STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 West 4th Street, Suite 200, Los Angeles, California 90013

FACT SHEET
WASTE DISCHARGE REQUIREMENTS
FOR
ANADITE, INC. FACILITY
10647 GARFIELD AVENUE, SOUTH GATE
CALIFORNIA

ORDER NO. R4-2002-0030 (SERIES NO. 043)
CI-8685, FILE NO. 97-019

FACILITY ADDRESS	**FACILITY MAILING ADDRESS**
Anadite South Gate	Anadite California Restoration Trust
10647 Garfield Avenue	711 West Hurst Boulevard
South Gate, CA 90280	Hurst, TX 76053

PROJECT DESCRIPTION

Anadite South Gate (site) is located in South Gate, California, approximately at Latitude: N33^0 55$^{'}$ 57", Longitude: W118^0 10' 12" (Figure 1). Soil and groundwater investigations have been conducted at the site since 1991. Results of the investigations indicate that previous metal plating finishing operations at the site have impacted the subsurface soil and groundwater with volatile organic compounds (VOCs) and chromium compounds. The main contaminants of concern (COC) for the site are tetrachloroethene (PCE) and trichloroethene (TCE). PCE was detected at concentrations up to 18.8 milligrams per kilogram (mg/kg) in soil and up to 34 milligrams per liter (mg/L) in groundwater; and TCE, up to 0.93 mg/kg in soil and up to 14 mg/L in groundwater. As of May 2003, the detectable VOCs plume in groundwater was more than 2,000 feet long and 1,000 feet wide (Figure 2). Groundwater occurs approximately 40 feet below ground surface, with gradient to the south generally.

On January 27, 1998, the Regional Board issued Cleanup and Abatement Order (CAO) No. 98-004 requiring Anadite, Inc. to cleanup and abate the soil and groundwater contamination originating from the site. Soil remediation via vapor extraction has been conducted at the site since November 2000. It is estimated that approximately 4,200 pounds of VOCs were removed from the site during the period of November 2000 through April 2003.

Based on the remedial alternative screening and evaluation, enhanced anaerobic bioremediation (EAB) and in-situ chemical oxidation (ISCO) have been selected as primary technologies for pilot studies at the site. EAB is a remedial technology designed to facilitate the in-situ biological destruction of chlorinated VOCs over a wide range of concentrations in groundwater. The EAB proposed for the site involves the injection of an electron donor into the subsurface to stimulate the natural reactions of microorganisms to dechlorinate the contaminants into non-toxic end products, such as ethene. ISCO involves the injection of chemical oxidants into the subsurface to destroy organic contaminants. The chemical oxidants react with the contaminants, producing innocuous substances such as carbon dioxide (CO_2), water (H_2O), and inorganic chloride.

The March 13, 2003, *Work Plan for Groundwater Remediation Pilot Studies* (Work Plan) was approved by the Regional Board on June 10, 2003. The Work Plan proposes to inject amendments, including sodium lactate and potassium permanganate, into groundwater at the site for use in in-situ groundwater remediation. Both sodium lactate and potassium permanganate have a considerable history of being utilized successfully in California in similar projects and are expected to be widely used in future remediation efforts. Subsequently, both materials have been included in General Waste Discharge Requirements (WDR) No. R4-2002-0030, adopted on January 24, 2002 by the Regional Board.

VOLUME AND DESCRIPTION OF DISCHARGES (INJECTION)

Three pilot studies are proposed for the site to evaluate the effectiveness of EAB and ISCO technologies to reduce the VOCs contamination in groundwater. The pilot studies will be conducted at three selected areas of the site (Figure 3). Each area has its own injection and monitoring well network, which includes one injection well and two to three performance monitoring wells.

Pilot Test No. 1 – EAB Using Passive Injection: The treatment process for Pilot Test No. 1 will consist of pumping (2 to 5 gallons per minutes [gpm]) approximately 100 to 200 gallons batches of VOCs impacted groundwater from well MW-1 into a holding/mix tank. Sodium lactate will then be added to the tank to create a 2,000 to 5,000 mg/L solution. Bromide will also be added as a tracer. The batch of sodium lactate solution will then be reinjected into well MW-1 at approximately the same rate as the extraction rate. The injection will occur approximately once a month for eight months. It is estimated that approximately 26 to 67 pounds of sodium lactate, depending on the solution concentrations, will be injected into well MW-1 during the pilot testing period. Baseline sampling prior to the injection and quarterly performance monitoring for nine months will be conducted at the Pilot Test No. 1 area.

Pilot Test No. 2 – EAB Using Groundwater Recirculation: The treatment process for Pilot Test No. 2 will consist of continuously pumping (<1gpm) of VOCs impacted groundwater from extraction well EW-1 into a mix tank. The extracted water will then be mixed with sodium lactate to create a 2,000 to 5,000 mg/L solution. Bromide will also be added as a tracer. The lactate solution will then be reinjected into well MW-5 at approximately the same rate as the extraction rate for eight months. It is estimated that approximately 5,864 to 14,659 pounds of sodium lactate, depending on the solution concentrations, will be injected into well MW-5 during the pilot testing period. Baseline sampling prior to the injection and quarterly performance monitoring for nine months will be conducted at the Pilot Test No. 2 area.

Pilot Test No. 3 – ISCO Followed by EAB: There are two phases in Pilot Test No. 3. The initial phase of the treatment process will consist of pumping (2 to 5 gpm) approximately 100 to 200 gallons batches of VOCs impacted groundwater from well MW-15 into a holding/mix tank. Potassium permanganate will then be added to the tank to create a 5,000 to 20,000 mg/L solution. The batch of potassium permanganate solution will then be reinjected into well MW-15 at approximately the same rate as the extraction rate. The batch injection will occur approximately once a month for three months. The second phase of the treatment process will consist of pumping (2 to 5 gpm) approximately 100 to 200 gallons batches of water from well MW-15 into a holding/mix tank. Sodium lactate will then be added to the tank to create a 2,000 to 5,000 mg/L solution. The batch of lactate solution will then be reinjected into well MW-15 at approximately the same rate as the extraction rate. The batch injection will occur approximately once a month for three months. It is estimated that approximately 25 to 100 pounds of potassium permanganate and 10 to 25 pounds of sodium lactate, depending on the solution concentrations, will be injected into well MW-15 during the pilot testing period. Baseline sampling prior to the injection and bimonthly performance monitoring for eight months will be conducted at the Pilot Test No. 3 area.

Any potential adverse water quality impacts that may result will be localized, of short-term duration, and will not impact any existing or prospective uses of groundwater. Groundwater quality will be monitored to verify no long-term adverse impact to water quality. The details of monitoring requirements for the pilot studies at the site are stated in Monitoring and Reporting Program No. 8685, which will be revised as needed or if a full-scale groundwater remediation is implemented.