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LETTER REGARDING RESPONSE TO REGULATOR COMMENTS ON INTERIM RECORD
OF DECISION AT OPERABLE UNIT 3 WITH TRANSMITTAL LETTER NTC ORLANDO FL
8/15/2000
HARDING LAWSON ASSOCIATES

00220

August 15, 2000

Commanding Officer
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

ATTN: Ms. Barbara Nwokike. Code 187300

Subject: **Response to Comments**
Operable Unit 3 Interim Record of Decision
NTC, Orlando
Contract: N62467-89-D-0317

Dear Barbara:

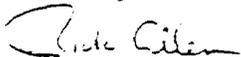
As you know, HLA issued the OU 3 Interim ROD on April 25, 2000. We have received comments from David Grabka (FDEP), and Nancy Rodriguez David Jenkins (U.S. EPA). Attached is the response to those comments.

On August 11, 2000, HLA issued an electronic redline/strikeout copy of the OU 3 Interim ROD that reflects how all comments are being addressed in the document. We will provide hard copy of the redline strikeout document to those reviewers that request it. We have received electronic figures from TetraTech that have the most current analytical data represented (Figure 2-5. *Groundwater Exceedances, March 1998 to April 2000, Operable Unit 3, Study Area 8*, and 2-6. *Groundwater Exceedances, March 1998 to April 2000, Operable Unit 3, Study Area 9*). We will forward them to the OPT when minor revisions have been made to incorporate them into the Interim ROD.

If you have any questions or need additional information, please call me at (904) 448-1333.

Very Truly Yours,

Harding Lawson Associates



Richard P. Allen
Technical Lead

Attachment

cc: Wayne Hansel, Southern Division
Nancy Rodriguez, USEPA Region IV
David Grabka, FDEP
Steve Tsangaris, CH2M Hill
✓ Steve McCoy, Tetra Tech NUS
John Kaiser, HLA

PROJECT REVIEW COMMENTS

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Florida Department of Environmental Protection - David Grabka, 7/10/00

1. **Page 1-3. Third Bullet on page. The prohibition on the issuance of permits for the installation of potable water wells, irrigation wells, or dewatering wells for construction projects screened within the surficial aquifer is not an attainable institutional control at this site. Rather, while the property remains with the Navy, the Navy will disallow the installation of the above-mentioned wells on their property. After the property has been transferred, groundwater use restrictions shall be enacted in the deed(s) through a Restrictive Covenant granting a perpetual conservation easement to the Department.**

The Navy will eliminate the third bullet on Page 1-3 and insert the final sentence of your comment into the first bullet on Page 1-3.

2. **Page 1-3. Fifth Bullet on page. A five year site review is not required to be a part of this Interim Record of Decision. When a final decision is made on the selected remedy for this site, a five year site review will be a required component of the Record of Decision. Because of this, please also remove the first bullet on page 2-10.**

The Navy will eliminate the fifth bullet on page 1-3 and the first bullet on p. 2-10, noting that the final ROD will require reference to a five year site review.

3. **Page 1-3, Groundwater Monitoring Section, Second Bullet. Groundwater also needs to be analyzed for iron, lead, antimony and manganese as those compounds have previously been detected above primary standards, secondary standards and base specific reference concentrations.**

The Navy will add a reference to include these TAL metals in future monitoring. The second bullet on Page 1-3 will be revised to read: "Groundwater would be analyzed for only those compounds that previously exceeded primary and secondary standards, or basewide site screening concentrations: these include TCL semivolatile organic compounds (SVOCs), pesticides, herbicides, and certain TAL metals including iron, lead, antimony, manganese and arsenic."

4. **Page 1-3. Groundwater Monitoring Section, Fourth Bullet. It should be noted that contaminants in drive point wells and downgradient wells next to Lake Baldwin would need to be compared surface water quality standards in order to evaluate whether some parameters could be discontinued.**

The following bullet will be added on Page 1-3 in the Groundwater Monitoring section:

"Sampling data in drive point wells and downgradient wells next to Lake Baldwin will

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Florida Department of Environmental Protection - David Grabka, 7/10/00 (Continued)

be compared to surface water quality standards to evaluate the need for retaining certain parameters in the monitoring program."

