



NATIONAL GUARD BUREAU
3500 FETCHET AVENUE
JOINT BASE ANDREWS AFB MD 20762-5157

March 3, 2022

ACTION MEMORANDUM

FROM: NGB/A4V

SUBJECT: Time Critical Removal Action to Treat Contaminated Soil and Groundwater, Site OW004, Montgomery Air National Guard Base, aka Dannelly Field, Montgomery, Alabama

References: (a) DoDM 4715.20, 9 March 2012, incorporating Change 1, Aug 31, 2018, *Defense Environmental Restoration Program (DERP) Management*.
(b) Leidos, August 2015, *Preliminary Assessment/Site Investigation for Compliance Restoration Program*, Alabama Air National Guard (187th Fighter Wing), Montgomery, Alabama.
(c) Weston Solutions, June 2020, *Remedial Investigation Report (Final)*, Sites: OW004, OW005, OW006, and TU007, Montgomery Air National Guard Base, Montgomery, Alabama.
(d) TEC-Weston Joint Venture, August 2020, *Feasibility Study Report (Final)*, Sites OW004, OW005, OW006, and TU007, Montgomery Air National Guard Base, Montgomery, Alabama.

1. Purpose: This Action Memorandum documents approval and decision by the National Guard Bureau (NGB) to conduct a Time Critical Removal Action (TCRA) in response to the presence of high levels of hazardous substances, primarily consisting of volatile organic compounds (VOCs), in subsurface soil and groundwater (GW) at Site OW004, Montgomery Air National Guard Base (ANGB), Alabama (AL). The NGB plans to beddown one F-35A squadron at the 187th Fighter Wing (187 FW) located at Montgomery ANGB (also known as Dannelly Field). Construction of F-35A supporting facilities is expected to begin in Fiscal Year (FY) 2023. The proposed footprint for these facilities overlaps soil and GW that is impacted with VOCs at Site OW004. The response action described in this TCRA is necessary in order to reduce concentration levels of hazardous substances from soil and GW to below human health risk levels in areas potentially disturbed during construction. The response action meets the requirements specified in the Department of Defense Environmental Restoration Program (DERP) Manual (Reference (a)).

2. Site Conditions and Background

A. Site Description: The 187 FW, Montgomery ANGB (the Installation), is located at Montgomery Regional Airport in Montgomery County, AL. The Wing provides Expeditionary Combat Support functions for worldwide combat and peacetime/humanitarian tasking in support

of community, state, and national interests. The Montgomery Airport Authority is the landowner and utilizes the land for commercial airport and land is leased by the USAF and licensed to the state of AL for use by the Air National Guard (ANG) for its operations. While the majority of the airport property is zoned industrial, the land around the ANGB is zoned as light industrial. The anticipated future land use for the Site is industrial. Land use around the Installation includes commercial and industrial, open space and agriculture. Residences and a school are located to the northeast of the Installation.

Removal Site Evaluation: Pursuant to its Comprehensive Environmental Response, Compensation, Liability and Act (CERCLA) and DERP authorities (Reference (a)), in August 2015, the NGB completed a Preliminary Assessment (PA) and Site Inspection (SI) (Reference (b)) to assess the potential release of hazardous substances at the location of a former ANGB oil water separator (OWS) (referred to as Site OW004). Site OW004 is located adjacent to former Building 1304, which was demolished in January 2021. Laboratory results from the SI confirmed ANG releases of hazardous substances, consisting predominantly of VOCs in soil and GW above United States Environmental Protection Agency (EPA) project-action limits (PALs).

Since releases of multiple VOCs were confirmed at above EPA PALs during the PA/SI, NGB conducted a Remedial Investigation (RI) concluded in June 2020 to characterize the nature and extent of the contaminant plume and risk to human health at Site OW004 (Reference c). Laboratory results from soil samples collected at the site indicated the presence of trichloroethylene (TCE), vinyl chloride (VC), and trichloropropane (TCP) above EPA PALs for soil. GW samples collected from monitoring wells (MW) at the site indicated the presence of carbon tetrachloride (PCE), TCE, 1,1 dichloroethylene (DCE), VC, 1,1-dichloroethane (DCA), benzene, naphthalene, chloroform, and methylene chloride above EPA PALs in GW.

