

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: Santa Ana Regional Water Quality Control Board (Regional Water Board)	Address: 3737 Main Street Suite 500 Riverside, CA 92501
Agency Caseworker: Rose Scott	Case No.: 83002768T

Case Information

USTCF Claim No.: 9792	GeoTracker Global ID: T0605901909
Site Name: Orange Avenue Associates	Site Address: 2540B South Orange Street Santa Ana, CA 92707
Responsible Party: Orange Avenue Associates	Address: 232 West Cerritos Avenue Anaheim, CA 92805
USTCF Expenditures to Date: \$11,116	Number of Years Case Open: 22

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605901909

Summary

The Low-Threat Underground Storage Tank (UST) Case Closure Policy (Policy) contains general and media-specific criteria, and cases that meet those criteria are appropriate for closure pursuant to the Policy. This case meets all of the required criteria of the Policy. A summary evaluation of compliance with the Policy is shown in **Attachment 1: Compliance with State Water Board Policies and State Law**. The Conceptual Site Model upon which the evaluation of the case has been made is described in **Attachment 2: Summary of Basic Case Information (Conceptual Site Model)**. Highlights of the case follow:

This case is an active warehouse. An unauthorized release was reported in July 1994 following the removal of two USTs, one gasoline and one diesel. Approximately 400 tons of impacted soil were removed and disposed offsite in 1999. The excavated area was backfilled with clean soil and then paved with asphalt. No active remediation has occurred at the Site. Since 1999, six groundwater monitoring wells have been installed and irregularly monitored. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except for benzene and MTBE.

The petroleum release is limited to the soil and shallow groundwater. According to data available in GeoTracker, there are no supply wells regulated by the California Department of Public Health or surface water bodies within 250 feet of the defined plume boundary. No other water supply wells have been identified within 250 feet of the defined plume boundary in files reviewed. Water is provided to water users near the Site by Metropolitan Water District of Southern California. The affected groundwater is not currently being used as a source of drinking water, and it is highly unlikely that the affected groundwater will be used as a source of drinking water in the foreseeable future. Other designated beneficial uses of impacted groundwater are not threatened, and it is highly unlikely that they will be, considering these factors in the context of the site setting.

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE OFFICER

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Remaining petroleum hydrocarbon constituents are limited and stable and concentrations are decreasing. Corrective actions have been implemented and additional corrective actions are not necessary. Any remaining petroleum hydrocarbon constituents do not pose a significant risk to human health, safety or the environment.

Rationale for Closure under the Policy

- General Criteria: The case meets all eight Policy general criteria.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 1. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- Vapor Intrusion to Indoor Air: The case meets Policy Criterion 2b. Although no document titled "Risk Assessment" was located in the files reviewed, a professional assessment of site-specific risk from exposure through the vapor intrusion pathway shows that maximum concentrations of petroleum constituents will have no significant risk of adversely affecting human health. The building where monitoring well MW-5 is reporting high groundwater benzene concentration has floors covered by 3 to 4 inch of concrete which restricts the potential for vapor intrusion to indoor air. In addition, the building houses electric motor and other heavy machinery shops. Such working environment requires sufficient ventilation and other safety measures to mitigate harmful exhaust and dust. These added measures also mitigate any vapor intrusion to indoor air risk from the groundwater benzene impact.
- Direct Contact and Outdoor Air Exposure: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial use, and the concentration limits for a Utility Worker are not exceeded.

Objections to Closure and Responses

The Regional Water Board, in their Geotracker case review, objects to UST case closure because:

- The groundwater impacts at the Site are not defined.
RESPONSE: The extent of groundwater contamination is confined near the source area and there are no nearby receptors. The case meets all Policy criteria and does not pose a significant risk to human health.

Determination

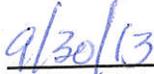
Based on the review performed in accordance with Health & Safety Code Section 25299.39.2 subdivision (a), the Fund Manager has determined that closure of the case is appropriate.

Recommendation for Closure

Based on available information, residual petroleum hydrocarbons at the Site do not pose a significant risk to human health, safety, or the environment, and the case meets the requirements of the Policy. Accordingly, the Fund Manager recommends that the case be closed. The State Water Board is conducting public notification as required by the Policy. Orange County has the regulatory responsibility to supervise the abandonment of monitoring wells.



Lisa Babcock, P.G. 3939, C.E.G. 1235



Date

Prepared by: Mark Owens, P.E.

