Issues and Recommendations
First Five-Year Review for Dual Site Groundwater Operable Unit Montrose and Del Amo Superfund Sites

	Issue	Recommendations/ Follow-Up Actions	Party Responsible	Milestone Date[1]	Implementation Approach/Status (October 2016)
1.	The potential for a vapor intrusion pathway in the residential neighborhood south of the Del Amo Site has not been fully assessed.	Collect soil vapor and possibly additional indoor air samples to further assess the potential for a vapor intrusion pathway. All historical and recent soil vapor and indoor air data should be evaluated.[1]	EPA	Early 2017	EPA is conducting an investigation that will include the collection of soil gas, soil, groundwater, and indoor, outdoor, and sub-slab air samples in the residential area. Following the investigation, EPA will assess the potential for vapor intrusion.
2.	The criteria for selecting the Technical Impracticability (TI) Zone did not include the potential for vapor intrusion from groundwater.	Complete the vapor intrusion assessment, and consider whether the TI Waiver Zone remains protective in light of any potential vapor intrusion risk.	EPA	2018	EPA will re-evaluate the protectiveness of the TI Waiver Zone following the completion of the vapor intrusion assessment (Issue #1).
3.	The current Dual Site groundwater monitoring network is not sufficient to adequately characterize the full extent of the Dual Site contaminants, including para-chlorobenzene sulfonic acid (pCBSA).	Install additional groundwater monitoring wells to track full extent of all Dual Site contaminants to the non-detect level in all aquifer units. Evaluate the need for sentinel wells to provide additional data on the migration of pCBSA outside the chlorobenzene dissolved plume.	PRPs	2017	The installation of additional groundwater monitoring wells is planned over the next two years.
4.	A unified conceptual site model (CSM) has not been developed for the Dual Site. The CSMs for the Montrose Chemical and Del Amo Sites differ, and hydrogeologic interpretations developed for other facilities in the area are not consistent with the conceptual hydrogeology at the Dual Site.	The CSM should integrate the differing Montrose and Del Amo conceptual hydrogeologic models, integrate CSMs developed for other facilities, include sources of contamination in the vicinity of the Dual Site, include production pumping, and identify potential receptors and mutual effects of production pumping and remedial activities.	PRPs	2017	Under a coordinated effort with the state, EPA has gathered information on nearby facilites and is evaluating site hydrogeology. EPA has prepared its own contaminant-distribution maps. EPA expects the PRPs to complete an integrated CSM that includes groundwater information from other facilities, production wells, and other relevant information such as the results of the additional well installation and testing. The new CSM will complement and feed into an updated groundwater model to be completed after startup of the groundwater system and before the project enters the operation and maintenance phase.
5.	The last production well survey for the Dual Site was conducted in 2003. The ROD requires an updated well survey every five years.	Prepare an updated well survey for the Dual Site and include all potential vertical conduits.	PRPs	2016	The PRPs plan to conduct a comprehensive production well survey. The Del Amo Parties will submit the next survey to EPA in early 2017.
6.	The Dual Site Groundwater Extraction and Treatment System (GWETS) is not operational, and groundwater contamination is not being remediated with numerous consequences, including: a. The dissolved plume is continuing to migrate into clean or less contaminated water units, potentially including those used for drinking water. b. Potential exposure risks via the vapor intrusion pathway are not being abated.	Continue to work toward achieving operational status of the GWETS to contain and remediate the Dual Site COCs.	PRPs EPA DTSC	2016	The system startup is planned subsequent to completion of • Antidegradation Policy Analysis for reinjection of treated water (Issue #12). • Certification by EPA that construction of the GWETS is complete. • Negotiation and lodging of a consent decree with Montrose Parties to operate the system. The potential exposure risk due to vapor intrusion will be evaluated in 2017, following the investigation described under Issue #1.
