GWOU ADMINISTRATIVE RECORD
SECTION TITLE:
GW-500-501-1.31

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

MAY 0 6 2003

Ms. Pamela Thompson
Project Manager
U.S. Department of Energy
Weldon Spring Site
Remedial Action Project Office
7295 Highway 94 South
St. Charles, Missouri 63304

Dear Ms. Thompson:

Re: Draft Proposed Plan for Final Remedial Action for the Groundwater Operable Unit at the Chemical Plant Area of the Weldon Spring Site (March 2003)

The Environmental Protection Agency (EPA) has reviewed the draft proposed plan for the groundwater operable unit and our comments are enclosed. Most of the comments are provided with the objective of making the content more understandable to the average reader and more consistent with the CERCLA remedy selection process. Most comments do not represent a substantive disagreement with the technical aspects of the plan. It should be noted that most of the comments are made once, but are intended to apply anywhere within the document that the issue arises. We did not attempt to note each place within the document a similar point could be made. Also, there are cases where we made specific comments on sections or parts of the document that we had previously recommended be altered, eliminated, or placed in a companion document. Therefore, if our general comments are adopted, the DOE may be unable to respond to certain of the specific comments or the response may be more appropriate to a companion document rather than the proposed plan.

Thank you for the opportunity to review the proposed plan. We look forward to discussing them with you over the near future.

Sincerely,

Daniel R. Wall
Remedial Project Manager
Superfund Division

Enclosure

cc w/enclosure:
Robert Geller, MDNR
Larry Erickson, MDNR
Ben Moore, MDNR Field Office
Peter Price, MDNR Geological Survey and Resource Assessment

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EPA Comments on the Draft Proposed Plan for Chemical Plant GWOU (March 2003)
May 5, 2003

General Comments:

1. The purpose of the proposed plan is to facilitate public involvement in the remedy selection process primarily by summarizing information that is presented in greater detail in other documents. However, the types of information presented in the draft proposed plan and the manner of presentation are more appropriate to an FS than to a proposed plan. This additional FS information needs to be made available and is an important part of the record; however, we think there would be great benefit to preparing both another supplement to the FS, which could include some of the more detailed information, and a more traditional proposed plan, which would summarize in concise form relevant information from the supplemental FS and other documents. This approach would be more consistent with the CERCLA remedy selection process in the NCP and EPA guidance.

2. We recommend that the supplemental FS focus on new information and analysis developed since the interim record of decision (IROD) was issued in September 2000. This would include an evaluation of the results of the in-situ oxidation (ICO) response action, an evaluation of the results of the enhanced pump and treat field tests, the reevaluation of the feasibility of monitored natural attenuation (MNA), the reevaluation of remediation time frames, the detailed MNA monitoring strategy, and the progress made in the evaluation and determination of institutional controls (ICs). We don't recommend re-including or reiterating information or conclusions from the original FS or FS Supplement except to the extent it helps explain the current state of the decision-making process.

3. The proposed plan should be a readily understandable document on the order of 10 to 15 pages focusing on summary presentation of site contaminants, risks, the remedy selection process, the preferred alternative, and the public participation process. See the example plan in Appendix A of "A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents" OSWER 9200.1-23P. In this case, the proposed plan will also need to address the proposed change to the IROD if it is intended that this change will be documented in the groundwater record of decision (ROD).

4. For the public to be able to participate effectively in the remedy decision-making process it's important for them to understand the information being presented for comment. Therefore, we recommend adding a glossary of terms to define some of the specialized terms used in the document, e.g., glacial drift, preglacial deposits, residuum, overburden, weathered, unweathered, vugs, core loss, hydraulic conductivity, confined aquifer,

unconfined aquifer, alluvial aquifer (all found on pg. 5 in the Site Background), groundwater divide, topographic high point, karst conduit system, physical and chemical degradations, losing stream, hydogeologically complex groundwater system, fractures, conduits, paleochannels, dissolution/weathering features (on page 6), etc.

5. Since the main purpose of the proposed plan is to facilitate public comment, we recommend including more information about the public participation process, e.g., information about the public comment period, public meeting, location of the administrative record, how DOE will respond to comments, etc., in the introduction of the proposed plan. We also recommend including a brief discussion of the roles of the different agencies involved (i.e., identify the lead and support agencies) and an outline of the remaining steps in the remedy selection process in this introductory section.

Specific Comments:

1. Section 1 Introduction, pg. 1, line 1– The proposed plan presents a preferred alternative, not the final remediation strategy, which will come in the ROD.

