



Minnesota Pollution Control Agency

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

August 17, 2000

Commanding Officer
Southern Division
Naval Facilities Engineering Command
Attn.: Joel R. Sanders, Code 1868
P.O. Box 190010
North Charleston, South Carolina 29419-9010

RE: Naval Industrial Reserve Ordnance Plant Superfund Site

Dear Mr. Sanders:

The Minnesota Pollution Control Agency (MPCA) staff has reviewed Mark Sladic's letter to me dated May 17, 2000; Revision 2 of the document entitled, "Remedial Investigation for Operable Unit 3, Volume I of IV, dated May 2000; and Revision 1 to the document entitled, "Supplemental Remedial Investigation Information Report," dated May 2000.

The documents above are in response to the MPCA staff letter dated November 17, 1999, and March 15, 2000, concerning comments to the Remedial Investigation for Operable Unit 3 (OU3 RI) as indicated below:

1. Remedial Investigation for Operable Unit 3, Volume I of IV, Revision 1;
2. Supplemental Remedial Investigation Information Report; and
3. New narrative for the first 12 pages of Appendix F, Data Validation, and a new Appendix G.8, Screening Evaluation for Exposures to Surface and Subsurface Soil (0 to 12 feet) Industrial Workers and Minor Construction Workers, to Volume IV of IV. (Note the latter two documents are included as attachments to Item 1.

The review of these documents is also in response to Mark Sladic's letter to me dated February 10, 2000. The Navy documents are for the Naval Industrial Reserve Ordnance Plant (NIROP) Superfund Site and were submitted pursuant to the Federal Facility Agreement, dated March 27, 1991, between the MPCA, the U.S. Environmental Protection Agency (EPA), and the U.S. Navy (Navy).

The MPCA staff responses follow the numbering scheme originally found in the MPCA staff letter of November 17, 1999; in Mark Sladic's letter to me dated February 10, 2000 (except that

Mr. Joel R. Sanders

August 17, 2000

Page 2

in some cases items were broken up to indicate concurrence on some portions of the MPCA review response and non-concurrence on other parts); and in the MPCA staff letter of March 15, 2000.

Upon receipt of this letter, the MPCA staff requests that Bob Jupin contact Helen Goeden to discuss the risk assessment modifications and comments as a first step to addressing the modifications and comments and completing the Operable Unit 2 (OU2) and OU3 Risk Assessments and the OU3 Remedial Investigation Report. Also the MPCA staff requests that Bob Jupin send Helen a draft response to the risk assessment modifications and comments before the risk assessment changes are made to the OU2 and OU3 Risk Assessments.

The MPCA staff requests that the Navy not complete the OU3 RI Report (e.g., the Executive Summary and Chapter 7) until the MPCA staff has approved the Navy's responses to the requested modifications and comments to the OU2 and OU3 Risk Assessments because, for example, the MPCA staff requests that the Risk Assessment for OU2 be redone using the same methodology that was used for the OU3 Risk Assessment for the reasons identified in this letter. Also it will not be possible to complete Section 7.4 until the Navy fully identifies the risk scenarios that have unacceptable risks. Those risk scenarios with acceptable risks should not be included in the discussion in Section 7.4.

Again we thank the Navy for its efforts in moving toward agreement on the technical issues affecting the OU3 RI.

If you have any questions regarding this letter, please contact me at (651) 296-7818.

Sincerely,



David N. Douglas, Project Manager
Superfund/RCRA Unit
Site Remediation Section
Metro District

DND:smm

Enclosures

cc: Thomas Bloom, U.S. Environmental Protection Agency (w/enclosures)
Mark Sladic, Tetra Tech NUS, Inc. (w/enclosures)

Attachment I

Modifications to Remedial Investigation for Operable Unit 3, Volume I of IV, Revision 2, Dated May 2000

Agreement Reached

The Navy's changes indicate that the Navy and the MPCA staff have come to agreement on the following items: 1, 2, 3, 4, 5a (as modified below), 5b, 5c, 6, 7, 8 (as modified below), 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 (acknowledge it was skipped), 22, 23, 24, 25, 26, 27a, 27b, 27c, 27d, and 28.

Further Clarification or Agreement Still Not Reached

The MPCA staff believes that further clarification of the Navy's position is needed or that the Navy still needs to address issues as indicated below.

5a. First Bullet, page ES-11, third paragraph regarding evaluation of subsurface soil: The screening HI was below 1 but the individual HQ for chromium did exceed 0.2. (Please note that this was Helen Goeden's error (she provided the text) but it should be corrected.)

5a. Third Bullet, page ES-12, fourth sentence: This sentence should read, "[t]he incremental ELCR is below both the U.S. EPA's acceptable ELCR range of 1×10^{-4} to 1×10^{-6} and the MPCA's acceptable chronic ELCR of 1×10^{-5} ."

