RESPONSE TO COMMENTS
DRAFT PROPOSED PLAN/DRAFT REMEDIAL ACTION PLAN
FORMER LONG BEACH NAVAL SHIPYARD, IRP SITE 9
LONG BEACH, CALIFORNIA

Originator: Sue Hakim, Remedial Project Manager Department of Toxic Substances Control RPM, Base Closure and Reuse Unit Department of Toxic Substances Control **Date:** Letter dated 22 August 2003	**CLEAN 3 Program** **Contract No. N68711-95-D-7526** **CTO-0039/0051** **File Code: 02221**

COMMENTS	*RESPONSES TO COMMENTS*
We do not find the Navy's presentation persuasive. The presence of vinyl chloride in groundwater indicates that conditions at Site 9 favor its formation. We know of no evidence to suggest that conditions at Site 9 favor the degradation or attenuation of vinyl chloride in groundwater. Indeed, abundant evidence at many coastal bases in California suggests that vinyl chloride is quite stable in groundwater without active intervention, such as bioremediation or vapor extraction (e.g. Naval Base Ventura County, former Naval Air Station Alameda, etc.). If DTSC is to accept the Navy's proposal for passive monitoring of groundwater at Site 9, then we must see some evidence that natural attenuation is occurring or is likely to occur. Does the Navy have any such evidence? Are levels of vinyl chloride continuing to rise at Site 9? Are they stable or decreasing? Do microbiological or redox conditions in soil or groundwater at this site suggest that degradation of vinyl chloride is likely? Can the Navy describe how long it might take for dispersion alone to bring concentrations in the current plume of vinyl chloride down below the criteria in the Ocean Plan? In asking for an analysis of fate and transport in our comment, we were not making a request; we were stating an absolute minimum requirement for the acceptance of passive monitoring as a remedy at Site 9.	The discussion of potential risk to the marine environment in the Draft PP/Draft RAP was not intended to be as detailed as in the final FS Report (BNI 2002). In the draft final FS Report (BNI 2001), Appendix E, the DON addressed comments by DTSC dated March 2000 and November 2000 regarding evidence of conditions favoring natural attenuation of chlorinated VOCs, the potential for vinyl chloride buildup in groundwater, and the results of fate and transport analysis for soil and groundwater COCs at Site 9. The following discussion reviews these and presents additional observations. The DTSC acknowledged that all comments had been addressed and were included in the draft final FS Report in comments dated 10 September 2001. ***Is natural attenuation occurring or likely to occur?*** Conditions at Site 9 are reducing, which is favorable for the natural attenuation of chlorinated VOCs. The detection of carbon disulfide at several locations within IRP Site 9 suggests that biodegradation of organic compounds is actively occurring in the subsurface (BNI 2001). Groundwater quality parameters of temperature, pH, oxidation/reduction potential (ORP), dissolved oxygen (DO), sulfide, sulfate, iron (II), and nitrate were reviewed in the Supplemental Groundwater Investigation (SGI) Report (BNI 1999). These parameters were considered indicative of reducing conditions favorable to reductive dehalogenation of the chlorinated VOCs, according to U.S. EPA protocols. Subsequent review of the ORP data provided by the quarterly groundwater monitoring program indicates that these conditions continue to be favorable for natural attenuation.

