FINAL INTERIM REMEDIAL ACTION COMPLETION REPORT

FORMER FORBES ATLAS MISSILE S-5 SITE
LYON COUNTY, KANSAS

May 2018

PREPARED FOR:

United States Army Corps of Engineers
Kansas City District
635 Federal Building
601 E. 12th Street
Kansas City, MO 64106-2824

TABLE OF CONTENTS

List of Figures

List of Tables

List of Appendices

ACRONYMS

APP	Accident Prevention Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminants of Concern
CY	Cubic Yards
DCE	Cis-1,2 Dichloroethene
DD	Decision Document
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
FUDS	Formerly Used Defense Site
GAC	Granular Activated Carbon
IRA	Interim Remedial Action
IRACR	Interim Remedial Action Completion Report
IRAO	Interim Remedial Action Objectives
KA JV	KEMRON/Arrowhead Joint Venture, LLC
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
PCB	Polychlorinated Biphenyl
PFLT	Paint Filter Liquid Test
Pounds	lbs
PSI	Pound per square inch
RCI	Reactivity-corrosivity-ignitability
RI	Remedial Investigation
SARA	Superfund Amendments and Reauthorization Act
SVOC	Semi-volatile Organic Compound
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbon
USACE	United States Corps of Engineers
VC	Vinyl Chloride
VOC	Volatile Organic Compound

1.0 INTRODUCTION

United States Army Corp of Engineers (USACE) Kansas City District completed an Interim Remedial Action (IRA) consisting of the cleaning of the sumps, sediment trap, and flame tunnel at the former Forbes Air Force Base Atlas Missile S-5 Site (the Site) in Lyon County, Kansas under the Formerly Used Defense Sites (FUDS) Program. The work was performed and this Interim Remedial Action Completion Report (IRACR) has been prepared by KEMRON/Arrowhead Joint Venture, LLC (KA JV) for the USACE pursuant to and in accordance with Contract No: W912DQ-16-D-3006, Task Order 0002.

The overall objective of this project was to complete all IRA elements in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and as amended by the Superfund Amendments and Reauthorization Act (SARA). Work performed shall follow the requirements of the National Oil and Hazardous Substances Contingency Plan (NCP) and the Defense Environmental Restoration Program (DERP) - FUDS Program policy.

1.1 Site Background and History

The former Forbes Atlas Missile Site S-5 (the Site) is located in Lyon County, Kansas approximately 8 miles west-northwest of Allen, Kansas in the southeast quarter of Section 4 in Township 16 North, Range 10 East (Figure 1-1). The approximate geographic coordinates for the central portion of the Site are 38° 41' 13" north latitude and 96° 18' 12" west longitude.

The Atlas Missile Program provided an important element of the United States defense system during a period of rapid evolution in intercontinental ballistic missile systems. However, this evolutionary period was short lived. Nine Atlas Missile facilities were assigned to the former Forbes Field Air Force Base in Topeka, Kansas. The Forbes Atlas Missile sites consisted of "coffin" type silos in which missiles were stored in the horizontal position. The horizontal missiles were hydraulically elevated to the vertical position for firing. These sites were operational from 1959 through 1965. By 1965, the Atlas Type "E" Missiles were obsolete and all remaining sites were deactivated. Records indicate that the missiles were returned to the U. S. Air Force, and the missile silo and equipment was sold for salvage.

The Department of Defense (DoD) acquired 25 acres in fee and 236 acres in easements between 1960 and 1963 to house an Atlas E-Type Intercontinental Ballistic Missile at the Forbes S-5 facility, in connection with the Forbes Air Force Base in Topeka, Kansas. The facility operated from 1961 until 1965, when it was decommissioned. In 1965, the facility was reported as excess and was subsequently sold.

The facility is currently privately owned and is not being used for any purpose. No persons are currently residing on the former missile facility. Future use of the site is expected to be residential and the surrounding area to remain agricultural. The Site is a FUDS, Identification (ID) Number: B07KS0204-01 and contains structures related to the historic use of the site as a Missile base including sumps, flame pit, and sediment trap (Figure 1-2).

1.2 Site Description

The Site occupies approximately 25 acres and includes a buried, horizontal concrete vault, with launch doors located at ground surface. The Site also includes a launch operation (control building), a missile maintenance building, a cooling pad, a septic system, a fuel storage system, sewage lagoons, and a tunnel (Figure 1-2). Structures remaining at the Site include the horizontal concrete vault (missile coffin), underground launch operation rooms, concrete pads, and sewage lagoons. In 2014, USACE initiated a Remedial Investigation (RI) at the Site.

Contaminant concentrations in samples collected from the main sumps, flame pit, and sediment trap showed high concentrations of TCE and other VOCs, indicating a likely source of the contaminants found in groundwater. These structures are described below:

- Main Sump: The main sump at the Site is a concrete subsurface structure that is approximately 45 feet deep. The structure consists of a 4-foot diameter access pipe with embedded steel-rung ladder for access. The access pipe ends about 26 feet deep, at the top of the upper level vault, which measures 10 feet by 7 feet by 8 feet high. The upper level vault has an 8-inch thick concrete slab floor. Below the upper level is a lower vault with the same dimensions as the upper vault. A 2-foot-by-2-foot corner opening with embedded steel rung ladder provides access to the lower vault.
- Sediment Trap: There is one sediment trap at the Site located south of the missile base. The sediment trap consists of a concrete box measuring approximately 5 feet by 6 feet by 5.5 feet deep that is buried approximately flush with the ground surface. Discharge from the sediment trap is by overflow to a surface drainage way that flows to the south.
- Flame Tunnel: The flame tunnel is a concrete structure located at the south end of the missile bay. This structure was designed to receive flames and hot gases if/when the Atlas missile was fired. The flame tunnel is approximately rectangular with sloping walls on the north and south ends. Dimensions are approximately 56 feet by 30 feet to a maximum depth of 17.5 feet. The flame tunnel is accessible from the floor of the Launch and Service Building and extends south of the former missile bay under a track-mounted roof.
- Control Building Sump: The control building at the Site has a subfloor sump that is connected to the subsurface drainage system in the building. The control building sump is a concrete structure that measures approximately 3 feet by 4 feet by 10 feet deep, with a narrow opening approximately 18 inches in diameter.

1.3 Interim Remedial Action Objectives

Two Interim Remedial Action Objectives (IRAOs) have been identified for the Site; 1) prevent migration to groundwater of contaminants from water and sediment contained in the upper and lower chambers of the main sump, control building sump, sediment trap, and flame tunnel, and 2) mitigate contaminant exposure for on-site workers and potential future residents. USACE selected removal of contaminated media, as the IRA remedy for the Site. The removal of contaminated media meets the IRAOs of preventing migration to groundwater of contaminants and mitigating contaminant exposure for on-site workers and potential future residents. (USACE IRA Final Decision Document, May 2017)

1.4 Project Description

The following is a list of the definable features of work (DFW) for the IRA fieldwork:

a. Mobilization and Site Preparation;
b. Removal, testing, and disposal of water and sediment;
c. Cleaning of sumps, sediment trap, and flame tunnel via pressure washing;
d. Restoration of the Site; and
e. Demobilization of equipment and personnel.

2.0 SUMP, SEDIMENT TRAPS AND FLAME TUNNEL WASTE REMOVAL

2.1 Interim Remedial Action Activities

KA JV completed the interim removal action from October 2017 thru January 2018. Definable features of work included mobilization and site preparation, removal, testing and disposal of water and sediment; cleaning of sumps, sediment trap and flame tunnel via pressure washing, restoration of the site; and demobilization of equipment and personnel. The full daily activity reports for the extent of the IRA are include in Appendix A.

2.1.1 Mobilization and Site Preparation

KA JV and their subcontractors mobilized to the former Forbes Missile S-5 Site on 15 October 2017 to begin the IRA. Prior to starting work, KA JV along with onsite personnel and the USACE walked the site to familiarize all onsite personnel with the work. KA JV conducted Preparatory Inspection and Mutual Understanding Meetings for mobilization and site preparation, Site Layout, Pumping, Water Handling and Water Treatment. KA JV and their subcontractor staged tanks, pumps and hoses in a configuration for pumping sediment-laden water from the structures starting at the flame tunnel into settling tanks. The carbon treatment system was configured in association with the settling tanks and filter water staging tanks on-site.

2.1.2 Removal of Water and Sediment

The following structures were cleaned as part of the IRA:

- Missile Silo Bay: Catch Basin, Limator Pit, Pipe Trench and the Flame Tunnel
- Main Sump: the entrance shaft and the top and bottom rooms of the sump
- Mechanical Room: Electrical Pit and Collimator Pit
- Control Building: Entrance Tunnel Sump Eductor, Pipe Trench and Floor Drain Sump Pump
- Generator room: two small pits were cleaned
- Sediment Trap that was south of the Flame Tunnel

KA JV removed approximately 270,000 gallons of liquid from the structures and containerized the waste liquid in six frac tanks prior to treatment and discharge. The sediment-laden water was removed from the structures in a top down fashion (highest elevation to lowest elevation). Liquid initially removed from the structures that was visibly free of particulates was pumped and containerized in frac tank 1. It was then treated by running the water through a bag filter assembly and granular activated carbon (GAC) units. The water from the filtration/treatment system was then pumped into one of six 21, 000-gallon effluent holding tanks in conjunction with waste characterization sample collection before being discharged to the settling basins in batches of 21,000 gallons each.

Trash pumps were used to extract the liquids from most structures including the sump and pits and vacuum-trucks with larger pump/lift capacity were used to extract the liquids from the lower elevations, prior to removing the sediments in the sumps and floor of the Flame Tunnel.

