UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

FIVE-YEAR REVIEW REPORT

SECOND FIVE-YEAR REVIEW

Pacific Coast Pipeline Superfund Site
Fillmore
Ventura County, California

September 2006

Approved by: *Date:*

Elizabeth J. Adams September 28, 2006

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TABLE OF CONTENTS

SECTION **PAGE**

EXECUTIVE SUMMARY ES-1

I. INTRODUCTION 1

II. SITE CHRONOLOGY 2

III. BACKGROUND 3

Physical Characteristics 3
Land and Resource Use 3
History of Contamination 4
Initial Response 4
Basis for Taking Action 5

IV. REMEDIAL ACTIONS 5

Remedy Selection 5
Remedy Implementation 6
System Operations 7

V. PROGRESS SINCE THE LAST REVIEW 9

VI. FIVE-YEAR REVIEW PROCESS 10

Administrative Components 10
Community Notification and Involvement 10
Document Review 10
Data Review 11
Site Inspection 13
Interviews 13

VII. TECHNICAL ASSESSMENT 13

Technical Assessment 13

VIII. ISSUES 17

IX. RECOMMENDATIONS AND FOLLOW-UP ACTIONS 17

X. PROTECTIVENESS STATEMENT(S) 18

XI. NEXT REVIEW 18

TABLES

1 Chronology of Site Events
2 Annual System Operations/O&M Costs
3 Actions Taken Since the Last Five-Year Review
4 Changes in Chemical-Specific Standards
5 Changes in Action-Specific Requirements
6 Changes in Location-Specific Requirements
7 Issues
8 Recommendations and Follow-up Actions

APPENDICES

A Community Notification Letter
B Site Inspection Report
- Completed Site Inspection Checklist
- Well Inspection Table
- Well Inspection Photos

C Interview Report
D Photos Documenting Site Conditions
E Decision Process for Revision of the California DHS MCL for Ethylbenzene

ATTACHMENTS

A Documents Reviewed
- Reference List
- Summary of ARARs Review

B Figures and Tables Documenting Remedy Performance
- Figure 1. Site Location Map
- Figure 2. Site Plan and Well Locations
- Figure 3. Decision Tree Requirements for Vapor Extraction System Shutoff (Source: Figure 9-1, *Final Phase 2 Design Report,* England, Shahin & Associates, December 16, 1994)
- Figures 4a-4e. Historical Hydrographs provided in the *Quarterly Groundwater Monitoring Reporting for Second Quarter 2006*
- Figure 5. Second Quarter 2006 Benzene Distribution - (Aquifer I)
- Figures 6a through 6l. Benzene Concentrations versus Time
- Figure 7. Historical Benzene Plumes
- Figure 8. Phase 1 – Former Tank Areas Soil Investigation Boring Location Map

- Table B-1. Soil Contaminants, 1986 (Source: Table 2 in the *First Five Year Review*)
- Table B-2. Primary VOCs in Groundwater (Source: Table 3 in the *First Five-Year Review*)
- Table B-3. Current Groundwater Monitoring Schedule
- Table B-4. Summary of Historical Contaminant Removal from GWTS Operation (Source: Table 2-2 from *Fourth Quarter 2002 Quarterly Status Report*)
- Table B-5. Summary of Historical Contaminant Removal from Soil Vapor Extraction (Source: Table 2-3 from *Fourth Quarter 2002 Quarterly Status Report*)

- Table B-6. Historical Analytical Results for Benzene Plume Areas
- Table B-7. Historical Analytical Results for Benzene at Well EW-P2

C Summary of Analytical Results from Phase I Soil Investigation, March 2006
- Table C-1. Summary of Analytical Results for Soil Samples Exceeding Industrial Soil PRGs/CAL-modified PRGs, Arsenic, March 2006
- Table C-2. Summary of Analytical Results for Soil Samples Exceeding Industrial Soil PRGs/CAL-modified PRGs, PAHs by EPA Methods 8260B and 8310, March 2006
- Table C-3. Summary of Analytical Results for Soil Samples Exceeding Industrial Soil PRGs, Organic Lead, March 2006

LIST OF ACRONYMS AND ABBREVIATIONS

ARARs	Applicable or Relevant and Appropriate Requirements
bgs	Below ground surface
CFR	Code of Federal Regulations
CTR	California Toxics Rule
DHS	Department of Health Services
DTSC	Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
GAC	Granular activated carbon
GWTS	Groundwater treatment system
LNAPL	Light non-aqueous phase liquid
MCL	Maximum Contaminant Level
MNA	Monitored natural attenuation
MWP	Main waste pit
NCP	National Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
ORC	Oxygen Release Compound
PAH	Polynuclear aromatic hydrocarbons
PCPL	Pacific Coast Pipeline
PRG	Preliminary Remediation Goal
PRG Ind.	Preliminary Remediation Goal, industrial sites
RP	Responsible party
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
SIP	State Implementation Plan
SVE	Soil vapor extraction
SWRCB	State Water Resources Control Board
VOC	Volatile organic compound

EXECUTIVE SUMMARY

This is the second five-year review for the Pacific Coast Pipeline (PCPL) Site (Site) in Fillmore, Ventura County, California. The triggering action for this review is the previous five-year review completed in September 2001. The March 31, 1992, Record of Decision (ROD) for the PCPL Site required:

- construction and operation of a groundwater extraction and treatment system;
- discharge of treated groundwater to the aquifer or reuse in a beneficial manner;
- soil vapor extraction and thermal treatment for those soil areas that threaten to contaminate groundwater;
- groundwater monitoring to demonstrate that the extraction system is effectively capturing the contaminant plume; and
- maintenance of perimeter fencing at the Site until cleanup standards are met.

The review of documents, Applicable or Relevant and Appropriate Requirements (ARARs), risk assumptions, and the results of the Site inspection indicate that the remedy is functioning to control further migration of the contaminated groundwater, as intended by the ROD. However, the remedy selected was unable to achieve groundwater cleanup levels established in the ROD. The results of the second five-year review at the PCPL Site are:

1. The groundwater treatment system (GWTS) was operated through 2002 when it was determined it had reached its limit of effectiveness. EPA then approved modification to the operation of the GWTS and an Oxygen Release Compound (ORC) enhancement pilot test project was proposed in January 2003. However, the pilot test indicated that ORC was ineffective in measurably reducing benzene concentrations in the plume. At this time, monitored natural attenuation with institutional controls is being evaluated as a groundwater remedial alternative.
2. Soil vapor extraction (SVE) and treatment efforts were ongoing at the Site from 1994 through 2002. As of the January 2002 monitoring event, benzene concentrations in the capillary fringe dropped below the approved criteria for shutting off the on-site soil vapor extraction system. The system operations were discontinued on April 14, 2002. Soil gas concentrations were monitored monthly for eight months following the SVE system shut-off. No rebound above the shut-off criteria was observed and soil vapor monitoring was discontinued in November 2002.
3. Groundwater data collected since the system shut-down in 2002 indicate that the benzene concentrations continue to show seasonal variations, but the trends did not show any dramatic increases, indicating that biodegradation may be occurring at the Site. In 2005, a significant rise in the water table resulted in benzene concentration increases in several wells. However, the downgradient wells (MW-49S for the northern plume and MW-43S for the southern plume) have maintained low benzene concentrations, near or below the cleanup standard of 1 µg/l, suggesting the plumes are not expanding.
4. The present quarterly groundwater monitoring program is adequate and will continue to be regularly assessed.
5. The ARARs review identified a change in the chemical-specific standard for ethylbenzene. However, the highest level of ethylbenzene ever detected is below the new drinking water

standard. Since the last five-year review, California has adopted a Cancer Slope Factor for naphthalene, but no enforceable regulatory limits that would serve as ARARs have been established to date. It is recommended that naphthalene be added to the groundwater analytical suite for a period of two years to establish an adequate database for this constituent, in the event that ARARs for naphthalene are instituted in the future.

6. Subsequent to the ROD, and due to changing Site land use, a Phase I soil investigation was conducted beneath the former above-ground tank areas in March 2006. Based on the analytical results, a Phase 2 soil investigation is planned. Additional exploratory borings will be installed in select areas to further delineate the extent of polynuclear aromatic hydrocarbons and organic lead, which exceed EPA Region 9 Preliminary Remediation Goals for industrial sites. The shallow soil data will be utilized to determine the feasibility for commercial / light industrial use of the property in the future. Institutional controls regarding the use of the property will also be established.
7. Since the last five-year review, EPA's understanding of contaminant vapor migration from soil and groundwater up through the subsurface to ambient air has evolved. We now know that, under certain conditions, volatile compounds can migrate upward from the groundwater. The draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (EPA 2002) suggests that potential for vapor intrusion be investigated if the concentrations in groundwater for benzene are in the 5 ug/l to 140 ug/l range. The dissolved benzene concentrations range from about 1 to 570 µg/l. The vapor intrusion screening level does not factor in depth to groundwater and natural degradation processes. Soil gas samples will be collected to analyze the potential for vapor intrusion. The work plan to study this potential natural attenuation was approved by EPA on August 28, 2006, and work will commence in late 2006.
8. The ROD will be amended to include any changes to the current remedy and to establish institutional controls to limit the use of the property.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Pacific Coast Pipeline		
EPA ID *(from WasteLAN)*: CAD980636781		
Region: IX	**State: CA**	**City/County: Fillmore/Ventura County**
SITE STATUS		
NPL status: ☑ Final ☐ Deleted ☐ Other (specify)		
Remediation status (choose all that apply): ☐ Under Construction ☑ Operating ☑ Complete		
Multiple OUs?* ☐ YES ☑ NO	**Construction completion date:** 09 / 27 / 1996	
Has site been put into reuse? ☐ YES ☑ NO		
REVIEW STATUS		
Lead agency: ☑ EPA ☐ State ☐ Tribe ☐ Other Federal Agency _____		
Author name: Holly Hadlock		
Author title: Remedial Project Manager	**Author affiliation:** EPA Region IX	
Review period:** 9/28/01 to 9/27/06		
Date(s) of site inspection: 3 / 21 / 06		
Type of review: ☑ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion		
Review number: ☐ 1 (first) ☑ 2 (second) ☐ 3 (third) ☐ Other (specify) _____		
Triggering action: ☐ Actual RA Onsite Construction at OU #____ ☐ Actual RA Start at OU#____ ☐ Construction Completion ☑ Previous Five-Year Review Report ☐ Other (specify)		
Triggering action date *(from WasteLAN)*: 9/27/2001		
Due date *(five years after triggering action date)*: 9/27/2006		

* "OU" refers to operable unit.
** Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.

Five-Year Review Summary Form, cont'd.

Issues:

Groundwater – ongoing evaluation of biodegradation; collect data on naphthalene.

Institutional controls - establish regarding the use of the property and groundwater.

Vapor intrusion - preliminary screening requires follow-up sampling.

Recommendations and Follow-up Actions:

Continue groundwater monitoring to evaluate the effectiveness of intrinsic biodegradation and trends of dissolved benzene plumes. Evaluate feasibility of monitored natural attenuation with institutional controls.

Incorporate naphthalene into ongoing groundwater sampling analytes for two years, so that an assessment of potential health risks can be performed in the event that regulatory limits for naphthalene are revised.

Conduct Phase 2 soil investigation in areas of former operations. Investigate feasibility for commercial / light industrial land use. Establish institutional controls regarding the use of the property and groundwater.

Conduct soil gas sampling and analysis as approved in the sampling and analysis plan dated August 28, 2006, to determine the potential risk of soil vapor intrusion.

Amend the ROD.

Protectiveness Statement:

A protectiveness determination regarding the remedy for Pacific Coast Pipeline Site cannot be made until further information is obtained about the potential for vapor intrusion at the Site. Vapor intrusion is the migration of volatile compounds from the groundwater up through the subsurface and into the ambient air. Further information will be obtained by implementing the soil gas sampling and analysis plan approved in August 2006. It is expected that these actions will take approximately six months to complete, at which time a protectiveness determination will be made. Additionally, MNA will be evaluated and an amendment to the groundwater remedy in the ROD will be prepared. In order to ensure the long-term protectiveness of the Site, institutional controls regarding the use of the property and groundwater will also be included in the ROD amendment.

Other Comments:

None.

I. INTRODUCTION

EPA Region 9 has conducted this second five-year review of the remedial actions implemented at the Pacific Coast Pipeline (PCPL) Site in Fillmore, Ventura County, California. Former Site facilities included a petroleum refinery that operated until 1951 and a crude oil pumping station that operated until 2004. The purpose of the five-year review is to determine whether the remedy at the Site is functioning as intended and is protective of human health and the environment.

This second five-year review is being conducted by the EPA with support from Chevron Environmental Management Company (Chevron) on behalf of Texaco Inc., the sole Responsible Party (RP) for the Site, and Chevron's consultant, URS Corporation. This is the second Five-Year Review and is a Type I policy review. The Agency is preparing this five-year review pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The agency interpreted this requirement further in the National Contingency Plan (NCP); 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The triggering action for the first five-year review was the date of the Preliminary Close Out Report. The triggering action for this review is the date of the previous five-year review, September 28, 2001. This review covers the entire Site and includes a review of the ROD, Remedial Design, PCOR, and technical reports/documents produced since the first five-year review. It also includes an ARARs review, a site visit, and interviews with local community agencies.

