



Minnesota Pollution Control Agency

September 24, 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Daniel Pena
Minnesota Department of Health
Site Assessment and Consultation Unit
121 East 7th Place
P.O. Box 64975
St. Paul, Minnesota 55164-0975

RE: Draft Public Health Assessment for the Naval Industrial Reserve Ordnance Plant
Superfund Site

Dear Mr. Pena:

As you have requested, the Minnesota Pollution Control Agency (MPCA) staff has reviewed the document entitled, "Draft Public Health Assessment, Naval Industrial Reserve Ordnance Plant," (NIROP PHA) dated April 29, 1998. This letter is the MPCA staff response to NIROP PHA.

The MPCA staff requests that the Minnesota Department of Health modify the NIROP PHA pursuant to Attachment I of this letter. Please change the cited text to address the identified modifications.

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

Sincerely,

A handwritten signature in black ink, appearing to read "David N. Douglas".

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

DND:ch

Enclosure

cc: Scott Glass, U.S. Navy
Thomas Bloom, US Environmental Protection Agency

Attachment I

Modifications to the Report Entitled,
"Draft Public Health Assessment,
Naval Industrial Reserve Ordnance Plant,"
dated April 29, 1998

1. **Summary, page 1, first paragraph.** The public likely does not understand what a "completed pathway" is and the summary may be all they read. Please define that the exposure pathway is, e.g., contaminants, mainly trichloroethylene (TCE), from drums and contaminated soil (the known sources) released to soil then to ground water then to the Mississippi River then to the intake to the Minneapolis Water Works (MWW) then to the finished water and then consumed by the public. Please state that the public is actually exposed to TCE from drinking the finished water from the MWW, but that based on a quantitative estimate of risk, no excess cancer deaths are expected in the population drinking the finished water.
2. **Summary, pages 1 and 2.** Please delete "(or past)" from the first sentence, second paragraph, page 1. "Past" might be construed to be before sampling began or change "Based on available data," to "Based on sampling data of the finished water from the MWW beginning in 1984,".

Also TCE is not the only contaminant with potential presence in drinking water. In ground water, although TCE is the main contaminant of concern based on concentration, there are other more toxic contaminants present. At present, TCE is the "indicator" contaminant of concern based on its relative mass as a ground water contaminant, but there are more toxic contaminants that also exceed levels of concern in ground water. These concepts should be included in the summary and elsewhere in the report.

3. **Introduction, first sentence.** The Minnesota Pollution Control Agency (MPCA) still refers to the other site as the FMC Hazardous Waste Site (FMC Site) even though FMC is now owned by UDLP. In other words, for the MPCA, there is no such "UDLP Superfund Site."
4. **Background, Section A. Site Description and History.** Throughout the document various terms are used to explain areas that appear to be intended to describe the beginning of exposure pathways, e.g., NIROP/UDLP properties; NIROP/UDLP site; NIROP/UDLP sites; NIROP/UDLP plant, etc. These descriptors "site, properties, plant (facility)" have different state and federal Superfund meanings. The three areas that the MPCA staff is certain are contributing to the completed pathway of TCE in MWW's finished water are the two Superfund sites, the Naval Industrial Reserve Ordnance Plant, Fridley, Minnesota Superfund Site (NIROP Site) and the FMC Site and the RCRA site, Storage Area C, which probably contributed to ground water contamination being captured by the Operable Unit 1 (OU1) remedy.

⊕ Has any other site contaminants shown up in finished water?

