**Table 2 NAPL Accumulation Area Evaluation of Technologies**

| Technology | Description | Screening Parameter | | | Decision |
|---|---|---|---|---|---|
| | | Site Characteristics | Waste Characteristics | Technology Limitations | |
| **No Action** | No action provides a baseline by which other technologies are compared. With this technology, no remedial efforts, improvements, or enhancements would be made. | Not Applicable | Not Applicable | Does not remediate chemicals of concern (COC) in groundwater or soil. Does not remove free-phase hydrocarbons to prevent future releases to groundwater. | This technology will not be considered further. |
| **Institutional Controls** | Institutional controls would involve the prevention of direct contact with the COC by limiting access. Site access and use would be limited through the use of physical barriers (e.g., fences, gate restrictions, etc.), security monitoring, and on-site deed restrictions. | Location of the Site would allow for access control. Site is in an industrial area which would reduce the chances for residential development. | Characteristics of the waste material and present location would encourage the use of institutional controls. Future Site development could result in the excavation of impacted soil or contact with impacted groundwater. | Does not remediate COC in groundwater or soil; however, could be combined with other technologies to provide a protective alternative. | This technology will be considered in combination with other technologies. |
| **Chemical-Enhanced NAPL Recovery** | Chemical surfactants are used to mobilize NAPL for recovery. | The Site is an active refining facility and injecting chemicals to enhance recovery would be difficult. | Waste characteristics compatible. | Technology would require efficient dispersion of the chemicals and contact time with the NAPL. Site features would make addition of the chemicals difficult to complete. | This technology will not be considered further. |
| **Heat-Enhanced NAPL Recovery** | The subsurface would be thermally treated to enhance recovery of NAPL. | Heating the subsurface would be difficult due to site structures, paving, etc. The Site is an active refining facility and use of the thermal technology could possibly create a dangerous situation. | Waste characteristics compatible. | The technology would be limited by remediation equipment placement and paved surfaces and other structures. The technology relies on thermally treating the subsurface which would be inhibited by the impervious surfaces and other Site structures. | This technology will not be considered further. |
| **In Situ Soil Mixing and Stabilization** | Specially designed equipment (with stabilizing agent) would be used to mix and stabilize impacted soil in situ. | Addition of stabilizing agents and in situ mixing of impacted soil would be difficult within the refinery duke to site structures, paving, etc. | Waste characteristics compatible. | Mixing equipment would not be able to reach impacted soil beneath structures or near process piping. May not completely remove NAPL. | This technology will not be considered further. |
| **NAPL Recovery from Wells** | Recovery wells would be installed with pumps to recover NAPL. Recovered fluids would be managed by the Site water treatment system. | Site characteristics compatible. | Waste characteristics compatible. | Technology would be limited by water treatment capacity at the Site treatment plant. | This technology will be considered. |

**Table 2 (con't)** **NAPL Accumulation Areas Evaluation of Technologies**

| Technology | Description | Screening Parameter | | | Decision |
|---|---|---|---|---|---|
| | | Site Characteristics | Waste Characteristics | Technology Limitations | |
| **NAPL Recovery from Trenches** | A recovery trench would be installed to recover NAPL. The trench would be backfilled with a permeable material to induce the flow of NAPL to the trench. | Construction of recovery trenches would be difficult due to site structures, paving, etc. | Waste characteristics compatible. | Technology would be limited by water treatment capacity at the Site treatment plant. | Two interceptor trenches already exist at the site and will continue to be utilitized. However, construction of new trenches will not be considered further. |
| **Soil Vapor Extraction** | A vacuum system would be installed to pull air through the subsurface and promote volatilization and recovery of hydrocarbons from soil. | Though the Site lithology is conducive to the soil vapor extraction technology, implementing an effective system would be difficult. The Site is an active refining facility and installing vapor extraction wells around existing piping, tanks, and other structures would be difficult. | COC which are weathered would be difficult to extract. | The technology would be limited by vapor extraction well placement and paved surfaces and other structures. The technology relies on pulling air through the subsurface which would be inhibited by the impervious surfaces. | This technology will not be considered further. |
| **Vacuum-Enhanced NAPL Recovery** | A vacuum would be applied to groundwater/NAPL recovery system (multiphase recovery system) to enhance recovery. Recovered fluids would be managed at the Site water treatment system. | Site characteristics compatible. | Waste characteristics compatible. | No technology limitations. | This technology will be considered. |
| **Water Flood-Enhanced NAPL Recovery** | Water would be used to flood the treatment area, saturate the subsurface, and flush NAPL toward down-gradient recovery wells. | The Site is an active refining facility and flooding the area with water to enhance recovery would be difficult. | Waste characteristics compatible. | Technology would require efficient dispersion of a large volume of water to mobilize NAPL. Site features would make flooding of the NAPL areas difficult to complete. | This technology will not be considered further. |

Note: COC = constituents of concern
NAPL = non-aqueous phase liquid