7.	Upgradient groundwater contaminated with chlorinated solvents (mainly TCE and PCE) continues to migrate into the dissolved plume and comingle with Dual Site contaminants.	Isolate and hydraulically contain TCE/PCE source areas to attain the goals of the ROD. Implement additional data collection and groundwater investigations to better characterize the TCE plume distribution (ROD, page 11-15). As necessary, design and construct groundwater containment system(s) to prevent further migration of TCE as outlined in the performance-based approach in the ROD (pages 11-25, 26).	PRPs EPA DTSC	2018	EPA plans to reinitiate negotiations with the TCE Parties in 2017 to conduct an additional investigation, prepare a remedial design, and conduct a remedial action to address TCE sources and mitigate TCE groundwater migration into the Dual Site. EPA plans to address PCE in part through its current Administrative Order on Consent (AOC) with JCI Jones for Remedial Investigation/ Feasibility Study work.
8.	Groundwater cleanup work overseen by agencies other than EPA at multiple source areas near the Dual Site may interfere with effectiveness of the remedy.	A multi-site strategy should be developed to ensure effective coordination with other agencies.	EPA DTSC RWQCB	2016	Ongoing since 2015, EPA and state agencies will continue to communicate and coordinate on groundwater cleanups on a semiannual basis.
9.	Under the ROD, intrinsic biodegradation is the remedy for benzene in the UBF and MBFB. The effectiveness of biodegradation cannot be fully evaluated from the data collected to date.	Collect and report additional lines of evidence such as geochemical and physiochemical groundwater quality parameters as part of the Monitoring Aquifer Compliance Plan or other plans to evaluate the effectiveness of intrinsic biodegradation.	PRPs	2017	EPA has requested that the Del Amo Parties collect additional data and fully evaluate benzene biodegradation. The Del Amo Parties have submitted Work Plans for EPA review and approval for work to commence over the next year (2017) to meet this recommendation.
10.	The ROD selected active extraction/reinjection for dissolved-phase benzene in the area outside the TI Waiver Zone in the MBFC and Gage. The GWETS, when operational, may not capture all of that benzene.	Determine whether the GWETS will capture the benzene in the MBFC and Gage. If not, design and implement active hydraulic extraction and treatment of benzene.	PRPs	2017	EPA has requested that the Del Amo Parties provide data supporting removal of benzene in the MBFC and Gage aquifers outside of the TI Zone and containment of benzene within the MBFC inside of the TI Zone. The Del Amo Parties have submitted a draft Work Plan to collect additional data to address this issue. EPA expectes work to commence in 2017.
11.	The toxicity information and/or MCLs for chloroform, ethylbenzene, and 1,2,4- trichlorobenzene have changed since the ROD was issued.	Re-evaluate the protectiveness of the ROD's groundwater cleanup standards for chloroform, ethylbenzene, and 1,2,4-trichlorobenzene.	EPA	2017	EPA has requested that the PRPs incorporate the most recent MCLs for all COCs in evaluating protectiveness of the groundwater remedy.
12.	The ROD contemplates migration of pCBSA due to reinjection. The ROD or the underlying FS therefore should have included an analysis of that migration, consistent with California's Anti-Degradation Policy.	Complete an Anti-Degradation Policy analysis for migration of pCBSA.	EPA	2016	EPA plans to complete Anti-Degradation Policy analysis for pCBSA in early 2017.
13.	Tertiary-butyl alcohol (TBA) has been detected in several wells. The ROD did not include TBA as a contaminant of concern or select an ISGS for TBA, and therefore, no remedial component has been designed or implemented to address it.	Consider whether protectiveness of the selected remedy requires adoption of a cleanup standard (ISGS) for TBA.	EPA	2019	EPA has requested that the Del Amo Parties evaluate the source and extent of TBA. They have submitted a draft Work Plan for EPA review, and the work is expected to start in 2017. Upon completion of this investigation, EPA will assess the extent of TBA and, if appropriate, prepare a change to the decision document.
14.	Reporting limits for some COCs are greater than the ISGS value, thus impeding EPA's ability to assess compliance with the ROD.	Revise sampling plans to include analysis procedures that can achieve lower reporting limits below the ISGS.	PRPs	2016	EPA has requested the PRPs to prepare new sampling plans and update their Quality Assurance Project Plans to address this issue. EPA expects the updated QAPPs to be in place prior to the next groundwater sampling event in September 2017.

[1] Five Year Review Report, Dual Site Groundwater Operable Unit, September 2015