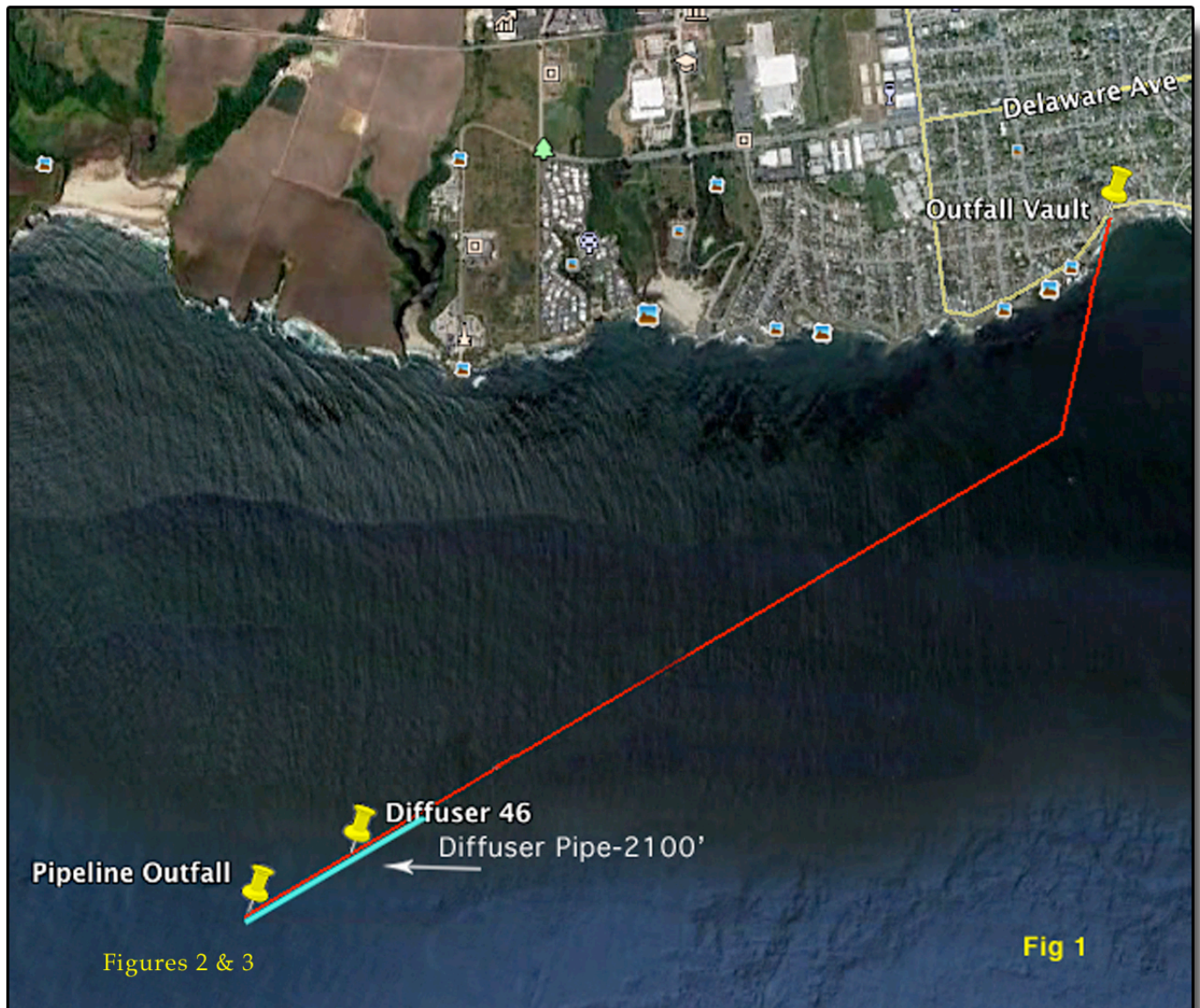


2015 Dye Study

Wastewater Treatment Effluent Ocean Outfall Overflight

On Tuesday, December 8, 2015 the City of Santa Cruz conducted a dye test of the Wastewater Treatment effluent ocean outfall to visually search for leaks. An overflight was performed between 12:50 & 1:54 pm using the aerial services of **Skywords Aerial Services**. An on-board standard global positioning system (GPS) was used for navigation and positioning.



Observational conditions were excellent. The weather was clear with unrestricted visibility. Swells were 3'-5' and wind was 3-5 knots.

At 12:56 pm 120 gallons of yellow liquid dye were added at the Wastewater Treatment facility. All of the dye had been added by 1:11 pm.

Continuous flight lines were flown and observations made along the pipeline from the vault to the outfall from 1:00 to 1:55 pm. Dye plumes did not reach the surface of the water but were observed below the surface. No other dye was observed along the length of the pipeline during the course of the flight.

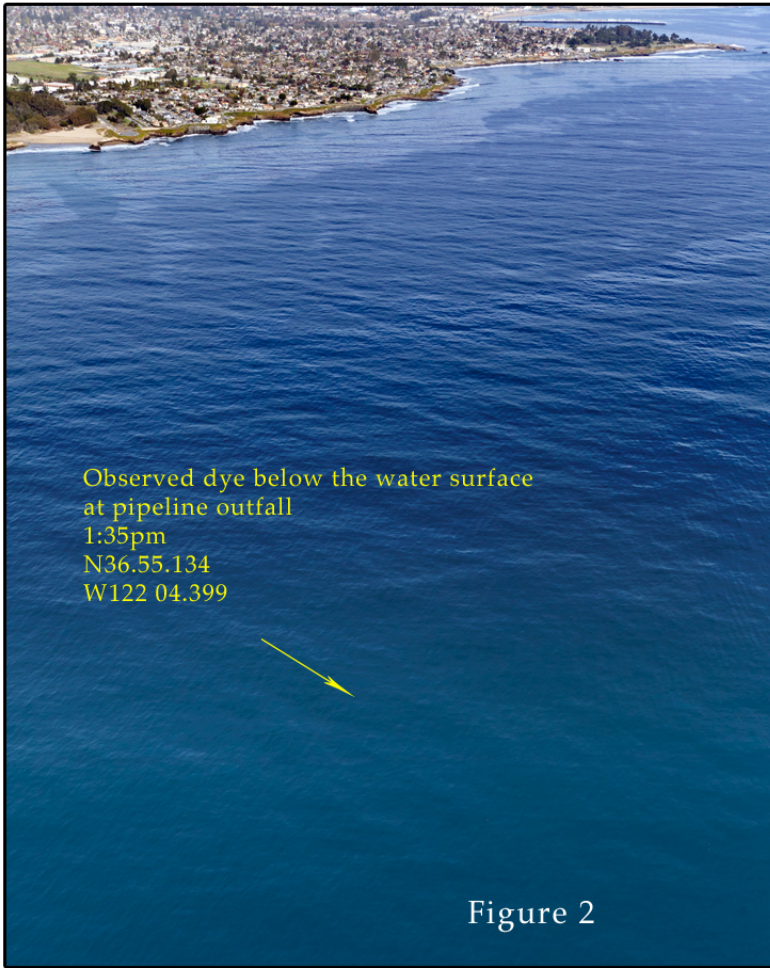


Figure 2 - At 1:35 dye was seen below the surface of the water, emanating from the pipeline outfall area. The dye faintly lightened the color of the water.

Figure 2

Figure 3 - At 1:44 the dye is observed below the water surface at the pipeline outfall. Continuous flight lines were flown along the entire length of the pipeline from the vault to the outfall and no other dye was observed.



Figure 3