5. **Page 2-8. Second Paragraph. Last Sentence.** The last sentence should say "are such parcels."

The Navy will make the suggested change.

6. **Page 2-8. Third Paragraph. Second Sentence.** The sentence should end after future exposure to contaminated groundwater. This IROD does nothing to reduce further contamination migration through groundwater.

The Navy will make the suggested change.

7. **Page 2-8. Fourth Paragraph.** This should be rewritten as "While further study of cleanup alternatives is undertaken, and in consideration . . ."

The Navy will make the suggested change.

8. **Page 2-8. Fourth Paragraph, Second Bullet.** Are institutional controls to restrict land use to non-residential (recreational) to be applied over the entire site or only over portions of the site where contaminants remain at concentrations that exceed the residential SCTLs?

Because the two study areas that comprise OU 3 are both of limited extent, the intention at this time would be that institutional controls restricting land use to non-residential (recreational) use be applied to each study area individually. At some point, it may be possible to remove institutional controls on a portion of, or all of, one or both study areas. This would most likely occur during a five year review. It should be noted that the reuse scenario for the entire buffer zone around Lake Baldwin, including OU 3, is planned for nonresidential (i.e., recreational) use.

9. **Page 2-8. Fourth Paragraph, Third Bullet.** This sentence should be rewritten as "Monitoring of contaminated groundwater to track restoration and ensure the continued protection of human health and the environment as site use and conditions change with time."

The Navy will make the suggested change.

10. **Page 2-8. Fifth Paragraph, Second Sentence.** Insert ROD before selected remedy.

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The Navy will make the suggested change.

11. **Page 2-8. Sixth Paragraph, Second Sentence. Remove references to the maintenance of soil cover and unauthorized digging activities. The periodic inspections will help assure that no unauthorized residential development has occurred and that no wells have been installed within the area of groundwater restriction.**

The Navy will make the suggested change.

12. **Page 2-9. Fourth Bullet. See comment (1).**

The Navy will eliminate the fourth bullet on Page 2-9 and insert the final sentence of your comment into the second bullet on Page 2-9.

13. **Page 2-9. Fifth Bullet. Please insert "written" between annual and reminders.**

The Navy will make the suggested change.

14. **Page 2-14. Top of Page. It should say that "The Navy, FDEP and EPA will evaluate the data and will make a decision as to whether or not active remediation is necessary to prevent shallow groundwater beneath SA 8 from reaching Lake Baldwin."**

The Navy will change "The Navy..." to "The OPT..." (see Ms. Rodriguez' comment No. 7).

15. **Page 2-14. Third Paragraph. It should say Florida surface water quality standard instead of guidance concentration. In the same paragraph, it should state that "groundwater samples from intermediate wells at SA '9' each ..."**

The Navy will make the suggested change.

16. **The chem box data in Figures 2-5 and 2-6 for the January 2000 sampling event should be properly bolded to indicate exceedances.**

Noted. Figures 2-5 and 2-6 have been revised.

17. **It should be explicitly stated that the human health risk summary numbers explained in the text and listed in Tables 2-3 and 2-4 are for data collected from the Remedial Investigation.**

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Since that time, Interim Removal Measures have reduced risk from surface soils to levels protective for potential future users such as recreational, trespasser, and commercial users. When a final remedy is selected and the Final Record of Decision is prepared, the risk numbers should be recalculated based upon current data, both soil and groundwater.

The Navy will make the suggested change.

18. Page 2-33, Table 2-7. The list of selected contaminants of concern is not complete. Antimony, manganese, iron and several pesticides have been detected during the current groundwater monitoring effort and should be included on the table.

The Navy will make the suggested change, although at the levels of iron and manganese detected, no additional risk is expected.

19. Page 2-33, Second Paragraph. It is stated that while pump and treat is a proven technique for removing contamination, experience has shown that attainment of drinking water standards may be technically impractical. What experience has shown this? This needs to be further clarified.

The second Paragraph of Page 2-33 will be revised as follows: "Alternatives G-4 and G-5 are proven techniques (i.e., pump-and-treat) for removing the bulk of contamination, but attainment of action levels (e.g., surface water standards, drinking water standards) may be difficult, given the recalcitrant nature of this contaminant."

