

N40003.AR.002313
PUERTO RICO NS
5090.3a

STATEMENT OF BASIS/ PROPOSED FINAL SOIL REMEDY DECISION SOLID WASTE
MANAGEMENT UNIT 7 WITH TRANSMITTAL NAVAL ACTIVITY PUERTO RICO
6/1/2012
AGVIQ/CH2M HILL



June 15, 2012

U.S. Environmental Protection Agency - Region II
290 Broadway - 22nd Floor
New York, New York 10007-1866

Attn: Mr. Phil Flax

RE: Contract No. N62470-08-D-1006
Task Order No. JM04
Solid Waste Management Units 7/8
Naval Activity Puerto Rico - Ceiba, Puerto Rico
Revised Soil Remedy Statement of Basis/Proposed Final Soil Remedy Decision for SWMUs 7 & 8

Dear Mr. Flax:

AGVIQ-CH2M HILL Constructors Inc. Joint Venture III (AGVIQ-CH2M HILL), on behalf of the Navy, is pleased to provide one hard copy of the Revised Soil Remedy Statement of Basis/Proposed Final Soil Remedy Decision for SWMUs 7 & 8 at Naval Activity Puerto Rico. Additional distribution has been made as indicated below.

If you have any questions regarding this submittal, please contact Mr. Stacin Martin at (757) 322-4080.

Sincerely,

AGVIQ-CH2M HILL Constructors Inc. Joint Venture III

A handwritten signature in black ink, appearing to read 'Tom Beisel'.

Tom Beisel, P.G.
Project Manager

cc: Ms. Debra Evans-Ripley/BRAC PMO SE (letter only)
Mr. David Criswell/BRAC PMO SE (letter only)
Mr. Tim Gordon/USEPA Region II (2 hard copies and 2 CDs)
Mr. Mark E. Davidson, BRAC PMO SE (1 hard copy and 1 CD)
Mr. Stacin Martin/NAVFAC Atlantic (1 hard copy and 1 CD)
Mr. Pedro Ruiz/NAPR (1 CD)
Mr. Carl Soderberg/USEPA Caribbean Office (1 hard copy and 1 CD)
Ms. Gloria Toro/PR EQB (1 hard copy and 1 CD)
Ms. Wilmarie Rivera/PR EQB (1 CD)
Ms. Connie Crossley/Booz Allen Hamilton (1 hard copy and 1 CD)
Ms. Bonnie Capito/NAVFAC LANTDIV (1 hard copy)
Ms. Lisamarie Carrubba/NMFS (1 CD)
Mr. Felix Lopez/U.S. Fish & Wildlife Service (1 CD)
Mr. Mark Kimes/Michael Baker Jr., Inc. (1 CD)

**STATEMENT OF BASIS /
PROPOSED FINAL SOIL REMEDY DECISION**

**REGION 2
ID# PR2170027203**

**NAVAL ACTIVITY PUERTO RICO (former Naval Station Roosevelt Roads)
Ceiba, Puerto Rico
(June 2012)**

Facility/Unit Type: SWMUs 7 & 8, Tow Way Fuel Farm (fuel storage and possible sludge disposal pits)

Contaminants:

Surface Soil: arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene

Subsurface Soil: benzo(a)pyrene

Proposed Final Remedy:

No further action is recommended for arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, or indeno(1,2,3-cd)pyrene in site soils.

FACILITY DESCRIPTION

The Tow Way Fuel Farm and Tow Way Fuel Farm Sludge Disposal Pits at Naval Activity Puerto Rico (NAPR) have been identified as Solid Waste Management Units (SWMUs) 7 and 8, respectively, under the 1994 Resource Conservation and Recovery Act (RCRA) permit issued to the former Naval Station Roosevelt Roads by the U. S. Environmental Protection Agency (EPA). The Tow Way Fuel Farm (TWFF) is located on a hillside along Forrestal Road north of Ensenada Honda (Figure 1). The fuel farm was constructed prior to 1957, and originally consisted of nine bomb-proof underground storage tanks (USTs). The tanks were used for the storage of marine diesel fuel, jet fuel (JP-5), and Bunker C fuel. Closure for Tanks 56A and 56B was completed in November 1996. Seven USTs remain: 82, 83, 84, 85, 1080, 1082, and 1088. However, on March 31, 2004, base operations, including the storage and distribution of fuel, were discontinued and all USTs were drained and are currently empty. During the facility's operational history, numerous releases of various quantities occurred from the various storage tanks, resulting in the release of petroleum hydrocarbons to the environment.