II. CHRONOLOGY

The following table presents a site chronology:

Table 1. Chronology of Site Events

Event	Date
Investigation requested by Regional Water Quality Control Board (RWQCB)	1980
Voluntary groundwater and soil assessment conducted under Department of Health Service (DOHS) and RWQCB	1983 to 1989
Removal of 38,000 tons of waste and contaminated soil from former waste pit and other areas	1986
NPL Listing	September 1989
Remedial Investigation/Feasibility Study	1990 to 1992
ROD signature (groundwater pump and treat and SVE)	March 1992
Consent Decree entered	August 1993
Phase I Design Report	December 1993
Phase I groundwater extraction startup with treatment by GAC and discharge to Pole Creek under NPDES permit	December 1993
Phase I soil vapor extraction	1994
Final Phase 2 Design Report completed, approved	December 1994
Final Phase 2 Remedial Action Work Plan completed, approved	1995
Interim Remedial Action Plan Report (Construction Completion)	September 1996
Preliminary Close Out Report	September 27, 1996
First Five-Year Review Report	September 2001
Shut-off of SVE system	April 2002
Implementation of Enhanced Bioattenuation Pilot Study Work Plan approved. Groundwater pump and treat system shut down for ORC Pilot Testing	December 2002
ORC Pilot Testing	2003 to 2004
Soil Investigation and Vapor/Bioattenuation Study Work Plans submitted	May 2005
Phase I Soil Investigation field work	March 2006

III. BACKGROUND

PHYSICAL CHARACTERISTICS

The Pacific Coast Pipeline Site is located just east of the City of Fillmore in Ventura County, California (see Figure 1 in Attachment B). The Site is a former petroleum refinery owned and operated by Texaco (now a subsidiary of Chevron Corporation) from the early 1900s to the early 1950s when it was shut down and dismantled. At the time of the ROD, the Site was used by Texaco and/or its affiliates as a crude oil pumping station. Site structures included buried pipelines, pumping equipment, aboveground storage tanks, and miscellaneous buildings. The last remaining crude oil tank was dismantled and removed in August 2004.

At the time of the ROD, the area to the north and east of the Site consisted of vacant and agricultural land. Across State Highway 126 to the south were Barnett Trucking and a mobile home park.

The Santa Clara River is approximately one half mile to the south of the Site. The Site slopes generally to the south and west toward the Santa Clara River. The concrete channel of Pole Creek runs along the western edge of the property. To the west of Pole Creek is a residential area and San Cayetano Elementary School. Storm water from the Site is channeled along graded roads for collection in bermed collection areas.

The Site lies at the eastern end of the Fillmore Groundwater Basin. Alluvial Deposits and the underlying San Pedro Formation are the major water-bearing units. Groundwater flow is to the west following the Santa Clara River. The San Cayetano Thrust Fault that crosses the Site is associated with areas of natural hydrocarbon seeps. Crude oil seeps and tar sands are common features of the Site vicinity. Three water-bearing zones lie beneath the PCPL Site: perched zones at approximately 40 to 50 feet below ground surface (bgs), Aquifer I (unconfined to partially confined) at approximately 50 to 100 feet bgs, and Aquifer II (partially confined to confined below Aquifer I) that begins at approximately 120 to 140 feet bgs. Historic groundwater monitoring results indicate that flow occurs in a northwest direction across the Site and then turns to the west after passing under Pole Creek. The average gradient across the Site is approximately 0.006 ft/ft.

LAND AND RESOURCE USE

Texaco operated a petroleum refinery at the Site from 1928 to 1951. The primary products of the refinery were gasoline, diesel, and fuel oil. In 1952 Texaco dismantled and converted the refinery to a crude oil pumping station.

The land use for the surrounding areas is mixed: residential, commercial, and agricultural. The ROD cites residential development as a possible future use for the Site. Residential development is now not considered to be a viable option, therefore the ROD will be amended to include a light

industrial/commercial future use scenario for the property, accompanied by the appropriate institutional controls.

No municipal water wells are located downgradient of the Site. One active agricultural water well is located on-site. The well is completed in Aquifer II and is not affected by contamination observed in Aquifer I.

The Site is fenced and bordered along its western boundary by the cement-lined section of Pole Creek. Pole Creek is maintained primarily for stormwater runoff and is not considered to be aquatic habitat for use by ecological receptors. The property immediately west of Pole Creek is residential. The former surface structures on the Site have been removed; however, the area remains sparsely vegetated and is of limited habitat quality for terrestrial or avian receptors. The limited usage of the Site for ecological habitat is also supported by anecdotal observations during site visits and operation and maintenance activities conducted at the Site. There have not been any significant developments since the completion of the draft Baseline Risk Assessment (CH2M Hill, 1992) that would alter the initial conclusion that the Site does not pose significant ecological risks.

HISTORY OF CONTAMINATION

The refinery operated from the early 1920s to 1951. Wastes from the refinery process are believed to have consisted primarily of tank bottoms, filter clays, and sludges. These refinery wastes were disposed of on-site in a large main waste pit (MWP) located on the western border of the Site and in eight smaller unlined sumps and pits located throughout the Site. It is believed that the on-site refinery waste disposal areas were not used after 1951. After 1951 the Site was used as a crude oil pumping station. The crude oil was stored in eight aboveground tanks.

In 1980 the California Regional Water Quality Control Board (RWQCB) asked Texaco to conduct a site investigation. From 1983 through 1989 Texaco conducted a voluntary groundwater and soil assessment under the direction of the California Department of Health Services (DHS) and RWQCB. Groundwater contamination was originally detected in 1983 after the initial installation of three monitoring wells. Water quality data from these wells indicated volatile organic compounds (VOCs) in the part per billion (μ/l) ranges. A maximum benzene level of 5.8 parts per million was detected.

INITIAL RESPONSE

In 1986, under the direction of the DHS, Texaco removed 38,000 cubic yards of waste material and contaminated soils from the main waste pit and other disposal areas. These areas contained contaminants at concentrations considered to be hazardous substances (DHS criteria), as listed in Table B-1 in Attachment B. This soil removal completed the soil excavation activities that were required at that time.

BASIS FOR TAKING ACTION

Prior to EPA involvement at the Site, Texaco installed 14 additional wells. As part of the remedial investigation 20 more monitoring wells were installed. Table B-2 in Attachment B lists the primary contaminants in groundwater when the Site was listed on the NPL in 1989.

At the time of the NPL listing there were two plumes of groundwater contaminated with VOCs: one beneath the former MWP and one in the southwest portion of the Site. The source of groundwater contamination beneath the MWP most likely was the refinery wastes in that pit. The source of the contamination in the southern plume most likely was the refinery waste pits in the southern portion of the Site. However, the southern plume may have also been connected with sources in the northern portion of the facility, given the high historical contaminant concentrations beneath the MWP. After the removal of the refinery wastes in the MWP, the concentrations in the groundwater decreased.

Private production wells downgradient of the Site were once thought to be at risk. Texaco sampled these private production wells within a ½ mile radius of the Site during the remedial investigation. Sample results indicated that no contaminants were detected. EPA knows the extent of the benzene contamination in groundwater and has installed sentinel wells just outside the two benzene plumes in order to track any migration of contaminated groundwater.

IV. REMEDIAL ACTIONS

REMEDY SELECTION

On March 31, 1992, EPA signed the ROD for the PCPL Site. The remedial action objectives are to control further migration of the contaminated groundwater, prevent further migration of contamination in soil to groundwater, and recover and treat contaminated groundwater until the aquifer is restored and groundwater contamination is below cleanup levels. The cleanup levels established in the ROD are the federal and state drinking water standards. Those standards are listed in Table B-2 in Attachment B.

EPA selected a remedy that includes the following:

- construction and operation of a groundwater extraction and treatment system;
- discharge of treated groundwater to the aquifer or reuse in a beneficial manner;
- soil vapor extraction for those soil areas that threaten to contaminate groundwater;
- groundwater monitoring to demonstrate that the extraction system is effectively capturing the contaminant plume; and
- maintenance of perimeter fencing at the Site until cleanup standards are met.

At the time the ROD was signed, EPA anticipated that the groundwater would be restored to the cleanup standards in 30 years.

REMEDY IMPLEMENTATION

Prior to September 2001

Pursuant to an EPA Administrative Order on Consent for Remedial Investigation and Feasibility Study issued in November 1989, Texaco performed some early remedial design activities. These included: 1) preparation of a Preliminary Remedial Design Work Plan; 2) design, implementation, monitoring, and reporting on a pilot study to determine the effectiveness of soil vapor extraction; 3) design of the soil vapor extraction system; and 4) design of the groundwater extraction and treatment system.

EPA issued the August 1993 Consent Decree after the ROD was signed. This Consent Decree directed Texaco to install a groundwater extraction and treatment system and an SVE as specified in the ROD. The remedial work was conducted in two phases, a pilot study and the implementation of the pilot study results. The objective of Phase 1 was to provide data necessary for the design of the Phase 2 system while achieving some remediation in the interim.

In December 1993 the Phase 1 groundwater treatment system (GWTS) began operating. The extracted groundwater was treated with granular activated carbon and discharged to Pole Creek under a National Pollutant Discharge Elimination System (NPDES) permit. In 1994 the Phase 1 SVE system operations began. Several types of vapor extraction equipment were operated at the Site to determine the optimum equipment for Phase 2 operations. Equipment tested at the Site included a regenerative thermal oxidation unit (RETOX), internal combustion engines (VR Systems), and thermal oxidation units (King Buck/Hasstech and Baker Furnace).

In May 1995 the Phase 2 SVE commenced. Three SVE wells were used in the three target areas evaluated in Phase 1 and the Baker Furnace thermal oxidation unit was selected for the soil vapor treatment. In November 1995 the Phase 2 the GWTS began operating. The Phase 2 groundwater system was similar to Phase 1 but with increased capacity and the addition of several operational modifications to improve performance. Figure 2 in Attachment B shows the Site plan and all Site well locations.

The Site achieved construction completion status when the Preliminary Close Out Report was signed on September 27, 1996. In 1997 Aquifer II monitoring was discontinued after many years of monitoring with no hydrocarbons detected.

September 2001 through May 2006

The SVE system reached the shut-off criteria in January 2002. Soil gas concentrations were monitored monthly for eight months following SVE system shut-off. No rebound above the shut-off criteria was observed and soil vapor monitoring was discontinued in November 2002.

The GWTS operated as designed through October 2002, when the technology reached its effective limit and the use of enhanced monitored natural attenuation (MNA) as a replacement or supplement to the system was evaluated.

In 2003 and 2004 an Oxygen Release Compound (ORC) injection pilot test was performed at the Site. ORC injection performed below expectations. Evaluation of the information indicated that the soil oxygen demand for the thick unsaturated zone was considerably higher than anticipated. Therefore, ORC enhancement was no longer considered as a potential remedial alternative at the Site. However, calculations have shown that natural attenuation accounts for a significant amount of destruction of dissolved hydrocarbons in ground water (England Geosystem, 2005b). Therefore, monitored natural attenuation with institutional controls will continue to be evaluated as a ground water remedial alternative.

In March 2006 a shallow soil investigation was conducted in the former tank area in anticipation of eventual site redevelopment. The results of the investigation indicate that levels of polynuclear aromatic hydrocarbons (PAHs) are above industrial-use standards.

Soil vapor intrusion is the migration of volatile compounds from the groundwater up through the subsurface and into the ambient air. The draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (EPA 2002) suggests that potential for vapor intrusion be investigated if the concentrations in groundwater for benzene are above 5 ug/l to 140 ug/l. The dissolved benzene concentrations range from about 1 to 570 ug/l. The screening does not factor in depth to groundwater and natural degradation processes. Even though the groundwater at the Site is at 60 feet bgs and benzene readily biodegrades, EPA determined that soil gas samples should be collected to analyze the potential for vapor intrusion. A sampling and analysis plan was prepared to study natural attenuation characteristics and soil vapor characteristics above the dissolved-phase benzene plumes (URS, August 4, 2006). Work will commence in late 2006.

SYSTEM OPERATIONS

System operations for the Site are reported in quarterly project status reports and in quarterly groundwater monitoring reports. In 1997 frequency of groundwater monitoring was reduced from quarterly to semi-annually (two times a year) for certain wells. Table B-3 in the Attachment B shows the current groundwater sampling schedule. One additional monitoring well (MW-50S) was installed in late November 2002 and added to the program in 2003 to provide data directly downgradient from MW-39S in the center of the southern plume. Figure 2 shows the locations of the groundwater monitoring wells.

Groundwater

From the fourth quarter of 1993 through the fourth quarter of 2002, groundwater contaminated with volatile fuel hydrocarbons was extracted from on-site wells and treated with granular activated carbon. Table B-4 in the Attachment B (source: Table 2-2 from *Fourth Quarter 2002 Quarterly Status Report*) summarizes the final total GWTS operations and estimated contaminant removal from the Site. Overall,

approximately 141,000,000 gallons of water were treated with approximately 4,900 pounds of gasoline-range total petroleum hydrocarbons and 300 pounds of benzene removed.

When spent, the granular activated carbon filter was transported to an approved off-site facility for disposal. The treated water was discharged to Pole Creek under NPDES Permit No. CA0063240 issued by the RWQCB - Los Angeles Region. Texaco applied for renewal of the NPDES permit in March 2000. RWQCB indicated that processing for new permits was on hold pending finalization of the California Toxics Rule (CTR) and that the existing permit requirements would remain in effect in the interim. The CTR was finalized in May 2000 in CFR 40, Part 131. The CTR promulgated numeric criteria for priority pollutants and required the state to issue compliance for new or revised NPDES permit limits. In response, the State Water Resources Control Board adopted the State Implementation Plan (SIP). As a result of the CTR and the SIP, more stringent limits were required for a new permit. Some of the CTR limits were below naturally occurring background levels. Following negotiations with RWQCB, Chevron was given permission to continue operating under the old NPDES permit limits but was required to discontinue discharge under the permit prior to May 2003. The NPDES permit was rescinded in December 2002.

