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NSWC INDIAN HEAD
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U S NAVY RESPONSE TO REGULATORS COMMENTS ON THE DRAFT UNIFORM
FEDERAL POLICY SAMPLING AND ANALYSIS PLAN FOR PRE-DESIGN INVESTIGATION
AT SITE 43 TOLUENE SPILL NSWC INDIAN HEAD MD
08/17/2016
TETRA TECH

Responses To Comments (RTCs) from NSF Indian Head Installation Restoration Team (IHIRT)

Re: Draft UFP-SAP for Pre-Design Investigation at Site 43 – Toluene Spill, NSF Indian Head, MD (November 2015)

Comments By Joe Rail, RPM, NAVFAC Washington	Responses By Boyd Allen, KGS, and Ed Corack, Tetra Tech
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Comment No.	Page No.	Section, Paragraph, Line, Figure, or Table No.	Comment	Response/Action Taken
1			I assume this SAP should be in the usual standard UFP-SAP format, even though it's a Tier II SAP? If so, can you add the word "Worksheet #..." to the table of contents and each respective worksheet? (For example change "2 Communication Pathways " to "Worksheet 2 Communication Pathways.") And, it appears that there's only 12 worksheets, correct?	<p>Yes. 'Worksheet #' is abbreviated as "WS" and the corresponding SAP worksheet references are provided under each section title. Propose changing "WS" to typical "Worksheet" throughout the document to make these references more obvious. These worksheet references are the corresponding sections/worksheets from both the UFP QAPP Manual and the Navy Tier 2 SAP content/guidance. For example, "(UFP-QAPP Manual Section 2.4.1 and UFP-QAP Workbook WS #5)" is indicated under the Section 1 title. This is specified in the Navy Tier 2 SAP template.</p> <p>This SAP provides for all 20 worksheets of a Navy Tier 2 SAP. More than one worksheet is referenced under some of the twelve section titles. The following notification is placed at the end of the Table of Contents:</p> <p align="center">Sections in this document correspond to Navy Tier 2 SAP Section numbers as amended by KOMAN Government Solutions (KGS) and Tetra Tech. Sections consisting of tabular content that correspond to respective SAP worksheet content are not listed as individual tables in the Table of Contents.</p> <p>Adding the worksheet nos. to the TOC would not be practicable. Some sections include content for more than one worksheet (per the Navy Tier 2 SAP template).</p>

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2			Worksheet 1 and other relevant worksheets- ensure that all TBD information is completed in the final version of the SAP.	Understood. Information will be updated as practicable before finalizing the SAP. Note field personnel and the fieldwork subcontractors are often not determined until after the SAP is finalized. The field schedule is unknown due to site access restrictions from explosives operations throughout site.
3			Page 46 of 82, section 8.1.4- Check first sentence at bottom of page for typos or missing word or comma. It currently doesn't read correctly	Propose revising sentence to read as follows: Subsurface soil samples will be collected from soil borings in the VOC source area, cobalt study subareas, and from pilot borings while installing new monitoring wells for the distribution injection test.
4			Page 48 of 82, section 8.1.8, third sentence- Insert "to be" after "access will need...."	Sentence will be revised as suggested.
5			Page 48 of 82, section 8.1.10- Check first sentence for typo...need to delete "I."	Typo will be corrected.
6			Appendix A-Electron Donor Substrate Distribution Test Instructions has precise details for EOS injection and monitoring. I know we had general discussions of this approach at past partnering meetings, but let's ensure that the regulators have reviewed this approach and concur. This is vital before we start work. I believe this is the first time we've seen the detailed approach that H&S and Tt is proposing. It's one of the most important pieces of the PDI, so it needs the proper attention. I think you're proposing 1 injection well and 8 monitoring points to test radius of influence; that sounds reasonable to test one specific area.	Understood and agree. It is important to understand the injection test goal is measuring radial distribution of injection material, not determining biodegradation technology efficacy or performance on site contaminants.

