JACOBS ENGINEERING GROUP INC.

M60050.001177

CLEAN I TRANSMITTAL/DELIVERABLE RECEIPT

M60050.001177
MCAS EL TORO
SSIC # 5090.3

CONTRACT N68711-89-D-9296

DOCUMENT CONTROL No.: CLE-C01-01F145-B14-0002

TO: Commanding Officer
Naval Facilities Engineering Command
Southwest Division
Ms. Alice Barker, Code 0232.AB
Contracts Department, Building 131
1220 Pacific Highway
San Diego, California 92132-5187

DATE: 29 November 1995
CTO#: 0145
LOCATION: MCAS El Toro

FROM: John Dolegowski/Project Manager

Ken Tomeo/Resource Center Manager

DESCRIPTION: Response to Comments received from the Department of Toxic Substances Control (DTSC) and the United States Environmental Protection Agency (EPA) regarding the Remedial Investigation/Feasibility Study (RI/FS) Draft Operable Unit (OU-1) Baseline Human Health **Risk Assessment** (HHRA) Report for MCAS El Toro dated 01 July 1994

TYPE: ___ Contract Deliverable ___ CTO Deliverable X Request for Change/ Project Note/Other (Circle one)

VERSION: ___ (e.g. Draft, Draft Final, Final, etc.)

REVISION #: ___

ADMIN RECORD Yes X No X Category ___ Confidential ___
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(Required only for Deliverables and Cost Proposals)

ACTUAL DELIVERY DATE: 30 November 1995
(Required for all deliveries)

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A. Piszkin - Code 1831.AP w/attach	M. Bitner - CH2M HILL/ABQ w/attach
R. Callaway - Code 090.RC w/attach	K. Tomeo - CH2M HILL w/o attach
V. Garelick - Code 1853.VG w/attach	M. Huddleston - CH2M HILL w/o attach
J. Joyce - Code 1832.JJ w/o attach	File - PMO w/attach
V. Parpiani - MCAS El Toro w/o attach	File - CH2M HILL w/attach
	L. Miesner - CH2M HILL/SFO w/attach

Delivered To: Contracting Officer ___ RPM/EIC X

Date/Time Received

COTR; RCVD BY: [illegible]
DATE: 11-30-95

Name: ___

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CLEAN I TRANSMITTAL/DELIVERABLE RECEIPT

CONTRACT N68711-89-D-9296

DOCUMENT CONTROL No.: CLE-C01-01F145-B14-0002

TO: Mr. Vish Parpiani
Installation Restoration Program Manager
AC/S Environment 1 AU
MCAS El Toro
P.O. Box 95001
Santa Ana, Ca 92709-5001

DATE: 29 November 1995
CTO#: 0145
LOCATION: MCAS El Toro

FROM: John Dolegowski/Project Manager

Ken Tomeo/Resource Center Manager

DESCRIPTION: Response to Comments received from the Department of Toxic Substances Control (DTSC) and the United States Environmental Protection Agency (EPA) regarding the Remedial Investigation/Feasibility Study (RI/FS) Draft Operable Unit (OU-1) Baseline Human Health Risk Assessment (HHRA) Report for MCAS El Toro dated 01 July 1994

TYPE: ____ Contract Deliverable ____ CTO Deliverable X Request for Change/ Project Note/Other (Circle one)

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R. Callaway - Code 090.RC w/o attach	M. Bitner - CH2M HILL/ABQ w/o attach
V. Garelick - Code 1853.VG w/o attach	File - PMO w/o attach
J. Joyce - Code 1832.JJ w/attach	File - CH2M HILL w/o attach
	L. Miesner - CH2M HILL/SFO w/o attach

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Date/Time Received

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CONFIRMATION OF:	CONFERENCE	DATE HELD	N/A
	TELECOM	DATE ISSUED	29 November 1995
	OTHER X	RECORDED BY	John Dolegowski/CH2M HILL
		PLACE	Santa Ana, California