2. Section 1 Introduction– We recommend including a brief description of what the IROD addressed, e.g., TCE contamination in zones 1 and 2 of the Chemical Plant Area, and how this proposed action fits in with the remedial action decisions made in the IROD.

3. Site Background, introductory paragraph, pg. 5– In connection with mention that the Chemical Plant lies within the boundaries of the Ordnance Works, we suggest including a little more information about the Ordnance Works itself, e.g., what it is, how big its is, who controls it, and that it also is the subject of a CERCLA cleanup by the Army under another 120 FFA.

4. Site Background– The relevancy to remedial action selection of the information presented about geology, hydrogeology, surface water, land use and demography, and groundwater use is not always very clear. Also, this information does not portray a very clear picture of the geologic cross section of the Chemical Plant. At the proposed plan stage, the primary focus of the information ought to be on (1) what contamination has been found where and at what levels and (2) why finding contamination at those locations and levels is significant from the standpoint of remedy selection. The proposed plan as written does not tie together very well general background information with contaminant information to make clear how the two types of information fit together in the remedial action decision.

5. Site Background Section– Two areas where we might want to consider adding more background information are (1) a brief history of the origin of the contamination and (2) a summary of past investigation and response actions. Some of this information, especially about past investigations and response actions, is presented in various parts of the

proposed plan, e.g., the introduction to section 3 and section 6. However, it is not clear that the contamination resulted from certain historical activities at the site which no longer happen (so there is no more contamination being released to the environment that could get into the groundwater) and past response actions have largely removed the sources which cause the groundwater contamination being addressed by this decision (so this action is aimed at residual groundwater contamination only).

6. Section 2.1.2 Hydrogeology, pg. 7, ¶ 2– Burgermeister Spring is not identified, as such, on Figure 2.2. Is it the same as SP 6301?

7. Section 2.1.5 Groundwater Use, pg. 9– We suggest including more quantitative information about what EPA considers a potentially usable aquifer.

8. Section 2.1.5 Groundwater Use, pg 10, 1st paragraph –This information should be made clearer. The description does not indicate what the private wells are used for and the general statements regarding their location and construction are confusing. We assume the intent is to explain that good construction information on many of these wells is not available, and that most wells are designed to intercept the deeper, higher yielding groundwater units rather than the shallow low yielding units impacted by the site; however, some of these wells may be constructed in a fashion that leaves them open to contribution from the shallow units. The discussion should briefly describe any efforts by DOE or others to identify and/or sample private wells and where to look for more information. This discussion may raise questions as to whether any of these private wells down gradient of the site are within range to be affected by contamination from the chemical plant and potentially provide an exposure point or provide a vertical pathway for contaminant migration. We suggest that the discussion address these questions directly.

9. Section 2.2 Nature and Extent of Contamination, pg. 10 –The discussion on nature and extent of nitroaromatic compounds should include a description of the relationship to the Weldon Spring Ordnance Works site.

10. Section 2.2.1 Groundwater, pg. 10, bottom ¶– Why is the historical maximum value considered to be a "suspect value" in the last line on the page? Does this conclusion in any way affect the recommended remedial action, and, if so, how?

11. Section 2.2.1 Groundwater, pg. 12 –Wouldn't it be appropriate to discuss how TCE concentrations were affected by the pilot-scale ICO of TCE conducted in 2002? How significant is the decline in TCE concentrations and to what extent is it related to the ICO response action versus natural attenuation?

12. Section 2.2.2 Springwater, pg. 16, 1st paragraph –This suggests that low levels of TCE are routinely detected in SP 6303. We thought this was an historic, isolated occurrence.

We suggest this section refer to Figure 2.2 showing the springs and drainage areas. We also suggest that Burgermeister Spring be identified on the figure.

13. Section 4.1 Human Health Risk Assessment– The only COC discussed in any detail in this section is uranium. We recommend adding more quantitative information about the calculated risks, rather than just including conclusory statements about what risks are acceptable and which are not. We recommend clearly stating revised risk calculations if any revisions have been made to reflect the additional sampling data gathered or any other new risk information developed since the BRA was completed. We suggest including some discussion of the rationale for using MCLs as cleanup criteria, including whether they are considered to be ARARs, TBCs, etc.

14. Section 4.2 Ecological Assessment– We suggest including a reference to the reports of the biotic surveys, toxicity testing and uptake modeling referenced in this section and be sure to include those reports in the administrative record.

15. Section 5 Remedial Action Objectives– At the proposed plan stage we should be identifying *the* remedial action objectives for this action, not *preliminary* remedial action objectives as referenced in paragraph 3, so this section needs to be revised to make clear what the remedial action objectives are for this action. Also, use restrictions are a part of the response strategy for which objectives need to be outlined.