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7			Appendix B- Fieldwork SOPs- Looks like this appendix was borrowed from another project and marked up with strikeouts and revisions. Can you clean it up for the final Site 43 SAP?	The SOPs are from the Master SAP and are intentionally redlined to remove portions that are not applicable to this site-specific plan/activities. This is the most cost-effective approach for SAPs, and is in accordance with previous LANT SAP guidance. Propose not creating new SOPs for each project, consistent with SAPs to date.
8			Please address all Navy chemist comments provided separately	Yes. Responses to Navy Chemist comments are provided to LANT via the NIRIS portal for SAP Reviews.

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Comments By Travis Wray, NSFIH, NAVFAC Washington	Responses By Boyd Allen, KGS, and Ed Corack, Tetra Tech
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Comment No.	Page No.	Section, Paragraph, Line, Figure, or Table No.	Comment	Response/Action Taken
1		Section 2	Communication Pathways, please add me to any of the communication drivers that impact scheduling or project boundary shifts, etc	The table will be modified to add the current NSFIH POC (Andrew Louder) to the specified communication drivers.
2		Section 8.1.1	There is no need for an ESSDR at this site so that can be removed	ESSDR will be removed from the text.
3		Figure 3	You can state that Building 1041 has been demolished in the callout bubble. Also it could be mentioned that is the former location of 1041 on the other figures.	Figure 3 will be revised/annotated to indicate the building's status as demolished.
4		Figures 8 and 13	It may be just me but the shade of purple is hard to follow on the imagery. Perhaps a different color for the cobalt contours may improve clarity?	Agree, the cobalt isoconcentration contours will be changed from purple to a higher contrast color on the respective figures.
5		Figure 15	Cobalt contour, CVOC contour, and Installation Boundary all are very similar colors. May help to differentiate a bit.	Agree, the colors will be changed to provide more contrast (also see NSFIH Comment/Response 4).
6		Section 8	General Comment, there is some field work associated with PDI objective 5 that is only mentioned in section 5.2.4 "Substrate Delivery Testing", Section 5.3 "Boundaries of the Study" and discussed in detail in Appendix A. Shouldn't this tracer injection work also be covered in Section 8 which covers the Field Project Tasks? It is stated that the injection wells will be installed but I didn't see any mention of the actual bromide tracer test.	The injection test instructions and details on the bromide tracer are intentionally appended as a separate tech memo, because SAPs typically do not include this type of construction work in detail. It is a balance to incorporate several types of work (not just environmental sampling) into this particular SAP.

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Comments By Rob Thomson and Tech Support, EPA Region 3	Responses By Boyd Allen, KGS, and Ed Corack, Tetra Tech
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Comment No.	Page No.	Section, Paragraph, Line, Figure, or Table No.	Comment	Response/Action Taken
1		Section 3.1	Partnering Team Scoping Session No. 1, Page 18, second bullet from top: This sentence is slightly confusing. It would be clearer to state "Samples are to be collected from ten borings at up to three depths in each boring, totaling approximately thirty samples." Additionally, the statement about sampling below the water table can be improved. Currently it is not clear if the sampling will be 8-10 feet below the water table, or if the water table occurs 8-10 feet bgs. Any samples collected from below the water table should be referred to as aquifer matrix samples rather than as soil samples.	<p>Agree. The sentences will be revised to more clearly quantify the number of samples and articulate that only unsaturated samples are being collected to support the CVOC source area design. Propose replacing the bullets with the following:</p> <ul style="list-style-type: none"> • Samples for VOCs analytical testing are to be collected from ten soil borings at up to three depths in each boring, totaling up to 30 samples. • In most cases, the maximum depth of interest in soil is the unsaturated soil down to the water table (8 ft bgs typ). The VOC soil contamination extends to the water table and is a continuing source to groundwater TCE contamination. The majority of the soil contamination ranges in depth from 1 to 8 ft bgs. In order to delineate the extent of subsurface VOC contamination and estimate VOC mass, saturated soil [aquifer matrix] will be collected from below the water table at up to six of the ten borings. The planned maximum depth of aquifer matrix sampling is 12 ft bgs. • Up to eight samples will be sent for geophysical testing (sieve analysis, shear and consolidation testing, and density). These samples will be collected near the blast wall and Building 1040 to assess physical soil conditions.