CORRECTIVE MEASURES STUDY

In November 2005, Baker Environmental Inc. (Baker) prepared a Corrective Measures Study (CMS) for NAPR. The report was an all encompassing document that established Corrective Action Objectives (CAOs) and remedial approaches to address cleanup of soil and groundwater at multiple SWMUs across the NAPR, including cleanup activities at SWMUs 7 and 8. The U.S. Environmental Protection Agency (EPA) approved the CMS in February 2006.

The regulatory-approved remedial action to address soil contamination at SWMUs 7 and 8 includes the excavation of the upper 2-feet of soil in three areas of concern where the polycyclic aromatic hydrocarbon (PAH) compounds benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene, along with arsenic, exceeded their respective CAOs (Figure 2).

Revised CAOs for the chemicals of concern (COCs) are presented in Table 1. Since the CAOs for SWMUs 7/8 were developed in 2003 and 2005, the EPA requested these CAOs be revised using the latest calculation methods and toxicity factors. The revised CAOs were calculated for the latest toxicity factors and calculation methods per the EPA Regional Screening Levels (RSLs). Therefore, revised CAOs were calculated for the chemicals detected in soils.

FIELD INVESTIGATION

In preparation for performing the soil excavations, a soil sampling was conducted to improve the delineation of the areas for excavation. The objective of this post CMS investigation was primarily to delineate the extent for excavation at each of the three areas as follows:

- Determine the horizontal extent of excavation for benzo(a)anthracene, benzo(a)pyrene, benzo(b)-fluoranthene, indeno(1,2,3-cd)pyrene, and arsenic.
- Determine handling and disposal requirements by collecting soil samples for waste characterization.

On January 22 and 23, 2009, AGVIQ-CH2M HILL personnel marked locations of sampling grids (grid spacing of 50 feet) covering the three areas of concern identified in the CMS. However, due to the presence of obstructions (tanks and piping) and variations in topography (steep hillsides), several sampling locations had to be either moved or omitted. The sample locations are depicted on Figure 2.

Soil sampling activities were conducted between June 1 and 4, 2009. In areas accessible by vehicle, a truck-mounted direct push technology (DPT) rig was used to collect continuous soil samples from the upper 2-feet of soil (0 to 2 feet below ground surface [bgs]). A hand auger was used to collect soil samples from the upper 2 feet of soil in areas that could not be accessed by the DPT rig. The homogenized soil was transferred to 4-ounce glass jars provided by the laboratory for chemical analysis. All samples were analyzed for arsenic using EPA Method 6010B, and select samples were analyzed for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene using EPA Method 8270C.

TABLE 1
Revised 2012 Corrective Action Objectives

Chemical of Concern	Maximum Observed Concentration		Surface Soil CAO ⁽³⁾	Total Soil CAO* ⁽³⁾	Soil Revised CAO* ⁽⁴⁾	
	Historical Maximum ⁽¹⁾	2009-Maximum ⁽²⁾			Industrial Land Use	Residential Land Use
Arsenic	3.4	4.3	3.81	55	3.81	0.39/2.5**
Benzo(a)anthracene	6J	ND	7.8	73	7.8	0.15
Benzo(a)pyrene	23J	ND	7.8 ⁽³⁾	7.3	7.3	0.015
Benzo(b)fluoranthene	5.9J	ND	7.8	73	7.8	0.15
Indeno(1,2,3-cd)pyrene	5.3J	ND	7.8	73	7.8	0.15

CAO Corrective Action Objective

(1) From Table 5-2 of Final CMS Task I Report (Baker, 2005).

(2) From Table 3-1 of CMS Addendum for SWMU 7/8, (June, 2012).

(3) Based on the EPA RSLs calculator, November 2011 from the following weblink:
<http://www.epa.gov/region9/superfund/prgl>. See CMS Addendum report for details.

(4) For Benzo(a)pyrene, CAO is based on a target risk of 1×10^{-5} while residential RSL is based on a target risk of 1×10^{-6} .

* Based on industrial worker protection

** Arsenic background level is 2.5 mg/kg J Estimated values

NA Not Applicable

All values reported in milligrams per kilogram (mg/kg).

