Table ES-2. Comparative Analysis of Alternatives, Operable Unit 1 (Front Street site), Riverfront Superfund Site, New Haven, Missouri

Evaluation Criteria	Alternative 1 No Action	Alternative 2 Limited Action / Limited Action	Alternative 3 Monitoring / Limited Action	Alternative 4 Monitoring / Limited Excavation and Off-Site Disposal	Alternative 5 Hydraulic Containment, Above Ground Treatment, and Monitored Natural Attenuation / Capping and Sheet Piling	Alternative 6 Groundwater Extraction and Above Ground Treatment / Excavation and Off-Site Disposal	Alternative 7 In Situ Bioremediation / Excavation and On-Site Treatment	Alternative 8 In Situ Physical Treatment / In Situ Treatment	Alternative Rankings
Overall Protection	No remedial action objective would be satisfied.	Remedial action objectives for protection to human health would be met by preventing direct contact with contaminated media. Remedial action objectives for protection of the environment would not be met because contamination above cleanup levels would remain in the groundwater and soil.	Remedial action objectives for protection to human health would be met by preventing direct contact with contaminated media. Remedial action objectives for protection of the environment would not be met because contamination above cleanup levels would remain in the groundwater and soil.	Would provide more protection than Alternative 3 because a portion of the primary source of the groundwater contamination (source area soil) would be removed. Remedial action objectives for protection to human health would be met by preventing direct contact with contaminated media. Remedial action objectives for protection of the environment would not be met because contamination in the groundwater and soil.	Protective by containing contaminated groundwater and soil. Amount of contamination migrating from soils to groundwater would be minimized, which should allow processes to reduce plume. RAOs would be met.	Protective by actively remediating the groundwater and removing the source area soil. More protective than Alternative 5. RAOs would be met.	Protective by actively remediating the groundwater and source area soil. RAOs would be met.	Protective by actively remediating the groundwater and source area soil. RAOs would be met.	Ranked from alternative that would provide the most overall protection of human health to least overall protection: 7, 6, 8, 4, 5, 3, 2, 1. Reduced from alternative that would provide the most overall protection to the environment to least overall protection: 7, 6, 8, 5, 4, 3, 2, 1.
Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)	Present groundwater quality and soil concentrations do not meet chemical-specific ARARs. Location- and action-specific ARARs are not applicable.	Present groundwater quality and soil concentrations do not meet chemical-specific ARARs. Location- and action-specific ARARs are not applicable.	Would not meet ARARs. Groundwater with contaminant levels above MCLs and soil with contaminant levels above cleanup levels would remain at the site.	Would not meet ARARs. Groundwater with contaminant levels above MCLs and soil with contaminant levels above cleanup levels would remain at the site.	Would comply with all Federal and State ARARs.	Would comply with all Federal and State ARARs.	Would comply with all Federal and State ARARs.	Would comply with all Federal and State ARARs.	Would meet ARARs: 5, 6, 7, 8 Would not meet ARARs: 1, 2, 3, 4
Long-Term Effectiveness	This alternative would not provide active reduction of long-term risks. There are no long-term controls to provide passive reduction of long-term risk.	Would provide some reduction of long-term risks by preventing direct contact with contaminated media. Would not provide active reduction of long-term risks. There are no long-term controls to monitor passive reduction of long-term risk.	Would provide some reduction of long-term risks by preventing direct contact with contaminated media. Would not provide active reduction of long-term risks. Groundwater monitoring would provide means to monitor the long-term risk.	Lower long-term risks than Alternatives 1, 2, and 3 because a portion of the source area soils would be removed. Would allow limited future development of the property. Higher long-term risks than Alternatives 5, 6, 7, and 8 because the groundwater would not be actively remediated and some soils above cleanup levels would remain.	Lower long-term risks than Alternatives 1, 2, 3, and 4 but higher than Alternatives 6, 7, and 8 because, even though contained, the source area soils would be left in place and the groundwater would not be actively remediated.	Minimal long-term risks because the source area soils would be removed and groundwater would be actively remediated.	Minimal long-term risks because the source area soils would be removed and washed and groundwater would be actively remediated.	Minimal long-term risks because the both the groundwater and source area soils would be actively remediated.	Ranked from alternative that would provide the most long-term effectiveness to least long-term effectiveness: 7, 6, 8, 5, 4, 3, 2, 1
Reduction of Toxicity, Mobility, and Volume	It is not expected that reductions of the toxicity, mobility, or volume of the contaminants in the groundwater or soil would occur. Would not provide mechanisms to monitor contamination levels.	It is not expected that reductions of the toxicity, mobility, or volume of the contaminants in the groundwater or soil would occur. Would not provide mechanisms to monitor contamination levels.	It is not expected that reductions of the toxicity, mobility, or volume of the contaminants in the groundwater or soil would occur. Would provide mechanisms to monitor groundwater contamination levels but not soil contamination levels.	No reduction in the toxicity, mobility or volume of contaminants in the soil or groundwater through treatment. Mobility of contaminants in the excavated soils would be reduced through containment in a RCRA-permitted landfills.	Mobility of groundwater plume minimized by containment. Some reduction of toxicity and volume of contaminated groundwater might occur through natural attenuation. Reduction of the mobility of the contaminants in the source area soils through capping and sheet piling and hydraulic containment within the contaminated soils. Spent GAC would be only treatment residual. Meets statutory preference for treatment as a principal element.	Mobility and volume of the groundwater plume would be reduced through active remediation. Mobility of contaminants in the soils would be reduced through containment in a RCRA-permitted landfills. Meets statutory preference for treatment as a principal element. Off-gas treatment from the air stripper not anticipated to be required.	Volume and toxicity of groundwater plume minimized by in situ bioremediation. Volume and toxicity of the soil contaminants reduced through soil washing. Spent solvents and concentrated contaminants would be residual from soil washing. Meets statutory preference for treatment as a principal element.	Toxicity and volume of contaminants in the groundwater and soil would be reduced. No residuals would be generated. Off-gas treatment not anticipated to be required. Meets statutory preference for treatment as a principal element.	Ranked from alternative that would provide the most reduction of toxicity, mobility, and volume to least: 7, 6, 8, 5, 4, 3=2=1

