

## Tanks & Fuel Oil Lines Cleaning & Demolition

Site	Performance Period	Contract Amount
Former Power Plant Southern California	September, 2014— December, 2015	\$9,041,250

### Key Features

- ◆ Pumping, onsite treatment and disposal to sanitary drain utilizing Encina Water Authority permit of approximately 6.5 millions gallons of accumulated rainwater in the tanks.
- ◆ Solidification, removal, transportation and recycling of approximately 10,400 tons of solidified waste from approximately 1.94 millions gallons of number six fuel oil bottom heels.
- ◆ Demolition of two 140 ft diameter, 48 ft high; two 240 ft diameter, 32 ft high; one 315 ft diameter, 32 ft high; and one 318 ft diameter, 32 ft high aboveground storage tanks with floating steel roof.
- ◆ Removal, sizing, transportation and disposal of approximately 8,500 LF of 1/2” to 24” diameter steel pipes (electrical and fuel).
- ◆ Decontaminate all tank interior surfaces including walls and floor by scraping to minimize waste volume.
- ◆ Removal and recycling/disposal of aluminum cover and fiberglass insulations from the tanks and pipes.
- ◆ Removal, transportation and disposal of approximately 8,500 LF of ACM including insulations on pipes, tank roof perimeter seals, bottom tank gaskets, and pipe flanges gaskets; and 4,500 SF of roof black tar and mastic.
- ◆ Excavation, transportation and disposal of approximately 30,000 tons of hydrocarbon impacted soil substrate from the tank bottoms.

The project was located on the Cabrillo Power I LLC facility in Carlsbad, California. Scope of work comprised of removal, transportation and recycling/disposal of number six fuel oil tank bottom material; onsite treatment and disposal of accumulated rainwater in the tanks; decontamination and demolition of six fuel oil aboveground storage tanks with floating roof and fuel oil piping; removal and disposal of asbestos containing material (ACM) from pipes and associated pumps and ancillary equipment, roof perimeter seals tank bottom gaskets; excavation and removal of soil substrate contaminated with TPH.

Initially, AIS removed the pipe runs coverings which included aluminum sheets, fiberglass insulation and ACM insulation/elbows. ACM debris beneath the pipe runs was also collected. Site ACM work was conducted in Level C PPE with negative air containment. Bottom ACM tank gaskets from all the tanks and pipe gaskets was also removed at this time. All ACM waste was placed in closed top bins and

transported offsite for disposal. The aluminum sheets were transported offsite for recycling while the fiberglass insulation was transported offsite to a local landfill for disposal.



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Once all the pipe coverings were removed, windows/drain on the pipes were opened with a non-sparking rivet buster tool to remove the contents and prevent spillage during the piping demolition. The contents were removed utilizing a vacuum truck when possible and transported to the tanks through existing access openings. The demolished pipes were transferred to the tanks for further processing.

Accumulated rainwater from the roofs and tanks interior were pumped through an onsite treatment system and discharged to a nearby sanitary drain access utilizing an Encina Water Authority permit. During this process, pH, visuals and volume of treated rainwater were recorded daily. Monthly confirmation samplings were completed per the permit requirements.



Equipment access openings of approximately 25' wide and 20' tall were cut on the tanks utilizing a 36,000 psi hydroblaster to gain access for equipment and personnel. Errant odors from the openings were controlled with solidification material. The openings were cut approximately 3 to 4 feet above the bottom of the tanks to prevent spillage of the tank contents. The floating roofs were in poor condition therefore no personnel were allowed to work on top of the roof for safety considerations. AIS utilized an excavator with a shear to cut the exposed floating roof through the opening in manageable sections that will be loaded into high and low side end dumps and transported offsite for recycling.

Concurrent to the work being conducted inside the tanks, AIS removed the aluminum sidings and insulation on the outside of the tanks utilizing boom lifts. The aluminum sidings were placed into bins and transported offsite for recycling while the insulation were placed into bins and transported offsite for disposal.

AIS proceeded to size and cut sections of tank piping inside the berms utilizing an excavator with a shear and transported to the tank for processing. The pipe sections were drained of any standing liquid and loaded into end dumps for offsite recycling. The same methodology was used for the associated pumps and other ancillary equipment. Work areas were lined with visqueen and absorbent to prevent any spillage. Site work was done using modified Level D PPE with Tyvek protection.



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When the pipe removal was completed, AIS moved the excavator with a shear inside the tank and proceeded to shear off the floating roof, and exposed the tank bottom material while at the same time, solidifying the contents with solidification material. This methodology continued until the entire floating roof was removed. All steel from the floating roofs was loaded into high side end dumps and transported offsite for recycling. AIS then solidified the exposed tank bottom material to a suitable condition for loading out as bulk solid into visqueen-lined and sealed end dumps for transport and offsite disposal as non-hazardous waste.

Once this task was completed, AIS proceeded to scrape the inside of the tank, utilizing boom lifts and manual methods to maximize the volume of waste removed. After majority of the tank contents were removed, AIS began cleaning the interior wall and floor of the tank to acceptable metal recycling standards. This procedure occurred under Level C PPE with Tyvek protection. This activity continued until no oily residue was visible on the interior of the tank.

Upon completion of the decontamination process, AIS demolished Tank 3 by cutting the tank into manageable sections and placing into end dumps for offsite transportation for recycling. AIS then proceeded to demolish the concrete tank foundation ring, excavating the bottom of the tank to remove hydrocarbon impacted sand per the remedial work plan.

Heavy equipment utilized for the project included excavators, shears, backhoes, fork lifts, bobcats, vacuum trucks and end dumps. Strict health and safety procedures were followed by all site personnel and visitors

