

**RESPONSE TO COMMENTS
 NAVAL SHIPYARD LONG BEACH, CALIFORNIA
 DRAFT GROUNDWATER INVESTIGATION WORK PLAN
 FOR IRP SITES 9, 12, AND 13**

May 12, 1997

Comments by: Martin Hausladen, United States Environmental Protection Agency
 Response by: Kimberly Ostrowski, SWDIV, Ed Morelan, BNI, and Steven Draper, KA

Number	Comment	Response
COMMENTS		
1	<i>Figure 3-5. Compound concentrations exceeding Region IX PRGs for tap water are flagged. However, the work plan states that data is to be screened against either California Ocean Plan criteria or Risk-Based Concentrations (RBCs) for upper interval groundwater and California Ocean Plan criteria or MCLs for lower interval groundwater. Please flag data using criteria relevant to the work plan.</i>	<i>We concur with this comment. Figure 3-5 (page 3-11) will be modified to show detected concentrations screened against the lower criteria given by either the California Ocean Plan or the risk-based evaluation performed as a part of preparation of this Draft Work Plan.</i>
2	<i>Section 3.2.2.1 and Figure 3-11. Figure 3-11 does not show all of the arsenic impacted samples that are discussed in this section. For example, there is no data posted for SB-12-01, SB-12-04, or HP-12-34. Please include the detected concentrations of arsenic at these locations on Figure 3-11.</i>	<i>Figure 3-11 (page 3-29) does not show the distribution of inorganic analytes above background for soil in the former drum crushing area or in close proximity to this area (e.g. SB-02-01, SB-12-04, and HP-12-34 are missing). The analytical results for the former drum crushing area were not included on Figure 3-11 because elevated concentrations of arsenic were detected in both the soil and groundwater in this area during the remedial investigation (RI). Therefore, the question of source for the elevated concentrations of arsenic in groundwater in the former drum crushing area is not an issue. Figure 3-11 shows the analytical results from the area of interest for this Supplemental Groundwater Investigation (SGI) where elevated concentrations of arsenic were detected in the groundwater but not in the soil. In the area of interest for this SGI the source of the elevated concentrations of arsenic in groundwater was not identified by the RI. The area of interest for this investigation is up-gradient of the former drum crushing area; therefore, the elevated concentrations of arsenic detected in soil beneath the former drum crushing area is not the source of the elevated concentrations of arsenic in groundwater in the area of interest for this SGI. Because these sample points are mentioned in the text, Figure 3-11 will be modified to show the RI inorganic analytical data for soil samples collected from Installation Restoration Program (IRP) Sites 12 and 13 (including the former drum crushing area).</i>

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3	<p><i>Section 3.2.2.2 and Figure 3-12. Figure 3-12 shows seven samples with arsenic above background, however, only five sample locations are discussed in the text. Also, the sample results box for SP-12-16 is not connected to any of the points on the map.</i></p> <p><i>There is no sample results box for HP-12-01 on Figure 3-12, but this figure is cited in the sentence discussing this sample in the second paragraph on page 3-35.</i></p>	<p><i>We concur with this comment. This discrepancy is the result of HP-12-20 and HP-12-24 (initial and confirmatory samples locations) being treated as a single sample location in the text and the exclusion of discussion on SP-12-08 because this sample location is in the former drum crushing area (see response to Comment 2). Soil samples from the former drum crushing were identified in the RI as having elevated arsenic concentrations which could serve as the source of the elevated arsenic concentrations in the groundwater detected beneath the former drum crushing area but not in the area to be investigated under this study. Because the source of arsenic was identified by the RI no further discussion was presented for this area in the Draft Work Plan. The text of the Draft Work Plan will be modified to identify HP-12-20 and HP-12-24 as two distinct samples collected from almost the same location. Additional text indicating that SP-12-08 is located in the former drum crushing area where the source for the elevated arsenic in groundwater has been identified will be added to Section 3.2.2.2 of the Draft Work Plan. Also, Figure 3-12 will be modified to show a line connecting the analytical results box for SP-12-16 to a sample location on the map.</i></p> <p><i>The first sentence of the second paragraph on page 3-35 will be modified to read as follows:</i></p> <p><i>“A groundwater sample from the upper interval in the southwestern portion of IRP Site 12 (HP-13-01 at 19- to 22-feet bgs) contained...”</i></p>

