

**FINAL  
FISCAL YEAR 2021 ANNUAL LAND USE CONTROL  
AND OPERATION AND MAINTENANCE REPORT**

**IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, DES MOINES COUNTY, IOWA**

**VOLUME I OF II**

Prepared for:



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## CONTRACTOR STATEMENT OF TECHNICAL REVIEW

The PARS-Gannett Fleming Joint Venture (JV) has completed the Final Fiscal Year 2021 (FY21) Land Use Control (LUC) and Operation and Maintenance (O&M) Report for Operable Unit-4 (the Inert Disposal Area), Line 1 Impoundment and Line 800 Lagoon at the Iowa Army Ammunition Plant (IAAAP) in Middletown, Des Moines County, Iowa. Notice is hereby given that an independent technical review (ITR) has been conducted that is appropriate to the level of risk and complexity inherent in the project. All comments resulting from the ITR have been resolved and incorporated into the document. During the ITR, compliance with established policy principles and procedures was verified.



Eric White, P.G.  
Independent Technical Review Team Leader

08/05/2022



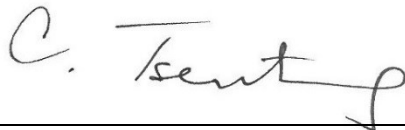
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08/05/2022

## CONTRACTOR CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

*No major technical concerns were identified during the Independent Technical Review.*



Constantine Tsentas, P.G.  
Program Manager, Contractor

06/21/2022

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### LIST OF ACRONYMS

µg/L	Micrograms per Liter
±	Plus/Minus
ADE	Action Discharge Elevation
AFC	After First Carbon
AO	American Ordnance, LLC
ASL	Aerostar SES, LLC
C°	Degrees Celsius
CEA	Cap Extension Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DoD	Department of Defense
DRM	Direct Release Monitoring
EWI	Environmental Work Instruction
FFWTP	Fixed Facility Water Treatment Plant
ft	Foot or Feet
FY21	Fiscal Year 2021 (October 1, 2020 through September 30, 2021)
GAC	Granular Activated Carbon
gpm	Gallons per Minute
IAAAP	Iowa Army Ammunition Plant
ID	Identification
IDA	Inert Disposal Area
ILF	Inert Landfill
ITR	Independent Technical Review
IROD	Interim Record of Decision
JV	PARS Gannett Fleming Joint Venture
LCS	Leachate Collection System
LDS	Leak Detection System
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
NTU	Nephelometric Turbidity Units
O&M	Operations and Maintenance
OU	Operable Unit
PVC	Polyvinyl Chloride
RDX	Royal Demolition Explosive (1,3,5-Trinitroperhydro-1,3,5-triazine)
T6L	Trench 6 Landfill
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UU/UE	Unlimited Use or Unrestricted Exposure

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## 1.0 INTRODUCTION

The United States Army Corps of Engineers (USACE) Louisville District selected the PARS-Gannett Fleming Joint Venture (JV) to perform land use control (LUC) and operation and maintenance (O&M) tasks at Operable Unit (OU)-4 [the Inert Disposal Area (IDA)], Line 1 Impoundment and Line 800 Lagoon at the Iowa Army Ammunition Plant (IAAAP) located in Middletown, Iowa, hereinafter the “Site”. A Site Location Map is included on Figure 1.

IAAAP is a government-owned facility operated by contractor, American Ordnance, LLC (AO), under the U.S. Army Joint Munitions Command, Rock Island, Illinois. IAAAP occupies approximately 19,000 acres of Middletown in Des Moines County, Iowa, and is bordered by Highway 34 to the north, upland agricultural farms to the east and west, and the Skunk River Valley to the south (Figure 1). Production of munitions at IAAAP began in 1941, and the facility remains in operation. Production activities at IAAAP include loading, assembling and packaging explosive munitions, such as projectiles, mortar rounds and warheads (Tetra Tech, 2014).

This report documents LUC and O&M activities conducted at the IAAAP by the JV during fiscal year 2021 (FY21). Implementation of LUCs is described in the *Final OU-4 Land Use Controls Implementation Plan (LUCIP) for the Inert Disposal Area* (Tetra Tech, September 2014a), which was developed to comply with the IAAAP OU-4 Interim Record of Decision (IROD), dated September 30, 2008; *Tab B – Operation and Maintenance Plan in the OU-4 RACR, Volume 4* (Tetra Tech, October 2014); and the *Defense Environmental Restoration Program Management Manual* (Department of Defense [DoD], March 2012).

Although LUCs are only applicable to OU-4 (Inert Disposal Area), O&M activities were conducted in accordance with the *Final Operation & Maintenance Plan, OU-4 Fixed Facility Water Treatment Plant (FFWTP)* (the JV, October 2017) for the FFWTP at OU-4 and the *Final Operation & Maintenance Plan, OU-1 - Line 1 Impoundment and Line 800 Lagoon* (the JV, October 2017) for Line 1 Impoundment and Line 800 Lagoon.

This report also documents sediment removal performed at the Line 1 Impoundment in FY21 to restore capacity to the impoundment in Section 4.3.1.

It is noted that due to precautionary measures taken to prevent spread of COVID-19, the FY21 annual inspections were performed virtually by the JV’s Professional Engineer via streaming video recorded by the JV’s on-site O&M operator on August 6, 2021. No significant issues were identified during the inspections. FY21 annual inspections are further described herein.

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## 2.0 LAND USE CONTROLS

LUCs are rules, directives, policies, barriers and other measures intended to prevent exposure to contaminants that are unsafe for unlimited use or unrestricted exposure (UU/UE). LUCs may be implemented in conjunction with other remedial measures and are intended to protect human health and the environment after risk-based cleanup.

LUCs were developed for OU-4 in the LUCIP, which complies with the IAAAP OU-4 IROD, selecting source containment, LUCs and monitoring (including groundwater monitoring) as the remedy for the capped landfill cells that comprise OU-4. Procedures for documenting review of, and compliance with, LUCs needed to manage activities in areas of potential contamination at IAAAP are provided in an Environmental Work Instruction (EWI) prepared by AO (EWI Number E01-012, Revision AO-4, April 9, 2019). Section 8.4.1 of the EWI (see Appendix A) describes LUC implementation and responsibility at OU-4, which include engineering (physical) and institutional (administrative, legal) controls that restrict access, prohibit certain types of land use, limit unauthorized intrusive activities and prevent the use of groundwater as a drinking water supply within the landfill boundary. The area of OU-4 that is subject to LUCs is presented on Figure 2.

The Army is responsible for ensuring the effectiveness of the LUCs at IAAAP as long as the Army controls the property or until LUCs are no longer required. The Army's commanding officer at IAAAP is responsible for enforcing the LUCs. The Army's remedial project manager assists the commanding officer in enforcing, inspecting and maintaining LUCs. The United States Environmental Protection Agency (USEPA) is responsible for regulatory review of LUC effectiveness.

The performance objectives of the LUCs are to:

- prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds;
- prevent intrusive activity into or near the cap system;
- maintain the integrity of the cover/cap system;
- restrict property access to only authorized individuals for approved commercial, industrial and remedy O&M purposes;
- maintain the integrity of any current or future remedial or monitoring system; and
- prevent the use of groundwater as a drinking water supply within the landfill boundary.

Table 2-1 lists the Army's responsibilities as described in Section 8.4.1 of the EWI (Appendix A), which include implementation of land use, access, construction and groundwater restrictions and associated inspection activities, frequency and documentation. LUCs and responsibilities are further detailed in the following sections.



**Table 2-1 - LUC Implementation and Responsibility**

Control Type	LUC Inspection Activity	Frequency	Documentation	Inclusion in Annual LUC Report	Documentation with Report
Land Use Restrictions	Land transfer/lease terms review	Annual	LUC checklist	LUC checklist	Appendix B
Access Restrictions	Review access key sign out list				
	Review hunter education materials				
Construction Restrictions	New projects review	As needed	Review/complete land use approval form in AO EWI	Signed approval forms	Appendix C
	Physical OU-4 inspection	Annual	Compliance inspection checklist	Compliance inspection checklist	Appendix D
	Review LUC maintenance requests for completion				
Groundwater Restrictions	Inspect and maintain groundwater monitoring wells		Monitoring well inspection log	Monitoring well inspection log	Appendix E

**2.1 ENGINEERING CONTROLS**

Engineering controls are the physical mechanisms that prevent or restrict access or exposure to a contaminated area.

**2.1.1 Fencing**

A perimeter fence for OU-4 was installed in May 2016 in accordance with the Final Revision 1 *OU-4 Remedial Action Work Plan Inert Disposal Area Boundary Fence Installation at the Iowa Army Ammunition Plant* (Aerostar SES, LLC [ASL], January 2016). Fence installation activities are documented in the *Final OU-4 After Action Report for Boundary Fence Installation at the Inert Disposal Area, Iowa Army Ammunition Plant, Middletown, Iowa* (ASL, February 2017). The fence restricts general access to OU-4. Signs have been installed along the fence and around OU-4 as shown in Figure 2. In accordance with the EWI, inspection and maintenance of the fence and signs are the responsibility of AO. However, inspection of the fence and signs is included in the Army’s physical inspection of OU-4 that is described in Section 2.2.3.3.

**2.2 INSTITUTIONAL CONTROLS**

Institutional controls are the administrative mechanisms that prevent or restrict access or exposure to a contaminated area. Institutional controls are further described in the following sections.

### **2.2.1 Access Restrictions**

IAAAP is a secure DoD facility; only authorized access to the facility is allowed. Facility activities are confined to military (ordnance production and testing areas); commercial/industrial (leased, developed areas); agricultural (leased, undeveloped areas); and permitted hunting (undeveloped areas). A fence restricts unauthorized vehicular traffic to OU-4. Entry through the fence is controlled by AO security and the operator of OU-4.

#### ***2.2.1.1 Review Access Key Sign Out List***

OU-4 is within the secured boundaries of IAAAP and the OU-4 fence is secured. During the reporting period, OU-4 entrance gates were kept closed and locked to prevent unauthorized personnel entry. The IAAAP security office controls issuance of OU-4 gate keys. The Army authorized and reviewed all gate key requests and the key authorization request process. No unauthorized access was noted during the reporting period. Therefore, the key access authorization process does not require modification at this time.

#### ***2.2.1.2 Review Hunter Educational Materials***

The IAAAP natural resources manager maintains hunter education materials; issues various public access permits (hunting, mushroom harvesting, etc.); and informs holders of permits about restricted-access areas within IAAAP. The Army reviewed the IAAAP hunter education materials and concluded that the information provided to hunters is accurate and does not require modification at this time.

### **2.2.2 Land Use Restrictions**

#### ***2.2.2.1 Land Lease Terms Review***

There are no known or planned leases for OU-4, and the land use is to remain nonresidential and industrial.

#### ***2.2.2.2 Property Transfer Restrictions***

OU-4 is a federally owned facility. No federal transfer or ownership has been conducted, and no transfer of ownership is planned.

### **2.2.3 Construction Restrictions**

#### ***2.2.3.1 New Projects Review***

The operating contractor at IAAAP (AO) has established project review and approval procedures that require Army review and approval when a project involves, or is encumbered by, potential contamination of environmental media, possible impacts to remedial actions, or potential changes to the current project land use. During the reporting period, there were no new projects triggering the New Projects Review process (Appendix C).

#### ***2.2.3.2 Review LUC Maintenance Requests for Completion***

The annual inspection of OU-4 was performed virtually by the JV's Professional Engineer in cooperation with the OU-4 operator in August 2021. LUC-related maintenance requests were reviewed during the annual inspection. There are no outstanding maintenance requests.

### ***2.2.3.3 Physical OU-4 Inspection***

In addition to a document/record review, the annual inspection included a walkover of OU-4 to visually inspect the landfill cover, access roads, signage, fencing and gates, survey monuments, erosion controls, the treatment system and other physical characteristics that comprise OU-4. Due to precautionary measures taken due to COVID-19, this inspection was performed virtually by the JV's Professional Engineer via streaming video recorded by the JV's on-site O&M operator on August 6, 2021. No significant issues were identified during the inspection. Results of the physical inspection are included on the Compliance Inspection Forms in Appendix D.

## **2.2.4 Groundwater Use Restrictions**

### ***2.2.4.1 Potable Well Restrictions***

In accordance with the EWI (Section 8.4), groundwater use as potable water is restricted within OU-4. IAAAP purchases all of its water from Burlington Municipal Water Works, who sources water from the Mississippi River. No potable wells have been installed during the reporting period.

### ***2.2.4.2 Monitoring Well Inspection and Maintenance***

Groundwater monitoring wells located at OU-4 are inspected and maintained by the OU-4 operator. Inspection was conducted July 2021, and a number of monitoring wells were noted to require paint and updated identification signs. Additionally, two wells were noted to have compromised concrete pads. Results of the monitoring well inspection are detailed on the Monitoring Well Inspection Logs located in Appendix E.