KA JV removed and containerized approximately 30 cubic yards (CY) of sediment, sludge, and debris from the sumps, sediment trap, and flame tunnel. Additionally, approximately 10 CY of trash was removed for off-site disposal rather than decontaminating and leaving on site. The sediment and sludge were removed using vacuum-trucks, dewatered and placed into two 20 cubic yard roll-off boxes for staging prior to disposal. Sediment and sludge were dewatered to the greatest extent possible within the roll-off boxes using screened sumps and sump pumps. A total of approximately 40 CY of sediment, sludge, trash and debris was removed from the site.

2.1.3 Cleaning of Sumps, Sediment Trap, and Flame Tunnel via Pressure Washing

After all sediments were removed from the structures utilizing a Guzzler vac truck, cleaning via pressure washing continued until surface contamination was removed to the extent feasible, based on visual inspection. The pressure washers were used to clean the higher elevation pits and trash pumps moved the dirty wash water to the wastewater tanks. The flame tunnel was cleaned first with shovels and then with pressure washers by personnel entering the area with the aid ladders and safety harnesses. The lower elevation areas including, the pipe trench in front of the flame tunnel, the bottom of the flame tunnel itself and the floors of the main sump required removal of the material via the vacuum trucks. The main sump, a confined space, required pressure washing and wash water removal under confined space protocols. The Site Safety/Quality Control Manager performed a final inspection of the structures upon completion and took photos of all surfaces to document completion of the task. Photo documentation of the decontaminated surfaces are provided in Appendix B.

2.1.4 Deviations from Work Plan

The total volume of water removal for the scope was originally estimated at 90,000 gallons. Additional pits were cleaned at the request of the USACE (i.e. the mechanical room, generator room and entrance tunnel) and added approximately 10,000 gallons to the total. During the draining of the pits, significant volumes of water were encountered. It was believed that rainwater and possibly groundwater infiltrated the main sump, flame tunnel, and connected piping. The final total of water removed, treated, sampled and discharged was 270,000 gallons.

3.0 WASTE CHARACTERIZATION AND DISPOSAL

3.1 Waste Testing and Disposal

KA JV inspected all waste areas daily to ensure best management practices were followed (i.e. for liners, covers, stormwater control). KA JV tracked all waste streams leaving the Site. Inspections and daily waste tracking information were recorded in the Daily Quality Control Reports displayed in Appendix A.

Waste characterization samples were collected and analyzed as described in accordance with the Field Sampling Plan, Section 5.0 (USACE, Final IRA Work Plan, August 2017). The two waste streams generated during the project were water that filled the structures and related sediment. Water and sediment were sampled and sent to Test America in Arvada Colorado, a DoD Environmental Laboratory Accreditation Program (DoD ELAP) certified laboratory, for analyses. The treated wastewater was analyzed for Volatile Organic Compounds (VOCs) including the contaminants of concern (COCs) which are three VOCs: trichloroethene, cis-1,2 dichloroethene (DCE) and vinyl chloride (VC), by EPA Method 8260. The de-watered sediment was sampled and analyzed for VOCs, Toxicity Characteristic Leaching Procedure (TCLP) VOCs, TCLP semi-volatile organic compounds (SVOCs), TCLP metals, polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH), Paint Filter Liquid Test (PFLT) and reactivity-corrosivity-ignitability (RCI). Analytical results are included in Appendix C.

3.2 Liquid Waste Disposal

Water pumped from the structures was contained in Tank #1 and Tank #3 (post 27 October 2017) prior to treatment through the dual bag filter assembly and then two GAC filters in series. A total of five holding tanks were staged on-site and filled with treated water from Tank #1 and #3. The bag filters were a size #2 Krystal Klear model 88 piped in parallel, with carbon steel construction and a working pressure up to 100 pounds per square inch (psi).

The bag filter elements were 20 microns and were exchanged every time the pressure reached 60 psi on the bag filter piping. These were changed approximately every 3 hours during treatment on the first 20,000 gallons from each frac tank and every 30 minutes during treatment of the final 1,000 gallons of the frac tank due to increased sediment at the bottom of the tank.

Water was then passed through two granular active carbon vessels in series with carbon steel construction and a 75 psi design pressure. Both vessels were loaded with 750 pounds (lbs) of granular activated carbon that successfully treated the first 228,000 gallons. An additional 750 lbs were added each carbon vessel to re-treat the final 42,000 gallons after the initial laboratory testing failed.

Samples were collected from the treated water and analyzed for each 21,000-gallon batch to confirm the results are below the discharge criteria. KA JV compared the laboratory results of water samples to the United States Environmental Protection Agency (USEPA) Maximum Contaminant Levels (MCLs) to evaluate discharge to the ground surface as shown in Table 3-2 below. The Kansas drinking water regulations adopt the MCLs as the state drinking water standards.

Table 3-1 Water Discharge Criteria

		MCL
VOC	CAS	µg/L
Cis-1,2-Dichloroethene	156-59-2	70
Trichloroethene	79-01-6	5
Vinyl Chloride	75-01-4	2

MCL – Maximum Contaminant Level, USEPA Drinking Water Standards and Health Advisory Table June 2007

Upon review and approval of treated water analytical results by USACE and KDHE, the treated water was discharged from the effluent tanks to the on-site lagoons at the north side of the site. A gravity fed hose to a drainage trench east of the front entrance and then traveled a couple hundred yards to the first lagoon. The effluent tanks were discharged slowly, one at a time, to ensure water was infiltrating without runoff. A summary table of the water staging and disposal is included in Appendix D.

3.3 Sediment Waste Disposal

Sediment collected from the structures, settling tanks and GAC filter was staged in five polyethylene lined roll-off boxes on-site. Sediment samples were collected and analyzed for disposal parameters including VOCs, TCLP VOCs, TCLP SVOCs, TCLP metals, PCBs, TPH, PFLT and RCI prior to disposal off-site. The volume of the initial sediment sample (S5-SD-01) collected on 9 November 2017 with the other two sediment disposal samples (S5-SD-02 and S5-SD-03) was not sufficient for the TCLP analysis. As such, an additional sample volume of material from the same sediment roll-off was collected on 27 November 2017 and submitted for TCLP analysis with analytical results reported on 14 December 2017. The sediment disposal sample laboratory analytical results are included in Appendix C.

A waste profile was prepared for approval by the Hamm Sanitary Landfill and a Special Waste Disposal Request was prepared for approval by Kansas Department of Health and Environment. These documents and their approvals are provided in Appendix E.

From 10 January through 17 January 2018, a total of 34.65 tons of dewatered sediment, sludge, trash and debris were removed from site and shipped to the Hamm Sanitary Landfill in Lawrence, KS. Waste shipment manifests, solid waste disposal bills of lading, and weigh tickets are provided in Appendix E.

4.0 DEMOBILIZATION AND SITE RESTORATION

All heavy equipment and temporary facilities, except for one skid steer for touch up grading, were inspected and demobilized from the Site by 29 November 2017. The four covered roll-off boxes containing sediment and debris remained on-site pending waste characterization analytical results.

The roll-off boxes were removed from the Site on 10-11 January 2018 and the skid-steer was used to perform the site restoration work after the roll-offs were demobilized. The skid-steer was demobilized on 12 January 2018, completing KA JV demobilization activities. On 12 January 2018, a final walkthrough with USACE and the property owner took place, completing all site work.

5.0 HEALTH AND SAFETY

Site activities adhered to the approved site Accident Prevention Plan (APP) (KA JV, 2017b).

During all site activities, the KA JV Health and Safety Specialist ensured safety was adhered to on all project activities. His responsibilities included conducting daily tailgate safety meetings and monitoring site activities, including visual dust monitoring.

The chemical hazards on site included levels of VOCs, SVOCs and metals in wastewater and sediment. These hazards presented a potential for employee exposure via inhalation, ingestion and/or dermal contact. The exposure routes were controlled through proper use of PPE and engineering controls or a combination thereof. Air quality was monitored for confined space entry and permit required confined space entry procedures were followed when working in those areas. Dust was monitored visually for the duration of the project. The weather conditions during the project were relatively fair with little precipitation. Precautionary measures were taken routinely to avoid hazards related to the environmental remediation work such as slips, trips and falls. The late fall and early winter timeframe eliminated any issues with ticks and poisonous plant species like poison ivy.

Activity Hazards Analysis sheets within the Site Specific Health and Safety Plan, Attachment 1 of the APP (KA JV, 2017b), served as guidelines in addressing the safety concerns of each individual task during the tailgate safety meetings, including lead awareness training. Daily Safety meetings were held and administered by the Site Health and Safety Specialist at the start of each shift to ensure that all personnel understood site conditions and operating procedures. The Site Health and Safety Specialist ensured that required personal protective equipment was being used correctly and addressed worker health and safety concerns. Daily tailgate safety meeting forms are included in the Daily Quality Control Reports included in Appendix A,

All personnel entering the exclusion zone or contamination reduction zone met training requirements for hazardous site work in accordance with OSHA 29 CFR 1910.120. In addition, select staff was trained in Cardio Pulmonary Resuscitation and First Aid. All site employees entering the exclusion zone completed the following training:

- 40-Hour Hazardous Waste Operations, 29 CFR 1910.120 (Level C, D)
- 8-Hour Refresher Hazardous Waste Site Worker, 29 CFR 1910.120 (current)

There were no spills, releases or reports of cross contamination over the duration of this project. There were no reportable accidents resulting in injuries for this project, attesting to KA JV's safe construction practices.

6.0 REFERENCES

USACE, 2017a. *Final Interim Remedial Action Decision Document for Former Forbes Atlas Missile Site S-5 Site.* Lyons County, Kanas, May 2017. (Prepared by KEMRON/Arrowhead).