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2		Section 3.1 Page 18	<ul style="list-style-type: none"> a. Partnering Team Scoping Session No. 1. Cobalt Evaluation. third bullet and sixth bullet: Explain the rational for limited metals sampling in soil and groundwater. Clarify the statement "actual list of metals was determined later" as being determined after the partnering meeting. Some information regarding why only certain metals are being collected is presented in Sections 7.5.1 and 7.5.3, but the rational should also be mentioned here. b. In the sixth bullet, either move the list of metals in parentheses so that it follows immediately after "metals", or list the cations to be sampled for as well. c. As a suggestion, if the Navy desires to prove that cobalt is naturally occurring and not a release, it may be appropriate to determine if local reducing conditions exist in the aquifer. However, there are specific data needed to demonstrate this phenomenon, including total metals verses dissolved metals; TOC, ORP, pH, nitrate, and DO. Limiting the metals analysis may not serve this endeavor. d. Additionally, is there an aerobic or anaerobic reducing condition? 	<ul style="list-style-type: none"> a. The rationale will be added into the scoping documentation. b. Agree. The text will be revised to match the metals and to add in / match the selected cations. c. Agree. These water quality parameters and other values are provided in the RI Report (Oct 2014) and are discussed in the current Draft FS. These data also are being collected from some locations as part of this cobalt evaluation/ effort. d. Both exist at the site depending on location, electron acceptor load (e.g., TCE concentration), electron donor load (e.g., natural DO, TOC), and other measurements (e.g., pH).

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3		Section 4.2.1 Page 22	<p>a. The first paragraph mentions that Indian Head is underlain by deposits from the "Pleistocene and Cretaceous Periods". The Pleistocene is not a geologic period, but an epoch within the Quaternary period.</p> <p>b. Additionally, the first paragraph in this section states that deposits range in thickness from 650 ft to 900 ft and in age from Cretaceous to Quaternary. This statement, in conjunction with the sentence preceding it about the varying units of deposited material, is slightly confusing when first read. It may mislead a reader to think there are multiple deposits with each having a thickness ranging from 650 to 900 feet. Rather than saying "deposits" here, using a more generalized term like unconsolidated material may help to alleviate the confusion, or it may be left out entirely, as the thickness of unconsolidated material to bedrock is covered later in the section.</p> <p>c. The last paragraph details the organic clay found in the northern and central portions of the site, and the gray to greenish-gray or reddish gray clay found in the southern portion of the site. Does the clay found in the southern portion of the site directly overlay the organic clay that dips to the south, or do they interfinger? Do these two clay units present a continuous confining layer that underlies the entire study area? Are there vertical hydraulic conductivities available for these clay units (direct measurements or found in literature)?</p>	<p>a. These errors will be corrected.</p> <p>b. Text/terminology will be changed as suggested.</p> <p>c. Yes, the CSM for the site in the RI, FS, and this PDI includes the confining unit site-wide. These are typically found throughout the facility. Yes, hydraulic conductivity test (using Flexible Wall Permeameter) was performed on Shelby tube sample of the clay unit at this site during the RI (and has been performed at other sites at Indian Head). The hydraulic conductivity of the underlying clay at Site 43 was measured in laboratory to be 8.2×10^{-8} cm/sec.</p> <p>...at depths ranging from 28 ft bgs (in the northern portion of Site 43) to 37 ft bgs (in the central portion of Site 43), and is understood to be a continuous confining layer underlying the site. The top of this basal clay dips slightly to the southwest, and was found to be in excess of 15 ft thick in soil borings across the area. <u>The hydraulic conductivity of this basal clay was measured at 8.2×10^{-8} centimeters per second during the RI.</u> Plant debris, including wood and decaying leaves, were observed in almost all borings to varying degrees. In the southern-western <u>and southwestern</u> portions of the site <u>nearest the Potomac River</u>, a very dense gray, sometimes greenish-gray or reddish-gray, hard, expanding silty clay was encountered anywhere from 15 to 20 ft bgs. <u>The contact between the site-wide basal clay and this very dense, gray, expanding silty clay is located near Buildings 716 and 717. This contact likely represents a facies change due to differences in the depositional environment. This very dense silty clay was found to be in excess of 20 ft thick...</u></p>