The groundwater extraction and treatment system operated until October 25, 2002, at which time it was shut off for the ORC pilot test. Texaco obtained a Waste Discharge Requirements permit for the ORC pilot test on February 6, 2003; subsequently this permit was terminated on June 25, 2004.

Slugs of light non-aqueous phase liquid (LNAPL) have periodically flowed into three of the groundwater extraction wells (EW-1, EW-4, and EW-P2). The LNAPL is removed from the extraction wells as necessary using a portable pump or a bailer and recycled off-site. Small amounts of LNAPL have also appeared in a few of the groundwater monitoring wells and are removed using the portable pump. Oil-absorbing bag filters have also been used to remove LNAPL from these wells. The used LNAPL filters are transported to an approved off-site disposal and treatment facility. Through 2005 a total of 1,055 gallons of LNAPL have been removed.

Soil Vapor Extraction (SVE)

The SVE system operated in those areas where EPA determined that volatile fuel hydrocarbons, including benzene, toluene, ethylbenzene, and xylene, in the subsurface soil posed a threat to the underlying groundwater. Table B-5 in Attachment B summarizes the historical contaminant removal from vapor extraction and treatment efforts at the Site. Overall, approximately 1.4 million pounds of total hydrocarbons and 2,200 pounds of benzene have been removed. In addition, approximately 215 gallons of LNAPL condensate have been removed from the SVE system piping.

During the remedial design phase of the Site cleanup, two pilot studies were conducted and several types of vapor extraction treatment equipment were tested in several wells. Well PEW-2 was installed and operated it from 1994 to 1995. This well was located between the northern and southern plumes. Vapor extraction target areas were determined and described in the *Final Phase 2 Remedial Action Work Plan* dated May 2, 1995. Wells PEW-1 and EW-4 were defined as primary target wells. In 1995 PEW-1 was

installed in the northern plume closer to the source; this well operated until 1997 when it was shut down and replaced by an adjacent well, EW-P2, a dual groundwater/SVE well screened closer to the groundwater level in order to improve vapor extraction efforts. EW-P2 was designed so that vapor extraction would target the area directly above the groundwater level in order to provide more benefit toward groundwater remedial efforts. Vapor extraction and treatment efforts at well EW-P2 continued for five years until 2002.

During the second phase of the pilot study, SVE well EW-4 was installed in the southern plume area. This well operated for six months and was shut down when it was determined not to be an effective well. Based on information obtained during Phase 2 vapor extraction, along with groundwater analytical results and additional vapor extraction sampling from secondary target wells, it was concluded that vapor extraction from the secondary target wells would not meet the goals of the vapor extraction effort so these secondary target wells were eliminated.

As of January 2002 decision tree requirements for vapor extraction system shut-off, i.e., benzene less than 100 mg/m^3 (31 ppmv) for three consecutive months, were met, as described in *Technical Memorandum – SVE Shutoff and Monitoring Plans* (England Geosystem, March 28, 2002) (See decision tree, Figure 3, Attachment B). Vapor extraction was discontinued on April 14, 2002. Pursuant to the soil gas monitoring requirements, benzene levels in the soil gas at EW-P2 were monitored for eight months following shut-off and the benzene levels remained below the shut-off criteria.

Remedial Action Operation and Maintenance Costs

Because both the GWTS and the SVE systems are no longer operational, there are no associated operation and maintenance costs to report for these completed remedial actions. Annual operation and maintenance is comprised primarily of groundwater monitoring program activities, LNAPL recovery, and property maintenance expenses.

Table 2. Annual System Operations/O&M Costs

Dates		Total Cost rounded to nearest $1,000
From	To	
July 2005	June 2006	$312,000

V. PROGRESS SINCE THE LAST REVIEW

FIRST FIVE-YEAR REVIEW PROTECTIVENESS STATEMENT

The first Five-Year Review Report made the following finding:

> Based on a review of all of the data, the groundwater treatment system is operating as designed. The remedial action selected in the ROD signed March 31, 1992, for the Pacific Coast Pipeline Superfund Site remains protective of human health and the environment. There are currently no uses of the groundwater contaminated at the PCPL

Site. EPA will continue to monitor the cleanup at the Site to determine when the Site achieves cleanup levels specified in the ROD. If there is a change in the current trend of decreasing benzene concentrations, EPA will determine the appropriate response action.

Table 3. Actions Taken Since the Last Five-Year Review

(This Table includes only those actions taken as a result of issues raised in the previous five-year review.)

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
EPA evaluated the efficiency of the SVE thermal oxidizer	EPA will determine if other technology is more appropriate for this site	EPA	April 2002	EPA approved SVE shutoff in a letter dated April 11, 2002 since the requirements for SVE shutoff were met.	April 14, 2002

Another approved action was shut down of the GWTS operation in 2003 to implement an enhanced bio-attenuation pilot study.

VI. FIVE-YEAR REVIEW PROCESS

ADMINISTRATIVE COMPONENTS

EPA notified Chevron, the sole responsible party for the Site cleanup, of the five-year review in February 2006 and requested participation in the process. The Pacific Coast Pipeline Five-Year Review team was led by Holly Hadlock of EPA, Remedial Project Manager for the PCPL Site, and included members of the regional staff with expertise in engineering, hydrology, biology, risk assessment, and community involvement. Jessy Fierro of DTSC assisted in the review as the representative for the support agency.

COMMUNITY NOTIFICATION AND INVOLVEMENT

Notification of the five-year review was sent to City of Fillmore officials and also to residents and businesses that neighbor the Site, in March 2006. The notification letter (Appendix A) invited the recipients to submit any comments to EPA. A notice was also published on July 27, 2006, in two local newspapers, The Fillmore Gazette and Ventura County Star. EPA received no comments from the public. The second five-year report will be made available to the public at the Fillmore Library and the EPA Superfund Records Center at 79 Hawthorne Street, San Francisco.

DOCUMENT REVIEW

This five-year review consisted of a review of relevant documents including status reports, technical memorandum, and work plans. Applicable groundwater cleanup standards, as listed in the ROD, were also reviewed (see Attachment A).

DATA REVIEW

Groundwater Monitoring

Groundwater monitoring data through Second Quarter (spring) 2006 were evaluated against site cleanup standards established in the ROD (USEPA, 1992). Of the five chemicals of concern identified in the ROD, dissolved-phase benzene is the current primary concern in groundwater. As of Spring 2006, benzene results exceeded the cleanup standard of 1 μg/l in the following groundwater monitoring wells:

- Northern plume: EW-P2 (former extraction well), MW-2S, MW-28S and MW-42S (mid-plume), MW-3S (at the southern edge of the plume), MW-6S (at the northern edge of the plume) and MW-49S (downgradient well at the northwest edge of the plume); and
- Southern plume: MW-39S and MW-50S (both west from former extraction well EW-4), MW-19S, MW-20S, MW-41S and MW-45S (mid plume), EW-5 (at southern edge), MW-30S (at the eastern edge of the plume), and MW-18S (upgradient well southeast of the plume).

Attachment B, Figure 5, shows the Second Quarter 2006 benzene distribution in groundwater (Aquifer I). The maximum detectable benzene concentrations within the northern/southern plumes were detected at 260 μg/l (EW-P2) and 570 μg/l (MW-50S), respectively.

EPA established action level trigger concentrations at sentinel wells where, if concentrations exceed these levels, then pump and treat will resume temporarily until an alternative treatment scenario is developed based on best available technology. The trigger concentrations and corresponding wells are as follows:

- Northern plume: A benzene concentration exceeding 20 μg/l in groundwater monitoring wells MW-48S/MW-49S; or
- Southern plume: A benzene concentration exceeding 150 μg/l in groundwater monitoring wells MW-45S or 1 μg/l in groundwater monitoring well MW-35S or MW-44S.

In the second quarter 2006 monitoring event, the benzene concentrations did not exceed action level trigger criteria at any of the sentinel wells.

The benzene concentrations versus time are shown in Attachment B, Figures 6a through 6l (data through 2006). These overall declining trend plots demonstrate that the groundwater and vapor extraction systems had been functional and operated as designed. Since both systems were shut down in 2002, benzene concentrations continue to show seasonal variations, but the trends did not show any dramatic changes, indicating that biodegradation may be occurring at the Site. In 2005 a significant rise in the water table resulted in benzene concentration increases in several wells. However, the downgradient wells (MW-49S for the northern plume and MW-43S for the southern plume) maintained low benzene concentrations, near or below the cleanup standard of 1 μg/l, suggesting the plumes are not expanding. Further comparison of historical analytical results for benzene plume areas is summarized in attached Table B-6.

In the second quarter 2006 monitoring event, toluene exceeded the cleanup standard (100 μg/l) in wells EW-P2, MW-42S, and MW-50S at concentrations of 170, 140, and 130 μg/l, respectively. The cleanup

standards were not exceeded for the remaining constituents including ethylbenzene, methylene chloride, or 1,2-DCA.

Soil Vapor Extraction

The soil vapor extraction effort was implemented to alleviate the threat of further groundwater contamination from benzene in the vadose zone. Vapor extraction and treatment efforts at well EW-P2 (north plume) continued from February 1997 through April 2002. As indicated in the System Operation section, overall approximately 625,729 pounds of total hydrocarbons and 1,234 pounds of benzene have been removed by SVE operation at well EW-P2. Changes of benzene concentration in both soil gas and groundwater at well EW-P2 are summarized in Attachment B, Table B-7.

Benzene concentration in soil gas at EW-P2 decreased approximately 96% between February 1997 and April 2002 as a result of the SVE operation. Benzene concentrations in groundwater at well EW-P2 decreased from 520 μg/l to 430 μg/l from Spring 2002 to Fall 2002. These concentrations decreased another 40% between Fall 2002 and Spring 2006 following the GWTS shutdown in October 2002, indicating that biodegradation is continuing to contribute to the declining trends of benzene in groundwater.

Phase I Soil Sampling Results

On March 20 and 21, 2006, exploratory borings were advanced by hand augering and direct push technology from ground surface to designated sample intervals as summarized in the *Work Plan for Soil Sampling PCPL Superfund Site Phase I – Former Tank Areas* (See Figure 8, Phase 1 Boring Location Map).

The soil samples were analyzed by EPA Method 6010B for metals, EPA 7471A for mercury, EPA 8260B for VOCs, EPA 8310 for PAHs, and HML 939-M for organic lead. The soil analytical results were compared to U.S. EPA Region 9 PRGs for industrial sites (PRG Ind.). Detected chemicals (i.e., arsenic, PAHs, and organic lead) that exceeded PRG Ind. are summarized in Attachment C, Tables C-1, C-2, and C-3, respectively.

As shown in Table C-1, arsenic concentrations were detected in soil samples collected from the depths of 1 foot (19 locations), 1.5 feet (two locations), 5 feet (22 locations), 6.5 feet (one location), and 10 feet (20 locations) in concentrations ranging from 2 milligrams per kilogram (mg/kg) to 8.3 mg/kg during the March 2006 Phase I sampling. All samples exceeded the PRG Ind. value (1.6 mg/kg) and California modified PRG value (0.25 mg/kg) for arsenic. However, the arsenic concentrations detected in the soil samples are similar to the Site background levels study and published regional background levels reported by ENSR in the *Final Remedial Investigation Repor, PCPLt* (June 27, 1991).

As shown in Table C-2, PAHs detected in soil samples exceeding PRG Ind. include benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, and naphthalene (Cal-modified PRG only), in concentrations ranging from 540 micrograms per kilogram (μg/kg) to 80,000 μg/kg. Soil samples with PAH

concentrations exceeding the PRG Ind. (and in the case of naphthalene, the Cal-modified PRG) were collected from locations at Tank 2 and at the Tank 101 water draw.

As shown in Table C-3, organic lead detected in 10 soil samples collected during the Phase I sampling exceeded the PRG Ind. (62 μg/kg) in concentrations ranging from 73 μg/kg to 1000 μg/kg.

Additional exploratory borings will be installed in the area to further delineate the lateral extent of PAHs and organic lead.

SITE INSPECTION

EPA inspected the Site on March 21, 2006. The Site Inspection Report is attached as Appendix B. The inspection included confirmation of the perimeter fencing that restricts access to the Site. Each groundwater monitoring well was inspected and photographed by URS Corporation in May 2006 (Appendix B).

INTERVIEWS

EPA interviewed City of Fillmore officials on June 6, 2006. Mr. Kevin McSweeney, City Planner for the City of Fillmore, said that some residents living near the Site have complained about the smell of fumes. Holly Hadlock, EPA Remedial Project Manager, informed Mr. McSweeney that the fumes are the result of heavy rains and the subsequent rise in the water table which released hydrocarbons from two monitoring wells. In order to reduce the fumes, Chevron fully sealed the wells and vented them to carbon canisters. The interview report is provided in Appendix C.

VII. TECHNICAL ASSESSMENT

TECHNICAL ASSESSMENT

Question A: Is the remedy functioning as intended by the decision documents?

The remedy described in the ROD functioned successfully as designed. However, the remedy was not as effective as originally expected in cleaning up dissolved benzene to the ROD goal of 1 μg/l. This is in part because residual LNAPL is smeared and submerged beneath the water table. After years of operation, the soil vapor extraction and groundwater pump and treat systems have been shut down after reaching the limit of their effectiveness.