USACE, 2017b. *Final Accident Prevention Plan, Interim Remedial Action for Former Forbes Atlas Missile S-5 Site*. Lyon County, Kansas, August 2017. (Prepared by KEMRON/Arrowhead).

USACE, 2017c. *Final Contractor Quality Control Plan, Interim Remedial Action for Former Forbes Atlas Missile S-5 Site*. Lyon County, Kansas; September 2016. (Prepared by KEMRON/Arrowhead).

USACE, 2017d. *Final Interim Remedial Action Work Plan for Former Forbes Atlas Missile S-5 Site.* Lyon County, Kansas; August 2017. (Prepared by KEMRON/Arrowhead).

FIGURES

FIGURE 1-1 REGIONAL LOCATION MAP

FIGURE 1-2 FORMER FORBES ATLAS MISSILE S-5 SITE MAP

APPENDIX A

Daily Quality Control Reports

Daily Quality Control Report

REPORT NO. 1

CONTRACT NO. W912DQ-16-D-3006 Task Order 0002 Date: *10/16/17*

LOCATION OF WORK: Former Forbes Atlas Missile S-5, Lyon County, KS
DESCRIPTION: Interm Remedial Action.

WEATHER CLASSIFICATION:

CLASS A	No interrruptions of any kind from weather conditions occurring on this or previous shifts	Classification:
CLASS B	Weather occurred during this shift that caused a complete stoppage of all work	Class A
CLASS C	Weather occurred during this shift that caused a partial stoppage of work	Temperature (^{o}F): 74
CLASS D	Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather	Max: 74°F Min: 49°F
CLASS E	Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner	Precipitation:
OTHER	Explain:	Inches 0.00

1. **Work Performed Today by Kemron/Arrowhead JV:**
   Arrowhead arrived on site at 10:00AM. Upon arrival the following equipment and subcontractors arrived for mobilization activities:
   Arrowhead Equipment
   (1) Skid Steer and pallet forks

(1) Telehandler
(1) Carbon Treatment System
(1) 20 KW Generator
(1) Sanitary Facilities

HazMat Response:
(3) 21,000 gallon frac tanks
(1) Dewatering Tank
(1) Support Traier
(1) Pumping Truck

Prior to starting work, Arrowhead along with onsite personnel and the USACE walked the site to familiarize all onsite personnel with the work.

After the brief site walk, Arrowhead conducted the Health and Safety Charter Meeting for review of the Accident Prevention Plan prepared for the Project. All onsite representatives reviewed the plan and AHAs and signed the documents.

Prior to starting work, Arrowhead conducted Preparatory Inspection and Mutual Understanding Meetings for Mobilization, Site Preparation, Site Layout, Pumping and Water Handling and Water Treatment.

Arrowhead and HazMat formulated a plan for staging tanks/pumps/and hoses for pumping the Flame Tunnel.

Arrowhead Assisted HazMat response in establishing pumping procedures, pump placement and conveyance lines to begin pumping from the Flame Tunnel Sump.

Arrowhead and HazMat began Pumping Flame tunnel 12:00 into tank #1 (Settling Tank)

Arrowhead setup and configured the Carbon treatment system. Water Treatment started at 14:30.

Arrowhead Pumped and Treated approximately 21,000 gallons. Arrowhead collected a Post Treatment sample (S5-W-01) at 17:15 and sent off for analysis to Test America Denver for overnight delivery and 24 hour TAT.

2. **Work Performed Today by Subcontractors:**
   Mobilization, Equipment staging, pumping of flame tunnel water.

3. **Type and Results of Inspection: (Include Satisfactory Work Completed or Deficiencies with Action to be taken).**
   N/A

4. **List Type and Location of Tests Performed and Results of These Tests:**
   N/A

5. **Verbal Instructions Received:**
   N/A

6. **Corrective Actions Proposed/Taken:**

N/A

7. **Remarks:**
   N/A

8. **Safety Violations Observed:**
   N/A

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.

_____

Site Superintendent / Quality Control Officer

Daily Quality Control Report

REPORT NO. 2

CONTRACT NO. W912DQ-16-D-3006 Task Order 0002 Date: 10/17/17

LOCATION OF WORK: Former Forbes Atlas Missile S-5, Lyon County, KS
DESCRIPTION: Interim Remedial Action.

WEATHER CLASSIFICATION:

No interrruptions of any kind from weather conditions occurring on this or previous shifts	Classification:
Weather occurred during this shift that caused a complete stoppage of all work	Class A
Weather occurred during this shift that caused a partial stoppage of work	Temperature (^{o}F): 73
Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather	Max: 73°F Min: 49°F
Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner	Precipitation:
Explain:	Inches 0.00

1. **Work Performed Today by Kemron/Arrowhead JV:**
   Contractors arrived on site at 0800. Upon arrival Arrowhead conducted the Daily Tailgate Safety Meeting with all JV staff and subcontract personnel. Inspection of equipment was completed prior to beginning operations. Refer to the attached meeting and inspections logs for additional detail. Contractors pumped and removed water and sediment from the Sediment Sump Pit, set up and began pumping water from the Control Room Sump pit, continued to pump water from the Flame Tunnel, continued to filter water from settling tank to holding tanks, and conducted maintenance on GAC treatment system (changed bag filter elements).

   Arrowhead treated via the GAC system approximately 26,000 gallons. Samples of treated water were collected from Tank #3 (sample ID S5-W-02) and Tank #4 (sample ID S5-W-03) and submitted to the subcontract laboratory for VOC analysis by method 8260. All water will be held in each respective storage tank pending receipt of data and review/approval of data by USACE and KDHE.

2. Work Performed Today by Subcontractors:
Pumping water of Flame Tunnel.
Pumping water and Cleanup of Sediment Trap.
Pumping water of Control Room Sump Pit.

3. Type and Results of Inspection: (Include Satisfactory Work Completed or Deficiencies with Action to be taken).
Initial inspections for Definable Features of Work #2 and #3 were conducted, see attached documents for results of inspections. No deficiencies were noted or found.

4. List Type and Location of Tests Performed and Results of These Tests:
Collected samples of treated water (sample ID's S5-W-02 and S5-W-03) and submitted to the subcontract laboratory for VOC analysis.

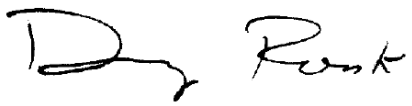
5. Verbal Instructions Received:
N/A

6. Corrective Actions Proposed/Taken:
N/A

7. Remarks:
N/A

8. Safety Violations Observed:
N/A

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.



Site Superintendent / Quality Control Officer

DAILY TAILGATE SAFETY MEETING LOG

Date: 1/17/17 Client: COE

Location: FORBES MISSILE Job No.: 16-118

Meeting conducted by: Josh phillips

Details of safety meeting presented (use back of sheet if necessary):

Level of Protection: Mod D

Contaminants: TCE, DEC, VC

Physical Hazards: slips TRIPS & Falls Heavy Equipment operation Pinch Points

Other: PPE. Pump operation Fall hazards

Are any permits/clearances required on this day?:

ATTENDEES:

Printed Name:	Signature:
Doug Murphy	
Tyler Wright	
Andy Blanton	
Kyle Botello	
Cale Borgstrom	

SITE ENTRY LOG

Date: 10/17/17 Client: COE

Location: FORDES MISSILE Job No.: ____

Name	Company	Time In	Time Out
Doug Murphy	Arrow Head	0800	17:00
Tyler Wright	HMRI	08:00	17:00
Andy Planton	HMRI	08:00	17:00
Kyle Botello	HMRI	0800	17:00
Josh Phillips	Arrowhead	0800	17:00
Cole Bergstrom	ACI	800	16:30

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#2 Power Washing of Sumps, traps, and Tunnels	Time: 0900	

InspectionType (circle one): (Initial) Follow-up

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?			✓	
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?			✓	

Notes:

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#3 Removal, testing And Disposal	10/07/17	
	Time: 0900	

InspectionType (circle one): (Initial) Follow-up

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?			✓	Awaiting test Results From Testing Authority
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?			✓	

Notes:

Test samples SS-W-02 #3 and SS-W-03 #4 have been collected from Holding TANKS AND SENT TO TEST Facility, awaiting TEST Results sample #3 is from Holding TANK #3 and #4 is from Holding TANK #4 Inspected holding TANKS For leakage (non noted).

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES missile	16-118	USACE
Project:	**Contractor:**	**Contract No.:** / **Subcontract No.**
Atlas missile S-5	Arrow Head / Kinnon / SV	W912DR-16-D-3006
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
Tele scopic handler	Genie	10675 495

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	Arrow head	10/17/17

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES missile	16-118	USACE
Project:	**Contractor:**	**Contract No.: Subcontract No.**
Atlas Missile S-5	Arrowhead/Kenan JV	W912D2-16-D-3006
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
Takeuchi JL8	~~10659850~~ JL8	10659850

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors			✓
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

[signature] — Signature of Certified Operator

Arrowhead — Company

10/17/17 — Date

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORGES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** Subcontract No.
Atlas missile S-5	HMRI	W912D2-16-D-3006
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
Peterbilt Vac Truck	PB348	T260

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems	✓		
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher	✓		
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket			✓
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
[signature]	HMRI	10-17-17

Chain of Custody Record

Sampler ID _____

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124-280 (0508)

Client	Project Manager	Date	Chain of Custody Number
Arrowhead Contracting		10.17.17	161187
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 **of** 1
10981 Eicher Dr			
City	**State**	**Zip Code**	**Site Contact** / **Lab Contact**
Lenexa	KS	66219	
Project Name and Location (State)	**Carrier/Waybill Number**		
Atlas Site 5			
Contract/Purchase Order/Quote No.			
28017407			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): 8260B	Special Instructions/ Conditions of Receipt
SS-W-02	10.17.17	1100		X						X			3	24hr TAT
SS-W-03	10.17.17	1531		X						X			3	24hr TAT
Trip Blank				X						X			1	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	Doug Rook	10.17.17	1620			
2.						
3.						