DISCUSSION OF RESULTS

PAH

During the 2009 sampling event, eighteen soil samples were collected and analyzed for PAH compounds benzo(a)anthracene, benzo(a)pyrene, benzo(b)-fluoranthene, and indeno(1,2,3-cd)pyrene. The newly collected samples were collocated with previously detected PAH areas, in addition to other samples collected from a grid across the recommended excavation areas. Analytical results indicated that all normal sample results were below the reporting limits as well as below the method detection limits (MDLs) in all normal samples, including areas with previous high detections. One duplicate sample had low level PAHs; however, the sample did not exceed revised CAOs for industrial land use and was only slightly above the residential RSL value. Based on the undetectable level of PAHs, site-wide concentrations are below industrial use based levels. The MDLs are slightly higher than the residential RSLs value of 0.015 mg/kg. However, based on absence of any of the PAHs at the MDLs, PAHs are no longer persistent in site soils. The absence of PAH concentrations currently in site soils could be attributable to the degradable nature of PAHs in exposed soils over time as a result of exposure to sun, air, and presence of bacteria acting as degradation agents.

Therefore, no further actions are recommended for soil PAHs due to their absence above MDLs in the upper 2 feet of soil in any of the three areas of concern indicated by the 2005 CMS.

ARSENIC

Seventy-two samples were collected and analyzed for arsenic. Arsenic was detected in 69 of the 72 samples at concentrations ranging from 0.81J (C2) to 4.3 mg/kg (B23). Of the 69 samples collected, arsenic was detected above the revised CAO of 3.81 mg/kg in the following two borings: B23 and B26 (Figure 2). The background arsenic value is 2.5 mg/kg.

Based upon the horizontal extent sampling results described above, the following objectives were added to the evaluation of the data:

- Determine if arsenic contamination found in SWMUs 7/8 is naturally occurring using the historical background levels.
- Determine extent of soil contamination areas above CAOs by comparing site-wide statistical upper bound mean concentration values against the CAOs.
- Comprehensively address the potential presence and specific concentration levels of the identified (COCs).

Historically, arsenic has been reported as a common naturally occurring element in soil on the island of Puerto Rico. A 2003 study issued by the Agency for Toxic Substances and Disease Registry indicates that arsenic occurs in soil on the island of Puerto Rico at concentrations ranging from 1 to 22 mg/kg (Agency for Toxic Substances and Disease Registry. 2003. *Petitioned Public Health Assessment, Soil Pathway Evaluation, Isla De Vieques Bombing Range, Vieques, P.R.* February 7). Inorganic background levels for the NAPR property were provided in a background report (Summary Report for Environmental Background Concentrations of Inorganic Compounds. 2006), which included arsenic background levels to be between 0.21 mg/kg to 2.5 mg/kg, with an estimated upper-limit concentration of 2.65 mg/kg. Arsenic is not a contaminant of fuel oils such as those formerly used at the TWFF, and no other metals were identified as a COC.

Overall distribution of arsenic across the areas of concern is random and does not indicate a distinct distribution pattern; this distribution is most likely representative of soil mineralogy of the area. In addition, arsenic distribution is similar among the majority of samples collected across the site, with no elevated or "source" area. Therefore, detected arsenic appears to be related to the natural soil variability and mineralogy, and does not indicate a site-specific release.

The surface soil background level for arsenic of 2.65 mg/kg and the revised CAO of 3.81 mg/kg were not exceeded by the site-wide statistical estimates for arsenic. The arsenic site-wide statistical estimate (UCL95%) value for arsenic is 2.5 mg/kg, indicating site arsenic levels are within background levels and do not exceed the surface soil revised CAO.

Based on the extensive sampling conducted across the site, detected arsenic is randomly distributed across the site. The distribution patterns indicate absence of specific elevated areas, and statistical evaluation of the data indicate site arsenic upper-bound estimates are between 1.9 and 2.5 mg/kg, which are below the revised CAO of 3.81 mg/kg, as well as the background levels of 2.65 mg/kg. No single detection is indicative of extremely elevated values. Therefore, the detected arsenic levels at SWMUs 7/8 are considered naturally occurring within the surface soil and no further action is recommended for arsenic in site soils.

Overall distribution of arsenic across the areas of concern does not indicate an area-specific release; arsenic presence is most likely representative of soil mineralogy of the area. Therefore, detected arsenic appears to be related to the background soil, and represents the natural soil variability and mineralogy, and arsenic levels are also below the revised CAO for industrial land use.