Based on the stability of the benzene plume since the treatment systems were shut off, intrinsic biodegradation appears to be maintaining the current footprint of the plume and controlling its expansion. In the southern plume benzene is currently non-detect in downgradient wells MW-44S and MW-35S, and is just above detection limits in downgradient well MW-43S. In the northern plume downgradient well

MW-48S remains non-detect (less than laboratory reporting limit of 0.3 µg/l); benzene at MW-49S (1.2 µg/l) slightly exceeds the cleanup level. However, as shown in attached Table B-6, the benzene level in well MW-49S has remained within the historical range (non-detect to 5.5µg/l) observed after shut-down. The groundwater monitoring data indicate that the plume is not expanding downgradient. The remedial action, which includes the current monitoring program at the Site, is protective of human health and the environment based on the following factors:

- The ongoing characterization of the groundwater contaminant (benzene) plumes indicates that the lateral extent of contamination has remained stable, similar to the findings presented in the previous Five Year Review. The attached map of historical benzene plumes (Figure 7 in Attachment B) shows that the benzene plumes have not migrated since groundwater monitoring began in the first quarter of 1994. Compared to high levels detected in early years, there has been a significant decline in benzene levels since 1997 (Figures 6a through 6l in Attachment B), which may be attributed to remedial actions, aided by natural degradation at the Site.
- Although benzene results in some of the monitoring wells within the plume continue to exceed the ROD cleanup goal (1 µg/l), these concentrations appear to have remained consistent since shut-down, allowing for seasonal variability and rises in water table in 2005.
- Natural attenuation monitoring results were generally consistent with the findings presented in the previous Five-Year Review; the preferential biodegrading pathway appears to be dominated by sulfate reducing conditions. The benzene plume stability in conjunction with the distribution of sulfate concentrations at the Site (low concentration to non-detect within the plume, higher concentration upgradient and downgradient of the plume) appears to confirm the ongoing intrinsic biodegradation.
- Drinking water for the area is supplied by the City of Fillmore groundwater wells, which are not threatened by the Site contamination, as they are not downgradient.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Recently, EPA's understanding of contaminant vapor migration from soil and groundwater into buildings has indicated that vapor intrusion may have a greater potential for posing risk to human health than originally assumed at the time the PCPL ROD was prepared. In September 2002 EPA released an external review draft version of its vapor intrusion guidance titled "Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils" (EPA 2002). Tables 2a – 2c of the draft vapor intrusion guidance lists target groundwater concentrations for the groundwater-to-indoor air migration pathway (EPA 2002). For benzene, the concentration that triggers the need for further evaluation ranges between 5 µ/l and 140 µ/l. The most recent groundwater data indicate that concentrations of benzene in groundwater exceed this range and warrant additional investigation. The screening does not factor in depth to groundwater and natural degradation processes.

The only change in chemical-specific standards for the primary groundwater contaminants found during the ARARs review is for ethylbenzene, which changed from 680 µg/l to 300 µg/l. A flow chart detailing this analysis is presented in Appendix F. Since the highest level of ethylbenzene ever detected on-site

[170 µg/l at well EW-P2] is less than the 300 µg/l standard, the new standard has no effect on the protectiveness of the remedy.

In addition to the change in the MCL for ethylbenzene, California EPA's Office of Environmental Health Hazard Assessment has adopted a Cancer Slope Factor for naphthalene since the last five-year review. However, the EPA has not revised the Reference Dose, nor determined a Cancer Slope Factor for naphthalene, as listed in the EPA IRIS Database. Furthermore, there are no enforceable California regulatory limits for naphthalene which would serve as ARARs. Therefore, there has not at this time been a change in exposure assumptions, toxicity data, or cleanup levels with respect to naphthalene; however, it is reasonable to collect analytical data for naphthalene in site-related environmental media in the event that alternate cleanup levels are developed in the future.

As described in the ROD and the draft Baseline Health Risk Assessment, naphthalene is a semi-volatile PAH that has been detected at low concentrations in some of the soil and groundwater samples on the Site. In response to this change in classification in the State of California, combined with a limited amount of low-level analytical data for naphthalene concentrations in various environmental media on the Site, naphthalene will be quantitatively analyzed in on-going and future sampling in soil, groundwater and soil vapor. Given that groundwater sampling at the Site is ongoing, it is proposed that naphthalene be added to the list of groundwater analytes for the next two years. The concentrations of naphthalene in these media, if sufficiently elevated, will be evaluated in the context of current and potential future exposure scenarios to determine if naphthalene poses sufficient health risk to warrant its inclusion as a primary contaminant (along with a health-protective remediation goal) for the Site.

Table 4. Changes in Chemical-Specific Standards

Contaminant	Media	Cleanup Level	Standard		Citation/Year
Ethylbenzene	Groundwater	0.68 mg/L	Previous	0.68 mg/L	CDHS February 1989
			New	0.3 mg/L	CDHS June 2003

Table 5. Changes in Action-Specific Requirements

Action	Requirement		Prerequisite	Citation/Year
None	Previous	None		
	New	None		

Table 6. Changes in Location-Specific Requirements

Location	Requirement		Prerequisite	Citation/Year
None	Previous	None		
	New	None		

There were no action-specific or location-specific requirements identified in the ROD.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no other information that calls into question the protectiveness of the remedy. There have not been any significant developments since the completion of the draft Baseline Risk Assessment (CH2M Hill, 1992), which would alter the initial conclusion that the Site does not pose significant ecological risks. No weather-related events have affected the protectiveness of the remedy.

Regarding institutional controls (ICs), the ROD did not address ICs outside of requiring that perimeter fencing be put in place given the Site was still being used as a crude oil pumping station. Perimeter fencing still exists.

Although ICs were not called for in the ROD, and although there are no municipal water wells at risk of being contaminated, there are, in fact, ICs that currently apply to the area of the Site located within City limits. For instance, the City of Fillmore Municipal Code, Title 8, Chapter 8.12, Section 100 (Standards) mandates that construction of new water wells follow standards set forth within the California Department of Water Resources (CDWR) Bulletin No. 74. The CDWR Bulletin states that all water wells shall be located an adequate horizontal distance from known or potential sources of pollution or contamination. Additionally, the CDWR Bulletin states that where possible, a well shall be located up the groundwater gradient from potential sources of pollution or contamination (CDWR Bulletin 74-81, Chapter II, Part II, Section 8). In addition to these ICs, both the City Planning and Public Works Departments are aware of the PCPL Superfund Site, as confirmed during the EPA interview with the directors on June 6, 2006, and are therefore not expected to propose any municipal water wells in the vicinity of the Site.

In order to ensure the long-term protectiveness of the Site, however, a thorough IC analysis will be conducted to determine which ICs should be established. Such IC instruments will likely include a land use covenant prohibiting the use of the property for residential purposes as well as prohibiting the extraction of groundwater from Aquifer I. In order to allow for the establishment of such ICs, Chevron is currently in the process of doing what is necessary to clear title to the property, so as to ensure compliance with the California Subdivision Map Act. The fact that the anticipated additional institutional controls are not yet in place does not affect the current protectiveness of the remedy.

Technical Assessment Summary

The remedy described in the ROD functioned successfully as designed. However, the remedy was not as effective as originally anticipated in cleaning up dissolved benzene to the ROD cleanup level of 1 µg/l. Further assessment of MNA with institutional controls is being performed as an alternative to the groundwater remedy. Because the ROD did not consider the potential for vapor intrusion, further sampling will be conducted to determine whether or not soil vapor intrusion is an exposure pathway. There have been no changes to the physical conditions of the Site that would affect the protectiveness of the remedy. The only change in ARARs (ethylbenzene) has no effect at the Site. It is recommended that naphthalene be added to the groundwater analytical suite for a period of two years to establish an

adequate database for this constituent, in the event that ARARs for naphthalene are instituted in the future. There is no other information that calls into question the protectiveness of the remedy.

VIII. ISSUES

Table 7. Issues

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Groundwater concentrations exceed the preliminary screening levels for vapor intrusion and require further investigation	Y	Y
Groundwater – ongoing evaluation of intrinsic biodegradation; collect data on naphthalene	N	N
Establish institutional controls for use of the property and groundwater	N	Y

IX. RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Table 8. Recommendations and Follow-up Actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Dates	Affects Protectiveness (Y/N)	
					Current	Future
Soil Gas	Collect soil gas samples as approved in the sampling and analysis plan to study soil vapor characteristics above the dissolved-phase benzene plumes	Chervon	EPA	9/2007	Defer[1]	Defer
Groundwater	Continue groundwater monitoring and implement the sampling and analysis plan to study natural attenuation characteristics to evaluate the effectiveness of intrinsic biodegradation and trends of dissolved benzene plumes	Chevron	EPA	Ongoing	N	N
	Consider monitored natural attenuation (MNA) or other appropriate remedy and add institutional controls in a ROD amendment	Chevron	EPA	2008-2009	N	N

[1] Protectiveness cannot be determined at this time until after collection of soil gas samples

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Dates	Affects Protectiveness (Y/N)	
					Current	Future
Groundwater	Incorporate naphthalene analyses into ongoing groundwater sampling for two years, so that an assessment of potential health risks can be completed in the event that regulatory limits for naphthalene are revised	Chevron	EPA	11/2006 through 11/2008	N	N
Land Use	Conduct Phase 2 soil investigation Investigate feasibility for commercial / light industrial land use Establish institutional controls regarding the use of the property in an appropriate decision document	Chevron	EPA	9/2009	N	Y

X. PROTECTIVENESS STATEMENT(S)

A protectiveness determination regarding the remedy for Pacific Coast Pipeline Site cannot be made until further information is obtained about the potential for vapor intrusion at the Site. Vapor intrusion is the migration of volatile compounds from the groundwater up through the subsurface and into the ambient air. Further information will be obtained by implementing the soil gas sampling and analysis plan approved in August 2006. It is expected that these actions will take approximately six months to complete, at which time a protectiveness determination will be made. Additionally, MNA will be evaluated and an amendment to the groundwater remedy in the ROD will be prepared. In order to ensure the long-term protectiveness of the Site, institutional controls regarding the use of the property and groundwater will also be included in the ROD amendment.

XI. NEXT REVIEW

The next five-year review will be conducted in 2011.

Appendix A

Community Notification Letter

March 22, 2006

COMMUNITY NOTIFICATION
Pacific Coast Pipeline (PCPL)
Former Texaco Refinery
67 E. Telegraph Road, Fillmore, California

Five-Year Review

The United States Environmental Protection Agency (USEPA) Region IX will be conducting the second Five-Year Review of the PCPL Superfund Site this year. The selected remedial action to address groundwater contamination for this site included groundwater monitoring, groundwater extraction and treatment, soil vapor extraction, and maintenance of a perimeter fence. The review will be completed by September 2006. When completed, the Five-Year Review Report will be made available to the public at the Fillmore Library. If you'd like to contribute comments during the review process, you may contact:

Holly Hadlock
USEPA Region IX, SFD-7-1
75 Hawthorne Street
San Francisco, CA 94105-3901
Phone: (415) 972-3171

Thank you.

22 de Marzo del 2006

Notificación Comunitaria
Linea de Pipa Costa Pacifica
Anterior Refinería Texaco
67 E. Telegragh Road, Fillmore, California

Revisión de Cinco Años

La Región IX de la Agencia de Protección Ambiental de los Estados Unidos (The United States Environmental Protection Agency (USEPA)) estará conduciendo la segunda Revisión de Cinco Años (Five-Year Review) del sitio PCPL Superfondo (PCPL Superfund Site) este año. La USEPA es el medio selecto para tomar acción y dirigir la contaminación de agua subterránea para este sitio, que incluye: inspeccionar el agua subterránea, extracción y tratamiento de agua subterránea, extracción de tierra por vapor y el mantenimiento del perímetro. La revisión esta programada terminar en Septiembre del 2006. Cuando este completo el Reporte Revisión de Cinco Años, este estará disponible al publico en la Biblioteca Fillmore. Si usted desea contribuir con comentarios durante este proceso de revisión, usted puede contactar:

Holly Hadlock
USEPA Region IX, SFD-7-1
75 Hawthorne Street
San Francisco, CA 94105-3901
TEL # (415) 972-3171

Gracias.

Appendix B

Site Inspection Report

- Completed Site Inspection Form
- Well Inspection Table
- Well Inspection Photos

Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION

Site name: Pacific Coast Pipeline	**Date of inspection:** 3/21/06
Location and Region:	**EPA ID:** CAD 980636781
Agency, office, or company leading the five-year review: EPA	**Weather/temperature:** clear 56°/wind 3mph

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☒ Access controls
- ☐ Institutional controls
- ☒ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other _____
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Jorge Espinosa (Name) Field Engineer (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. cell 714-448-3110
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** Jon Sanks (Name) Geologist (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. office 714-648-2849 cell 714-697-5664
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☒ Report attached.