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4		Section 4.3	Summary of Environmental Work Conducted: The draft SAP states that the Draft FS Report submitted in March 2015 included an evaluation of building VI potential due to VOCs in groundwater, and based on the VI assessment, the Team agreed that potential VI issues exist. Buildings 715, 717, and 721 should undergo further VI evaluation (i.e., indoor air sampling). The draft SAP does not state what type of vapor intrusion assessment was performed or the results. Was the VI assessment performed with the use of the VISL calculator and groundwater data, or were sub-slab samples collected in the buildings?	<p>Yes, the VISL tool was one line of evidence used to perform the evaluation. VISL results were reviewed by EPA in the Draft FS and during the Partnering Meetings where the Team agreed on the building locations (initiated in Dec 2014 and finalized in June 2015). The buildings selected / proposed for indoor air sampling during the PDI were identified using EPA's decisions / instructions, based on real or potential occupancy combined with proximity of structure to groundwater MCL exceedances for TCE and VC (within 100 ft as instructed by EPA). The following text revision is proposed:</p> <p>Based on the <u>screening-level</u> VI assessment (<u>which included using the EPA VI Screening Level [VISL] tool</u>) the Team agreed that potential VI issues exist, and that Buildings 715, 717, and 721 should undergo further VI evaluation (i.e., indoor air sampling).</p>
5		Section 4.4 Page 26	CSM Overview: The second paragraph on this page states that the maximum detected TCE in groundwater is 9,060 µg/L. It should be clarified what this maximum is in relation to (the current maximum detected?), as Section 4.3 states that TCE in groundwater has been detected at 54,000 µg/L, and 36,000 µg/L in the past.	<p>The statement indicates current conditions (May 2013 most recent for RI). The following text revisions are proposed to clarify the temporal data:</p> <p>The <u>current</u> maximum TCE detection in groundwater is 9,060 µg/L in monitoring well S43-MW01 (screened at 9 to 19 ft bgs; sample S43MW00105-D collected in 2013). <u>TCE groundwater concentrations in this well are consistently the highest at the site, measuring as high as 55,000 µg/L in 2005 when the SSP Investigation began. Concentrations decreased to 36,000 µg/L in 2007 and 17,000 µg/L in 2012 (Tetra Tech, 2014). The chlorinated VOC plume (Figure 4 and Figure 8) based on the most recent (2013) groundwater data is estimated to contain...</u></p>

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6		Section 5.1 Page 29	<p>a. Identification of Goals: The first sentence in the section mentions "cis-DCE", it should read cis-1,2-DCE</p> <p>b. Later in the first paragraph it is stated that under appropriate geochemical conditions, TCE degrades into cis-1,2-DCE. While this is true, it would be more appropriate to simply state that it is degraded to DCE. Cis-1,2-DCE is the most prevalent daughter product from TCE's reductive dechlorination, but the other forms of DCE may also be produced.</p> <p>c. VC should be removed from the same sentence discussed above. TCE does not directly degrade to VC. If mentioning VC, it should be done while describing the full reductive dechlorination pathway to ethene, which should be the ultimate goal at the Site.</p>	<p>a. "Cis-DCE" will be corrected to "cis-1,2-DCE".</p> <p>b. Agree. Propose the following text revisions: <u>Under appropriate geochemical conditions, TCE in soil and groundwater degrades into cis-1,2-DCE and VC. Under anoxic conditions, chlorinated solvents can be reductively dechlorinated. For chlorinated ethenes such as TCE, this process occurs in the following sequence: TCE → DCE → VC → ethene.</u></p> <p>c. This comment is addressed by the proposed revision above.</p>
7		Section 5.2.4 Page 31	<p>a. Substrate Delivery Testing: This section states that a bromide tracer will be used to determine the site-specific radial distribution of substrate. How closely will the bromide study injections approximate the actual substrate to be used in the remedial action?</p> <p>b. Appendix A makes it clear that the distribution test substrate will essentially be the same substrate for any EISB, but with added sodium bromide in it. This is a detail that should be mentioned in the main body of the SAP, not just in the Appendix.</p>	<p>a. The injection material will be spiked with the bromide (miscible). Propose the following text revision in the first paragraph of Section 5.2.4. <u>Sodium bromide (miscible with injection substrate material) will be used as a tracer compound during the test, and periodic field measurements will be collected during the injection.</u></p> <p>b. Agree, propose adding new third sentence to the first paragraph in Section 5.2.4: <u>The injection materials will be typical of those to be used for an eventual groundwater remedy.</u></p>

