GWOU ADMINISTRATIVE RECORD
SECTION TITLE:
GW-500-501-1.32

STATE OF MISSOURI
Bob Holden, Governor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.state.mo.us

May 13, 2003

Mr. David Geiser
U.S. Department of Energy
Office of Long Term Stewardship, EM-51
1000 Independence Ave., SW
Washington, D.C. 20585

RE: DRAFT Proposed Plan for Final Remedial Action for the Groundwater Operable Unit at the Chemical Plant Area of the Weldon Spring Site, Weldon Spring, Missouri, March 2003

Dear Mr. Geiser:

The Missouri Department of Natural Resources (MDNR) received the draft Groundwater Operable Unit (GWOU) Proposed Plan on March 14, 2003, for review and comment. We appreciate the opportunity to comment on the draft document, as we believe that such dialogue will allow us to work constructively toward a workable and effective plan. Regrettably, as it exists, this draft plan is neither workable nor effective. We sincerely hope that the Department of Energy (DOE) will take immediate action to revise and reissue a more protective and acceptable draft plan. This will be a good beginning in the final steps towards completion of the cleanup. It will also allow all of the relevant stakeholders: DOE, the Environmental Protection Agency (EPA), the Weldon Springs Citizens Commission, St. Charles County, the department, and the broader community to take the next steps toward addressing the significant remaining long-term stewardship issues at the site.

As you know, this *"Proposed Plan for Final Remedial Action for Groundwater Operable Unit* at *the Chemical Plant area of The Weldon Spring Site"* will embody some of the most critical and precedent setting decisions in the entire history of the nuclear weapons development. This Record of Decision (ROD) will culminate a cleanup process that began in the early 1980s at the Weldon Spring Site, and has involved four separate RODs and interim RODs. We believe that through working together in good faith toward common goals, the EPA, DOE, the department, local government and the community, can complete a plan to address groundwater issues that will finalize a legacy of which we can all be proud. A legacy based on the best available science. Recent meetings between DOE and stakeholders have been encouraging, but the technical substance of this document is very discouraging. It does not reflect many of the basic agreements made during the discussions of the multi-agency technical staff.

Action Levels and Site Characterization
We vigorously disagree with your assertion in your cover letter that "the plan is conceptually consistent with the many discussions between our staff." This statement is simply untrue. The concepts discussed between technical staff are only acceptable if the details of the plan also adequately address the concerns of the technical review team. The fact is, the DOE's draft plan proposes critical monitoring locations and action levels for contaminants that are significantly different from those discussed with our department's technical staff. Our initial reaction after a quick read of the plan was to discard this document because the details are so unacceptable.

DOE's monitoring locations and action levels are unacceptable as proposed in this plan, as they would not be adequately protective of human health and the environment. In previous discussions, all agencies agreed that the conditions under which we could defer active remediation of groundwater included the collection of the appropriate data for both ourselves and the public to confirm where the contamination is located and that the contaminants are not spreading or increasing in concentration. This plan does not accomplish that goal. DOE's proposed plan also fails to adequately define the plumes of contaminated groundwater, as required by the proposed remedy of "Monitored Natural Attenuation." If DOE is proposing to leave the contaminated ground water in place, and simply monitor it for the long run, then DOE must begin with an adequate technical understanding of the current location of the contamination and must prove that the contamination is attenuating as expected. Contingencies that include active remediation strategies must also be identified in the plan to rapidly address any unexpected groundwater changes during the attenuation process.

Long-Term Stewardship
As this is the final Record of Decision (ROD) for this site, the actions or inaction now in proposing how to address contaminated groundwater existing on or emanating from this site, are critical and will continue to be for future generations. It is vital that the plan includes the establishment of the necessary institutional controls to inform future owners and users of the property, as well as impacted neighbors such as the Missouri Department of Conservation, so as to minimize exposure of those same individuals to residual radioactive or hazardous wastes. Such a decision is one we do not take lightly. In the rapidly growing county of St. Charles, where this site is located, useable land and water resources remain at a premium. We anticipate continued growth and pressure for "clean" and "safe" areas to live, work and/or visit for recreation. We must ensure that our decisions today are fully protective for the future.