5a. OU-3 Ground Water Risk Assessment, page ES-13, first bullet: Please note that the chemical name, "cis-1 2-dichloroethene" should be changed to "cis-1,2 dichloroethene."

8. Executive Summary, Initial Screening of Possible Alternative Response Actions, page ES-17, second sentence: The Navy should explain here and in Chapter 7 why the Navy is not proposing an active remedy for chromium when it has been identified as a contaminant of concern (COC). One way to do this would be to indicate that the no-action alternative involves leaving the building floor in place which is sufficient for addressing what appears to be a small area contaminated by chromium because chromium is not mobile there as long as the floor is in place.

The text correctly states that the OU3 Remedial Investigation was adequate to determine if large-scale contamination was present but spatially localized sources of contamination may still exist. This situation also supports incorporation of institutional controls (e.g., require additional sampling prior to accessing soil) into the remedy. The MPCA staff does not consider the implementation of an institutional control a no-action alternative because it is required to restrict

use and control potential exposure. EPA's draft guidance on institutional controls (OSWER 9355.0-74FS-P, March 2000) clearly indicates that a remedy decision under CERCLA which only requires the implementation of institutional controls is a "limited action", not a "no action".

8. Executive Summary: This section focuses exclusively on OU3. The MPCA staff requests that this section be rewritten to address both OU3 and OU2. As in New Modifications and Comments below, additional information should be evaluated before the risk characterization and identification of COCs for OU2 is finalized. The evaluation for OU2 should be finalized before this section is rewritten to include OU2.

Also the MPCA staff requests that Tables 6-7 and 6-8 combined. An example table is attached.

New Modifications and Comments

The following modifications and comments are primarily based on the updated Risk Assessment of OU2 that appear in the latest version (Revision 1) of the Supplemental Remedial Investigation Information Report.

1. Page ES-16 OU2 Soil Evaluation: North 40 Area After the Removal Action: The text under this heading is not consistent with the text in Revision 1 to the Supplemental Remedial Investigation Information Report. It appears that when Revision 1 to the Supplemental Remedial Investigation Information Report was completed to include additional data, the calculated risk values changed, but these changes were not incorporated into the text in Revision 2 to the OU3 Remedial Investigation Report (Executive Summary as well as Section 7) and in some areas of Revision 1 to the Supplemental Remedial Investigation Information Report itself (e.g., Section 3).

Apparent inconsistencies in the Revision 2 to the OU3 Remedial Investigation Report are:

(Navy needs to verify that all inconsistencies are addressed in both the Revision 2 to the OU3 RI Report and Revision 1 to the Supplemental Remedial Investigation Information Report.)

Bullet 2 states that the cancer risks for the industrial worker and minor frequent construction worker were within EPA's target risk range of 10^{-4} to 10^{-6} and less than MPCA's target risk level of 10^{-5} . This is not correct. Revision 1 to the Supplemental Remedial Investigation Information Report states that the calculated cancer risks for the industrial worker and minor frequent construction worker exceeded MPCA's target risk level.

Bullet 5 states that the HI for the major infrequent construction worker was 0.93, however, Revision 1 to the Supplemental Remedial Investigation Information Report presents a value of 1.4. Also, as indicated in previous comments, the target HQ is 1 for the major construction worker since it is a subchronic exposure scenario; therefore, the HQ of 0.64 does not exceed MPCA's acceptable target level. The text should be revised as previously requested.

Bullet 6 states that no COCs were identified for soil in the North 40 area. The screening risk characterization conservatively utilized the maximum concentrations within the top 12 feet as the exposure concentration. At the time this approach was selected and approved by the MPCA staff, Bob Jupin believed that the estimated risks would be below target risk levels. However, the screening results slightly exceed target risks and, therefore, the MPCA staff requests that a more detailed Risk Assessment be done that is consistent with the approach that was utilized in the OU3 Risk Assessment as explained below.

For the industrial worker and minor construction worker the 95% upper confidence limit (UCL) of the mean is more representative of an exposure concentration. The MPCA staff requests that the Navy estimate the 95% UCL of the mean with consideration of patterns of contamination (horizontal and vertical) and in consultation with MPCA staff.

Trichloroethylene (TCE) is a major contributor to the estimated potential risk. The Revision 2 to the OU3 Remedial Investigation Report states that TCE was detected in less than a third of the samples and only one sample had TCE concentrations greater than 1 mg/kg. This statement is not made in Revision 1 to the Supplemental Remedial Investigation Information Report and Table 2-1 of this Revision 1 to the Supplemental Remedial Investigation Information Report indicates that TCE was detected in nearly 47% of the samples. In addition to the summary information provided in Table 2-1, detailed analytical results for contaminants should be included (e.g., Tables 4-1 and 4-2 of Revision 2 to the OU3 Remedial Investigation Report).