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4	<i>Section 3.3.1.2, p. 3-36 and Section 3.4.1.2, p. 3-41. Please explain why the defined boundary of GWAOPC 4 is very small on Figure 3-14 when neither the horizontal nor the vertical extent of contamination have been determined.</i>	<i>The boundary of Groundwater GWAOPC 4 is within acceptable limits, based on the existing RI data for the Long Beach Naval Shipyard (LBNSY). If 1,1-dichloroethane (1,1-DCA), or any other chlorinated VOC, is confirmed as being present at concentrations above the screening criteria in the lower coarser-grained, water-bearing interval (lower interval) to the south of Building 129 during the initial field effort of the SGI, then further investigation of the lower interval will be performed and the limits of GWAOPC 4 will be adjusted as needed. However, any additional investigative effort(s) will take into account the hydrogeologic conditions for the lower interval, based on the five monitoring well clusters installed during the initial portion of the SGI and the established screening criteria. The extent of chlorinated VOC-impacted groundwater in the lower interval (if present) will be defined by using the appropriate screening criteria for the lower interval. These screening criteria will be based on the existing hydrogeology of the lower interval in the area of the shipyard (see Section 2.2 of the Work Plan).</i>
5	<i>Section 4.1.2.3. It is not clear which monitor wells will be installed to determine the groundwater flow direction and hydraulic gradient in the lower coarser-grained, water bearing interval and which wells are proposed to investigate the 1, 1-DCA detection. The text (bottom of page 4-31 and top of page 4-32) says that Figure 4-1 includes monitor well locations to refine the groundwater conceptual model for the 1,1-DCA plume, but no wells are shown on Figure 4-1 in the GWAOPC-4 area. Please explain and add the proposed wells to Figure 4-1.</i>	<i>The Draft Work Plan calls for the installation of five monitoring well clusters in the area surrounding IRP Site 9 (including the area of GWAOPC 4) during the initial portion of the SGI. The locations of the five monitoring well clusters are shown on Figure 4-1. These five monitoring well clusters will be used to evaluate groundwater flow direction and hydraulic gradient in the lower interval beneath the entire IRP Site 9 area (including the GWAOPC 4). In addition, groundwater samples will be collected from these well clusters and analyzed for VOCs. These data will be used in conjunction with the existing RI analytical data and the Hydropunch®-like analytical data collected to the south of Building 129 during the initial portion of the SGI to refine the conceptual groundwater model beneath GWAOPC 4 area. The planned monitoring wells shown on Figure 4-1 are only for the initial characterization of the hydrogeology of the lower interval. If hydrogeologic conditions and the screening criteria suggest that additional wells are necessary, then additional monitoring wells will be</i>