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8		Section 5.2.6 Page 32	Quality Assurance (QA) and Quality Control (QC) Samples: This section mentions that no equipment rinsate blanks will be collected, and it is assumed that a peristaltic pump will be used for collection of groundwater samples. State the pump that will be used to clarify why no rinsate blanks are needed, if true. The statement that no rinsate blanks will be collected contradicts the table presented as Section 6: Field Quality Control Samples.	Agree. Propose revising the subject text in Section 5.2.6 to read as follows: New disposable polyethylene tubing will be used <u>with a peristaltic pump</u> to purge and sample each well and new disposable acetate liners will be used to collect macrocore soil samples. Therefore, no <u>minimal</u> equipment rinse blanks are planned. <u>For disposable sampling equipment (e.g., tubing), one sample per batch of disposable equipment will be collected for target analytes.</u>
9		Section 5.2.6	<p>a. Section 5.2.6 also states one duplicate sample will be analyzed for the target contaminants. The table presented as Section 6 states that duplicates will be collected at a rate of one per ten field samples per matrix. This alone means that at least two duplicates will need to be collected (one for soil and one for groundwater). Section 7 shows that more than ten samples will be collected for each matrix and thus requiring additional duplicate samples.</p> <p>b. Will MS/MSD samples be collected? They are not mentioned in this section, but are included in Section 6.</p> <p>c. Please review this section so that all subsequent sections concerning sample numbers and QA/QC numbers are in agreement with each other.</p>	<p>a. The sentence in Section 5.2.6 will be corrected to match other portions of the SAP, which indicate 1 duplicate per 10... One duplicate Duplicate samples will be analyzed for the target contaminants <u>at a 10 percent frequency (i.e., one duplicate for every ten samples by medium).</u></p> <p>b. Yes, MS/MSDs (triple volume) will be collected (1 per 20) such that the lab has enough material for lab QA/QC purposes. This will be clarified here in Section 5.2.6 to match the rest of the document. <u>Additional volume will be collected for Matrix spike (MS) and matrix spike duplicate (MSD) samples at a 5 percent frequency (i.e., one MS/MSD for every twenty samples by medium).</u></p> <p>c. The corresponding instances and sections will be checked for consistency.</p>

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10		Section 7.5.1 Page 41	Monitoring Well Groundwater: The number of samples listed under the "Select Metals" row shows "same as above". This includes QA/QC samples, however it is unclear if all of the analysis included in this table are scheduled for QA/QC samples per earlier sections of the SAP, please review.	The shorthand text ("same as above") will be reviewed and replaced accordingly to reflect the correct/probable QA/QC counts and match the rest of the document.
11		Section 7.5.1 and Figure 15	Table entry for Injection Test and Figure 15 - Please clarify how Figure 15 supports the information depicted on the table in 7.5.1 under 'Injection Test.' For example, the 8 to-be-installed MWs in the table do not appear in Figure 15, and the 'injection points' (represented as small yellow dots in Figure 15) and the biological treatment barrier do not appear in the table in Section 7.5.1. In addition, Section 7.5.1 includes the statement "Refer to Figure 15 for injection test well locations." Figure 15 presents injection points (in the source area) but does not provide locations for the injection test well as provided in Appendix A, Electron Donor Injection Test Instructions. It is presumed that the information gathered following the sampling approach in Section 7.5.1 will dictate the implementation of the preferred treatment approach, but Figure 15 only presents an injection target area and the physical components (injection points and barrier) of the potential treatment approach.	Also see NSFIIH Comment/Response 6. In Section 7.5.1, the reader is referred to Appendix A under the sampling strategy column. Figure 15 shows the likely location of the test to be performed. Appendix A provides more detailed instructions for the test, which are intentionally separated from the SAP content. To address the disparity, propose changing references of "Figure 15" to "Figure 15 and Figure A-1 (in Appendix A)" accordingly.