For the major infrequent construction worker, it was assumed that the individual would only be exposed to a limited area and, therefore, the maximum detected concentration would represent the potential exposure concentration. This is consistent with the assessment of the major infrequent construction worker for OU3. The risk estimate for this receptor also exceeded the MPCA target risk levels. The location of the maximum concentrations of TCE (the major source of the risk) is critical in determining the need for potential remedial alternatives. Table 2-1 of Revision 1 to the Supplemental Remedial Investigation Information Report provided the sample location of the maximum concentration. However without an accompanying figure depicting horizontal and vertical location this information has very limited use. Previous comments requested that a figure presenting the locations of the samples be included in the Supplemental Remedial Investigation Information Report. The MPCA staff again requests this figure be included and referenced in the report.

2. Page ES-17 OU2 Soil Evaluation: Areas excluding North 40 Area: Bullet 4 states that "All individual HQs were less than the MPCA acceptable level of 0.2 with the exception of arsenic . . ." As previously indicated, the target HQ is 1 for the major construction worker, a subchronic exposure scenario. Therefore, the HQ for arsenic does not exceed the acceptable HQ for this exposure scenario.

Bullet 5 states that no COCs were identified for soil excluding the North 40 area. The screening risk characterization conservatively utilized the maximum concentrations within the top 12 feet as the exposure concentration. At the time this approach was selected it was believed that the estimated risks would be below target risk levels. However, the screening results slightly exceed

target risks; therefore the MPCA staff requests that the Navy do a more detailed Risk Assessment that is consistent with the approach that was utilized in the OU3 Risk Assessment.

For the industrial worker and minor construction worker, the 95% UCL of the mean is more representative of an exposure concentration. The MPCA staff requests that the Navy estimate the 95% UCL of the mean with consideration of patterns of contamination (horizontal and vertical) and in consultation with MPCA staff.

For the major infrequent construction worker, it was assumed that the individual would only be exposed to a limited area and, therefore, the maximum detected concentration would represent the potential exposure concentration. This is consistent with the assessment of the major infrequent construction worker for OU3. The risk estimate for this receptor also exceeded the MPCA target risk levels. The location of the maximum concentrations of carcinogenic PAHs (the major source of the risk) is critical in determining the need for potential remedial alternatives. Table 2-2, unlike Table 2-1, does not provided the sample location of the maximum concentration. As with the evaluation of the North 40, a figure depicting horizontal and vertical location is needed. Previous comments requested that a figure presenting the locations of the samples be included in the report. The MPCA staff again requests this figure be included and referenced in the report.

3. Risk Summary Table for Operable Units 2 and 3: At the end of the section entitled, Human Health Risk Assessment, the MPCA staff requests that the Navy produce a table for the OU3 RI Report that combines the information found in Table 2-3 from Revision 1 to the Supplemental Remedial Investigation Information Report and Table 6-7 of the OU3 RI Report. This should be done after the risk characterization and identification of COCs has been finalized for OU2. See comments on ES-16 and 17.

2. Section 7.4 Initial Screening of Possible Alternative Response Actions

The MPCA staff requests that this section be revised to incorporate revisions recommended above for the Executive Summary since much of the text is repeated.

Also the MPCA staff requests that this section be rewritten to address the unacceptable risks identified in the Risk Summary Table identified in new Comment 3 above. Unacceptable risks are those that exceed MPCA's cancer target risk of 1×10^{-5} and noncancer target risks of 1 for hazard index and 0.2 for hazard quotient for the Industrial Worker and the Minor Frequent Construction Worker; and the cancer target risk of 1×10^{-6} and noncancer target risks of 1 for hazard index and 1 for hazard quotient for the Major Infrequent Construction Worker. The target risk levels for the Industrial and Minor Frequent Construction Worker is an ARAR and the target risk levels for the Major Infrequent Construction Worker is a To Be Considered for the site.

Table 2-3 from Revision 1 to the Supplemental Remedial Investigation Information Report indicates that there are potentially unacceptable risks for each of the six risk scenarios. As indicated in the New Modifications and Comments, Items 1 and 2, additional risk assessments need to be conducted before the risk characterization can be finalized.

It should also be noted that the contaminants that contributed greatest risk to the risk scenarios that have unacceptable risks are COCs for the site. These COCs were identified in the fifth column of Table 2-3, but not acknowledged as COCs in the text. Thus for the Minor Frequent Construction Worker in OU2 (excluding the North 40), the COCs are benzo(a)anthracene; benzo(b)fluoranthene; and dibenzo(a)anthracene. For the Major Infrequent Construction Worker in Table 6-7, the COCs are arsenic, chromium, copper, and mercury.

