N62661.AR.003456
NS NEWPORT
5090.3a

LETTER AND ATTACHED U S NAVY RESPONSE TO U S EPA REGION I AND RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT COMMENTS ON THE DRAFT SAMPLING AND ANALYSIS PLAN FOR SOIL PRE-DESIGN INVESTIGATION DECISION UNITS 1-1, 1-2, AND 1-3 AT TANK FARM 1 (SITE 7) OPERABLE UNIT 13 (OU 13) NS NEWPORT RI
10/29/2015
RESOLUTION CONSULTANTS

Resolution Consultants
A Joint Venture of AECOM & EnSafe
1500 Wells Fargo Building
440 Monticello Avenue
Norfolk, Virginia 23510

October 29, 2015

U.S. Environmental Protection Agency, Region 1
Federal Facilities Superfund Section
Attn: Ms. Jane Dolan
5 Post Office Square, Suite 100
Mail Code: OSRR07-3
Boston, MA 02109-3912

Rhode Island, Department of Environmental Management
Office of Waste Management
Attn: Ms. Pamela Crump
235 Promenade Street
Providence, RI 02908-5767

RE: Response to Comments on Draft Sampling and Analysis Plan
Soil Pre-Design Investigation (PDI)
Decision Units 1-1, 1-2, and 1-3 at Tank Farm 1 (Site 7), OU 13
Naval Station (NAVSTA) Newport, Portsmouth, Rhode Island

Dear Ms. Dolan and Ms. Crump:

On behalf of the Naval Facilities Engineering Command (NAVFAC), Mid-Atlantic (MIDLANT), Resolution Consultants is pleased to provide this Response to Comments (RTC) Package on the Draft Sampling and Analysis Plan (SAP) for Soil Pre-Design Investigation (PDI) at Decision Units 1-1, 1-2, and 1-3 at Site 7 – Tank Farm 1.

Please provide suggestions and your concurrence for us to finalize the document by November 27, 2015 in order to maintain the current schedule. Please address your input to Cindy Castleberry, CTO Manager (978-905-2847), Mark Kauffman, Activity Coordinator (978-905-2262), and/or Jim Gravette, Navy RPM (757-341-2014). We look forward to working with you on this program.

Sincerely,

Cindy Castleberry

Cindy Castleberry, PE
Task Order Manager, CTO WE16
Resolution Consultants
250 Apollo Drive
Chelmsford, MA 01824
cindy.castleberry@aecom.com
978-905-2847

RESOLUTION CONSULTANTS

Document Distribution:
Pamela Crump, RIDEM (1 paper copy; PDF via email)
Lisa McIntosh, Woodard & Curran (1 paper copy w/CD; PDF via email)
Jane Dolan, USEPA (2 paper copies; PDF via email)
Greg Kemp, Mabbett & Associates (1 paper copy; PDF via email)
Deb Moore, Navy (1 paper copy; PDF via email)
Jim Gravette, Navy (1 paper copy; PDF via email)
Mark Kauffman, Resolution (PDF via email)

Navy Responses to Regulatory Agency Comments
EPA Comments, September 10, 2015
RIDEM Comments, September 29, 2015

Draft Tier II Sampling and Analysis Plan,
Decision Units 1-1 and 1-3, Tank Farm 1 (Site 7), Operable Unit 13
NAVSTA Newport, Portsmouth, Rhode Island

October 29, 2015

EPA General Comments:

EPA General Comment 1: According to the Data Gaps Assessment Report surface soil samples at the transformer vaults were all collected from the 0-1 foot depth interval; therefore, it will not be appropriate to collect PDI soil samples from the 0-2 foot depth interval at DU 1-3 because the PDI samples would be diluted as compared to the data gaps assessment samples so direct comparisons would not be possible. Because Navy intends to excavate the top two feet of soil, and because none of the data gaps investigation samples from the 2-4 foot depth interval had exceedances of the preliminary remedial goal, sampling deeper than 0-1 foot is not necessary or appropriate.

Similarly, most of the surface soil samples collected at the ethyl blending plant during the data gaps assessment were collected from the 0-1 foot depth interval; therefore, it will not be appropriate to collect PDI soil samples from the 0-2 foot depth interval. Samples should be collected from the 0-1 foot interval so samples will be consistent with the data gaps samples. Because Navy intends to excavate the top two feet of soil, and because none of the data gaps investigation subsurface samples had exceedances of the preliminary remedial goals, sampling deeper than 0-1 foot is not necessary or appropriate.

Response: Agreed. The sampling depths will be modified from 0 to 2 feet to 0 to 1 foot throughout the SAP. It was confirmed through email correspondence with RIDEM that RIDEM is in agreement with this change as well. The SAP will also be modified to reflect use of a hand auger rather than a direct push rig for sample collection. Specific edits are summarized below.

On WS 11-3 under Spatial Boundaries, text related to the target sampling depth will be modified as follows: "...the target sampling depth is limited to surface soil. Specifically, samples will be collected from 0 to 1 foot below surface grade, consistent with historical samples, but will be used to delineate impacts within the top 2 feet of soil."

On WS 11-8 under Soil Sampling, the soil sampling procedures will be modified to state "Soil samples will be collected using a hand auger from the 0 to 1 foot interval."

On WS 21-1, the SOP for Direct Push Sampling Techniques will be deleted from the table and references to Geoprobe removed. The Direct Push Sampling Techniques SOP will also be deleted from Appendix A.

On WS 14-2 under Equipment Decontamination, the reference to plastic sampling sleeves will be deleted and hand augers will be added to the list of non-disposal or non-dedicated sampling equipment requiring decontamination prior to sampling and between samples.

References to 0 to 2 foot samples were changed to 0 to 1 foot samples on page vi of the Executive Summary; on WS 11-8, WS 17-1, WS 17-3, WS 17-4, and WS 14-1; and in the notes on the figures.

EPA General Comment 2: Please plan to collect GPS coordinates for the four corners of transformer vault 3 before collecting PDI samples and verify that the proposed sample locations are reasonable based on the corners of the vault relative to the proposed sample locations. Have the land surveyor survey the four corners of the building when the sample locations are surveyed so the location of the samples relative to the building will be established.

Response: To address the first part of this comment, the following text will be added to the first paragraph on WS 14-1 under Clearing:

"The corners of TV2 and TV3 will also be checked with the GPS to confirm that the vault corners are where expected."

To address the second part of this comment, the following text will be added to the second full paragraph on WS 14-3 under Land Surveying:

"In addition to the soil boring locations, the survey will include the corners of TV2 and TV3."

EPA Specific Comments:

EPA Specific Comment 1: Pg v, par 1 – Please revise the description of the DUs to be consistent with the explanation recently provided in the Feasibility Study for DU 1-1, 1-2, and 1-3, dated August 14, 2015.

Response: Text related to the Feasibility Study and description of the DUs will be modified as follows:

"In August 2015, the Revised Draft Final Feasibility Study (FS) Report for Decision Units (DUs) 1-1, 1-2, and 1-3 at Tank Farm 1 (Site 7), Operable Unit 13 at Naval Station (NAVSTA) Newport, in Portsmouth, Rhode Island was completed (Resolution, 2015a). The FS Report evaluated several remedial alternatives to address surface soil at DU 1-1, 1-2, and 1-3 within Tank Farm 1. DU 1-1 consists of soil associated with the Ethyl Blending Plant (EBP), which includes the former EBP and associated areas of concern (AOCs) designated as TF1-004, TF1-005, and TF1-018. DU 1-2 consists of soil associated with Transformer Vault 2 (TV2) and DU 1-3 consists of soil associated with Transformer Vault 3 (TV3)."

The same revision will be made to the first paragraph on page WS 10-1.

EPA Specific Comment 2: Pg WS 9-1 – EPA does not recall a resolution at the meeting where the PDI SAP would be prepared using the traditional approach of discrete samples. Nevertheless, in order to move this one particular project forward, EPA agrees to the collection of discrete samples. In the future, the more representative approach of collecting samples by the MIS method should be instituted.

Response: Comment noted.