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12		Section 7.5.2	<p>a. Matrix: Indoor Air: For the vapor intrusion analysis, only indoor air and ambient air samples are proposed: 2 sample locations inside each building, and 2 ambient upwind air samples for a total of 8 T0-15 samples (plus QA/QC samples). The document does not mention whether sub-slab samples have been previously collected in the buildings. If sub-slab samples have not been collected, the collection of sub-slab samples to determine the potential for vapor intrusion at each building is highly recommended. If the sub-slab sample COC concentrations are below levels of concern, these sub-slab sample results would be the data used to determine that vapor intrusion is not a concern at the buildings.</p>	<p>a. Navy understands the value of the additional line of evidence provided by sub-slab samples. However, in general the Navy does not sample through floors of buildings housing active operations. In this case/ at this site, as agreed by the Team, continual explosive operations and spill-proof flooring construction also preclude sub-slab sampling. The Navy has sampled site groundwater in proximity to the buildings, and also collected vadose zone soil vapor samples during the RI at near/adjacent-slab locations of Building 720 and Building 1040, which lie over the highest CVOC groundwater concentrations of the plume. Navy notes that part of the long-term management remedy is to provide for future vapor intrusion evaluations as building occupancy changes or new buildings are constructed, before groundwater CVOC concentrations are below cleanup levels (to be established in FS and documented in ROD). Propose the following additional text in the Sampling Strategy box in Section 7.5.2:</p> <p align="center"><u>Sub-slab sampling not allowed due to explosive site operations and spill-proof flooring construction. Indoor air sampling locations (i.e., structures) ultimately selected by EPA based on proximity (100 feet) to MCL exceedances of TCE and VC in groundwater.</u></p>

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12			<p>b. Indoor air sampling without sub-slab sample results will not provide the data necessary to determine that vapor intrusion will not be an issue in the future, even if current COC concentrations in the indoor air of the buildings are found to be non-detect/acceptable.</p> <p>c. The draft SAP did not provide the square footage of the buildings, or a figure or diagram showing the buildings' uses and characteristics, so it is difficult to determine if the proposed number of indoor air samples is adequate. Using Figure 3, it appears that Buildings 715 and 717 are approximately 10,000 ft² in area. Based solely on the size of the buildings' footprints, both Building 715 and Building 717 should have at least 4 sub-slab samples and 3 indoor air samples collected for adequate spatial coverage. Building 721 appears to be less than 1500 ft². If so, the number of indoor air samples planned for Building 721 is appropriate. Two sub-slab samples would also be appropriate.</p>	<p>b. See above. Navy notes that no data collected during this PDI will provide certainty to ensure no future VI issues. VI issues will be considered resolved when the elevated CVOC concentrations in groundwater are addressed. Further, the groundwater remedy will change the potential VI conditions at any given time (due to changing groundwater CVOC concentrations). EPA specified to the Team the structures from which to collect indoor air samples during the PDI in order to determine if there are any current VI issues. The specification is based on an analysis of the proximity (100 feet) to MCL exceedances of TCE and VC in groundwater.</p> <p>c. Comment noted. See above regarding preclusion of sub-slab sampling at this site. Correct, Building 715 and 717 are workshops each measuring about 0.25 acre, or just over 10,000 ft². The building measurements are tabulated in the VI Evaluation provided as Appendix A in the Draft FS Report. The sampling in question is to evaluate current conditions for workers in (or temporarily, or rarely, in) periphery structures within 100 feet of MCL exceedances of TCE and VC in groundwater. All are on an active, controlled military installation, with this site/area being entirely industrial and military usage. The facility provides for indoor air monitoring at any given time (compliance with OSHA) and also when advised about the CVOCs in soil and groundwater in this area.</p>
13		Section 7.5.2 Page 43	Indoor air: Indoor air sampling should be conducted at a time where any potential stack effects on the building may be heightened. This is typically during the heating season.	<p>Understood. This will be taken into consideration during the sampling effort. The following text will be added to the Sampling Strategy box in Section 7.5.2:</p> <p align="center"><u>Samples should be conducted at a time where any potential stack effects on the building may be heightened (e.g., typically during heating season).</u></p>