**3.0 OPERATIONS AND MAINTENANCE AT OU-4**

O&M activities performed at OU-4 include but are not limited to: O&M of the treatment system (the FFWTP) and associated components used to treat leachate collected from Trench 6; landfill cap inspection and maintenance; mowing; tree and vegetation removal; inspection and repair of erosion controls; access road maintenance including snow removal; fencing, gate, signage, gas vent and monitoring well inspection and maintenance; IDA office maintenance; etc. More information regarding O&M activities that are performed at OU-4 is provided in the following sections.

**3.1 TRENCH 6 LEACHATE COLLECTION AND LEAK DETECTION SYSTEMS**

Leachate from Trench 6 is collected from the leachate collection system (LCS) and leak detection system (LDS) and pumped to the FFWTP influent tank for treatment. During the reporting period, O&M for the FFWTP was conducted following the *Final Operation and Maintenance Plan, Operable Unit 4 Fixed Facility Water Treatment Plant, Iowa Army Ammunition Plant, Middletown, Iowa* (the JV, October 2017).

**3.1.1 Inspections**

The visible components of the LCS and LDS were observed, and any findings were recorded on the landfill operations daily logs provided in Appendix F. The components that can be visually inspected include the pipe extensions, surface completions, aboveground transfer pipelines, flow meters and the Coyote® pump controllers. The annual inspection was conducted virtually in August 2021. Observations are presented in Table 3-1.

**Table 3-1 Leachate Collection System and Leak Detection System Inspection Observations**

Item	Area	Inspection Observations	Resolved
<b>Trench 6 Landfill</b>			
1	T6L	Continue to monitor the LCS pump controller (Coyote®) and replace if necessary.	Continue monthly monitoring

LCS = leachate collection system

T6L = Trench 6 Landfill

**3.1.2 Operation**

Leachate levels in the Trench 6 LCS and LDS were maintained at or below the regulatory action level of 1 foot above the landfill’s primary and secondary liner bottom elevations of 668 feet above mean sea level. Two Coyote® pump controllers, located in FFWTP, monitor leachate levels and activate the pumps as necessary to lower levels at the LCS and LDS. Both pump controllers were in continuous operation. Additionally, the controllers briefly activate the pumps every hour to protect them from deadhead operation (pumping air). The controllers for the Trench 6 LDS and LCS pumps are adjacent to the motor control cabinet within the FFWTP.

**3.1.3 Maintenance**

The leachate pumps are maintained in accordance with manufacturer recommendations. Periodically, the pump screens are cleaned to ensure adequate intake flow. There are no outstanding maintenance issues related to the LCS or LDS. Leachate pumps were on line the whole year and were not required to be taken out of service due to maintenance in FY21.

**3.2 FIXED FACILITY WATER TREATMENT PLANT**

The FFWTP treats leachate and leak detection water from the Trench 6 Landfill within OU-4. In FY18, major components of the FFWTP’s treatment system were upgraded. These components included the granular activated carbon (GAC) vessels, bag filter housing, pumps, piping and the treatment system control panel. The new components were installed between November 2017 and January 2018 and the FFWTP was put back into operation on January 16, 2018. As-built drawings of the new system components are included in Appendix G.

**3.2.1 Inspections**

Because the FFWTP treatment system runs intermittently based on the elevation of leachate in the LCS, the treatment system was observed daily during operation and observations were recorded on the operator logs provided in Appendix F. The FFWTP FY21 annual inspection was conducted virtually in August 2021. Based on the review of operation records and the characteristics and quantities of leachate treated at the time of the inspection, it appears that the leachate levels in the Trench 6 LCS and LDS are being maintained at or below the regulatory action level of 1 foot above the landfill’s primary and secondary liner bottom elevations of 668 feet. At the time of the inspection, the components were operating properly. During the inspection, treatment system components were checked and no signs of leakage or damage were observed. Both effluent pumps were checked, and no vibration or sounds of cavitation were noted. The flow rate through each effluent pump, set at 30% throttle, was measured and determined to be operating at about 60 to 65 gallons per minute (gpm), which is within the expected flow rate of 60 gpm ±10 gpm. Bag filter changeout was not observed during the inspection, but it was conducted as shown on the landfill operations daily log (Appendix F). Inspection observations are presented in Table 3-2.

**Table 3-2 Fixed Facility Wastewater Treatment Plant Inspection Observations**

Item	Area	Inspection Observations	Resolved
<b>Fixed Facility Water Treatment Plant</b>			
1	FFWTP	Continue to monitor hoses, fittings and effluent pumps and replace/repair as needed.	Continue monthly monitoring

**3.2.2 Operations**

FFWTP operational notes are recorded in the landfill operations daily log and the FFWTP meter readings form provided in Appendix F. During operation, the pump flow rates are monitored to identify if there are any operational losses in pressure or flow. Table 3-3 presents the release volumes for the reporting period. During the FY21 reporting period, 54,344 gallons of leachate were treated and released through the FFWTP.

**Table 3-3 Fixed Facility Water Treatment Plant Monthly Releases**

Year	Month	Release Volume (gallons)
2020	October	1,170
	November	1,170
	December	3,002
2021	January	8,940
	February	8,072
	March	8,030
	April	6,226
	May	5,366
	June	2,440
	July	5,638
	August	2,944
	September	1,346
<b>Grand Total</b>		<b>54,344</b>

**3.2.2.1 System Shutdown**

The FFWTP did not experience any operational shut down during FY21. The FFWTP was last shut down from October 1, 2017, to January 16, 2018, while major components were replaced and other treatment system modifications were made.

**3.2.2.2 Discharge Sampling**

Treated water effluent from the FFWTP is routed to a ditch that discharges to a tributary of Long Creek (former Sediment Pond 6). During the reporting period, three types of samples were collected at the FFWTP: influent samples, after first carbon (AFC) unit samples, and effluent samples. During the reporting period, five influent samples, five AFC unit samples and five effluent samples were collected and analyzed for explosives via USEPA Method 8330. Results are summarized on Table 3-4.

Because the FFWTP runs intermittently, the influent, AFC and effluent samples are only collected when the system is operating. Effluent samples were collected from the discharge sampling port during each treatment event. Based on the *Final O&M Plan* (the JV, October 2017), FFWTP sample results for royal demolition explosive (RDX) are compared to health advisory level of 2 micrograms per liter (µg/L), as presented in Table 3-4. None of the explosives analyzed via USEPA Method 8330 were detected in any of the effluent samples. Based on the analytical sample results, the system has been working properly and carbon replacement is not required at this time. The data validation report is provided in Appendix H and the laboratory reports are included as Volume II of this report.

**Table 3-4 Fixed Facility Water Treatment Plant RDX Sample Results**

Date	Influent (µg/L)	After first Carbon Unit (µg/L)	Effluent (µg/L)
12/22/2020	<b>0.15</b>	0.095 U	0.094 U
1/27/2021	0.095 U	0.094 U	0.095 U
3/3/2021	0.094 U	0.096 U	0.096 U
4/12/2021	0.095 U	0.095 U	0.096 U
6/24/2021	0.095 U	0.094 U	0.095 U
9/7/2021	0.095 U	0.094 U	0.096 U

Reported to the method detection limit  
 µg/L = micrograms per liter  
 U = non-detect  
**Bold** = detection

**3.2.2.3 Backwash**

Backwashing was not conducted at the FFWTP in FY21 because the system did not exhibit a pressure differential of greater than 20 pounds per square inch between the influent and effluent lines, nor did a carbon vessel require new carbon replacement. Backwashing operations were successfully tested in January 2018 prior to putting the new system components into service.

**3.2.2.4 Spent Carbon and Filter Disposal**

Based on sample results presented in Table 3-4, the FFWTP treatment system’s GAC did not require replacement during FY21 and continues to perform as intended. Bag filters are replaced infrequently due to limited volume and low turbidity of the treated water. In coordination with AO, used bag filters from FFWTP are handled by Area Disposal Service, Inc. and disposed as non-hazardous non-special waste under permit # 31-2833 at the Hickory Ridge Landfill located at 32246 375<sup>th</sup> Street in Baylis, Illinois. Disposal records are included in Appendix I.

**3.2.3 Maintenance**

The FFWTP operator completed checks including, but not limited to:

- observing/repairing leaky fittings and hoses as necessary;
- observing/repairing any damage to the GAC unit vessel, fittings, and distribution manifold;
- observing/repairing any damage to the filter housing, strainer, gasket, and connections;
- servicing the treatment and leachate pumps per the manufacturer’s recommendations; and
- observing/troubleshooting email/text alerts and other communications from the treatment system.

Operator notes are recorded on the landfill operations daily log and the FFWTP meter readings form provided in Appendix F. At the time of this report, there were no outstanding maintenance issues regarding the FFWTP.

**3.3 GENERAL SITE AND LANDFILL OPERATIONS AND MAINTENANCE**

Post-closure activities are detailed in this section. Specifics regarding inspection and reporting requirements can be found in the LUCIP (Tetra Tech, September 2014a). Landfill operations daily logs are maintained in the IDA Office, Building 500-70-3, and contain information regarding O&M activities. The FY21 inspection was conducted virtually in August 2021 by the JV’s Professional Engineer via streaming video recorded by the JV’s onsite O&M operator. Observations of the inspection are provided in Table 3-5.

**Table 3-5 Operable Unit-4 Inspection Observations**

Item	Area	Inspection Observations	Resolved
<b>Trench 6 Landfill (T6L)</b>			
1	T6L	Continue to monitor for animal burrowing in landfill cap and notify the project engineer of signs of active burrowing.	Continue monthly monitoring.
<b>Cap Extension Area (CEA)</b>			
1	CEA	Continue to monitor animal burrowing in landfill cap and notify the project engineer of signs of active burrowing.	Continue monthly monitoring.
<b>Inert Landfill (ILF)</b>			
1	ILF	Continue to monitor animal burrowing in landfill cap and notify the project engineer of signs of active burrowing.	Continue monthly monitoring.
2	ILF	Grass recently mowed.	Resolution not required.
3	ILF	Survey monuments in poor condition.	Replacement of survey monuments recommended.

**3.3.1 Security**

OU-4 is entirely within the secured boundaries of IAAAP; therefore, additional security measures are minimal. The OU-4 entrance gates remained closed and secured to keep unauthorized personnel from entering OU-4 by access roads. Signs regarding unauthorized entry and site access are posted on the access gates and at select locations around the perimeter.

**3.3.1.1 Inspections**

There was no significant damage to the OU-4 perimeter fencing, gates or access roads during the reporting period. Locks and gates are in good condition. Documentation of signage at OU-4 is presented on Figure 2.

**3.3.1.2 Maintenance**

During the reporting period, there were no maintenance issues associated with the fencing and gates that control access to OU-4. Vegetation control was conducted as needed along the fence line by mowing. New signage was installed in 2016. There are no outstanding repairs on the fencing, gates or signs.

**3.3.2 Site Roadways**

Unpaved access roads exist on OU-4 to support vehicle traffic in the OU-4 area as necessary.

**3.3.2.1 Operations**

The access roads were designed to accommodate light traffic at low speeds. Vehicle operators were instructed to remain on the aggregate surfaces as much as possible. Vehicles other than service trucks, mowers and light equipment were not allowed on the landfill caps. Currently, there are no outstanding operational issues regarding the roadways.



### **3.3.2.2 Inspections**

Roadways and parking areas are visually inspected for rutting, ponding of water, erosion or loss of aggregate material that may restrict vehicle access or potentially affect cap integrity. There are no outstanding repairs for the site roadways or parking areas.

### **3.3.2.3 Maintenance**

If damage to roadways is noted, the roads or ruts are built up with aggregate and compacted by rolling with a rubber tire vehicle (tractor or pickup truck). Snow and ice are removed from the roadways in the winter months as needed to maintain site access. A salt and sand mixture was applied to OU-4 roadways to increase road friction when snow and ice could not be adequately removed. Currently there are no outstanding maintenance issues related to the OU-4 roadways.

## **3.3.3 Grass-Covered Diversion Berms and Ditches**

Grass-covered berms and ditches exist within OU-4 and serve to convey stormwater away from the engineered landfill features to protect those features from scouring and erosion often caused by heavy surface water runoff.

### **3.3.3.1 Inspections**

Grass-lined diversion berms and ditches were checked during mowing activities and following large rainfall events (greater than 2 inches in 24 hours). Rain gauge information is provided on the elevations and rain gauge form in Appendix F. Signs of erosion, sediment or debris accumulation and vegetative growth requiring attention are noted on the landfill operations daily log (Appendix F).

### **3.3.3.2 Maintenance**

The berms and ditches are mowed at least twice a year. Mowing activities were conducted twice during the growing season, as indicated in the landfill operations daily log (Appendix F) to control vegetative growth. During the reporting period, no repairs of the diversion berms or ditches were needed.