Comments
email results: JPhillips@arrowhead.org ; drook@arrowhead.org

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Daily Quality Control Report

REPORT NO. 3

CONTRACT NO. W912DQ-16-D-3006 Task Order 0002 Date: 10/18/17

LOCATION OF WORK: Former Forbes Atlas Missile S-5, Lyon County, KS
DESCRIPTION: Interim Remedial Action.

WEATHER CLASSIFICATION:

No interrruptions of any kind from weather conditions occurring on this or previous shifts	Classification:
Weather occurred during this shift that caused a complete stoppage of all work	Class A
Weather occurred during this shift that caused a partial stoppage of work	Temperature (^{o}F): 78
Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather	Max: 78°F Min: 50°F
Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner	Precipitation:
Explain:	Inches 0.00

1. **Work Performed Today by Kemron/Arrowhead JV:**
   Contractors arrived on site at 0800. Upon arrival Arrowhead conducted the Daily Tailgate Safety Meeting with all JV staff and subcontract personnel. Inspection of equipment was completed prior to beginning operations. Refer to the attached meeting and inspections logs for additional detail. Contractors pumped and removed water from the Control Room sump pit, continued to pump water from the Flame Tunnel, continued to filter water from settling tank to treated holding tanks, and conducted maintenance on GAC treatment system (changed bag filter elements).

   At the beginning of work Arrowhead and USACE representatives inspected the various work areas and attempted to estimate the remaining quantity of water to be removed. Both representatives agreed the contract estimated quantity of 90,000 gallons was likely insufficient to complete dewatering work. Arrowhead received instruction not to exceed the contract quantity without further direction.

Arrowhead received laboratory results from samples submitted for VOC analysis of contents of finished water holding tank #2. Results indicated no Contaminant of Concern concentrations above detection limits. Data was forwarded to USACE for review. Upon receipt of approval from USACE, Arrowhead discharged 21,000 gallons to the outfall area.

Throughout the day continued operation of the GAC treatment system continued. At the conclusion of work approximately 24,000 gallons had been processed with a cumulative total of approximately 71,000 gallons treated. The total volume of water removed from the various basins is approximately 85,000 gallons.

2. **Work Performed Today by Subcontractors:**
   Pumping water of Flame Tunnel.
   Pumping water of Control Room Sump Pit.

3. **Type and Results of Inspection: (Include Satisfactory Work Completed or Deficiencies with Action to be taken).**
   Initial inspections for Definable Features of Work #2 and #3 were conducted, see attached documents for results of inspections. No deficiencies were noted or found.

4. **List Type and Location of Tests Performed and Results of These Tests:**
   Arrowhead received analytical sample results for water sample S5-W-01 collected on 10/16 and associated with 21,000 gallons of treated water held in storage tank #2. Please refer to the attached laboratory report detection summary. The completed data package will be transmitted to USACE under separate submittal.

5. **Verbal Instructions Received:**
   USACE field representatives instructed Arrowhead to pause pumping operation if the estimated contract quantity of 90,000 gallons was reached without completing removal of all water from the various basins.

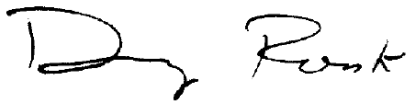
   USACE approved surface discharge of 21,000 gallons from finished water tank #2 following review of analytical data associated with this tank.

6. **Corrective Actions Proposed/Taken:**
   None.

7. **Remarks:**
   None.

8. **Safety Violations Observed:**
   None.

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.



Site Superintendent / Quality Control Officer

Detection Summary

Client: Arrowhead Contracting
Project/Site: Atlas Missile Site Lyon County, KS

TestAmerica Job ID: 280-102418-1

Client Sample ID: S5-W-01 — Lab Sample ID: 280-102418-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Chloromethane	1.9	J	2.0	0.30	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 280-102418-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.2	J	10	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.35	J	5.0	0.32	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

DAILY TAILGATE SAFETY MEETING LOG

Date: 10/18/17 Client: USACE

Location: FORBES MISSILE Job No.: 16-118

Meeting conducted by: Doug Murphy

Details of safety meeting presented (use back of sheet if necessary):

Level of Protection: D (MOD)

Contaminants: TCE, DEC, VC

Physical Hazards: SLIPS TRIPS & FALLS Lifting, Ladder Safety Pinch Points

Other:

PPE Pump operation, fall Hazards

Are any permits/clearances required on this day?:

ATTENDEES:

Printed Name:	Signature:
Doug Murphy	
Andy Barton	
Tyler Wright	
Kyle Botello	
Doug Rook	

SITE ENTRY LOG

Date: 10/18/17 Client: USACE

Location: FORBES MISSILE Job No.: 16-118

Name	Company	Time In	Time Out
Doug Murphy	ACI	0800	1700
Andy Blanton	HMRI	0800	1700
Tyler Wright	HMRI	08:00	1700
Kyle Botelle	HMRI	0800	1700
Doug Kenk	ACI	0800	1700

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** Subcontract No.
ATLAS MISSILE S-5	ACI	W912D2-16-D-3006
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
Telescopic Handler	Genie	1066 75495

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	ACI	10/18/17

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#3 Removal, testing AND Disposal	10/18/17	
	Time: 0900	

InspectionType (circle one): **Initial** **Follow-up**

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?	✓			
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?	✓			

Notes:
RECIEVED TEST RESULTS FOR SAMPLE # 55-W-01. Recieved Approval from Government representative to discharge holding TANK. # 2 (55-W-01) sample was generated from that Tank.

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** / **Subcontract No.**
ATLAS MISSILE S-5	ACI	W912D2-16-D-3006
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
TAKEUCHI TL8	TL8	10659850

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	ACI	10/18/17

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#2 POWER WASHING OF SUMPS, TRAPS, AND TUNNELS	10/18/17	
	Time: 0900	

InspectionType (circle one): (Initial) Follow-up

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?	✓			
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?			✓	

Notes:

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** Subcontract No.
ATLAS MISSILE	ARROW Head	W912D2-16-D-3001
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
Peterbilt Vac Truck	PB348	T260

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems	✓		
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher	✓		
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		TW
18. Lift arm and bucket	✓		✓
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	HMEI	10-18-17

Daily Quality Control Report

REPORT NO. 4

CONTRACT NO. W912DQ-16-D-3006 Task Order 0002 Date: 10/19/17

LOCATION OF WORK: Former Forbes Atlas Missile S-5, Lyon County, KS
DESCRIPTION: Interim Remedial Action.

WEATHER CLASSIFICATION:

No interrruptions of any kind from weather conditions occurring on this or previous shifts	Classification:	
Weather occurred during this shift that caused a complete stoppage of all work	Class A	
Weather occurred during this shift that caused a partial stoppage of work	Temperature (^{o}F): 83	
Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather	Max: 83°F Min: 55°F	
Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner	Precipitation:	
Explain:	Inches 0.00	

1. **Work Performed Today by Kemron/Arrowhead JV:**
   Contractors arrived on site at 0800. Upon arrival Arrowhead conducted the Daily Tailgate Safety Meeting with all JV staff and subcontract personnel. Inspection of equipment was completed prior to beginning operations. Refer to the attached meeting and inspections logs for additional detail. Contractors pumped water/cleaned out sludge from the Control Room sump pit, continued to filter water from settling tank to treated holding tanks, pumped water/cleaned out sludge from various pits in the Launch Operation building, and conducted maintenance on GAC treatment system (changed bag filter elements).

   Arrowhead, USACE, and a representative from KDHE (Margaret Townsend), conducted a walk through inspection of the work area.

   HMR mobilized additional equipment (Guzzler vacuum truck) to assist with pumping and cleaning operations. Initial inspections of additional equipment were conducted, see attached documents for inspection results.

Arrowhead received laboratory results from samples submitted for VOC analysis of contents of finished water in holding tanks #3 (sample ID S5-W-02) and #4 (sample ID S5-W-03). Results indicated no Contaminant of Concern above detection limits. Data was forwarded to USACE for review. Upon receipt of approval from USACE, Arrowhead discharged 21,000 gallons from Tank #4 to the outfall area. Tank #3, containing 21,000 gallons, will be discharged on 10/20/17. A sample of treated water was collected from Tank #2 (sample ID S5-W-04) and submitted to the subcontract laboratory for VOC analysis by method 8260.

Throughout the day continued operation of the GAC treatment system was conducted. At the conclusion of work approximately 13,000 gallons had been processed with a cumulative total of approximately 84,000 gallons treated. The total volume of water removed from the various basins is approximately 90,000 gallons.

2. **Work Performed Today by Subcontractors:**
   Pumping and cleaning of several small pits in the launch operation building.
   Pumping water and cleaning of control room sump pit.
   Cleaning additional sediment trap.

3. **Type and Results of Inspection: (Include Satisfactory Work Completed or Deficiencies with Action to be taken).**
   Initial inspections for Definable Features of Work #2 and #3 were conducted, see attached documents for results of inspections. No deficiencies were noted or found.

4. **List Type and Location of Tests Performed and Results of These Tests:**
   Arrowhead received analytical sample results for water sample S5-W-02 and S5-W-03 collected on 10/17 and is associated with 42,000 gallons of treated water held in storage tank #3 and storage tank #4, respectively. Please refer to the attached laboratory report detection summary. The completed data package will be transmitted to USACE under separate submittal. A sample was collected of treated water (sample ID S5-W-04) from water tank #2 and was submitted to the subcontract laboratory for VOC analysis.