	Are levels of vinyl chloride stable, increasing, or decreasing? Levels of vinyl chloride are stable. The August 2000 groundwater monitoring report stated that no trend in vinyl chloride concentrations, whether increasing or decreasing, had been identified since the inception of the quarterly groundwater monitoring program in 1999 (BNI 2001). This suggests that if vinyl chloride is being produced by breakdown of other VOCs, it is also breaking down at a similar rate, resulting in stable levels. The suite of analytes for groundwater monitoring will be amended during the remedial design phase commensurate with monitored natural attenuation as the preferred remedy and based on U.S. EPA protocols for evaluating natural attenuation of chlorinated solvents in groundwater. The analyte suite will include nitrate, sulfide, sulfate, iron (II), methane, ethene/ethane, dissolved organic carbon, hydrogen, and other water quality parameters, such as degradation products of vinyl chloride, as necessary. The analytical results will provide data to determine the degree to which the groundwater environment is capable of reductive dechlorination, verify the presence and determine the rate of anaerobic dechlorination of the COCs, and estimate rates at which vinyl chloride is being created, destroyed, and partitioned from groundwater to soil under the existing site conditions. Monitoring over a period of years may be necessary before the rates of change caused by relatively slow natural processes can be determined. ***Do microbiological or redox conditions suggest that degradation of vinyl chloride is likely?*** Given the reducing conditions at Site 9 it is likely that vinyl chloride will degrade to harmless byproducts. Groundwater data to determine whether vinyl chloride has been degraded to harmless byproducts such as ethylene, chloroethane, and carbon dioxide will be collected during the groundwater monitoring program when the program is resumed. ***How long might it take for dispersion alone to bring vinyl chloride concentrations down to below the Ocean Plan criteria?*** Modeling has not been conducted to determine how long it would take for dispersion alone to bring vinyl chloride concentrations to levels below the cleanup goal. At this time, the data necessary to determine the rate at which natural attenuation of chlorinated VOCs is occurring beneath IR Site 9 are not available. The quarterly groundwater monitoring program in 1999 – 2000 was

	designed to track contaminant concentrations and distribution in the groundwater over time, not provide all the data needed to determine these rates. A fate and transport analysis was performed during the RI for IRP Site 9, GWAOC 1, and soil areas of potential concern (AOPCs) 1, 2, and 3. The analysis was a complete evaluation of both soil and groundwater COC concentrations reported for the site at that time. The results of the analysis likely remain valid and are useful in predicting the fate and transport of GWAOC 1 groundwater COCs alone despite additional data collected during the SGI. The vadose zone leaching screening analysis (by Summers Model) considered the maximum concentration of the COPCs reported in groundwater in addition to the concentration of the COPCs contributed in the potential leachate from AOPCs 1, 2 and 3. The groundwater COPC concentrations already include contributions from any leachate generated at upgradient potential source areas. The result of the modeling indicated that the projected maximum contaminant concentrations that could be in groundwater beneath the site would not exceed California Ocean Plan (COP) criteria for any of the COCs. This result is still valid without considering the contribution of soil COCs. The SGI subsequently reported significantly higher concentrations of vinyl chloride and two other chlorinated VOCs in shallow groundwater than were reported during the RI. These results were reported for GWAOC 2, in delineating the contaminant plume north of Buildings 130 and 131. Vinyl chloride was reported in 9 out of 24 groundwater samples collected in GWAOC 2. Two of these results exceeded the available COP criterion of 36 µg/L set for human health (30-day average) based consumption of marine organisms only. The screening value for vinyl chloride in upper interval groundwater at Site 9 used in the SGI (0.579 µg/L) was selected from the lowest value in comparison with COP criteria and the site-specific risk-based criteria calculated for maintenance/utility worker exposure. None of the potential source soil areas identified for this plume, AOPCs S-1 through S-3, had soil COC concentrations that could impact groundwater quality at concentrations above COP criteria. The estimated age of the release, contaminant distribution (few primary contaminant detections and at low concentrations relative to vinyl chloride), and the wide lateral plume extent relative to the local groundwater flow direction were cited as evidence that the plume was the end product of substantial biodegradation in the reducing conditions present in the groundwater. This plume is, therefore, not expected to increase in contaminant levels, but degrade further. The new maximum concentrations of the other contaminants reported during the SGI for this plume

	do not exceed their respective criteria and therefore were not identified as COCs. ***Summary*** From the foregoing discussion, the DON believes that the final FS Report and Proposed Plan/RAP provide sufficient information to propose monitored natural attenuation as the selected remedy without estimating the rate at which COCs are degrading with the limited data presently available. Such estimates at this time would be speculative at best, and because of the high degree of uncertainty, would be of little importance in the overall selection process. The alternative selection process allows modification of the alternative in the event that groundwater monitoring data suggest monitored natural attenuation would be ineffective in meeting the remedial action objectives. If additional response action becomes necessary to address an increasing trend in vinyl chloride concentrations and maintain the effectiveness of the remedy, close coordination with state and federal regulatory agencies, and future landowners, will be required to determine the action to be taken.

DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-5190

5090
Ser 06CA.JV/1273
September 10, 2003

Ms. Sue Hakim
California Environmental Protection Agency
Department of Toxic Substances Control
5796 Corporate Way
Cypress, CA 90630

Dear Ms. Hakim:

Subj: RESPONSE TO COMMENTS ON THE DRAFT PROPOSED PLAN/DRAFT REMEDIAL ACTION PLAN, INSTALLATION RESTORATION PROGRAM SITE 9, FORMER LONG BEACH NAVAL SHIPYARD, LONG BEACH

Enclosed for your review is a response to your letter of August 22, 2003 regarding the Draft Proposed Plan/Draft Remedial Action Plan (PP/RAP) for Installation Restoration (IR) Program Site 9, Former Long Beach Naval Shipyard, Long Beach, California (enclosure 1). The above-mentioned letter pertained to your review of the responses to agency comments we submitted to you August 22, 2003.

Please send confirmation that your additional comment has been satisfactorily addressed to Ms. Jennifer Valenzia by September 15, 2003. We plan to submit a draft final copy of the PP/RAP on or before September 22, 2003 in order to finalize and distribute the document in time to host the public meeting as scheduled on October 22, 2003. If you have any questions, please contact Ms. Valenzia at (619) 532-0919.

Sincerely,

THOMAS L. MACCHIARELLA
BRAC Environmental Coordinator
By direction of the Commander

Encl: (1) Response to Comments on the Draft Proposed Plan/Draft Remedial Action Plan, Installation Restoration Program Site 9, Former Long Beach Naval Shipyard, Long Beach, California

5090
Ser 06CA.JV/1273
September 10, 2003

Copy to:
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California Environmental Protection Agency
Department of Toxic Substances Control
5796 Corporate Way
Cypress, CA 90630

Ms. Ana Veloz-Townsend
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Mr. Martin Hausladen
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

Ms. Christine Houston
The Port of Long Beach
P.O. Box 570
Long Beach, CA 90801

CLEAN 3 Program
Bechtel Job No. 23818
Contract No. N68711-95-D-7526
File Code: 0214
IN REPLY REFERENCE: CTO-0039/0051

September 10, 2003

Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Ms. Karen Rooney, Code 02R1
1220 Pacific Highway
San Diego, CA 92132-5190

Subject: Response to Comments on the Draft Proposed Plan/Draft Remedial Action Plan, Installation Restoration Program Site 9, Former Long Beach Naval Shipyard, Long Beach

Attention: M. Orpilla, 06B2.MO, Contracting Specialist

Dear Ms. Rooney:

On behalf of the Navy, Bechtel Environmental, Inc. (BEI) is submitting the Response to Comments on the Draft Proposed Plan/Draft Remedial Action Plan, Installation Restoration Program Site 9, Former Long Beach Naval Shipyard, Long Beach, dated 22 August 2003.

At the direction of the Navy RPM, Ms. Jennifer Valenzia, BEI has transmitted copies of this Response to Comments to the SWDIV staff identified on the Transmittal/Deliverable Receipt and to the appropriate participating agencies under a separate cover letter for review.

We look forward to the Navy's comments on this draft document. If you have any questions regarding this transmittal, please contact Elizabeth Barr at (619) 744-3037 or me at (619) 744-3078.

Sincerely,

Robert J. Tait
Project Manager

Enclosure

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BECHTEL ENVIRONMENTAL, INC.

CLEAN 3 TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N-68711-95-D-7526 **Document Control No.** CTO-0039/0051

File Code: 0214

TO Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Ms. Karen Rooney, Code 02R1
1220 Pacific Highway
San Diego, CA 92132-5190

DATE: September 10, 2003
CTO #: 039
LOCATION: Former LBNSY

FROM: Robert J. Tait, Project Manager

DESCRIPTION: Response to Comments on the Draft Proposed Plan/Draft Remedial Action Plan Installation Restoration Program Site 9

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

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