The RI also included a risk assessment to determine the potential exposure risk to human health. The predominant VOC contaminant is TCE with a maximum concentration of 890,000 µg/kg in soil, which exceeds EPA screening levels. RI data indicated that TCE, VC and TCP are present in subsurface soil at concentrations exceeding acceptable risk levels for future residents and construction workers. The Site's calculated lifetime, theoretical cancer risk for the Potential Future Resident (adult and child combined) is 2×10^{-4} , which is above the EPA acceptable risk management range (1×10^{-6} to 1×10^{-4}). Non-cancer hazard index for the Potential Future Resident Adult was 37. Non-cancer hazard index for the Potential Future Resident Child was 42. Both non-cancer results are significantly above the acceptable risk threshold of 1. The elevated non-cancer hazardous index indicates unacceptable risks to the Potential Future Resident at OW004 for exposure to subsurface soil, primarily from TCE, and creates an unsafe environment for future construction workers. A potentially complete exposure pathway exists for the Potential Future Resident contacting VC, TCP, and TCE at Site OW004.

Physical Location: Montgomery ANGB is located on Montgomery Regional Airport property in Montgomery County, south-central AL, approximately six (6) miles southwest of downtown Montgomery. The airport property encompasses approximately 2,000 acres of land.

Geographically, the Installation is bound by airport property to the south and west, by the Selma Highway (US 80) to the north, and by Richardson Road to the east. Site OW004 is located in the northeast portion of Montgomery ANGB, near the Installation property boundary on the southeast side of former Building 1304 (Lat./Long. 32.3056/-86.3998) (Attachment 1).

Site Characteristics: Site OW004 consists of a former 120 gallon OWS that was removed from Building 1304 (a fuel cell building) in 2014 (Attachment 2). Building 1304 was demolished in January 2021. The OWS is a probable source of the release of contaminants at Site OW004.

Soil at the site consists of sandy clay interbedded with clay from 10 feet (ft) below ground surface (bgs) to 125 ft bgs and is underlain by sandstone bedrock. Construction activities at the Installation have greatly altered surface soils. A shallow unconfined aquifer is present between 2 ft bgs to 5 ft bgs whereby GW generally flows to the northwest. Historical records indicated that a water bearing zone with limited yield is present at 70 ft bgs to 80 ft bgs with confined artesian aquifer conditions being encountered at 100 ft bgs. Confined GW at the base flows to the northeast and is recharged at surface outcrops. Montgomery Water Works and Sanitary Sewer Board supplies municipal DW to Montgomery ANGB and surrounding residential population.

Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant: Site OW004 includes the location of a former OWS on the southeast corner of former Building 1304, Montgomery ANGB. The OWS is the suspected source of releases of VOC hazardous substances into the environment. Based on existing data, the contaminant releases are located entirely on property leased by the United States of America and licensed to the state of AL for use by the ALANG.

Multiple VOCs were confirmed at above EPA PALs. The contaminants have impacted soil and GW and are a continuing vapor intrusion threat at the site. Laboratory results from the August 2015 PA/SI and June 2020 RI indicated that VOCs were detected above the PALs in soil at a depth of up to 65 feet bgs. Soil PALs are comprised of EPA regional screening levels for residential soil. Chemicals reported above screening criteria in soil include:

- **TCE** PAL = 940 micrograms per kilogram ($\mu\text{g}/\text{kg}$) (maximum concentration of 890,000 $\mu\text{g}/\text{kg}$ detected in soil boring SB006 between 9 ft bgs to 10 ft bgs);
- **VC** PAL = 59 $\mu\text{g}/\text{kg}$ (maximum concentration of 3,400 $\mu\text{g}/\text{kg}$ detected in soil boring SB005A between 13 ft bgs to 14 ft bgs);
- **1,2,3-TCP** PAL = 5.1 $\mu\text{g}/\text{kg}$ (maximum concentration of 570 $\mu\text{g}/\text{kg}$ detected in soil boring SB012 between 5 ft bgs to 10 ft bgs)

GW PALs are comprised of US EPA Safe Drinking Water Act maximum contaminant levels (MCLs) or regional screening levels for drinking water. Laboratory results from the August 2015 PA/SI and June 2020 RI detected nine (9) hazardous substances that exceeded PALs in shallow GW (between 5 ft bgs to 65 ft bgs):

- **PCE** PAL = 5 µg/L (maximum detection of 110 µg/L in OW004- MW002);
- **TCE** PAL = 5 µg/L (maximum detection of 120,000 µg/L in OW004-MW002);
- **1,1-DCE** PAL = 7 µg/L (maximum detection of 630 µg/L in OW004-MW002);
- **1,1-DCA** PAL = 2.8 µg/L (maximum detection of 32.5 µg/L in OW004-MW002);
- **VC** PAL = 2 µg/L (maximum detection of 1500 µg/L in OW004-MW001);
- **benzene** PAL = 5 µg/L (maximum detection of 17 µg/L in MO-1304-MW-01);
- **naphthalene** PAL = 0.17 µg/L (maximum detection of 3 µg/L in OW004-MW002);
- **chloroform** PAL = 0.22 µg/L (maximum detection of 44.9 µg/L in OW004-MW002);
- **methylene chloride** PAL = 5 µg/L (maximum detection of 171 µg/L in OW004-MW002)