There is no reference in this document to the Long-Term Stewardship Plan as a subsequent document for operating the site after closure. The plan and ROD must have the Stewardship Plan incorporated as a major component since the protectiveness of the remedy is reliant on long-term stewardship, long-term monitoring, and long-term maintenance. Adequate long-term stewardship must include provisions for secure long-term funding for maintenance, monitoring and continued state oversight along with clear enforcement authority.

Need for an Updated Federal Facilities Agreement

Without the authority granted to this department in an appropriately updated Federal Facilities Agreement (FFA), concurrence to the GWOU ROD will not be possible. The EPA, DOE, and this department have all agreed to this in concept. I recommend DOE develop a FFA document that all the parties can review, comment on, and agree to concurrent with development of the plan to address the groundwater. The revised FFA document must be in place before or concurrent with execution of the GWOU ROD. This process is consistent with assurances offered by DOE that the state would become a signatory with enforcement authority at the signing of the final site ROD.

Even though we are very frustrated with the current proposed plan, I remain optimistic that DOE can and will make the appropriate changes to provide a plan that is protective of human health and the environment. MDNR does not want to see the process to finish the cleanup at the Weldon Spring Site delayed any further. We request that you adequately address the attached detailed comments, and that if you have any questions about the basis, meaning or intent of any of the comments, that you not hesitate to call me at (573) 368-2100, or Robert Geller at (573) 751-3907, immediately. Written inquiries can be directed to me at P.O. Box 250, Rolla, MO 65401, or to Mr. Geller at the Hazardous Waste Program, P. O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

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Weldon Spring Citizens Commission

Comments
5/13/2003

DRAFT Proposed Plan for Final Remedial Action for the Groundwater operable Unit at the Chemical Plant Area of the Weldon Spring Site, Weldon Spring, Missouri, March 2003

General Comments:

1. The plan's action levels and monitoring locations are not consistent with technical group's development meetings. The contaminant plumes are not fully characterized, particularly in the vertical direction. The current plan does not adequately provide protective action levels, sufficient monitoring points, or definition of plume extent.

2. Long-Term Stewardship is not defined in the plan. Institutional controls are not given sufficient enough detail to know what will be used, how it will be used, when it will be used and why its use is effective and cost efficient as compared to other alternatives. The remedy proposed in the plan is predicated on the premise that enforceable Institutional Controls are available to prevent future groundwater use for many decades, yet little information is presented on the specific controls to be employed. As an integral part of the remedy, Institutional Controls must be evaluated and detailed to the same degree as the technical specifications for the proposed monitoring activities. The major components of enforceable institutional controls must be fully addressed in order to consider them a part of a remedy. EPA guidance is clear on this and must be followed.

3. While not directly related to comments on the plan, the issue of having the state as a co-signatory to the revised Federal Facility Agreement is vital to assurance of regulatory enforcement of the ROD and stewardship plan.

Detailed Comments

Comment 1) Section 1, Introduction, paragraph 1. Suggest the following revision to the first sentence "The PP presents the final remediation strategy for addressing contaminated groundwater resulting from operations at the Chemical Plant area including off-site areas (i.e. areas from the chemical plant to Burgermeister Spring and in the Southeast drainage from the chemical plant to the Missouri River."

Comment 2) Section 2, Site Background. Suggest adding reference to the on-site waste disposal cell, overlying the contaminated groundwater and the corresponding Disposal Cell Groundwater Monitoring Plan.

Comment 3) Section 2.1.1 Geology, paragraph one, p. 5. The first sentence of the text states "porous, unconsolidated deposits" overlie bedrock. Not all of the overburden units are correctly characterized as porous. Nor are the unconsolidated deposits uncomformable on bedrock. Deleting the first sentence is recommended.

