

**Comments and Responses on the Draft Final Record of Decision
for U.S. Army Garrison Picatinny Arsenal, New Jersey
Group 3 Sites (PICA 008), Groundwater & Surface Water
Picatinny Arsenal, Morris County, New Jersey
February 2010**

**Commenter: William Roach, Remedial Project Manager, EPA
Comments Dated: April 22, 2010**

Item No.	Report Reference	Comment	Response
1.	General Comment	Add a figure showing the boundaries of the LUCs.	<i>The boundary of LUC applicability, which encompasses Site 2, is provided within the inset of Figure 8. Figure 8 has been revised to more clearly show the LUC boundary.</i>
2.	General Comment	The bedrock aquifer is not apparently being addressed by an active response action. If this is the case it should be clearly explained why it is not being addressed by an active remedy. Alternatively, if the bedrock aquifer is being addressed by an active remedy, this should be clearly explained.	<p><i>The proposed response action includes active treatment of both the South and North surficial plumes. As described in the Feasibility Study (Shaw, 2005), the conceptual site model finds that the South surficial plume flows downward into bedrock, forming the bedrock plume, before emerging to form the North surficial plume. Therefore, treating the South plume will effectively cut off the source to the bedrock plume (source treatment) and treating the North plume also treats any discharge from the bedrock plume.</i></p> <p><i>Sections 2.6.1 (Conceptual Site Model) and 2.14.2 have been expanded to further explain the plume interactions and details of the proposed response action.</i></p>

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3.	General Comment	Given that there are VOCs in the groundwater, a statement should be included in the ROD that identifies either vapor intrusion is not an issue or that it is being addressed through a different action.	<p><i>Comment noted. There are existing buildings within the current footprint of the VOC plume. The nearest building, 3515, is used for storage. The original portion of the building is in general disrepair and has large openings to atmosphere including portions of the roof, broken windows and a large opening where a bay door was previously present. There is also a smaller new portion of this building in good condition also used for storage.</i></p> <p><i>A conservative estimate of vapor intrusion risk was recently conducted utilizing residential exposure assumptions (note the building is not occupied) and the maximum trichloroethene (TCE) and carbon tetrachloride (CT) concentrations (62 ug/L and 213 ug/L, respectively) and the resultant calculated risks were less than 1x10⁻⁴. Therefore vapor intrusion is not an issue.</i></p> <p><i>Sections 2.7 and 2.14.3 of the text have been updated to note that residential land use at Group 3 Sites will be restricted by the Land Use Control Plan that will be detailed in the Group 3 RD. In addition, the Group 3 RD will include a contingency for vapor intrusion sampling should any building located above the plume become occupied during the remedial action for groundwater.</i></p>

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4.	General Comment	The ecological risk assessment summary indicates that surface water toxicity was found in some of the sampling locations. Additionally, it is stated that surface water will be monitored for the duration of the groundwater response action to ensure groundwater remediation mitigates potential surface water impacts. However, the remedial action objectives do not include protection of ecological receptors or surface water. Since there will be a monitoring program for surface water included in the Record of Decision, the prevention of ecological exposure to contaminated groundwater/surface water that would cause unacceptable risk over the duration of the response action should be included as a remedial action objective.	<i>As stated in Section 2.8.2.2 and described in detail in the <u>Technical Memorandum for Groundwater and Sediment, Group 3, Sites 1, 2 and 4 (PICA 008) (ARCADIS, 2009)</u>, the toxicity results were determined to be reflective of natural conditions based upon comparisons with background samples and that exposure to surface water does not pose a significant risk to ecological receptors.</i>
1.	Section 1.4, Description of the Selected Response Action – In-Situ Enhanced Bioremediation at Site 2, with Long-Term Groundwater Monitoring and Land Use Controls, page 1-1	It is requested that a statement be added to this section that a response action for groundwater and surface water is not required at Sites 1 and 4.	<i>Agreed. The last sentence of the third paragraph within Section 1.4 has been updated to read as follows: "Surface water monitoring will be conducted at Site 2 in conjunction with the long-term groundwater monitoring program until concentrations fall below New Jersey Surface Water Quality Criteria (NJSWQC). A response action is not required at Sites 1 and 4 and therefore surface water monitoring will not be conducted."</i>