20. Page 2-33, Section 2.8.1.2, Second Paragraph, Bottom of page. It is stated that alternatives G-1 and G-2 may achieve action levels only after a sufficient period of time. "Sufficient" is too ambiguous a word. The estimated length of time predicted for those alternatives should be specified.

The second paragraph of Section 2.8.1.2 will be revised as follows:

It is anticipated that Alternatives G-1 and G-2 may achieve action levels, but only within a time period that would likely be measured in decades. The ongoing groundwater monitoring program will provide data that will be used to estimate the period required to achieve action levels for all alternatives. These data will be factored into the final remedy. Alternatives G-3, G-4, and G-5 (*ex situ* treatment) would likely achieve action levels sooner than Alternatives G-1 and G-2 (*in situ* treatment). All five alternatives would comply with ARARs.

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21. **Page 2-38. Groundwater Monitoring, Second Bullet, First Bullet on page. See comment (3).**

Noted. See the Navy response to comment (3).

22. **Page 2-44. Table 2-10, State Guidance Materials. Soil Cleanup Target Levels and Groundwater Cleanup Target Levels are now listed in Chapter 62-777, Florida Administrative Code.**

Noted. The Navy will make the suggested changes.

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1. Declaration of the ROD, Section 1.3 Description of the Selected Remedy. This section states that EPA has indicated that until the selected remedy is operating properly and successfully, the property will be deemed non-transferrable. This statement should be revised in order to accurately reflect EPA's position. CERCLA's property transfer provisions in section 120(h) require the United States to place in the deed the covenant that all necessary remedial action has been taken. All necessary remedial action will be deemed to have been taken if the construction and installation of an approved remedial design has been completed, and the remedy has been demonstrated to the Administrator to be operating properly and successfully. If the remedy cannot be demonstrated to be operating properly and successfully, the property can still be transferred under the covenant deferral request provisions of CERCLA § 120(h)(3)(C). The correction to the text should be, "Without resort to the Covenant Deferral Request provisions of CERCLA § 12(h)(3)(C), the property cannot be transferred until the selected remedy is operating properly and successfully (OPS)." Please make this same correction to the text in Section 2.4 Scope and Role of Interim Remedial Action Selected for OU3.

The Navy will make the suggested change.

2. Declaration of the ROD, Section 1.3 Description of the Selected Remedy. Please revise the third sentence in the first bullet under "Institutional Controls": "The Navy or its contractor ~~can~~ will verify whether the warning signs are still in place or whether ..." In addition, if the Navy employs a contractor to conduct such inspection, the Navy should periodically (for instance, at least every five years) verify the accuracy of the information in the inspection reports. Please address the text accordingly. Please make this same correction to the text in Sections 2.4 Scope and Role of Interim Remedial Action Selected for OU3 and 2.9.1 Description of the Limited Action Remedy.

The Navy will make the suggested change.

3. Declaration of the ROD, Section 1.3 Description of the Selected Remedy. The remedy envisions prohibition against residential use of the property until residential cleanup standards have been met. While EPA agrees with the statement that the Navy will ensure that no residential development occurs prior to transfer, it is the Navy's responsibility to ensure that all aspects of its selected remedy are effective, regardless of the transfer status. Please revise the sentence in the third bullet under "Institutional Controls," by deleting "Prior to transfer." Please describe the process by which the Navy will ensure that such restrictions, and all ICs, are followed. The only reference to monitoring of ICs is that site review every five years to verify visually that ICs are maintained. Please add to your

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method of monitoring ICs the inspection of deed records to ensure that the restrictions are memorialized with any transfer of restricted real property. Please describe the frequency with which the Navy will conduct such IC compliance-verification. Please make this same correction to the text in Sections 2.4 Scope and Role of Interim Remedial Action Selected for OU3 and 2.9.1 Description of the Limited Action Remedy.

The Navy will make the suggested changes.

4. **Declaration of the ROD, Section 1.3 Description of the Selected Remedy.** “Institutional Controls”, sixth bullet. Please include the restriction against residential development in the annual reminder notices. Please make this same correction to the text in Sections 2.4 Scope and Role of Interim Remedial Action Selected for OU3 and 2.9.1 Description of the Limited Action Remedy.