Comment 4) Section 2.1.1 Geology, paragraph one, p. 5. The term "overburden" includes all of the surficial material units, including loess and residuum, in addition to glacial and pre-

glacial units, described in the second sentence. It is unclear if the thickness of the "overburden" only includes the glacial and pre-glacial deposits or if this refers to the thickness of all the surficial materials units. Clarification should be provided.

Comment 5) Figure 2.2 Springs and Drainage Areas in the Chemical Plant Area, p. 8. Burgermeister Spring and the Southeast Drainage are not specifically identified on this figure. These two locations are mentioned in the text, paragraphs two and three, p. 7 (refers readers to Figure 2.2). The general public would not likely know that Burgermeister Spring is Spring 6301 and the Southeast Drainage is drainage valley 5300. Burgermeister Spring (SP 6301) is only specifically located later in the document, on Figure 7.1. Burgermeister Spring and the Southeast Drainage should be specifically identified on Figure 2.2, or their locations explained in the text, page 7.

Comment 6) Section 2.1.5 Groundwater Use, paragraph one, p. 10. Because state law did not require owners of private domestic wells to register them until 1987, there may be more than 23 active private wells within the four-mile radius of the site that are not represented in state archival records. Because state records may be incomplete, a survey of private well use, downgradient from the site, should be conducted to determine the locations of the closest private wells that have the potential to be impacted.

Comment 7) Section 2.1.5 Groundwater Use, paragraph one, p. 10. According to the text, three private wells (within a four-mile radius of the site) identified in archived state files are open to the deeper bedrock aquifers (i. e., Kimmswick and St. Peter). These were established in order to obtain sufficient well yields and are greater than 1,000 ft. deep. The department conducted a search of two in-house databases and determined that the only wells within the four-mile radius and greater than 1,000 feet deep are irrigation and public water supply wells, not private domestic water wells, which require greater depths for the higher yields. The existence of deeper wells for high yield is not unusual and it is not clear why these wells are specifically mentioned.

Comment 8) Section 2.1.5 Groundwater Use, paragraph one, p. 10. This paragraph implies that all current residents in the area of the plant are on municipal water. This contradicts paragraph 2 on page 10, which identifies 23 active private wells in the area. It must be clear that domestic use of the aquifer exists in the vicinity of the site. Is the public well serving the Weldon Spring heights included in this well inventory? It should be noted and included in the inventory.

Comment 9) Section 2.2.1 Groundwater, paragraph two, p. 10. It is stated in this paragraph that TCE contamination "is limited to the weathered portion of the shallow aquifer." This statement is supported by only one well (MW-4007), which monitors the unweathered-zone Burlington-Keokuk wells within the outline of the TCE plume. There are no unweathered-zone Burlington-Keokuk wells that monitor those areas of the plume with the highest TCE concentrations in the weathered portion of the aquifer. Therefore, the vertical extent of TCE contamination remains uncertain.

Comment 10) Section 2.2.1 Groundwater, paragraph five, p. 12. The range of uranium concentrations from data collected in 2002 presented in this paragraph is not correct, based

on data provided to the department by DOE. According to the uranium data table for 2002, the range of concentrations was from 0.1 to 59.9 pCi/l. The maximum uranium concentrations for MW-3030 and MW-3024 are also incorrect. The maximum uranium concentration for MW-3030 was 56.6 pCi/l and for MW-3024 the concentration was 59.9 pCi/l. The text should be corrected to reflect actual sampling results. The recent high concentration for MW-3024 is significant because it monitors the unweathered unit of the aquifer of concern. The presence of uranium at this concentration in the unweathered unit has important implications for the monitoring system discussed later in this Draft Proposed Plan.

Comment 11) Figure 2.4 TCE Contamination Contour for 2002 at the Chemical Plant Area, p. 13. It is not specified on Figure 2.4, nor in the text, if the TCE contours are based on the average, minimum or maximum concentration levels. Nor is the basis of the contoured concentrations identified on the other contaminant of concern figures.

