

## **Major Findings of the Environmental Incident Report**

California Department of Fish & Game, Office of Spill Prevention and Response

January 30 and February 6, 2007 Oil Spills

### **What was spilled?**

“The fluids released from this spill were a mixture of medium to light crude oil (~API 27) and produced water.... Crude oils often contain asphaltenes, aromatics, polycyclic aromatic hydrocarbons (PAHs a.k.a. semi-volatiles), and resins. The aromatics and PAHs are among the most toxic components in crude oils and **some are known carcinogens such as benzene**. These compounds are medium-weight components of hydrocarbon mixtures that pose significant environmental risk because they are persistent in the environment and are biologically available as well as having high toxicities....” p. 4

“In addition to elevated levels of mineral salts, produced water generally contains traces (1-3%) of oil, organic acids, **elevated concentrations of heavy metals** (including barium, cadmium, chromium, lead, copper, and nickel), and other compounds including corrosion inhibitors, all of which can be **deleterious to wildlife and aquatic species**.” pp. 4-5

### **What were the impacts to wildlife?**

“The creeks and nearby areas provide habitat, movement corridors, nesting, sheltering, and foraging areas for a wide variety of aquatic and terrestrial species including but not limited to California Condors. Thousands of aquatic macroinvertebrates died as a result of this incident. In addition, one dead, oiled songbird and one dead, oiled two-striped garter snake were found. Overall, the impacts to the environment and wildlife from the effects of crude oil and produced water, as well as the disturbance to stream habitat due to cleanup, were significant.” p.13

“Throughout the spill area, oil coated vegetation and woody debris; entered animal burrows and crevices; covered surfaces or boulders and cobbles; got captured as droplets in algae; and penetrated streambed alluvium, soil, sand and mud substrata in the bed of the stream. Petroleum sheening and odor were noted throughout the spill path. Large numbers (~ thousands) of macroinvertebrates, one song bird, and one two-striped garter snake (CA Species of Special Concern) were seen oiled and dead within the spill path. **Overall, the spills and their associated cleanup caused significant impacts to the habitat and biota within and near the spill.**” p.1

“While outside of the visible spill path, Sespe Creek is close enough and significant enough to warrant discussion. Tar Creek comes to a confluence with Sespe Creek only 1.8 miles below the downstream limits of the visible spill path. Sespe Creek is known to support steelhead trout (a federally listed endangered species, which would likely have been passing through during concurrent flows, as well as an abundant resident rainbow trout population. **Sespe Creek is designated as a Wild Trout Stream by DFG and is thought to provide the best remaining wild habitat for endangered steelhead trout within the Santa Clara River Watershed....** Arroyo toads, mountain yellow-legged frogs, southwestern pond turtles, and two-striped garter snakes are known to

exist in Sespe Creek beyond the known downstream limits of the spill path.... [T]he U.S. Forest Service reports that **California Condors frequent water holes at the confluence of Sespe and Tar Creeks only 1.7 miles to the west of the densest, largest, and most persistent pools of accumulated oil which arose as a result of the Tar Creek Spill.**” p.8

### What are the long-term effects?

“Although gross oil contamination can be removed from a watercourse, it is virtually impossible to remove all spilled oil. Oil sheening and minor spots of crude oil were observed along the creek bed as well as leaking out of holes (made by small rodents and old roots) in the creek’s banks throughout the spill cleanup. Fresh oil was discovered within sediments, algae, and under rocks throughout much of the spill path. **While an effort to remove this material out of the environment was made, much of it was unrecoverable and will remain within the environment for an extended period of time.**” pp. 9-10

“A post-cleanup survey of the spill path was performed on 17 April 2007. During this survey, visible effects of the spill and cleanup activities were observed near the spill path. These included but were not limited to: 1) stream contours were changed during the removal of oiled sediments in Segment 1; 2) significant amounts of fresh oil remained trapped in sandy sediments and under rocks in several wetted areas; 3) silt layers (arising from water washdown to remove free oil and oil coating) covered sediments in most areas; 4) salt deposits were thick and extensive in the dried stream channel of Segment 5; 5) Lush aquatic vegetation removed from Segments 9 and 10 had still not recovered. **While there are natural seeps throughout this area, a similar survey of a tributary (Red Rock Creek) just upstream of the spill path showed no buried oil. The oiled streambed and its banks will most likely continue to sheen for some time whenever water is present.**” p.10

“A reasonable estimate for the complete recovery of the impacted habitats and species to pre-spill conditions can be expected to be at least 2 years.” p.11

### What corrective measures are recommended by the report?

“The permanent in-stream containment basin located at the bottom of Segment 8 was non-functional. Had this facility been functioning at the time of the spill, 1.83 miles of streambed, aquatic biota, and associated wildlife species would not have been injured by this release. In addition, this facility would protect the areas of the creek that are more difficult to access improving the speed and ease of response in the case of a spill. Thus, it is recommended that Vintage work with DFG and other trustee agencies to repair the current containment basin or build a new one in order to protect the downstream areas from a spill. **It is also recommended that Vintage embark on an extensive preventative, monitoring, maintenance, and equipment replacement project to aid in the reduction of equipment failure related spills.**” pp. 12-13