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		<i>installed as needed.</i>
6	<i>Section 4.1.2.4, p. 4-32, last paragraph. It is possible that chlorinated solvents other than 1,1-DCA are present in the lower aquifer. All groundwater samples from the lower aquifer should be analyzed for the full suite of chlorinated solvents included in the 8010/8020 method, not just 1,1-DCA as stated in the third and fourth sentences. Please modify the fourth sentence to include the full range of chlorinated VOCs in the 8010/8020 list.</i>	<i>We concur with this comment. Section 4.1.2.4 (page 4-32) last paragraph, fourth sentence will be modified to read as follows: "The chemicals of interest for the lower interval are benzene, ethylbenzene, xylenes, total petroleum (TPH), total recoverable petroleum hydrocarbons (TRPH), and chlorinated VOCs."</i>
7	<i>Section 4.2.3, p. 4-46 and Section 6.3.1.2, p. 6-3. Please note that in order to obtain the most accurate data, field parameters DO and Eh must be measured in a flow through cell instead of open containers because any exposure to the atmosphere immediately changes the value of these parameters.</i>	<i>We concur with this comment. Groundwater samples will be collected from Hydropunch®-like sample locations at IRP Sites 12/13 using a peristaltic pump. The water from the pump will then be passed into a flow-through cell where select geochemical parameters will be measured. Dissolved oxygen (DO) and redox potentials will be measured in the field at the Hydropunch®-like locations using a flow-through cell when groundwater recharge rates permit the use of the pump and flow-through cell.</i>
	<u>APPENDIX A - DRAFT QUALITY ASSURANCE PROJECT PLAN</u>	
1	<i>In general, the Quality Assurance Project Plan is well written and complete.</i>	<i>Review comment is acknowledged.</i>
2	<i>All SOPs involving sample collection, handling, field measurements, etc. referenced in the document should be included as an appendix to either the QAPP or the Field Sampling Plan to ensure field personnel have proper instructions.</i>	<i>As indicated in the Introduction (Section 1, page 1-1) of the Draft Work Plan this investigation is a supplement to LBNSY RI. This Work Plan is intended to clearly identify the remaining issues needing to be addressed and the approach to be taken in resolving these issues using existing plans and reports. A description of the procedures for this investigation already exist as part of the RI documents and have been summarized in the Draft RI Report. In an effort to reduce redundancies</i>

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		<i>in documents, referenced SOPs will not be included in either the Quality Assurance Project Plan (QAPP) or the Field Sampling Plan (FSP) as an appendix. However, consistent with past field operations, a copy of the SOPs will available in the field for reference during the SGI. Additionally, as part of BNI's CLEAN II procedures, Quality Assurance (QA) audits are performed during field investigation activities. The audits check field procedures and are intended to assure that field personnel are following correct procedures.</i>
3	<i>Section A.6.2.3, p. A-29. The comment that only 10 percent of the manually input data will be internally verified is not adequate and would result in missing input errors. The manually input data should be entered by double-blind hand entry, and the resulting files must then be compared by computer to eliminate discrepancies. Alternatively, all hand entered data must be checked.</i>	<p><i>Section A.6.2.3 (page A-29) refers to data validation, not data verification. Section A.6.2.1 (entitled "Data Verification") of the Draft Work Plan calls for 100-percent manual verification of the electronic data (meaning all data entered into the project environmental data base) against hard-copy data reports. This means that all of the electronic data in the data base whether it was supplied in an electronic format or in a hand-written format will be checked against the corresponding paper copy to verify that all data correspond. If discrepancies are detected, then the discrepancies will be resolved, corrected as needed, and the nature of the correction documented.</i></p> <p><i>The "10-percent" called for in Section A.6.2.3 refers to 10-percent of laboratory data packages being submitted to an independent third party subcontractor to be validated at Quality Control (QC) Level IV as defined by the U.S. EPA. The percentage of the data packages being submitted for validation at a certain level (QC) is not the same as verification of data, which is the checking of the information in the electronic data base to verify that data entry errors do not exist. Also, as stated in Section A6.2.3, the remaining 90 percent of the stationary data will be validated at QC Level III.</i></p>

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Comments by: J. E. Ross, RWQCB, L.A. Region

