TABLE 2-1
Data Quality Objectives for the Area 3 Remedial Investigation Task
Remedial Investigation
San Gabriel Valley Area 3, Superfund Site

Step 1 – Define Basis of Evaluation

Overall Goal	Justification
Evaluate current or potential threats to human health and the environment from regional groundwater contamination. This evaluation consists of the following six subtasks: – **Subtask 1** – Hydrogeologic Conceptual Site Model. – **Subtask 2** – Contaminant Source Identification. – **Subtask 3** – Contamination Migration Conceptual Site Model. – **Subtask 4** – Human Health Risk Assessment. – **Subtask 5** – Ecological Risk Assessment. – **Subtask 6** – Assessment of Next Steps. Tables 3-1, 4-1, 5-1, 6-1, 7-1, and 8-1 present the DQOs for each subtask, respectively.	– Contaminant concentrations in groundwater underlying Area 3 exceed federal and State drinking water standards, MCLs, and NLs. – Groundwater underlying Area 3 is a source of domestic drinking water. – Results of the subtasks: 1) Establish whether a remedial action is necessary in Area 3 to mitigate or remediate regional groundwater contamination. 2) Provide a foundation for identifying potential remedial actions in Area 3.

Step 2 – Identify Potential Evaluation Results

Potential Result	Consequences of Incorrect Results	Basis for Potential Incorrect Result	Methods for Avoiding an Incorrect Result
Regional groundwater contamination in Area 3 currently or potentially threatens human health and the environment.	Taking an action unnecessarily (i.e., no actual threat to human health or environment exists) will waste resources.	Use of unreliable or inadequate data for critical decision making.	Ensure sufficient confidence in data used to support decision making. Complete Step 7 (Optimize the Design).
Regional groundwater contamination in Area 3 does not currently or potentially threaten human health and the environment.	Not taking an action when an actual threat exists will allow current and potential threats to human health and the environment to persist.	Use of unreliable or inadequate data for critical decision making.	Ensure sufficient confidence in data used to support decision making. Complete Step 7 (Optimize the Design).
Additional data collection needed to evaluate whether regional groundwater contamination in Area 3 currently or potentially threatens human health and the environment.	Collecting unnecessary data will waste resources.	Use of unreliable data for critical decision making.	Ensure sufficient confidence in data used to support decision making. Complete Step 7 (Optimize the Design).

DQOs – data quality objectives
COPC – contaminant of potential concern
EPA – United States Environmental Protection Agency
LARWQCB – California Regional Water Quality Control Board, Los Angeles Region
MCL – maximum contaminant level
NL – notification level
RI – remedial investigation

Subtask 1 – Hydrogeologic Conceptual Site Model
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Step 3 – Define Evaluation Boundaries

Boundaries for Consideration	Justification for Consideration
Physical boundaries, including: – Geographic boundaries. – Aquifer boundaries. – Land use boundaries.	DQOs for subtasks 1 through 5 present justification for consideration of applicable physical boundaries.
Evaluation limitations, including: – Temporal. – COPC use. – Exposure pathway. – Screening criteria.	DQOs for subtasks 1 through 5 present justification for consideration of applicable evaluation limitations.

Step 4 – Identify Areas Outside of the RI Evaluation Boundaries

Excluded Areas	Justification for Exclusion
Physical boundaries, including: – Geographic boundaries. – Aquifer boundaries. – Land use boundaries.	DQOs for subtasks 1 through 5 present justification for exclusion of areas outside of applicable physical boundaries.
Evaluation limitations, including: – Temporal. – COPC use. – Exposure pathway.	DQOs for subtasks 1 through 5 present justification for exclusion of areas outside of applicable evaluation limitations.