EPA Specific Comment 3: Pg WS 10-4 – Please supplement this section with a summary of the previous investigations conducted at DU 1-2, including a figure. EPA requests that one sample be collected due north of SB1028 (1,000 µg/kg PCB) and east of SB1021 to verify the down gradient extent of PCBs associated with sample EV2-E (24,000 µg/kg).

Response: The title of the SAP will be modified to include DU 1-2 and minor edits made throughout the SAP to reflect that this DU is now included in the PDI. The requested sample will be added. See attached new Figure 4 which shows the proposed location (boring 131). Also, see the new Table 2 (attached), which provides the historical surface soil data for DU 1-2. The existing tables and Figure 4 will be renumbered accordingly. The updated Tables 4 and 5 (previously 3 and 4) are also attached. This boring will also be added to the Sample Details Table (SAP Worksheet #18, 19, 20, and 30).

In the Executive Summary, minor edits will be made to add DU 1-2 to the PDI rather than stating that sampling is not proposed and Goals 1 and 4 of the investigation will be modified in the Executive Summary and on WS 11-2 to include DU 1-2.

The following sentence will be deleted from page WS 10-4 and similar wording will be deleted from WS 10-1 and WS 11-1: "Although, remedial action is anticipated for DU 1-2, this DU is not discussed below because it was determined that no additional sampling is needed to define the surface soil excavation boundary for that DU."

Minor additional edits will be made throughout Worksheets #10, #11, #17, and #14 to add DU 1-2 and update figure and table references.

The following text will be added in between the discussions of previous investigations for DU 1-1 and 1-3, starting on page WS 10-7:

"<u>DU 1-2</u>

During the 2010 Site Investigation performed by Shaw for DLA Energy, one surface soil sample was collected in the vicinity of DU 1-2, at a location outside the door on the east side of the building. The sample contained 24 mg/kg of Aroclor 1260 (Shaw, 2010).

During the DGA, six soil borings were advanced at DU 1-2 during the 2012 sampling event and an additional five locations were sampled during an October 2013 supplemental sampling event. In total, 11 surface soil and 6 subsurface soil samples were collected during the DGA. Samples were analyzed for PCBs, GRO, and TPH (C9-C36) (Tetra Tech, 2014).

At DU 1-2, Aroclor 1260, GRO, and TPH were detected in surface soil. GRO and TPH concentrations in surface soil were below the RIDEM RDEC. Aroclor 1260 was detected in surface soil samples from 6 of the 12 locations during the previous investigations. Aroclor 1260 was detected at a maximum concentration of 24,000 µg/kg at TF1-EV2-E (see Figure 4). The concentrations of Aroclor 1260 are located east and north of TV2, with the highest concentration located just outside the door. PCBs were not detected in subsurface soil at DU 1-2. The full surface and subsurface soil data set is provided in Appendix F of the DGA Report (Tetra Tech, 2014).

Current and potential future exposures to surface and subsurface soil at DU 1-2 did not result in an unacceptable human health risk. The DGA Report concluded that the localized areas associated with the maximum Aroclor 1260 concentrations at DU 1-2 should be further addressed to protect insectivorous receptors in the future if soil is spread over a larger area because of site activities.

A PRG was developed for surface soil at DU 1-2 in the Draft Final FS Report (Resolution, 2015a). At DU 1-2, a surface soil sample from one soil boring exceeds the PRG for PCBs, which was developed to be protective of residential, industrial, and ecological receptors based on an ecological-risk based PRG, ARARs, and TBC values. Refer to Figure 4 for the specific boring location where surface soil results exceeded the PRG. Also, refer to Table 2 for a comparison of prior surface soil analytical results to the PRG.

GPS coordinates for the referenced historical soil borings at DU 1-2 are provided in the table below. Coordinates were obtained from the Navy's electronic database (NIRIS). The coordinates are based on NAD 1983 (see Figure 4).

GPS Coordinate Data		
Historic Boring Location	Northing	Easting
TF1-EV2-E	184306.06	388611.35
TV2-SS1020	184313.87	388594.28
TV2-SS1021	184318.53	388599.28
TV2-SS1022	184302.07	388615.24
TV2-SS1023	184289.42	388598.99
TV2-SS1024	184297.21	388591.96
TV2-SS1025	184318.02	388588.64
TV2-SS1026	184306.71	388618.97
TV2-SS1027	184316.27	388615.89
TV2-SS1028	184314.19	388606.86
TV2-SS1029	184312.71	388600.19
TV2-SS1030	184309.54	388593.39

EPA Specific Comment 4: Pg WS 18-3 – Regarding QC samples, for consistency and clarity include Xs for all analytes. Similarly, "contingency TBD5" should be included for each analyte.

Response: For clarity, Resolution will add "See footnote 2" in the QC sample rows under each analyte column and the following sentence will be added to footnote 2: "Specific tests for the QC samples are dependent on the associated parent samples based on location."

"contingency TBD5" will be added for PCBs; however, no contingency samples are planned for total and hexavalent chromium.

EPA Specific Comment 5: Table 1 – In the future it would be helpful if the shading presented in this table matched the shading presented on the figures which designate exceedances.

Response: See the attached updated Table 1 with modified shading colors to match Figure 3.

EPA Specific Comment 6: WS-11-1, par 3 – Please revise this paragraph to remove statements that alternative S-2 from the FS report is the Navy's preferred remedial alternative. The proposed plan has not yet been subject to public comment. Simply state that additional delineation is required to bound the exceedances. Please update the references in the Spatial Boundaries section on page 11-3 as necessary.

Response: The paragraph will be revised to remove mention of a specific remedial alternative from the FS Report. Similarly, minor revisions will be made throughout Worksheet #11, including the Spatial Boundaries paragraph on WS 11-3, and the Study Goals on WS 11-2 and elsewhere in Worksheet #11. In the Executive Summary and Worksheet #10, the description of the Navy's preferred remedial alternative will be deleted and minor edits will be made to Study Goals and other text to be more general and not reference a specific alternative.

EPA Specific Comment 7: Pg WS 11-8, par 1 – Please describe how the lab will homogenize the sample.

Response: The following sentence will be added to the end of the paragraph: "Homogenization at the laboratory will include stirring the sample and discarding any foreign objects, such as twigs and rocks, before subsampling an aliquot for analysis." If this comment was meant to refer to homogenization that occurs during sample collection, which is not the subject of this paragraph, refer to SOP 3-21 (Surface and Subsurface Soil Sampling Procedures) in Appendix A for specific homogenization procedures.

EPA Specific Comment 8: Table 4 – The rationale for step-out samples 214 to 221 needs to be edited to read "… to determine limits of targeted excavation or LUC boundary."

Response: Agree. The words "or LUC boundary" will be added to the end of the rationales for step-out samples 214 to 221. See the attached updated Table 5 (formerly Table 4).

EPA Specific Comment 9: Pg WS 17-1, second bullet – Please explain why the CSM needs to be refined.

Response: The referenced text will be deleted.

EPA Specific Comment 10: Pg WS 17-3, par 1 – There does not appear to be a worksheet #15. Please clarify.

Response: Worksheet #15 is included and is located immediately before Worksheet #23.

EPA Specific Comment 11: Figure 3 – Please shift PDI samples 111 and 112 counterclockwise so 111 is directly down gradient of SB1024. Move 211 to be down gradient of relocated 111.

Response: There is no SB1024. It is assumed that this comment was meant to refer to SB1022. The requested changes will be made. See the attached updated Figure 3.

EPA Specific Comment 12: Figure 4 – All the sample locations shown in this figure appear to be located farther southeast than shown in the Data Gaps Assessment Report. For example, sample SB1026 was collected directly outside the door and SB1027 was stepped out in alignment with the door. Sample SB1032 was collected near the corner of the building just down gradient of the rectifier (at or very near the proposed location shown for PDI sample 122). Sample SB1033 was collected down gradient of SB1032 as a step-out location (not around the corner from the rectifier). Please refer to Appendix A of the Data Gaps Assessment Report for field documentation of sample locations. Navy should obtain GPS coordinates from Tetra Tech for SB1032 and SB1033 and review and verify all sample locations shown on this figure. It will be necessary to capture the location of the four corners of the building to ensure that sample locations are located correctly relative to the building. PDI sample locations should be adjusted as necessary. It is expected that the limits of soil excavation will extend to clean samples, so place PDI samples accordingly.