## **3.3.4 Riprap Channels and Rock Toe Drains**

Riprap channels and toe drains are integral features of the engineered landfill. These features serve to drain surface waters away from the engineered landfill features, protecting those features from scouring and erosion often caused by heavy surface water runoff.

### **3.3.4.1 Inspections**

Riprap channels and rock toe drains were inspected virtually in FY21 and were observed during mowing season. Any signs of erosion; sediment or debris accumulation; displaced or sparse riprap; or vegetative growth along drainage channels, toe drains, or culverts are noted on the landfill operations daily log (Appendix F).

### **3.3.4.2 Maintenance**

Vegetative growth in the riprap ditches and toe drains are periodically sprayed with a broad-spectrum herbicide, such as Roundup™ (or equivalent), in accordance with the manufacturer's recommendations. Special emphasis is given to vegetation control around the toe drains to prevent clogging of the Geonet drainage layer. Erosion was not noted during the FY21 inspection.

### 3.3.5 Landfill Covers

#### 3.3.5.1 Inspections

The landfill cap was inspected in August 2021 by the JV's Professional Engineer via streaming video recorded by the JV's onsite O&M operator. Annual inspection consisted of a walkover of the cap areas and is documented on the annual compliance inspection checklist (Appendix D). Bare areas, stressed vegetation, dead vegetation (not dormant), discolored vegetation, sparse vegetation, leachate seeps, differential settlement (localized depressions), sloughing, cracking, bulging, erosion, exposure of geosynthetic materials and signs of burrowing animals (rodent holes) are evaluated as part of the annual inspection.

#### 3.3.5.2 Maintenance

Vegetation on the caps and surrounding areas is mowed semiannually (late spring/early summer and late summer). The mowing schedule is adjusted as site-specific conditions warrant. Woody plant species growing on the cap are manually removed. Currently, there are no outstanding maintenance issues on the landfill covers.

### 3.3.6 Settlement Monuments

Areas of significant settlement within the landfill cap boundaries may indicate damage to the underlying cap components and are repaired according to industry practices and procedures under the supervision of the project engineer. Settlement monuments were installed at OU-4 in April 1998. Elevations of these concrete monuments are periodically measured by a licensed surveyor and compared to previous elevations to evaluate landfill cap settlement, as described in Section 3.3.6.2.

#### 3.3.6.1 Inspections

The settlement monuments and guard posts are inspected annually for damage. During the FY21 settlement monument survey it was noted that the concrete monuments are deteriorating and may require repair. A photograph of a monument is included in Appendix D.

#### 3.3.6.2 Elevation Measurement

The 13 settlement monuments were surveyed by a licensed surveyor in FY20. Settlement monument elevations and locations were initially measured in April 1998. Subsequent survey elevations are presented in Table 3-6 and are currently measured every five years as documented in *Tab B – Operation and Maintenance Plan in the OU-4 RACR, Volume 4* (Tetra Tech, October 2014). The differential settlement between the last two survey dates is equal to or less than 0.03 feet and the total percent settlement is less than the 10.5% specification (noted as acceptable at the 10-year mark) presented in Section IIa of the *Closure and Post-closure Plans for Trench No. 5 of the Inert Landfill* (USACE, April 1998). Appendix J presents the 2020 settlement monument survey data.

#### 3.3.6.3 Maintenance

The professional surveyor that performed the FY20 settlement monument survey indicated that due to weathering of the concrete monuments since their installation in 1998, some repairs may be required for continued use. During the FY21 inspection in August 2021, the JV noted the poor condition of a number of survey monuments and recommends replacement of damaged monuments.

**Table 3-6 Settlement Monument Evaluation**

Monument ID	April 1998 Initial Elev. (ft.)	Nov. 1999 Elev. (ft.)	Oct. 2000 Elev. (ft.)	Nov. 2002 Elev. (ft.)	April 2012 Elev. (ft.)	April 2015 Elev. (ft.)	Sept. 2020 Elev. (ft.)	Total Settlement 2015-2020 (ft.)	Total Settlement (ft.)	Total Settlement* (%)
SM-1	723.71	723.61	723.67	723.63	723.15	723.14	723.17	0.03	-0.54	1.8
SM-2	720.4	720.31	720.35	720.3	719.81	719.8	719.83	0.03	-0.57	1.9
SM-3	715.82	715.71	715.78	715.73	715.27	715.26	715.29	0.03	-0.53	1.8
SM-4	711.82	711.71	711.76	711.68	711.14	711.12	711.15	0.03	-0.67	2.2
SM-5	706.36	706.22	706.28	706.17	705.58	705.55	705.55	0	-0.81	2.7
SM-6	700.32	700.28	700.36	700.3	699.86	699.88	699.91	0.03	-0.41	1.4
SM-7	719.75	719.64	719.7	719.66	719.16	719.15	719.17	0.02	-0.58	1.9
SM-8	715.44	715.31	715.35	715.3	714.74	714.72	714.73	0.01	-0.71	2.4
SM-9	707.87	707.71	707.86	707.78	707.26	707.25	707.26	0.01	-0.61	2
SM-10	716.75	716.66	716.73	716.68	716.17	716.16	716.19	0.03	-0.56	1.9
SM-11	713.89	713.71	713.74	713.65	713.01	712.97	712.94	-0.03	-0.95	3.2
SM-12	710.11	709.93	709.92	709.81	709.14	709.11	709.08	-0.03	-1.03	3.4
SM-13	714.51	714.37	714.42	714.36	713.82	713.8	713.81	0.01	-0.7	2.3

ft. = foot or feet

ID = identification

\*based on assumed 30-foot landfill depth

**3.3.7 Gas Vents**

A dewatering system of passive gas vents was installed to minimize groundwater contact with the landfill waste. Eight passive gas vents within the inert landfill were designed to allow gas and leachate removal from the six original landfill trenches (Trenches 1 through 6). The gas vents were connected through underground piping to the FFWTP and water that accumulated in the passive gas vents was pumped to the FFWTP for treatment and discharge using an automatic airlift pump system. The dewatering system was operated for one year, as recommended in the five-year review (USACE, December 2004) and deactivated in 2006.

**3.3.7.1 Inspections**

Gas vents, perimeter gas probes and guard posts were inspected in August 2021. There was no damage or excessive wear that required maintenance. The results of the inspection are summarized in Appendix D.

**3.3.7.2 Maintenance**

Currently there are no outstanding maintenance issues related to landfill gas vents.

**3.3.8 Monitoring Wells**

Twenty-seven monitoring wells are associated with OU-4. A log of the monitoring wells is provided in Appendix E.

***3.3.8.1 Inspections***

Monitoring wells in OU-4 were inspected in August 2021. The results of the inspection are summarized on the monitoring well log provided in Appendix E. Several photographs of monitoring wells are included in Appendix E. Lockable OU-4 monitoring wells have locks pursuant to the IAAAP-wide patented security lock system.

***3.3.8.2 Maintenance***

Government locks have been placed on OU-4 monitoring wells that can be locked. There are no imminent maintenance needs for OU-4 monitoring wells.

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#### 4.0 OPERATION AND MAINTENANCE AT LINE 1 AND LINE 800

The Line 1 Impoundment and Line 800 Lagoon were built in the 1940s to serve as settling ponds to reduce particulates before discharge into a tributary of Brush Creek. This practice was discontinued in the 1970s and engineered wetlands with hydraulic controls were established for controlled releases to a tributary of Brush Creek. In 1997, remedial action was conducted and wetland plants were established naturally, providing local ecological enhancement.

O&M activities at Line 1 and Line 800 include but are not limited to: O&M of the treatment system used to treat water discharged from the Line 1 Impoundment; O&M of the mobile treatment system used to treat water discharged from the Line 800 Lagoon; hydraulic control of surface water elevations via treated or direct release from Line 1 Impoundment and Line 800 Lagoon; access road maintenance including snow removal; mowing and other clearing of vegetation; inspection and repair of erosion controls; and repair of erosion or animal-related damage to land features. More detail regarding O&M activities is provided in the following sections.

##### 4.1 INSPECTIONS

Water levels in the Line 1 Impoundment and the Line 800 Lagoon are monitored weekly by on-site operations staff. Water levels are tabulated on the treatment release log and the elevations and rain gauge form provided in Appendix F. As water levels rise, water is released into Brush Creek and/or its tributaries. One annual inspection was conducted virtually by the JV's Professional Engineer via streaming video recorded by the JV's onsite O&M operator during the reporting period, in August 2021 (Appendix F). Observations from the annual inspection are included in Table 4-1.

The Line 1 Impoundment relies on a GAC treatment system to treat discharge. The on-site operator observes the treatment system components daily when the system is operating and weekly otherwise. Observations are recorded on the operator logs and Line 1 Impoundment treatment release log provided in Appendix F.

**Table 4-1 Line 1 Impoundment and Line 800 Lagoon Inspection Observations**

Item	Inspection Observations	Resolution
<b>Line 1 Impoundment</b>		
1	The hydraulic inlet structure has not been utilized for several years. The gate valve was opened and closed in 2018. The valve is not needed to function unless Brush Creek flow is intended to enter the impoundment.	Resolution not required.
2	Sediment has been recently removed. A temporary mobile water treatment system added to facilitate water removal. Once all water is removed, survey will be conducted. The temporary mobile water treatment system will then be shut off and removed.	Resolution not required.
<b>Line 800 Lagoon</b>		
1	There is no inlet structure. Storm water runoff enters lagoon by overflow.	Resolution not required.
2	The piping used for siphoning water from the lagoon is a 12” buried siphon line with riprap at the discharge end. Line discharges beyond the abutment.	Resolution not required.
3	Installed a 12” emergency overflow pipe on the northwest side of the lagoon with riprap in 2018.	Resolution not required.
4	New rain gauge installed as previous one destroyed by hail.	Resolution not required.
5	Water well not sampled.	Resolution not required.

**4.2 OPERATIONS**

The Line 1 Impoundment and Line 800 Lagoon are maintained to monitor RDX concentrations before release to Brush Creek. Operations at these areas are provided in this section.

**4.2.1 Line 1 Impoundment**

The operational features of the system include upstream and downstream hydraulic control structures to control water levels within the impoundment and a GAC treatment system to treat discharge waters to concentrations below the RDX health advisory level of 2 µg/L. Water levels in the impoundment are observed weekly and are recorded in the treatment release log and the elevations and rain gauge log (Appendix F). When water levels exceed the action discharge elevation (ADE), hydraulic relief is performed using the GAC treatment system. Equipment and methods are in place to perform and measure a direct, untreated release from the impoundment for hydraulic control; however, all Line 1 Impoundment water was treated prior to discharge in FY21. Sampling rationale and analytical results are provided in Section 4.2.1.1.

Similar to the FFWTP, major components of the Line 1 treatment system were upgraded in November and December of 2017. During this time, the treatment system was not in operation. New components included the GAC vessels, bag filter housing, pumps, piping and the treatment system control panel. As-built drawings of the new system components are included in Appendix G.

To help treat the volume of water in the impoundment during sediment removal activities described in Section 4.3.1, the mobile treatment trailer (MTT) was mobilized to Line 1 in April 2021 and operated in conjunction with the fixed Line 1 treatment system through September 2021.

Table 4-2 presents the monthly treatment discharge totals from the Line 1 Impoundment. Line 1 Impoundment water elevations and treatment system flow meter readings, bag filter changes and backflush events are recorded in the direct release log provided in Appendix F. During the FY21 reporting period, 7,623,928 gallons of water were treated and released into Brush Creek, and a direct release of untreated water was not performed.

**Table 4-2 Line 1 Impoundment Treatment Discharge Totals**

Year	Month	Line 1 Fixed Treatment Discharge (gal)	Mobile Treatment Trailer Discharge (gal)	Total Treatment Discharge (gal)
2020	October	10,372	-	10,372
	November	77,062	-	77,062
	December	135,292	-	135,292
2021	January	103,236	-	103,236
	February	341,920	-	341,920
	March	775,594	-	775,594
	April	1,484,932	-	1,484,932
	May	731,414	1,067,440	1,798,854
	June	149,032	416,530	565,562
	July	520,208	469,290	989,498
	August	744,742	511,360	1,256,102
	September	85,504	-	85,504
<b>Grand Total</b>		<b>5,159,308</b>	<b>2,464,620</b>	<b>7,623,928</b>

gal = gallon or gallons

Sampling

During the reporting period, sampling was conducted as presented in Table 4-3. Table 4-4 presents the analytical sampling results by sample type for direct release and treatment release. No effluent samples exceeded the RDX criteria of 2 µg/L. Based on the AFC unit sample results, carbon replacement of approximately 1,000 lbs of GAC in the lead vessel was performed in April 2021 and again in June 2021. Analytical data is presented in Volume II of this report and the associated data validation report is provided in Appendix H.