TCE and VC were also detected in confined GW (greater than 100 ft bgs) above screening criteria:

- **TCE** (maximum detection of 22 µg/L in OW004-MW004);
- **VC** (maximum detection of 4.7 µg/L in OW004-MW004)

NPL status: Montgomery ANGB is not listed on the National Priority List (NPL). During the PA/SI, the Site received a Hazard Ranking System rating but OW004 did not score high enough for inclusion on the NPL.

Maps, pictures, and other graphic representations: See Attachment 1 through Attachment 5.

B. Other Actions to Date

Previous Actions: In 1996, an original OWS installed at Building 1304 was replaced with a new OWS. The replacement OWS was permanently removed in 2014. An August 2015 PA/SI confirmed the release of hazardous substances, predominately VOCs, in GW above the EPA PALs at Site OW004 located in the vicinity of Building 1304, which was demolished in January 2021.

Based on the PA/SI results, the NGB completed a June 2020 RI to characterize the nature and extent of the plume and risks to human health at Site OW004. Laboratory results confirmed the release of VOCs above PALs in soil and shallow GW between 5 ft bgs to 65 ft bgs and within the confined aquifer at 100 ft bgs.

The RI also included a risk assessment to determine the potential exposure risk to human health. The predominant VOC contaminant is TCE with a maximum concentration of 890,000 µg/kg in soil, which exceeds EPA screening levels. RI data indicated that TCE, VC and TCP are present in subsurface soil at concentrations exceeding acceptable risk levels for future residents and

construction workers. The Site's calculated lifetime, theoretical cancer risk for the Potential Future Resident (adult and child combined) is 2×10^{-4} , which is above the EPA acceptable risk management range (1×10^{-6} to 1×10^{-4}). Non-cancer hazard index for the Potential Future Resident Adult was 37. Non-cancer hazard index for the Potential Future Resident Child was 42. Both non-cancer results are significantly above the acceptable risk threshold of 1. The elevated non-cancer hazardous index indicates unacceptable risks to the Potential Future Resident at OW004 for exposure to subsurface soil, primarily from TCE, and creates an unsafe environment for future construction workers. A potentially complete exposure pathway exists for the Potential Future Resident contacting VC, TCP, and TCE at Site OW004.

In August 2020, a Feasibility Study (FS) (Reference (d)) was completed, which evaluated five (5) technically viable remedial alternatives that could address impacted soil and shallow GW at Site OW004. Of the remedial alternatives evaluated, remedial alternative five (5), in-situ thermal treatment (ISTT) using an electrical resistant heating (ERH) technology, was determined to be the most appropriate alternative to meet remediation requirements for cleanup and ensure protection of human health. This alternative would also preserve the integrity of existing geotechnical properties of the soil required to construct supporting F-35A facilities. The FS also included a recommendation to conduct a DGI in order to fully delineate Site OW004 and provide additional data needed to complete the Remedial Design (RD) and Work Plan (WP).

Current actions: In September 2021, NGB awarded a contract to conduct a DGI to address outstanding data gaps identified during the RI/FS, which is anticipated to be completed by March 2022. NGB also awarded a project in September 2021 to remediate impacted soil and shallow GW by employing an ERH technology to meet remediation requirements and ensure protection of human health. The results of the DGI will be incorporated into a RD/WP prior to finalization, which is anticipated by June 2022. Upon completion of the ERH remediation process, soil and shallow GW up to 35 ft bgs are projected to meet PALs for each respective VOC and mitigate exposure risks.

Impacts at depths greater than 35 ft bgs will be remediated by enhanced bioremediation and other abiotic degradative processes through warming of the subsurface during ERH treatment process. The results of this action will be monitored as a part of future post-Record of Decision (ROD) activities. Decisions related to remediation of deeper GW aquifer will be addressed during the preparation of the Proposed Plan (PP) and ROD with community and regulatory input, as a part of subsequent CERCLA phases.

C. State and Local Authorities' Role: The Alabama Department of Environmental Management (ADEM) is the State regulatory agency with oversight responsibility of cleanups in the state consistent with DOD's lead agency authority under CERCLA.