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14		Section 7.5.3 Page 43	Subsurface Soil: The number of samples listed below the "Select Metals" row of the Cobalt Investigation shows "same as above". This includes QA/QC samples, however it is unclear if all of the analysis included in this table are scheduled for QA/QC samples per earlier sections of the SAP, please review.	The subject text will be modified (for TOC and pH) to indicate no QA/QC. (same as above, but no QA/QC). All shorthand instances in the table will be reviewed for consistency (also see EPA Comment / Response 10).
15		Section 8.4 Page 55	<ul style="list-style-type: none"> a. Analytical SOP Requirements Table: The VOCs in soil are to be collected into unpreserved sample containers via Terra Core samplers. In order to not use preservatives the samples must be frozen to less than -10°C within 48 hours of sample collection. The table left out the negative in front of the 10°C in the "Preservation Requirements" column b. The "Maximum Holding Time" for VOCs in soil should reflect that the time to analysis is 14 days, only if the sample is frozen within 48 hours, or a preservative is used. c. For several analytes in soil and groundwater, there are very short holding times. It should be mentioned in the SAP how the potential for field work to be conducted during nonstandard working hours will be taken into account to assure that holding times are not exceeded. 	<ul style="list-style-type: none"> a. The preservation information will be checked for accuracy. b. The holding time information will be checked for accuracy and clarity. c. This is understood and was the case through the three phases of the RI. The analyses with the short hold times are only for a subset of the samples (e.g., nitrate, microbial DNA). Navy suggests adding the following text to Section 7.1 – Sampling Schedule to indicate the warning about shorter hold times and sampling/shipping schedules. <u>Note some sample analytes have short holding times for analysis (e.g., nitrate in groundwater), which must be considered if sampling or shipping are to occur during nonstandard working times/days (see Section 8.4).</u> Footnote 3 in Section 8.4 will be revised to add the following warning: <u>Note several analytes have short holding times that must be considered if sampling or shipping are to occur during nonstandard working times/days.</u>

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Re: Draft UFP-SAP for Pre-Design Investigation at Site 43 – Toluene Spill, NSF Indian Head, MD (November 2015)

Comment No.	Page No.	Section, Paragraph, Line, Figure, or Table No.	Comment	Response/Action Taken
16		Section 9.1	The EPA residential soil RSL for TCE is 0.41 mg/kg (based on HQ=0.1 and ILCR of E-6), not 0.96 (which is based on cancer risk of E-6 and HQ=1 and does not account for consideration of exposure to multiple contaminants as stated in footnote 1).	<p>Navy proposes removing the RSL value/reference for TCE and revising Footnote 4 at the end of Section 9 to include the following statement:</p> <p align="center"><u>The residential soil RSL for TCE (0.41 µg/kg based on HQ = 0.1 and ILCR = 1×10⁻⁶) is not considered as a PSL or PAL for this PDI, because the objective is to delineate soil TCE above the site-specific leaching-based PRG.</u></p> <p>The baseline HHRA and RI Report concluded no unacceptable risk from human exposure to TCE in soil. TCE is problematic in soil due to migration of TCE to groundwater in the source area.</p> <p>These VOC soil samples are being collected during this PDI to refine the VOC source area treatment zone limits (or excavation area and depth limits). The leaching cleanup value of 300 µg/kg for TCE in soil is in the same column/cell, and should be the only value considering the DQO. The site-specific TCE soil remediation goal of 300 µg/kg is calculated in the Draft FS Report with dilution attenuation factor (DAF) of 9.</p>
17		Section 9.3	Recommend using the industrial air RSL of 0.88 µg/m ³ (based on HQ=0.1 and ILCR of E-6), as the buildings to be sampled appear commercial/industrial. The RSL included in the table in Section 9.3, 0.48 µg/m ³ , is based on residential cancer risk, and the selection of the air RSL did not consider noncancer effects and exposure to multiple contaminants, as stated in footnote 1 (which would result in residential air RSL of 0.21 µg/m ³)	Current conditions are indeed military/industrial. Therefore, the industrial air RSLs will be used as PSLs considering the objective of the indoor air sampling is to determine if there are vapor intrusion issues under current conditions.