PROPOSED FINAL REMEDY

In summary, site soil residual concentrations for the COCs, PAHs and arsenic, are either below detection limits or similar to background levels. Therefore, no

further action (NFA) is recommended for site soils at SWMUs 7/8 under industrial land use, as soils do not pose exposure related risks to human health or the environment.

The existing LUCs are included as part of the corrective action to prevent unintended land use for the area, and also exposure to shallow groundwater. Existing LUCs are described in the Quitclaim Deed for CDR Parcel 2 (includes SWMU 55) signed by the Navy and the LRA on December 20, 2011. Under current land use, access to the SWMUs 7/8 area is controlled through security fencing, and this institutional control (IC) will be maintained into the foreseeable future, until CAOs are achieved. The LUCs will be included in any lease or transfer deed. If development other than industrial use (i.e., residential or per the April 2010 amended Reuse Plan) is proposed, the new owner will be required to work with the PREQB and EPA to establish any additional investigation, risk assessment, and/or cleanup activities. If the property owner wishes to remove the LUC on the groundwater from the deed in the future, it will be the responsibility of the property owner to demonstrate that groundwater meets all state and federal requirements, and must obtain approval from the Navy, EPA, and PREQB prior to LUC removal.

PUBLIC PARTICIPATION

Public review and comment on the proposed remedy for SWMUs 7/8 will be implemented as part of the public comment period for the proposed Administrative Order on Consent between the Navy and EPA. A public notice of that public comment period will be published in both Spanish and English in select Puerto Rico newspapers.

NEXT STEPS

Following completion of public review and comment on the proposed remedy, the EPA will advise of any required modifications based on the public comments, or its acceptability.

KEY DOCUMENTS

Revised Final Corrective Measures Study Report Final Report Tow Way Fuel Farm, dated November 22, 2005.

Summary Report for Environmental Background Concentrations of Inorganic Compounds, dated October 17, 2006.

Corrective Measures Study Addendum SWMUs 7 and 8 – Revised Soil Remedy, dated March 2011.

Revised Corrective Action Objectives for Solid Waste Management Units 7&8, 54, and 55, dated June 1, 2012.

FURTHER INFORMATION

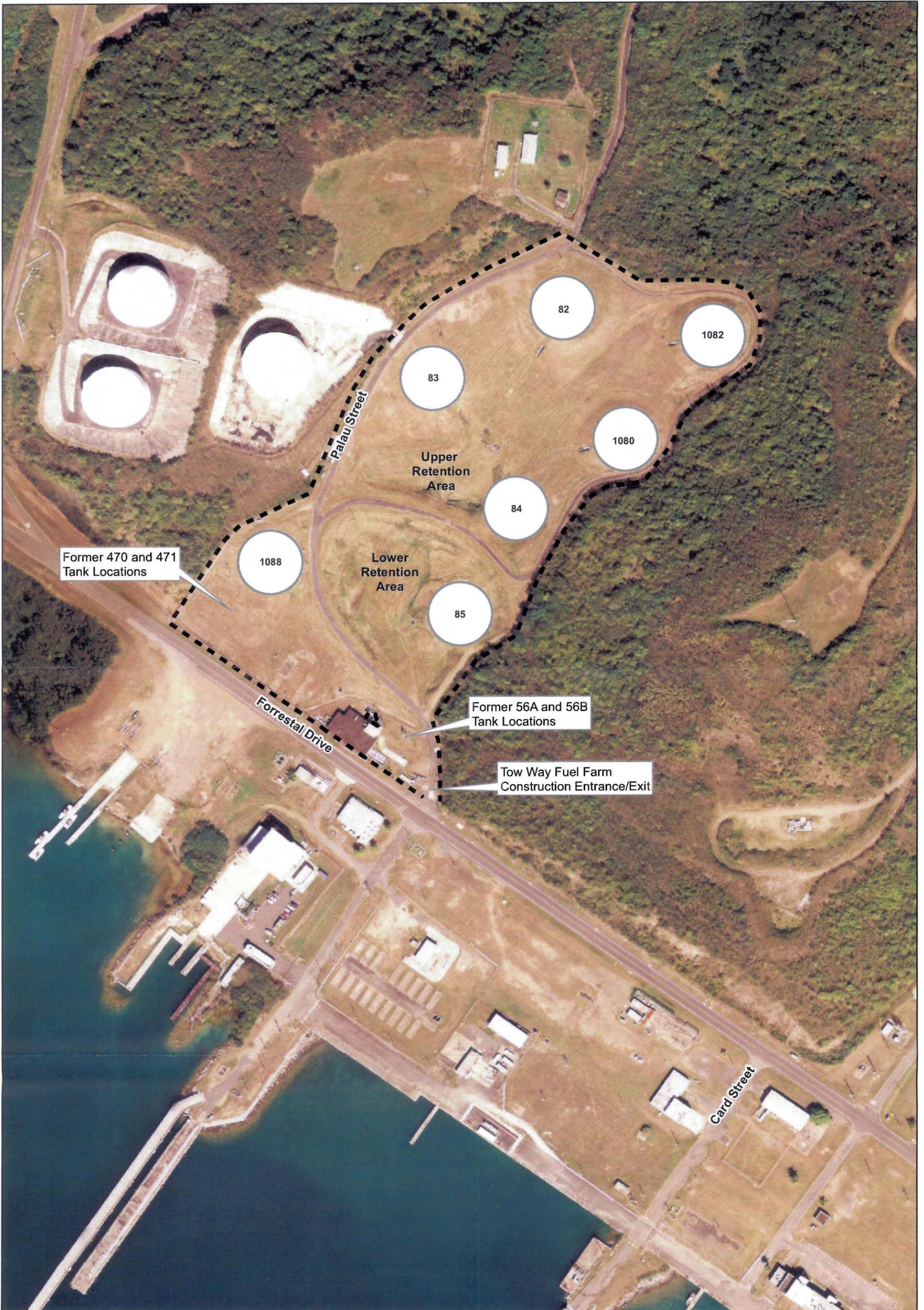
The key documents may be reviewed at:

U. S. Environmental Protection Agency Region 2
RCRA File Room
290 Broadway, 15th floor
New York, NY 1007-1866
Attn: Mr. David Abrines
Phone: 212-637-3043

U. S. Environmental Protection Agency Caribbean
Environmental Protection Division City View Plaza II –
Suite 7000
#48 RD. 165 km 1.2
Guaynabo, PR 00968-8069
Attn: Mr. Luis Negron
Phone: 787-977-5870

Puerto Rico Environmental Quality Board
Oficina del Presidente – Piso 5
Ave. Ponce de Leon #1308
Carr Estatal 8838
Sector El Cinco
Rio Piedras, PR 00926
Attn: Ms. Wilmarie Rivera
Phone: 787- 767-8181 ext. 6141

Or at the following internet web page address:
<http://nsrr-ir.org/>

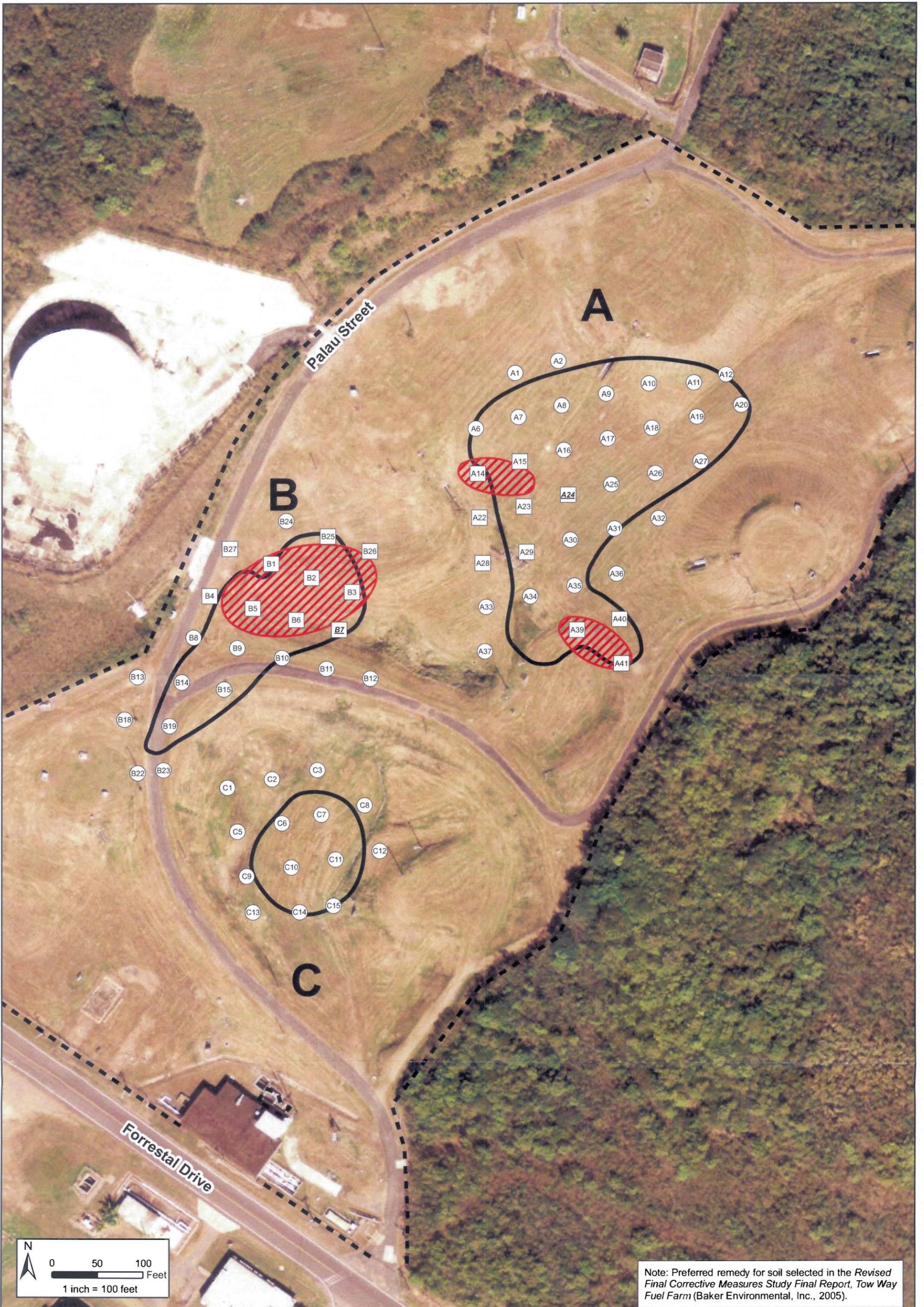


- Fence
- Former Fuel Tank

Originated By: Thomas Kessler *Thomas Kessler*
 Checked By: Philip Jones *Philip Jones*



FIGURE 1
 SWMU 7/8 Base Map
 Tow Way Fuel Farm
 Naval Activity Puerto Rico



Soil Delineation Sampling Point

- Arsenic
- Arsenic and Polynuclear Aromatic Hydrocarbons (PAHs)

- Fence
- ▭ Assumed Arsenic Impacted Soil Area (See Note)
- ▨ PAH Excavation Area (See Note)

PAHs = Benzo(a)anthracene
 Benzo(a)Pyrene
 Benzo(a)fluoranthene
 Benzo(1,2,3-cd)Pyrene

▭ = Asphalt present in soil sample. Sample only tested for arsenic.

FIGURE 2
 Soil Delineation Sample Locations
 Tow Way Fuel Farm
 Naval Station Roosevelt Roads, Puerto Rico

Responses to EPA Comments Summary	
Regulatory Comments from:	<u>Timothy R. Gordon</u> (EPA Project Coordinator), Corrective Action and Special Projects Section, RCRA Programs Branch