ATTACHMENT 1: COMPLIANCE WITH STATE WATER BOARD POLICIES AND STATE LAW

The case complies with the State Water Resources Control Board policies and state law. Section 25296.10 of the Health and Safety Code requires that sites be cleaned up to protect human health, safety, and the environment. Based on available information, any residual petroleum constituents at the Site do not pose significant risk to human health, safety, or the environment.

The case complies with the requirements of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.¹

<p>Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations? The corrective action provisions contained in Chapter 6.7 of the Health and Safety Code and the implementing regulations govern the entire corrective action process at leaking UST sites. If it is determined, at any stage in the corrective action process, that UST site closure is appropriate, further compliance with corrective action requirements is not necessary. Corrective action at this site has been consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations and, since this case meets applicable case-closure requirements, further corrective action is not necessary, unless the activity is necessary for case closure.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>If so, was the corrective action performed consistent with any order?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><u>General Criteria</u> General criteria that must be satisfied by all candidate sites:</p> <p>Is the unauthorized release located within the service area of a public water system? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Does the unauthorized release consist only of petroleum? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has the unauthorized (“primary”) release from the UST system been stopped? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has free product been removed to the maximum extent practicable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	

¹ Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.
http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf

<p>Has secondary source been removed to the extent practicable?</p> <p>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</p> <p>Nuisance as defined by Water Code section 13050 does not exist at the Site?</p> <p>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><u>Media-Specific Criteria</u> Candidate sites must satisfy all three of these media-specific criteria:</p> <p>1. Groundwater: To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites:</p> <p>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</p> <p>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</p> <p>If YES, check applicable class: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p> <p>For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies.</p> <p>Is the Site an active commercial petroleum fueling facility? Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.</p> <p>a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all of the applicable characteristics and criteria of scenario 4?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

<p>If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4</p> <p>b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?</p> <p>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>3. Direct Contact and Outdoor Air Exposure: The Site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c).</p> <p>a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?</p> <p>b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?</p> <p>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

ATTACHMENT 2: SUMMARY OF BASIC CASE INFORMATION (Conceptual Site Model)

Site Location/History

- This case is located side mid-block on the west South Orange Avenue between East Adams Street and Goetz Avenue and is an active warehouse type structure.
- The Site is bounded by a commercial storage facility to the west, a single set of railroad tracks to the northwest and north with commercial and residential on the other side, commercial and residential to the east across Orange Avenue and south.
- Site maps showing the location of the former UTSS, excavation area and monitoring wells are provided at the end of this closure review summary (EnGen Corporation, 1999 and 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: November 1994.
- Status of Release: USTs removed.
- Free Product: None reported.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/Removed/Active	Date
1	2,000	Diesel	Removed	July 1994
2	2,000	Gasoline	Removed	July 1994

Receptors

- GW Basin: Coastal Plain of Orange County.
- Beneficial Uses: GeoTracker lists Municipal and Domestic Supply, Industrial Process Supply, Industrial Service Water Supply and Agricultural Supply.
- Land Use Designation: Aerial photograph available on GeoTracker indicates commercial/industrial land use in the vicinity of the Site.
- Public Water System: Metropolitan Water of Southern California.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no public supply wells regulated by the California Department of Public Health within 250 feet of the defined plume boundary. No other water supply wells were identified within 250 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water within 250 feet of the defined plume boundary.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by interbedded and intermixed sand, silt, and clay.
- Maximum Sample Depth: 25 feet below ground surface (bgs).
- Minimum Groundwater Depth: 6.63 feet bgs at monitoring well MW-4.
- Maximum Groundwater Depth: 8.58 feet bgs at monitoring well MW-3.
- Current Average Depth to Groundwater: Approximately 8.30 feet bgs.
- Saturated Zones(s) Studied: Approximately 5 - 25 feet bgs.
- Appropriate Screen Interval: Submerged well screens in MW-1 through MW-4.
- Groundwater Flow Direction: Northeast with an average gradient of 0.003 feet/foot (November 2011). During the June 2011 monitoring event however, the flow direction was towards the south-southwest.