16. Section 6 Analysis of Alternatives– It may be more appropriate to call this section a summary of the alternatives than an analysis of the alternatives. In theory, a more detailed analysis of the alternatives would be included in an FS (or a supplemental FS) so this section would more of a brief reporting of the results of that analysis than the actual analysis. While it is important to make available the results of the 2002 in situ chemical oxidation pilot scale tests (section 6.1), the 2001 field studies (section 6.2), and MNA analysis (Table 6.1), MNA Time frames analysis (Appendix B), MNA Performance Monitoring Strategy (Appendix C), Comparative Analysis of Alternatives (Table A.1), etc., the level of detail in which this information is presented is more appropriate for an FS than a proposed plan. Since a discussion of the alternatives considered is one of the key parts of the proposed plan, it should be in the body of the proposed plan, not in tables in an appendix. This brief narrative description of the alternatives should include relevant information about each alternative's ability to meet RAOs, cost, time to implement, key ARARs and the ability of the alternative to comply with those ARARs, etc. Perhaps a slightly briefer version of Section A.1 in Appendix A, with more quantitative information as identified above, would be OK. This brief summary of the alternatives should be the logical basis for a discussion of the recommended alternative. Note that this analysis should be updated to incorporate alternatives and information being reexamined as part of this supplemental process and not be limited to a presentation of alternatives as they were presented in the original FS.

17. Section 6.1 In-Situ Chemical Oxidation of TCE Implemented in 2002, pg. 31 -- Reference the ICO supporting documentation. The description tends to refer to the pilot-scale treatment as a "study". From a Superfund process standpoint, it would more accurately be described as a phase 1 remedial action. Also, explain what is meant in the last paragraph on this page which seems to indicate that "other areas" could have or should have been targeted.

18. Section 6.2 Additional Field Studies Conducted in 2001, pg. 32 –Reference the supporting documentation.

19. Section 6.3 Approach for Identifying a Final Groundwater Decision, pg. 33-34 – Discussion on the potential efficacy of MNA should touch on the lines of evidence identified in EPA's Guidance "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites" (OSWER Directive Number 9200.4-17P), i.e., explain how historical groundwater data shows a clear decreasing trend supported by statistical analysis, and explain how hydrogeologic and geochemical data were used to identify the types of attenuation processes and the rates at which such processes are expected to occur.

20. Section 6.3 Approach for Identifying a Final Groundwater Decision, pg. 33-34 –Here or anywhere the case is made, the judgment that remediation time frames are "reasonable"should be more directly supported by the expectations outlined in regulation and guidance. For example, the National Contingency Plan (NCP) sets out the expectation that groundwater be restored to its beneficial use within a timeframe that is reasonable given the particular circumstances of the site. In this case, the particular circumstances of the site include the low likelihood that the groundwater will be used for drinking water purposes, and the expectation that use restrictions are readily assured through governmental control. Also, the NCP preamble suggests that a "reasonable" timeframe for a remedy relying on natural attenuation is generally a "...timeframe comparable to that which could be achieved through active restoration." These concepts are reinforced in the guidance. If true, information supporting these judgements should be presented.

21. Section 6.3 Approach for Identifying a Final Groundwater Decision, pg. 34, last paragraph –With respect to item 5, we suggest that meeting ARARs and avoiding the need to waive ARARs is a redundancy, and that the second part of the statement should be omitted.

22. Table 6.1 Site Characteristics Suitable for Selecting MNA, pg. 35 –The first column contains the phrase "Some TCE reduction achieved by ICO process.", which is a site-specific characteristic and probably intended to be in the second column. In the last paragraph of the second column, the meaning of the first sentence is not clear.

23. Table 6.1 Site Characteristics Suitable for Selecting MNA, pg. 35 –The table indicates that it lists site characteristics suitable for MNA as identified in EPA guidance. While we don't disagree that these are desirable characteristics for an MNA candidate and that these factors are addressed in various forms in EPA guidance, we don't find that particular list in EPA's guidance. The guidance does contain a different list of factors that should be considered in determining whether MNA is appropriate. We are not suggesting that guidelines in the proposed plan must have a one-to-one correspondence with what is contained in the guidance, but we found it difficult to compare and contrast the lists and determine whether all factors have been addressed.

24. Table 6.1 Site Characteristics Suitable for Selecting MNA, pg. 35 –The thread of logic contained in the last characteristic in the second column should be made more clear. This probably refers to the expectation in the guidance that contingency remedies generally be included as part of a MNA remedy which has been based primarily on predictive analysis as opposed to documented trends of decreasing contaminant concentrations.