Kevin McSweeney, City Planner, Fillmore
(805) 524-3701

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - [x] O&M manual — [x] Readily available — [x] Up to date — [ ] N/A
   - [ ] As-built drawings — [ ] Readily available — [ ] Up to date — [ ] N/A
   - [ ] Maintenance logs — [ ] Readily available — [ ] Up to date — [ ] N/A

   Remarks: maintenance logs kept by contractor

2. **Site-Specific Health and Safety Plan** — [x] Readily available — [x] Up to date — [ ] N/A
   - [x] Contingency plan/emergency response plan — [x] Readily available — [x] Up to date — [ ] N/A

   Remarks:

3. **O&M and OSHA Training Records** — [x] Readily available — [x] Up to date — [ ] N/A

   Remarks: in Health + Safety plan on-site

4. **Permits and Service Agreements**
   - [ ] Air discharge permit — [ ] Readily available — [ ] Up to date — [x] N/A
   - [ ] Effluent discharge — [ ] Readily available — [ ] Up to date — [x] N/A
   - [ ] Waste disposal, POTW — [ ] Readily available — [ ] Up to date — [x] N/A
   - [ ] Other permits: storm water - State WRACB — [x] Readily available — [x] Up to date — [ ] N/A

   Remarks: conditional use permit from county for remediation system - permit #216

5. **Gas Generation Records** — [ ] Readily available — [ ] Up to date — [x] N/A

   Remarks:

6. **Settlement Monument Records** — [x] Readily available — [x] Up to date — [x] N/A

   Remarks:

7. **Groundwater Monitoring Records** — [ ] Readily available — [ ] Up to date — [ ] N/A

   Remarks:

8. **Leachate Extraction Records** — [ ] Readily available — [ ] Up to date — [x] N/A

   Remarks:

9. **Discharge Compliance Records**
   - [ ] Air — [ ] Readily available — [ ] Up to date — [x] N/A
   - [ ] Water (effluent) — [ ] Readily available — [ ] Up to date — [x] N/A

   Remarks:

10. **Daily Access/Security Logs** — [x] Readily available — [x] Up to date — [ ] N/A

    Remarks: Sign-in sheet in trailer at site

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☒ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other _____

2. **O&M Cost Records** Kept in Chevron + URS offices

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

From _____ To _____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☒ Location shown on site map ☒ Gates secured ☐ N/A

Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks signs posted - (approx. 10) at entrance gate and on perimeter

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ☐ N/A
Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks

2. **Land use changes on site** ☐ N/A
Remarks no

3. **Land use changes off site** ☐ N/A
Remarks major housing development underway, south 1/4 mile

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads damaged** ☒ Location shown on site map ☒ Roads adequate ☐ N/A
Remarks

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS ☐ Applicable ☒ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____
   _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____
   _____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks_____
   _____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____
   _____

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
   - ☐ Wet areas ☐ Location shown on site map Areal extent_____
   - ☐ Ponding ☐ Location shown on site map Areal extent_____
   - ☐ Seeps ☐ Location shown on site map Areal extent_____
   - ☐ Soft subgrade ☐ Location shown on site map Areal extent_____

   Remarks_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability
   Areal extent_____
   Remarks_____

B. Benches ☐ Applicable ☐ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
   Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
   Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
   Remarks_____

C. Letdown Channels ☐ Applicable ☐ N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
   Areal extent_____ Depth_____
   Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
   Material type_____ Areal extent_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
   Areal extent_____ Depth_____
   Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions
G Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
G No evidence of excessive growth
G Vegetation in channels does not obstruct flow
G Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☐ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable G N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks System shut down in Oct. 2002. Treatment unit and plumbing still on-site.

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks

C. Treatment System ☐ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   - ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   - ☐ Air stripping ☐ Carbon adsorbers
   - ☐ Filters_____
   - ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   - ☐ Others_____
   - ☐ Good condition ☐ Needs Maintenance
   - ☐ Sampling ports properly marked and functional
   - ☐ Sampling/maintenance log displayed and up to date
   - ☐ Equipment properly identified
   - ☐ Quantity of groundwater treated annually_____
   - ☐ Quantity of surface water treated annually_____

   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition ☐ Needs Maintenance

   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance

   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition ☐ Needs Maintenance

   Remarks_____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored

   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A

   Remarks_____

D. Monitoring Data

1. Monitoring Data
   ☒ Is routinely submitted on time ☒ Is of acceptable quality

2. Monitoring data suggests:
   ☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Remedy was to contain plume & restore groundwater. The pump + treat system did function as designed and did reduce benzene, but is not likely to clean up the groundwater to the ROD goal of 1 ppb.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The groundwater pump and treat system has been shut off, as has the SVE system, so no O&M is needed at this time.

C.	Early Indicators of Potential Remedy Problems
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. Even though the system is off, monitored natural attenuation is maintaining the protectiveness to human health & envir. The plume is not migrating nor are benzene levels increasing.

D.	Opportunities for Optimization
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Well Inspections

Monument

Well ID	Casing Diameter	Date Inspected	Monument	Lid	Concrete Pad	Casing Top	Crash Posts	Paint	Well Label	Lock	Well Cap	Date Repaired	Comment
MW-1S	4	5/15/06	OK	OK	OK	NA	NA	OK	OK	Replace	Dedicator	5/15/06	Replaced Lock
MW-2S	4	5/15/06	OK	OK	OK	NA	NA	OK	OK	Replace	Dedicator	5/15/06	Replaced Lock
MW-3S	4	5/15/06	OK	OK	OK	NA	NA	OK	OK	Replace	Dedicator	5/15/06	Replaced Lock
MW-4S	2	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Replace	5/24/06	Replaced Lock, Cap
MW-6S	4	5/15/06	OK	OK	OK	NA	NA	OK	OK	Replace	Dedicator	5/15/06	Replaced Lock. Drilled Lock Holes
MW-8S	4	5/15/06	OK	OK	Cracks Secure	NA	NA	OK	OK	Replace	Dedicator	05/15/06	Replaced Lock
MW-9S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Replace	5/15, 5/24/06	Replaced Lock, Cap
MW-10P	4	5/15/06	Broken Hinge	Broken Hinge	OK	OK	NA	OK	OK	Missing	Dedicator	5/24/06	Repaired Hinge, Added Lock
MW-11S	4	5/15/06	OK	OK	OK	OK	NA	OK	OK	Replace	Dedicator	5/15/06	Replaced Lock
MW-12S	4	5/15/06	Dented	Bent	OK	OK	NA	Chipping	OK	Replace	Replace	5/24/06	Replaced Lock, Cap; Fixed Lid
MW-17S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-18S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-20S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-25S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-26S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-27S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Replace	5/15, 5/24/06	Replaced Lock/Cap
MW-29S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-30S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-31D	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-37S	4	5/15/06	OK	Broken Latch	OK	OK	NA	OK	OK	Replace	Dedicator	5/15, 5/24/06	Replaced Lock; Latch
MW-38S	4	5/15/06	OK	OK	OK	OK	NA	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-39S	4	5/15/06	OK	OK	OK	OK	Fence	OK	OK	Replace	Dedicator	5/24/06	Has Vapor Scrubber;Replaced Lock
MW-41S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
MW-42S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Dedicator	5/24/06	Replaced Lock
EW-1	6	5/15/06	Cage	NA	OK	OK	Fence	NA	OK	Replace	Product Pump	5/24/06	Replaced Cage Lock
EW-4	6	5/15/06	Cage	NA	OK	OK	Fence	NA	OK	Replace	Product Pump	5/24/06	Replaced Cage Lock

Flush Mount

Well ID	Casing Diameter	Date Inspected	Lid	Concrete Pad	Casing Top	Gasket	Bolts	Threads	Well Label	Lock	Well Cap	Date Repaired	Comment
MW-14S	4	5/15/06	OK	OK	Cut	None	NA	NA	OK	NA	OK	5/15/06	Inside Utilitity Box, Removed Pressure Transducer
MW-19S	4	5/15/06	OK	OK	OK	NA	NA	NA	OK	NA	Dedicator	NA	
MW-21S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Replace	5/24/06	Replaced Well Cap
MW-22S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	OK	Replace	5/24/06	Replaced Lock/Slip Cap
MW-28S	4	5/15/06	OK	OK	OK	OK	NA	NA	OK	NA	Dedicator	NA	
MW-32S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Replace	5/15, 5/24/06	Replaced Lock/Slip Cap
MW-34S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	Replace	5/15, 5/24/06	Replaced Lock/Slip Cap
MW-35S	4	5/15/06	OK	OK	OK	OK	NA	NA	OK	Missing	Dedicator	NA	
MW-36S	4	5/15/06	OK	OK	OK	Missing	OK	OK	OK	Replace	Replace	5/24/06	Replaced Gasket, Cap/ Lock
MW-40S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Replace	OK	5/15/06	Replaced Lock
MW-43S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Dedicator	Dedicator	NA	
MW-44S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Dedicator	Dedicator	NA	
MW-45S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	Dedicator	Dedicator	NA	
MW-48S	4	5/15/06	OK	OK	OK	Water	OK	Bolt Stripped	OK	Dedicator	Dedicator	5/24/06	Replaced Gasket, Repaired Threads
MW-49S	4	5/15/06	OK	OK	OK	Missing	OK	Stripped	OK	NA	Dedicator	5/24/06	Replaced Gasket, Repaired Threads
MW-50S	4	5/15/06	OK	OK	OK	OK	OK	OK	OK	NA	Dedicator	NA	
EW-2	6	5/15/06	OK	OK	OK	NA	EW Cover	NA	OK	NA	Dedicator	NA	
EW-P2	6	5/15/06	OK	OK	OK	OK	NA	OK	OK	NA	EW Pump	NA	
EW-5	6	5/15/06	OK	OK	OK	NA	NA	NA	OK	NA	OK	NA	

Chevron PCPL Fillmore - Photo Log Sheet

MW-1S (June 2006)

WELL MAINTENANCE PERFORMED

- Added Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-02S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-03S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-04S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Cap
- Expanded lock holes in monument to accommodate new lock
- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-06S (June 2006)

WELL MAINTENANCE PERFORMED

- Drilled new lock holes
- Replaced lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-08S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-09S (June 2006)

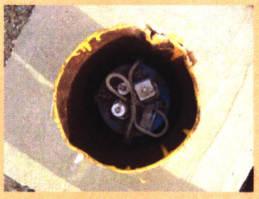
WELL MAINTENANCE PERFORMED

- Replaced lock

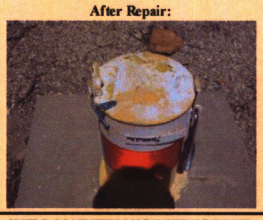
Chevron PCPL Fillmore - Photo Log Sheet

MW-10P (June 2006)

Before Repair:



After Repair:

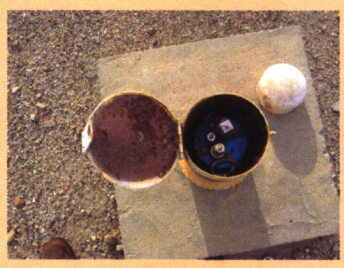


WELL MAINTENANCE PERFORMED

- Replaced Hinges
- Added Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-11S (June 2006)



WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-12S (June 2006)

Before Repair:

After Repair:

WELL MAINTENANCE PERFORMED

- Replaced Cap
- Replaced Lock
- Fixed Lid

Chevron PCPL Fillmore - Photo Log Sheet

MW-14S (June 2006)

WELL MAINTENANCE PERFORMED

- Removed Pressure Transducer

Chevron PCPL Fillmore - Photo Log Sheet

MW-17S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-18S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-19S (June 2006)

WELL MAINTENANCE PERFORMED

- Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

MW-20S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock
- Cleaned Inside of Well Box

Chevron PCPL Fillmore - Photo Log Sheet

MW-21S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Cap
- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-22S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Cap
- Replaced Lock
- Retapped Threads

Chevron PCPL Fillmore - Photo Log Sheet

MW-25S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-26S (June 2006)

WELL MAINTENANCE PERFORMED

• Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-27S (June 2006)

WELL MAINTENANCE PERFORMED

• Replaced Lock

•Replaced Cap

Chevron PCPL Fillmore - Photo Log Sheet

MW-28S (June 2006)

WELL MAINTENANCE PERFORMED

• Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

MW-29S (June 2006)

WELL MAINTENANCE PERFORMED

• Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-30S (June 2006)

WELL MAINTENANCE PERFORMED

• Replaced lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-31D (June 2006)

WELL MAINTENANCE PERFORMED

• Replaced lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-32S (June 2006)

WELL MAINTENANCE PERFORMED

• Replaced Cap

•Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-34S (June 2006)

WELL MAINTENANCE PERFORMED

• Replaced Cap

•Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-35S (June 2006)

WELL MAINTENANCE PERFORMED

• Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

MW-36S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Cap
- Replaced Lock
- Replaced Gasket

Chevron PCPL Fillmore - Photo Log Sheet

MW-37S (June 2006)

Before Repair:

After Repair:

WELL MAINTENANCE PERFORMED

- Replaced Latch
- Added Lock

Chevron PCPL Fillmore - Photo Log Sheet

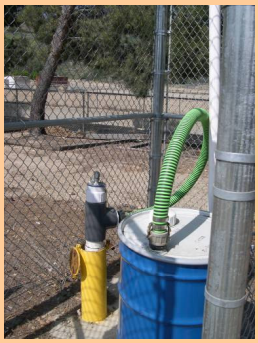
MW-38S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-39S (June 2006)



WELL MAINTENANCE PERFORMED

- Replaced Lock (Cage)

Chevron PCPL Fillmore - Photo Log Sheet

MW-40S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-41S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-42S (June 2006)

WELL MAINTENANCE PERFORMED

- Replaced Lock

Chevron PCPL Fillmore - Photo Log Sheet

MW-43S (June 2006)

WELL MAINTENANCE PERFORMED

- Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

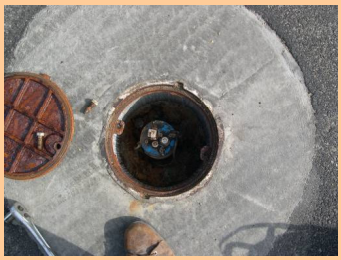
MW-44S (June 2006)

WELL MAINTENANCE PERFORMED

- Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

MW-45S (June 2006)



WELL MAINTENANCE PERFORMED

• Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

MW-48S (June 2006)

WELL MAINTENANCE PERFORMED

• Repaired Threads

•Replaced Gasket

•Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

MW-49S (June 2006)

WELL MAINTENANCE PERFORMED

• Repaired Threads

•Replaced Gasket

•Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

MW-50S (June 2006)

WELL MAINTENANCE PERFORMED

• Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

EW-1 (June 2006)

WELL MAINTENANCE PERFORMED

• Replaced Lock (Cage)

Chevron PCPL Fillmore - Photo Log Sheet

EW-2 (June 2006)

WELL MAINTENANCE PERFORMED

• Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

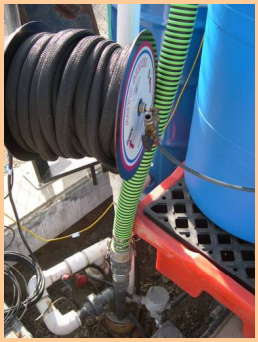
EW-P2 (June 2006)

WELL MAINTENANCE PERFORMED

• Cleaned Well Box

Chevron PCPL Fillmore - Photo Log Sheet

EW-4 (June 2006)



WELL MAINTENANCE PERFORMED

• Replaced Lock (Cage)

Chevron PCPL Fillmore - Photo Log Sheet

EW-5 (June 2006)

WELL MAINTENANCE PERFORMED

• Cleaned Well Box

Appendix B

Appendix C

Interview Report

FIVE-YEAR REPORT INTERVIEW

June 6, 2006

City Hall, City of Fillmore

Attendees:

Holly Hadlock, EPA RPM
Jocelyn Adkins, EPA Attorney
Kevin McSweeney, City Planner
Bert Rapp, Public Works Director
Pete Egedi, City Fire Chief

This interview was held at the request of Holly Hadlock as part of the Pacific Coast Pipeline Superfund Site five-year review.