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Comment No.	Page No.	Section, Paragraph, Line, Figure, or Table No.	Comment	Response/Action Taken
18		Section 9.3 and Appendix B	<p>a. Matrix: Indoor Air: For TCE and vinyl chloride, the Project Screening Limit and/or Project Action Limit is between the laboratory Limit of Quantitation and the Limit of Detection. Are samples to be analyzed using T0-15 SCAN or T0-15 SIM? T0-15 SIM yields the lowest possible detection limits</p> <p>b. Appendix B contains the site-specific SOP for the collection of indoor and ambient air samples using stainless steel canisters with analysis by EPA Method T0-15. If sub-slab samples are to be collected, the SOP for sub-slab sampling should also be included in the Appendix</p>	<p>a. TO-15 Full Scan is planned. However, TO-15 SIM likely can be accommodated. The Limit of Detection (LOD) for Scan is 0.54 µg/m³ (vs. 0.48 µg/m³ RSL) for TCE and is 0.26 µg/m³ (vs. 0.17 µg/m³ RSL) for VC.</p> <p>Subsequent data will be “J”-flagged and will be accepted to achieve project goals; however, greater scrutiny will be applied in these cases. In cases where the laboratory LODs are greater than the PSLs, if the analyte is not detected, the LOD will be reported and "U"-qualified. An evaluation of these analytes may be presented in the PDI summary report to explain any uncertainty regarding the associated data evaluation.</p> <p>b. Sub-slab sampling is not proposed as part of the PDI.</p>
19		Figure 5	<p>Cross Section A-A': This figure does not reflect the apparent groundwater divide present on the potentiometric map, and discussed in the text. Double check the water elevation presented for monitoring well MW28. This may be a result of the cross section being presented as feet bgs rather than elevation.</p>	<p>Agree. The water level for MW28 on Figure 5 is erroneous and will be corrected. The corrected figure does indeed show a conceptual divide or mounding effect expected.</p> <p>Note the groundwater divide is only a gross estimate based on the 1992 Preliminary Assessment document, and underground water pipe breakages also have affected local groundwater flow.</p>
20		Figure 15	<p>Injection Distribution Test Area: This figure depicts the pink dashed line as being the inferred CVOC contour. It should be listed as the inferred cobalt contour.</p>	<p>Legend will be corrected.</p>

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Comment No.	Page No.	Section, Paragraph, Line, Figure, or Table No.	Comment	Response/Action Taken
21		Appendix B	<p>a. Site-Specific SOP - SUMMA Canister Air Sampling Procedure: The SOP states that an acceptable Summa Canister is one that has a vacuum of 30 psig Hg or greater, and a vacuum less than -30 psig Hg is unacceptable. Please note that most laboratories evacuate canisters to only a vacuum of -30 in Hg, and canisters with vacuums in the range of -28 in Hg to -30 in Hg are considered to be acceptable. While the optimum vacuum is -30 in Hg, in the field you may find that some of the canisters are at -29 in Hg, and setting a stringent tolerance limit may automatically invalidate many of the Summa canisters for use. If the tolerance limit remains at -30 in Hg or greater, please ensure that the laboratory is aware of this criterion so that the canisters will be properly prepared.</p> <p>b. If a Summa canister reaches zero/equilibrium during sampling, the sample is considered to be compromised and should be recollected.</p> <p>c. Duplicate indoor and ambient air sample canisters are collocated (e.g. side-by- side without sharing a connection).</p>	Understood and noted. This will be checked/confirmed with the laboratory.

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Comments By Curtis DeTore, RPM, MDE	Responses By Boyd Allen, KGS, and Ed Corack, Tetra Tech
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Comment No.	Page No.	Section, Paragraph, Line, Figure, or Table No.	Comment	Response/Action Taken
1		Section 4.2.1 Page 22 First Paragraph First Sentence	Text states that the area is underlain by unconsolidated sand, gravel, and clay from the Pleistocene and Cretaceous Periods. According to the universally accepted geological time scale, the Cretaceous is a Period while the Pleistocene is an Epoch. Please correct this error.	The error will be corrected.
2		Figure 15	The legend of this figure labels the dashed pink line as the inferred CVOC contour, and the solid purple line as the CVOC contour. The dashed pink line should be labeled as the inferred cobalt contour and the solid purple line should be labeled as the VOC contour. In addition, the legend calls out a dashed purple line, but does not label it. This dashed purple line should be labeled as the inferred VOC contour.	The figure will be revised accordingly. Also, the colors will be changed to provide more contrast (see NSF IH Comments/ Responses 4 and 5).