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2.	Section 1.5, Statutory Requirements, second paragraph, page 1-2	Unless the Army can justify otherwise, the first sentence should be revised to state: "The selected RA addresses Group 3 Sites (PICA 008) through the use of an active treatment technology."	<i>Agreed. The first sentence of the second paragraph within Section 1.5 has been revised as suggested.</i>
3.	Section 2.1, Site Name, Location, and Description, third paragraph, page 2-1	In the third sentence change "southeast of Site 1" to "southwest of Site 1".	<i>Agreed. The third sentence of the third paragraph within Section 2.1 has been revised as requested.</i>
4.	Section 2.4, Scope and Role of the Response Action, page 2-3	It is requested that a statement be added to this section that a response action is not required at Sites 1 and 4.	<i>Agreed. The following statement has been added before the last sentence of the second paragraph within Section 2.4:</i> <i>"No response action is required at Sites 1 and 4."</i> <i>The remainder of the paragraph will be updated accordingly to clarify that the remedial activities will only be conducted at Site 2.</i>
5.	Section 2.4, Scope and Role of the Response Action, first paragraph, page 2-3	In the third sentence, change "Section 2.7.4" to "Section 2.8.4".	<i>The text has been revised as requested.</i>

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6.	Section 2.6.2, Summary and Findings of Site Investigations, page 2-4	In the third sentence, insert "surface water" before "samples".	<i>The text has been revised as requested.</i>
7.	Section 2.7, Current and Potential Future Land Use, second paragraph, page 2-7	<p>a. The end of the fourth sentence refers to the "lower semi-confined, upper semi-confined and unconfined aquifers as discussed in this document." This reference should be corrected as the document only addresses the unconfined and bedrock aquifer.</p> <p>b. In the seventh sentence, change "affected" to "effected".</p>	<p><i>a. The fourth sentence of the second paragraph within Section 2.7 has been revised as follows:</i></p> <p><i>"As described in a letter dated July 29, 2002 to the NJDEP, the CEA was established for all groundwater beneath Picatinny in both the bedrock and unconfined aquifers."</i></p> <p><i>b. The text has been revised as requested.</i></p>
8.	Section 2.8, Summary of Site Risks, first paragraph, page 2-8	Revise the second sentence to read: "As previously discussed, these sites are currently used for industrial purposes, and it is anticipated that this will not change in the future."	<i>The text has been revised as requested.</i>
9.	Section 2.8.1, Human Health Risk Assessment, first paragraph, page 2-8	Revise the fourth sentence to read: "However, this ROD only addresses groundwater and surface water."	<i>The text has been revised as requested.</i>

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10.	Section 2.8.1.1, Contaminants of Potential Concern, first paragraph, page 2-8	It is believed that the parenthetical phrase in the second sentence should be changed to "whichever is lower".	<i>Agreed. The text has been revised as requested.</i>
11.	Section 2.8.1.3, Risk Characterization, Site 1, first paragraph, page 2-10	In the fourth sentence, insert "likely" between "not" and "occur".	<i>In the fifth sentence of the first paragraph within Section 2.8.1.3, "likely" was inserted between "not" and "occur".</i>
12.	Section 2.8.2.2, Summary of Findings for Surface Water, second paragraph, page 2-12	It appears that the second sentence of the paragraph is out of place as it is a general statement regarding modeled food-chain risks to ecological receptors at Group 3 Sites in the section discussing site-specific risks due to ecological exposure to surface water.	<p><i>Agreed. The second sentence of the second paragraph within Section 2.8.2.2 has been removed and the first paragraph of Section 2.8.2.1 was updated to read as follows:</i></p> <p><i>"The results of the Phase II ERA indicate that soils were not toxic in bioassay results, the plant community does not show evidence of impacts and modeled food-chain risks to Group 3 ecological receptors are not significant."</i></p>
13.	Section 2.8.4, Contaminants of Concern and Site Cleanup Levels, first paragraph, page 2-13	The first paragraph addresses COCs in groundwater. Therefore, "NJDEP Surface Water Quality Criteria" located in 2) should be revised to NJ MCLs.	<p><i>The use of the NJ Surface Water Quality Criteria has been included to be protective of surface water; therefore, the criteria are appropriate as stated.</i></p> <p><i><u>The text has been changed to reference NJSWQC.</u></i></p>