SUBJECT

Contract Task Order (CTO) No. 0145
Response to Agency Comments on the Draft Operable Unit (OU)-1
Baseline Human Health Risk Assessment Report, dated 01 July 1994
Marine Corps Air Station (MCAS) El Toro OU-1 RI/FS

PARTICIPANTS: (* DENOTES PART-TIME ATTENDANCE)

N/A

ACTION REQ'D. BY	ITEM
	This Technical Memorandum presents the formal response to comments received from the Department of Toxic Substances Control (DTSC) and the United States Environmental Protection Agency (EPA) on the Remedial Investigation/Feasibility Study (RI/FS) Draft Operable Unit (OU)-1 Baseline Human Health Risk Assessment (HHRA) Report for Marine Corps Air Station (MCAS) El Toro dated 01 July 1994. The following comments were received: Letter from Albert Arellano/DTSC to Wayne Lee/MCAS El Toro dated 29 September 1994 (Comments from John Christopher/DTSC). Letter from Bonnie Arthur/EPA Region IX to Wayne Lee/MCAS El Toro dated 28 September 1994 (Comments from Dan Stralka/EPA). In addition, this memorandum also refers to the meeting minutes from the 31 October 1994 Risk Assessment Meeting where representatives from CH2M HILL, DTSC, EPA, and Bechtel Corporation discussed the above listed review comments. RESPONSE TO DTSC COMMENTS General Comments: 1. Two rounds of sampling results from groundwater cannot be deemed adequate characterization for purposes of defining exposure point concentrations. Therefore, use of the mean of the two measurements is unacceptable. We recommend recalculation of risks and hazards using the highest detected concentrations of each chemical of concern.

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	Response: At the 31 October 1994 meeting, two reasons were presented for not changing the exposure point concentrations: 1) One of the advantages to the well-specific risk assessment is that the averaging step is eliminated and instead, the reader is provided with spatial information concerning estimated risks by well, and 2) The change is likely to require significant additional calculations and report revisions but is unlikely to have a significant impact on the overall conclusion of the risk assessment. To support this second point, the agencies requested that the Navy provide available information concerning the differences in chemical concentrations between the two rounds of groundwater sampling and demonstrating no significant effect on the calculated site risks. A project note (PN-0145-160) was sent to the agencies on 16 February 1995 regarding this issue. In response, a letter was received by the Navy on 18 April 1995 that DTSC concurs with the use of average values instead of the maximum values for the evaluation of the first two rounds of groundwater. Therefore, no changes to exposure point concentrations will be made at this time. *However, as was agreed at the 31 October 1994 meeting, the impact of the differences between the two rounds of data will be discussed in Exposure Point Concentrations (Subsection 3.3.3) and the Uncertainties and Assumptions (Section 6.0).* 2. While we concur that the majority of the risks and hazards at OU-1 are due to metals and other inorganic chemicals, especially nitrate and nitrite, we find no support for the assertion by the Navy that these risks and hazards do not differ from regional background. The Department should seek the advice of the Santa Ana Regional Water Quality Control Board regarding the ranges of concentrations of inorganic substances which might be considered naturally occurring for regional groundwater at MCAS El Toro. *Response: The Navy and agencies have agreed to conduct an evaluation of background inorganic concentrations in groundwater after the completion of additional rounds of groundwater sampling. In the interim, ranges of background concentrations determined from the first two rounds of sampling will be used to place the estimated risks due to inorganics in perspective. Draft text of the background comparison and discussion will be presented to DTSC/EPA for review prior to inclusion in the HHRA report.* Specific Comments: 1. **Guidance Documents, Sec. 1.3, p. 1-6:** Please include and use DTSC guidance for risk assessment, *Supplemental Guidance for Human Health Multimedia Risk Assessments for Hazardous Waste Sites and Permitted Facilities* (DTSC, 1992). This guidance is intended for use with *Risk Assessment Guidance for Superfund* (USEPA, 1989). *Response: It is Navy policy to follow EPA guidance, however, all risk calculations were also conducted using California Environmental Protection Agency (Cal-EPA) toxicity values. This information is discussed in the HHRA report text and risk calculations are presented in Appendix B.*