25. Section 7 Proposed Action, pg. 37 –We suggest including the full name "monitored natural attenuation" preceding the acronym MNA at this point, since many readers will likely jump directly to the description of the proposed action.

26. Section 7.1 Description of Proposed Action– It might be more appropriate to call this the preferred alternative than the proposed action. The proposed plan should include a sufficiently detailed description of the preferred alternative so that the public can comment meaningfully on it, which the draft proposed plan does not do. Is the preferred alternative the same as alternative 3 or is it a modified alternative 3? If it's a modified alternative 3, explain how it is modified and what effects the modifications have with respect to the evaluation criteria. Alternatively, modify the description of alternatives and the comparative analysis to reflect the current position. Are possible institutional controls, which are briefly touched on in ¶ 2, discussed in greater detail in some other document that could be referenced and included in the AR, especially information pertaining to the implementability and long-term enforceability of Ics.

27. Section 7.1 Description of Proposed Action –While the goals are listed, the monitoring strategy and the performance objectives are not very clear. The monitoring strategy detailed in Appendix C is too difficult for the average reader to interpret. We think it would improve understanding of the plan to include a simple conceptual description of the performance objectives and the monitoring strategy. The performance objectives could be summed up in a description of how DOE anticipates that the plumes will behave over time as indicated by monitoring data and consistent with the expectations in the guidance that plumes are stable and concentrations are decreasing with time. Generally, the monitoring strategy is to set observation points within a plume, at the perimeter of a plume, and downstream of a plume. Trigger concentrations indicative of unexpected or unacceptable trends are established at these monitoring points. Based upon the nature of

the identified trend, contingency measures will include (1) reevaluation of contaminant data; (2) re-sampling; etc - as currently presented. The monitoring concept could be illustrated through schematic representation showing a plume, a property line, and a midway monitoring point with assigned trigger values.

28. Section 7.1 Description of the Proposed Action, pg. 37, 1st paragraph --The wording of goal number 3 is somewhat confusing. We suggest that the goal for TCE and the goal for the other COCs be articulated separately. We also suggest eliminating the double negative. In the last sentence, we suggest that the goal for TCE is to "refine" and/or "confirm" existing information with respect to vertical extent, rather than "delineate" vertical extent which suggests an initial characterization effort.

29. Section 7.1, pg. 37, 2nd paragraph –The discussion on institutional controls should describe the affected landowners and the status of any discussions with third party landowners regarding the acceptability of the proposed restrictions and any roles they are expected to perform.

30. Section 7.1, pg. 37, 3rd paragraph –Contingency measures are part of this proposed action, as opposed to something that "would also be developed" as part of this proposed action. We suggest following this information directly with the explanation of Appendix C so the reader immediately understands that details are provided elsewhere. With respect to activity number 6, the active contingency for TCE should be better described. It should be explained that ICO is identified as a specific active contingency remedy for TCE because it is a treatment option shown to have some effectiveness at reducing TCE concentrations at the site. No such option has been identified for the other contaminants. Where is the basis for the conclusion that the active response action for TCE would be similar in scope to the IROD ICO process? Some discussion should be provided on the CERCLA process (RD/RA) that would be undertaken to implement the contingency action.

31. Section 7.2 Comparison to NCP Criteria, pg. 38 –A number of the identified remedial alternatives, and in fact, all viable remedial alternatives must be protective, meet ARARs, and be cost-effective. The objective of the process is to identify the alternative that provides the best balance of trade-offs among the alternatives when evaluated against the balancing criteria. The discussion should explain why the proposed alternative falls out of the comparative analysis as the best choice.

32. Table 7.1 Analysis of DOE's Proposed Action Using the Nine Criteria, pg. 41 –The description of costs should include a present worth value. The state acceptance modifying criterion does not appear on the table. Presumably, the plan is to add this after receiving further input from the state.

33. Section 8 Community Participation, pg. 43 –This section should explain that a responsiveness summary will be prepared that addresses how the comments were accommodated or considered in the remedy selection process. See also, general comment 5 above.

34. A.1 Description of Final Alternatives, pg. A-3 –Presumably, groundwater use restriction through institutional control is a component of each alternative other than the No Action alternative. The descriptions of the various alternatives should indicate so. Information on restoration timeframes provided under Alternatives 3 and 4 should be updated to reflect the current thinking.

35. A.1 Description of Final Alternatives, pg. A-3 –The differences between Alternatives 2 and 3 should be explicitly identified, e.g., MNA differs from long-term monitoring in that performance standards are developed based on predicted rates of attenuation, and contingency measures are identified in the event MNA doesn't perform as predicted. The specific contingencies associated with non-performance should be described.