Comment 12) Figure 2.6 Uranium Contamination Contour for 2002 at the Chemical Plant Area. There are no unweathered wells located east or southeast of the uranium plumes illustrated in this figure. It also appears that the plume drawn around MW 3024 incorporates data from weathered zone wells with data from MW 3024, an unweathered zone well. The justification for this is not clear, particularly in light of the fact that the two zones exhibit different characteristics: e.g. the weathered zone well, MW 3025, adjacent to MW 3024 has a higher water level and lower uranium concentration than MW 3024. Additional unweathered wells are required in these locations to further characterize the horizontal and vertical extent of uranium contamination.

Comment 13) Figure 2.6 Uranium Contamination Contour for 2002 at the Chemical Plant Area. Please add units of measure to all the contamination contour maps.

Comment 14) Section 2.2.2 Springwater; paragraph two, p. 16. It should also be mentioned in the document that SP-6303 has had concentrations of nitrate higher than the MCL in the past.

Comment 15) Section 2.2.2 Springwater; paragraph three, p. 16. The presence of uranium at Burgermeister Spring at higher levels than groundwater at the Chemical Plant during high flow conditions is attributed to residuals in the fractured zones. The claim that the source of higher levels of uranium is residuals in fractures has not been proven. The text should be revised to indicate that this source of uranium is an undocumented speculation.

Comment 16) Section 3, Scope and Role of the Proposed Action, paragraph 2, page 21. Suggest the following: replacing the phrase "at the Chemical Plant area" with "resulting from operations at the Chemical Plant area..."

Comment 17) Section 4.2 ECOLOGICAL ASSESSMENT, p. 25. The text states "An evaluation of the aquatic community...does not appear to be adversely affected by contaminant concentrations." This suggests some affect was observed on the aquatic community. The department believes an assessment of the continuing impact to the ecology, due to residual contamination, including routine fish tissue sampling analysis should be developed to study this affect into the future. This would provide a means to evaluate the

impacts of leaving contamination in the soils, springs and groundwater. It will also keep the public informed about the health of the local fish populations, and possible risks, if any, of consumption.

Comment 18) Section 7.1 DESCRIPTION OF THE PROPOSED ACTION, p.37. The plan states additional goals for TCE are to delineate the vertical extent of contamination. This goal pertains to all contaminants of concern in both the vertical and horizontal direction. Please update text to state all COC will be delineated in the vertical and horizontal extents.

Comment 19) Section 7.1 DESCRIPTION OF THE PROPOSED ACTION, p.37. Institutional Controls are proposed as the primary means in which the site remains protective. Currently, this plan includes <u>one</u> paragraph explaining the details of these institutional controls, with no reference to the Long-Term Stewardship Plan. This lack of detail and reference is unacceptable. The department requests DOE provide more details on ICs, including the implementability and costs associated with them. This information should be included in Table 7.1. The Long-Term Stewardship Plan must also be referenced in this plan and in the ROD. The plan relies solely on institutional controls for the prevention of future groundwater use. This type of control will have to be used for many decades, based on current model predictions. With this in mind, a rigorous evaluation of implementability, enforceability, sustainability and cost is required in order to compare with other remedial alternatives. Recent EPA guidance on this issue provides a very clear direction on how this should be considered as a component of a remedy; none of which is utilized in this proposed plan or associated Feasibility Studies. Please proved the necessary comparative evaluation and details for this aspect.

Comment 20) Figure 7.1 Institutional Controls Location Map for the Chemical Plant Area, p. 39. The dashed-line symbol used to identify the Groundwater Use Restriction Area for the larger scale illustration of the Chemical Plant area, is different from the solid-line symbol used for the smaller scale illustration of the assumed (unlabeled) Groundwater Use Restriction Area which includes Lake 36 and Burgermeister Spring. It is suggested that the symbols used to identify the Groundwater Use Restriction Area be consistent in both illustrations.