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	2. **Chemicals of Concern, Sec. 2.2, p. 2-2, and Table 2-2, p. 2-17:** In the second paragraph, please make reference to where the body of data may be found from which the chemicals of concern were selected, e.g., which volume of the draft RI/FS report. In Table 2-2, the third column of Table 2-2 should be entitled "insecticides". *Response: Reference will be added. For consistency throughout the RI/FS report, all chemical groups are named according to the EPA analysis test method.* 3. **Secondary Pathways, Sec. 3.2.2, pp. 3-10:** Several of the chemicals of concern in Table 2-2 have high octanol-water partition coefficients, making the secondary pathways of homegrown meat and produce potentially important for risk and hazard. Please include these pathways as appropriate or present a justification for their exclusion. *Response: Based on current and potential future surrounding land uses, consumption of homegrown meat and produce are not likely to be relevant for this site. According to the EPA (Standard Default Exposure Factors, 1991), evaluation of the homegrown produce pathway for the residential scenario is recommended only if there is site-specific information to support this as a pathway of concern and animal products should not be used for areas zoned residential because such regulations generally prohibit the keeping of livestock. Justification for exclusion will be presented in the HHRA report.* 4. **Exposure Assumptions, Table 3-2, p. 3-15:** Skin surface area should show footnote "d" not "c". The assumptions shown lead to an average exposure just 9% of the reasonable maximum exposure. Is it the Navy's belief that the distribution of exposures is really this wide? *Response: Footnote will be corrected. EPA exposure assumptions have been used for both the average and reasonable maximum exposures.* 5. **Dermal Absorption, Sec. 3.3.2, p. 3-21 ff. and Table 3-3:** Table 3-3 does not seem to use the default value for the dermal permeability constant (K_p) of 1.5E-03 cm/hr. Please eliminate text at the top of page 3-20 which refers to this default value. *Response: Text will be deleted.* 6. **Exposure Point Concentrations, Sec. 3.3.3, pp. 3-20 and 3-25:** The mean may be used as an estimator of the concentration term if a site is well characterized. Two rounds of groundwater sampling do not constitute a base of data broad enough to establish any trends in time or space, or even to verify frequency of detection. Therefore, we do not accept at this time that the average may be used as an appropriate estimator of concentration of chemicals of concern in groundwater. Instead, we recommend using the maximum concentration detected for each chemical detected in either round. For those wells with more than two rounds of sampling, we recommend the continued use of the 95% upper confidence limit of the mean concentration over the most recent four

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quarters of sampling. This change will entail recalculating all risks and hazards and regenerating all tables.

Response: See response to General Comment 1.

Strike the last sentence on page 3-25. Find and strike the numerous other occurrences in the document of this highly speculative and contentious sentence. Natural attenuation, if it ever occurs, cannot proceed until sources of contamination have been identified and remediated.

Response: Sentence will be deleted.

7. **Toxicity Values, Table 4-1:** We note that no toxicity values were located for several chemicals of concern. Rather than fail to assess the presence of such chemicals, DTSC Human and Ecological Risk Section (HERS) recommends that surrogate chemicals be identified which have toxicity values; these values may then be used in the risk assessment. We have had good success with USEPA Region IX achieving consensus on appropriate surrogates in situations like this.

Response: For chemicals with no toxicity values, surrogate values recommended by DTSC will be evaluated. Surrogate recommendations from John Christopher/DTSC were made for the following noncarcinogens:

Chemical	*Surrogate*
1,2-dichloroethane	*1,1-dichloroethane*
2-hexanone	*hexane*
chloromethane	*methyl bromide*
dichloroprop	*2,4-D*
endosulfan sulfate	*endosulfan*

In addition, it was recommended that the inhalation reference dose (RfD) for 1,2-dichloropropane be used to evaluate the oral route for this chemical and that the ECAO value for cobalt be used.

In order to minimize revisions to the HHRA text, this evaluation and discussion will be presented in Uncertainties and Assumptions (Section 6.0).