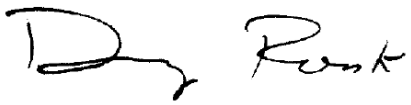
5. **Verbal Instructions Received:**
   USACE approved surface discharge of 42,000 gallons of water from water tanks #3 and #4 following review of analytical data associated with these tanks. USACE inspected and approved the cleaning of the Control Room sump pit and additional sediment trap.

6. **Corrective Actions Proposed/Taken:**
   None.

7. **Remarks:**
   None.

8. **Safety Violations Observed:**
   None.

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.



Quality Control Officer

DAILY TAILGATE SAFETY MEETING LOG

Date: 10/19/17 Client: USACE

Location: FORBES MISSILE Job No.: 16-118

Meeting conducted by: Doug Murphy

Details of safety meeting presented (use back of sheet if necessary):

Level of Protection: (MOD) D

Contaminants: TCE, DEC, VC

Physical Hazards: SLIPS TRIPS & FALLS HEAVY Equipment operation PINCH POINTS

Other: PPE Pump operation Fall hazards

Are any permits/clearances required on this day?:

ATTENDEES:

Printed Name:	Signature:
Doug Murphy	
Tyler Wright	
Andy Blanton	
Taylor Wright	
MIGUEL BLANCO	
Kyle ~~Botello~~ Fonk	
Doug	

SITE ENTRY LOG

Date: 10/19/17 Client: USACE

Location: FORBES MISSILE Job No.: 16-118

Name	Company	Time In	Time Out
Doug Murphy	ACI	0800	1700
Tyler Wright	HMRI	08:00	1700
Andy Blanton	HMRI	08:00	1700
Taylor Wright	HMRI	08:00	1700
MIGUEL BLANCO	HAZMAT	0800	1700
Kyle Bostella	HMRI	0800	1700
Doug Funk	Arrowhead	0800	1600

Detection Summary

Client: Arrowhead Contracting
Project/Site: Atlas Missile Site Lyon County, KS

TestAmerica Job ID: 280-102463-1

Client Sample ID: S5-W-02 — Lab Sample ID: 280-102463-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	17		10	1.9	ug/L	1		8260B	Total/NA
Chloromethane	0.33	J	2.0	0.30	ug/L	1		8260B	Total/NA
Methylene Chloride	0.38	J	5.0	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: S5-W-03 — Lab Sample ID: 280-102463-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Chloromethane	1.7	J	2.0	0.30	ug/L	1		8260B	Total/NA
Methylene Chloride	0.38	J	5.0	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 280-102463-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.77	J	5.0	0.32	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
H2 Power Washing OF Sumps, TRAPS And Tunnels	10/19/17	
	Time: 0930	

InspectionType (circle one): **Initial** **Follow-up**

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?	✓			
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?	✓			

Notes:

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#3 Removal, TESTING AND DISPOSAL	10/19/17	
	Time: 0930	

InspectionType (circle one): **Initial** **Follow-up**

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		S
Are results of applicable tests, samples, and/or measurements within acceptable levels?	✓			See NOTES
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?	✓			

Notes:

Recieved TEST RESULTS For Samples 55-W-02 and 55-W-03

55-W-02 - TANK #3 -

55-W-03 TANK #4 -

RECIEVED APPROVAL TO Discharge water.

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** / **Subcontract No.**
ATLAS MISSILE	ARROW HEAD	
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
TELESCOPIC HANDLER	GENIE	10675495

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	ARROW HEAD	10/19/17

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** / **Subcontract No.**
ATLAS MISSILE	ARROW HEAD	
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
TAKEUCHI	TL8	10659550

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	ARROW HEAD	10/19/17

HEAVY EQUIPMENT INITIAL INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	Contractor:	Contract No.: Subcontract No.
Atlas missile	Hmrl	
Type and Make of Equipment	Model	Serial No.
Sterling "Crawler"	T200	T200

CHECKLIST	Yes	No	N/A
1. Are adequate and serviceable fire extinguishers provided? (09.E.01 through 09.E.03)			✓
2. Are all wire rope cables in good condition? (15.B.01 and 15.B.02)			✓
3. Are wire rope, sockets, splices, thimbles, and clips and adequate and properly applied? (15.B.03 through 15.B.08)			✓
4. Are hooks, safety nooks, shackles, rings, etc., in good condition? (?)	✓		
5. Are necessary platforms, foot-walks, etc., provided? (22.A.01 and 22.A.02)	✓		
6. Are access steps, platforms, etc., provided with non-slip surfaces? (21.A.13)	✓		
7. Is operator protected against the elements, falling or flying objects, swinging loads, and similar hazards? (16.B.10, 16.B.11, and 21.A.11)	✓		
8. Are all glasses in operator's compartment safety glass and in good repair? (16.B.10 and 18.A.07)	✓		
9. Is suitable access provided at lubrication points? (16.B.13)	✓		
10. Do all modifications, extensions, replacement parts, and/or repairs to equipment maintain the same factor of safety as original designed equipment? (16.A.18)			✓
11. Are drums for load lines equipped with at least one positive holding device, applied directly to the motor shaft or some part of the train gear? (?)	✓		
12. Is there sufficient cable to allow three full wraps of cable on drums at all working positions? (16.C.10)			✓
13. Are adequate headlights, taillights, and turn signals provided and are they in proper operating condition (16.A.07 and 18.A.02 through 18.A.04)	✓		
14. Are all approved brakes on wheeled equipment and in good operating condition? (16.A.07, 18.A.02, and 18.A.05)	✓		
15. Do windshields have wipers in proper operating condition? (16.A.07, 18.A.02, and 18.A.06)	✓		

CHECKLIST	Yes	No	N/A
16. Are rear view mirrors provided? (18.A.02 and 18.A.06)	✓		
17. Are operating levers equipped with latch and other devices to prevent accidental starting? (18.A.10)	✓		
18. Is engine equipped with power-operated starting device in operative condition? (18.A.06)	✓		
19. Do all pressure vessels have valid inspection certificates? (20.A.03)	✓		
20. Are reverse signal alarms on equipment? (16.B.01)	✓		
21. Are belts, gears, shafts, electrical contacts, etc., adequately guarded? (16.B.03)	✓		
22. Are all hot pipes and surfaces suitably guarded? (16.B.03)	✓		
23. Are fuel tanks located so that spills or overflows will not come in contact with engine or exhaust? (16.B.04)	✓		
24. Are exhausts and discharges so directed as not to endanger workmen or obstruct view of operator? (16.B.05)	✓		
25. Are guards in place on equipment with drop type skip pans? (16.B.03)	✓		
26. Are adequate seats provided for all riders? (16.A.07 and 18.C.01)	✓		
27. Are tires in serviceable condition? Are testing/inspections documented? (18.A.02)	✓		
28. Are steering linkage and tie rod in good operating condition? Are testing/inspections documented? (18.A.02)	✓		
29. Are dump bodies provided with holding device or other suitable device for locking body in raised position? (18.A.10)	✓		
30. Are tailgate dumping devices so arranged that operator will be in the clear while dumping loads? (18.A.10)			✓
31. Are trip handles provided on tailgates to facilitate handling? (18.A.10)			✓
32. Is the air hose free from leaks or defects? (? 20.B.03)	✓		
33. Are safety lashing for quick make-up type connections provided? (20.A.16)			✓
34. Is an acceptable spark arrestor installed and working? (?)			✓
35. Do heating devices comply with references? (?)	✓		
36. Does welding equipment comply with code requirements? (10.A.10 and 10.E.01)			✓
37. Is equipment adequately grounded? (10.E.04 and 10.E.07)			✓
38. Do electrical components comply with code? (10.E.01)	✓		
39. Are required pressure, temperature, or relief gages and valves installed and operable? (20.A.10 through 20.A.13 and 20.B.02)	✓		
40. Are approved seat belts and roll-over protection provided? (16.B.08, 16.B.12, and 18.B.02)	✓		
41. Is recommended preventive maintenance being followed? (16.A.08 and 18.A.02)	✓		

CHECKLIST	Yes	No	N/A
42. Do helicopter cranes meet construction requirements (16.J.01)			✓
43. Does hydraulic equipment meet special safety conditions (? 11.H.08, 11.H.09, and 13.A.09)	✓		
44. Is concrete equipment fitted with adequate safety devices? (27.A.04)			✓
45. Are elevating and rotating work platforms in conformance with ANSI A92.2? (22.K.01)	✓		
46. Do conveyors, cableways, and related equipment conform to ANSI 320.01? (?)	✓		
47. Are pile drivers equipped with all appropriate safety devices? (16.L)			✓
48. Do material hoists conform to ANSI A10.5? (16.K.01)			✓
49. Do passenger elevators conform to ANSI A10.4? Do temporary hoists conform to ANSI A10.22: (21.H)			✓
50. Do hand and power tools comply with applicable ANSI standards (13.A through 13.G)	✓		
51. Is high voltage sign posted? (?)			✓
52. Is equipment fitted with positive stops for rotation when near power lines? (11.E and 16.D.06)			✓
53. Is there any visible evidence of damage to boom? (16.C.12 and Appendix H)			✓
54. Is the boom position indicator operating and visible to operator? (16.D.01 and 16.D.04)			✓
55. Have all operators had a current physical examination? (1.C and 16.C.04)	✓		
56. Is braking equipment capable of effectively braking, lowering, and safely holding a load of at least the full rated load as required? (?)	✓		

Remarks:

Certification: I hereby certify that this item of equipment is in good operating condition and that it meets all above requirements except as noted in the remarks.