Comment 21) Appendix A, Alternative 7: Removal and On-Site Treatment of Groundwater in the Vicinity of the Raffinate Pits, paragraph one, p. A-5. The discussion of this alternative is very brief. No methods of on-site treatment are provided, only the estimated number of vertical extraction wells is included. At a minimum, some of the treatment options which were considered for Alternative 7 should be mentioned in order to be consistent with the description of the other alternatives.

Comment 22) Appendix B, Table B.1 Revised MNA Predictive Clean-up Times Using the Flushing Model, 2,6-DNT, page B-5 and Figure 2.8 2,6-DNT Contamination Contour for 2002 at the Chemical Plant area, page 18. Several questions have been raised concerning the consistency of the contouring of the data for 2,6-DNT. For example, Contour 5 (0.13 contour) could encompass a much larger area than depicted by the three small plumes directly east, north and northwest of the disposal cell. It is unclear why the plume is depicted as three small plumes versus one large plume, considering there are no non-detect data points

between them. The north boundary of Contour 5 (0.13 contour), for the large plume located on the east side of the disposal cell, should be extended farther toward MW-4015 because the concentration at MW-4014 is closer to 0.13 µg/l than the concentration at MW-4015. Another example of inconsistency between Table B.1 and the contoured data occurs at MW-2005, which is listed for Contour 3, falls outside the plume in Figure 2.8, but has a concentration of 0.27 µg/l according to the table.

Comment 23) Appendix C, objective (1), p. C-3. The Objective B trigger concentrations within the plume for nitrate and uranium are unacceptable. The department requires a more protective approach including the following Objective B concentrations for nitrate and uranium. The technical review team has not yet developed appropriate nitroaromatic compound triggers.

Nitrate	1000 mg/l
Uranium	100 pCi/l

Comment 24) Appendix C, objective (1), p. C-3. Two additional objectives are identified for TCE. One of these objectives is to delineate the vertical extent of TCE contamination. This goal pertains to all contaminants of concern in both the vertical and horizontal direction. Please update text to state all contaminants of concern (COC) will be delineated in the vertical and horizontal extents.

Comment 25) Appendix C, Table C.1 Proposed MNA Performance Monitoring for TCE. According to the table, a previously proposed unweathered-zone well, UW-2 (to be located near MW-3034) was deleted from this monitoring plan. The identified unweathered-zone well, UW-1 (originally to be located near existing well MW-4031) has now, according to this table, been relocated to the MW-4037 area in the leading edge of the TCE plume. Without these wells in the highest TCE concentration areas, a remedial objective of MNA, to verify that vertical expansion of the TCE plume is not occurring, cannot be accomplished. The previous agreement of the technical review team was to install two new unweathered monitoring wells, one adjacent to MW-4031 and one next to MW-3034. These new wells are necessary to properly delineate the vertical extent of TCE contamination and will help fulfill Objective A. DOE should take the appropriate precaution during installation to minimize migration caused by improper installation techniques.

Comment 26) Appendix C, Table C.1 Proposed MNA Performance Monitoring for TCE. The proposed Objective C trigger of 75 µg/l TCE at monitoring well W-1 is unacceptable. This trigger should be 10 µg/l at this location. The In-situ Chemical Oxidation (ICO) hot spot trigger should also be 10 µg/l.

Comment 27) Appendix C, Table C.1 Proposed MNA Performance Monitoring for TCE. The contingency of no treatment if the center of the plume has dissipated to <300 µg/l is unacceptable. A concentration of < 50 µg/l to limit treatment is acceptable. This criteria appears throughout the document, please update the text throughout.

Comment 28) Appendix C, Table C.1 Proposed MNA Performance Monitoring for TCE. The proposed Objective C trigger concentration at MWS-1, 20 µg/l is unacceptably high. A more appropriate trigger concentration for MWS-1 located at the federal property boundary would be a more protective concentration level of 5 µg/l (the MCL).