State and local actions to date: ADEM provided regulatory review and comment on the PA/SI, RI, and FS conducted by the NGB.

Potential for continued State/local response: NGB will submit this Action Memorandum and the remedial design/work plan for this action to ADEM for regulatory review and/or concurrence. ADEM will be afforded a reasonable opportunity to provide concurrence or comments on this action.

3. Threats to Public Health or Welfare or the Environment and Statutory and Regulatory Authorities: The NGB identified CERCLA hazardous substances released into the environment at OW004. The Site presents a continuing risk to public health or welfare and the environment, and to construction workers due to the presence of elevated levels of hazardous substances (VOCs) that have impacted soil and GW. This TCRA is authorized under CERCLA (§§ 104(a)(1) and (2)); and implemented pursuant to the National Contingency Plan (NCP) (40 CFR §300.415). These conditions meet two of the criteria listed in the NCP (section 40 CFR 300.415(b)(2)(i) (potential exposure of nearby human populations) and (ii) (potential contamination of drinking water supplies) supporting removal actions.

Soil and GW contamination at this site exceed concentrations safe for human exposure. High levels of TCE and other VOCs pose a potential unacceptable and acute health risk to construction and maintenance workers via direct contact and the inhalation exposure pathways. The purpose of the TCRA response is to reduce contamination to levels below PALs to protect the local community, installation maintenance workers and workers constructing facilities in support of the F-35A beddown (which is vital to national defense strategy) (Attachment 3). Contaminants have migrated through the surface and subsurface soils and into GW. Principal threat wastes are an on-going source to GW contamination both laterally down-gradient, and vertically downward, into the confined aquifer.

4. Endangerment Determination: Actual or threatened releases of pollutants and contaminants from Site OW004 may present an imminent and substantial endangerment to public health, welfare, or the environment. The NGB conducted a baseline human health risk assessment. A potentially complete exposure pathway was identified for the Potential Future Resident coming into contact with VC, 1,2,3-TCP, and TCE (Reference (c)). The assessment concluded that the total non-carcinogenic hazard index (HI) for the construction worker exposure to subsurface soil is 7, which is above the US EPA acceptable threshold of 1. The non-cancer hazard for the Potential Future Resident Adult was 37. The non-cancer hazard for the Potential Future Resident Child was 42. Non-cancer results are significantly above the threshold of 1. This indicates unacceptable risks to the construction workers and Potential Future Resident at Site OW004 for exposure to subsurface soil, primarily from TCE. To calculate risks, carcinogenic risks for the theoretical resident adult and child are combined to account for an excess lifetime cumulative carcinogenic risk. The cumulative lifetime carcinogenic risk from subsurface soil for the theoretical resident adult and child combined is 2×10^{-4} . The total cancer risk is above the US EPA acceptable risk range of 1×10^{-6} to 1×10^{-4} . Based upon the risk assessment results, there are sufficient grounds to find that a threat to human health may exist.

5. Proposed Actions and Estimated Costs

Proposed Actions: Through this Action Memorandum, the NGB documents the decision to complete a TCRA by remediating soil to a depth of up to 35 ft bgs at Site OW004 at Montgomery ANGB to reduce concentration levels to below the PALs. Remediation of shallow soil will be completed within approximately 15 months following commencement of site remediation activities to allow for construction of new facilities to accommodate the F-35A beddown mission. The total remediation-derived wastes will be managed and disposed of in accordance with federal and state regulations.

The proposed target treatment zones (TTZ) to treat impacted soil at a depth of up to 35 ft bgs will entail treating an Upper Shallow (US) TTZ and a Lower Shallow (LS) TTZ (Attachment 4). Treatment of the US TTZ will target impacted soil between 5 ft bgs to 20 ft bgs. Treatment is not required from 0 ft bgs to 5 ft bgs since TCE, VC, and 1,2,3-TCP concentrations are below screening. The approximate treatment area for the US TTZ is estimated at 22,350 square (sq) feet (ft) and comprised 12,500 CY of soil. Treatment of the LS TTZ will target impacted soil between 20 ft bgs to 35 ft bgs. The approximate treatment area is 8,700 sq ft and comprised of 4,800 CY of soil. The pending final DGI will refine the delineation of contamination at Site OW004. Note that TCP is not a suitable contaminant for in-situ thermal treatment (ISTT) using an electrical resistant heating (ERH) technology. TCP will be remediated using hydrolysis to achieve remediation goals.