Tyler [illegible]
Signature of Competent Mechanic

10/19/17
Date

[illegible]
Signature of Superintendent/Quality Control Engineer

10/19/17
Date

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
Project:	Contractor:	Contract No.: Subcontract No.
Equipment Description: Peterbilt Vac Truck	Model No.(s): PB348	Serial No.(s): T260

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems	✓		
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher	✓		
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	•		✓
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	HMR1	10-19-17

Serial Number 225505

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
CLIENT NAME	CLIENT E-MAIL	
CLIENT ADDRESS		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE ____ OF ____

STANDARD REPORT DELIVERY ◯

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: NUMBER OF CONTAINERS SUBMITTED	PRESERVATIVE	REMARKS
				X				X		
				X				X		

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES ◯ NO ◯	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS

Daily Quality Control Report

REPORT NO. 5

CONTRACT NO. W912DQ-16-D-3006 Task Order 0002 Date: 10/20/17

LOCATION OF WORK: Former Forbes Atlas Missile S-5, Lyon County, KS
DESCRIPTION: Interim Remedial Action.

WEATHER CLASSIFICATION:

Class A	No interruptions of any kind from weather conditions occurring on this or previous shifts	Classification:
Class B	Weather occurred during this shift that caused a complete stoppage of work	Class: A
Class C	Weather occurred during this shift that caused a partial stoppage of work	Temperature
Class D	Weather overhead excellent or suitable for work during shift. Work completely stopped due to results of previous adverse weather.	Max. 83°F Min. 55°F
Class E	Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner.	Precipitation: No
Other	Explain:	Inches: n/a

1. **Work Performed Today by Kemron/Arrowhead JV:**
   Contractors arrived on site at 0800. Upon arrival Arrowhead conducted the Daily Tailgate Safety Meeting with all JV staff and subcontract personnel. Inspection of equipment was completed prior to beginning operations. Refer to the attached meeting and inspections logs for additional detail. Work continued in removing water from the Flame Pit, transferring water to the settling tank, and onsite treatment using the temporary water treatment system. Periodic routine maintenance was conducted on the GAC treatment system, consisting of replacement of fouled bag filter elements.

   At the conclusion of work approximately 21,000 gallons had been processed with a cumulative total of approximately 102,000 treated and 106,000 gallons removed from the various basin. Refer to the attached summary table for additional detail.

2. **Work Performed Today by Subcontractors:**
   Pumping and cleaning of several small pits in the launch operation building.
   Continued pumping water from Flame Pit.

3. **Type and Results of Inspection: (Include Satisfactory Work Completed or Deficiencies with Action to be taken).**
   Initial inspections for Definable Features of Work #2 and #3 were conducted, see attached documents for results of inspections. No deficiencies were noted or found.

4. **List Type and Location of Tests Performed and Results of These Tests:**
   None.

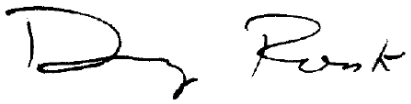
5. **Verbal Instructions Received:**
   None.

6. **Corrective Actions Proposed/Taken:**
   None.

7. **Remarks:**
   None.

8. **Safety Violations Observed:**
   None.

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.



Quality Control Officer

Pump operation set up


Guzzler Pump Truck in operation (pumping additional sediment sump pit).

Flame Pit Tunnel.

Additional sediment sump pit (cleaned).

Control Room Sump Pit (before).

Control Room Sump Pit (After).

DAILY TAILGATE SAFETY MEETING LOG

Date: 10/20/17 Client: USACE

Location: FORBES MISSILE Job No.: 16-118

Meeting conducted by: Doug Murphy

Details of safety meeting presented (use back of sheet if necessary):

Level of Protection: (MOD) D

Contaminants: TCE, DEC, VC

Physical Hazards: SLIPS, TRIPS & FALLS, HEAVY Equipment operation PINCH POINTS

Other:

P.P.E Pump operation FALL HAZARDS

Are any permits/clearances required on this day?:

ATTENDEES:

Printed Name:	Signature:
Doug Murphy	
Tyler Wright	
Andrew Blanton	
MIGUEL BLANCO	MIGUEL BLANCO
Taylor Wright	
Kyle Botello	
Doug Kent	

SITE ENTRY LOG

Date: 10/20/17 Client: USACE

Location: FORBES MISSILE Job No.: 16-118

Name	Company	Time In	Time Out
Doug Murphy	ACI	0800	1500
Tyler Wright	HMRI	0800	1400
Andy Blanton	HMRI	08:00	1600
MIGUEL BURRO	HAZMAT	0800	1400
Taylor Wright	HMRI	0900	1400
Kyle Botulle	HMRE	0800	1600
Doug Funk	Arcadis	0800	1600

Forbes Field Former Atlas Missile Site S-5
Sump Dewatering Pumping Summary

Tank	Date Filled	Quantity Pumped (gallons)	Sample Date	Data Received	Sample ID	Date Released	Treated Volume Released (gallons)	Notes:
#2	16-Oct	21,000	16-Oct	18-Oct	S5-W-01	18-Oct	21,000	
	19-Oct	21,000	19-Oct		S5-W-04			
#3	17-Oct	21,000	17-Oct	19-Oct	S5-W-02	20-Oct	21,000	
	20-Oct	18,000						Remaining capacity of tank will be filled on 10/23
#4	17-Oct	21,000	17-Oct	19-Oct	S5-W-03	19-Oct	21,000	
				Total Volume Discharged (gallons)			**63,000**	

Note: Tank #1 designated as untreated water settling basin

Volume treated	102,000	gallons
Volume Pumped if tank #1 is full	123,000	gallons

ume pumped through COB 10/20 106,000

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#2 Power Washing of Sumps, Traps, and Tunnels	10/20/17	
	Time: 0900	

InspectionType (circle one): **Initial** **Follow-up**

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?			✓	
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?	✓			

Notes:

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
A3 Removal, TESTING, AND DISPOSAL	10/20/17	
	Time: 0900	

InspectionType (circle one): **Initial** **Follow-up**

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?				
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?	✓			

Notes:

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** Subcontract No.
ATLAS MISSILE	ACI	
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
TAKEUCHI TL8	TL8	10659850

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	ACI	10/20/17

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** / **Subcontract No.**
ATLAS MISSILE	ACI	
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
TELESCOPIC HANDLER	GENIE	10675495

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
[signature]	ACI	10/20/17

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
Project:	Contractor:	Contract No.: Subcontract No.
Equipment Description: Peterbilt Vac Truck	Model No.(s): PB 348	Serial No.(s): T 260

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems	✓		
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher	✓		
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket			✓
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	Unit 1	10-2017

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
Project:	Contractor:	Contract No.: Subcontract No.
Equipment Description: Sterling 'Guzzler'	Model No.(s): T200	Serial No.(s): T200

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems	✓		
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher	✓		
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket			✓
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	HARI	10-20-17

Daily Quality Control Report

REPORT NO. 6

CONTRACT NO. W912DQ-16-D-3006 Task Order 0002 Date: 10/23/17

LOCATION OF WORK: Former Forbes Atlas Missile S-5, Lyon County, KS
DESCRIPTION: Interim Remedial Action.

WEATHER CLASSIFICATION:

No interrruptions of any kind from weather conditions occurring on this or previous shifts	Classification:	
Weather occurred during this shift that caused a complete stoppage of all work	Class A	
Weather occurred during this shift that caused a partial stoppage of work	Temperature (^{o}F): 69	
Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather	Max: 69°F Min: 45°F	
Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner	Precipitation:	
Explain:	Inches 0.00	

1. **Work Performed Today by Kemron/Arrowhead JV:**
   Contractors arrived on site at 0800. Upon arrival Arrowhead conducted the Daily Tailgate Safety Meeting with all JV staff and subcontract personnel. Inspection of equipment was completed prior to beginning operations. Refer to the attached meeting and inspections logs for additional detail. Contractors continued pumping water from flame pit, continued to filter water from settling tank to treated holding tanks, and conducted maintenance on GAC treatment system (changed bag filter elements).

   Arrowhead, USACE, and Kemron health and safety (Steven Fess) conducted Fall Protection and Confined space briefing prior to conducting confined space work. Confined space work will begin 10/24/17.

Arrowhead received laboratory results from samples submitted for VOC analysis of contents of finished water in holding tank #2 (S5-W-04). Results indicated no Contaminant of Concern concentrations above detection limits. Data was forwarded to USACE for review. Upon receipt of approval from USACE, Arrowhead discharged 21,000 gallons to the outfall area. A sample of treated water was collected from tank #3 (sample ID S5-W-05) and from tank #4 (sample ID S5-W-06) and was submitted to the subcontract laboratory for VOC analysis by method 8260.

Throughout the day continued operation of the GAC treatment system continued. At the conclusion of work approximately 27,000 gallons had been processed with a cumulative total of approximately 129,000 gallons treated. The total volume of water removed from the various basins is approximately 135,000 gallons. 21,000 gallons was discharged from tank #2 to the out fall area. Refer to attached pumping data spreadsheet for updated information.

2. **Work Performed Today by Subcontractors:**
   Continued pumping water from Flame Pit.

3. **Type and Results of Inspection: (Include Satisfactory Work Completed or Deficiencies with Action to be taken).**
   Initial inspections for Definable Features of Work #2 and #3 were conducted, see attached documents for results of inspections. No deficiencies were noted or found.

4. **List Type and Location of Tests Performed and Results of These Tests:**
   Arrowhead received analytical sample results for water sample S5-W-04 for storage tank #2. Please refer to the attached laboratory report detection summary. The completed data package will be transmitted to USACE under separate submittal. A sample of treated water was collected from tank #3 (sample ID S5-W-05) and from tank #4 (sample ID S5-W-06) and was submitted to the subcontract laboratory for VOC analysis by method 8260.