5. **Section A. Site Description and History, page 6, last sentence in top partial paragraph.** In the Minnesota Environmental Response and Liability Act (MERLA), the term “site” includes the area where the contamination migrates; therefore, the FMC Site includes the off-site ground water plume in Anoka County Riverfront Park. The same can be said for the NIROP Site.
6. **Section A. Site Description and History, page 6, last paragraph, second sentence.** In MERLA, the term, “facility” refers to property owned by the responsible person (responsible party) that has a release or a threat of a release of hazardous substances, pollutants or contaminants. Facility and site are not necessarily the same for a MERLA site.
7. **Section A. Site Description and History, page 6, last paragraph, eighth line.** The Request for Response Action (RFRA) was issued solely pursuant to MERLA.
8. **Section A.1.a NIROP Operable Unit 1 (OU1) plant wide groundwater.** The report should discuss emissions from the upcoming Phase II groundwater treatment system. A preliminary risk assessment has been completed and modeling results predict no unsafe exposures to humans at the property line. Actual emissions will have to be collected once the plant becomes operational and the model will have to be rerun.
9. **Figure 4.** Another map containing this information plus mapping of isoconcentrations of TCE is available and would be more helpful in visualizing the contamination in this area.
10. **Section A.1.b NIROP Operable Unit 2 (OU2) Unsaturated Zone Outside Building.** The release sampling results need to be included in the text.
11. **Section A.1.c NIROP Building In Saturated Zone (OU3).** The draft OU3 Remedial Investigation (RI) and Risk Assessment have been submitted to U.S. Environmental Protection Agency (EPA) and MPCA. This report should include the conclusions and recommendations of these reports. It is very important that this report wait to incorporate the information generated by the OU3 RI, in part, because of the significant list of hazardous substances found, albeit that preliminary data indicates that most substances may not be at levels of concern.
12. **Section A.2.b UDLP/FMC Containment and Treatment Facility (CTF) RCRA Site, page 29, last paragraph.** Please remove this paragraph from the report. It is speculative. No release from this facility has been established.
13. **Section C. Demographics, Land Use, and Natural Resources Use, page 32, top partial paragraph.** The discussion about removal of TCE or possible removal of TCE during processing water in the MWW is speculative. No testing has been done to determine if any TCE is removed in the plant. This text should be removed from the report.
14. **Section C. Demographics, Land Use, and Natural Resources Use, page 32, first and second complete paragraphs.** The text should state that the MWW sampling data in the Minnesota Department of Health’s (MDH) County Well Index Data Base were not shared with personnel outside of the MDH until the drafting of this report.

*
 No.
 Emissions will
 not be sampled.
 Model will be
 rerun.

*

15. **Section D. General Regional Issues, page 37, last two paragraphs.** The text discusses part of the NIROP Site in Anoka County Riverfront Park and should be placed in Section A.1.a of the report.

★

16. **Section D. General Regional Issues, page 37, last paragraphs, eighth line.** Change this sentence to the following text, "The 5 µg/l standard is applied at wells nearest the Mississippi River to protect the river as a public water supply. The contaminated ground water from the NIROP Site flowing into the river exceeds the 5 µg/l standard and must be reduced to 5 µg/l according to the MPCA staff."

17. **EVALUATION OF CONTAMINATION AND EXPOSURE, introductory paragraph.**

This section is too focused on TCE. For instance in the second sentence, a complete pathway exists for all contaminants in ground water not just TCE. The other contaminants of concern found in the ground water should also be stated here. TCE is the major contaminant by mass but other more toxic contaminants are present. Vinyl chloride is approximately 200 times more toxic and children are suspected to be more sensitive to its toxic effect (i.e., carcinogenicity). 1,1-Dichloroethylene is also more toxic and is a possible human carcinogen.

The levels of TCE detected are discussed. It should be mentioned whether other suspected contaminants were analyzed for and if so what the results were. If TCE is the only contaminant analyzed for, that should be stated.

In the seventh sentence, the term "safe" may convey the impression that there is no risk; "safe" is a very subjective term. Please delete this sentence or modify it so that it is clear that there is a regulatory acceptable risk level (1E-5) and the levels are below this regulatory level.

In the Foreword to the report is the following narrative:

Evaluating health effects: If there is evidence that people are being exposed - or could be exposed - to hazardous substances, MDH scientists will take steps to determine whether that exposure could be harmful to human health. The report focuses on public health - the health impact on the community as a whole - and is based on existing scientific information.

With this objective in mind, it is important for the report to point out that 500,000 people are actually being exposed to TCE from the finished water of the MWW. It is also important to inform the public as to what the actual risk is and it is important to conduct the assessment based on the most relevant scientific information.

