



6/2009



Google earth

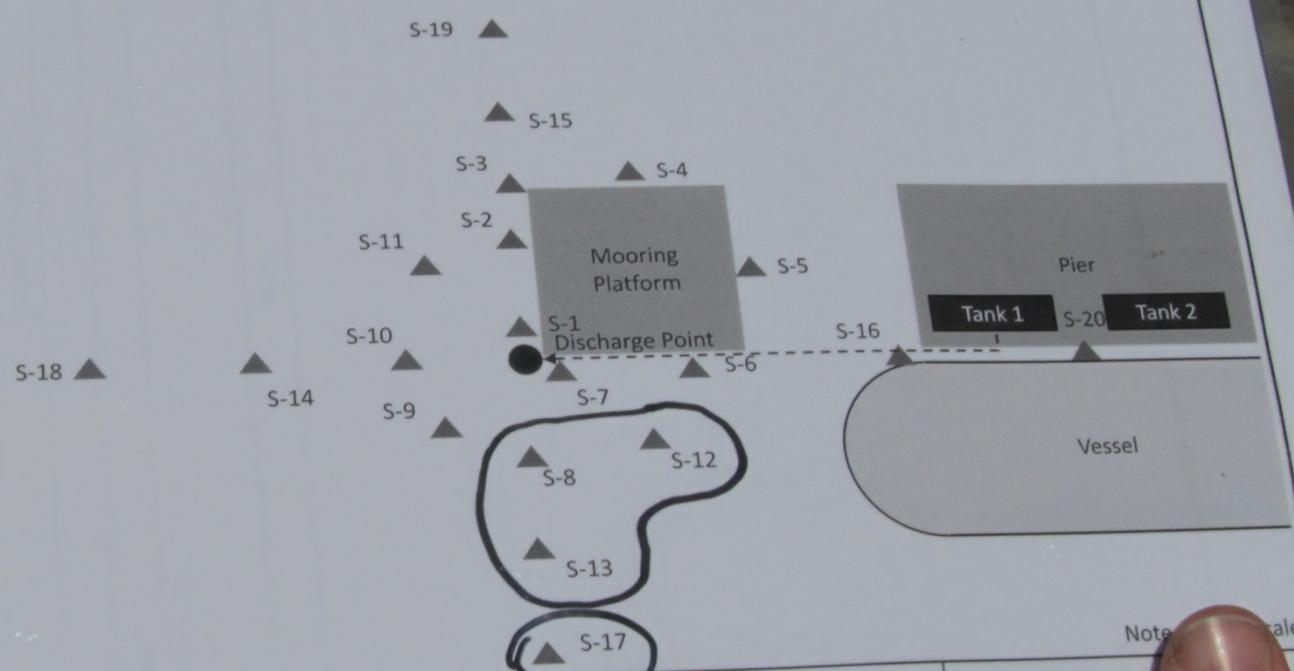
1987

Imagery Date: 9/23/2009 38°04'09.03" N 122°06'00.42" W elev 0 ft eye alt 9669 ft









- Legend:**
- ▲ Sample Location
  - Discharge Point
  - - Discharge Line

File Name: O:\Projects\A

	CLIENT: US DOT - MARAD	Proposed Sample
	PROJECT: Hull Cleaning Mixing Zone Test	
	PROJECT NUMBER: JV03.001.0001	FIGURE



Note: Scale





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# IN-WATER VESSEL HULL CLEANING

## Best Management Practice

Fact Sheet – July 2013



Vessel hull cleaning in dry dock is the preferred hull cleaning method to minimize the impact of hull cleaning to surface waters, when technically and economically feasible. The U.S. Environmental Protection Agency's 2008 and 2013 Vessel General Permits prohibit in-water hull cleaning in California unless conducted using Best Available Technology (BAT) as determined by California State Water Resources Control Board staff. Since they have not yet determined BAT for in-water hull cleaning, San Francisco Bay Regional Water Quality Control Board staff have prepared the following interim best management practice (BMP) for in-water hull cleaning. Until the State Water Board determines BAT for in-water hull cleaning, dischargers are encouraged to employ the following interim BMP, or a more environmentally protective practice. Failure to do so may result in unauthorized discharges of pollutants into waters of the United States and Regional Water Board enforcement.

### INTERIM BMP

The interim BMP for in-water hull cleaning consists of a containment and collection system capable of collecting all process water generated during in-water hull cleaning and directing it to a treatment system (Figure 1). This interim BMP is not a mandatory treatment system. A different collection and treatment system capable of achieving the same or greater pollutant capture and removal is acceptable.

The interim BMP employs a scrubber unit with rotating plastic brushes to remove attached biological material from a vessel's hull. The scrubber unit is held against the hull with approximately 1,000-pounds of pressure per square foot by a self-contained propeller and an approximately 400-gallon-per-minute (gpm) pump on a pier or barge.

A suction line attached to the discharge outlet from the scrubber unit collects and directs the process water to the pier or barge, where it is filtered by a 100-micron stainless steel mesh screen, followed by two 10-micron filter cartridges in parallel, followed by four 5-micron filter cartridges in parallel, and lastly conveyed through four pressure vessels arranged in parallel, each containing 3,000 pounds of organo-clay. If necessary, additional pressure vessels can be used in series or in parallel to fully accommodate the flow rate and maximize pollutant removal. The discharge point into the receiving water should be a minimum of 10-feet below the water surface. If large liquid storage containers are available, process water can be treated and discharged in batches.