Response: Upon review of Figure 4, it was discovered that the building (transformer vault) outline was incorrectly located, which resulted in the boring locations appearing incorrect relative to the building. The boring locations were reviewed and are fact accurate based on the coordinates. The actual vault location has been modified on Figure 5 (formerly Figure 4) and verified using coordinates from a survey of the vault corners, which was obtained from Tetra Tech. Due to the shift in the vault location, potential step-out boring 233 was eliminated, but a new initial refinement boring was added to the west of SB1032. See the attached revised figure (now called Figure 5), which provides the corrected vault outline and reflects adjustments to the proposed sampling locations. The text in Worksheet #10 will be modified to state that the coordinates for the historical soil borings were obtained from the Navy's electronic database (NIRIS). The table of GPS coordinates was checked and is accurate. The updated Tables 4 and 5 (previously 3 and 4) are also attached.

EPA Specific Comment 13: Figure 4 – EPA requests that the PDI sampling encompass sample SB1033 because the presence of Aroclor 1254 at this location and not at SB1032 suggests the probability of a separate release/discharge. PDI sampling should determine the extent of Aroclor 1254 in a down gradient location. Should down gradient sampling produce acceptable results, sample location SB1033 may be determined to be suitable for establishing the limit of excavation. (Note that Figure 4-6 of the DGA Report has transposed the results for SB1033 and SB1032.)

Response: An initial refinement boring and step-out boring will be added downgradient of SB1033. See the attached revised figure (now called Figure 5) which shows these proposed locations. The updated Tables 4 and 5 (previously 3 and 4) are also attached. These borings will also be added to the Sample Details Table (SAP Worksheet #18, 19, 20, and 30).

EPA Specific Comment 14: Figure 4 – As placed, the initial refinement samples leave a data gap east-northeast of SB1027; therefore, the extent of excavation is not limited in that direction until step-out sample 230. Add another initial refinement sample in that direction to better constrict the limit of excavation.

Response: One initial refinement boring will be added. Boring 230 will serve as the step-out sample. See the attached revised figure (now called Figure 5) which shows this proposed location. The updated Tables 4 and 5 (previously 3 and 4) are also attached. This boring will also be added to the Sample Details Table (SAP Worksheet #18, 19, 20, and 30).

RIDEM General Comments:

RIDEM General Comment 1. In general, the sampling activities proposed in the Draft SAP are appropriate. RIDEM notes that the majority of samples collected to characterize surface soils to date were collected from 0-1 ft; however, the sample interval proposed in the Draft SAP to further characterize surface soils is 0-2 ft, which represents the RIDEM surface soil depth interval. RIDEM assumes that this revised depth interval was selected for this reason, since sampling data from the 0-1 ft and 1-2 ft interval are required to show that the surface soil PRGs are met across the Decision Units to comply with RIDEM's Regulations.

Response: Based on follow up email correspondence with RIDEM and in consideration of EPA General Comment 1, RIDEM has agreed to modifying the planned sampling depth from 0 to 2 feet to 0 to 1 foot. See EPA General Comment 1 for more details on the associated changes that will be made to the SAP.

RIDEM Specific Comment 1. Figure 4 - Conceptual PDI Sampling Locations for Decision Unit 1-3. Please: 1) note typographical error of "PRG Exccedance"; 2) remove "-D" from the sample ID TF1-TV3-SB1027. In addition, RIDEM notes that sample SB1032-D presents the maximum concentration between the primary and field duplicate samples, rather than an average concentration. Although this approach is conservative and preferred by RIDEM, it is inconsistent with the approach taken with respect to other contaminants (i.e., PAHs at SB1011 as shown on Figure 3, which considers the average concentration when comparing to PRGs). Please be consistent when using data from duplicate samples.

Response: See attached revised figure (now called Figure 5) which addresses these corrections. Note that the PCB concentration at SB1032 has been replaced with the average concentration between the original sample and field duplicate. This has no impact on the proposed sampling.

Table 1
Summary of Prior PRG Exceedances - Surface Soil at Decision Unit 1-1 (Ethyl Blending Plant)

SAMPLE ID			TF1-EBP-MW-SB-1000-0005	TF1-EBP-SB1000-0001	TF1-EBP-MW-SB-1001-0005	TF1-EBP-MW-SB-1001-0005-D	TF1-EBP-MW-SB-1001-0005-AVG	TF1-EBP-SB1001-0001	TF1-EBP-SB1002-0001	TF1-EBP-SB1002-0001-D	TF1-EBP-SB1002-0001-AVG	TF1-EBP-SB1003-0001	TF1-EBP-SB1004-0001	TF1-EBP-SB1005-0001	TF1-EBP-SB1006-0001	TF1-EBP-SB1007-0001
LOCATION ID			TF1-EBP-SB1000	TF1-EBP-SB1000	TF1-EBP-SB1001	TF1-EBP-SB1001	TF1-EBP-SB1001	TF1-EBP-SB1001	TF1-EBP-SB1002	TF1-EBP-SB1002	TF1-EBP-SB1002	TF1-EBP-SB1003	TF1-EBP-SB1004	TF1-EBP-SB1005	TF1-EBP-SB1006	TF1-EBP-SB1007
SAMPLE DATE			07/30/12	08/07/12	07/31/12	07/31/12	07/31/12	08/08/12	08/07/12	08/07/12	08/07/12	08/08/12	08/07/12	08/07/12	08/08/12	08/08/12
DEPTH INTERVAL (FT BGS)	Residential	Industrial	0 - 0.5	0 - 1	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
SAMPLE TYPE [1]	PRG	PRG			ORIG	DUP	AVG		ORIG	DUP	AVG					
COC [2]																
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)																
BENZO(A)ANTHRACENE	900	7800	110 J	29	52	69	60.5	40	33	38	35.5	36	40	12 U	86	140
BENZO(A)PYRENE	400	800	90 J	25 J	54	67	60.5	38 J	28 J	25 J	26.5 J	34 J	34 J	10 J	74 J	100 J
BENZO(B)FLUORANTHENE	900	7800	130 J	50	83	100	91.5	72	54	56	55	67	68	23 J	160	200
BENZO(G,H,I)PERYLENE	800		43 U	12 J	38 U	35 U	36.5 U	18 J	15 J	14 J	14.5 J	15 J	18 J	6.8 J	37	42
BENZO(K)FLUORANTHENE	900		51 J	16 J	26	34	30	24	19 J	20 J	19.5 J	25	22 J	12 U	62	72
CHRYSENE	400		130 J	30 J	61	79	70	47 J	34 J	40 J	37 J	43 J	48 J	8.7 J	110	150 J
DIBENZO(A,H)ANTHRACENE	400	800	22 U	6.2 J	20 U	23 U	21.5 U	7.9 J	6.4 J	6.3 J	6.35 J	7 J	9.6 J	2.4 J	17 J	19 J
FLUORANTHENE	20000		240 J	63	100	130	115	89	70	73	71.5	84	110	25	200	350 J
INDENO(1,2,3-CD)PYRENE	900		60 U	19 J	46 U	50 U	48 U	25	21 J	20 J	20.5 J	22 J	24	8.2 J	51	55
NAPHTHALENE	800	800	8.9 J	10 U	5.4 J	6.3 J	5.85 J	10 U	11 U	12 U	11.5 U	11 U	11 U	12 U	3.9 J	26
PYRENE	13000		200 J	44	96	120	108	58	53	51	52	62	63	19 J	120	200
METALS (MG/KG)																
ARSENIC	14	14	11.2	9.4	13.4	12.8	13.1	10 J	8.4	6.4	7.4	7.8 J	20.7	10.5	7.5 J	8.8 J
CHROMIUM	18		14.3	13.5	16.7	14.8	15.8	13.8	15.3	14.4	14.8	14.6	13.5	16.8	14.4	14.1
MANGANESE	390		252	263	271	194	232	307	202	201	202	293	191	375	155	220

Notes:

1. For those samples where an original (ORIG) and field duplicate (DUP) sample were both collected, the arithmatic average (AVG) of the two concentrations or reporting limits are shown on the table.
2. Only analytical results for COCs with Residential or Industrial PRGs, as developed in the Draft Final Feasibility Study Report (Resolution, 2015), are shown in this table.
3. Green shading indicates Residential PRG exceeded.
4. Red shading indicates Industrial and Residential PRGs exceeded.