Response by: Kimberly Ostrowski, SWDIV, Ed Morelan, BNI, and Steven Draper, KA

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1	<p><i>The screening criteria described in Section 2.2.2.2 should be based on the beneficial use of the groundwater. If the investigation determines that the groundwater flow direction in the lower aquifer is towards the Harbor, then the California Ocean Plan criteria would be appropriate. However, if the groundwater is recharging the West Coast Basin, drinking water MCLs would apply. We understand that the appropriate screening criteria can not be determined until the proposed monitoring wells are installed. Therefore, as an interim measure, during the initial portion of the investigation into the lower aquifer, the Navy should consider adopting whichever screening criteria is more stringent for the chemicals of concern.</i></p>	<p><i>The Regional Water Quality Control Board (RWQCB) comment is noted. However, consistent with other Long Beach Naval Complex investigations, groundwater which has total dissolved solids (TDS) concentrations greater than, or equal to, 3,000 milligrams per liter (mg/L) is generally no longer considered suitable for use as drinking water. Elevated TDS concentrations in the lower coarser-grained, water-bearing interval (lower interval) would imply that this groundwater has been significantly intruded by seawater and therefore would be subject to the same utilization priorities as the groundwater from the shallow interval (i.e., identification of the aquatic setting as the more sensitive receptor).</i></p> <p><i>We concur with the RWQCB that all hydrogeologic data should be considered when making the final selection of screening criteria for the lower interval. At the time of screening criteria selection, both the TDS concentrations and the flow direction of groundwater in this interval will be considered.</i></p>
2	<p><i>Figure 3-8 indicates that the base of the benzene contamination at SP-9-04 is not defined. In order to rule out the SP-9-04 area as a source for the benzene in the lower aquifer, we will require that the vertical extent of the shallow benzene contamination be defined, and a "clean zone" below the plume is identified.</i></p>	<p><i>The comment is acknowledged. However, all of the data collected to date indicate that the benzene detected in the upper coarser-grained, water-bearing interval (upper interval) in the area of SP-9-04 is not the source of the benzene detected in the lower interval. These data include: 1) the limited lateral extent of the benzene detected in the upper interval versus the distribution of benzene noted in the lower interval, 2) the differences in the ratio of benzene to other associated compounds between the two water-bearing intervals, most notably benzene and ethylbenzene, 3) chemical concentration gradients which show benzene concentrations dramatically decreasing with depth (to almost non-detect) in the upper interval, 4) the presence of the fine-grained, water-bearing interval (fine-grained interval) beneath this portion of the Long Beach Naval Complex, and 5) comparisons of concentration ratios and solubilities of various compounds detected in association with benzene</i></p>

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		<i>In the lower interval that imply the source area is located somewhere to the north-northwest of IRP Site 9. Therefore, we believe that no further intrusive work is necessary in this area.</i>
3	<i>The groundwater around the recently excavated USTs north of Building 128 and 129 is known to be contaminated. Groundwater characterization at these two sites were deferred, at the Navy's request, to this investigation. Please indicate which proposed soil gas samples, hydropunch-type samples or groundwater monitoring wells, if any, will address these former UST sites. Also, indicate the status of the 1,000 gallon paint waste UST at Building 216, and whether the contamination being linked to it is being addressed.</i>	<i>The Navy recognizes the need to perform an investigation at the underground storage tank sites north of Building 128. However, this effort is currently planned to be performed under a scope of work separate from that of this CTO. Therefore, a description of the scope of work associated with the characterization of soils and groundwater in this area is not presented in this Work Plan.</i> <i>According to the Final Environmental Baseline Survey prepared by Shipyard personnel in November of 1996, the 1,000-gallon paint waste sump at Building 216 (identified as tank 216.1) is listed as closed in place and inactive. After the demolition of Building 216 in 1993, the tank was emptied of all its contents, cleaned out, and the sump was sealed in place to minimize the potential for rain water to collect in the bottom of the open sump.</i>
4	<i>Please indicate whether the solvent sump behind Building 129 is being investigated as a source for the shallow groundwater contamination. Include soil gas sampling points in the vicinity of the sump and soil sampling directly below the sump.</i>	<i>Hydropunch®-like groundwater samples will be collected to the south of the southeastern corner of Building 129 at the location of the sump in this area. At present, it is planned that two samples will be collected at this location, one at the top of the finer-grained, water-bearing interval (finer-grained interval) and one at the top of the lower interval. A shallow (9 to 12 feet below ground surface[bgs]) groundwater sample has already been collected in the area of the sump at sample location HP-9-14.</i>
5	<i>Indicate the number, or percentage, of samples that will be sent to the off-site laboratory for confirmatory analysis. Also, please notify us as to when the mobile laboratories will be on site.</i>	<i>Approximately 10-percent of the groundwater samples collected and submitted to the on-site laboratory for VOC analysis will also be submitted to the stationary laboratory for confirmation analysis. It is anticipated that one confirmatory groundwater sample will be collected from the perimeter of the chlorinated VOC-impacted groundwater (plume[s]) in the Groundwater Area(s) of Potential Concern (GWAOPC) situated in the area IRP Site 9. Chlorinated VOC-impacted groundwater</i>