**Table 4-3 Line 1 Impoundment Sample Types and Frequencies**

Release Type	Sample Type	Sample Locations/Description	Rationale	Frequency	Analysis
Direct Release	4-point composite	Prerelease impoundment	Determine RDX concentrations within the impoundment waters	Prior to starting direct release	Explosives (8330): RDX
	Direct Release Monitoring (DRM)	Point of discharge	Determine RDX concentrations being released to Brush Creek	Weekly	Explosives (8330): RDX
	Field Screening	1) Prerelease impoundment at control structure 2) Discharge point 3) Brush Creek – upstream and downstream	Evaluate prerelease turbidity and/or stream quality during direct release	1) Prior to starting direct release 2) Daily 3) Daily	Turbidity
Treated Release	Effluent	Grab sample from effluent sampling port	Determine RDX concentrations being released to Brush Creek	Weekly	Explosives (8330): RDX
	Influent	Grab sample from influent sampling port	Evaluate treatment effectiveness	Monthly during continual operation	Explosives (8330): RDX
	AFC unit	Grab sample from sampling port after first carbon unit	Evaluate status of the carbon (RDX concentrations below 2 µg/L)	Monthly during continual operation	Explosives (8330): RDX

AFC = after first carbon

DRM = direct release monitoring

RDX = royal demolition explosive

**Table 4-4 Line 1 Impoundment RDX Sampling Results**

Date	Line 1 Influent (µg/L)	Line 1 AFC Unit (µg/L)	MTT Influent (µg/L)	MTT AFC Unit (µg/L)	Line 1 Discharge (µg/L)	MTT Discharge (µg/L)	Line 1 Pool (µg/L)	Sample Type	Release Type
12/14/2020	0.42	0.094 U	-	-	0.094 U	-	-	Influent, AFC, Effluent	Treatment
12/21/2020	-	-	-	-	0.095 U	-	-	Effluent	Treatment
1/25/2021	0.26	0.094 U	-	-	0.094 U	-	-	Influent, AFC, Effluent	Treatment
2/1/2021	-	-	-	-	0.096 U	-	-	Effluent	Treatment
2/23/2021	0.77	0.19	-	-	0.094 U	-	-	Influent, AFC, Effluent	Treatment
3/3/2021	1.3	0.61	-	-	0.099	-	-	Influent, AFC, Effluent	Treatment



**Table 4-4 Line 1 Impoundment RDX Sampling Results – Continued**

Date	Line 1 Influent (µg/L)	Line 1 AFC Unit (µg/L)	MTT Influent (µg/L)	MTT AFC Unit (µg/L)	Line 1 Discharge (µg/L)	MTT Discharge (µg/L)	Line 1 Pool (µg/L)	Sample Type	Release Type
3/8/2021	-	-	-	-	0.094 U	-	-	Effluent	Treatment
3/16/2021	-	<b>0.73</b>	-	-	0.095 U	-	<b>3.5</b>	AFC, Effluent, Pool	Treatment, Pre-release
3/22/2021	-	-	-	-	<b>0.17</b>	-	-	Effluent	Treatment
3/29/2021	-	-	-	-	<b>0.089</b>	-	-	Effluent	Treatment
4/5/2021	<b>3.4</b>	<b>1.6</b>	-	-	<b>0.23</b>	-	-	Influent, AFC, Effluent	Treatment
4/12/2021	-	-	-	-	<b>0.71</b>	-	-	Effluent	Treatment
4/19/2021	-	-	-	-	<b>1.4</b>	-	-	Effluent	Treatment
4/26/2021	-	-	<b>8.5</b>	0.095 U	<b>1.4</b>	0.095 U	-	Influent, AFC, Effluent	Treatment
5/10/2021	-	-	-	-	-	0.094 U	-	Effluent	Treatment
5/17/2021	-	-	-	-	0.094 U	0.095 U	-	Effluent	Treatment
5/24/2021	<b>10.3</b>	<b>2.1</b>	-	0.095 U	-	-	-	Influent, AFC, Effluent	Treatment
6/1/2021	-	-	-	-	<b>1.9</b>	0.094 U	-	Effluent	Treatment
6/22/2021	-	-	<b>0.40</b>	0.097 U	-	0.095 U	-	Influent, AFC, Effluent	Treatment
6/29/2021	-	-	-	-	-	0.095 U	-	Effluent	Treatment
7/12/2021	-	-	-	-	0.094 U	0.67 U	-	Effluent	Treatment
7/19/2021	-	-	-	-	0.095 U	0.095 U	-	Effluent	Treatment
8/12/2021	-	-	-	-	0.096 U	0.096 U	-	Effluent	Treatment
8/16/2021	<b>52.8</b>	<b>0.65</b>	-	<b>0.43</b>	0.096 U	0.094 U	-	Influent, AFC, Effluent	Treatment
8/23/2021	-	-	-	-	0.095 U	0.095 U	-	Effluent	Treatment
8/30/2021	-	-	-	-	0.095 U	0.096 U	-	Effluent	Treatment
9/27/2021	<b>19.5</b>	<b>0.39</b>	-	-	0.095 U	-	-	Influent, AFC, Effluent	Treatment

**Bold** = Detection  
 AFC = after first carbon  
 U = non-detect

Reported to the method detection limit  
 - = no sample collected  
 µg/L = micrograms per liter

Spent Carbon and Bag Filter Disposal

In April 2021, approximately 1,000 pounds of spent carbon were collected from the lead vessel of the Line 1 treatment system and containerized in 55-gallon drums. New carbon purchased from Calgon was used to replace the spent material and the lead and lag vessels were interchanged. In June 2021, an additional 1,000 pounds of spent carbon was collected from the lead vessel of the Line 1 treatment system and replaced with new carbon purchased from Calgon. In coordination with AO, spent carbon and used bag filters from Line 1 are handled by Area Disposal Service, Inc. and disposed as non-hazardous non-special waste under permit # 31-2833 at the Hickory Ridge Landfill located at 32246 375<sup>th</sup> Street in Baylis, Illinois. Disposal records are included in Appendix I.

**4.2.2 Line 800 Lagoon**

The Line 800 Lagoon naturally collects stormwater runoff, which may or may not contain elevated levels of RDX. The operational features of the system include two lagoons (one small lagoon that feeds into a larger lagoon) that are connected by a culvert comprised of two 6-inch PVC pipes to control the water level in the small lagoon. Water levels in the lagoons are checked weekly and recorded on the elevations and rain gauge form provided in Appendix F. In 2018, a mobile treatment unit was constructed for use at Line 800, when needed. As-built drawings of the mobile treatment system are included in Appendix G.

Sampling

Table 4-5 lists the types of samples that could be collected at the Line 800 Lagoon. Release of water from the Line 800 Lagoon was not required during FY21 and no water sampling was performed.

**Table 4-5 Line 800 Lagoon Sample Types and Frequencies**

Release Type	Sample Type	Sample Locations/ Description	Rationale	Frequency	Required Analysis
Direct Release	2-point and/or 4-point composite	Prerelease lagoon	Determine RDX concentrations within the impoundment waters	Prior to starting direct release	Explosives (8330): RDX
	Direct release monitoring	Point of discharge	Determine RDX concentrations being released to Brush Creek	Weekly during release	Explosives (8330): RDX
	Field screening	1) Prerelease lagoon at intake point 2) Discharge point 3) Brush Creek - upstream and downstream	Evaluate prerelease turbidity and/or stream quality during direct release	1) Prior to starting direct release 2) Daily 3) Daily	Turbidity

RDX = royal demolition explosive

**4.3 MAINTENANCE**

The following sections describe the various maintenance action items at the Line 1 Impoundment and Line 800 Lagoon during FY21.

**4.3.1 Line 1 Impoundment**

Upper and Lower Gate Control Structures

No maintenance activities were required in FY21. The stoplog system within the lower gate control structure was replaced as described in the *Final Operations and Maintenance Plan, OU-1 Line 1 Impoundment and Line 800 Lagoon* (the JV, October 2017) and the as-built drawing is included in Appendix G.

Embankments

No maintenance activities were required in FY21. The Line 1 embankments and the surrounding areas were mowed as needed to control vegetation growth and identify any areas needing additional grass. At the request of the Army, phragmites observed along the eastern embankment of the lagoon were burned by the AO fire department in 2018 and the area has been observed and treated to prevent regrowth of the invasive species in FY21.

Slope/Burrow Repairs

No slope or burrow repairs were required in FY21.

Scour Hole

No maintenance activities were required in FY21.

Grouted Drop Structure

No maintenance activities were required in FY21.

Signs

Line 1 Impoundment signs and locations are presented on Figure 3. Existing signs were installed in 2016 and one new sign was installed at the new safety gate in FY20. No other maintenance activities were required in FY21.

Rock Surface

No maintenance activities were required in FY21.

Texas Crossing

At some point during FY21, the Texas Crossing bridge was demolished and removed by others. An access road was constructed in FY18 as a bypass to Texas Crossing.

Line 1 Access Road

A gravel access road to Line 1 Impoundment from D Road was installed in FY18 to bypass Texas Crossing and avoid entering the Line 1 safety arc. As part of the road installation, the safety fence was relocated and a new gate was installed. The access road, gate and sign are shown on Figure 3. No maintenance activities other than adding gravel top as needed were required in FY21.

Emergency Overflow Structure

No maintenance activities were required in FY21. An emergency overflow structure was installed at Line 1 Impoundment in FY18. As-built drawings of the structure are included in Appendix G.

Line 1 Impoundment Capacity

In FY19, overflow conditions that resulted in an untreated discharge from the impoundment occurred during heavy rainfall despite the treatment system operating full time. Upon inspection, up to two feet of accumulated sediment was measured across the base of the impoundment, indicating the impoundment's capacity had been significantly reduced since its construction in 1997. Additionally, excess sediment built up around the treatment system's inlet was washing into the treatment system and clogging the system's bag filters, obstructing flow and reducing treatment rates, which further compounded issues caused by reduced capacity in the impoundment.

To restore the impoundment's capacity, the JV removed approximately 4,339.7 tons of accumulated sediment from the impoundment in FY21. Sediment removal was performed as outlined in the *Final Work Plan – Restore Capacity of the Line 1 Impoundment* (The JV, November 2020) using an excavator while the impoundment's water level was drawn down. Removed sediment was staged along the impoundment's embankments to drain, and then transported to the Des Moines County (DMC) Landfill located at 13758 Washington Road in West Burlington, Iowa for disposal. Waste characterization analytical results were reviewed and approved by the DMC Landfill before the JV

mobilized the excavation equipment to the Site. Photographs of sediment removal activities are provided in Appendix K. Waste manifests are included in Appendix L.

Prior to sediment removal activities, a topographic survey of the impoundment was completed. The pre-removal topographic survey is included in Appendix M. A post-sediment removal topographic survey is included in Appendix N.

#### **4.3.2 Line 800 Lagoon**

##### Water Control Structure

No maintenance activities were required in FY21. The siphon line used to drain the lagoon was permanently installed underground with a control valve built inside weather proof housing. Revetment stone was placed at the outfall of the siphon line.

##### Embankments

The Line 800 embankments and the surrounding areas were mowed as needed to control vegetation growth and identify any areas needing additional grass. No other maintenance activities were required in FY21.

##### Slope/Burrow Repairs

No slope or burrow repairs were completed in FY21.

##### Signs

One new sign was added to the Line 800 Pinkwater Lagoon area in FY18 as part of the OU1 LUC requirement, shown in Figure 4 as a bright yellow sign. No maintenance activities were required in FY21.

##### Rock Surface

No maintenance activities were required in FY21.

##### Emergency Overflow Structure

An emergency overflow structure was installed at Line 800 Lagoon in FY18. As-built drawings of the structure are included in Appendix G. No maintenance activities were required in FY21.

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## 5.0 OBSERVATIONS AND RECOMMENDATIONS

### 5.1 ANNUAL INSPECTIONS

Annual inspections of OU-4, Line 1 Impoundment and Line 800 Lagoon were conducted in July 2021. The compliance inspection checklists completed during the inspection visit and the associated photograph logs are provided in Appendix D. Results of the inspections were discussed within the relevant portions of Sections 3.0 and 4.0. No significant issues were identified during the FY21 annual inspections.

While not identified during the annual inspection, the professional surveyor that performed the ILF settlement monument survey in September 2020 indicated the monuments are becoming weathered and may require repair for continued use. The settlement monuments were evaluated by the JV in FY21 and recommends replacement.

### 5.2 FFWTP

The FFWTP operated normally during FY21. There are no recommendations for the FFWTP.

### 5.3 LINE 1 IMPOUNDMENT

As reported in Section 4.3.1, the JV removed approximately 4,339.7 tons of accumulated sediment from the impoundment to restore the impoundment's capacity in FY21. There are no recommendations for Line 1 Impoundment.

### 5.4 LINE 800 LAGOON

No issues were noted throughout FY21. The Line 800 mobile treatment trailer requires storage over the winter, it is recommended that a storage structure be constructed at Line 1 Impoundment or IDA to store the mobile treatment trailer while it is not in use.

