APPENDIX H

Field Change Requests

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FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_001
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Monitoring Well Total Depth Collection

REQUESTOR IDENTIFICATION
NAME/TITLE: Jed Thomas, Deputy Project Manager ORGANIZATION: Leidos
PHONE: 330-405-5802

SIGNATURE 10/4/18 DATE

BASELINE IDENTIFICATION
BASELINE(S) AFFECTED ☐ Cost ☐ Scope ☐ Milestone ☒ Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION):
Final Remedial Investigation Work Plan for Groundwater and Environmental Investigation Services for RVAAP-66 Facility-wide Groundwater (RI Work Plan)
Section 3.8 Monitoring Well Network Review

DESCRIPTION OF CHANGE:
Section 3.8 of the RI Work Plan specifies that total well depths will be measured during the annual, comprehensive water level measurements at each monitoring well within Camp Ravenna. However, permanent bladder pumps have been placed in monitoring wells. Therefore, total depths of the wells will not be collected during the comprehensive water level measurements for each well within the network.

JUSTIFICATION:
Removal of the permanent bladder pumps during the comprehensive annual water level measurement activity may disturb the groundwater within the monitoring well prior to sampling.

IMPACT OF NOT IMPLEMENTING REQUEST:
See justification.

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:
Leidos field teams.

COST ESTIMATE: $0 (No cost impact to USACE)

Estimator Signature: Not applicable DATE

PREVIOUS FCR AFFECTED ☐ YES ☒ NO; IF YES, FCR NO.

APPROVAL SIGNATURES:

USACE Representative TRUMBLE.JAMES.NAPOLEON.III.1207239727 Digitally signed by TRUMBLE.JAMES.NAPOLEON.III.1207239727 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=TRUMBLE.JAMES.NAPOLEON.III.1207239727 Date: 2018.10.10 09:26:27 -04'00' 10 Oct 2018 DATE

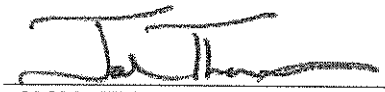
Ohio EPA Project Coordinator [signature] 11-7-18 DATE

Leidos H&S Manager (if applicable) Not applicable DATE

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_002
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: October 2018 Sampling Suite

NAME/TITLE: Jed Thomas, Deputy Project Manager ORGANIZATION: Leidos
PHONE: 330-405-5802



SIGNATURE 10/4/18
DATE

BASELINE IDENTIFICATION
BASELINE(S) AFFECTED ☐ Cost ☒ Scope ☐ Milestone ☐ Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION):
Final Facility-wide Groundwater Monitoring Addendum for 2018 (2018 Addendum), Table 3-2 FWGWMP Wells with Analytical Testing Suite

DESCRIPTION OF CHANGE:
The 2018 Addendum (Table 3-2) specified some constituents at specified wells to be analyzed in Spring 2018 due to missed tests or rejected results in 2017. These are marked with the footnote "1". (As an example, see hexavalent chromium at FWGmw-017.) This footnote states "Indicates monitoring well or constituents to be sampled in Spring 2018 due to missed tests or rejected results in 2017. Additional sampling during 2018 for these wells and constituents will be based on review of Spring 2018 results."

The contractor that collected the June 2018 samples has not submitted analytical results yet; therefore, the data is not available to assess if these constituents need recollected/reanalyzed in the upcoming sampling event. Upon receipt of the June 2018 data, if it is determined that additional sampling of the wells and constituents are needed, that will be performed in the Spring 2019 event.

In addition, although not footnoted in Table 3-2 of the 2018 Addendum, the wells at C Block Quarry were intended to be sampled during the first semi-annual sampling activity (June 2018). The following is the approved response to Ohio EPA comment regarding the wells at C Block Quarry.

"TEC-WESTON concurs with the conclusions of the Revised Draft RI/FS for Soil, Sediment and Surface Water at RVAAP-06 C Block Quarry as they relate to the need for an updated characterization of metals at the site. As requested by OEPA, the first semi-annual sampling activities of 2018 will include samples collected from CBLmw-001, CBLmw-002, CBLmw-003, and CBLmw-004 for analysis of SVOCs; metals, including hexavalent chromium; PCBs; explosives; nitrate/nitrite; sulfate/sulfide; and pH."