Example of Combined Table 6-7 and 6-8.

Summary of Soil Risk Characterization and Identification of COCs for OU3.

Receptor	Cancer Risk			Noncancer Risk				
	Target Risk (1)	Calculated Risk	COCs (2)	Target Hazard Index (3)	Calculated Hazard Index	Target Hazard Quotient (3)	Calculated Hazard Quotient	COCs (2)
Baseline Evaluation -								
<i>0 – 4 feet depth: Chronic exposure to 95% UCL average concentration throughout building</i>								
Industrial Worker	1×10^{-5}	0.35×10^{-5}	--	1	< 1	0.2	< 0.2	--
Minor Frequent Construction Worker	1×10^{-5}	0.36×10^{-5}	--	1	< 1	0.2	< 0.2	--
<i>0 – 12 feet depth: Short-term exposure to maximum concentrations in localized areas</i>								
Major Infrequent Construction Worker	1×10^{-6}	2.1×10^{-6}	Maximum concentrations at different locations. Risk at individual locations $< 1 \times 10^{-6}$	1	2.9	1	1.35	Chromium (located > 4 feet in East Plating Shop AOC)
Screening Evaluation -								
<i>0 – 12 feet depth: Chronic exposure to maximum concentrations in localized areas</i>								
Industrial Worker	1×10^{-5}	2×10^{-5}	Maximum concentrations at different locations. Risk at individual locations $< 1 \times 10^{-5}$	1	< 1	0.2	0.8	Chromium (located > 4 feet in East Plating Shop AOC)
Minor Frequent Construction Worker	1×10^{-5}	1.8×10^{-5}	Maximum concentrations at different locations. Risk at individual locations $< 1 \times 10^{-5}$	1	< 1	0.2	0.37	Chromium (located > 4 feet in East Plating Shop AOC)

1) EPA Target Cancer Risk Range: 1×10^{-6} to 1×10^{-4}

2) COCs significantly contributing to calculated risks exceeding target risks were identified as COCs.

3) EPA Target Noncancer Risks: Hazard Index of 1 for multiple contaminants and Hazard Quotient of 1 for individual contaminants.

Attachment II

Modifications to the Supplemental Remedial Investigation Information Report, Revision 1 Dated May 2000

Agreement Reached

The Navy's changes indicate that the Navy and the MPCA staff have come to agreement on the following items: 1, 4 (see note below), 5, and 7.

Further Clarification or Agreement Still Not Reached

The MPCA staff believes that further clarification of the Navy's position is needed or that the Navy still needs to address issues as indicated below. Also, see New Modifications and Comments.

2. Section 2.1 North 40 Area after Removal Action and Section 2.3 Excluding the North 40:

The Navy did not include the figure representing the sampling locations in the report. The MPCA staff again requests that the Navy include the figure.

3. Section 2.3 Major Infrequent Construction Worker Analysis: The Navy identified the subchronic target HQ and HQ as being 1.0 in the section entitled, North 40 Area After Removal Action, but not the section entitled, OU2 Excluding The North Area. The MPCA staff requests that the Navy correct this for the latter section.

4. Table 2-2, All Soils Excluding the North 40: For the record, the units for this table are milligrams per kilogram as noted in the table, not micrograms per kilogram.

6. Section 3.0 Summary/Conclusions: The text is not consistent with the text in Section 2. It appears that when the Supplemental Remedial Investigation Information Report was revised to include additional data, the calculated risk values changed. It appears that the text in Section 2 was revised to reflect the reevaluation, but the text in Section 3 was not revised. See requested modifications regarding the Executive Summary of Revision 2 to the OU3 RI Report. In addition see requested modifications to the Executive Summary of Revision 2 to the OU3 RI Report regarding an evaluation of the exposure concentrations utilized in the screening risk evaluation.

Attachment III

Modifications to New Narrative for the First 12 Pages of Appendix F, Data Validation, And a new Appendix G.8, Screening Evaluation for Exposures To Surface and Subsurface Soil (0-12 feet) Industrial Workers and Minor Workers, Volume IV of IV, Dated May 2000

Agreement Reached

Appendix F, Data Validation

The Navy's responses indicate that the Navy and the MPCA staff have come to agreement on items 2, 3, 4, and 5.

Further Clarification or Agreement Still Not Reached

The MPCA staff believes that further clarification of the Navy's position is needed or that the Navy still needs to address issues as indicated below.

1. All Audit Reports: The Navy did not address this comment in the executive summary as the Navy agreed to do. The MPCA staff again requests that the Navy address this comment.

Appendix G.8

The Navy's responses indicate that the Navy and the MPCA staff have come to agreement on the item from Appendix G.8.