Table ES-2. Comparative Analysis of Alternatives, Operable Unit 1 (Front Street site), Riverfront Superfund Site, New Haven, Missouri-- Continued

Evaluation Criteria	Alternative 1 No Action	Alternative 2 Limited Action / Limited Action	Alternative 3 Monitoring / Limited Action	Alternative 4 Monitoring / Limited Excavation and Off-Site Disposal	Alternative 5 Hydraulic Containment, Above Ground Treatment, and Monitored Natural Attenuation / Capping and Sheet Piling	Alternative 6 Groundwater Extraction and Above Ground Treatment / Excavation	Alternative 7 In Situ Bioremediation / Excavation and On-Site Treatment	Alternative 8 In Situ Physical Treatment / In Situ Treatment	Alternative Rankings
Short-Term Effectiveness	Because no remedial actions would be conducted, there would be no increase in the short-term risks to the community or the environment.	Because no intrusive remedial actions would be conducted, there would be no increase in the short-term risks to the community or the environment.	Risk to community and workers would be low because action would be limited to installation of monitoring wells. The time to achieve cleanup goals is unknown but anticipated to be much longer than 30 years. Would take longer to reach goals than Alterative 4 because all source area soils would be left in place.	Risk to community and workers would be moderate but would be minimized by following proper precautions. Noise pollution and minimal fugitive dust emissions would occur during soil remediation activities. The time to reach cleanup goals would be greater than 30 years. The construction activities could be completed in approximately 12 months. Would take longer to reach cleanup goals than Alternative 5 because remaining source area soils would not be contained.	Risks to community and workers would be moderate but would be minimized by following proper precautions. Risks would lower than Alternative 4 because no excavation would be conducted. The time to implement is estimated to be between 10 an 14 months. The time to reach cleanup goals is anticipated to be greater than 30 years.	Risk to community and workers would be moderately high but would be minimized by following proper precautions. Noise pollution and minimal fugitive dust emissions would occur during soil remediation activities and groundwater treatment and extraction system installation. The time to reach cleanup goals would be approximately 12 months for the source area soils and 20 years for the groundwater.	Risks to community and workers would be high but would be minimized by following proper precautions. Soil cleanup goals would be reached in approximately 12 months. Groundwater cleanup goals would be reached in approximately 10 years.	Risks to community and workers would be moderately low but would be minimized by following proper precautions. Soil and groundwater cleanup goals would be reached in approximately 15 years.	Ranked from alterative that would provide the most short-term effectiveness to least short-term effectiveness: 1, 2, 3, 8, 5, 4, 6, 7
Implementability	Because no remedial actions would be conducted, an evaluation of remedial implementability is not applicable.	Because no intrusive remedial actions would be conducted, an evaluation of remedial implementability is not applicable.	Technically feasible. Few technical problems would be anticipated. Administratively feasible.	Technically feasible. Because of the soil excavation, would be more difficult to implement than Alternatives 1, 2, 3, 5, and 8 but easier than Alternatives 6 and 7 because of the smaller soil volume. Administratively feasible but could be difficult to protect historical buildings. Would require road closures and utility relocates during and after soil remediation and coordination with USACE, MDNR, and City of New Haven. Would allow limited future development of the property.	Technically feasible. Because the soil would be left in place, would be less difficult to implement than Alternatives 4, 6, and 7. Groundwater remedy portion would be more difficult to implement than Alternatives 1, 2, 3, and 4. Administratively feasible but could be difficult to protect historical buildings. Would coordination with USACE, MDNR, and City of New Haven.	Technically feasible. Because the soil would be excavated, would be more difficult to implement than Alternatives 5 and 8. Groundwater remedy portion would be more difficult to implement than Alternatives 1, 2, 3, 4, and 5. Administratively feasible but could be difficult to protect historical buildings. Would require road closures and utility relocates during and after soil remediation and coordination with USACE, MDNR, and City of New Haven.	Technically feasible. Because the soil would be excavated and treated on-site, would be the more difficult Alternative to implement. Groundwater remedy portion would be more difficult to implement than Alternatives 1, 2, 3, 4, 5, 6, and 8. Administratively feasible but could be difficult to protect historical buildings and find sufficient area to carry out the soil treatment activities. The groundwater remediation would require several mobilizations onto residential properties throughout the life of the alternative. The soil remediation would require road closures and utility relocates during and after soil remediation, and coordination with USACE, MDNR, and City of New Haven.	Technically feasible. Because the soil would be treated in place, would be less difficult to implement than Alternatives 4, 5, 6, and 7. Groundwater remedy portion would be less difficult to implement than Alternative 7. Administratively feasible. Would require coordination with USACE, MDNR, and City of New Haven.	Ranked from alternative that would be the easiest to implement to the hardest to implement: 1, 2, 3, 8, 4, 5, 6, 7
Cost (Total Present Worth)	$163,500	$262,000	$485,000	$3,900,000	$3,298,000	$21,978,000	$19,358,000	$1,694,000	Ranked from least expensive to most expensive: 1, 2, 3, 8, 5, 4, 7, 6