The Navy will make the suggested changes in the fifth bullet, as FDEP wanted the sixth bullet deleted (see Mr. Grabka’s comment No. 2 and the Navy response).

5. **Declaration of the ROD, Section 1.4 Declaration Statement.** Please provide the rationale for the statement that the selected remedy does not satisfy the statutory preference for treatment as a principal element of the remedy.

The Navy observes that under CERCLA, some form of active remediation is preferable (not mandated) to monitoring only, but that the final remedy will likely include one or more active remedial measures which had not been considered when the RI/FS was submitted, due to groundwater monitoring data collected after the submittal.

6. **Section 2.4, Page 2-8, 2nd Paragraph.** Delete the word greatest in the following sentence “This has allowed cleanup efforts to focus on those parcels that pose the greatest potential risk to human health and the environment....”.

The Navy will make the suggested change.

7. **Section 2.5.4 Groundwater, Page 2-14, 1st Paragraph.** Please change “The Navy is evaluating..” to “The OPT is evaluating...”.

The Navy will make the suggested change.

8. **Section 2.9.1 Description of the Limited Action Remedy.** The text states that the remedy

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includes institutional controls, groundwater monitoring and five-year (maximum) reviews, and bench-scale pilot testing of innovative technologies. Note that CERCLA § 121(c) indicates that whenever hazardous substances, pollutants, or contaminants are left in place, the remedial action will be reviewed no less often than every five years. The Interim ROD appears to have translated CERCLA's "no less often" language into "no more often." While it does not violate the letter of the statute, it certainly appears to run at odds with its spirit. Please revise the Interim ROD so as to not deflate the five-year-review language of the statute.

The Navy did not mean to imply that site reviews would take place *no less than* every five years apart, but that the interval between site reviews would be a *maximum* of five years apart, as stipulated by CERCLA. The text will be modified to make this clear. However, for cost estimating purposes, five year reviews were assumed.

9. **Section 2.9.1 Description of the Limited Action Remedy. Compliance with ARARs.** This section states that the remedy *may* comply with ARARs in the long-term. Compliance with ARARs is a CERCLA threshold criteria, and must be met in a final remedial decision. However, since this remedy is being selected on an interim basis, and includes bench scale testing to evaluate the effectiveness of the natural attenuation portion of the remedy, this section should make clear that this factor, uncertainty about compliance with ARARs, is one of the bases for selecting this as an *Interim Remedy*.

The Navy assumes that you were referring to Section 2.9.2, not 2.9.1. The Navy will add the following at the end of the paragraph:

"The remedial actions selected for OU 3 are intended to address the principal threats and risks for OU 3. They were chosen as the interim remedy for OU 3, and will be revised in the final ROD, as necessary, because data collection and analysis activities are ongoing, bench scale testing results have not been completed and evaluated, and because of uncertainty as to the effectiveness of the chosen remedial actions. The uncertainty about compliance with ARARs was the principal basis for selecting monitoring as a component of the interim remedy."

10. **Section 2.9.1 Description of the Limited Action Remedy. Reduction of Toxicity, Mobility, and Volume Through Treatment.** Where the preference for remedies employing treatment which permanently and significantly reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element of the selected remedy is not satisfied, the ROD must explain why a remedial action involving such reductions in

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toxicity, mobility or volume was not selected. Please provide this explanation in this section.

The Navy assumes that you were referring to Section 2.9.2, not 2.9.1. The Navy will add the following to the first paragraph of Section 2.9.2:

“The decision to implement Alternative G-1 rather than pursue more aggressive treatment technologies was made primarily because of the belief that the IRA soil removals at both SAs have removed the continuing source(s) of contamination and that natural processes will now be able to reduce contaminant levels in the shallow aquifer.”

11. **Section 2.9.1 Description of the Limited Action Remedy. Long-Term Effectiveness and Permanence.** Evaluation of the long-term effectiveness of the remedy states that administrative actions would provide exposure control, but would not provide a permanent remedy for risks posed by the site during the period that contaminant concentrations decline through natural processes. It appears to be the objective of the institutional controls, including legal and administrative (governmental) controls, to provide effectiveness of the remedy both for the short- and the long-term. If there is a reason to believe that the long-term effectiveness of the institutional control remedy is limited, please state that reason in the IROD. In addition, if the remedy is not effective in the long-term, its selection should be reevaluated.