Comment 29) Appendix C, Table C.2 Proposed MNA Performance Monitoring for Nitrate. No characterization (Objective A) wells are included in this table to confirm the extent of the nitrate plume in the vertical direction. Without these wells beneath the highest nitrate concentration areas, a remedial objective of MNA, to verify that the vertical expansion of the nitrate plume is not occurring, cannot be accomplished. The department recommends installation of three wells in the unweathered portion at location of MW-3024, MW-3026, and MW-4011. These, in addition to new monitoring wells nested at MW-4031 and MW-3034, will be used to help delineate the nitrate contamination in the unweathered zone. DOE should take the appropriate precaution during installation to minimize migration caused by improper installation techniques.

Comment 30) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Nitrate, Rationale for Selection column, page C-15. Two wells, MW-3026 and MW-4011 are listed as wells that monitor the unweathered bedrock unit. These unweathered unit wells show nitrate concentrations ranging from approximately 100 to 200 mg/l. If contaminants exist in the unweathered unit, appropriate monitoring locations within the unweathered unit should be included in the plan to monitor for potential spreading of these plumes.

Comment 31) Appendix C, Table C.2 Proposed MNA Performance Monitoring for Nitrate, Trigger Concentration or Event column, second bullet, page C-15. The proposed trigger concentration of 1,500 mg/l is too high. A more appropriate concentration would be 1,000 mg/l. If the concentration exceeds 1,000 mg/l the probability that natural attenuation MNA standard Objective B is being accomplished would be in doubt.

Comment 32) Appendix C, Table C.2 Proposed Performance Monitoring for Nitrate, Trigger Concentrations or Event column, third bullet, page C-15. The proposed trigger of 1,000 mg/l (average of the high three concentrations) in this plan is too high. The MNA timeframes should be recalculated if the average of the high three consecutive concentrations exceeds 600 mg/l.

Comment 33) Appendix C, Table C.2 Proposed MNA Performance Monitoring for Nitrate. An additional Objective C well is necessary to monitor the leading edge of nitrate contamination as it migrates off-site. This well should be located to the north of the plume and north of MW-4013. Further discussion on the specific location of this well is needed.

Comment 34) Appendix C, Table C.2 Proposed MNA Performance Monitoring for Nitrate. The Objective C monitoring well trigger is unacceptable. The trigger should be 10 mg/l instead of the proposed 500 mg/l.

Comment 35) Appendix C, Table C.2 Proposed MNA Performance Monitoring for Nitrate. The Objective C, D spring trigger is unacceptable. The trigger should be 10 mg/l instead of the proposed 100 mg/l.

Comment 36) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium. The table does not include Objective A characterization monitoring wells. Three new wells in the unweathered portion are required at the location of MW-3024 and MW-3030 and southeast of MW-3024. These will be used to help delineate the uranium contamination. The plan must include un-impacted monitoring points in the unweathered zone (one for each of the two plumes) beneath the areas of highest uranium concentration. DOE should take the appropriate precaution during installation to minimize migration caused by improper installation techniques.

Comment 37) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium. Trigger Concentration or Event column, second bullet, page C-22. The Objective B trigger is unacceptable. The trigger should be 100 pCi/l uranium instead of the proposed 300 pCi/l. No basis for the trigger concentration of 300 pCi/l is provided in this plan and the department does not consider 300 pCi/l a reasonable trigger concentration. Based upon historical records the lower concentration of 100 pCi/l is appropriate. Alternatively, use the same test given in the first tier, to determine trigger concentrations for Objective B wells.

Comment 38) Appendix C, Table C.3 proposed MNA Performance Monitoring for Uranium, Contingency Action column, fourth bullet, page C-22. If the unexpected high concentration of 300 pCi/l occurs for two consecutive quarters with confirmatory sampling a more active response than recalculating MNA timeframes should be required. Some suggestions include: 1) determine why concentrations are increasing up to 300 pCi/l, 2) reevaluate and possibly change the site model, and 3) investigate possible unknown or un-remediated sources of contamination.