With this in mind, the MPCA staff requests that the MDH add "from the Minneapolis Water Works" after "drinking water." The MDH should identify the completed pathway being evaluated (see Modification 1 above). The MDH should not compare the concentrations of TCE in the MWW finished water to the maximum contaminant level (MCL) because the MCL is not strictly based on risk to human health (it is not the most relevant scientific information). Instead of the MCL, the MDH should use the Health Risk Limit for TCE,

⊙
not necessarily what has been detected in finished water!

HRL for TCE 1330

which is 30 µg/l for trichloroethylene for this comparison. The discussion should clearly indicate that the levels meet the regulatory requirements for public drinking water supplies and in fact the regulatory requirement for TCE is 6 times lower than the risk-based levels of concern.

There may be other chemicals in the finished MWW drinking water. The following narrative is taken from page 7 of the FMC Record of Decision, dated September 30, 1987:

Based on 40 samples collected between 1981 and 1983, contaminants at the Minneapolis drinking water supply intake include: trichloroethylene [found 26 times at 0.2 to 1.7 ppb; 1,1,1-trichloroethane [found twice at 1.2 and 1.4 ppb]; 1,2 dichloroethylene [found five times at around 0.6 ppb]; and 1,1-dichloroethylene [found once at 0.3 ppb]. Per MPCA staff, trichloroethylene has also been sampled at 3.1 ppb.

These contaminants are also found in the ground water plumes from both the NIROP and FMC Superfund Sites, albeit at lower concentrations than TCE and albeit that surface and ground water sampling at both sites focuses on TCE. This report should evaluate the completed (and incomplete) pathways for these other contaminants of concern as well as TCE. The report should emphasize that when evaluating human health risks in all media a multi-contaminant approach should be used with additivity being an important concept to meet this objective.

Also for all of the pathways discussed for each area, certain conclusions are made concerning exposure such as exposure does not appear to be likely because the area is isolated, etc. In these instances, a statement should be made that no air quality analyses were conducted. The MPCA staff questions whether such statements should be made at all if no air quality analyses were conducted. Where there is no technical basis for the conclusions made regarding the text to a given pathway, the term, "to be determined" as used in Section B.2.c is more appropriate.

18. **Section B.1 Naval Industrial Reserve Ordnance Plant (NIROP) Superfund Site.** The report should include the ground water data from the OU3 RI which is now available to the MDH.
19. **Section B.1.a Ground Water Contamination (OU1), Current Pathways, Air (Outdoor), Air (Indoor), Groundwater, Potential Future Pathways.**

In the general paragraph, the other contaminants of concern should be listed and the appendices should be amended accordingly.

In the paragraph on outdoor air, the text should include a discussion concerning the air emissions from the upcoming Phase II containment and treatment system. If the MDH desires, it can conduct its own analysis of the air emission modeling that has already been done by the Navy and evaluated by the MPCA staff. Also in the second sentence, there appears to be no basis for the statement that "...should soil vapor gas reach the surface, it would be diluted with ambient air below levels of health concern." This statement should be deleted if there is no basis for it or the basis for this statement should be indicated.

In the paragraph on indoor air in this section and elsewhere, statements are made that exposures are not known to be occurring. Such statements could be misleading to the public because it is not clear whether or not data were reviewed. In all such instances throughout the report, the MDH should identify the basis for such statements or should delete them if there is not basis for them.

In the paragraph on soil, why is soil evaluated if OU1 is only ground water? If soil is contaminated why do excavations need to reach ground water in order for exposure to occur?

In the paragraph on ground water, a statement is made that winter appears to be the time when the water supply is most affected, but no data is cited as a basis for this statement. The statement should be deleted from the report or the data should be presented to support it.

In the paragraph on potential future pathways, the first sentence should be changed to delete the reference to land use. The statement applies regardless of the land use. It is important to note that the exposure scenarios apply now, not just in the future, so the title of this section should be changed to "Potential Pathways" and throughout the document where the same perspective is used. Alternatively, perhaps the term "land use" should be removed and replaced with "activities" here and throughout the rest of the report. If soil is correctly included in Current Pathways it should also be discussed under Potential Future Pathways.