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## 6.0 REFERENCES

Aerostar SES LLC (ASL), January 2016. *Final Revision 1 Operable Unit (OU)-4 Remedial Action Work Plan Inert Disposal Area (IDA) Boundary Fence Installation at the Iowa Army Ammunition Plant Middletown, Iowa.*

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PARS Environmental and Gannett Fleming Joint Venture (JV), October 2017. *Final Operation and Maintenance (O&M) Plan, OU-4 Fixed Facility Water Treatment Plant, Iowa Army Ammunition Plant, Middletown, Iowa.*

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PARS Environmental and Gannett Fleming JV, July 2020. *Final Annual FY19 LUC and O&M Report, Iowa Army Ammunition Plant, Middletown, Iowa.*

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Tetra Tech, September 2014b. *Final OU-4 Remedial Action Work Plan IDA Boundary Fence Installation at the Iowa Army Ammunition Plant Middletown, Iowa.*

URS, 2002. *Draft Final Facility-Wide Work Plan Iowa Army Ammunition Plant Middletown, Iowa.*

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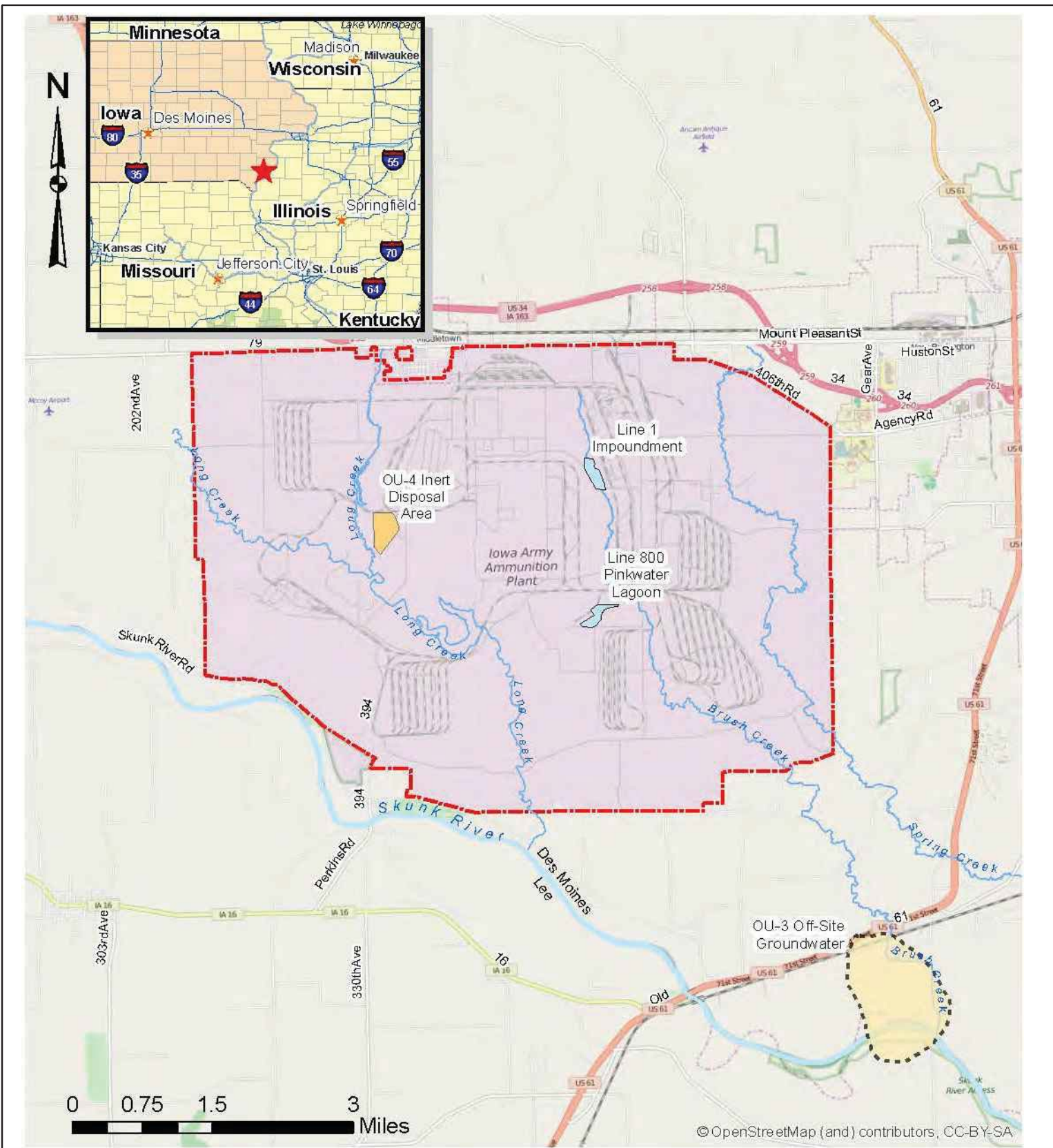
## **FIGURES**

**FIGURE 1 - SITE LOCATION MAP**

**FIGURE 2 - OPERABLE UNIT-4 SITE PLAN**


**FIGURE 3 - LINE 1 IMPOUNDMENT SITE PLAN**

**FIGURE 4 - LINE 800 LAGOON SITE PLAN**



**Legend**

 Project Location

 Installation Boundary

NOTE: FIGURE TAKEN FROM THE OU-4 FFWTP O&M PLAN (AEROSTAR, OCTOBER 2016)



FIGURE 1  
SITE LOCATION MAP  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA



PARS ENVIRONMENTAL, INC.  
500 HORIZON DRIVE SUITE 540 ROBBINSVILLE, NEW JERSEY

DRAWN BY: MN





JOB NUMBER: 895-16

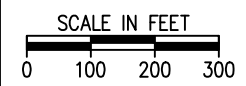
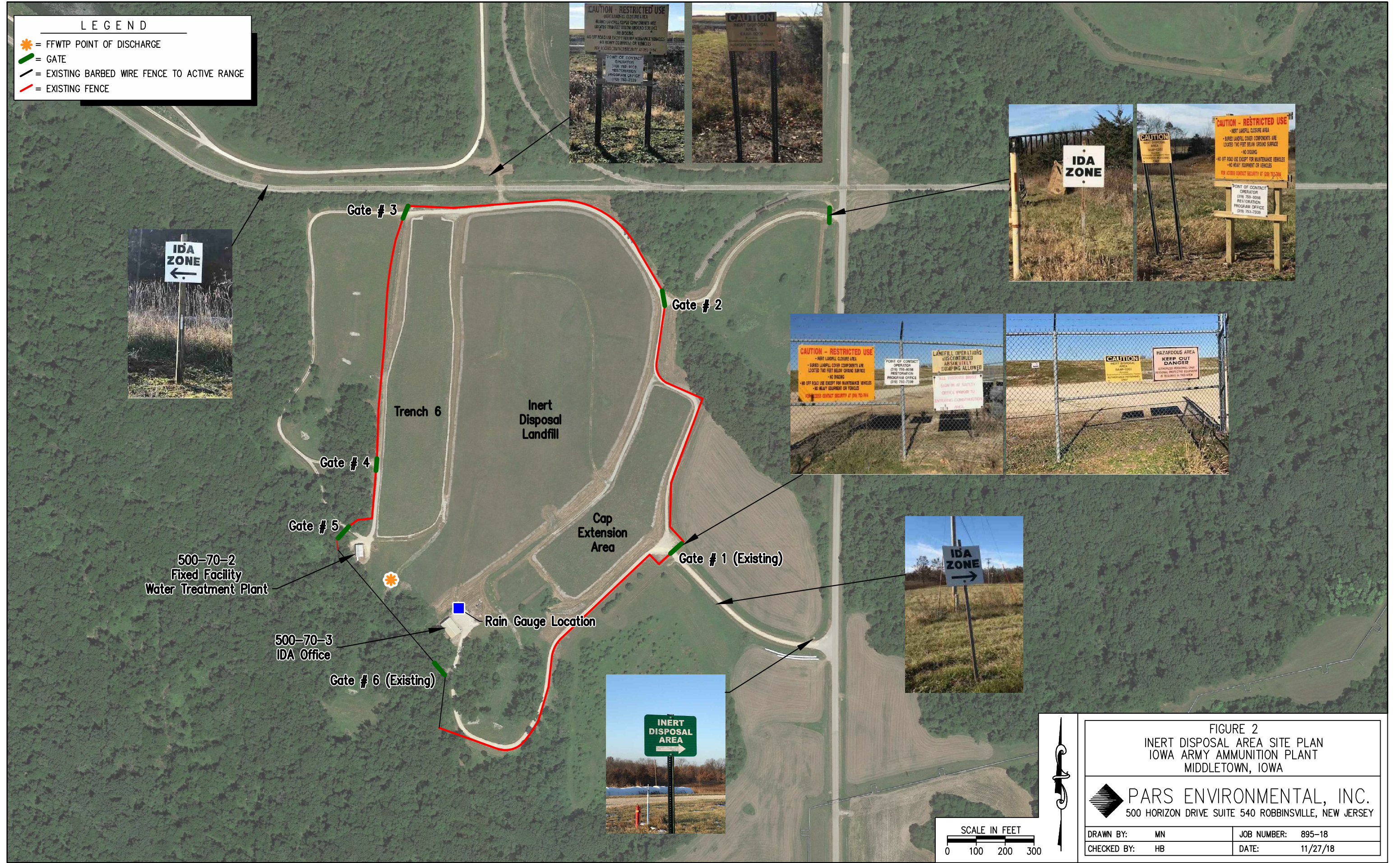
CHECKED BY: HB

DATE: 6/1/17



**LEGEND**

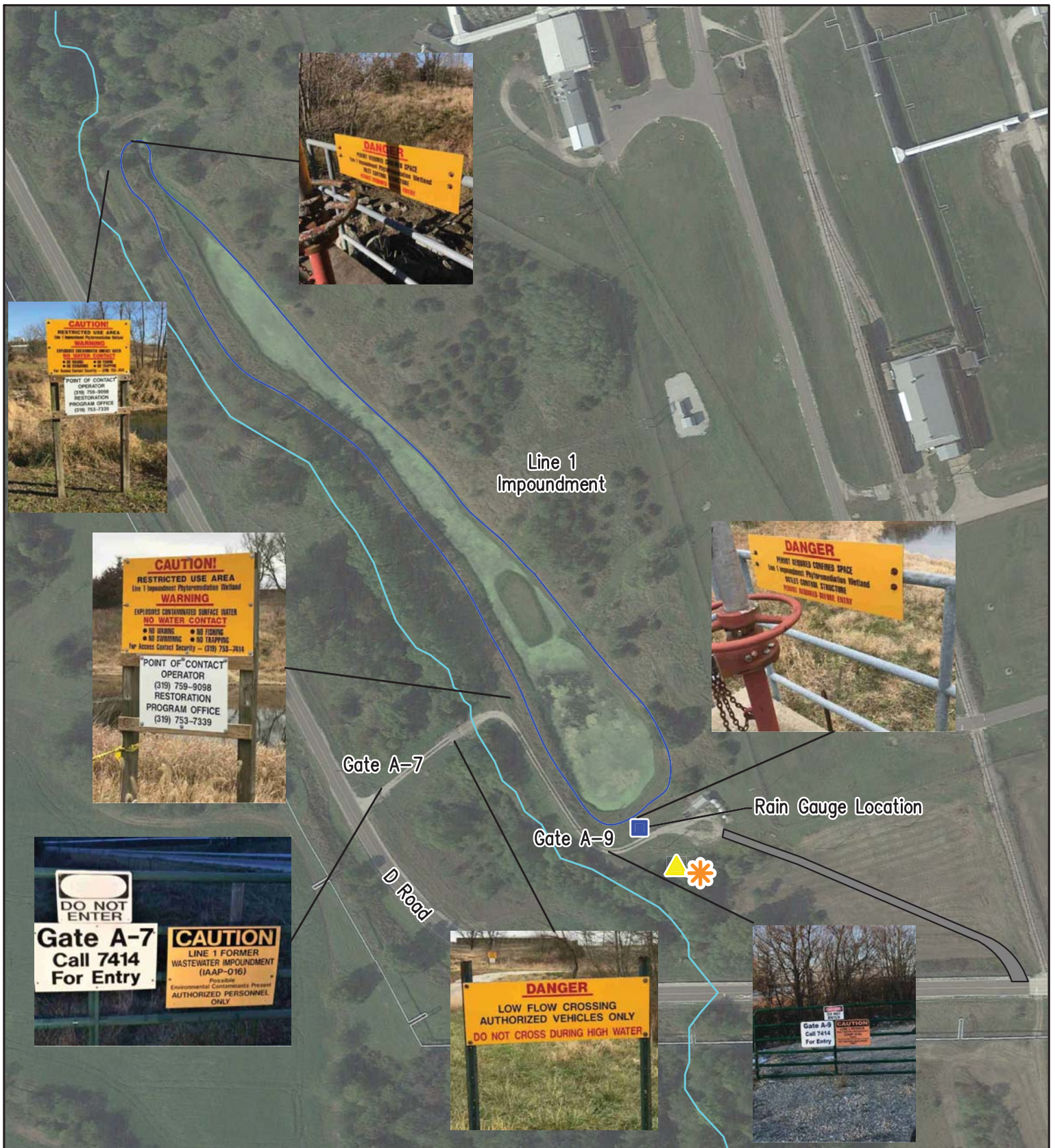
-  = FFWTP POINT OF DISCHARGE
-  = GATE
-  = EXISTING BARBED WIRE FENCE TO ACTIVE RANGE
-  = EXISTING FENCE