8. **Health Effects of Lead, Sec. 4.2.3, p. 4-19:** Rather than comparing levels of lead in water to the USEPA action level of 15 µg/l, we recommend the use of LEADSPREAD, an easy-to-use spreadsheet approach to assessing the health effects of lead in multiple media.

Response: As agreed to in the 31 October 1994 meeting, it is not necessary to run LEADSPREAD to address lead in one media (i.e., groundwater in OU-1).

9. **Toxicity Profiles, Appendix A:** Regarding 1,1-dichloroethene, the last sentence on page A-6 is not credible. A concentration of 0.06 µg/L is lower than a typical detection limit of 0.1 µg/L in water. If all detected concentrations are in the saturable range, then the quoted unit risk would never be of any use. Could the units be transcribed incorrectly?

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Response: The correct value should be 6 x 10^2 (600) µg/L and not 6 x 10^{-2} (0.06) µg/L as listed. This will be corrected in the text.

10. USEPA vs Cal/EPA Cancer Potency Factors, Table 5-3 and 5-4: Table 5-4 is very informative. The Navy should complete its analysis by providing a similar table breaking out by chemical groups the estimated cancer risks in Table 5-3 which were calculated using Cal/EPA cancer potency factors.

Response: Due to limited time and budget, additional tables will not be added to the HHRA report at this time. However, additional text will be added to direct the reader to the tables in Appendix B that present the estimated cancer risks based on Cal-EPA cancer potency factors.

11. We understand that the Cal/EPA cancer potency factor for hexavalent chromium is responsible for non-zero estimation of cancer risk in some wells in which USEPA values indicate no cancer risk. Please provide details on the following wells where the difference between the estimates in Table 5-3 using the two sets of factors is greater than twofold:

18_TIC083	07_DBMW51	13_DGMW78
13_UGMW32	15_DBMW51	16_DBMW52
18_BGMW01E	18_MCAS03	19_DGMW85

In particular, we are interested in the estimates for 16_DBMW52 and 18_MCAS03, which differ by 100-fold and 20-fold, respectively.

Response: The following chemicals are responsible for the above listed differences:

18_TIC083 - chromium VI
07_DBMW70 - carbon tetrachloride
13_DGMW78 - benzene
13_UGMW32 - benzene
15_DBMW51 - benzene
16_DBMW52 - chromium VI
18_BGMW01E - benzene
18_MCAS03 - chromium VI
19_DGMW85 - chromium VI

Text will be added to the HHRA report discussing the chemical contributors to these differences.

12. **Estimated Risks and Hazards from Inorganic Chemicals, Sec. 5.2, p. 5-47 et al.:** The following statement is made on page 5-47 and at numerous other places in the risk assessment:

"[M]ost inorganic chemicals present in groundwater are expected to be present at background concentrations within the study area. The levels of inorganic chemicals detected appear to be the result of oxidation of reduced minerals in the aquifer sediments and past agricultural activities throughout the region."

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While HERS agrees that the majority of the risks and hazards associated with OU-1 are due to the inorganic constituents, we find no support for the assertion that these risks and hazards are indistinguishable from background. The health risk assessment for OU-1 will continue to be deficient until the Navy identifies and quantitates the risk associated with regional background and compares them to the results shown in Section 5 of this report.

Background concentrations of inorganic chemicals in groundwater has been the subject of discussion at project meetings for at least two years. If clarification is needed on defining background in this complex geologic formation, HERS recommends the Navy consult with the Santa Ana Regional Water Quality Control Board.

Response: See response to General Comment 2.

13. **Hazards from Volatile Organic Chemicals, Sec. 5.2.1.1, p. 5-47:** The text on page 5-47 lists seven wells with summed hazard quotients for volatile chemicals greater than unity, but Table 5-2 shows eight. Well 08_DGMW74 should also be listed. The summed hazard index (HI) for volatile chemicals in this well was 1, with 0.93 coming from trichloroethene, but no single volatile chemical had a hazard quotient exceeding unity.

Response: As stated in the text, only two volatile organic compounds (VOCs) have a chemical-specific HI of > 1: carbon tetrachloride in two wells and trichloroethene in five wells. Since the chemical-specific HI of trichloroethene does not exceed 1 in well 08_DGMW74, it is not included in this list.