U = Not detected
J = Quantitation approximate
COC = Chemical of Concern
FT BGS = Feet below the ground surface
PRG = Preliminary Remediation Goal

Table 1
Summary of Prior PRG Exceedances - Surface Soil at Decision Unit 1-1 (Ethyl Blending Plant)

SAMPLE ID			TF1-EBP-SB1007-0102	TF1-EBP-SB1008-0001	TF1-EBP-SB1009-0001	TF1-EBP-SB1010-0001	TF1-EBP-SB1011-0001	TF1-EBP-SB1011-0001-D	TF1-EBP-SB1011-0001-AVG	TF1-EBP-SB1012-0001	TF1-EBP-SB1013-0001	TF1-EBP-SB1014-0001	TF1-EBP-SB1015-0001	TF1-EBP-SB1016-0001	TF1-EBP-SB1017-0001	TF1-EBP-SB1018-0001
LOCATION ID			TF1-EBP-SB1007	TF1-EBP-SB1008	TF1-EBP-SB1009	TF1-EBP-SB1010	TF1-EBP-SB1011	TF1-EBP-SB1011	TF1-EBP-SB1011	TF1-EBP-SB1012	TF1-EBP-SB1013	TF1-EBP-SB1014	TF1-EBP-SB1015	TF1-EBP-SB1016	TF1-EBP-SB1017	TF1-EBP-SB1018
SAMPLE DATE			08/08/12	08/08/12	08/08/12	08/06/12	08/06/12	08/06/12	08/06/12	08/06/12	08/08/12	08/06/12	08/16/12	08/06/12	08/08/12	08/06/12
DEPTH INTERVAL (FT BGS)	Residential	Industrial	1 - 2	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
SAMPLE TYPE [1]	PRG	PRG					ORIG	DUP	AVG							
COC [2]																
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)																
BENZO(A)ANTHRACENE	900	7800	4.7 J	220	470	220	360 J	150 J	255 J	8100	480	540	640	2200	1300	1400
BENZO(A)PYRENE	400	800	4.1 J	150 J	280 J	160 J	270 J	100 J	185 J	5300	360 J	480	600	1900	980	940
BENZO(B)FLUORANTHENE	900	7800	8.8 J	290	440	320 J	460 J	210 J	335 J	7500	550	680	810	3000	1400	1500
BENZO(G,H,I)PERYLENE	800		2.3 J	60	92	79	100 J	44 J	72 J	2400 J	120	150 J	220	1100	420	230
BENZO(K)FLUORANTHENE	900		10 U	110	160	120	180 J	67 J	124 J	3200 J	220	340 J	290	1200	570	670
CHRYSENE	400		10 UJ	240	500	260	440 J	170 J	305 J	9100	550	640	820	2600	1400	1500
DIBENZO(A,H)ANTHRACENE	400	800	10 U	26	44	28	48	20 J	34 J	960 J	56	68	91	280	140	140
FLUORANTHENE	20000		9.2 J	590	1300	550	900 J	300 J	600 J	23000	1400	1400	1500	8000	3000	4800
INDENO(1,2,3-CD)PYRENE	900		3.7 J	80	130	170 J	270 J	64 J	167 J	3900 J	170	310 J	280	1800	590	640
NAPHTHALENE	800	800	10 U	19 J	100	56	49	14 J	31.5 J	2000 J	72	72	120	610	140	160
PYRENE	13000		6.3 J	280	1000	420	770 J	220 J	495 J	13000 J	1000	1200	1200	4400 J	2300	2800
METALS (MG/KG)																
ARSENIC	14	14	7.6 J	10.8 J	5 J	9.4	5.2	4.4	4.8	5	4.6 J	4.6	7.9	6.3	5.5 J	4
CHROMIUM	18		20.2 J	17	11.6	11.3	10.6	13.6	12.1	10.6	12.3	10.8	12	13	13.1	12.3
MANGANESE	390		284 J	194	137	128	130	137	134	157	159	194	183	233	217	180

Notes:

1. For those samples where an original (ORIG) and field duplicate (DUP) sample were both collected, the arithmatic average (AVG) of the two concentrations or reporting limits are shown on the table.
2. Only analytical results for COCs with Residential or Industrial PRGs, as developed in the Draft Final Feasibility Study Report (Resolution, 2015), are shown in this table.
3. Green shading indicates Residential PRG exceeded.
4. Red shading indicates Industrial and Residential PRGs exceeded.

U = Not detected
J = Quantitation approximate
COC = Chemical of Concern
FT BGS = Feet below the ground surface
PRG = Preliminary Remediation Goal

Table 1
Summary of Prior PRG Exceedances - Surface Soil at Decision Unit 1-1 (Ethyl Blending Plant)

SAMPLE ID			TF1-EBP-SB1019-0001	TF1-EBP-SB1019-0102	TF1-EBP-SB1019-0102-D	TF1-EBP-SB1019-0102-AVG	TF1-EBP-MW-SB101R-0002	TF1-EBP-SB1020-0001	TF1-EBP-SB1021-0001	TF1-EBP-SB1022-0001	TF1-EBP-SB1035-0001	TF1-EBP-SB1036-0001	TF1-EBP-SB1036-0102	TF1-EBP-MW-SB-124R-0002
LOCATION ID			TF1-EBP-SB1019	TF1-EBP-SB1019	TF1-EBP-SB1019	TF1-EBP-SB1019	TF1-EBP-SB101R	TF1-EBP-SB1020	TF1-EBP-SB1021	TF1-EBP-SB1022	TF1-EBP-SB1035	TF1-EBP-SB1036	TF1-EBP-SB1036	TF1-EBP-SB124R
SAMPLE DATE			08/06/12	08/08/12	08/08/12	08/08/12	08/01/12	08/06/12	08/06/12	08/06/12	08/06/12	08/06/12	08/08/12	08/02/12
DEPTH INTERVAL (FT BGS)	Residential	Industrial	0 - 1	1 - 2	1 - 2	1 - 2	0 - 2	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	1 - 2	0 - 2
SAMPLE TYPE [1]	PRG	PRG		ORIG	DUP	AVG								
COC [2]														
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)														
BENZO(A)ANTHRACENE	900	7800	48	12 U	7.4 J	6.7 J	140	2800	170	430	580	2700	12 U	8000
BENZO(A)PYRENE	400	800	33 J	12 UJ	4.5 J	5.25 J	97	2100	110 J	390	520	2000	6.4 J	6000
BENZO(B)FLUORANTHENE	900	7800	76	12 U	9.1 J	7.55 J	160	3000	230	640	720	2800	18 U	8800
BENZO(G,H,I)PERYLENE	800		19 J	12 U	3.4 J	4.7 J	52 U	1300	52	140	140	1200	5.8 J	2800
BENZO(K)FLUORANTHENE	900		28	12 U	12 U	12 U	52	1500	75	220	400	1300	12 U	3900
CHRYSENE	400		56	12 U	12 UJ	12 UJ	140	3000	190 J	590	730	3000	5.6 J	9100
DIBENZO(A,H)ANTHRACENE	400	800	9.2 J	12 U	12 U	12 U	35 U	420	24	58	67	310	2.8 J	650 J
FLUORANTHENE	20000		130	12 U	12 J	9 J	190	7800	2200	1100	1400	8400	21 J	18000
INDENO(1,2,3-CD)PYRENE	900		47 J	12 U	3.3 J	4.65 J	70 U	1900	74 J	190	210	1800	7.3 J	4800
NAPHTHALENE	800	800	12 U	12 U	12 U	12 U	4.3 J	810	18 J	55	110	530	12 U	140
PYRENE	13000		91	12 U	10 J	8 J	160	4500 J	250	970	1300	5000	12 U	14000
METALS (MG/KG)														
ARSENIC	14	14	9.5	10.6 J	6.1 J	8.35 J	12.4	6.9	7	7.2	3.8	12	13.5 J	11.6
CHROMIUM	18		21	16.7	14.4	15.6	15.4	12.3	12.2	13.1	9.9	17.8	24.3	15.4
MANGANESE	390		257	256	222	239	231	575	220	425	131	284	256	235

Notes:

1. For those samples where an original (ORIG) and field duplicate (DUP) sample were both collected, the arithmatic average (AVG) of the two concentrations or reporting limits are shown on the table.
2. Only analytical results for COCs with Residential or Industrial PRGs, as developed in the Draft Final Feasibility Study Report (Resolution, 2015) are shown in this table.
3. Green shading indicates Residential PRG exceeded.
4. Red shading indicates Industrial and Residential PRGs exceeded.