Accordingly, the C Block Quarry wells were sampled in June 2018 and will not be re-sampled in October 2018. The results from June 2018 will be assessed and future decisions will be made regarding if additional samples at these wells are warranted.

JUSTIFICATION:
June 2018 data has not been received to be able to assess if additional sampling at the specified wells for the specified constituents are necessary.

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_002
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: October 2018 Sampling Suite

IMPACT OF NOT IMPLEMENTING REQUEST:
Per the 2018 Addendum, the intent of the sampling of these specified constituents at the specific wells was to collect a one-time analysis due to missed tests or rejected results in 2017. The missed tests or rejected results in 2017 may have been rectified in the June 2018 sampling event. Re-collecting these specified parameters without review of the June 2018 data may result in unnecessary expended effort and cost.

This FCR provides a path forward to assess the pending June 2018 results and specifies the action to re-collect samples, if needed, in Spring 2019.

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:
Leidos field teams and laboratory.

COST ESTIMATE: $0 (No cost impact to USACE)

Estimator Signature: Not applicable DATE

PREVIOUS FCR AFFECTED ☐ YES ☒ NO; IF YES, FCR NO.

APPROVAL SIGNATURES:

USACE Representative: TRUMBLE.JAMES.NAPOLEON.III.1207239727 Digitally signed by TRUMBLE.JAMES.NAPOLEON.III.1207239727 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=TRUMBLE.JAMES.NAPOLEON.III.1207239727 Date: 2018.10.10 09:21:55 -04'00' DATE: 10 Oct 2018

Ohio EPA Project Coordinator: [signature] DATE: 11-7-18

Leidos H&S Manager (if applicable): Not applicable DATE

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_003
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Sand Creek Well Locations

REQUESTOR IDENTIFICATION
NAME/TITLE: Jed Thomas, Deputy Project Manager ORGANIZATION: Leidos
PHONE: 330-405-5802

SIGNATURE 10/10/18
DATE

BASELINE IDENTIFICATION
BASELINE(S) AFFECTED ☐ Cost ☐ Scope ☐ Milestone ☒ Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION):
Final Remedial Investigation Work Plan for Groundwater and Environmental Investigation Services for RVAAP-66 Facility-wide Groundwater (RI Work Plan)

DESCRIPTION OF CHANGE:
Within the RI Work Plan (Table 1-3), a data gap was identified at RVAAP-34 Sand Creek Disposal Road Landfill. The following is the description provided in the data gap analysis:

"Unconsolidated Aquifer. Sample groundwater for the presence of explosives, SVOC and VOC constituents leaching from soil to groundwater above current screening levels."

Accordingly, the RI Work Plan provided locations for new permanent monitoring wells to be installed at the site. These locations are presented on figure C-9 of the RI Work Plan. These permanent wells will be sampled for a minimum of four quarters, and the collected groundwater will be analyzed for the "RVAAP full suite".

However, the locations of two monitoring wells (SCLmw-001 and SCLmw-002) are in an area that the Army is proposed to conduct a Non-Time-Critical Removal Action (NTCRA). Figure 1 of this FCR depicts the proposed locations of the wells per the RI Work Plan, and the areas anticipated to undergo removal or remediation per the NTCRA.

To ensure placement of these permanent monitoring wells (SCLmw-001 and SCLmw-002) is far enough from the future NTCRA, the Army would like to move the locations of the wells to between the AOC boundary and Sand Creek. The newly proposed well locations are presented on Figure 1.

In addition, due to the sloped access to these well locations (i.e., difficulty to safely get equipment to the site) and proximity to Sand Creek, the drilling subcontractor will install the wells and bollards by hand auguring or use of a gas-powered hand operated auger machine. A HSA drill rig will be able to safely traverse the slopes to access the locations. In addition, water from Sand Creek may be used to mix concrete during the well installation process to help eliminate the manual transport of water as a health and safety precaution.

JUSTIFICATION:
The location of the permanent monitoring wells per the RI Work Plan is currently within the area the Army anticipates conducting a NTCRA. Moving these wells will help avoid well disturbance during the removal action.