Concurrent with the active treatment and remediation of soil contamination within the US TTZ and LS TTZ, shallow groundwater encountered during the treatment of soil will also be remediated to prevent recontamination of the treated soils. Additionally, there will be simultaneous treatment of the Deep TTZ (between 35 ft bgs to 65 ft bgs) to stimulate biological activity to enhance long-term remediation. This region will be heated to enhance biological activity but is not required to meet PALs during TCRA field activities and will not be sampled for compliance with PALs. The NGB anticipates meeting remediation objectives in the Deep TTZ within 2 to 5 years after the completion of the TCRA. Complete Remediation of the Deep TTZ will be included in post-ROD remediation activities as part of the CERCLA process and will be discussed in the PP and ROD. An alternate approach could be selected to address the Deep TTZ if the enhanced bioremediation via warming of the subsurface does not completely address soil contamination above PALs.

Electrical Resistance Heating (ERH) Description and Basis for Selection: The NGB proposes in-situ thermal treatment (ISTT) using ERH, vacuum capture of volatilized vapors, followed by on-site ex-situ treatment of contaminants. This technology provides the highest probability of meeting the project timeline, while effectively supporting future construction activities at the site. ERH involves the passage of electrical current through interstitial water pore spaces of the soil via an electrode system. The flow of current creates heat as the soil acts as an electrical resistor. ERH will effectively and uniformly heat and maintain the subsurface temperature to 100 degrees Celsius (the boiling point of water).

An ERH system features placement of electrodes, constructed of electrically conductive material, within boreholes installed in the TTZ in a hexagonal pattern. Multiple (“stacked”) electrodes installed in a single boring allow differentiation in the vertical heating of the TTZ. Power controllers deliver electrical power to the electrode arrays. Isolation transformers ensure that electrical current applied in-situ flows only between installed electrodes. Once the subsurface heats to 100 degrees Celsius, contaminants are volatilized and captured via vertical vapor extraction wells. The extraction wells maintain an inward pneumatic and hydraulic gradient to control movement of vapors and liquids through the subsurface. The VOCs are extracted under vacuum to a central treatment system through a network of pipes installed above and below grade. The system treats recovered groundwater, condensate, and vapor to required standards prior to discharge to the sanitary sewer system or atmosphere, respectively. Soils at depths of 35 to 65 ft bgs will be heated to approximately 40 degrees Celsius to enhance bioremediation of contaminants.

ERH effectively volatilizes contaminants in the clayey soils for capture and treatment. The technology is flexible. It can work around physical constraints to efficiently meet the treatment objectives.

Validated soil and shallow groundwater sampling results will confirm achievement of PALs to 35 ft bgs. Completion of all TCRA fieldwork, including restoration of the site to original conditions, is expected within approximately 15 months from the commencement of site remediation activities.

Waste Management: Investigation and remediation derived wastes will include soil cuttings, drilling fluids, and used personal protective equipment generated from drilling operations along with minor amounts of soil generated during limited trenching activities. All remediation wastes generated onsite during construction will be properly characterized for management, transportation, and disposal per applicable laws and regulations. Non-hazardous soil and groundwater will be disposed of at Waste Management’s Waste Disposal Center in Opelika, AL; and hazardous soil and groundwater will be disposed of at Clean Harbor’s facility in El Dorado, Arkansas.

Contribution to Remedial Performance: Installation and operation of an in-situ ERH is anticipated to meet PALs within approximately 15 months of commencement of system operations. Principal threat wastes are treated in-situ reducing overall toxicity, mobility and volume. Principal threat wastes are those contaminated soils that if left in place would continue to act as a source of groundwater contamination. Over a 15-month period, approximately 17,300 CY of contaminated soil will be treated to below PALs within the Upper Shallow and Lower Shallow TTZs. Treatment of soil at depths greater than 35 feet bgs (estimated 9,700 CY) will be facilitated by warming via the subsurface via ERH to enhance bioremediation. Overall, the proposed actions outlined in this TCRA will improve the environment, minimize the spread of contamination, and advance a permanent protective solution.

Engineering Evaluation/Cost Analysis (for non-time critical actions only): Not applicable.

ARARs (Applicable or Relevant and Appropriate Requirements): Since the removal action may constitute the final remedy for the site, ARARs have been identified. Only those chemicals with a promulgated Federal or state standard of control are ARARs. In GW, ARARs are comprised of US EPA Safe Drinking Water Act maximum contaminant levels (MCLs) which are set as PALs. Also, EPA regional screening levels are adopted as PALs for those chemicals in GW that lack a promulgated federal or state standard of control, or cleanup level. Soils PALs are comprised of US EPA regional screening levels for residential soil. A summary of the Chemical Specific ARARs are provided in Attachment 5.