U = Not detected
J = Quantitation approximate
COC = Chemical of Concern
FT BGS = Feet below the ground surface
PRG = Preliminary Remediation Goal

Table 2
Summary of Prior PRG Exceedances - Surface Soil at Decision Unit 1-2 (Transformer Vault 2)

SAMPLE ID		TF1-EV2-E	TF1-TV2-SS-1020-0001	TF1-TV2-SS-1021-0001	TF1-TV2-SS-1022-0001	TF1-TV2-SS-1023-0001	TF1-TV2-SS-1024-0001	TF1-TV2-SS-1025-0001	TF1-TV2-SS1026-0001	TF1-TV2-SS1027-000.9	TF1-TV2-SS1028-000.8	TF1-TV2-SS1029-000.8	TF1-TV2-SS1030-0001
LOCATION ID		TF1-EV2-E	TF1-TV2-SB1020	TF1-TV2-SB1021	TF1-TV2-SB1022	TF1-TV2-SB1023	TF1-TV2-SB1024	TF1-TV2-SB1025	TF1-TV2-SB1026	TF1-TV2-SB1027	TF1-TV2-SB1028	TF1-TV2-SB1029	TF1-TV2-SB1030
SAMPLE DATE	Surface	May-June 2010	08/03/12	08/03/12	08/03/12	08/03/12	08/03/12	08/03/12	10/22/13	10/22/13	10/22/13	10/22/13	10/22/13
DEPTH INTERVAL (FT BGS)	Soil	0-0.5	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0-1	0-0.9	0-0.8	0-0.8	0-1
SAMPLE TYPE	PRG												
COC [1]													
PCBS (UG/KG)													
AROCLOR-1016		3800 U	8.3 U	8 U	8.9 U	9.2 U	9.5 U	8.7 U	9.4 U	8.6 U	11 U	9.1 U	9 U
AROCLOR-1221		3800 U	8.3 U	8 U	8.9 U	9.2 U	9.5 U	8.7 U	9.4 U	8.6 U	11 U	9.1 U	9 U
AROCLOR-1232		3800 U	9.8 U	9.4 U	10 U	11 U	11 U	10 U	11 U	10 U	13 U	11 U	11 U
AROCLOR-1242		3800 U	8.3 U	8 U	8.9 U	9.2 U	9.5 U	8.7 U	9.4 U	8.6 U	11 U	9.1 U	9 U
AROCLOR-1248		3800 U	8.3 U	8 U	8.9 U	9.2 U	9.5 U	8.7 U	9.4 U	8.6 U	11 U	9.1 U	9 U
AROCLOR-1254		3800 U	8.3 U	8 U	8.9 U	9.2 U	9.5 U	8.7 U	9.4 U	8.6 U	11 U	9.1 U	9 U
AROCLOR-1260	1,000	24000	8.3 U	260	8.9 U	9.2 U	9.5 U	8.7 U	180 J	180 J	1000 J	250 J	9 U
TOTAL AROCLOR	1,000	24000	8.51 U	260	9.06 U	9.46 U	9.71 U	8.89 U	180	180	1000	250	0 U

Notes:

1. Only analytical results for PCBs are shown in this table, because PCBs are the only COC with a PRG, as developed in the Draft Final Feasibility Study Report (Resolution, 2015).

U = Not detected
J = Quantitation approximate
COC = Chemical of Concern
DUP = Field duplicate
FT BGS = Feet below the ground surface
PRG = Preliminary Remediation Goal

Table 3
Summary of Prior PRG Exceedances - Surface Soil at Decision Unit 1-3 (Transformer Vault 3)

SAMPLE ID		TF1-EV3-N	TF1-TV3-SS-1026-0001	TF1-TV3-SS-1027-0001	TF1-TV3-SS-1028-0001	TF1-TV3-SS-1029-0001	TF1-TV3-SS-1030-0001	TF1-TV3-SS-1031-0001	TF1-TV3-SS1032-0001	TF1-TV3-SS1032-0001-D	TF1-TV3-SS1033-000.9
LOCATION ID		TF1-EV3-N	TF1-TV3-SB1026	TF1-TV3-SB1027	TF1-TV3-SB1028	TF1-TV3-SB1029	TF1-TV3-SB1030	TF1-TV3-SB1031	TF1-TV3-SB1032		TF1-TV3-SB1033
SAMPLE DATE	Surface	May-June 2010	08/03/12	08/03/12	08/03/12	08/03/12	08/03/12	08/03/12	10/22/13	10/22/13	10/22/13
DEPTH INTERVAL (FT BGS)	Soil	0-0.5	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0-1	0-1	0-0.9
SAMPLE TYPE	PRG									DUP	
COC [1]											
PCBS (UG/KG)											
AROCLOR-1016		38 U	91 U	8.7 U	8.9 U	8.4 U	9.2 U	8.9 U	7.8 U	8.7 U	8.3 U
AROCLOR-1221		38 U	91 U	8.7 U	8.9 U	8.4 U	9.2 U	8.9 U	7.8 U	8.7 U	8.3 U
AROCLOR-1232		38 U	110 U	10 U	10 U	9.8 U	11 U	10 U	9.1 U	10 U	9.8 U
AROCLOR-1242		38 U	91 U	8.7 U	8.9 U	8.4 U	9.2 U	8.9 U	7.8 U	8.7 U	8.3 U
AROCLOR-1248		38 U	91 U	8.7 U	8.9 U	8.4 U	9.2 U	8.9 U	7.8 U	8.7 U	8.3 U
AROCLOR-1254		38 U	91 U	8.7 U	8.9 U	8.4 U	9.2 U	8.9 U	7.8 U	8.7 U	380 J
AROCLOR-1260	1,000	510	4300	1600 J	110	180 J	9.2 U	26	970 J	1100 J	560 J
TOTAL AROCLOR	1,000	510	4300	1600 J	110	180 J	9.46 U	26	970	1100	940

Notes:

1. Only analytical results for PCBs are shown in this table, because PCBs are the only COC with a PRG, as developed in the Draft Final Feasibility Study Report (Resolution, 2015).

U = Not detected
J = Quantitation approximate
COC = Chemical of Concern
DUP = Field duplicate
FT BGS = Feet below the ground surface
PRG = Preliminary Remediation Goal

Table 4
GPS Coordinates for Proposed Soil Boring Locations
DU 1-1, 1-2, and DU 1-3, Tank Farm 1
NAVSTA Newport, Portsmouth, Rhode Island

Area	Boring ID	Easting	Northing
DU 1-1	EBP-101	388425.06	183762.20
DU 1-1	EBP-102	388522.21	183797.18
DU 1-1	EBP-103	388527.49	183784.20
DU 1-1	EBP-104	388419.51	183732.64
DU 1-1	EBP-105	388429.16	183732.47
DU 1-1	EBP-106	388428.18	183719.40
DU 1-1	EBP-107	388464.79	183787.56
DU 1-1	EBP-108	388472.31	183793.44
DU 1-1	EBP-109	388469.36	183802.92
DU 1-1	EBP-110	388479.82	183811.42
DU 1-1	EBP-111	388508.23	183814.86
DU 1-1	EBP-112	388520.86	183810.97
DU 1-1	EBP-113	388532.13	183796.71
DU 1-1	EBP-114	388529.35	183769.25
DU 1-1	EBP-115	388538.67	183759.77
DU 1-1	EBP-116	388528.86	183749.96
DU 1-1	EBP-117	388488.00	183758.14
DU 1-1	EBP-118	388473.45	183754.05
DU 1-1	EBP-119	388458.58	183748.98
DU 1-1	EBP-120	388446.32	183772.03
DU 1-1	EBP-121	388454.82	183779.22
DU 1-3	TV3-122	388103.96	184490.56
DU 1-3	TV3-123	388112.57	184486.89
DU 1-3	TV3-124	388118.66	184490.38
DU 1-3	TV3-125	388123.06	184481.33
DU 1-3	TV3-126	388116.60	184478.01
DU 1-3	TV3-127	388109.70	184475.23
DU 1-3	TV3-128	388098.48	184484.87
DU 1-3	TV3-129	388095.94	184492.48
DU 1-3	TV3-130	388122.58	184487.41
DU 1-2	TV2-131	388607.50	184319.29