36. A.2 and/or Table A.1 Comparative Analysis of Alternatives, pg. A-6 –A summary analysis should be provided explaining why the preferred alternative provides the best balance of trade-offs among the alternatives when examined against the primary balancing criteria.

37. Table A.1 Overall protection of human health and the environment– It is not clear what the term "adequately protective of human health and environment" means in the context of CERCLA remedy selection criteria. Assuming what DOE means is that the risk ranges and hazard indices calculated in the BRE would all be in the acceptable range, that statement is not true for Alternatives 1 and 2, and possibly the other alternatives relying upon groundwater extraction/chemical injection which probably are not effectively implementable at this location.

38. Table A.1 Overall Protectiveness of Human Health and the Environment --All of the alternatives are described as adequately protective. The descriptions should indicate that protectiveness is achieved over the long-term (until such time as ARARs are achieved) through groundwater use restrictions in the form of institutional control; and, as such, Alternative 1: No Action, which includes no institutional control is not considered to be protective.

39. Table A.1 Compliance with ARARs –Alternative 1: No Action should not be described as an alternative that meets ARARs since it contains no mechanism for measuring whether or not this is the case.

40. Table A.1 Compliance with ARARs –We recommend stating what at least the key ARARs for each of the alternatives, rather than just including a summary statement as to compliance or non-compliance with ARARs.

41. Table A.1 Long-term effectiveness and permanence --All of the alternatives are described as effective. Since there are unacceptable future risks for the future resident scenario (see pg, 24, ¶ 4) which are not addressed, the alternatives, as they are described here, should not be described as affording long-term effectiveness and permanence. It was our understanding that institutional controls were intended to be a component of each alternative except for the no action alternative and that they would be used to preclude groundwater use for the estimated 100 years it will take for protective levels to be achieved. If so, the descriptions should be modified to indicate that effectiveness is achieved over the long-term (until such time as ARARs are achieved) through groundwater use restrictions in the form of institutional control; and, as such, Alternative 1: No Action, which includes no institutional control is not considered to be effective. It is important to provide some information about the nature of the institutional controls DOE has in mind (a "real state restriction preventing access to groundwater") and how they would be implemented, to evaluate the effectiveness and overall protection of human health during this 100-year period.

42. Table A.1 Long-term effectiveness and permanence –The statements regarding the active alternatives convey the impression that these options would effectively treat groundwater to protective levels. These statements need to reflect the judgment that the active remediation options are not expected to be significantly more effective than natural attenuation in restoring the groundwater to protective levels and that effectiveness over the foreseeable future will rely on use restrictions.

43. Table A.1 Reduction of toxicity, mobility, or volume through treatment– For alternatives 1, 2, and 3, the correct answer would seem to be an unqualified "none."

44. Table A.1 Implementability Alternatives 4, 7, and 8– The ability to implement these alternatives effectively seems to be the main basis DOE uses not to select one of them as the preferred alternative, but it is difficult to tell that from the information presented here. If DOE doesn't think these alternatives are implementable, they should come out and say so in more affirmative terms.

45. Table A.1 Implementability Alternative 9– While this discussion talks about what would be necessary to implement this alternative, it reaches no conclusions about whether this alternative could be implemented.

46. Table A.1 Cost –Present worth values should be provided for each alternative so that adequate comparisons can be made. For Alternative 1, include an estimated even if it is considered to be $0.

47. Appendix C; Proposed MNA Performance Monitoring Strategy for Groundwater Contaminants of Concern at the Chemical Plant Area –It is extremely difficult to use the information here and in the following tables to gain a grasp of the objectives or the strategy. Even a person with a background in hydrogeology, a strong familiarity with the site, and a lot of patience would find it a daunting task. We suggest that a conceptual overview of the steps taken to address each objective would be extremely helpful.

48. Appendix C, pg. C-14– Please clarify what is meant by ICO Rebound Monitoring.

49. Tables C.1 - C.4 Rather than having to remember what letter refers to each objective, we suggest spelling out the objective across the top of the page. It would be helpful to indicate what zone a given well is monitoring and/or indicate whether it is providing horizontal or vertical control on contaminant migration.

50. Table C.4 –The strategy for nitroaromatic compounds is unclear. What is the rationale for deferring some objectives but not others pending the USACE ROD for the Ordnance Works site? If there is sufficient technical basis, we recommend that the DOE clearly identify the preferred alternative for nitroaromatic compounds, and not defer aspects of the decision pending outcome of the USACE decision process. It may be appropriate to provide a footnote to the effect that USACE is evaluating remedial action for nitroaromatic groundwater contamination at the Weldon Spring Ordnance works site.