Project Schedule: The NGB anticipates the following schedule of events following contract award in early October 2021:

- Completion of Action Memorandum by April 2022
- Completion of the DGI and final report by February 2022
- Completion of the RD/WP by June 2022
- Mobilization to the site to install the system by August 2022
- System startup by October 2022
- Confirmation media sampling and system shut-down by June 2023
- Decommissioning and demobilization by July 2023
- Project completion report finalized by late-September 2023

NGB Costs: Projected costs of the Proposed Actions outlined in this TCRA are below:

Electrical Resistance Heating (ERH) \$4.649M *(these costs are within the acceptable range of the estimated costs included in the FS) (reference (d) See attachment 6 for the project cost breakdown.*

6. Expected Change in the Situation Should Action Be Delayed or Not Taken: If this removal response action is delayed or not taken, soil and GW contamination will persist and may migrate beyond the current limits. Delayed action may increase immediate public health risks and construction worker risks through prolonged or acute exposure to VOCs during construction or maintenance activities. Delay may endanger human health through potential acute exposure during construction work, future utility work, or other subsurface excavation activities. The construction projects to beddown the F-35A aircraft may be delayed which could negatively affect national security.

7. Outstanding Policy Issues: None.

8. Enforcement: Enforcement actions are not expected.

9. Alternatives: No other adequate timely alternatives exist in the present case

10. Recommendation: Conduct the proposed actions outlined in this TCRA, which entails treating subsurface soil and shallow GW contamination to a depth of up to 35 ft bgs by utilizing in-situ electrical resistance heating with ex-situ onsite treatment of VOC vapors in accordance with this Action Memorandum. Also, ERH will be used to warm the subsurface 35 to 65 ft bgs to facilitate enhanced bioremediation of contamination the deeper zone.

Emergency Removal Action Memorandum Approval

This Action Memorandum documents the decision and approval of the NGB to conduct an actions outlined in this TCRA that entail treating subsurface soil and GW contamination to a depth of up to 35 ft bgs attributable to the Alabama ANG at Site OW004, located at the Montgomery ANGB, Montgomery, Alabama. Treatment is via in-situ thermal treatment via electrical resistance heating with ex-situ onsite treatment of VOC vapors and condensate. Contamination 35 to 65 ft bgs will be treated via warming of the subsurface to facility enhanced bioremediation of deeper contamination. This decision is in accordance with CERCLA as amended, Office of the Secretary of Defense (OSD) DERP Manual, and is consistent with the NCP. This decision is based on the administrative record file for the site. Conditions at the site meet the NCP (section 300.415(b)(2)) criteria for determining that the removal action is appropriate.

Approved by:



ELAINE A. MAGDINEC, PE, GS-15, DAF
Chief, Environmental Division

Attachments:

1. Figure 1 - Location of Site OW004, Montgomery ANGB, Alabama
2. Figure 2 - Sampling Locations, Building 1304 (Site OW004), Montgomery ANGB, Alabama
3. Figure 3 - Proposed Treatment Areas, Montgomery ANGB, Alabama
4. Figure 4 - Target Treatment Zones (TTZ), Site OW004, Montgomery ANGB, Alabama
5. Table 1 - Chemical Specific ARARs

ATTACHMENT 2

Figure 2. Sampling Locations. Building 1304 (Site OW004). Montgomery ANGB, Alabama. Site OW004 is located immediately south of Building 1304, a fuel cell building, which was demolished in January 2021. The site consisted of a former 120 gallon oil water separator (OWS) that was removed from Building 1304 in 2014. The OWS is a probable source of the release of contaminants at Site OW004. Soil, groundwater, and air samples were collected from this site to identify the impacted environment.