Document:	<i>Statement of Basis/Proposed Final Soil Remedy Decision – SWMUs 7 and 8</i> , Naval Activity Puerto Rico, EPA ID PR2170027203, Ceiba, Puerto Rico, dated November 2011
Regulatory Letter Date:	March 08, 2012
Response Due Date:	June 18, 2012
Response Submittal Date:	June 18, 2012

EPA has completed its review of the CMS Addendum – Revised Soil Remedy and Statement of Basis – Proposed Final Soil Remedy, submitted by Mr. Tom Beisel’s (of AGVIO/CH2MHill) letter of January 5, 2012, on behalf of the Navy. As part of that review EPA requested that our consultant, TechLaw Inc, also review the documents. TechLaw’s comments are given in two Technical Reviews, dated February 29, 2012, which I had previously emailed to you on March 2, 2012.

Within sixty days of the date of your receipt of this letter, please submit a revised CMS Addendum for the surface and subsurface soils and a revised Statement of Basis, which address the above comments and those in the two Technical Reviews, dated February 29, 2012, which I had previously emailed to you on March 2, 2012. The revised documents should be dated with the actual date of submission to EPA, not some earlier date.

In addition, the Puerto Rico Environmental Quality Board (PREQB) in two letters dated January 23, 2012, both addressed to myself, indicated that they had no further comments on the CMS Addendum and the Statement of Basis on the Soil Remedy. I had previously emailed those letters to you on March 2, 2012.