The bulk of the site, which is the Chevron property east of Pole Creek, is not in the City of Fillmore but is in unincorporated Ventura County and is currently zoned open space. It is, however, in the City's General Plan Sphere of Influence. The sphere of influence is an area that LAFCO (Local Agency Formation Commission - each county in California has one; its purpose includes promotion of orderly growth and development) directs cities to evaluate for growth for the next 20 years.

In the City Plan the property is currently designated as open space. It was designated as industrial but the designation was revised in 2003. This is because the City has more land designated as industrial/commercial than is being used and it has a dearth of open space. The only development currently going on is for homes, not businesses.

Fillmore population is 15,000. Current growth is 1.2% per year, with estimated growth by 2020 to be 23,000.

Mr. McSweeney said that if anyone wants to develop the property, the City would want to annex the property from the County, which would require LAFCO approval. The City of Fillmore would annex it in order to provide services such as water, fire, etc. He said Ventura County is extremely anti-growth and is focusing on maintaining as much agricultural land as possible. Current zoning in the greenbelt (from City to County line) is 1 home on 40 acres.

He said that if Chevron wants to sell the property and the owner wants to develop it for something other than open space, the following is required:

- City annex property in order to provide services
- General Plan amendment
- Zone change
- Full EIR
- Development permit

- Conditional use permit

He said this would take a minimum of 3-5 years, and, based on his experience with the City, would be followed by lawsuits. He cannot foresee the city changing its designation from open space to commercial in the near future as the City is extremely deficient in open space.

When asked if there are any citizen concerns about the Superfund site, Mr. McSweeney said that sometimes nearby residents complain about the smell of fumes. EPA explained that this is due to the infrequent but heavy record rains which cause the water table to rise and TPH to volatilize out of two of the monitoring wells that caused this problem. In 2005 Chevron fully sealed and vented to carbon canisters the two wells.

Mr. Rapp said that the City is concerned that the concrete in Pole Creek (a concrete flood control channel) is not structurally sound. Also it fills up with debris after every major winter storm and the City has to bulldoze out all the debris. The City is working on getting a debris basin built at the bottom of Pole Creek where it joins the Santa Clara River by next summer.

The National Marine Fisheries has asked the City about making a natural channel along Pole Creek for the steelhead to migrate up. NMF is trying to re-establish native steelhead fisheries along the coastal streams of California. Mr. Rapp questioned if it made sense to have steelhead migrating near a Superfund site. EPA told him we would look into it.

Appendix D

Photos Documenting Site Conditions

Site looking south. **March 2006**

Site looking southwest. **March 2006**

Site looking west. **March 2006**

Site looking west. **March 2006**

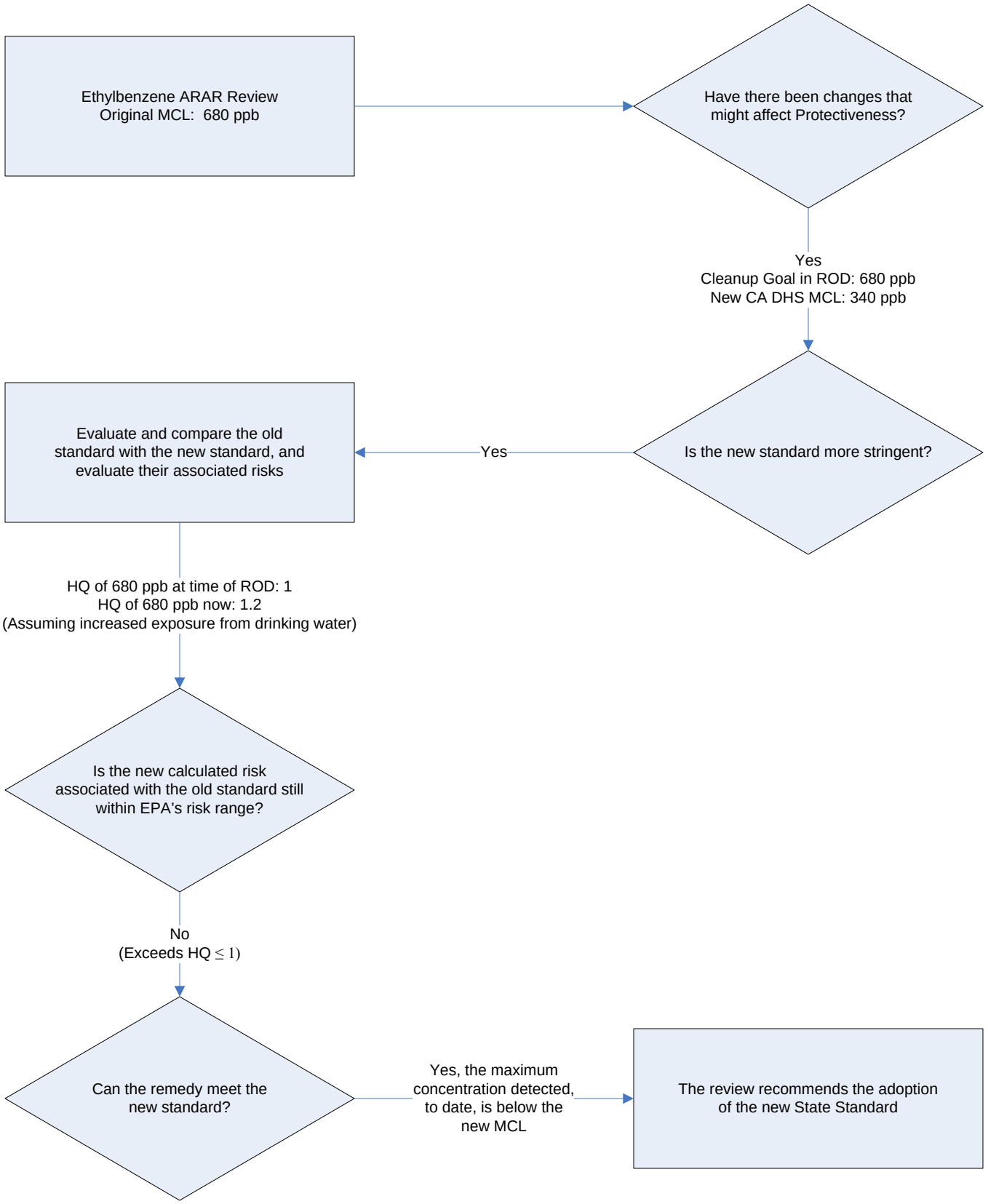
Site looking southwest. **March 2006**

Site looking northeast. **March 2006**

Appendix E

Decision Process for Revision of the California DHS MCL for Ethylbenzene

Decision Process for Revision of the California DHS MCL for Ethylbenzene



Appendix E

Attachment A

Documents Reviewed

Attachment A. References List

Author	Date	Title
Chevron EMC	07/20/05	*Status Report for Second Quarter 2005,* dated July 20,2005.
Chevron EMC	10/17/05	*Status Report for Third Quarter 2005,* dated October 17, 2005.
Chevron EMC	01/20/06	*Status Report for Fourth Quarter 2005,* dated January 20, 2006.
Chevron EMC	04/20/06	*Status Report for First Quarter 2006,* dated April 20, 2006.
England & Associates (E&A)	12/16/94	*Final Phase 2 Design Report, Pacific Coast Pipeline (PCPL) Superfund Site, Fillmore, California* , December 16, 1994.
England & Associates (E&A)	05/02/95	*Final Phase 2 Remedial Action Work Plan* , (This report includes the *Health and Safety Plan* in Appendix A) May 2, 1995.
England & Associates (E&A)	09/18/95	*Monitoring and Confirmation Sampling Plan (M&CSP),* September 18, 1995.
England & Associates (E&A)	05/15/97	*Revised Technical Memorandum - Recommended Modifications to the Ground Water Sampling Program,* May 15, 1997.
England Geosystem, Inc	05/21/01	*Technical Memorandum Request for Authorization to Discontinue Soil Vapor Extraction Operation* , May 21, 2001.
England Geosystem, Inc	05/21/01	*First Quarter 2001 Quarterly Status Report,* dated May 21, 2001.
England Geosystem, Inc	08/31/01	*Second Quarter 2001 Quarterly Status Report and Semi-annual (Spring 2001) Ground Water Monitoring Report,* August 31, 2001
England Geosystem, Inc	11/26/01	*Third Quarter 2001 Quarterly Status Report,* dated November 26, 2001.
England Geosystem, Inc	03/28/02	*Technical Memorandum SVE Shutoff and Monitoring Plans* , March 28, 2002.
England Geosystem, Inc	04/18/02	*Fourth Quarter 2001 Quarterly Status Report and Semi-annual (Fall 2001) Ground Water Monitoring Report,* April 18, 2002.
England Geosystem, Inc	05/20/02	*First Quarter 2002 Quarterly Status Report,* dated May 20, 2002
England Geosystem, Inc	05/24/02	*Response to EPA Letter and Call Associated with SVE Shutoff and Monitoring Plans* , May 24, 2002.
England Geosystem, Inc	08/20/02	*Second Quarter 2002 Quarterly Status Report and Semi-annual (Spring 2002) Ground Water Monitoring Report,* August 20, 2002.
England Geosystem, Inc	10/16/02	*Technical Memorandum Proposal for Ground Water Treatment System Operational Modifications and Pilot Study for Enhanced Bioremediation,* October 16, 2002.
England Geosystem, Inc	11/05/02	*Work Plan for Implementation of Enhanced Bioattenuation Pilot Study* . November 5, 2002
England Geosystem, Inc	11/27/02	*Request for Waste Discharge Permit for ORC® Injection,* November 27, 2002.
England Geosystem, Inc	12/04/02	*Addendum to Work Plan for Implementation of Enhanced Bioattenuation Pilot Study PCPL Superfund Site Fillmore, California* . Submitted December 4, 2002.
England Geosystem, Inc	01/10/03	Letter to Mr. Ken Hall, Ventura County Air Polution Control District: *Notification to Rescind Permit to Operate 01470 Associated with SVE Treatment System,* dated January 10, 2003.
England Geosystem, Inc	01/10/03	Letter to Holly Hadlock, EPA: *Documentation of Rescinding Air Pollution Permit to Operate (#0470) Associated with SVE Treatment System and Discontinuation of Monitoring EW-P2 and MW-28S* , dated January 10, 2003
England Geosystem, Inc	05/20/03	*Third Quarter 2003 Quarterly Status Report,* dated May 20, 2003.
England Geosystem, Inc	02/09/04	*Fourth Quarter 2002 Quarterly Status Report and Semi-annual (Fall 2002) Ground Water Monitoring Report, February 9* , 2004.
England Geosystem, Inc	04/30/04	*Request to Rescind General Waste Discharge Requirements (WDR) Permit for ORC® Injection Pilot Test* , April 30, 2004
England Geosystem, Inc	06/24/04	*Quarterly Status Reporting for 2003 and Groundwater Monitoring Reporting for 2003,* dated June 24, 2004
England Geosystem, Inc	07/17/04	*Email from Joni Fisher to Holly Hadlock Documenting Reduction in Monitoring Frequency,* July 16, 2004.
England Geosystem, Inc	09/30/04	*Quarterly Status Reporting for First Half 2004 and Semi-annual (Spring 2004) Ground Water Monitoring Report,* dated September 30, 2004.
England Geosystem, Inc	03/31/05	*Work Plan for Soil Sampling PCPL Superfund Site Phase 1 – Former Tank Areas* , March 31, 2005
England Geosystem, Inc	05/26/05	*Evaluation of the Enhanced Bioattenuation Pilot Study* , May 26, 2005.
England Geosystem, Inc	05/26/05	*Sampling and Analysis Plan for Natural Attenuation Characteristics and Soil Vapor Characteristics Above Dissolved-Phase Benzene Plumes* . May 26, 2005.
England Geosystem, Inc	06/27/05	*Quarterly Status Reporting for Second Half 2004 and Semi-annual (Fall 2004) Ground Water Monitoring Report,* dated June 27, 2005.
England Geosystem, Inc	07/21/05	*Quarterly Status and Groundwater Monitoring Reporting for First Quarter 2005,* dated July 21, 2005.
LARWQCB	02/06/03	*General Waste Discharge Requirements for ORC Injection Pilot Test at Petroleum Hydrocarbon Fuel and/or Volatile Organic Compound Impacted Sites Pacific Coast Pipeline (PCPL) Superfund Site, 67 E. Telegraph Road, Fillmore, California (File No. 02-189, CI No. 8510)* , dated February 6, 2003.
LARWQCB	02/06/03	*Rescission of National Pollutant Discharge Elimination System (NPDES) Permit for ChevronTexaco (Formerly Texaco, Inc.) (Pacific Coast Pipeline Site) (NPDES Permit No. CA0063240, Order No. 95-146, CI-7346)* , dated February 6, 2003.
LARWQCB	09/26/03	*Amended Monitoring and Reporting Program* , September 26, 2003.
LARWQCB	06/25/04	*Termination of Coverage Under General Waste Discharge Requirements for PCPL Superfund Site,* dated June 25, 2004
URS Corporation	09/15/05	*Quarterly Groundwater Monitoring Reporting for Second Quarter 2005,* dated September 15, 2005.
URS Corporation	11/15/05	*Quarterly Groundwater Monitoring Reporting for Third Quarter 2005* , dated November 15, 2005.