Comment 39) Appendix C, Table C.3 proposed MNA Performance Monitoring for Uranium, Contingency Action column, page C-22. Another contingency action should be added to the second tier for Objective B wells. Because the size of the plume directly affects the MNA timeframe calculation, the contingency action of recalculating MNA timeframes should be initiated if the size of the contaminant plume changes significantly.

Comment 40) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium, Monitoring Locations column, page C-22. An unweathered-zone well MW-3024 and a weathered-zone well MW-3030 are both Objective-B wells for uranium monitoring. The two wells are monitoring different bedrock units, unweathered and weathered. This is another reason why additional unweathered-zone wells beneath both uranium plumes are necessary to fully delineate the vertical extent of uranium contamination.

Comment 41) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium. The Objective C trigger is unacceptable. The trigger should be 20 pCi/l uranium instead of the proposed 100 pCi/l.

Comment 42) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium, Trigger Concentration or Event column, first bullet, page C-23. For locations consistently below 5 pCi/l, the trigger concentration should be 15 pCi/l instead of 20 pCi/l (the MCL.) Such a significant increase in concentration should be evaluated before the MCL is reached.

Setting the trigger concentration below the MCL would be consistent with the MNA monitoring plan for TCE.

Comment 43) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium, Trigger Concentration or Event, second bullet, page C-23. A concentration of 20 pCi/l with confirmatory sampling should be set as the trigger for recalculation of MNA timeframes.

Comment 44) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium, Contingency Actions column, third bullet, page C-23. FFA signatories should be identified as the parties who will jointly determine the appropriate monitoring locations.

Comment 45) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium, Contingency Actions column, fifth bullet, page C-23. The trigger concentration of 100 pCi/l is too high. 20 pCi/l should be used as the trigger to initiate the recalculation of MNA timeframes contingency action.

Comment 46) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium, Trigger Concentration or Event column, second bullet, page C-24. The proposed second-tier trigger concentration at 300 pCi/l is fifteen times the MCL at this point of exposure. A trigger concentration of 100 pCi/l, though higher than the MCL, is reasonable, based on recent sampling results and is more protective than the proposed concentration.

Comment 47) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium, Contingency Actions, Second bullet, page C-25. One of the contingency actions, as written, is based upon a baseline level for uranium monitoring; however, a description of how the baseline is determined has not been provided for Objective E in the preceding column.

Comment 48) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium. The following wells should be monitored:

Location	Objective	Rationale
MW-3036	C	UW Well downgradient of uranium contamination
MW-3031	C	Monitor uranium contamination near both MW-3030 and MW-3024
MW-3039	C	Monitor uranium contamination near both MW-3030 and MW-3024
MW-UW?? (new well)	C	Monitor uranium contamination, unweathered well north of MW-3025
MW-UW?? (new well)	E	Upgradient unweathered location
MW-2055	E	Upgradient weathered location

MW-W?? (new well)	G	Hydrologic measurements in weathered, 400' north of MW-3025, near disposal cell

Comment 49) Appendix C, Table C.3 proposed MNA Performance Monitoring for Uranium Locations column, page C-25. Weathered well MW-2035 is the only proposed Objective-E well for the uranium monitoring plan. It appears that MW-2035 may be in a cross-gradient location rather than upgradient from the uranium plumes. Also, MW-2035 is located a greater distance from the plumes than other possible monitoring locations. The department suggests that MW-2055 and the new UW-1 be used for Objective-E wells instead of MW-2035.

Comment 50) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium, Monitoring Locations column, page C-26. Only established TCE and Nitrate Objective G wells are proposed for uranium Objective G wells. A weathered well should be installed north of MW-3024 for this objective because there is insufficient coverage in this area.