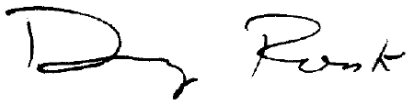
5. **Verbal Instructions Received:**
   USACE approved surface discharge of 21,000 gallons of water from water tank #2 to the out fall area following review of analytical data associated with this tank.

6. **Corrective Actions Proposed/Taken:**
   None.

7. **Remarks:**
   None.

8. **Safety Violations Observed:**
   None.

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.



Site Superintendent / Quality Control Officer

DAILY TAILGATE SAFETY MEETING LOG

Date: 10-23-17

Client: USACE

Location: FORGES MISSILE SITE

Job No.: 16-118

Meeting conducted by:

Details of safety meeting presented (use back of sheet if necessary):

Level of Protection:

Contaminants: TCE, DEC, VC

Physical Hazards: SLIPS, TRIPS, AND Falls, Heavy Equipment operations. PINCH POINTS

Other:

PPE pump operations, Fall HAZARDS confined space Respirators

Are any permits/clearances required on this day?:

ATTENDEES:

Printed Name:	Signature:
Doug Murphy	
Tyler Wright	
Andy Blanton	
Kyle Botello	
Cale Bergstrom	
Josh Phillips	
MIGUEL BLANCO	MIGUEL BLANCO

SITE ENTRY LOG

Date: 10-23-17 Client: USACE

Location: FORBES MISSILE SITE Job No.: 16-118

Name	Company	Time In	Time Out
Doug Murphy	ACE	0800	1600
Tyler Wright	HMRI	08:00	1700
Andy Bantz	HMRI	08:00	1700
Kyle Botello	HMRI	0800	1700
Cale Bergstrom	ACI	800	1700
Josh Phillips	ACI	08:00	1700
Miguel Blanco	HAZMAT	1050	1700
Jason L'Ecuyer	USACE	0915	1500
Charles Colbert	USACE, KC District	0915	1500
Steven K. Fess	KEMRON ENV - KA-JV	08:30	1700
Calley Havens	USACE	1150	1500

Forbes Field Former Atlas Missile Site S-5
Sump Dewatering Pumping Summary

Tank	Date Filled	Quantity Pumped (gallons)	Sample Date	Data Received	Sample ID	Date Released	Treated Volume Released (gallons)	Notes:
#2	16-Oct	21,000	16-Oct	18-Oct	S5-W-01	18-Oct	21,000	
	19-Oct	21,000	19-Oct	23-Oct	S5-W-04	23-Oct	21,000	
#3	17-Oct	21,000	17-Oct	19-Oct	S5-W-02	20-Oct	21,000	
	20-Oct	21,000	23-Oct		S5-W-05			
#4	17-Oct	21,000	17-Oct	19-Oct	S5-W-03	19-Oct	21,000	
	23-Oct	21,000	23-Oct		S5-W-06			
				Total Volume Discharged (gallons)			**84,000**	

Note: Tank #1 designated as untreated water settling basin

9,000 gallons currently in tank

Volume treated	126,000	gallons
Volume Pumped if tank #1 is full	147,000	gallons

Volume pumped through COB 10/23 135,000

Detection Summary

Client: Arrowhead Contracting
Project/Site: Atlas Missile Site Lyon County, KS

TestAmerica Job ID: 280-102595-1

Client Sample ID: S5-W-04 — Lab Sample ID: 280-102595-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Chloromethane	1.9	J	2.0	0.30	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 280-102595-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	7.8	J	10	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.35	J	5.0	0.32	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
Project:	Contractor:	Contract No.: Subcontract No.
Equipment Description: Peterbilt Vac Truck	Model No.(s): PB348	Serial No.(s): T260

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems	✓		
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher	✓		
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket			✓
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	Hmel	10-23-17

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	Contractor:	Contract No.: Subcontract No.
ATLAS MISSILE	ARROWHEAD	
Equipment Description:	Model No.(s):	Serial No.(s):
TAKEUCHI	JL8	10659850

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	ACE	10-23-17

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** / **Subcontract No.**
ATLAS MISSILE	AKRON HEAD	
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
TELESCOPIC HANDLER	GENIE	10675495

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
[signature]	AIE	10-23-17

Arrowhead Contracting, Inc.

Sheet 1 of 2

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#2 POWER WASHING OF SUMPS TRAPS AND TUNNELS	10-23-17	
	Time: 0900	

InspectionType (circle one): **Initial** **Follow-up**

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?			✓	
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?	✓			

Notes:

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#3 Removal, TESTING AND Disposal	10-23-17	
	Time: 0900	

InspectionType (circle one): **Initial** **Follow-up**

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?	✓			Recieved Data for Test sample 55-W-04
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?	✓			

Notes:

Recieved Test Results for Test Sample 55-W-04 for TANK #2. Upon Receipt notified USACE of Results USACE approved discharge of 21,000 gallons for TANK #2

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica

Client Information

Client Contact: Mr. Josh Phillips	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No:
Company: Arrowhead Contracting	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 1 of 1
Address: 10981 Eicher Drive	Due Date Requested: 10/25/17			Job #:
City: Lenexa	TAT Requested (days): 24hr TAT			
State, Zip: KS, 66219				
Phone: (515)961-8000	PO #: 16-126			
Email: jphillips@arrowhead-usa.com	WO #:			
Project Name: Atlas Missile Site Lyon County, KS	Project #: 28017409			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs- Water	8260B_DOD5 - VOCs- Soil	Percent Moisture	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	J/F	N		
SS-W-05	10/23/17	14:00		W			3				24 hr TAT
SS-W-06	10/23/17	14:00		W			3				24 hr TAT
Trip Blank	10/23/17	14:00		W			1				24 hr TAT

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) III

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Josh Phillips	Date/Time: 10/23/17 5:15	Company: ACI	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Daily Quality Control Report

REPORT NO. 7

CONTRACT NO. W912DQ-16-D-3006 Task Order 0002 Date: 10/24/17

LOCATION OF WORK: Former Forbes Atlas Missile S-5, Lyon County, KS
DESCRIPTION: Interim Remedial Action.

WEATHER CLASSIFICATION:

No interrruptions of any kind from weather conditions occurring on this or previous shifts	Classification:	
Weather occurred during this shift that caused a complete stoppage of all work	Class A	
Weather occurred during this shift that caused a partial stoppage of work	Temperature (^{o}F): 65	
Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather	Max: 65°F Min: 37°F	
Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner	Precipitation:	
Explain:	Inches 0.00	

1. **Work Performed Today by Kemron/Arrowhead JV:**
   Contractors arrived on site at 0800. Upon arrival Arrowhead conducted the Daily Tailgate Safety Meeting with all JV staff and subcontract personnel. Inspection of equipment was completed prior to beginning operations. Refer to the attached meeting and inspections logs for additional detail. Contractors continued pumping water from flame pit, began pumping water from sump pump pit, continued to filter water from settling tank to treated holding tanks, and conducted maintenance on GAC treatment system (changed bag filter elements).

   A sample of treated water was collected from tank #2 (sample ID S5-W-07) and was submitted to the subcontract laboratory for VOC analysis by method 8260.

   HMR deployed additional equipment for confined space entry. Entered flame pit to determine amount of water in pit. No confined space entry was conducted.

Throughout the day continued operation of the GAC treatment system. At the conclusion of work approximately 31,000 gallons had been processed with a cumulative total of approximately 21,000 gallons treated. The total volume of water removed from the various basins is approximately 165,000 gallons.

2. **Work Performed Today by Subcontractors:**
   Continued pumping water from Flame Pit. The flame pit seems to drawdown with relation to gallons removed.

   Began pumping water from Sump Pump Pit. Approximately 15,000 gallons were removed from the Main Sump. The elevation of water within the Main Sump is reducing slowly. It appears the Main sump continues to be influenced from sources other than the capacity of the main sump itself.

3. **Type and Results of Inspection: (Include Satisfactory Work Completed or Deficiencies with Action to be taken).**
   Initial inspections for Definable Features of Work #2 and #3 were conducted, see attached documents for results of inspections. No deficiencies were noted or found.

4. **List Type and Location of Tests Performed and Results of These Tests:**
   A sample of treated water was collected from tank #2 (sample ID S5-W-07) and was submitted to the subcontract laboratory for VOC analysis by method 8260.

5. **Verbal Instructions Received:**
   None.

6. **Corrective Actions Proposed/Taken:**
   None.

7. **Remarks:**
   None.

8. **Safety Violations Observed:**
   None.

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.