Attachment A. References List

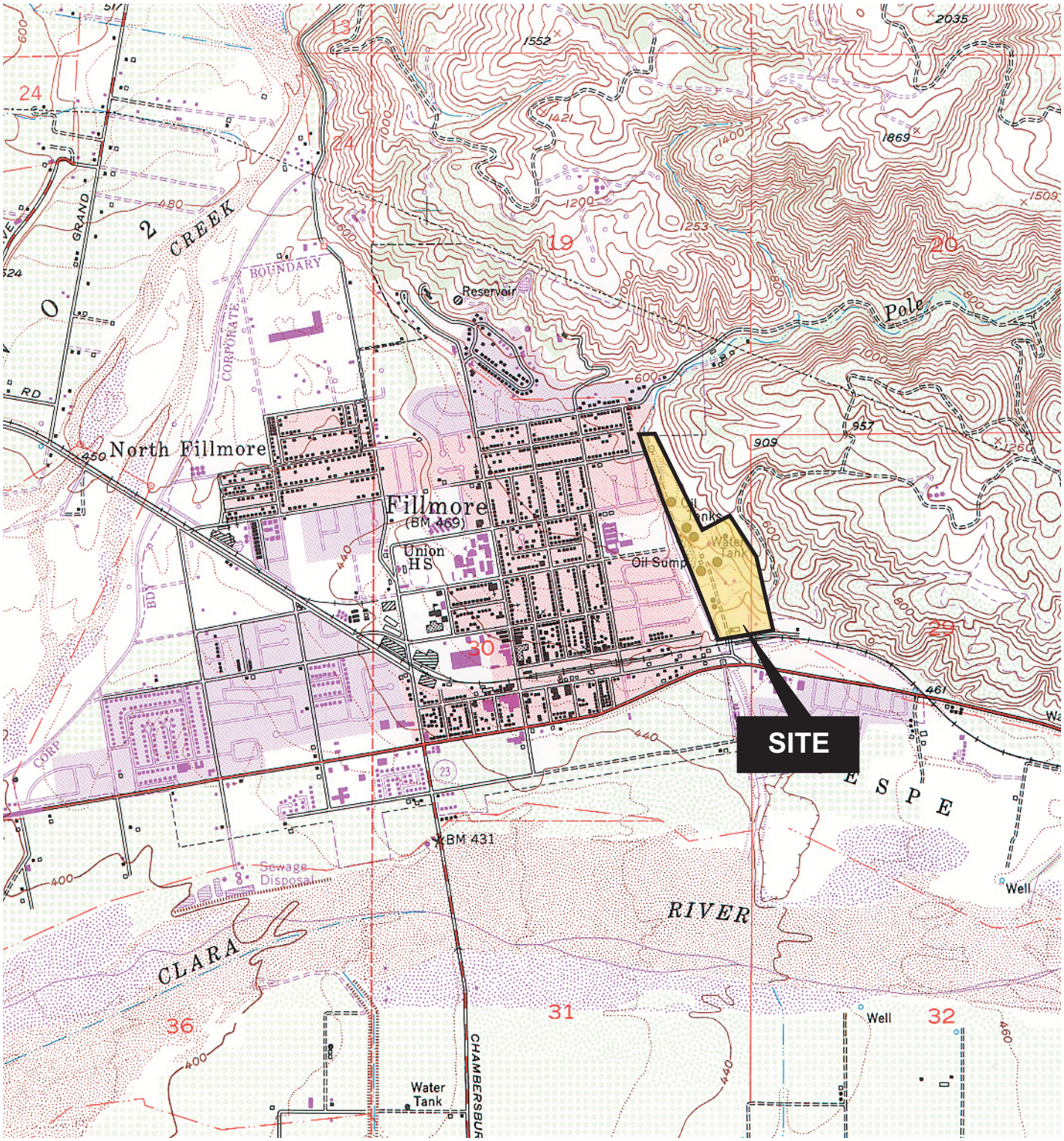
Author	Date	Title
URS Corporation	02/15/06	*Quarterly Groundwater Monitoring Reporting for Fourth Quarter 2005* , dated February 15, 2006.
USEPA	04/02/92	*Record of Decision (ROD) - Pacific Coast Pipeline, Texaco Fillmore Facility* , April 2, 1992.
USEPA	08/10/93	*Consent Decree - Pacific Coast Pipeline Site* . February 1993, entered August 10, 1993.
USEPA	12/28/04	*Region 9 Preliminary Remediation Goal Table* , online, last updated December 28, 2004
USEPA	09/28/01	*Five Year Review,* September 28, 2001.

Action(s)	Source	Description	Application
Groundwater actions: monitored natural attenuation, groundwater extraction, in situ treatment	*Federal* Safe Drinking Water Act [42USCA 300 and 40 CFR 141.11-141.16, 141.50-141.51] (Relevant and appropriate, chemical-specific)	Establishes treatment standards for current potential drinking water sources by setting Maximum Contaminant Levels (MCLs) and non-zero Maximum Contaminant Goals (MCLGs), which may be used for cleanup standards at stie. Those standards are listed in Table A-2	Chemicals of interest (COIs) in groundwater should be reduced to concentrations no higher than MCLs in reasonable time frame.
	State: State Water Resources Control Board (SWRCB) Resolution 92-49 (Relevant and appropriate, chemical-specific)	Establishes requirements for the investigation and cleanup and abatement of discharges.	Final cleanup standards for groundwater should be equal to background concentrations unless such levels are technically and economically infeasible to achieve.
	Cal. Safe Drinking Water Act [California Health and Safety Code Section 4010.1 et. seq., Title 22, CCR, DIV. 4, Chapt. 15] (Relevant and appropriate, chemical-specific)	Establishes treatment standards for current potential drinking water sources by setting MCLs which are used as cleanup standards for groundwater. Those standards for Study Area are listed in Table B-2.	COIs in groundwater should be reduced to concentrations no higher than MCLs in reasonable time frame. This time frame should consider likelyhood of groundwater at study area to be used for beneficial use.
	Chapter 15, California Code of Regulations (CCR),Title 23, Sections 2550.7, 2550.10 (Relevant and appropriate, chemical-specific)	Requires monitoring of the effectiveness of the remedial actions	Concentrations of COIs in in situ groundwater will be measured.
	Water Quality Control Plan (Basin Plan) for Los Angeles RWQCB (Relevant and appropriate, chemical-specific)	Establishes beneficial uses and water quality objectives for groundwater and surface waters in the Los Angeles Region as well as implementation plans to meet water quality objectives and protection of beneficial uses.	Specific applicable portions of the Basin Plan include beneficial uses of affected water bodies and water quality objectives to protect those uses. Any activitity, including, but not limited to, the discharge of impacted soil or waters or in situ treatmen
	SWRCB Resolution 88-63 (Applicable, action-specific)	Designates all groundwater and surface water in the State as drinking water sources with specific exceptions.	COIs in groundwater should be reduced to levels protective of beneficial uses within reasonable time frame. This time frame should consider potential of impacted groundwater being used as drinking water supply.
	SWRCB Resolution 68-16 (Anti-degradation policy) (Applicable, action-specific)	Requires that high quality surface and groundwater be maintained to the maximum extent possible	This applies to enhanced bioremediation technologies.Residual injected materials or by-products should be below water quality objectives.
High Vacuum Extraction	*State:* Water Quality Control Plan (Basin Plan) for Los Angeles RWQCB (Applicable, chemical-specific)	Establishes beneficial uses and water quality objectives for groundwater and surface waters in the Los Angeles Region as well as implementation plans to meet water quality objectives and protection of beneficial uses.	Specific applicable portions of the Basin Plan include beneficial uses of affected water bodies and water quality objectives to protect those uses. Any activitity, including, but not limited to, the discharge of impacted soil or waters or in situ treatmen
	Chapter 15, California Code of Regulations (CCR),Title 23, Sections 2550.7, 2550.10 (Relevant and appropriate, chemical-specific)	Requires monitoring of the effectiveness of the remedial actions	Concentrations of COIs in in situ and extracted soil vapor will be measured.
Treated groundwater discharge	*Federal:* 40 CFR 122 (The National Pollutant Discharge Elimination System (NPDES): 40 CFR 122.41(d), (e), (j)(1), (j)(3), (j)(4),(1)(6), (m) and (n); 40 CFR 122.44(d), (g), and i); 40 CFR 122.45, (d) (e), (f), and (g); and 40 CFR 122.48(a) and (b) (no longer applicable)	These sections are the substantive requirements of NPDES permits. The RWQCB may issue an actual NPDES permit for some offsite discharges.	Will be applied to point source discharges of treated groundwater to surface water drainages.
	State: SWRCB Resolution 68-16 (Anti-degradation policy) (Applicable, chemical- and action-specific)	Requires that high quality surface and groundwater be maintained to the maximum extent possible	Applies to discharge of treated groundwater.
	Water Quality Control Plan (Basin Plan) for Los Angeles RWQCB (Applicable, chemical-specific)	Establishes beneficial uses and water quality objectives for groundwater and surface waters in the Los Angeles Region as well as implementation plans to meet water quality objectives and protection of beneficial uses.	Specific applicable portions of the Basin Plan include beneficial uses of affected water bodies and water quality objectives to protect those uses. Any activitity, including, but not limited to, the discharge of impacted soil or waters or in situ treatment.
Treated soil vapor discharge	*Local:* Ventura County Air Pollution Control District Rules 26.2 (no longer applicable)	Regulates stationary sources of air contaminants and limits emissions from the excavation and treatment of contaminated soil	A permit is required for any remedial action that has actual or potential to emit air contaminants. The compliance standards for treated soil vapor are contained in the Authority to Construct/Permit to Operate issued by Ventura County Air Pollution Control District Rules 26.2.