EPA Comment:

Based on those reviews, EPA has determined that the corrective action objectives (CAOs) for soils utilized in the CMS Addendum are based on the CAOs developed in the November 2005 CMS Report prepared by Baker Environmental, Inc. Although the 2005 CMS was subsequently approved with conditions by EPA in February 2006, its CAOs were established using pre-2005 EPA Region 3 Risk-based Concentrations (RBCs). The Region 3 RBCs have been replaced for risk assessment screening purposes by the more recently-established EPA national Regional Screening Levels (RSLs).

The CAOs established in the 2005 CMS Report were predicated on now out-dated human health toxicity criteria and assessment methodologies. The most current, relevant EPA health-based screening criteria for initial screening purposes are the EPA Regional Screening Levels (RSLs),

dating from November 2011. With respect to the polynuclear aromatic hydrocarbons (PAHs) at SWMUs 7/8, the residential CAO for soil developed in 2005 and now proposed in the CMS Addendum for PAH exposures is 0.088 mg/kg. The current PAH residential screening concentration based on the November 2011 RSLs is 0.015 mg/kg. This is a less than order-of-magnitude reduction from the RBC based 2005 CAO, translating to a less than order-of-magnitude increase in associated carcinogenic risk, based on a target risk of 1E-06 or an increase in allowable *in situ* risk of approximately 6E-06.

Likewise, based on the November 2011 RSLs, the industrial soil screening criteria for soils has been reduced from the 2005 CAO of 0.78 mg/kg to a concentration value of 0.21 mg/kg.

As noted in Section 3.1, site-wide risks associated with PAHs are expected to be low based on the fact that the original residential CAO of 0.088 mg/kg was not exceeded in any of the samples, even in the one duplicate sample where a low positive result was recorded.

The issue of utilizing the newer RSL screening criteria, versus the pre-2005 RBCs also impacts the background assessment of arsenic. The 2005 residential CAO is 2.65 mg/kg arsenic, while the November 2011 residential soil RSL is 0.39 mg/kg arsenic. Utilizing the RSL for arsenic results in a near order-of-magnitude increase in the associated risk for residual exposure to arsenic concentrations of 2.65 mg/kg that would be left in the soil based on the 2005 CAO.

The conclusion in Section 4.2 of the CMS Addendum that “no institutional controls will be recommended for site soils/surface media at SWMUs 7/8” is not acceptable. In addition to EPA’s above described concerns with the continued usage of the 2005 CAOs for PAHs and arsenic based on pre-2005 Region 3 risk-based concentrations (RBCs), rather than the more protective 2011 RSLs, EPA also notes the following additional factors that warrant institutional controls being placed on the site for surface and subsurface soils:

- Section 1.1 of the CMS Addendum indicates that nine underground storage tanks (USTs), used for the storage of marine diesel fuel, jet fuel (JP-5) and Bunker C fuel, were located throughout SWMU 7/8. Two of the tanks were removed in 1996, which also required the removal of 329 tons of contaminated soils. In March 2004, fuel storage and distribution operations were discontinued and the remaining seven USTs and associated piping were drained and are empty. The section goes on to state that “During the facility’s operational history, numerous releases have occurred from the USTs and associated pipelines.” Based on the presence of existing USTs and piping, and known releases during the operational history of the unit, it would appear that institutional controls should be placed on this property to control future excavation activities, as any future residential or commercial/industrial development including excavation/construction would result in the need to remove and possibly remediate USTs and associated piping. In fact, several 0 to 2 foot soil samples could not be collected during the 2009 sampling event due to the presence of tanks or piping in the shallow subsurface which indicates that the tanks/piping would be encountered even in shallow excavations.
- EPA’s February 2006 approval of the November 2005 CMS Report (contained in Appendix D of the CMS Addendum) stated “Specifically, this proposed Corrective

Measure/final remedy includes: ... placement of land use controls/institutional controls over the areas impacted by releases from Tow Way Fuel Farm (SWMU 7 and 8). Such land use controls/institutional controls would include: 1) prohibition of development of buildings on the site that may be occupied by humans ...” It should be noted that this prohibition on the development of residential buildings was included along with a requirement to excavate surficial soils exceeding the CAOs of 2.65 mg/kg arsenic and PAH concentrations of 0.78 mg/kg. Based on the above discussed recommended usage of the newer RSLs to set CAOs, instead of the pre-2005 RBCs, EPA considers the need for institutional controls to prevent future residential usage to still be warranted.