The Navy assumes that you were referring to Section 2.9.2, not Section 2.9.1. The remedy selected for the IROD (groundwater-use restrictions, groundwater monitoring, and site reviews) will be monitored closely during the first five years to determine its long-term effectiveness. Two of the herbicides (MCPA and MCPP) should degrade rapidly and not be detectable, certainly after the passage of five years. Other contaminants should also degrade naturally. However, arsenic is a persistent and relatively immobile contaminant, particularly in soil. Arsenic concentrations will be closely monitored in the short term to determine whether or not natural processes are reducing concentrations at a rate acceptable to regulatory agencies. The Navy has stated in the IROD that active treatment technologies may be required to reduce contaminant concentrations more rapidly, and that continuing site reviews and data evaluation will guide future decisions to implement the remedial alternatives selected for the IROD.

12. **Section 2.9.1 Description of the Limited Action Remedy. Implementability.** Since there are aspects of the institutional control monitoring that have not been addressed, it is suggested

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that the implementability should be considered in light of EPA's comments. EPA does not suggest that the institutional controls are not implementable; merely, that the IROD has not captured all the elements essential to an effective institutional control remedy.

The Navy assumes that you were referring to Section 2.9.2. The text in the final ROD will reflect all essential elements for ICs, to include

- legal description of property,
- institutional control language in the same form as it will appear in the deed
- statement from the Navy of how the ICs will be enforceable under local/state law
- a description of who will be responsible for monitoring the integrity and effectiveness of the ICs and the frequency of monitoring
- a description of the procedures that will be used to enforce against violations of an IC (who will enforce, and what legal authority to enforce)
- Assurance that the Navy will verify maintenance of ICs on a periodic basis (specifying the period)

13. **Section 2.9.1 Description of the Limited Action Remedy. Cost.** The cost should address the implementation of an effective institutional control remedy, per EPA comments on ICs. For instance, since there is no description of periodic inspections of the deeds of record through time (along with the five-year reviews) to verify the carrying forward of the restrictive covenants, and hence, no cost allocated to this function, the cost does not reflect an effective IC remedy.

The Navy assumes that you were referring to Section 2.9.2. Table 2-9, "Cost Summary for Limited Action Remedy," will be revised to reflect any comments incorporated into the final IROD, if appropriate. Also, see the Navy response to your Comment 3

14. **Statutory Determinations.** This section states that the selected remedy will comply with ARARs. Please reconcile this with EPA Comment 7.

The Navy assumes that you were referring to EPA Comment 9, not Comment 7. Please refer to the Navy response for your comment 9. The text in Section 2.10, Statutory Determinations, will be revised similarly to the response to comment 9.

15. **Statutory Determinations.** Please see EPA Comment 8. This section provides the rationale for not selecting a remedy, which results in reductions in toxicity, mobility or volume. The rationale given, "because evaluation of balancing criteria determined treatment of the

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groundwater was not practicable” is not meaningfully descriptive. Please provide more particular information about the nature of the balancing criteria that justified this decision, for example, technical infeasibility, inadequate short-term protection of human health and the environment, or extraordinarily high costs.

The reduction in arsenic (the primary COC at both Study Areas) concentrations to MCLs was estimated to take from 22 years (SA 9) to 38 years (SA 8) at costs ranging from \$9M (Alternative G-4) to \$14.5M (Alternative G-5). This contrasts with a cost of \$0.75M (Alternative G-1) for monitoring with ICs and site reviews for 30 years. Thus, Alternatives G-4 and G-5 will cost from 10 to 20 times more than Alternative G-1, although for a similar time period.

United States Environmental Protection Agency – Region 4, David Jenkins, 7/18/00

1. Figure 2-5 shows that all of the January, 2000 groundwater samples were collected on the 23rd, while Figure 3 of the May 12, 2000 quarterly report shows the January, 2000 groundwater samples were collected on the 19th, 20th or 22nd, but none were collected on the 23rd of January, 2000. There are similar minor discrepancies in the dates reported on Figure 2-6 and Figure 4 of the quarterly report. The reported results appear to be the same on all figures, just the dates are different. The maps with the correct dates should be identified and used in future reports.

