

Minnesota Pollution Control Agency

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

July 29, 1994

Mr. Sidney L. Allison, P.E., Director
Environmental Department
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, South Carolina 29419-9010

RE: Naval Industrial Reserve Ordnance Plant Site

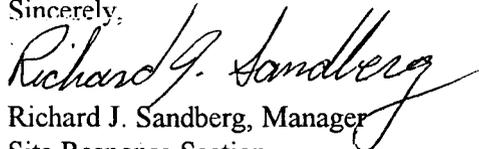
Dear Mr. Allison:

The Minnesota Pollution Control Agency (MPCA) staff has reviewed the U.S. Navy's report entitled "Alternatives Array Document," (Report) dated July 31, 1994, for the Naval Industrial Reserve Ordnance Plant site. The Report was submitted pursuant to the Federal Facility Agreement, dated March 27, 1991, between the MPCA, the U.S. Environmental Protection Agency (EPA), and the Navy.

The MPCA staff hereby approves the Report with modifications contained in the attachment to this letter. The Navy shall make the modifications either by submittal of a letter addendum or by a modified Report.

If you have any questions regarding this letter, please contact David Douglas of my staff at (612) 296-7818.

Sincerely,



Richard J. Sandberg, Manager
Site Response Section
Ground Water and Solid Waste Division

RS:ch

Enclosure

cc: David Cabiness, Navy, Southern Division
Linda Hicken, RMT, Inc.
Thomas Bloom, U.S. Environmental Protection Agency, Region V

ATTACHMENT

Alternatives Array Document
Naval Industrial Reserve Ordnance Plant
Fridley, Minnesota
July 1994

1. **Page 3, paragraph 2:** The soil at the NIROP site is developed on glacio-fluvial deposits that resulted from deposition in a fluvial (river) environment during higher stages of the Mississippi River during glacial melting.

The discontinuous silt and clay layers mentioned generally occur in the subsurface at the site and are observed in the Remedial Investigation (RI) cross sections. One major fine grained interval exists in Area A which might effect the remediation (Figure 4-6, May 1993 Soil RI Report).

On a portion of the site, the St. Peter Sandstone has been removed by erosion and the first bedrock encountered below the unconsolidated deposits is the Prairie du Chein Group. In this area direct hydraulic connection between the unconsolidated deposits and the Prairie du Chein exists.

2. **Page 5, Summary of the Soil OU RI Results:** The summary of the soil RI results shall include a discussion of the presence of the shallow fine-grained interval present over much of the contaminated portion of Area A and the levels of contaminants observed in this material. Contamination occurs both above and below this interval and also presumably is present in this fine grained layer. Contamination in this interval shall be evaluated and discussed in this section because such contamination may be important for remedy selection.
3. **Page 5, paragraph 3:** The text states that pesticides in the soils are near background levels. Unlike soil metals, xenobiotic compounds do not have natural background concentrations. The Navy shall reword this statement to distinguish between what may be commonly found concentrations in off-site soil samples and what is natural background. The Minnesota Pollution Control Agency (MPCA) staff consider background concentration for pesticides to be zero.
4. **Page 7, paragraph 2:** "Other pathways" listed include inhalation as well as dermal adsorption and ingestion of soils. However, inhalation is already discussed in the preceding paragraph.
5. **Table 1:** Change "microbacteria" to "bacteria."
6. **Table 2:** The Applicable or Relevant and Appropriate Requirements (ARARs) for lead have been recently updated and clarified. Please refer to the enclosed memorandum entitled "Lead Clean-up Goals for Superfund Sites" for this information and update Table 2 accordingly. The Minnesota Air Emission Rates (AER's) shall be added as a To Be Considered for any remedy that includes discharge of contaminants to the atmosphere via the air route.