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_003
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Sand Creek Well Locations

IMPACT OF NOT IMPLEMENTING REQUEST:
The permanent wells will be installed in locations anticipated for soil removal or remediation during implementation of the NTCRA.

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:
Well installation contractor.

COST ESTIMATE: $0 (No cost impact to USACE)

Estimator Signature: Not applicable — DATE

PREVIOUS FCR AFFECTED ☐ YES ☒ NO; IF YES, FCR NO.

APPROVAL SIGNATURES:

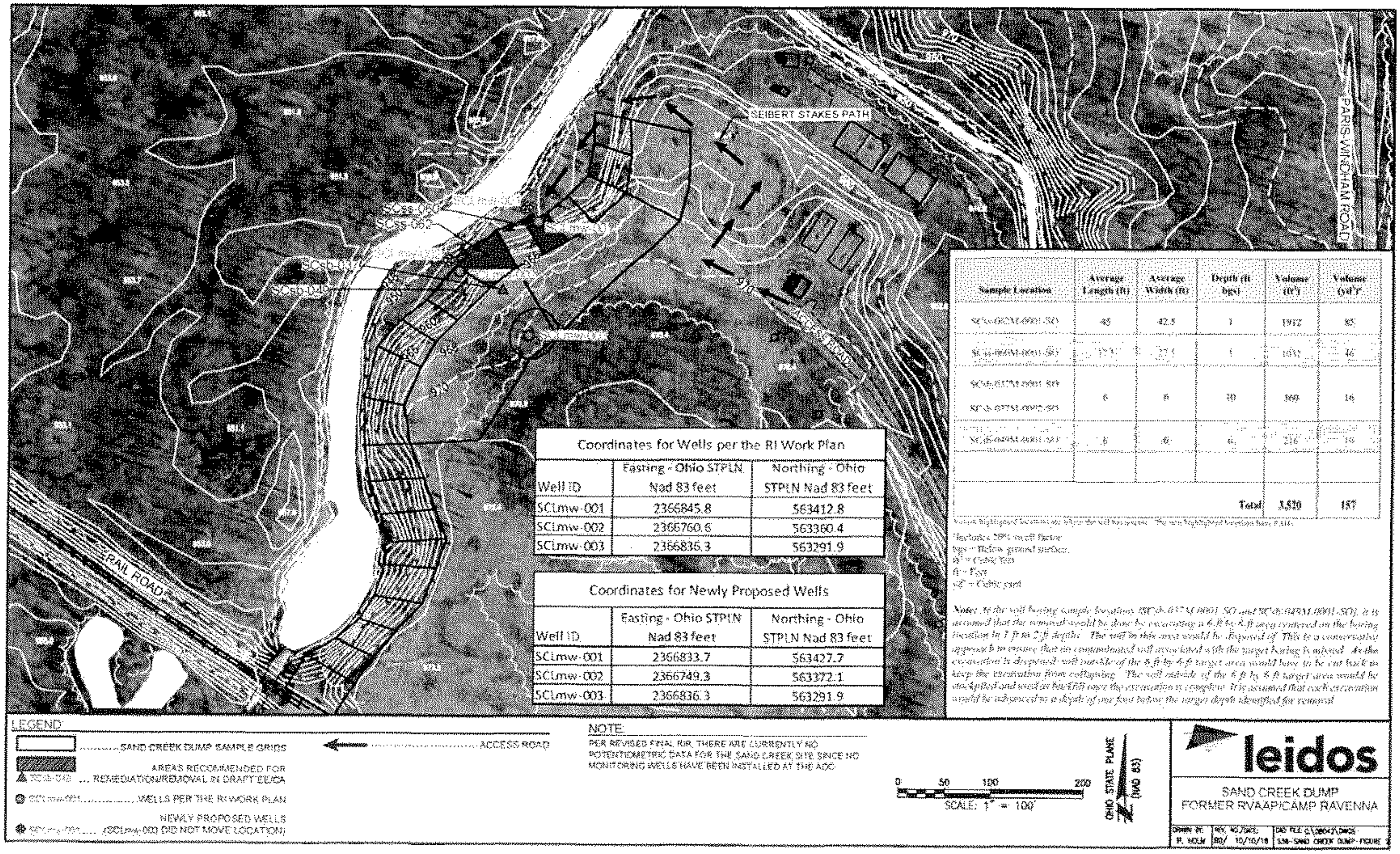
USACE Representative: TRUMBLE.JAMES.NAPOLEON.III.1207239727 (Digitally signed by TRUMBLE.JAMES.NAPOLEON.III.1207239727 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=TRUMBLE.JAMES.NAPOLEON.III.1207239727 Date: 2018.10.22 06:46:29 -04'00') — 22 Oct 2018 DATE