Site Superintendent / Quality Control Officer

DAILY TAILGATE SAFETY MEETING LOG

Date: 10-24-17 Client: USACE

Location: FORBES MISSILE SITE Job No.: 16-118

Meeting conducted by: Doug Murphy

Details of safety meeting presented (use back of sheet if necessary):

Level of Protection: MOD D

Contaminants: TCE, DEC, VC

Physical Hazards: SLIPS TRIPS & Falls, Heavy Equipment operations Pinch Points, Fall

Other:

P.P.E pump Operations, Fall Hazards, Confined Space Respirators, Ladder Safety

Are any permits/clearances required on this day?:

ATTENDEES:

Printed Name:	Signature:
Doug Murphy	
Andy Blanton	
MIGUEL BLANCO	
Tyler Wright	
Kyle Botello	
Josh Phillips	
Cale Bergstrom	

SITE ENTRY LOG

Date: 10-24-17 Client: USACE

Location: FORBES MISSILE SITE Job No.: 16-118

Name	Company	Time In	Time Out
Doug Murphy	ACI	0800	1600
MIGUEL BLANCO	HAZMAT	0800	1700
Andy Blanton	HAZ-MAT	0800	1700
Tyler Wright	HMRI	08:00	1700
Kyle Botello	HMRI	0800	1700
John Phillips	ACI	080	1700
CALE BERGSTROM	ACE	0800	1700

Forbes Field Former Atlas Missile Site S-5
Sump Dewatering Pumping Summary

Tank	Date Filled	Quantity Pumped (gallons)	Sample Date	Data Received	Sample ID	Date Released	Treated Volume Released (gallons)	Notes:
#2	16-Oct	21,000	16-Oct	18-Oct	S5-W-01	18-Oct	21,000	
	19-Oct	21,000	19-Oct	23-Oct	S5-W-04	23-Oct	21,000	
	24-Oct	21,000	24-Oct		S5-W-07			
#3	17-Oct	21,000	17-Oct	19-Oct	S5-W-02	20-Oct	21,000	
	20-Oct	21,000	23-Oct		S5-W-05			
#4	17-Oct	21,000	17-Oct	19-Oct	S5-W-03	19-Oct	21,000	
	23-Oct	21,000	23-Oct		S5-W-06			
				Total Volume Discharged (gallons)			**84,000**	

Note: Tank #1 designated as untreated water settling basin

18,000 gallons currently in tank

Volume treated	147,000	gallons
Volume Pumped if tank #1 is full	168,000	gallons

Volume pumped through COB 10/24 165,000

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#2 Power washing of Sumps Traps, and Tunnels	10-24-17	
	Time: 0900	

InspectionType (circle one): **Initial** **Follow-up**

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?			✓	
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?	✓			

Notes:

Arrowhead Contracting, Inc.

Initial/Follow-up Inspection Checklist

Definable Feature of Work (DFW):	Date:	Subcontract No:
#3 Removal, Testing, and Disposal	10-24-17	
	Time: 0900	

InspectionType (circle one): **Initial** **Follow-up**

Item	Yes	No	NA	Remarks
Is the work being performed in accordance with the applicable section(s) of the subcontract specifications?	✓			
Is the work being performed in accordance with approved design drawings and specifications?	✓			
Is the work being performed in accordance with approved work plans (e.g. CQCP, EPP, SAMP/QAPP)?	✓			
Is the work being performed cautiously and with acceptable levels of workmanship?	✓			
Is equipment being operated properly?	✓			
Is the work being performed using proper methods and procedures?	✓			
Have any defective or damaged materials been identified?		✓		
Are results of applicable tests, samples, and/or measurements within acceptable levels?	✓			SENT TEST SAMPLE SS-W-07
Is the work being performed in a safe manner and in accordance with the SSHP?	✓			
Have pertinent records been completed or collected?	✓			
Have any nonconformances been identified, corrected, and re-inspected?	✓			

Notes:

Collected TEST SAMPLE SS-W-07 From TANK #2. SENT TEST TO TEST FACILITY for Analysis.

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** / **Subcontract No.**
ATLAS MISSILE S-5	ACI	
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
TAKEUCHI	TL 8	10659850

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	ACI	10-24-17

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** / **Subcontract No.**
ATLAS MISSILE S-5	ACI	
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
Telescopic Handler	Genie	106 75495

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems			✓
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher			✓
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	ACE	10-24-17

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name: FORBES MISSILE	Project Number: 16-118	Client: USACE
Project: ATLAS MISSILE	Contractor: HMR1	Contract No.: Subcontract No.
Equipment Description: TL8	Model No.(s): 10659850	Serial No.(s): 10659850

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		✓
5. Air systems	✓		
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher	✓		
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		✓
18. Lift arm and bucket	✓		
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition			

Remarks:

Certification

Signature of Certified Operator	Company	Date
	HMR1	10-24-17

HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name:	Project Number:	Client:
FORBES MISSILE	16-118	USACE
Project:	**Contractor:**	**Contract No.:** / **Subcontract No.**
ATLAS MISSILE	HMR1	
Equipment Description:	**Model No.(s):**	**Serial No.(s):**
Sterling Guzzler	T 200	T200

CHECKLIST	OK	Not OK	N/A
1. Fuel	✓		
2. Lubrication, engine oil	✓		
3. Brakes	✓		
4. Tires, tracks	✓		
5. Air systems	✓		
6. Horn	✓		
7. Safety guards	✓		
8. Mirrors	✓		
9. Steering mechanism	✓		
10. Cooling water	✓		
11. Operation controls	✓		
12. Lights and reflectors	✓		
13. Windshield wipers, defroster	✓		
14. Backup alarm	✓		
15. Fire extinguisher	✓		
16. Seat belts	✓		
17. Filters (air, oil, fuel, hydraulic)	✓		
18. Lift arm and bucket			✓
19. Grab handles	✓		
20. Steps (tread, no slip hazards)	✓		
21. Parking brake	✓		
22. General condition	✓		

Remarks:

Certification

Signature of Certified Operator	Company	Date
	HMR1	10-24-17

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica

Client Information	Sampler:	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Josh Phillips	Phone:	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: Page 1 of 1
Company: Arrowhead Contracting				Job #:
Address: 10981 Eicher Drive	Due Date Requested: 10/26/17			
City: Lenexa	TAT Requested (days): 24 hr TAT			
State, Zip: KS, 66219				
Phone: (515)961-8000	PO #: 16-126			
Email: jphillips@arrowhead-usa.com	WO #:			
Project Name: Atlas Missile Site Lyon County, KS	Project #: 28017409			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs- Water	8260B_DOD5 - VOCs- Soil	Percent Moisture	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	J/F	N		
55-W-07	10/24/17	1500					3				24 hr TAT
TRIP BLANK	10/24/17	1500					1				24 hr TAT

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Doug Murphy	10/24/17 5:15	ACI			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Daily Quality Control Report

REPORT NO. 8

CONTRACT NO. W912DQ-16-D-3006 Task Order 0002 Date: 10/25/17

LOCATION OF WORK: Former Forbes Atlas Missile S-5, Lyon County, KS
DESCRIPTION: Interim Remedial Action.

WEATHER CLASSIFICATION:

No interrruptions of any kind from weather conditions occurring on this or previous shifts	Classification:	
Weather occurred during this shift that caused a complete stoppage of all work	Class A	
Weather occurred during this shift that caused a partial stoppage of work	Temperature (^{o}F): 72	
Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather	Max: 72°F Min: 41°F	
Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner	Precipitation:	
Explain:	Inches 0.00	

1. **Work Performed Today by Kemron/Arrowhead JV:**
   Contractors arrived on site at 0800. Upon arrival Arrowhead conducted the Daily Tailgate Safety Meeting with all JV staff and subcontract personnel. Inspection of equipment was completed prior to beginning operations. Refer to the attached meeting and inspections logs for additional detail. Contractors finished pumping water from flame pit, continued pumping water from main sump pit, continued to filter water from settling tank to treated holding tanks, and conducted maintenance on GAC treatment system (changed bag filter elements).

   HMR deployed additional holding tanks in order to continue pump operations. Refer to attached photos for new pump operation setup with additional tanks.

A sample of treated water was collected from tank #5 (sample ID S5-W-08) and from tank #6 (sample ID S5-W-09) and was submitted to the subcontract laboratory for VOC analysis by method 8260.

Conducted fall protection and confined space training prior to entering main sump pit area. Set up and inspected equipment, went over special instructions and rehearsed emergency procedures. No confined space entry was conducted at this time due to main sump pit still holding water. Refer to attached photos for additional information.

Throughout the day continued operation of the GAC treatment system. At the conclusion of work approximately 19,000 gallons had been processed with a cumulative total of approximately 25,000 gallons treated. The total volume of water removed from the various basins is approximately 184,000 gallons.

2. **Work Performed Today by Subcontractors:**
   Finished pumping water from Flame Pit.
   Continued to pump water from main sump pit.

3. **Type and Results of Inspection: (Include Satisfactory Work Completed or Deficiencies with Action to be taken).**
   Initial inspections for Definable Features of Work #2 and #3 were conducted, see attached documents for results of inspections. No deficiencies were noted or found.

4. **List Type and Location of Tests Performed and Results of These Tests:**
   A sample of treated water was collected from tank #5 (sample ID S5-W-08) and from tank #6 (sample ID S5-W-09) and was submitted to the subcontract laboratory for VOC analysis by method 8260.

5. **Verbal Instructions Received:**
   None.

6. **Corrective Actions Proposed/Taken:**
   None.

7. **Remarks:**
   None.

8. **Safety Violations Observed:**
   None.

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.

Site Superintendent / Quality Control Officer

New pump operation set up (added Tank #5 and Tank #6).

Confined space entry equipment inspections.

Confined space entry tripod and rescue set up pulley system.

Forbes Field Former Atlas Missile Site S-5
Sump Dewatering Pumping Summary

Tank	Date Filled	Quantity Pumped (gallons)	Sample Date	Data Received	Sample ID	Date Released	Treated Volume Released (gallons)	Notes:
#2	16-Oct	21,000	16-Oct	18-Oct	S5-W-01	18-Oct	21,000	
	19-Oct	21,000	19-Oct	23-Oct	S5-W-04	23-Oct	21,000	
	24-Oct	21,000	24-Oct		S5-W-07			
#3	17-Oct	21,000	17-Oct	19-Oct	S5-W-02	20-Oct	21,000	
	20-Oct	21,000	23-Oct		S5-W-05			
#4	17-Oct	21,000	17-Oct	19-Oct	S5-W-03	19-Oct	21,000	
	23-Oct	21,000	23-Oct		S5-W-06			
#5	25-Oct	21,000	25-Oct		S5-W-08			
#6	25-Oct	4,000	25-Oct		S5-W-09			

Total Volume Discharged (gallons) **84,000**

Note: Tank #1 designated as untreated water settling basin

12,000 gallons currently in tank

Volume treated 172,000 gallons

Volume Pumped if tank #1 is full 193,000 gallons

Volume pumped through COB 10/25 184,000