The maps will be corrected.

2. The legend on Figure 2-5 states that “**BOLD CONCENTRATION INDICATES EXCEEDANCE**”, but not all exceedances appear in bold type. For example, arsenic and lead in the January 23, 2000 sample at OLD-08-14 exceed the screening criteria shown in the legend, but are not presented in bold type. There seems to be similar minor discrepancies on Figure 2-6. Corrected maps should used in future reports.

The maps will be corrected.

3. Contaminants of Potential Concern are listed in Table 2-2. Dieldrin is listed as a COPC at Study Area 8. Figure 2-5 shows only one detection of dieldrin at Study Area 8. This is a 1997 estimated “J” result from monitoring well OLD-08-14, which has never been confirmed by subsequent analysis.

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For both Study Areas 8 and 9, nearly all of the exceedances for MCPA and MCPP shown on Figures 2-5 and 2-6 are estimated or non-detect values with detection limits much greater than the screening values shown in the legends of the figures. The qualifier for many of these analyses is an "R" for Rejected. The usefulness of showing these results, especially the rejected data, as exceedances is questionable.

Similar comments apply to the results presented on Figure 2-6 where both rejected and non-detect results are shown in bold type, signifying exceedances of an applicable standard. Exceedances of screening criteria in groundwater at Study Area 9 should not be evaluated using non-detects and rejected data as shown on Figure 2-6.

Dieldrin will be added to the list of compounds for analysis at SA 8. "R" qualified results will not be shown on Figures 2-5 and 2-6. Non-detect results will not be shown in bold type.

4. Only one detect for MCPP is unqualified at Site 8 (Figure 2-5), and one result each for MCPP and MCPA are unqualified at Site 9 (Figure 2-6). While the land use in this area makes the presence of pesticides and herbicides unsurprising, the answers to the questions: "Are these COCs, and how much needs to be cleaned up?" are a not readily apparent.

MCPA is reported to degraded rapidly by soil microorganisms and has low persistence, with a reported field half-life of 14 days to 1 month, depending on soil moisture and soil organic matter (EXTOXNET). The duration of MCPP (mecoprop) residual activity in soil is about two months. Because of its high mobility, it may potentially leach into groundwater. However, in general, phenoxy herbicides such as MCPP are not sufficiently persistent to reach groundwater (EXTOXNET). If these are compounds have reached groundwater and are COCs at Study Area 8, the determination needs to be made at lower detection limits than shown on Figure 2-5.

Note that plots (attached to this memo) of the MCPA and MCPP data from Study Area 8 shows that the concentrations in the summer and fall are consistently higher than the concentrations in winter. The plots were made by assuming that non-detect results were one-half of the detection limit. Even with this assumption, all of the non-detect results are greater than the screening level. Designation of MCPA and MCPP as a contaminant of concern must be based on data obtained with lower detection limits. The plot seems to support the statements in the previous paragraph about the "short" persistence of MCPA and MCPP in groundwater, and may indicate that the results are due to seasonal application, which might be more cheaply terminated than treated in a remedial action. If

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seasonal application of these compounds no longer occurs, are these compounds being leached into groundwater from a residual source in soil which might be removed?

The CLEAN III contractor has been working closely with their laboratory to bring down the detection limits for MCPA and MCPP to meaningful levels. The two compounds are being carried as COCs even though it is expected that by the time arsenic concentrations have become significantly reduced from their current levels, that MCPA and MCPP will no longer be detectable. A residual source for MCPA and MCPP in soil is an unlikely scenario, given the recent interim remedial actions (soil removals) that have occurred at both Study Areas comprising OU 3. It should be noted that application of all pesticides and herbicides to this area ceased at least two years ago, following the decommissioning of this portion of the Main Base.