Comment 51) Appendix C, Table C.3 Proposed MNA Performance Monitoring for Uranium and Figure 2.6 Uranium Contamination Contour for 2002 at the Chemical Plant Area. One uranium plume is supported by only one weathered Objective-B well, MW-3030. Apparently, MW-4036 was not sampled in 2002. If MW-4036 had been sampled and remained at the 2001 concentration, the plume represented by 2002 data would be larger and therefore the MNA timeframes would be longer. MW-3037, north of this uranium plume, was not sampled in 2002, and may have had a similar influence on the size of the uranium plume. This potential impact should be evaluated.

Comment 52) Appendix C, Table C.4, Proposed MNA Performance Monitoring for Nitroaromatic Compounds, Monitoring Locations column, page C-27. No Objective A wells (unweathered-zone wells) are proposed in this plan. One MNA remedial objective, to verify that vertical expansion of the nitroaromatic plume is not occurring, cannot be accomplished unless unweathered Objective A wells are located in the areas of highest nitroaromatic concentrations. A sufficient number of unweathered-zone wells should be installed to meet this objective for nitroaromatics.

Comment 53) Appendix C, Table C.4 Proposed MNA Performance Monitoring for Nitroaromatic Compounds, Rationale for Selection, third bullet, page C-28. According to Table C.4, 2,4-DNT is present at 0.13 μg/l in well MW-2052. However, MW-2052 is not within the 0.11 outer contour interval illustrated in Figure 2.7. The contour should be redrawn to include MW-2052 in the 2,4-DNT plume located east of the disposal cell.

Comment 54) Appendix C, Table C.4 Proposed MNA Performance Monitoring for Nitroaromatic Compounds, Trigger Concentration or Event column, first bullet, page C-28. It is assumed that the baseline levels discussed in this bullet are determined from intra-well baseline levels. If this is not a correct assumption, a description of how baseline levels are established should be included.

Comment 55) Appendix C, Table C.4 Proposed MNA Performance Monitoring for Nitroaromatic Compounds, Contingency Actions, third bullet, page C-30. Because B-2 wells are discussed on this page, it is suspected that "B-1" included in this bullet should be "B-2".

Comment 56) Appendix C, Table C.4 Proposed MNA Performance Monitoring for Nitroaromatic Compounds, MW-3003, Rationale for Selection column, second bullet, page C-31. B-2 wells are located in the northwest not the northeast portion of the site as stated in this bullet.

Comment 57) Appendix C, Table C.4 Proposed MNA Performance Monitoring for Nitroaromatic Compounds, MW-3003, Rationale for Selection column, third bullet, page C-31. The concentration for 2,4-DNT is given as mg/l. The concentration unit for 2,4-DNT in the rest of Table C.4 is μg/l. The correct units should be provided.

Comment 58) Appendix C, Table C.4 Proposed MNA Performance Monitoring for Nitroaromatic Compounds, Monitoring Locations column, page C-33. No springs in the Southeast Drainage are proposed for nitroaromatic monitoring. Monitoring for nitroaromatic compounds at springs in the Southeast Drainage should be included.

Comment 59) Appendix C, Table C.4 Proposed MNA performance Monitoring for Nitroaromatic Compounds, General Comment. There are no proposed Objective G wells located east of the disposal cell, specifically in the Frog Pond area. Objective G well(s) should be added in this area.

Comment 60) Appendix C, Table C.4 Proposed MNA Performance Monitoring for Nitroaromatic Compounds. The department reserves further comment on this table until a later date. The technical review team is currently working through this table and expects to have comments soon.

Comments from Missouri Department of Health and Senior Services (DHSS)

Because of the high use and visibility of the Busch Wildlife Area public-fishing lakes, we believe that a routine fish tissue sampling analysis plan needs to be developed. This would be an excellent and highly understandable method to communicate to the public regarding the protectiveness of the groundwater plan.

We would like a commitment from DOE for funding that would ensure that DHSS could continue its' independent off site private drinking water well analysis program surrounding this site.