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		<p><i>is defined here as groundwater with chlorinated VOC concentrations greater than their respective screening criteria. The confirmatory samples will be submitted to the stationary laboratory for VOC analysis using U.S. EPA Method 8260A. The results of the confirmatory sampling will be used to evaluate if the limits of chlorinated VOC-impacted groundwater have been defined.</i></p> <p><i>The RWQCB will be notified as to when the mobile laboratories will be in the field analyzing samples.</i></p>
6	<p><i>Section 4.1.1.5 states that a condition for limiting the VOC investigation to the upper interval is if a vertical gradient is not present. We believe that the decision should also be based on whether VOCs are present at the base of the upper interval, on the existence of a vertical gradient between the upper and lower water bearing units, and whether a significant source exists, or existed.</i></p>	<p><i>Section 4.1.1.5 (page 4-19), second sentence indicates that two criteria must be present for the investigation of chlorinated VOCs to be limited to the upper interval. The two criteria are the presence of a continuous fine-grained, water-bearing interval (fine-grained interval) and the lack of a downward vertical gradient. Note both these criteria must be met for the investigation of the chlorinated VOCs in the lower interval to stop.</i></p> <p><i>We concur with the RWQCB in that groundwater sampling should be performed at the base of the upper interval at the Hydropunch® locations; evaluation of these data will play a role in determining the need for further investigation.</i></p>



DEPARTMENT OF THE NAVY

LONG BEACH NAVAL SHIPYARD
300 SKIPJACK RD
LONG BEACH, CALIFORNIA 90822-5099

IN REPLY REFER TO:

5090
SER 1170/220
May 15, 1997

California Environmental Protection Agency
Department of Toxic Substances Control
245 W. Broadway, Suite 350
Long Beach, CA 90802-4444
Attn: Alvaro Gutierrez

Dear Mr. Gutierrez:

Enclosed please find two (2) copies of the Responses to Agency Comments regarding the Draft Groundwater Investigation Work Plan for Installation Restoration Sites 9, 12 and 13 at the Long Beach Naval Shipyard for your review and distribution. Your input regarding these responses would be appreciated by May 22, 1997.

For questions or concerns regarding this document, please contact Ms. Kimberly Ostrowski, Southwest Division, Naval Facilities Engineering Command at (619) 532-2004, extension 15, or Edward Morelan of Bechtel National, Inc., at (562) 807-2213.

Sincerely,

A handwritten signature in cursive script that reads "C. Anna Ulaszewski".

C. Anna Ulaszewski
BRAC Environmental Coordinator
By direction of the Commanding Officer

Encl:

Responses to Agency Comments Regarding the Draft Groundwater Investigation Work Plan for Installation Restoration Sites 9, 12 and 13, Long Beach Naval Shipyard, Long Beach, California

Additional Distribution:

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Ms. Anna Ulaszewski, LBNSY (1 copy)
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BECHTEL NATIONAL INC.

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Contract No. N-68711-92-D-4670

Document Control No. CTO-0123/0045

File Code: 0218.1

TO: Commanding Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 57CS.RS
Building 128
1220 Pacific Highway
San Diego, CA. 92132-5187

DATE: 19 May 1997
CTO #: 0123
LOCATION: Long Beach Naval Shipyard

FROM: *Doris Kamy*
Program / Project Manager

Operations Manager

DESCRIPTION: Response to Agency Comments Regarding the Draft Groundwater Investigation Work Plan for Installation Restoration Sites 9,12, and 13 at the Long Beach Naval Shipyard, dated May 12, 1997

TYPE: Contract Deliverable _____ CTO Deliverable _____ Other: X
(Cost) (Technical)

VERSION: Draft REVISION No: N/A
(e.g., Draft, Draft Final, Final, etc.)

ADMIN RECORD: Yes No U.S. EPA Category _____ Confidential _____
(PM to Identify)

SCHEDULED DELIVERY DATE: 05/19/97 ACTUAL DELIVERY DATE: MAY 22 1997

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