Ohio EPA Project Coordinator: [signature] — 11-7-18 DATE

Leidos H&S Manager (if applicable): Not applicable — DATE

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_003
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Sand Creek Well Locations



Sample Location	Average Length (ft)	Average Width (ft)	Depth (ft bgs)	Volume (ft³)	Volume (yd³)
[illegible]	45	42.5	1	1912	85
[illegible]	[illegible]	[illegible]	1	[illegible]	46
[illegible]	6	6	10	360	16
[illegible]	6	6	6	216	[illegible]
			Total	3,520	157

Coordinates for Wells per the RI Work Plan

Well ID	Easting - Ohio STPLN Nad 83 feet	Northing - Ohio STPLN Nad 83 feet
SCLmw-001	2366845.8	563412.8
SCLmw-002	2366760.6	563360.4
SCLmw-003	2366835.3	563291.9

Coordinates for Newly Proposed Wells

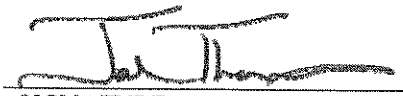
Well ID	Easting - Ohio STPLN Nad 83 feet	Northing - Ohio STPLN Nad 83 feet
SCLmw-001	2366833.7	563427.7
SCLmw-002	2366749.3	563372.1
SCLmw-003	2366836.3	563291.9

Figure 1. Sand Creek Monitoring Well Locations

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_004
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Groundwater Quality Control (QC) Sampling Frequency

REQUESTOR IDENTIFICATION
NAME/TITLE: Jed Thomas, Deputy Project Manager ORGANIZATION: Leidos
PHONE: 330-405-5802



SIGNATURE 10/4/18 DATE

BASELINE IDENTIFICATION
BASELINE(S) AFFECTED ☐ Cost ☐ Scope ☐ Milestone ☒ Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION):
Final Remedial Investigation Work Plan for Groundwater and Environmental Investigation Services for RVAAP-66 Facility-wide Groundwater (RI Work Plan)

DESCRIPTION OF CHANGE:
Worksheet 20 of the RI Work Plan QAPP discusses the Field Quality Control Sample Summary. This section indicates that "The frequency and location of field quality control samples (e.g. field duplicates, MS/MSD samples, etc.) are specified in Section 3.0 of the WP."

However, Section 3.0 of the RI Work Plan does not discuss field quality control samples. For documentation purposes, below is what will be collected with respect to field quality control samples. This is consistent with the specifications provided in the Facility-wide Sampling and Analysis Plan.

- Field duplicate – collected at 10% frequency
- Split samples – collected at 10% frequency
- MS/MSD samples – collected at 5% frequency
- Equipment rinsate – not required due to use of dedicated equipment (e.g., in place bladder pumps).

JUSTIFICATION:
The justification for this field change request is to document and obtain concurrence of the frequency at which groundwater quality control samples will be collected and analyzed.

IMPACT OF NOT IMPLEMENTING REQUEST:
The impact of not implementing the request is potential disagreement regarding the quality control sample collection requirements.

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:
Leidos field teams and laboratory.

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_004
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Groundwater Quality Control (QC) Sampling Frequency

COST ESTIMATE: $0 (No cost impact to USACE)

Estimator Signature:	Not applicable	DATE

PREVIOUS FCR AFFECTED ☐ YES ☒ NO; IF YES, FCR NO.

