me. I met Officer Adam Laubert of the Commerce City Police Department at the building at approximately 2:20 pm (contact information and case number provided below). We were not able to access the west door because the perpetrator's drill bit was broke off inside the lock. We entered the building

from the east door and did not notice anything missing or damaged, other than the west door lock. Officer Laubert was not sure if Commerce City had jurisdiction to pursue the case but he did say he would complete a report. Eric Kasperbauer arrived and showed Officer Laubert the video footage and said he would e-mail a copy to him. Officer Laubert was interested in discussing the jurisdictional issue with Josh Frazier so I called him and they discussed the matter. Officer Laubert said he planned to research that issue more at his office.

8.) What are your recommended actions to prevent recurrence?

Stay vigilant on locking the doors and arming the security system. Review protocols with all On-Call personnel for responding to an alarm to ensure their safety and protection. Pursue determination of an official address for the building and inform the Commerce City Police Department of such.

9.) Reviews & Assignments

Health & Safety Review: Louis M. Greer Digitally signed by Louis M. Greer
DN: cn=Louis M. Greer, o=Navarro,
ou, email=greer@navarro-inc.com,
c=US
Date: 2022.08.09 13:00:09 -0600 **Date:** 8/9/2022

Supervisor/Task Manager Review: *Debra A. [Signature]* **Date:** 8/9/2022

Program Manager Review: **Date:** 8/9/2022

Are Follow-Up Actions Required? (circle) **YES** **NO**
If YES, Identify Action(s) and Responsible Party: As noted above in #8

10.) cc. Health & Safety Manager for H&S files
Employee(s) Assigned Follow-Up Action(s)



Adam Laubert
Officer
#5930
720-926-4088
7887 E. 60th Ave.
Commerce City, CO 80022
alaubert@c3gov.com
p: 303-227-8122
f: 303-289-3745
c3gov.com/police



Emergency 911 Non-Emergency Dispatch 303-288-1535
Police Information/Records 303-287-2844 Traffic Hotline 303-727-3939
Victim Services 303-655-2308 Municipal Court 303-289-3640

To provide comments or complaints on your contact with CCPD, call 303-289-3701
To view Online Accident Reports: www.buycrash.com
Commerce City Police Department Website: www.c3gov.com/police

Report Number: 22-7139
Date: 08-08-2022



Passenger/perpetrator prying open the west access door



Perpetrator glancing up at security camera



RMA Incident/Near Miss Report

1.) Report Number: 2022-014

2.) Report Date: 9/6/2022

3.) Report Type: (circle one) **Incident** or Near Miss

4.) Report Category: (circle all appropriate categories)

Biological	Chemical Exposure	Confined Space	Electrical/Mechanical
Equipment Related	Ergonomic	Excavation	Fire Safety
Hand/Dermal	Haz Com	Home Safety	Lockout/Tagout
Other-Property Loss	PPE	Slips, Trips, Falls	Spill/Release
Tools	Vehicle Related	Weather Related	Welding/Cutting/Grinding
Wellness	Work Space	Munition Related	Security Breach

5.) Your Name: Dave Stewart

Phone: 303-817-9045

Date/Time of occurrence: 9/5/22 at 1:14 pm

Location: OGITS Treatment Plant

Date/Time of Verbal Notification to Army Program Manager, if applicable: 9/5/22 at 2:45 pm

6.) Description of Incident or Near Miss:

I received a call from the First Creek/OGITS auto dialer to the Secondary On-Call phone at 1:22pm indicating an entry door alarm on the OGITS building. I immediately called the Primary On-Call Operator, Reed Wold, to notify him of the call and let him know that I was in the area and would check the site visually from a safe distance. At 1:30pm I visually confirmed there were no vehicles on the site, that the entry gate was off its hinges, and that the window on the main entry door was broken. I called 911 at 1:33pm to notify ADCOM of a break-in attempt at the facility and I waited across the street for law enforcement officers (LEOs) to arrive. While waiting I contacted Eric Kasperbauer to have him check security camera footage, and I also notified Gayle Lammers (Treatment Operations Manager) and Lou Greer (ES&H Manager) of the incident by text message. LEOs arrived at approximately 1:50pm. I unlocked the building for them (and found that the entry door was ajar), and they cleared the premises. The Primary On-Call Operator arrived at approximately 1:55pm. Once the building had been cleared, Reed and I entered to see if it appeared that anything had been taken. It did not appear that anything was missing as miscellaneous tools and a toolbox were still present near the desk immediately inside the entry door. A review of the security footage confirmed that a vehicle had backed through the gate on the perimeter fence at 1:14pm and had then attempted to back through the entry door on the building. One individual then used a large pry bar to break the window on the entry door, entered the building, then exited the building and left the site heading north on Peoria St. at approximately 1:17pm. A license plate number from the footage was provided to the LEOs, however, was found to be tied to a stolen vehicle.

7.) Immediate corrective actions taken: (Describe actions and who initiated them):

Reed and I secured the premises by rehanging the entry gate as best as possible and placing plywood over the broken window on the entry door. Damage to the entry door was such that the door was still able to be locked normally. Pictures and video of the incident were sent to Commerce City LEOs by Eric Kasperbauer on 9/6/22.

8.) What are your recommended actions to prevent recurrence?

Remain vigilant on locking the door and gate when leaving the plant. Ensure the intrusion alarm is armed at the end of each day and on weekends. Review policy for On-Call Operators responding to alarms off-post and/or after-hours.

9.) Reviews & Assignments

Health & Safety Review: *Louis M Green* Date: *9/6/2022*

Supervisor/Task Manager Review: *Ray B. Lamm* Date: *9/6/2022*

Program Manager Review: *Anthony LaChance* Date: 9/7/2022
Digitally signed by Anthony LaChance
Date: 2022.09.07 06:00:20 -06'00'

Are Follow-Up Actions Required? (circle) YES **NO**

If YES, Identify Action(s) and Responsible Party:

- 10.) cc. Health & Safety Manager for H&S files
- Employee(s) Assigned Follow-Up Action(s)



Robert Valdez
Officer
#5728

7887 E. 60th Ave.
Commerce City, CO 80022
(rvaldez@c3gov.com)
p: 303-227-8770
f: 303-289-3745
c3gov.com/police



Emergency911 Non-Emergency Dispatch303-289-1535

Police Information/Records 303-227-2844 Traffic Hotline 303-727-3839

Victim Services 303-655-2306 Municipal Court 303-289-3640

To provide comments or complaints on your contact with CCPD, call 303-289-3701

To view Online Accident Reports: www.buycrash.com

Commerce City Police Department Website: www.c3gov.com/police

Report Number: 22-8053

Date: 9/5/22