Therefore, EPA request that the CMS Addendum be revised to include specific institutional controls, as discussed above, that “run-with-the land” (i.e., will remain applicable to future owners) so as to prevent future residential usage, unless additional corrective measures are implemented which allow future unrestricted/residential usage.

Any changes in the approach as outlined in the CMS Addendum with respect to the PAHs and arsenic will need to be applied in the Statement of Basis.

Response:

As discussed during the conference call with EPA on April 17th, 2012, the existing CAOs have been revised using the latest toxicity factors and methodology available from EPA RSL website, and the RSL calculator tool, as appropriate from the following location: <http://www.epa.gov/region9/superfund/prg/>. The revised soil CAOs for SWMUs 7/8 are detailed in new Section 1.4 *Revised Soil Corrective Action Objectives for SWMUs 7/8*.

A description of existing LUCs that will be maintained is detailed in new Section 1.5 *Land Use Controls at SWMUs 7/8* of the Soil CMS Addendum. In addition, a summary of the LUCs to be included in the deed if the land parcel containing SWMU 7/8 were to be transferred to a new owner is also included in this section.

Section 3.3 *Land Use and Institutional Controls for Site Soils* has been removed from the document, as LUCs are addressed in an earlier portion of the report in Section 1.5.

As detailed in the TechLaw Comment 1 (Section: TechLaw Additional Comments), the third paragraph in Section 4.2 has been modified to recommend LUCs for SWMUs 7/8.

Changes to the CMS Addendum based on EPA and TechLaw comments with respect to PAHs and arsenic have been applied to the Statement of Basis.

Responses to TechLaw Comments Summary	
Regulatory Comments from:	<u>Cathy Dare</u> (TechLaw, Inc.)
Document:	<i>Statement of Basis/Proposed Final Soil Remedy Decision – SWMUs 7 and 8, Naval Activity Puerto Rico, EPA ID PR2170027203, Ceiba, Puerto Rico, dated November 2011</i>
Regulatory Letter Date:	February 29, 2012 (Date provided on TechLaw technical review document)
Response Due Date:	June 18, 2012
Response Submittal Date:	June 18, 2012

The following comments were generated based on a review of the *Statement of Basis/Proposed Final Soil Remedy Decision – SWMUs 7 and 8, Naval Activity Puerto Rico, EPA ID PR2170027203, Ceiba, Puerto Rico, dated November 2011* (hereinafter referred to as the SB).

1. As part of a related evaluation, EPA has reviewed the *Corrective Measures Study Addendum – SWMUs 7 and 8 – Revised Soil Remedy (CMS Addendum)*, dated November 2011. The EPA evaluation included a review of the November 29, 2011, Navy Response to EPA Comments dated October 18, 2011 on the *Corrective Measures Study Addendum – SWMUs 7 and 8 – Revised Soil Remedy*. The SB should be revised to reflect any applicable changes made to the CMS Addendum as a result of EPA’s review comments.

Response:

The Statement of Basis has been revised to reflect applicable changes made to the CMS Addendum as a result of EPA’s review comments.

2. The Discussion of Results section indicates that three objectives were added to the evaluation of arsenic data, including a determination of whether arsenic contamination is naturally occurring based on historical background concentrations. No discussion of this evaluation is provided in the SB. Revise the SB to ensure that the results of the evaluations relative to the three additional objectives are adequately and clearly explained.

Response:

The text in the Discussion of Results section has been modified to include a discussion of background arsenic levels across the NAPR based on a background inorganic chemical levels study completed in 2006.

3. The Corrective Measures Study section states that polynuclear aromatic hydrocarbons (PAHs) were detected in soil at concentrations exceeding their respective corrective action

objectives. The Discussion of Results section and Proposed Final Remedy section then state that no PAHs were detected in soil during a subsequent sampling event. No explanation as to the difference in findings is provided in the SB; as such, the no further action recommendation for soil is not clearly substantiated. Revise the SB such that it is clear to the reader why a no further action recommendation for soil is appropriate, given the historical detections of PAHs. (Note that the applicability of this comment is dependent on resolution of EPA's comments on the November 2011 CMS Addendum).

Response:

The Statement of Basis has been revised to explain the difference between the findings in the 2005 CMS and the subsequent 2009 sampling event. Additional text has been added to provide additional discussion on possible rationale for the absence of PAHs in site soils. However, land use controls will be maintained for SWMUs 7/8 to keep industrial land use and prevent alternative land uses.