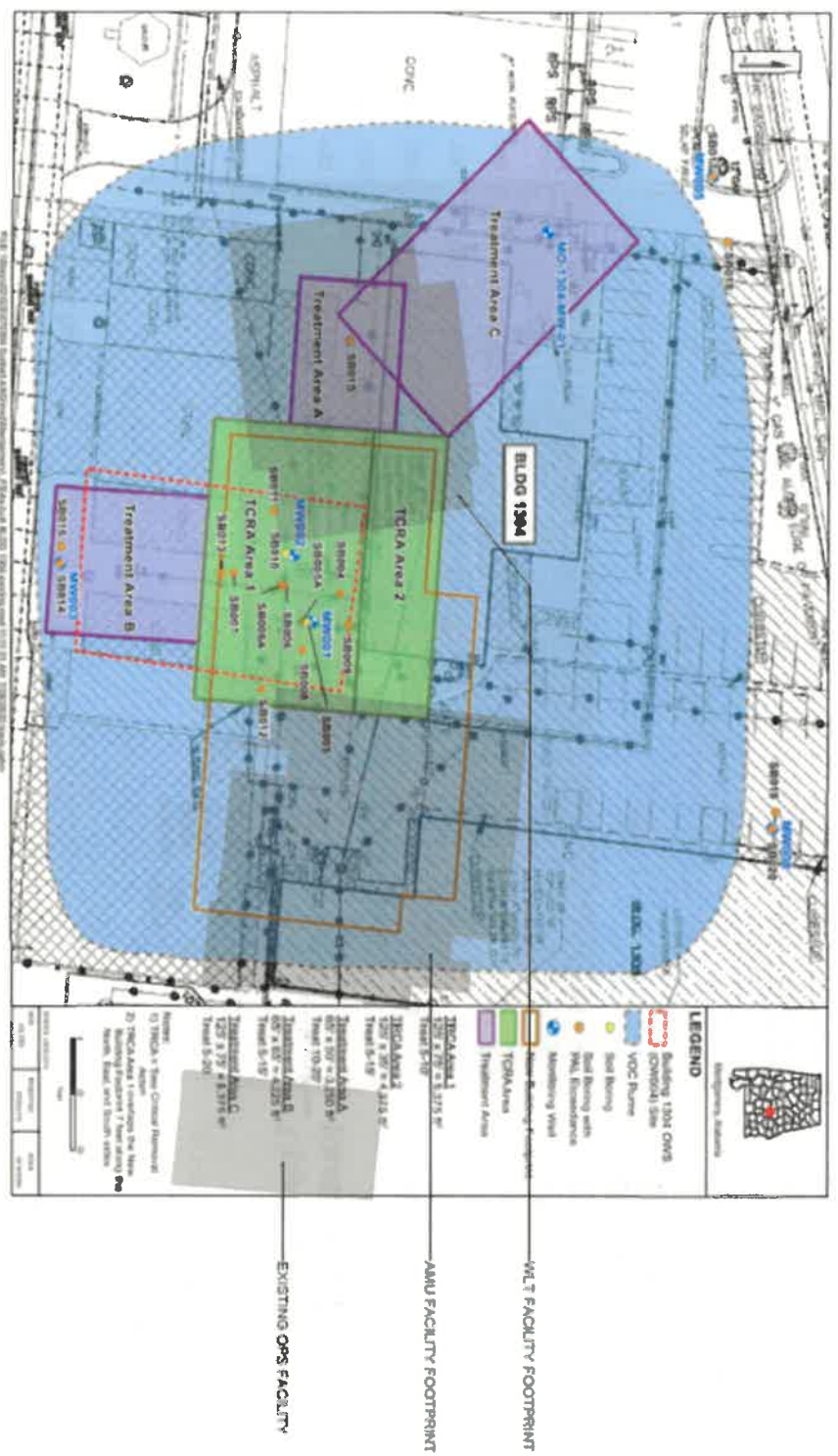
ATTACHMENT 1

Figure 1. Location of Site OW004, Montgomery ANGB, Alabama. A June 2020 RI investigated four total sites (red dashed line) within the installation perimeter (green solid line). Site OW004 the only site carried forward in this TCRA due to it posing a continuing risk to public health. Sites TU007, OW005, and OW006 will be addressed post-Record of Decision.