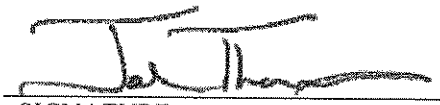
APPROVAL SIGNATURES:

USACE Representative	TRUMBLE.JAMES.NAPOLEON.III.1207239727 Digitally signed by TRUMBLE.JAMES.NAPOLEON.III.1207239727 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=TRUMBLE.JAMES.NAPOLEON.III.1207239727 Date: 2018.10.10 09:20:11 -04'00'	10 Oct 2018 DATE
Ohio EPA Project Coordinator	[signature]	11-7-18 DATE
Leidos H&S Manager (if applicable)	Not applicable	DATE

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_005
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Production Well 96 Abandonment Procedure

REQUESTOR IDENTIFICATION
NAME/TITLE: Jed Thomas, Deputy Project Manager ORGANIZATION: Leidos
PHONE: 330-405-5802



SIGNATURE 11/3/18 DATE

BASELINE IDENTIFICATION
BASELINE(S) AFFECTED ☐ Cost ☐ Scope ☐ Milestone ☒ Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION):
Final Well Abandonment Work Plan for RVAAP-66 Facility-wide Groundwater (May 2016)
Section 3.3.2 Grouting/Sealing Process

DESCRIPTION OF CHANGE:
Section 3.3.2 of the Well Abandonment Work Plan states the following:

"All wells (i.e., production and monitoring) will be grouted with a bentonite/cement slurry composed of Type I Portland cement in accordance with the Technical Guidance and the FWSAP. In accordance with the Technical Guidance, the bentonite/cement slurry will consist of 5 pounds of dry bentonite per one 94-pound sack of dry cement and approximately 9 gallons of water."

During the site walk and inspection of Production Well 96 on August 30, 2018, the production well appeared to have already been sealed/plugged. The concrete pad and all well material to a depth of 4 ft bgs will be removed. After the well material is removed, if the well is confirmed to be sealed, the production well will be considered abandoned and the area will be restored.

If the well does not appear to be sealed below 4 ft, the Army has approved the use of bentonite chips at Production Well 96 due to the remote location of this well. Additionally, the concrete well pad will be broken up and used as fill to abandon the cistern found adjacent to Production Well 96. The cistern is approximately 2 ft diameter by 8 ft deep.

JUSTIFICATION:
There is a long, wooded access pathway to Production Well 96 that traverses around and near wetlands. The route to this production well goes over a small stream bed and near the wells by the SMABS groundwater wells. These areas are probably saturated year round. To minimize the impacts to the access route and these wetlands, bentonite chips will be used for well abandonment instead of the bentonite/cement slurry.

IMPACT OF NOT IMPLEMENTING REQUEST:
The vehicles and equipment needed to abandon Production Well 96 will have significant impacts to the wooded access road and wetlands. Use of bentonite chips and reuse of the concrete pad will allow for the contractor to minimize site impacts.

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_005
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Production Well 96 Abandonment Procedure

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:
Well abandonment subcontractor.

COST ESTIMATE: $0 (No cost impact to USACE)

Estimator Signature: Not applicable DATE

PREVIOUS FCR AFFECTED ☐ YES ☒ NO; IF YES, FCR NO.

APPROVAL SIGNATURES:

USACE Representative: TRUMBLE.JAMES.NAPOLEON.III.1207239727 Digitally signed by TRUMBLE.JAMES.NAPOLEON.III.1207239727 Dn: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=TRUMBLE.JAMES.NAPOLEON.III.1207239727 Date: 2018.11.08 09:39:24 -05'00' DATE: 7 Nov 2018

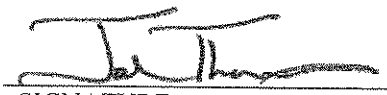
Ohio EPA Project Coordinator: [signature] DATE: 11-7-18

Leidos H&S Manager (if applicable): Not applicable DATE

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_006
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Micro-Purge Procedure

REQUESTOR IDENTIFICATION
NAME/TITLE: Jed Thomas, Deputy Project Manager ORGANIZATION: Leidos
PHONE: 330-405-5802