**FIGURE 2**  
**INERT DISPOSAL AREA SITE PLAN**  
**IOWA ARMY AMMUNITION PLANT**  
**MIDDLETOWN, IOWA**

**PARS ENVIRONMENTAL, INC.**  
 500 HORIZON DRIVE SUITE 540 ROBBINSVILLE, NEW JERSEY

DRAWN BY: MN	JOB NUMBER: 895-18
CHECKED BY: HB	DATE: 11/27/18



Line 1  
Impoundment






Gate A-7

Gate A-9

Rain Gauge Location

D Road

**LEGEND**

-  = DIRECT RELEASE MONITORING LOCATION
-  = TREATMENT DISCHARGE PIPE
-  = CREEK
-  = LINE 1 IMPOUNDMENT
-  = LINE 1 ACCESS ROAD



**FIGURE 3**  
LINE 1 IMPOUNDMENT SITE PLAN  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA

 **PARS ENVIRONMENTAL, INC.**  
500 HORIZON DRIVE SUITE 540 ROBBINSVILLE, NEW JERSEY

DRAWN BY: MN	JOB NUMBER: 895-18
CHECKED BY: HB	DATE: 11/27/18



Rain Gauge Location

Line 800 Lagoon

**LEGEND**

- = DIRECT RELEASE MONITORING LOCATION
- = LINE 800 LAGOON

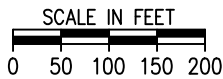


FIGURE 4  
 LINE 800 LAGOON SITE PLAN  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA

**PARS ENVIRONMENTAL, INC.**  
 500 HORIZON DRIVE SUITE 540 ROBBINSVILLE, NEW JERSEY

DRAWN BY:	MN	JOB NUMBER:	895-18
CHECKED BY:	BC	DATE:	5/12/22

**APPENDIX A**  
**ENVIRONMENTAL WORK INSTRUCTION E01-012, SECTION 8.4.1**

**8.4.1. LUC Implementation and Responsibility**

LUC Restrictions	OU4 - LUC Implementation and Responsibility		
	Applicable Areas (Listed in Section 8.4.1.)	Engineering Controls (Physical)	Institutional Controls (Administrative)
<p><b>Land Use Restrictions</b></p> <p>Land Use at the IDA will remain non-residential and industrial</p>	All		<p><b>USACE Real Estate Division:</b> Remove OU-4 Areas from list of available land for residential land use.</p>
<p><b>Access Restrictions</b></p> <p>(i.e., authorized activities, dig permit requirements)</p>	All	<p><b>AO Security:</b> Maintain distribution and log any keys to OU-4 areas and monitoring wells.</p>	<p><b>AO Engineering:</b> Review new and continuing projects for access issues.</p> <p><b>Army:</b> Review new and continuing projects for access issues; Review and verify OU-4 Area gate key requests; Ensure <i>IAAAP Regulation 420-1 Hunting and Fishing</i> are updated for OU-4 Area LUCs.</p>
<p><b>Construction Restrictions</b></p>	All	<p><b>Army:</b> Inspect and maintain landfill cap boundary fence.</p>	<p><b>AO Engineering:</b> Review new and continuing projects for intrusive activities, report to Army annually by 1 April.</p> <p><b>USACE Real Estate Division:</b> Add construction restriction language to leases.</p>
<p><b>Groundwater Restrictions</b></p>	All	<p><b>Army:</b> Inspect and maintain groundwater monitoring wells</p>	<p><b>USACE Real Estate Division:</b> Add groundwater use restriction language to leases.</p>
<p><b>Fencing and signs</b></p>	IAAAP Boundary and site specific at: - Inert Disposal Area	<p><b>AO Maintenance:</b> Inspect and maintain IAAAP perimeter and OU-4 area specific fencing and signage.</p>	
<p><b>LUC Monitoring</b></p> <p>Requirement for routine inspections to ensure LUCs remain in place and effective.</p>	All		<p><b>AO Maintenance:</b> Report to Army annually by 1 April that inspections have been completed.</p>

**APPENDIX B**  
**LAND USE CONTROL INSPECTION CHECKLIST**

**Operable Unit 4 (CU-4) - Inert Disposal Area  
Land Use Control Inspection Checklist 2021**

**Inspected By:** Ramjee Raghavan, PhD, PE, PMP, LEED,

**Company (organization)** PARS ENVIRONMENTAL INC.(PARS)

**Date:** 8/6/2021

Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
Has site or adjacent land use changed since the last inspection?	N	Property remains industrial/non-residential; no known or anticipated property transfers or leases.	None. Refer to Sec. 2.2.2
Is there visual or administrative evidence of excavation or soil disturbance? If so, determine if the site approval process has been followed.	N	Site walkover conducted in August 2021. No evidence of soil disturbance noted.	None. Refer to Sec. 2.2.2
Has access control been maintained? (Review security reports)	Y	Yes; key access approval process followed and access is restricted. Gates locked.	None. Refer to Sec. 2.2.1.1
Has the cover/cap system been maintained? (Review annual O&M inspections and maintenance records)	Y	Yes; reviewed maintenance records and conducted inspection of facility.	Refer to to Table 3.1 , 3.2, and 3.5.or Sec 3.0
Have remedy monitoring systems been maintained? (Review well inspection forms, settlement monument measurements)3.5	Y	Yes; settlement monuments surveyed. Settlement is acceptable. No major repairs to site monitoring wells were noted during the inspection. Some wells require government locks.	Refer to Sec. 3.3

I certify that the conditions of Operable Unit 4, Inert Disposal Area on the inspection date were as reported above.

Ramjee Raghavan, PhD, PE,  
IA PE License 24213



DATE

8/6/21

## **APPENDIX C**

### **NEW PROJECT REVIEW FORMS**

During the reporting period, no new project triggered the new projects review process.



**APPENDIX D**  
**COMPLIANCE INSPECTION CHECKLISTS AND PHOTOGRAPH LOG**

**Compliance Inspection Form  
Iowa Army Ammunition Plant**

**Permit #:**

**Page 1**

**Facility Name:** Trench 6 Landfill

**Responsible Official:** Dean Johnson

**County:** Des Moines, IA

**Address:** 17571 DMC Highway 79, Middleton, IA 52638

**Facility Operator:** Dean Johnson

**Phone:** (319) 759-9098

**Address:** 17571 DMC Highway 79, Middletown, IA 52638

**Date Last Inspection:** 9/4 2020

**Phone:** (319) 759-9098

**Date This Inspection:** 0806/2021

**Waste Amount:** Post-Closure

**At the Time of this Inspection:**

**Facility personnel present:** Dean Johnson (PARS Environmental, Inc.)

**Surface conditions:** Good, dry, not frozen

**Active unit(s):** None

**Ambient temperature:** Low 70

**Wind direction and speed:** S, 4 mph,

**Yes** – compliance was being achieved; **No** – compliance was not being achieved,  
**N/A** – not applicable or not observed; **PND** – previously noted deficiency (PND).

**I. Documents and Record Keeping:**

Yes	No	N/A	PND	Item	Yes	No	N/A	PND	Item
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Permit/Amendment documents	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Financial assurance
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Site exploration report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Storm water permit
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Plans/Specs and QC&A Reports	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. SWA/SWAC documentation
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Waste screening inspection records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Operator Certification
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Leachate recirculation authorization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. DOPs
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Gas monitoring/remediation results	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. ERRAP
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Groundwater monitoring results	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Other
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Closure/Postclosure plans/results					

**II. Operating Procedures:**

Yes	No	N/A	PND	Item	Yes	No	N/A	PND	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. All weather access road to facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Scavenging and Salvaging
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Controlled Access at facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. scavenging prohibited
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. fencing or other perimeter barriers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. salvaging authorized
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. entrance gate with lock	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. salvaged material orderly
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. safe/proper on-site traffic patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. salvage removal adequate
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Signage	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. Animal feeding and grazing
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. facility name and permit number	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. animal feeding prohibited
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. days and hours of operation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. grazing on final cover limited
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. wastes accepted/not accepted	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Survey controls and monuments
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. telephone # of resp. official	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. facility and waste boundaries surveyed and marked
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. All weather access road in facility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. survey monuments established
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Adequate vehicle queuing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. stakes clearly marked
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Certified scale used	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. Fill Sequencing
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Waste Screening	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. liner system protected
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. random inspections performed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. slope failure controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. inspection records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. differential settlement controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. run-on and runoff controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. EPA notification procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. Control of Workface
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Prohibited materials listing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. size of area controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Open Burning and Fire Hazards	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. slope is stable
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. open burning prohibited	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. litter control devices used
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. vehicle fueling prohibited within 50 feet of workface	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. vectors controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Special Waste Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. operator at workface
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. operator familiar with SWAC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. Run-on/Runoff Control Systems
					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. ponding controlled

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16. Waste Fill Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. dikes, ditches, berms & terraces intact
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. daily cover adequate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. tile lines maintained
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. alternative cover authorized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. Landfill Equipment
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. scarification of daily cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. working properly
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. intermediate cover adequate (30/180 day)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. backup equipment available
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. final cover maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25. Groundwater Monitoring Wells
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. Leachate seeps	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. wells intact
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. seeps identified and controlled	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. caps and locks
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. Leachate recirculation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	26. Gas Monitoring Wells/Points
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. composite liner	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	27. Emergency Procedures
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. RD&D authorization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. ERRAP available to staff
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. personnel protected	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. emergency numbers posted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. erosion controlled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28. Final Cover System
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. vegetation maintained	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. final cover over completed areas
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. Site Litter Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. seeded
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. on-site litter picked up daily	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. vegetation established
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. offsite litter picked up daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. run-on, runoff, and ponding controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. record of why litter not picked up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. differential settlement controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. Dust Control	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	29. Other
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. dust controlled as vehicles enter/exit facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. dust controlled on internal roads	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. dust controlled at the workplace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21. Mud Control	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. mud controlled as vehicles enter/exit facility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. Leachate Control and Treatment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. system operational	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. head measurement device	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. seeps controlled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. leachate tank maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. leachate lagoon maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	f. POTW agreement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	g. sanitary sewer discharge	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	h. NPDES discharge permit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	i. NPDES on-site treatment					

Comments:

-Continue to monitor for animal burrowing in landfill cap and notify the Project Engineer if signs of active burrowing are observed

**AUTHENTICATION**

<b>INSPECTOR</b>	Ramjee Raghavan PhD, PE IA, PE License 24213	Date: 08/06/2021
<b>REVIEWER</b>		

**Compliance Inspection Form  
Iowa Army Ammunition Plant**

Permit #:

Page 1

Facility Name: Inert Landfill (ILF)

Responsible Official: Dean Johnson

County: Des Moines

Address: 17571 DMC Highway 79, Middleton, IA 52638

Facility Operator: Dean Johnson

Phone: (319) 759-9098

Address: 17571 DMC Highway 79, Middletown, IA 52638

Date Last Inspection: 9/14/2020

Phone: (319) 759-9098

Date This Inspection: 08/05/2021

Waste Amount: Post Closure

**At the Time of this Inspection:**

Facility personnel present: Dean Johnson (PARS Environmental, Inc.)

Surface conditions: Good, Dry, Unfrozen

Active unit(s): None

Ambient temperature: Low 70's

Wind direction and speed: South, 4mph

**Yes** – compliance was being achieved; **No** – compliance was not being achieved,  
**N/A** – not applicable or not observed; **PND** – previously noted deficiency (PND).