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14.	Section 2.8.4, Contaminants of Concern and Site Cleanup Levels, fourth paragraph, page 2-13	In the last sentence of the paragraph, delete "the" located before "Table 9".	<i>Agreed. "The" has been deleted as requested.</i>
15.	Section 2.10.3, Response Action GW-3: Air Sparging/Soil Vapor Extraction, LUCs and Long-Term Groundwater Monitoring, Planning Permitting, and Reporting, page 2-16	<ul style="list-style-type: none"> a. In the first sentence, change "removal action" to "response action". b. Delete the third sentence as it is redundant with the first two. 	<ul style="list-style-type: none"> a. <i>Agreed. Text has been revised as requested.</i> b. <i>Agreed. The third sentence has been removed as requested.</i>

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16.	Section 2.10.5, Response Action GW-5: Zero-Valent Iron Injection, LUCs, and Long-Term Groundwater Monitoring, Long-Term Monitoring, second paragraph, page 2-19	The third sentence states: "The duration of monitoring activities is subject to change based upon evaluation of the data collected and will ultimately be determined by EPA's Regional Administrator at that time." It is very unlikely that the duration of monitoring activities would be disputed warranting the involvement of EPA's Regional Administrator. Therefore, the sentence should be revised to state "The duration of monitoring activities is subject to change based upon evaluation of the data collected and agreement by EPA and NJDEP."	<i>Agreed. The text has been revised as requested.</i>
17.	Section 2.10.6, Response Action GW-6: In-Situ Enhanced Bioremediation, LUCs, and Long-Term Groundwater Monitoring, Long-Term Monitoring, first paragraph, page 2-20	<p>a. It should be specified in this paragraph that EVO injections are only being injected into the southern surficial plume.</p> <p>b. It should also be explained why only the southern plume is being treated for by Response Action GW-6 whereas both surficial plumes are treated under Response Actions GW-3 through GW-5.</p>	<i>Both portions of the surficial plume are being treated as described in Section 2.14.2.</i>

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18.	Section 2.10.6, Response Action GW-6: In-Situ Enhanced Bioremediation, LUCs, and Long-Term Groundwater Monitoring, Long-Term Monitoring, second paragraph, page 2-20	Regarding the third sentence, please refer to Specific Comment 16.	<i>The third sentence of the second paragraph within Section 2.10.6 Long Term Monitoring has been updated based on Specific Comment 16.</i>
19.	Section 2.11.2, Compliance with Applicable or Relevant and Appropriate Requirements, page 2-21	<p>a. The first sentence states that all response actions (GW-1 through GW-6) will meet the NJ Groundwater Quality Standards. However, response action GW-1, No Action, does not provide a means to determine whether NJGWQSs have been met at Group 3 Sites. Therefore, response action GW-1 should be removed from the group of response actions meeting this threshold requirement.</p> <p>b. In the first sentence, replace "NJ Groundwater Quality Standards" with "NJGWQS".</p>	<p><i>a. & b. Agreed. Section 2.11.2 has been revised to state:</i></p> <p><i>"Over time, the NJGWQS (which serve as chemical-specific ARARs and therefore, SCLs) will be met by all response action alternatives, with the exception of Alternative GW-1. However, it is anticipated that alternatives GW-3 through GW-6 will attain SCLs substantially faster than alternative GW-2 as a result of the active treatment remedies provided by alternatives GW-3 through GW-6. Action- and location-specific ARAR compliance would be satisfied by Alternatives GW-2 through GW-6."</i></p>
20.	Section 2.11.6, Implementability, page 2-22	Revise the first sentence to state: "All of the alternatives are implementable; however, remedy approval from other agencies would be difficult to obtain for Alternative GW-1".	<i>Agreed. The text has been revised as requested.</i>

