

Oil Field Natural Resource Damage Assessment

Federal and State trustees retained Anthony Brown to provide technical support for a Natural Resources Damage Assessment (NRDA) claim related to contamination at the Unocal Guadalupe Oil Field.

The Unocal Guadalupe Oil Field is located on coastal sand dunes immediately adjacent to the Pacific Ocean and immediately north of the Santa Maria River. The oil field operated for many decades producing highly-viscous crude oil. To thin the oil to facilitate transport, diluent (a middle-distillate, similar to diesel) was blended with oil piped from the Unocal Nipomo Refinery to the Guadalupe Oil Field.

Both crude oil and diluent were released to the environment from various oil field facilities, including tank batteries, pipelines, compressor plants, separation facilities, and drilling/work-over pits. These releases impacted groundwater and several million gallons of pure petroleum product, as a light non-aqueous phase liquid (LNAPL), were present above the groundwater table. The LNAPL and dissolved-phase contaminants also discharged to surface water bodies, including coastal ponds and marshes (containing endangered species, including red-legged frogs), vernal pools, the Santa Maria River, and Pacific Ocean. The work scope included, amongst other tasks, the following:

- Review of site operations, including where and when diluent was used;
- Review of existing hydrogeological and analytical data;
- Review of existing and proposed remediation programs;
- Field investigations to characterize lithological conditions (geophysics and borings), identify and delineate groundwater contamination (monitoring wells), identify surface water contamination (grab samples), evaluate groundwater-surface water interactions (piezometers), and characterize multi-phase transport properties (cores and geotechnical laboratory testing);
- Development of a hydrogeological conceptual model;
- Quantification of LNAPL volume and transport characteristics; and
- Litigation support, including preparation of an expert report.