**I. Documents and Record Keeping:**

Yes	No	N/A	PND	Item	Yes	No	N/A	PND	Item
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Permit/Amendment documents	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Financial assurance
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Site exploration report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Storm water permit
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Plans/Specs and QC&A Reports	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. SWA/SWAC documentation
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Waste screening inspection records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Operator Certification
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Leachate recirculation authorization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. DOPs
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Gas monitoring/remediation results	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. ERRAP
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Groundwater monitoring results	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Other
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Closure/Postclosure plans/results					

**II. Operating Procedures:**

Yes	No	N/A	PND	Item	Yes	No	N/A	PND	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. All weather access road to facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Scavenging and Salvaging
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Controlled Access at facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. scavenging prohibited
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. fencing or other perimeter barriers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. salvaging authorized
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. entrance gate with lock	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. salvaged material orderly
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. safe/proper on-site traffic patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. salvage removal adequate
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Signage	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. Animal feeding and grazing
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. facility name and permit number	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. animal feeding prohibited
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. days and hours of operation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. grazing on final cover limited
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. wastes accepted/not accepted	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Survey controls and monuments
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. telephone # of resp. official	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. facility and waste boundaries surveyed and marked
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. All weather access road in facility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. survey monuments established
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Adequate vehicle queuing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. stakes clearly marked
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Certified scale used	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. Fill Sequencing
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Waste Screening	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. liner system protected
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. random inspections performed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. slope failure controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. inspection records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. differential settlement controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. run-on and runoff controlled
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. EPA notification procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. Control of Workface
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Prohibited materials listing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. size of area controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Open Burning and Fire Hazards	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. slope is stable
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. open burning prohibited	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. litter control devices used
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. vehicle fueling prohibited within 50 feet of workface	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. vectors controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Special Waste Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. operator at workface
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. operator familiar with SWAC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. Run-on/Runoff Control Systems
					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. ponding controlled

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16. Waste Fill Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. dikes, ditches, berms & terraces intact
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. daily cover adequate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. tile lines maintained
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. alternative cover authorized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. Landfill Equipment
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. scarification of daily cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. working properly
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. intermediate cover adequate (30/180 day)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. backup equipment available
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. final cover maintained	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25. Groundwater Monitoring Wells
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. Leachate seeps	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. wells intact
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. seeps identified and controlled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. caps and locks
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. Leachate recirculation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26. Gas Monitoring Wells/Points
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. composite liner	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	27. Emergency Procedures
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. RD&D authorization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. ERRAP available to staff
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. personnel protected	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. emergency numbers posted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. erosion controlled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28. Final Cover System
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. vegetation maintained	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. final cover over completed areas
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19. Site Litter Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. seeded
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. on-site litter picked up daily	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. vegetation established
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. offsite litter picked up daily	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. run-on, runoff, and ponding controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. record of why litter not picked up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. differential settlement controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. Dust Control	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	29. Other
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. dust controlled as vehicles enter/exit facility					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. dust controlled on internal roads					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. dust controlled at the workplace					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21. Mud Control					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. mud controlled as vehicles enter/exit facility					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	22. Leachate Control and Treatment					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. system operational					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. head measurement device					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. seeps controlled					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. leachate tank maintained					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. leachate lagoon maintained					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	f. POTW agreement					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	g. sanitary sewer discharge					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	h. NPDES discharge permit					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	i. NPDES on-site treatment					

Comments:

- Continue to monitor animal burrowing in landfill; notify Project Engineer if sign of active burrowing is observed
- Grass recently mowed
- Survey monument in bad shape

**AUTHENTICATION**

<b>INSPECTOR</b>	Ramjee Raghavan, PhD, PE, IA PE License 24213	Date: 08/06/2021
<b>REVIEWER</b>		

**Compliance Inspection Form  
Iowa Army Ammunition Plant**

Permit #:

Page 1

Facility Name: CAE Landfill

Responsible Official: Dean Johnson

County: Des Moines, IA

Address: 17571 DMC Highway 79, Middleton, IA 52638

Facility Operator: Dean Johnson

Phone: (319) 759-9098

Address: 17571 DMC Highway 79, Middletown, IA 52638

Date Last Inspection: 9/4 2020

Phone: (319) 759-9098

Date This Inspection: 0806/2021

Waste Amount: Post-Closure

**At the Time of this Inspection:**

Facility personnel present: Dean Johnson (PARS Environmental, Inc.)

Surface conditions: Good, dry, not frozen

Active unit(s): None

Ambient temperature: Low 70

Wind direction and speed: S, 4 mph,

Yes – compliance was being achieved; No – compliance was not being achieved,  
N/A – not applicable or not observed; PND – previously noted deficiency (PND).

**I. Documents and Record Keeping:**

Yes	No	N/A	PND	Item	Yes	No	N/A	PND	Item
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Permit/Amendment documents	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Financial assurance
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Site exploration report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Storm water permit
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Plans/Specs and QC&A Reports	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. SWA/SWAC documentation
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Waste screening inspection records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Operator Certification
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Leachate recirculation authorization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. DOPs
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Gas monitoring/remediation results	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. ERRAP
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Groundwater monitoring results	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Other
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Closure/Postclosure plans/results					

**II. Operating Procedures:**

Yes	No	N/A	PND	Item	Yes	No	N/A	PND	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. All weather access road to facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Scavenging and Salvaging
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Controlled Access at facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. scavenging prohibited
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. fencing or other perimeter barriers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. salvaging authorized
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. entrance gate with lock	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. salvaged material orderly
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. safe/proper on-site traffic patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. salvage removal adequate
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Signage	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. Animal feeding and grazing
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. facility name and permit number	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. animal feeding prohibited
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. days and hours of operation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. grazing on final cover limited
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. wastes accepted/not accepted	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Survey controls and monuments
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. telephone # of resp. official	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. facility and waste boundaries surveyed and marked
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. All weather access road in facility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. survey monuments established
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Adequate vehicle queuing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. stakes clearly marked
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Certified scale used	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. Fill Sequencing
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Waste Screening	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. liner system protected
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. random inspections performed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. slope failure controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. inspection records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. differential settlement controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. run-on and runoff controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. EPA notification procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. Control of Workface
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Prohibited materials listing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. size of area controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Open Burning and Fire Hazards	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. slope is stable
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. open burning prohibited	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. litter control devices used
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. vehicle fueling prohibited within 50 feet of workface	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. vectors controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Special Waste Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. operator at workface
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. operator familiar with SWAC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. Run-on/Runoff Control Systems
					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. ponding controlled

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16. Waste Fill Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. dikes, ditches, berms & terraces intact
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. daily cover adequate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. tile lines maintained
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. alternative cover authorized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. Landfill Equipment
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. scarification of daily cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. working properly
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. intermediate cover adequate (30/180 day)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. backup equipment available
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. final cover maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25. Groundwater Monitoring Wells
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. Leachate seeps	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. wells intact
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. seeps identified and controlled	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. caps and locks
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. Leachate recirculation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	26. Gas Monitoring Wells/Points
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. composite liner	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	27. Emergency Procedures
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. RD&D authorization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. ERRAP available to staff
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. personnel protected	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. emergency numbers posted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. erosion controlled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28. Final Cover System
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. vegetation maintained	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. final cover over completed areas
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. Site Litter Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. seeded
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. on-site litter picked up daily	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. vegetation established
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. offsite litter picked up daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. run-on, runoff, and ponding controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. record of why litter not picked up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. differential settlement controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. Dust Control	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	29. Other
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. dust controlled as vehicles enter/exit facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. dust controlled on internal roads	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. dust controlled at the workplace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21. Mud Control	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. mud controlled as vehicles enter/exit facility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. Leachate Control and Treatment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. system operational	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. head measurement device	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. seeps controlled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. leachate tank maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. leachate lagoon maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	f. POTW agreement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	g. sanitary sewer discharge	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	h. NPDES discharge permit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	i. NPDES on-site treatment					

Comments:

-Continue to monitor for animal burrowing in landfill cap and notify the Project Engineer if signs of active burrowing are observed

**AUTHENTICATION**

<b>INSPECTOR</b>	Ramjee Raghavan PhD, PE IA, PE License 24213	Date: 08/06/2021
<b>REVIEWER</b>		



**CEA North enc top looking south (August 2021).**





**CEA toe drain east side looking north (August 2021).**



**CEA west side looking south (August 2021).**



**CEA rip rap channel (August 2021).**



**CEA south end top looking north (August 2021).**

# COMPLIANCE INSPECTION CHECKLIST

Date: 08/06/2021

Time: 0930

Facility Name: Line 1 Impoundment

County: Des Moines, IA      Weather & Site Conditions: Low 70s cloudy

Impoundment Level: 670 feet

Inspectors: Ramjee Raghavan, PhD, PE (IA PE 24213)

Others: Dean Johnson, Operator

Check Area As Inspected	<b><u>EMBANKMENT</u></b>		<b><u>Action</u></b>		
	Check/Circle Condition Noted	Observations	Repair	Monitor	Investigate
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	vegetation	Acceptable		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	beaching/slides/cracks	None observed		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	undermining/erosion	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	riprap	None, not required		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	rodent burrows	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	trees/brush	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ruts/erosion	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	cracks/settlement	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	poor alignment	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	trees/brush	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	vegetation	Acceptable		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	rodent burrows	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sloughs/slides/cracks	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Seepage/wetness	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	erosion	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	trees/brush	Some, near toe		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	vegetation / riprap	Acceptable, riprap not needed		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	erosion	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	seepage/wetness	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	vegetation/erosion	Vegetation acceptable, riprap not needed		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sloughs/slides/cracks	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	seepage/wetness	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	cracks/slumps	Vegetation acceptable, no erosion observed		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	embankment drains	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	seepage/wetness	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	obstructions	N/A		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	flow	N/A		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sediment	N/A		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	flow rate	N/A		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	clear/muddy flows	N/A		

# COMPLIANCE INSPECTION CHECKLIST

 Date: 08/04/2021

 Time: 8:30

 Facility Name: Line 1 Impoundment

 County: Des Moines, IA

Check Area As Inspected	<b><u>SPILLWAYS * DRAINS * OUTLETS</u></b>		<b><u>Action</u></b>		
	<input checked="" type="checkbox"/> Check/Circle Condition Noted	Observations	Repair	Monitor	Investigate
<b>Principal Spillway:</b>		<b>Type:</b> None			
Inlet Riser	<input checked="" type="checkbox"/> trashrack/debris	N/A			
	<input checked="" type="checkbox"/> gates/flashboards	N/A			
	<input checked="" type="checkbox"/> cracks/deterioration	N/A			
	corrosion	N/A			
	anti-vortex devices	N/A			
Flow-way	improper alignment	N/A			
	cracks/deterioration	N/A			
	joint deterioration	N/A			
	corrosion	N/A			
Stilling Basin / Outlet	<input checked="" type="checkbox"/> type	None			
	cracks/deterioration	N/A			
	seepage/piping	N/A			
	undercutting	N/A			
	erosion	N/A			
	debris	N/A			
	weep holes/drainage	N/A			
<b>Emergency Spillway</b>		<b>Type:</b>			
All Area	<input checked="" type="checkbox"/> vegetation / riprap	Riprap channel repaired			
	<input checked="" type="checkbox"/> erosion	No			
	<input checked="" type="checkbox"/> obstructions	No			
<b>Lake Drains/Other Outlets</b>		<b>Type:</b>			
Drains, Outlets	<input checked="" type="checkbox"/> gates/valves	Gate valve was opened and closed in 2018			
	<input checked="" type="checkbox"/> joins/flow surface	N/A			
	<input checked="" type="checkbox"/> inlet tower	N/A			
	<input checked="" type="checkbox"/> outlet area	N/A			
	<input checked="" type="checkbox"/> operability	Gate valve was opened and closed in 2018			

**General Comments, Sketches & Field Measurements:**

-The inlet hydraulic structure has not been utilized in several years. The gate valve was opened and closed in 2018. The valve is not needed to function unless Brush Creek flow is intended to enter the impoundments. Road need stones. Sediment has been recently removed. A temporary mobile water treatment system added to facilitate water removal. Once all water is drained, survey will be conducted. The temporary mobile water treatment system will then be shut off and removed.

# COMPLIANCE INSPECTION CHECKLIST

Date: 08/06/2021

Time: 1330

Facility Name: Line 1 Impoundment

County: Des Moines, IA

Check Area As Inspected	<b><u>MISCELLANEOUS AREAS</u></b>		<b>Action</b>			
	<input checked="" type="checkbox"/>	Check/Circle Condition Noted	Observations	Repair	Monitor	Investigate
Monit -	<input checked="" type="checkbox"/>	piezometers	Not required			
	<input checked="" type="checkbox"/>	weirs	None present			
	<input checked="" type="checkbox"/>	monuments	Not required			
Gages	<input checked="" type="checkbox"/>	rainfall	Install rain gauge			
	<input checked="" type="checkbox"/>	pool level	670 feet			
	<input checked="" type="checkbox"/>	stream	None required			
Pool and Shoreline	<input checked="" type="checkbox"/>	erosion/ground cover	Ground cover acceptable			
	<input checked="" type="checkbox"/>	development	None required			
	<input checked="" type="checkbox"/>	reservoir crossing	None required			
	<input checked="" type="checkbox"/>	sedimentation	Moderate siltation			
	<input checked="" type="checkbox"/>	water quality	Clear at time of inspection			
Water -	<input checked="" type="checkbox"/>	slopes	Moderate			
	<input checked="" type="checkbox"/>	land use	Industrial-wooded open area			
	<input checked="" type="checkbox"/>	other impoundments	None			
D/S Area	<input checked="" type="checkbox"/>	stream channel	OK			
	<input checked="" type="checkbox"/>	channel crossings	N/A			
	<input checked="" type="checkbox"/>	flood plain	N/A			
	<input checked="" type="checkbox"/>	development	N/A			
Emerg. Plan	<input checked="" type="checkbox"/>	notification list	N/A			
	<input checked="" type="checkbox"/>	evacuation plan	N/A			
	<input checked="" type="checkbox"/>	materials/equipment	N/A			
	<input checked="" type="checkbox"/>	access road to dam	N/A			

General Comments, Sketches & Field Measurements:

- Grass Recently mowed



Line 1 Impoundment emergency overflow (August 2021).