14. **Spatial Distribution of Risks and Hazards, Figs. 5-1 through 5-13:** These figures clearly show that risks and hazards from volatile chemicals are localized over the known plumes, but spatial variations are not clear for other classes of chemicals. If risks or hazards due to other classes of chemicals are localized in any way, it is not apparent in these figures or in their supporting text. These figures would have been a place to present contours of concentrations or risks or hazards correlated with soil types, sedimentary history, or some other parameter related to geologic processes underlying the distribution of naturally occurring substances, place to present.

Response: See response to General Comment 2.

RESPONSE TO EPA COMMENTS

General Comments:

See memorandum for detailed discussion. Major points of discussion are as follows:

1. Tables should be changed to reflect contaminants in each sampling location.

2. Concentration or risks isopleths should be added to report.

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3. Further discussion of proposed versus standard methodology needed.

4. Further substantiation of possible background concentrations is needed.

5. Three dimensional information or depth information should be added.

Bullets 1 through 3 are discussed in the specific comments below. The following responses are provided for bullets 4 and 5:

- Further substantiation of possible background concentrations will be provided after additional rounds of groundwater have been collected and further background evaluation completed.

- As was agreed at the 31 October 1994 meeting, well risks will not be divided out by depth because it is assumed that groundwater across the entire saturated interval is a potential source of water supply.

Specific Comments:

1. **Introduction page 1.1**. A short discussion of the hydrogeologic situation should be presented to evaluate the screening interval information presented later.

Response: Discussion will be added.

2. **Section 4.2.3 Other Toxicity Issues page 4-19. Lead.** Using the lead action level for drinking water could be useful for the current evaluation, but future lead decision we need to be evaluated using either the USEPA Biokinetic Uptake (IEUBK) Model or Cal EPA's Leadspread. For consistency and ease of combining results of future risk assessments, these models should be used to evaluated the lead exposure.

Response: As agreed in the 31 October 1994 meeting, it is not necessary to run the EPA IEUBK model or Cal-EPA's LEADSPREAD to address lead in one medium (i.e., groundwater in OU-1).

3. **Section 5.1.3 Well-specific Risk Estimation Methods page 5-3.** A more extensive discussion of the pros and cons of each method needs to be presented to give the reader a means of evaluating the results.

Response: Discussion will be added.

4. **Table 5-1 page 5-5.** Chemicals detected and/or chemicals above the hazard index of 0.1 should be incorporated into this table so the reader can evaluate the level of contamination.

Response: As agreed in the 31 October 1994 meeting, risk tables will not be broken down by chemical since this would make for a very large table and these results are already included in the appendix. However, additional references to the appendices will be added to the text.

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	5. **Risk Figures.** Elevated risks should be depicted using contours and aggregated based on similar contaminants. *Response: As agreed in the 31 October 1994 meeting, contours will not be added to the risk figures but concentration contours will appear in the Groundwater Modeling Report.* ADDITIONAL REVISIONS In addition to the above written comments from the agencies, the following revisions were agreed upon during the 31 October 1994 meeting: o At the request of EPA and DTSC, in order to clarify the impact of the major inorganic contributors to risk in the report, the following additional figures will be added: 1) After Figure 5-5 (Estimated Hazard Indices - Manganese), a figure will be added showing the total site hazard indices minus the contribution from nitrate/nitrite, antimony, and manganese; and 2) After Figure 5-9 (Estimated Excess Lifetime Cancer Risks - Inorganic Compounds), a figure will be added showing total site risks minus the contribution from arsenic and beryllium. o At the request of EPA and DTSC, further discussion will be added to the text explaining that the risks are conservative values and that groundwater, if used as a local water supply including inorganics, will be cleaned up to maximum contaminant levels before distribution. Therefore, the public will not be exposed to groundwater at these concentrations or risks. o At the request of DTSC, major chemical contributors to the cancer risk will be bulleted in the same way the chemicals have been bulleted for the noncancer discussion in the Risk Characterization section.