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs)
MW-1	October 1999	20-25	8.39 (11/10/11)
MW-2	May 2011	15-25	8.22 (11/10/11)
MW-3	May 2011	15-25	8.58 (11/10/11)
MW-4	May 2011	15-25	6.89 (11/10/11)
MW-5	May 2012	5-15	9.00 (5/26/12)
MW-6	May 2012	5-15	9.00 (5/26/12)

Remediation Summary

- Free Product: None reported.
- Soil Excavation: Approximately 400 tons of impacted soil were excavated and disposed offsite in 1994. Excavated area was replaced with clean fill and then paved with asphalt.
- In-Situ Soil Remediation: None.
- Groundwater Remediation: None.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs [mg/kg and (date)]	Maximum 5-10 feet bgs [mg/kg and (date)]
Benzene	ND @ 5 in MW-3 (5/26/2011)	ND @ 10 in MW-3 (5/26/2011)
Ethylbenzene	ND @ 5 in MW-3 (5/26/2011)	6.62 (5/26/2011)
Naphthalene	ND @ 5 in MW-3 (5/26/2011)	ND @ 10 in MW-3 (5/26/2011)
PAHs	NA	NA

NA: Not Analyzed, Not Applicable or Data Not Available

ND: Non-detect

mg/kg: Milligrams per kilogram, parts per million

<: Not detected at or above stated reporting limit

PAHs: Polycyclic aromatic hydrocarbons

Most Recent Concentrations of Petroleum Constituents in Groundwater

Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)
MW-1	5/26/2012	361	74	<5	18	17.8	44	<5
MW-2	6/6/2011	<50	<1	<5	<5	<5	<1	<5
MW-3	6/6/2011	399	<1	<1	<5	20	<1	18
MW-4	6/6/2011	<50	<1	<5	<5	<5	<1	<5
MW-5	5/26/2012	20,600	6,200	<5	930	<5	3,500	<5
MW-6	5/26/2012	686	6	<1	<5	<5	600	<5
WQOs		--	1	150	300	1,750	5 ^a	--

µg/L: Micrograms per liter, parts per billion

<: Not detected at or above stated reporting limit

TPHg: Total petroleum hydrocarbons as gasoline

MTBE: Methyl tert-butyl ether

TBA: Tert-butyl alcohol

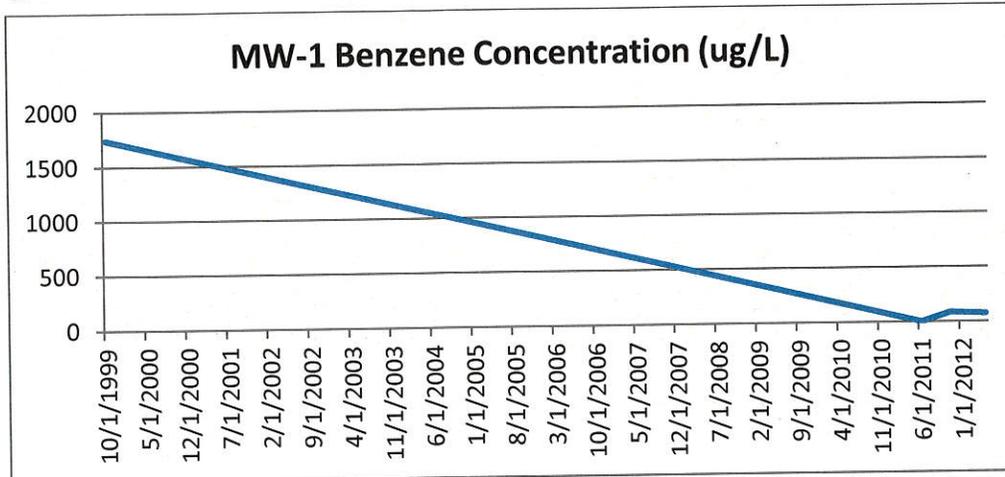
WQOs: Water Quality Objectives, Santa Ana Regional Water Quality Control Board Basin Plan.

--: Regional Water Board Basin Plan does not have a numeric water quality objective for TPHg and Naphthalene.

^a: Secondary maximum contaminant level (MCL)