Area	Boring ID	Easting	Northing
DU 1-1	EBP-201	388410.20	183737.70
DU 1-1	EBP-202	388437.00	183740.48
DU 1-1	EBP-203	388437.16	183726.26
DU 1-1	EBP-204	388436.18	183712.53
DU 1-1	EBP-205	388426.21	183712.21
DU 1-1	EBP-206	388455.14	183791.15
DU 1-1	EBP-207	388458.41	183801.29
DU 1-1	EBP-208	388462.50	183811.09
DU 1-1	EBP-209	388472.47	183819.10
DU 1-1	EBP-210	388487.18	183819.43
DU 1-1	EBP-211	388510.88	183828.25
DU 1-1	EBP-212	388524.45	183819.26
DU 1-1	EBP-213	388534.25	183807.01
DU 1-1	EBP-214	388542.10	183799.98
DU 1-1	EBP-215	388538.50	183789.35
DU 1-1	EBP-216	388535.07	183778.08
DU 1-1	EBP-217	388540.79	183769.74
DU 1-1	EBP-218	388548.64	183760.10
DU 1-1	EBP-219	388541.44	183749.64
DU 1-1	EBP-220	388529.68	183743.26
DU 1-1	EBP-221	388517.58	183750.62
DU 1-1	EBP-222	388494.70	183745.88
DU 1-1	EBP-223	388479.82	183743.10
DU 1-1	EBP-224	388464.95	183739.50
DU 1-1	EBP-225	388451.22	183737.38
DU 1-1	EBP-226	388437.33	183776.11
DU 1-1	EBP-227	388445.66	183784.45
DU 1-3	TV3-228	388101.53	184497.20
DU 1-3	TV3-229	388120.01	184496.21
DU 1-3	TV3-230	388127.72	184489.58
DU 1-3	TV3-231	388128.53	184479.17
DU 1-3	TV3-232	388120.91	184473.79
DU 1-3	TV3-233	388091.21	184497.79

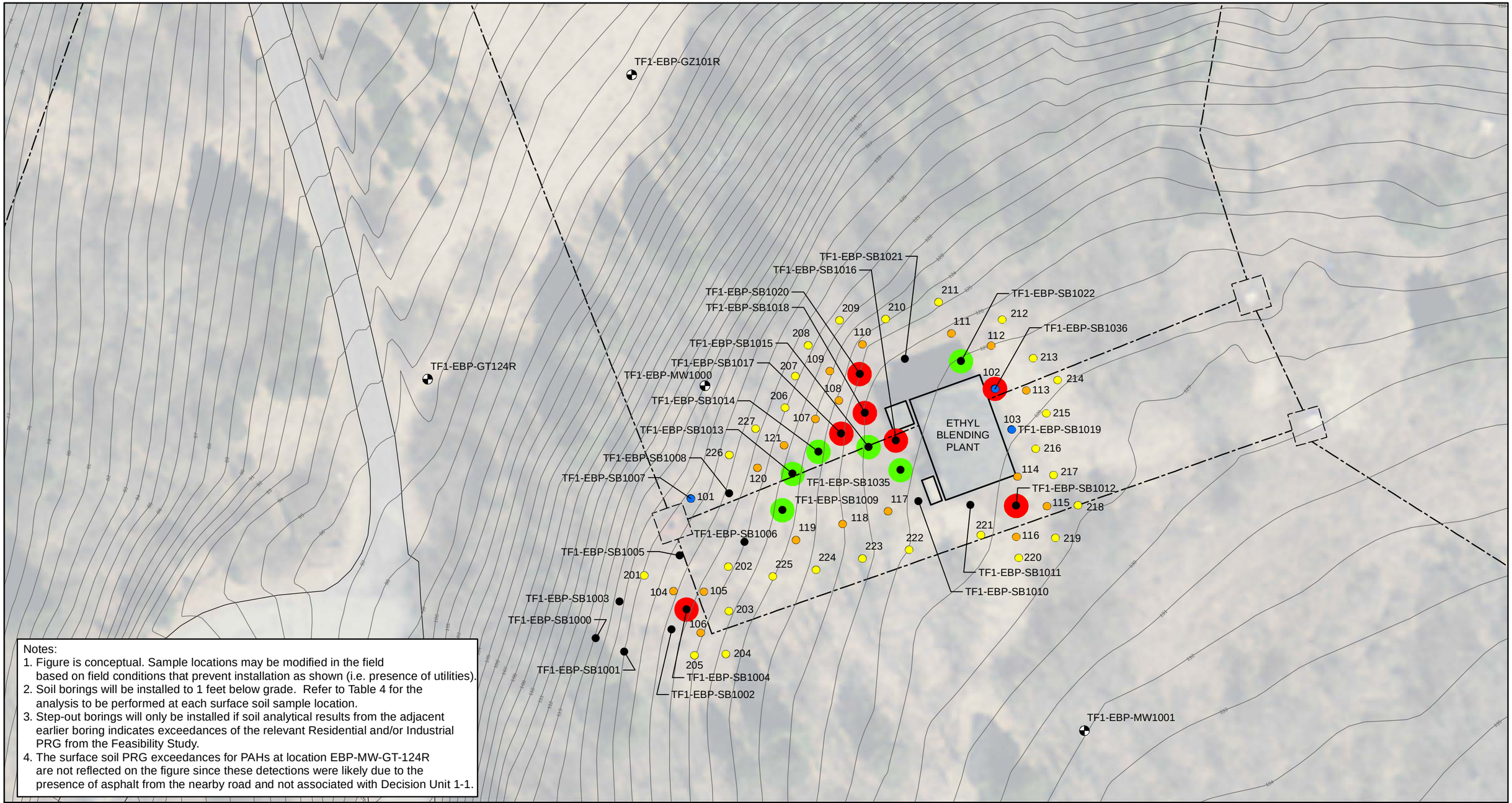
Notes:
1. The locations of the proposed borings are shown on Figures 3, 4, and 5 and are conceptual in nature and locations may change based on field conditions.
2. GPS coordinates for the historical borings were obtained from the prior consultant.
3. Coordinates are expressed in NAD 83 state plane feet.

Table 5
Sampling Rationale Table
DU 1-1, 1-2 and 1-3, Tank Farm 1
NAVSTA Newport, Portsmouth, Rhode Island