7. **Page 22, paragraph 2:** It is unclear what is meant by the statement "unsaturated soil may not be the only source of chlorinated volatile organic compounds . . . and extremely stringent soil cleanup criteria may not be effective in protecting groundwater." If it is found that there are other sources of volatile organic compounds besides the unsaturated soil, the Navy shall identify and address these appropriately (as, for example, in comment 7). However, clean-up numbers for subsoil are meant to protect the underlying ground water, and are not subject to alteration due to the discovery of other sources of contamination.
8. **Page 22, paragraph 3:** It is understood that soils at the site are not homogenous, and that areas of finer sands, silt, and clays exist. However, clean-up numbers - and therefore the selected remedy - shall be chosen based upon conservative estimates of the site soils to ensure the protection of ground water.
9. **Page 22, paragraph 3:** It is possible that because the fine-grained soil releases contaminants at a different rate than the sand that the same remedies may not be appropriate for the sand and fine-grained sediments. The Navy shall evaluate this in the Feasibility Study (FS) and the potential need for a combination of remedies possibly one for the sand and gravel and another for the fine-grained materials evaluated if it is determined that Soil Vacuum Extraction (SVE) is not appropriate as a remedy for the fine-grained material.
10. **Page 23, paragraph 1:** Note that Minnesota rules do not allow ground water degradation due to the leaching of contaminants from the soil at any point in the aquifer. Therefore, it is inappropriate to include "potential dilution effects" of contaminants in the ground water in setting soil clean-up numbers.
11. **Page 23, paragraph 2:**
 - a. Please see comment 6 with respect to the Summers model.
 - b. The screening of remedial technologies will consider the overall effectiveness of the technology in light of the clean-up goals that have been set.
12. **Page 23, paragraph 2:** The MPCA has provided comments to the U.S. Environmental Protection Agency (EPA) and the Navy indicating that EPA's technical staff in Ada, Oklahoma determined that the Summers Model was inadequate to generate soil clean-up numbers for site remediation in general. Based on this evaluation, the MPCA also believes that the Summers model is not appropriate for use at the site for determining soil clean-up levels and will not be accepted by the MPCA staff. Please refer to the MPCA staff letter dated May 2, 1994, that establishes MPCA soil clean-up levels for contaminants of concern for Operable Unit 2 at NIROP. The MPCA and EPA staff are continuing to resolve the issue of soil clean-up levels for the NIROP site.
13. **Page 28, paragraph 3:** Evaluation of the SVE technology shall include an evaluation and discussion of how the fine-grained layer that is extensive over Area A will effect the performance and effectiveness of SVE. An evaluation of the contamination located in this interval and how effective SVE will be in removing contaminants from this material shall be included. In the event that SVE proves to be ineffective in achieving remedial goals for this interval other technologies to address this interval shall be included in the FS. In addition how

this interval might effect the placement of extraction vents will be evaluated. Are vents required both above and below the fine-grained interval? How will these vents serve to remediate the fine-grained material as well as the sand and gravel intervals? A pilot test may be required to answer these questions. The SVE system operating in RCRA Area C is located in much more homogenous soil conditions than exist in much of Area A. The technology performance may be quite different in the two areas.

14. **Page 35, Summary:** A combination of remedies may need to be applied to the site to achieve remedial goals.
15. **General Comments:** Prior to the implementation of the presumptive remedy, the Navy shall conduct additional investigation of the site to determine the possible presence of additional buried barrels at the areas specified in the June 25, 1993, MPCA soil operable unit letter. This work may result in an additional barrel removal and identification of additional contaminated soil to be considered in the design of a remedy. The Navy shall perform this work before the FS is completed so that discussion of potential actions may be included in the FS evaluation.

Please note in this document that the soils array does not include soil that may be contaminated in the unsaturated zone beneath the NIROP buildings or dense nonaqueous phase liquids (DNAPL) that may be located beneath the NIROP buildings. In previous discussions with EPA Region V and the Navy, it was determined that contamination beneath the buildings shall be addressed in a separate operable unit.