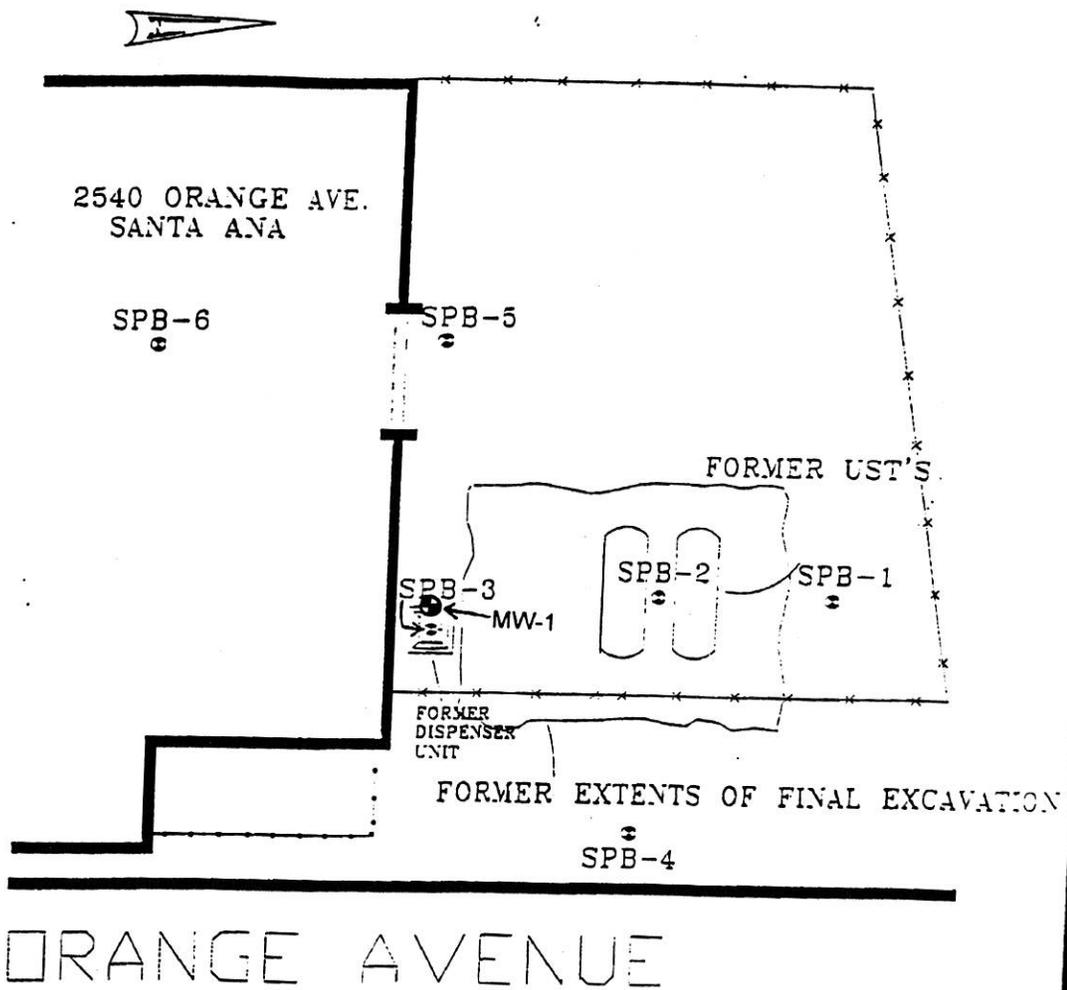
Groundwater Trends

- Since 1999, six groundwater monitoring wells have been installed and irregularly monitored. Benzene trends in well MW-1, which is located between the former UST excavation and the building, is shown below:



Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Yes, see table above.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet long.
- Plume Stable or Decreasing: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 1. The plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 2b. Although no document titled "Risk Assessment" was located in the files reviewed, a professional assessment of site-specific risk from exposure through the vapor intrusion pathway shows that maximum concentrations of petroleum constituents will have no significant risk of adversely affecting human health. The building where monitoring well MW-5 is reporting high groundwater benzene concentration has floors covered by 3 to 4 inch of concrete which restricts the potential for vapor intrusion to indoor air. In addition, the building houses electric motor and other heavy machinery shops. Such working environment requires sufficient ventilation and other safety measures to mitigate harmful exhaust and dust. These added measures also mitigate any vapor intrusion to indoor air risk from the groundwater benzene impact.
- Direct Contact Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial use, and the concentration limits for a Utility Worker are not exceeded.



LEGEND

MW-1 APPROXIMATE LOCATION OF PROPOSED GROUNDWATER MONITORING WELL

SPB-^o APPROXIMATE LOCATION OF STRATAPROBE BORING

EnGEN Corporation Geotechnical Engineering Special Material Environmental

SITE PLAN			
PROJECT NUMBER::	T1034-EA2	LEGAL DESCRIPTION:	
DATE: APRIL 1999	SCALE: NTS		
CLIENT NAME:	SADDLEBACK ASSOCIATES, INC.	FIGURE:	1

FIGURE 2