Line 1 Impoundment emergency overflow (August 2021).



Mobile treatment trailer (August 2021).



Line 1 Impoundment signage (August 2021).

# COMPLIANCE INSPECTION CHECKLIST

 Date: 08/06/2021

 Time: 1130

 Facility Name: Line 800 Lagoon (AKA Pinewater Lagoon)

 County: Des Moines, IA      Weather & Site Conditions: Low 70s, Cloudy

 Impoundment Level: <677 feet

 Inspectors: Ramjee Raghavan, PhD, PE (IA PE 24213)

 Others: Dean Johnson, Operator

Check Area As Inspected	<b><u>EMBANKMENT</u></b>		<b><u>Action</u></b>		
	Check/Circle Condition Noted	Observations	Repair	Monitor	Investigate
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	vegetation	Acceptable		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	beaching/slides/cracks	None observed		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	undermining/erosion	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	riprap	None- not required		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	rodent burrows	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	trees/brush	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ruts/erosion	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	cracks/settlement	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	poor alignment	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	trees/brush	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	vegetation	Acceptable		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	rodent burrows	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sloughs/slides/cracks	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Seepage/wetness	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	erosion	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	trees/brush	Some near toe		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	vegetation / riprap	Acceptable; riprap not needed		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	erosion	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	seepage/wetness	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	vegetation/erosion	Vegetation acceptable; riprap not needed		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sloughs/slides/cracks	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	seepage/wetness	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	cracks/slumps	Vegetation acceptable; riprap not needed		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	embankment drains	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	seepage/wetness	No		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	obstructions	N/A		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	flow	N/A		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sediment	N/A		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	flow rate	N/A		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	clear/muddy flows	N/A		

# COMPLIANCE INSPECTION CHECKLIST

 Date: 08/06/2021

 Time: 0830

 Facility Name: Line 800 Lagoon

 County: Des Moines, IA

Check Area As Inspected	<b><u>SPILLWAYS * DRAINS * OUTLETS</u></b>		<b>Action</b>			
	<input checked="" type="checkbox"/>	Check/Circle Condition Noted	Observations	Repair	Monitor	Investigate
<b>Principal Spillway:</b>		<b>Type:</b> None				
Inlet Riser	<input checked="" type="checkbox"/>	trashrack/debris	N/A			
	<input checked="" type="checkbox"/>	gates/flashboards	N/A			
	<input checked="" type="checkbox"/>	cracks/deterioration	N/A			
	<input type="checkbox"/>	corrosion	N/A			
	<input type="checkbox"/>	anti-vortex devices	N/A			
Flow-way	<input checked="" type="checkbox"/>	improper alignment	N/A			
	<input type="checkbox"/>	cracks/deterioration	N/A			
	<input type="checkbox"/>	joint deterioration	N/A			
	<input type="checkbox"/>	corrosion	N/A			
Stilling Basin / Outlet	<input checked="" type="checkbox"/>	type	None			
	<input type="checkbox"/>	cracks/deterioration	N/A			
	<input type="checkbox"/>	seepage/piping	N/A			
	<input type="checkbox"/>	undercutting	N/A			
	<input type="checkbox"/>	erosion	N/A			
	<input type="checkbox"/>	debris	N/A			
	<input type="checkbox"/>	weep holes/drainage	N/A			
<b>Emergency Spillway</b>		<b>Type:</b> 12" emergency overflow pipe				
All Area	<input checked="" type="checkbox"/>	vegetation / riprap	Vegetation acceptable			
	<input checked="" type="checkbox"/>	erosion	No			
	<input checked="" type="checkbox"/>	obstructions	No			
<b>Lake Drains/Other Outlets</b>		<b>Type:</b> Siphon line				
Drains, Outlets	<input checked="" type="checkbox"/>	gates/valves	N/A			
	<input checked="" type="checkbox"/>	joins/flow surface	N/A			
	<input checked="" type="checkbox"/>	inlet tower	N/A			
	<input checked="" type="checkbox"/>	outlet area	N/A			
	<input checked="" type="checkbox"/>	operability	N/A			

**General Comments, Sketches & Field Measurements:**

- There is no inlet structure. Storm water runoff enters lagoon by overflow
- The piping used for siphoning water from the lagoon is a 12" buried siphon line with riprap at the discharge end. Line discharges beyond the abutment
- A 12" emergency overflow pipe on the NW side of the lagoon with riprap
- New Rain gage installed as previous one destroyed by hail.
- Water well not sampled.

# COMPLIANCE INSPECTION CHECKLIST

Date: 08/06/2021

Time: 2030

Facility Name: Line 800 Lagoon

County: Des Moines, IA

Check Area As Inspected	<b><u>MISCELLANEOUS AREAS</u></b>		<b>Action</b>			
	<input checked="" type="checkbox"/>	<b>Check/Circle Condition Noted</b>	<b>Observations</b>	<b>Repair</b>	<b>Monitor</b>	<b>Investigate</b>
Monit -	<input checked="" type="checkbox"/>	piezometers	Not required			
	<input checked="" type="checkbox"/>	weirs	None present			
	<input checked="" type="checkbox"/>	monuments	Not required			
Gages	<input checked="" type="checkbox"/>	rainfall	Install rain gauge			
	<input checked="" type="checkbox"/>	pool level	<675 foot staff gauge			
	<input checked="" type="checkbox"/>	stream	None required			
Pool and Shoreline	<input checked="" type="checkbox"/>	erosion/ground cover	Ground cover acceptable			
	<input checked="" type="checkbox"/>	development	None required			
	<input checked="" type="checkbox"/>	reservoir crossing	None required			
	<input checked="" type="checkbox"/>	sedimentation	Moderate siltation			
	<input checked="" type="checkbox"/>	water quality	Clear at time of inspection			
Water	<input checked="" type="checkbox"/>	slopes	Moderate			
	<input checked="" type="checkbox"/>	land use	Industrial-wooded open area			
	<input checked="" type="checkbox"/>	other impoundments	None			
D/S Area	<input checked="" type="checkbox"/>	stream channel	OK			
	<input checked="" type="checkbox"/>	channel crossings	None			
	<input checked="" type="checkbox"/>	flood plain	N/A			
	<input checked="" type="checkbox"/>	development	N/A			
Emerg. Plan	<input checked="" type="checkbox"/>	notification list	N/A			
	<input checked="" type="checkbox"/>	evacuation plan	N/A			
	<input checked="" type="checkbox"/>	materials/equipment	N/A			
	<input checked="" type="checkbox"/>	access road to dam	N/A			

General Comments, Sketches & Field Measurements:

-Grass recently mowed



Line 800 signage (August 2021).



Line 800 signage (August 2021).





Line 800 big pool looking northeast (August 2021).



Line 800 big pool looking south (August 2021).



Line 800 staff gauging looking south (August 2021).



Line 800 overflow point (August 20210).



Line 800 small pool looking northwest (August 2021).



Typical Survey Monument.

**APPENDIX E**  
**MONITORING WELL INSPECTION LOGS**

### FY 21 Monitoring Well Inspection - Line 800

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Condition
Jul-21	14-C	(Line 800/Pink water Lagoon; SSW of)	Yes	Stick-up	Needs paint
Jul-21	800-MW-10	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-12	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs Signage
Jul-21	800-MW-13	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint, sign post bent.
Jul-21	800-MW-3	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-26	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Jul-21	800-MW-20	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-14	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-15	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-2	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Jul-21	800-MW-23	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs signage repairs
Jul-21	800-MW-9	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Jul-21	G-19	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-46	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-41	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-57	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-20	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-43	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-56	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-42	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-44	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-18	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-48	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs signage
Jul-21	G-58	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-47	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-17	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	G-45	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	JAW-79	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-6	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-18	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-24	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-11	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-19	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint



### FY 21 Monitoring Well Inspection - Line 800

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Condition
Jul-21	800-MW-21	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-25	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Jul-21	800-MW-8	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs Signage
Jul-21	JAW-78	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Ballards
Jul-21	800-MW-1	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-7	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Jul-21	800-MW-22	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Jul-21	800-MW-16	Line 800/Pink water Lagoon	Yes	Flush	Needs signage.
Jul-21	G-40	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	800-MW-4	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Jul-21	L800-TT-MW01	Line 800/Pink water Lagoon	Yes	Flush	Missing bolt in lid.
Jul-21	L800-TT-MW05	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW03	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW02	Line 800/Pink water Lagoon	Yes	Flush	Missing bolt in lid.
Jul-21	L800-TT-MW04	Line 800/Pink water Lagoon	Yes	Flush	Missing bolt in lid.
Jul-21	L800-TT-MW06	Line 800/Pink water Lagoon	Yes	Flush	Missing bolt in lid.
Jul-21	L800-TT-MW07	Line 800/Pink water Lagoon	Yes	Flush	Missing bolt in lid.
Jul-21	L800-TT-MW08	Line 800/Pink water Lagoon	Yes	Flush	Missing bolt in lid.
Jul-21	L800-TT-MW09	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW10	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW11	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW12	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW13	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW14	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW15	Line 800/Pink water Lagoon	Yes	Flush	Missing bolt in lid.
Jul-21	L800-TT-MW16	Line 800/Pink water Lagoon	Yes	Flush	Missing bolt in lid and sign.
Jul-21	L800-TT-MW17	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW18	Line 800/Pink water Lagoon	Yes	Flush	None.
Jul-21	L800-TT-MW19R	Line 800/Pink water Lagoon	Yes	Flush	Needs signage.
Jul-21	800-MW27	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Jul-21	800-MW28	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Jul-21	800MW29	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Jul-21	800-MW30	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.

### FY 21 Monitoring Well Inspection - Line 800

<b>Date</b>	<b>Name</b>	<b>Area</b>	<b>Government Lock (Y/N)</b>	<b>Stick-up or Flush mount</b>	<b>Condition</b>
Jul-21	800-MW31	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.

### FY 21 Monitoring Well Inspection - IDA

Date	Name	Area	Government lock (Y/N)	Stick-up or Flush mount	Condition
Jul-21	G-7	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	G-4	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	T-1	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	ET-3	Inert Disposal Area	Yes	Stick up	None.
Jul-21	CAMU-99-1D	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	CAMU-99-1S	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	T-6	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	JAW-26	Inert Disposal Area	Yes	Stick up	Pad needs cleaned off.
Jul-21	JAW-65	Inert Disposal Area	Yes	Stick up	None.
Jul-21	CAMU-99-2S	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	CAMU-99-3S	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	C-00-3	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	IDA-MW2	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	IDA-MW1	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	CAMU-99-2D	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	C-95-1	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	G-5	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	C-00-1	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	C-95-2	Inert Disposal Area	Yes	Stick up	Concrete pad is broken and the ballard's need painted.
Jul-21	IDA-TT-MW1	Inert Disposal Area	Yes	Flush Mount	Pad is wobbly and one bolt is broken off on the lid.
Jul-21	JAW-27	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	G-6R	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	C-00-2	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	GP-1	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	GP-3	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	GP-5	Inert Disposal Area	Yes	Stick up	Ballard's need painted.
Jul-21	MW20-01	Inert Disposal Area	Yes	Stick up	None.

## FY 21 Monitoring Well Inspection - Line 1 Impoundment

<b>Date</b>	<b>Name</b>	<b>Area</b>	<b>Government Lock (Y/N)</b>	<b>Stick-up or Flush mount</b>	<b>Condition</b>
Jul-21	GZ-3	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-3
Jul-21	JAW-601	Line 1 Impoundment	Yes	Stick-up	Need paint.
Jul-21	GZ-1	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-1
Jul-21	G-14	Line 1 Impoundment	Yes	Stick-up	Need paint.
Jul-21	GZ-2A	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-2A
Jul-21	SL-81R	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads SL-81
Jul-21	GZ-2	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-2



Monitoring Well SL-81.



Monitoring Well L800-TT-MW01.



Monitoring Well C-95-2.

**APPENDIX F  
OPERATOR LOGS**

Please contact IAAAP for full document.