20. **Section B.1.b On Site Subsurface Source Areas In Unsaturated Zone Outside NIROP Building (OU2), Current Pathways, Air (Outdoor) and Groundwater.**

In the paragraph on outdoor air, change "possible" to "likely" in statement.

In the paragraph on ground water, there is no technical basis to attribute any given contamination entering the river as coming from OU2 as implied in this narrative, although this may be the case.

Also the exposure pathway is not only completed for TCE but all contaminants of concern in the ground water. The other contaminants of concern should be discussed. Additional contaminants of concern have been analyzed for or found at the intake or finished water and should be discussed.

Regarding the discussion on TCE exposure levels, this should be qualified by stating "thus far the data indicates that levels are below the MCL..." Regarding "...are safe over a lifetime..." see above comment number 17.

21. **Section B.1.c On Site Subsurface Source Areas In Saturated and Unsaturated Zone Beneath NIROP Building and On Site Subsurface Areas Outside the NIROP Building in Saturated Zone (OU).**

In the paragraph on indoor air, TCE is not the only contaminant of concern. There are other more volatile and more toxic contaminants of concern present in ground water.

In the paragraph on potential future pathways, replace "land use" with "activities." Since OU3, includes soil as well as ground water change first sentence to read "... contaminated area or contaminated plume...".

22. **Section B.2 United Defense Limited Partnership (UDLP).** Should Section B.2.a. be the beginning of Section C since this area is not related to the area being referenced in Section B.2?
23. **Section B.2.a Groundwater Remedial Action (FMC Superfund Site), Groundwater, Potential Future Pathways.** There is no technical basis for concluding where the ground water plume from this site enters the river or whether in fact it actually enters the river. The MPCA staff has identified this matter as an item to be investigated by FMC.

In the paragraph on outdoor air, are the emissions from the extraction system or from the areas of residual soil contamination?

In the paragraph regarding potential future pathways the reference to UDLP possibly hooking up to Phase II of the NIROP ground water remedy should be removed. According to the Navy, the Navy and FMC have no plans for this hookup.

24. **Section B.2.b Containment Treatment Facility, Groundwater.** There is no technical basis for stating that the Containment Treatment Facility is not likely to leak so this statement should be deleted. The statement "Furthermore the concentrations of the effluent gas are low to start with..." indicates that data exists. This statement should reference the source.

25. **CONCLUSIONS**

To the second sentence, change "under current conditions" to "based on the data reviewed." Data gaps exist in the ground water and surface water monitoring network. Current conditions could pose a health hazard so the latter phrase is more descriptive of what we know about these sites.

Some of the text in this section is first identified in the conclusions rather than being introduced in the body of the report and fleshed out there. For instance, in Item 1, for the first time in the conclusions section, we learn that the finished water is sampled quarterly and that detection limits are too high for the eight years of UDLP sampling of the intake water. These and similar statements should also be in the body of the report.

The text in this section needs to point out that risk assessments for the various exposure pathways for these sites need to also focus on the effects of multiple contaminants of concern.

The text in Item 1 should include a statement that 500,000 people are actually being exposed to TCE in the finished water from the MWW and that at least some of the TCE is coming from the NIROP and FMC sites. It should state that TCE is a suspected human carcinogen. The discussion is too focused on TCE. The discussion should include other COCs. The text concerning vinyl chloride should also be in the body of the report and it should be stated that vinyl chloride is more volatile and much more toxic than TCE.

The text in Item 5 implying that TCE is somehow treated or reduced in the MWW plant is misleading. There is no technical basis for this narrative. It should be removed from the report.

26. PUBLIC HEALTH PLAN

The MPCA staff has the following response to the recommendations contained in this section.

- a. Are intake samples not taken at the raw water tap unacceptable to the MDH?
- b. Should not the third recommendation include sampling for contaminants of concern originally found in the intake.