Area	Boring ID	Target Parameter					Rationale
		PAHs	Arsenic	Manganese	Total and Hexavalent Chromium	PCBs	
DU 1-1	EBP-101				X		Resample previous location with total chromium above the PRG for hexavalent chromium. Determine whether hexavalent chromium is present to potentially eliminate hexavalent chromium as a COC.
DU 1-1	EBP-102				X		Resample previous location with total chromium above the PRG for hexavalent chromium. Determine whether hexavalent chromium is present to potentially eliminate hexavalent chromium as a COC.
DU 1-1	EBP-103				X		Resample previous location with total chromium above the PRG for hexavalent chromium. Determine whether hexavalent chromium is present to potentially eliminate hexavalent chromium as a COC.
DU 1-1	EBP-104		X				Delineate horizontal extent of arsenic in surface soil around boring SB1004 to determine limits of targeted excavation.
DU 1-1	EBP-105		X				Delineate horizontal extent of arsenic in surface soil around boring SB1004 to determine limits of targeted excavation.
DU 1-1	EBP-106		X				Delineate horizontal extent of arsenic in surface soil around boring SB1004 to determine limits of targeted excavation.
DU 1-1	EBP-107	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation and potentially LUC boundary.
DU 1-1	EBP-108	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1	EBP-109	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1	EBP-110	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1	EBP-111	X		X			Delineate horizontal extent of PAHs and Manganese above Residential PRGs in surface soil to determine LUC boundary.
DU 1-1	EBP-112	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1	EBP-113	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation.
DU 1-1	EBP-114	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation.
DU 1-1	EBP-115	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation.
DU 1-1	EBP-116	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation.
DU 1-1	EBP-117	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-1	EBP-118	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-1	EBP-119	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-1	EBP-120	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-1	EBP-121	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-3	TV3-122					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3	TV3-123					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3	TV3-124					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3	TV3-125					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3	TV3-126					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3	TV3-127					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3	TV3-128					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3	TV3-129					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3	TV3-130					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-2	TV2-131					X	Verify horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-1*	EBP-201*		X				Delineate horizontal extent of arsenic in surface soil around boring SB1004 to determine limits of targeted excavation.
DU 1-1*	EBP-202*		X				Delineate horizontal extent of arsenic in surface soil around boring SB1004 to determine limits of targeted excavation.
DU 1-1*	EBP-203*		X				Delineate horizontal extent of arsenic in surface soil around boring SB1004 to determine limits of targeted excavation.

Area	Boring ID	Target Parameter					Rationale
		PAHs	Arsenic	Manganese	Total and Hexavalent Chromium	PCBs	
DU 1-1*	EBP-204*		X				Delineate horizontal extent of arsenic in surface soil around boring SB1004 to determine limits of targeted excavation.
DU 1-1*	EBP-205*		X				Delineate horizontal extent of arsenic in surface soil around boring SB1004 to determine limits of targeted excavation.
DU 1-1*	EBP-206*	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1*	EBP-207*	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1*	EBP-208*	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1*	EBP-209*	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1*	EBP-210*	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1*	EBP-211*	X		X			Delineate horizontal extent of PAHs and Manganese above Residential PRGs in surface soil to determine LUC boundary.
DU 1-1*	EBP-212*	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1*	EBP-213*	X		X			Delineate horizontal extent of PAHs above Residential and Industrial PRGs and Manganese above the Residential PRG in surface soil to determine limits of targeted excavation for PAHs and LUC boundary.
DU 1-1*	EBP-214*	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation or LUC boundary.
DU 1-1*	EBP-215*	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation or LUC boundary.
DU 1-1*	EBP-216*	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation or LUC boundary.
DU 1-1*	EBP-217*	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation or LUC boundary.
DU 1-1*	EBP-218*	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation or LUC boundary.
DU 1-1*	EBP-219*	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation or LUC boundary.
DU 1-1*	EBP-220*	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation or LUC boundary.
DU 1-1*	EBP-221*	X					Delineate horizontal extent of PAHs above Residential and Industrial PRGs in surface soil to determine limits of targeted excavation or LUC boundary.
DU 1-1*	EBP-222*	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-1*	EBP-223*	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-1*	EBP-224*	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-1*	EBP-225*	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-1*	EBP-226*	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-1*	EBP-227*	X					Delineate horizontal extent of PAHs above Residential PRGs in surface soil to determine limits of LUC boundary.
DU 1-3*	TV3-228*					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3*	TV3-229*					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3*	TV3-230*					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3*	TV3-231*					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3*	TV3-232*					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.
DU 1-3*	TV3-233*					X	Delineate horizontal extent of PCBs above PRG in surface soil to determine limits of targeted excavation.

Notes:
Refer to Figures 3, 4, and 5 for conceptualized boring layouts.
Number of borings/samples will be determined based on rapid turnaround time analysis of previously submitted samples. Also refer to Worksheet 18.
*Step out borings will only be submitted for analysis if needed based on adjacent borings.



Notes:
1. Figure is conceptual. Sample locations may be modified in the field based on field conditions that prevent installation as shown (i.e. presence of utilities).
2. Soil borings will be installed to 1 feet below grade. Refer to Table 4 for the analysis to be performed at each surface soil sample location.
3. Step-out borings will only be installed if soil analytical results from the adjacent earlier boring indicates exceedances of the relevant Residential and/or Industrial PRG from the Feasibility Study.
4. The surface soil PRG exceedances for PAHs at location EBP-MW-GT-124R are not reflected on the figure since these detections were likely due to the presence of asphalt from the nearby road and not associated with Decision Unit 1-1.

RESOLUTION CONSULTANTS

Drawn:	JB	10/27/2015
Approved:	NO	10/27/2015
Project #:	60268619	

Legend

- Monitoring Well Location
- Soil Boring
- Petroleum Distribution (Remaining)
- Ring Drain/BSW Drainage (Remaining)
- Initial Refinement Boring for Surface Soil Excavation and/or LUC Boundary
- Location to be Resampled for Total and Hexavalent Chromium in Surface Soil
- Potential Step-Out Boring for Surface Soil Excavation and/or LUC Boundary
- Surface Soil Sample Exceeds Residential PRGs
- Surface Soil Sample Exceeds Residential and Industrial PRGs