SIGNATURE 10/26/18
DATE

BASELINE IDENTIFICATION
BASELINE(S) AFFECTED ☐ Cost ☐ Scope ☐ Milestone ☒ Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION):
Final Remedial Investigation Work Plan for Groundwater and Environmental Investigation Services for RVAAP-66 Facility-wide Groundwater (RI Work Plan)
Main Text: Section 3.7 2016 FWGW Monitoring Program and RI Groundwater Sampling
Appendix A: Sampling and Analysis Plan, Section 4.9.1 Micro-Purge Procedure

DESCRIPTION OF CHANGE:
Section 3.7 of the Main Text and Section 4.9.1 of Appendix A have some variances regarding the micro-purge procedure and stabilization parameters. This request is to document the micro-purge procedure to be implemented during groundwater sampling collected by micro-purging with dedicated bladder pumps.

Micro-purge Procedure
Step 1. Connect all applicable hoses at the surface.

Step 2. Turn the pump on and begin purging two times the amount of any stagnant water in the pump and tubing. (This purging does not represent a parameter for sampling.) For micro-purging, the pumping rate will not exceed 100 milliliters per minute (mL/min), unless it can be shown that higher purge rates (maximum of 500 mL/min) will not result in a drawdown greater than 0.3 ft. The pump rate is established once drawdown has been stabilized.

Step 3. After two times the amount of stagnant water has been purged from the pump and tubing and water level drawdown has been stabilized, begin recording water quality parameters every 3 to 5 minutes on the Groundwater Sample Form.

Step 4. Continue purging until water quality parameters have stabilized. Stabilization of water quality parameters is defined as three consecutive readings shown in Table 1.

Step 5. Collect sample immediately after micro-purging.

Additional Guidance
Minimum purging – A minimum of two times the volume of the pump and tubing quantity containing stagnant water must be purged.

Turbidity - If the turbidity cannot be reduced to less than or equal to 10 NTUs after 2 hours of purging and if all other parameters are stable, the well will be sampled.

Sample Collection for Metals - If turbidity is below 50 NTUs at the time of sampling, the sample collected for metals will not require filtering. If the turbidity cannot be brought below 50 NTUs, then both an unfiltered and a filtered sample will be collected for metals analysis, each in their own separate pre-preserved container. The unfiltered sample will be collected first. The filtered sample will be collected through a 5-micron filter.

FIELD CHANGE REQUEST

FIELD CHANGE REQUEST NO.: LEIDOS_FWGW_006
PROJECT: Groundwater Investigation and Reporting Services, RVAAP Restoration Program
CONTRACT NUMBER: W912QR-16-D-0003, Delivery Order W912QR-18-F-0337
BRIEF DESCRIPTION: Micro-Purge Procedure

Table 1. Water Quality Stabilization Requirements for Micro-purging

Water Quality Parameter	Stabilization Requirement
pH	± 0.1 SU
Conductivity	± 3%
ORP	± 20mV
Turbidity	≤ 10 NTU
DO	± 10% or 0.2 mg/L (whichever is greater)
Temperature	± 0.5 degC

JUSTIFICATION:
Section 3.7 of the Main Text and Section 4.9.1 of Appendix A have some variances regarding the micro-purge procedure and stabilization parameters.

IMPACT OF NOT IMPLEMENTING REQUEST:
The field teams implementing micro-purge groundwater sampling may use different stabilization requirements for guidance regarding when a groundwater sample can be collected.

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:
Groundwater sampling staff.

COST ESTIMATE: $0 (No cost impact to USACE)

Estimator Signature: Not applicable DATE

PREVIOUS FCR AFFECTED ☐ YES ☒ NO; IF YES, FCR NO.

APPROVAL SIGNATURES:

USACE Representative: TRUMBLE.JAMES.NAPOLEON.III.1207239727 Digitally signed by TRUMBLE.JAMES.NAPOLEON.III.1207239727 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=TRUMBLE.JAMES.NAPOLEON.III.1207239727 Date: 2018.11.08 06:40:45 -05'00' DATE: 7 Nov 2018

Ohio EPA Project Coordinator: Kim M. Peck DATE: 11-7-18

Leidos H&S Manager (if applicable): Not applicable DATE