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Step 5 – Identify Data Needs and Uses

Data Need	Data Use(s)	RI Report Reference
Hydrogeologic Conceptual Site Model (RI Subtask 1).	Provides a foundation for completing Subtasks 2 through 5 by assessing: – Surface water recharge. – Depth to groundwater. – Groundwater geochemistry. – Groundwater flow directions. – Groundwater flow velocities. – Geologic controls on groundwater flow.	Section 3.
Contaminant Source Identification (RI Subtask 2).	– Identifies sources of regional groundwater contamination to target for future remedial actions. – Provides a foundation for Subtask 3.	Section 4.
Contamination Migration Conceptual Site Model (RI Subtask 3).	Provides a foundation for Subtasks 4 and 5 by assessing: – Key COPCs. – Horizontal extent of contamination. – Vertical extent of contamination. – Contaminant fate. – Contaminant migration pathways.	Section 5.
Human Health and Ecological Risk Assessments (RI Subtasks 4 and 5, respectively).	– Evaluates risks to human health and ecological receptors from exposures to the Key COPCs. – Identifies which exposure pathways require mitigation or remediation. – Provides justification, as appropriate, for a remedial action to address regional groundwater contamination in Area 3.	Section 6. Section 7.
Assessment of Next Step (RI Subtask 6)	Assess next steps for Area 3: – Begin feasibility study by developing and evaluating remedial alternatives to address regional groundwater contamination. – Use contamination migration conceptual site model as basis for feasibility study. – Identify additional potential sources of Key COPCs in groundwater.	Section 8, Table 8-1.

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Step 6 – Evaluate Data Usability

Data Type	Data Generation and Reliability	Assessment Performed
Hydrogeologic Conceptual Site Model (RI Subtask 1).	– Data set includes well data, lithologic data, geophysical data, groundwater data, aquifer test data, and groundwater geochemistry data of known and usable quality.	Table 3-1 describes the assessment performed on the data for the hydrogeologic conceptual model.
Contaminant Source Identification (RI Subtask 2).	– Data generated by EPA (primary) and facilities and water purveyors (secondary). – Based on the results of the Data Quality and Usability Assessment, analytical data collected by EPA considered of sufficient quality for use in the Area 3 RI. – Contaminant source identification continues.	Facility investigations are conducted according to LARWQCB guidance.
Contamination Migration Conceptual Site Model (RI Subtask 3).	– Based on: 1) Environmental data (primary data and secondary data). 2) Contaminant source identification. 3) Components of the hydrogeologic conceptual site model. – Reliability is based on: 1) Quality and usability of the data. 2) Reliability of the hydrogeologic conceptual site model. 3) Reliability of contaminant source identification.	Appendix C presents the Data Quality and Usability Assessment.
Human Health and Ecological Risk Assessments (RI Subtasks 4 and 5).	– Based on: 1) Hydrogeologic conceptual site model. – Reliability is based on: 1) Reliability of contamination migration conceptual site model. 2) Reliability of hydrogeologic conceptual site model.	Appendix E, Section E.3 and Appendix F, Section F.6 summarize uncertainties in the human health risk assessment and the ecological risk assessment, respectively.
Assessment of Next Steps (RI Subtask 6)	Any data collected during the feasibility will be evaluated for usability and reliability.	Section 8, Table 8-1.

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Step 7 – Optimize the Design

Actions	Methods for Optimizing the Design
Complete hydrogeologic conceptual site model (RI Subtask 1).	Develop hydrogeologic conceptual site model using the latest data available.
Continue contaminant source identification (RI Subtask 2).	Collect samples in areas that will yield representative data to enable development of sound decisions and recommendations. Collect samples using standard methodology and equipment. Use analytical methods that detect COPCs at concentrations at or below screening level guidance.
Complete contamination migration conceptual site model (RI Subtask 3).	Develop contamination migration conceptual site model using the data obtained from RI Subtasks 1 and 2.
Complete human health and ecological risk assessments (RI Subtasks 4 and 5, respectively).	Develop human health and ecological risk assessments using the latest EPA guidance and screening levels.
Complete Assessment of Next Steps	Complete next steps as identified in RI Subtask 6. See Table 8-1.

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