RTD-287

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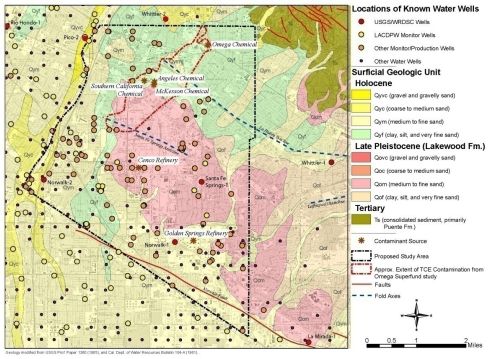
Central Basin Groundwater Contamination Study

The Central and West Coast groundwater basins provide nearly a third of the water supply to 43 cities in southern Los Angeles County (Figure 1). Over 250,000 afy are pumped from the basins for municipal and industrial use. To properly manage the ground-water resource and to ensure its future availability, it is necessary to identify and manage threats to the drinking water aquifers from surface contamination sources. The Santa Fe Springs-Whittier area (Study area) has multiple contamination sites with VOCs that affect shallow groundwater. About 60 other sites in the Study area are a potential source of groundwater contamination, and could impact as many as 30 active production wells. Current investigations are directed towards monitoring only the shallow ground-water system (generally above 150 ft) and remediation of specific sites. A coordinated investigation of the entire area is necessary to properly assess the likely transport mechanisms for contaminants from multiple sources and the cumulative threat to deeper, drinking-water aquifers.



Detailed Map of Study Area.

The primary goal is to provide improved understanding of the potential threat to regional drinking water supplies that is posed by the multiple contamination sites in the Study area. The objectives are to: 1) characterize the hydrogeologic connection between the shallow contaminated aquifers in the Study area and the deeper aquifers that supply drinking water for the Central Basin utilizing new and existing data, supplemented by new stratigraphic interpretation techniques, 2) identify and prioritize additional data collection needs.

The first step will be to combine separately collected data sets (geologic, hydrologic, and

California Water Conditions

Real-Time Data

- Real Time Streamflow Conditions
- WaterWatch
- USGS Data Mapper

Groundwater

- Groundwater Data
- Groundwater Watch
- Regional Groundwater
- Current Groundwater Conditions

water-chemistry) from individual contamination sites and the regional aquifer system into a GIS. Well log and seismic data will be interpreted to define possible sequence boundaries (unconformities) and flooding surfaces, and to identify facies and depositional environments within defined sequences. Well and seismic interpretations, lithologic and physical/hydrologic properties, and depositional environment will be integrated into a three dimensional geologic framework. Sequence-stratigraphic methods will be used to correlate deposits and better determine the likely continuity of permeable sediment in order to identify likely pathways for contaminant transport to deeper aquifers. Newly collected and existing water-quality data will be used to characterize the shallow and deep aquifer systems, and to evaluate the set of sequence-stratigraphic correlations. Water-level data from shallow monitoring wells will be compared to data from deeper wells to more systemically assess the flow regime, and visualize/quantify the 3D gradient field. Particle tracking will be conducted to help assess the impacts of potential migration of shallow contaminants into the deeper part of the aquifer system.

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Mapper

Surface Water

Surface-Water Data

Surface-Water Watch

Water-Quality

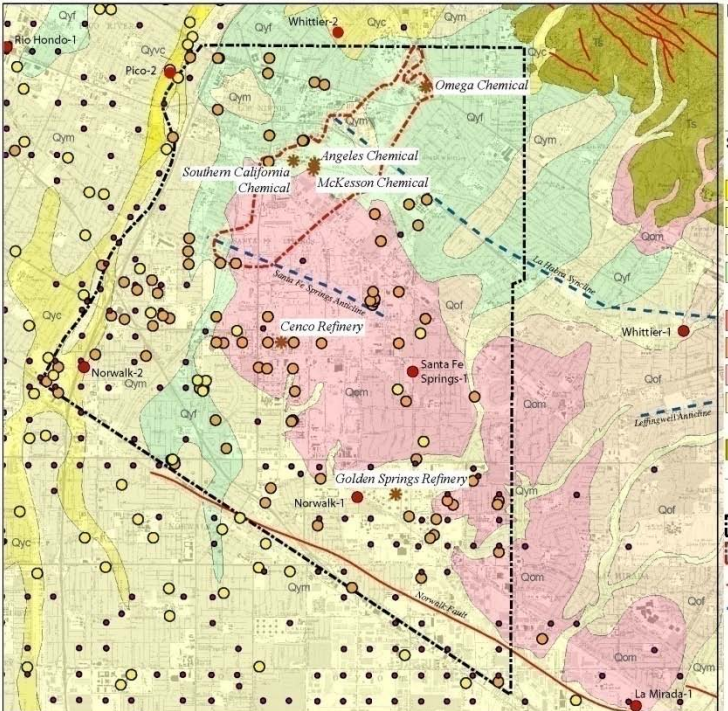
Water-Quality Data

Water-Quality Watch

Current Water Quality Conditions Mapper

Water Info via Email/Text

(WaterNow)



Locations of Known Water Wells

- USGS/WRDSC Wells
- LACDPW Monitor Wells
- Other Monitor/Production Wells
- Other Water Wells

Surficial Geologic Unit

Holocene

- Qyvc (gravel and gravelly sand)
- Qyc (coarse to medium sand)
- Qym (medium to fine sand)
- Qyf (clay, silt, and very fine sand)

Late Pleistocene (Lakewood Fm.)

- Qovc (gravel and gravelly sand)
- Qoc (coarse to medium sand)
- Qom (medium to fine sand)
- Qof (clay, silt, and very fine sand)

Tertiary

- Ts (consolidated sediment, primarily Puente Fm.)

- Contaminant Source
- Proposed Study Area
- Approx. Extent of TCE Contamination from Omega Superfund study
- Faults
- Fold Axes

N W E S

0 0.5 1 2 Miles

Geology modified from USGS Prof. Paper 1360 (1985), and Cal. Dept. of Water Resources Bulletin 104-A (1961).