5. A plot (attached to this memo) of the arsenic data from Study Area 8 shows that arsenic concentrations in groundwater increased dramatically following the Interim Remedial Measure in April, 1999. Some concentrations remained at abnormally high concentrations in January, 2000, while others have diminished to concentrations less than observed before the Interim Remedial Measure. The results from many on-site wells show sharp increases for aluminum, manganese, lead and antimony followed by decreases in concentration to pre-Remedial Measure levels or less by January, 2000. These data may indicate that the effects of the Interim Remedial Measure have not reached equilibrium in the groundwater flow system. Additional quarterly groundwater samples should be collected until the post-Remedial Measure groundwater conditions are determined.

Agreed. A recommendation to continue with quarterly monitoring for the short term will be made to the OPT.

6. As stated in my memo dated December 3, 1999, what is the basis for limiting the quarterly monitoring period for groundwater sampling events to one year? The EPA MNA guidelines recommend quarterly monitoring "... for at least one year..." (pages 44, 47, C2-7, C3-22), after which "... an appropriate sampling frequency should be established which considers seasonal variations in water table elevations, ground-water flow direction and flow velocity at the site (p. 52). Instead of following EPA guidelines, the description of Alternative G-1 on page 2-29 states that "Groundwater would be sampled quarterly for the first year, and annually thereafter ...". The text on page 1-3 seems to conflict with the text on page 2-29. Page 1-3 states that sampling will occur quarterly for the first year "... and annually thereafter, unless the data consistency between quarterly sampling episodes indicates that a different strategy is more appropriate."

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A major Interim Remedial Measure was implemented in April, 1999. (p. 2-12), but the report does not present graphs showing concentration trends or travel time estimates which demonstrate that the effects for the remedial measure could be expected to be observed already in the monitoring wells. It is premature to state that the quarterly monitoring period can be limited to one year because seasonal water level, and groundwater flow direction variations have not been demonstrated, and the time required for the monitoring well network to respond to the Interim Remedial Measures which have been implemented has not been determined. The sampling schedule text on page 1-3 allows for consideration of site specific conditions more than the text on page 2-29, and therefore, is more consistent with EPA guidelines.

The text of the IROD will be changed so that it is consistent with the sampling methodology described on Page 1-3.

7. No maps showing plumes of contaminated groundwater which can be related to source areas and groundwater flow directions are provided for any of the contaminants of concern listed in Table 2-2. While the area of contamination is relatively small and the sources and natural discharge areas appear to be obvious, maps showing the extent of contamination are useful for describing the site and, in particular, for designing remedial measures. Future reports should include maps showing water level contours, groundwater flow directions, concentrations of key contaminants and contaminant plumes which clearly define the extent of contamination, demonstrate relationships between source and discharge areas and will aid in evaluating remedial measures.

The IROD contains current groundwater elevation maps and flow directions (Appendix C), and concentrations of contaminants that exceed regulatory limits are presented on Figures 2-5 and 2-6 (see responses to your comment Nos. 1, 2 and 3 for pending revisions to the two figures). The CLEAN III contractor will be preparing the final ROD and will consider your comments when preparing their submittal.

8. Regarding the statements that contamination may be reaching Lake Baldwin, an unusual sampling device has been developed recently which may be applicable for use at this site. The device, called a Henry sampler, is essentially a syringe with tubing which allows a sample to be collected from just below the surface water/groundwater interface. Also, observation of the water level in the tubing compared with the surface water level allows a visual determination and measurement of the groundwater head above the surface water body. The observation of groundwater head above the surface water level proves that

PROJECT REVIEW COMMENTS (Continued)

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groundwater inflow to surface water is occurring. The sampling device allows a sample to be collected before mixing with surface water occurs, if the bottom sediments are soft enough to allow penetration of the sampler.

Five “jpg” files are attached to this memo which demonstrate some of the uses of the Henry sampling device. The device is available from:

**Mark Henry, MHE Products,
123 Dunlap St,
Lansing, Michigan, 48910
markhen@alumni.engin.umich.edu**

EPA Region 4 does not have an SOP for this device yet, and it’s use is suggested only as an field confirmation technique. If the method is found to be applicable to this site’s specific conditions, it may be less expensive and more informative than alternative techniques for obtaining samples of groundwater inflow to Lake Baldwin.

The Navy appreciates the information provided. The new sampling device appears to be an improvement over more traditional sampling techniques.