N

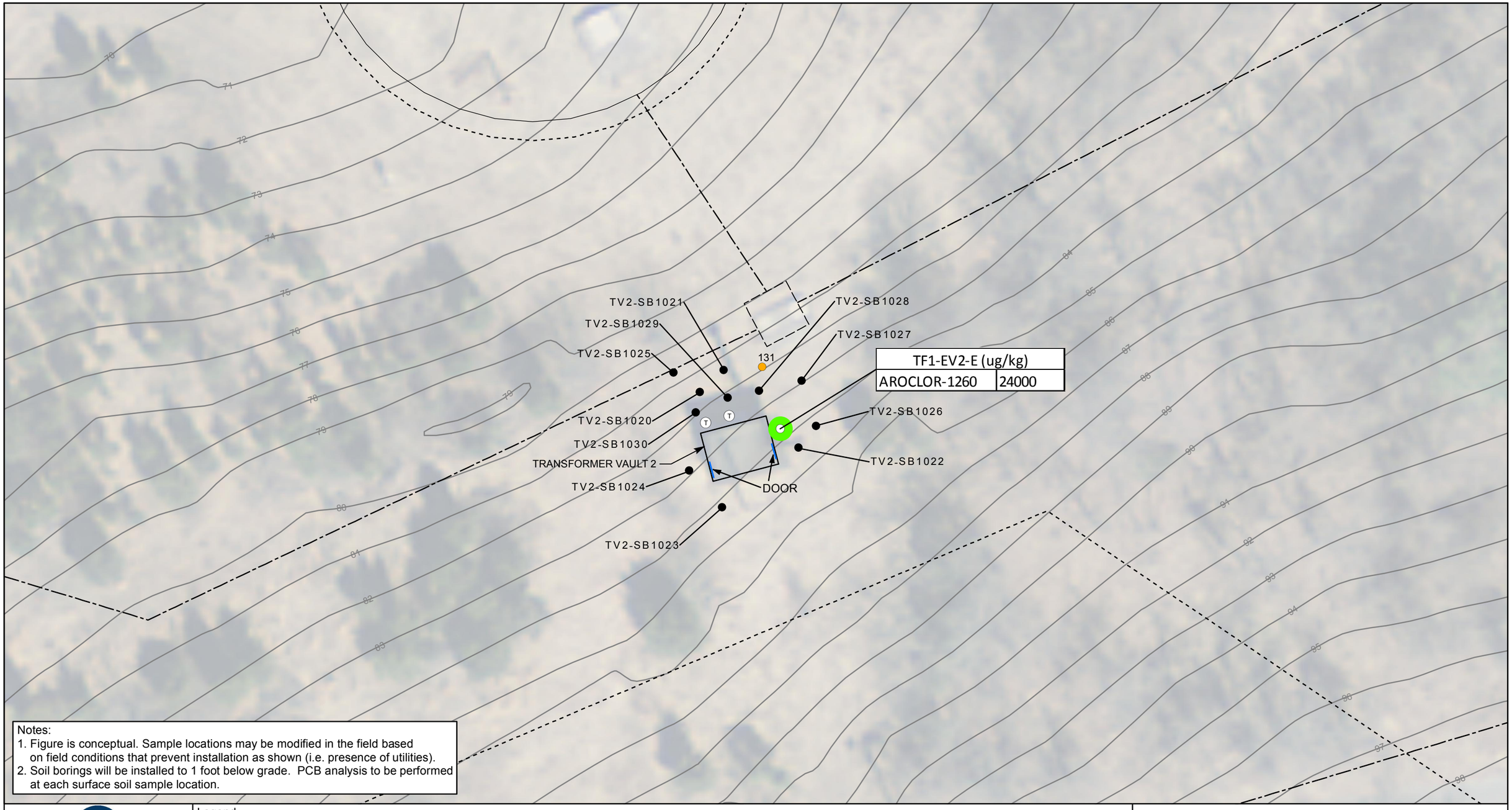
0 15 30

Scale in Feet

FIGURE 3
CONCEPTUAL PDI SAMPLING LOCATIONS FOR DECISION UNIT 1-1
ETHYL BLENDING PLANT

TANK FARM 1 (SITE 7)
NAVSTA NEWPORT, RHODE ISLAND

Document Path: P:\Govt\Projects\NavyCLEAN AECOM-EnSafe JV\Newport\GIS\Projects\Tank_Farm_1\PDI_SAP\MXD\Fig_3_Conceptual_PDI_Sample_Locations_for_Decision_Unit_1_1_Ethyl_Blending_Plant.mxd



Notes:
1. Figure is conceptual. Sample locations may be modified in the field based on field conditions that prevent installation as shown (i.e. presence of utilities).
2. Soil borings will be installed to 1 foot below grade. PCB analysis to be performed at each surface soil sample location.

RESOLUTION CONSULTANTS

Drawn:	JB	10/27/2015
Approved:	NO	10/27/2015
Project #:	60268619	

Legend

- Monitoring Well Location
- 2012-2013 Soil Boring
- 2010 Site Investigation Soil Sample
- PRG Exceedance
- Refinement Boring for Surface Soil Excavation
- Transformer
- Petroleum Distribution (Remaining)
- Ring Drain/BSW Drainage (Remaining)

PRG = Preliminary Remediation Goal

N

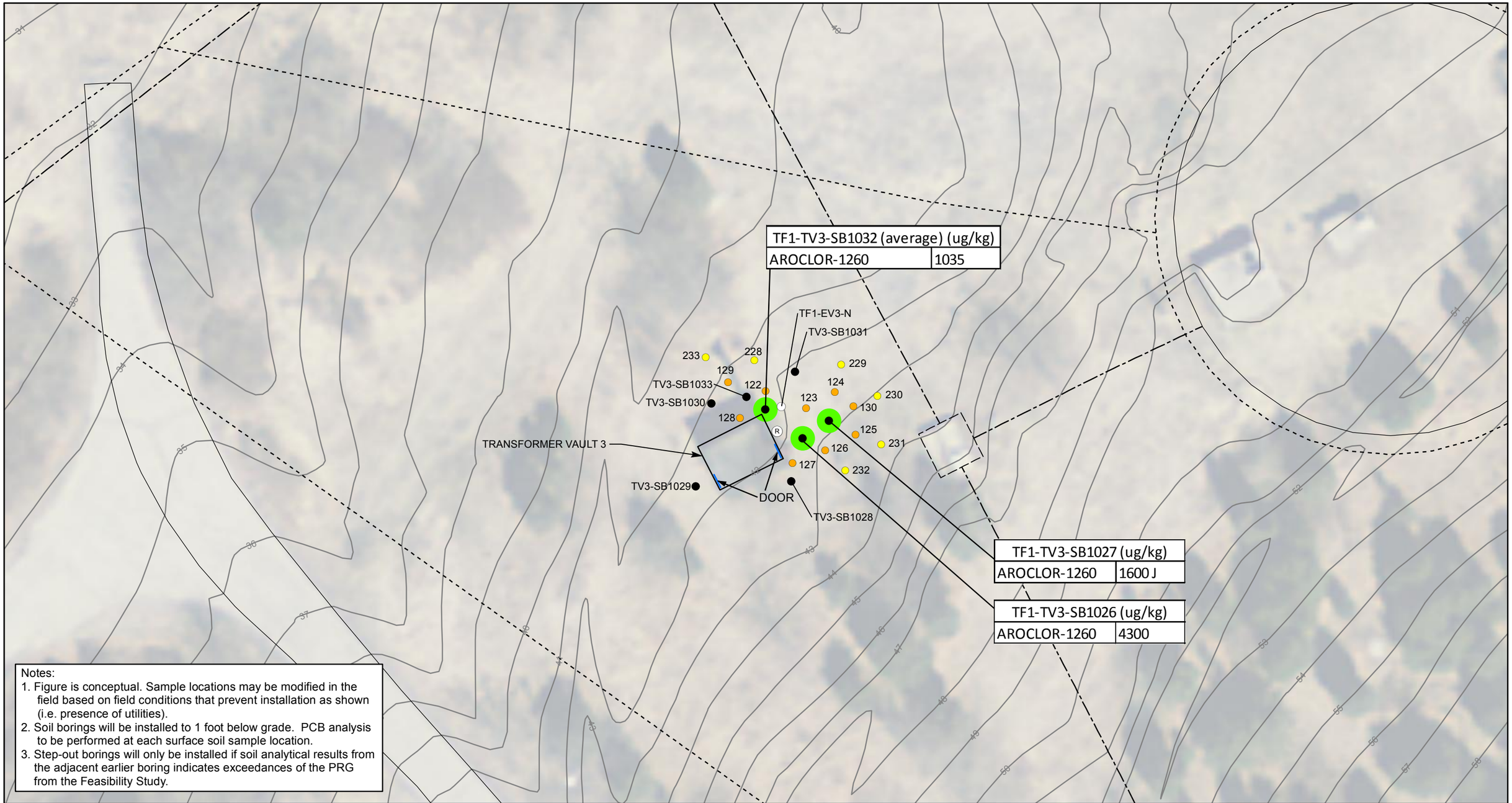
0 10 20

Scale in Feet

FIGURE 4
CONCEPTUAL PDI SAMPLE LOCATIONS FOR DECISION UNIT 1-2 TRANSFORMER VAULT 2

TANK FARM 1 (SITE 7)
NAVSTA NEWPORT, RHODE ISLAND

Document Path: P:\Govt\Projects\NavyCLEAN AECOM-EnSafe JV\Newport\GIS\Projects\Tank_Farm_1\PDI_SAP\MXD\Fig_4_Concept_PDI_Sample_Loc_TV2.mxd



Notes:
1. Figure is conceptual. Sample locations may be modified in the field based on field conditions that prevent installation as shown (i.e. presence of utilities).
2. Soil borings will be installed to 1 foot below grade. PCB analysis to be performed at each surface soil sample location.
3. Step-out borings will only be installed if soil analytical results from the adjacent earlier boring indicates exceedances of the PRG from the Feasibility Study.

RESOLUTION CONSULTANTS

Drawn:	JB	10/27/2015
Approved:	NO	10/27/2015
Project #:	60268619	

Legend

- 2010 Site Investigation Soil Sample
- 2012-2013 Soil Boring
- Rectifier
- PRG Exceedance
- Initial Refinement Boring for Surface Soil Excavation
- Potential Step-Out Boring for Surface Soil Excavation
- Petroleum Distribution (Remaining)
- Ring Drain/BSW Drainage (Remaining)

PRG = Preliminary Remediation Goal

N

0 10 20

Scale in Feet

FIGURE 5
CONCEPTUAL PDI SAMPLE LOCATIONS
FOR DECISION UNIT 1-3
TRANSFORMER VAULT 3

TANK FARM 1 (SITE 7)
NAVSTA NEWPORT, RHODE ISLAND

Document Path: P:\Govt\Projects\NavyCLEAN AECOM-EnSafe JV\Newport\GIS\Projects\Tank_Farm_1\PDI_SAP\MXD\Fig_5_Concept_PDI_Sample_Loc_TV3.mxd