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21.	Section 2.15.5, Short-term Effectiveness, page 2-21	Revise the last section of the fourth sentence to state: ".....this response action would be able to determine when SCLs would be achieved and restrict exposure to groundwater."	<i>Agreed. The fourth sentence of Section 2.11.5 has been revised as follows: "In contrast, GW-2 does offer a lower risk to the community; although not a significant decrease, this response action would be able to determine when SCLs would be achieved and restrict exposure to groundwater."</i>
22.	Section 2.12.1, State/Support Agency Acceptance, second paragraph, page 2-22	Capitalize "state" as in "State of New Jersey permit"	<i>Agreed. The text has been revised as requested.</i>
23.	Section 2.14.1, Summary of the Rationale for the Selected Response Action, second paragraph, page 2-23	Add the following to the end of the second sentence: "and the results of the pilot study."	<i>Agreed. The text has been revised as requested.</i>

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24.	Section 2.14.2, Detailed Description of the Selected Response Action, first paragraph, page 2-23	<p>a. The third sentence states: "Following EVO injections, MNA would be implemented to address the portions of the plume remaining in the unconsolidated and bedrock aquifers subsequent to injections."</p> <p style="padding-left: 20px;">i. Since EVO injections are being done on only one portion of the unconfined aquifer, then MNA should be implemented concurrently with EVO injections in the bedrock aquifer and the portion of the unconfined aquifer that is not being treated.</p> <p style="padding-left: 20px;">ii. Although this will likely become a moot point if the reference sentence is revised, there is a redundancy in the beginning and end of the sentence.</p> <p>b. Revise the last sentence of the paragraph to state: "LUCs and long-term groundwater monitoring would be implemented at the Group 3 Sites (PICA 008) as a result of contamination remaining in groundwater above NJGWQC."</p>	<p>a. As described in the response to General Comment No. 2, the proposed response action includes active treatment of both the South and North surficial plumes. As described in the Feasibility Study (Shaw, 2005), the conceptual site model finds that the South surficial plume flows downward into bedrock, forming the bedrock plume, before emerging to form the North surficial plume. Therefore, treating the South plume will effectively cut off the source to the bedrock plume (source treatment) and treating the North plume also treats any discharge from the bedrock plume.</p> <p>b. Agreed. The text has been revised as requested.</p>
25.	Section 2.14.3, Land Use Controls, page 2-23	Delete the last sentence of the first paragraph and insert the following paragraph: "A LUC Remedial Design will be prepared as the land use component of the Remedial Design. Within 90 days of ROD signature, the Army shall prepare and submit to EPA for review and approval a LUC remedial design that shall contain implementation and maintenance actions, including periodic inspections."	Agreed. The text has been revised as requested.
26.	Section 2.14.3, Land Use Controls, first paragraph, page 2-23	Add the following to the end of the first paragraph: "A change in land use would include notifying the regulators."	The text has been revised as requested.

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27.	Section 2.14.3, Land Use Controls, second paragraph, page 2-23	<p>Replace the paragraph with the following:</p> <p>The LUC objectives for Group 3 groundwater and surface water are as follows:</p> <ul style="list-style-type: none"> - Prevent access or use of the groundwater and surface water until cleanup levels are met. - Maintain the integrity of any current or future remedial monitoring system, such as monitoring wells. - Maintain the integrity of any components of the remedy, such as injection wells. - Maintain the existing CEA. - Prohibit excavation without safeguards in all areas below the water table where groundwater contaminants exceed SCLs. 	<i>The text has been revised as requested.</i>
28.	Section 2.14.5, Expected Outcome of the Selected Response Action, page 2-24	Regarding the second sentence, LUCs do not typically protect ecological receptors.	<p><i>Agreed. The second sentence of the first paragraph within Section 2.14.5 has been revised as follows:</i></p> <p><i>“Implementation of the RA will reduce groundwater contamination to concentrations below the NJGWQC, thus reducing risks to human and ecological receptors. Furthermore, the enforcement of LUCs will ensure that risks to human receptors remain within acceptable levels.”</i></p>
29.	Section 3.0, Part 3: Responsiveness Summary, third paragraph, page 3-1	In the first sentence, insert “Group 3” before “Sites” at the end of the sentence.	<i>The first sentence of the fourth paragraph within Section 3.0 has been revised to include “Group 3” before “Sites”.</i>

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30.	Section 3.1.2, Summary of Comments Received during the Public Meeting on the Proposed Plan and Agency Responses, Comment 1, page 3-1	Revise the first sentence as follows: "Mr. Pat Matarazzo, a member of the PAERAB."	<i>Agreed. The text has been revised as requested.</i>