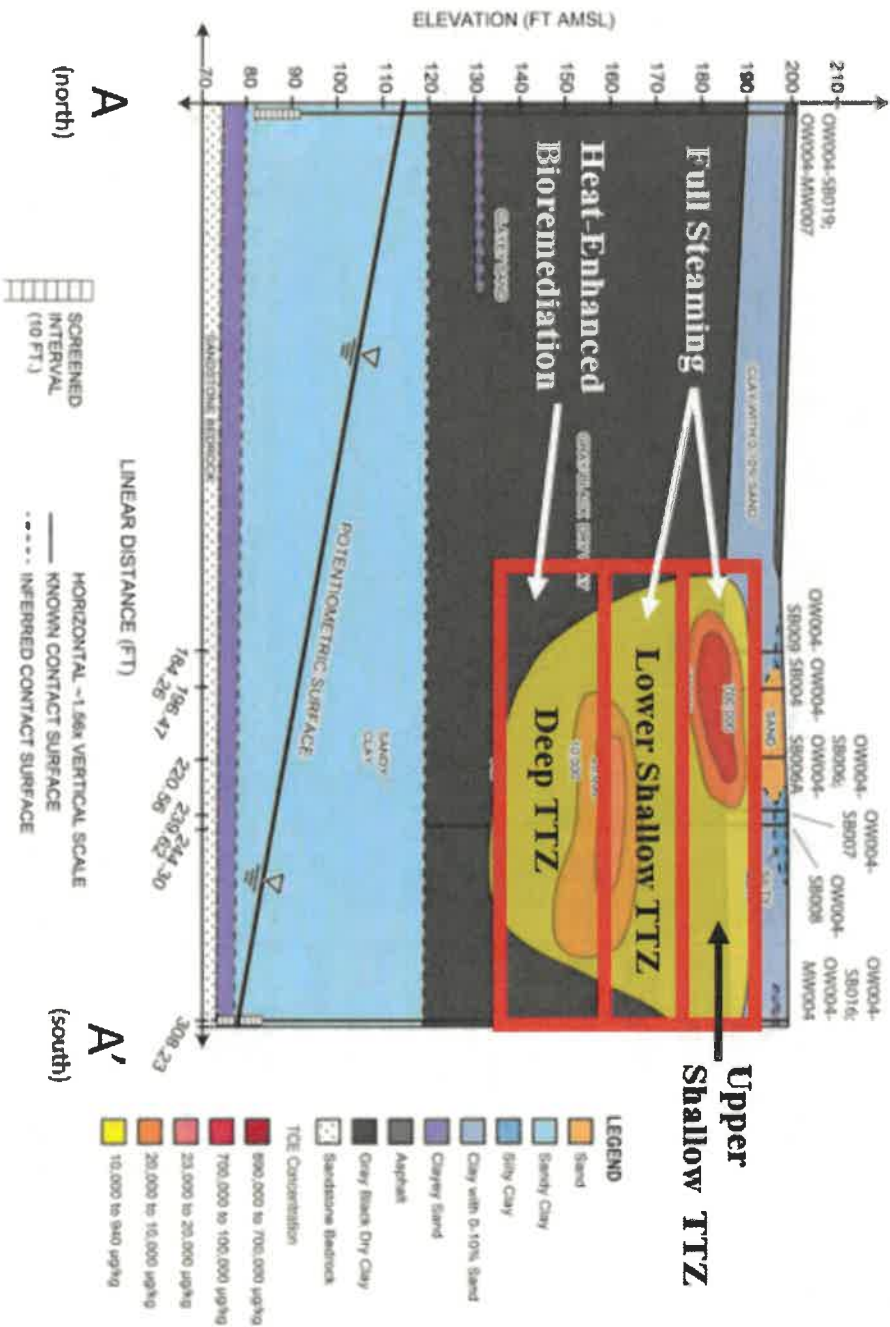
ATTACHMENT 3

Figure 3. Proposed Treatment Areas, Montgomery ANGB, Alabama. The proposed response actions outlined in the TCRA will include multiple treatment areas at and surrounding Site OW004 to reduce contamination to levels below PALs in advance of constructing supporting F-35A beddown facilities.



ATTACHMENT 4

Figure 4. Target Treatment Zones (TTZ), Site OW004, Montgomery ANGB, Alabama. The proposed TTZs will be divided into a Upper Shallow (US) TTZ and a Lower Shallow (LS) TTZ treat impacted soil at a depth of up to 35 ft bgs,



ATTACHMENT 5

Table 1. Chemical-Specific ARARs.

Table 1 - Chemical-Specific ARARs				
COC	CAS No.	ARARs	Units	Source USEPA
OW004 – Groundwater				
TCE	79-01-6	5	µg/L	MCL
VC	75-01-4	2	µg/L	MCL
PCE	127-18-4	5	µg/L	MCL
1,1-DCE	75-35-4	7	µg/L	MCL
Methylene chloride	75-09-2	5	µg/L	MCL
Benzene	71-43-2	5	µg/L	MCL

µg/L
ARAR
CAS No.
COC
MCL

micrograms per liter
Applicable, or Relevant and Appropriate Requirement
Chemical Abstract Service Number
Chemical of Concern
Maximum Contaminant Level (Federal Safe Drinking Water Act)

ATTACHMENT 6
TCRA Cost Breakdown

TASKS	COSTS
Meetings	\$14,783.00
Work Plan/Remedial Design	\$197,631.00
Fieldwork	\$4,396,491.96
Construction Completion Report	\$40,805.76
TOTAL	\$4,649,711.72