Attachment B

Figures and Tables Documenting Remedy Performance

Attachment B
Figures



REFERENCE: USGS 7.5 Minute Series Fillmore, CA Quad, Photorevised 1988

N

0 1/2

Scale in Miles

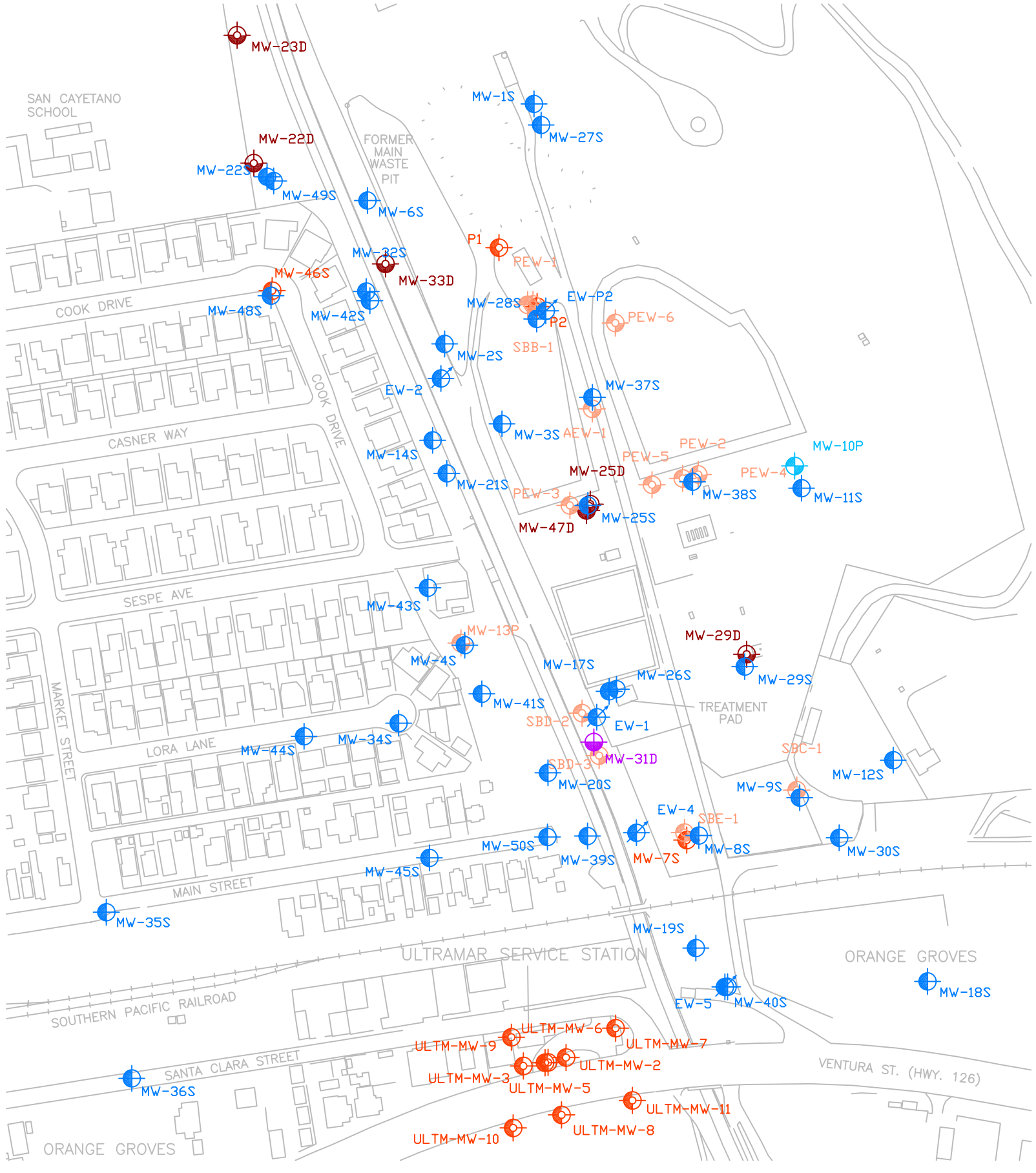
SITE LOCATION MAP

Project No.: 29869533	Date: AUGUST 2005	Project: CHEVRON PCPL (FILLMORE REFINERY)	Figure 1

L:/chevron/fillmore site loc.fh11 8/05

Attachment B

URS



LEGEND:

MW-10P	EXISTING PERCHED MONITORING WELL
MW-11S	EXISTING AQUIFIER I MONITORING WELL
MW-31D	EXISTING AQUIFIER II MONITORING WELL
EW-1	EXISTING AQUIFIER & EXTRACTION/MONITORING WELL
AEW-1	DESTROYED PERCH MONITORING WELL
MW-5S	DESTROYED AQUIFIER I MONITORING WELL
MW-33D	DESTROYED AQUIFIER II MONITORING WELL

N

0 125 250 500

SCALE: IN FEET

URS Corporation

GROUNDWATER MONITORING WELL LOCATIONS

Proj. No.:	29869533	Date:	APRIL 2006
Project:	CHEVRON PCPL (Fillmore, Ca)	CAD ID.:	---
Drawn by: AS	Checked by: BP	Figure:	2

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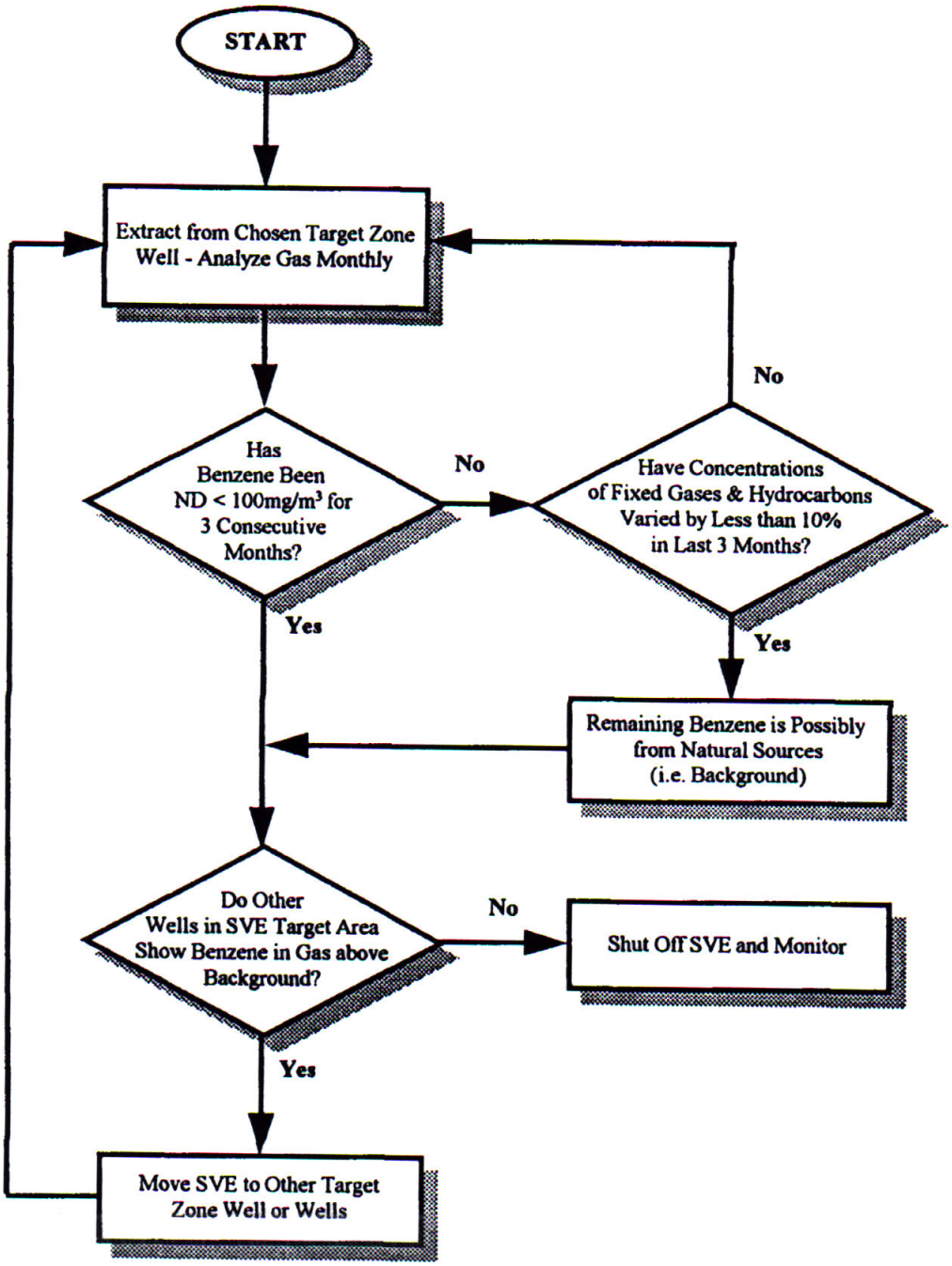
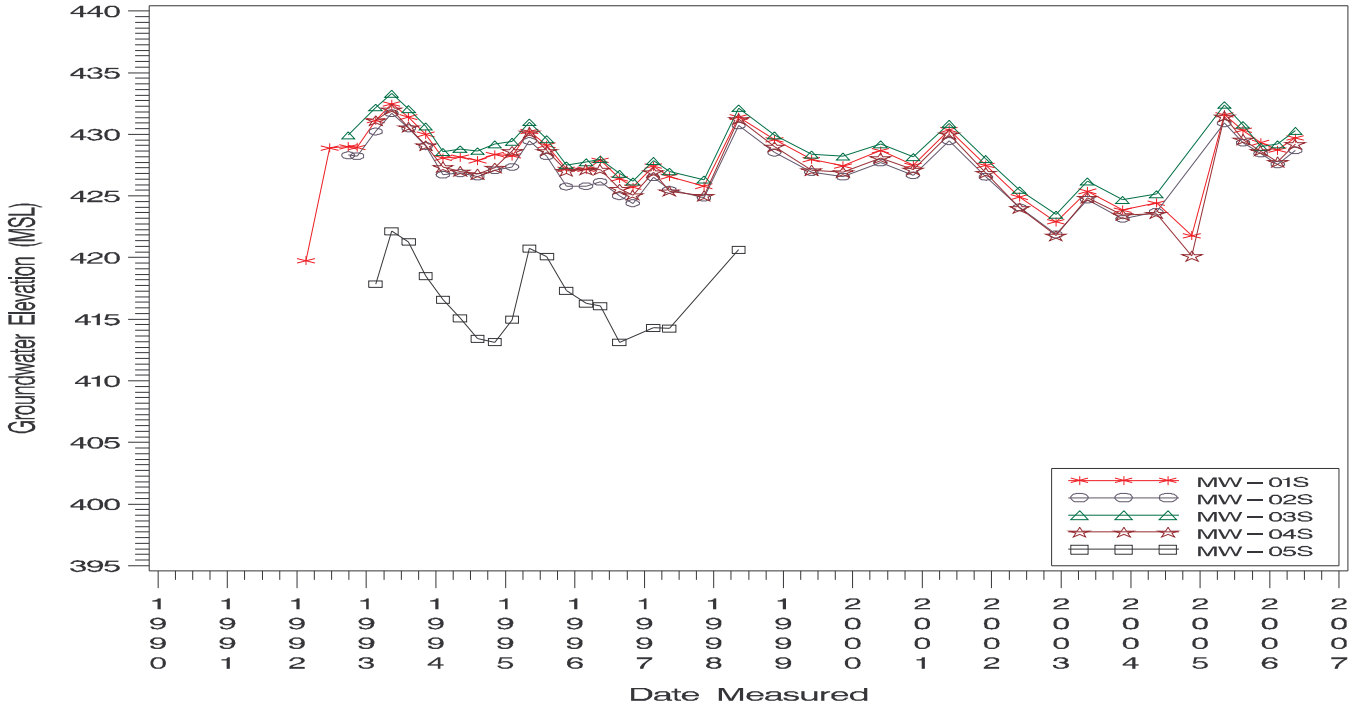
Attachment B

DECISION TREE FOR MODIFYING OR SHUTTING OFF SOIL VAPOR EXTRACTION SYSTEM



Note: This figure was reproduced from Figure 9-1, Final Phase 2 Design Report, England, Shahin & Associates, December 16, 1994.

URS	Decision Tree for VES Shutoff	Figure 3



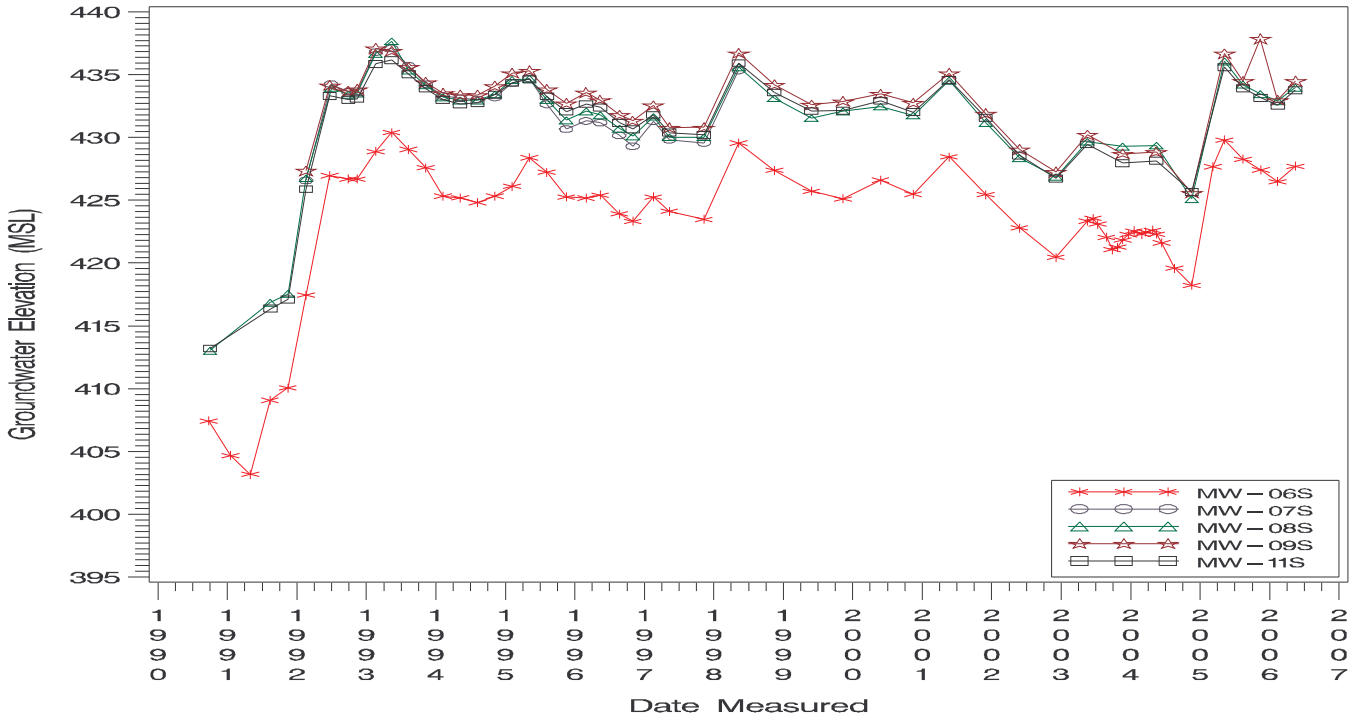
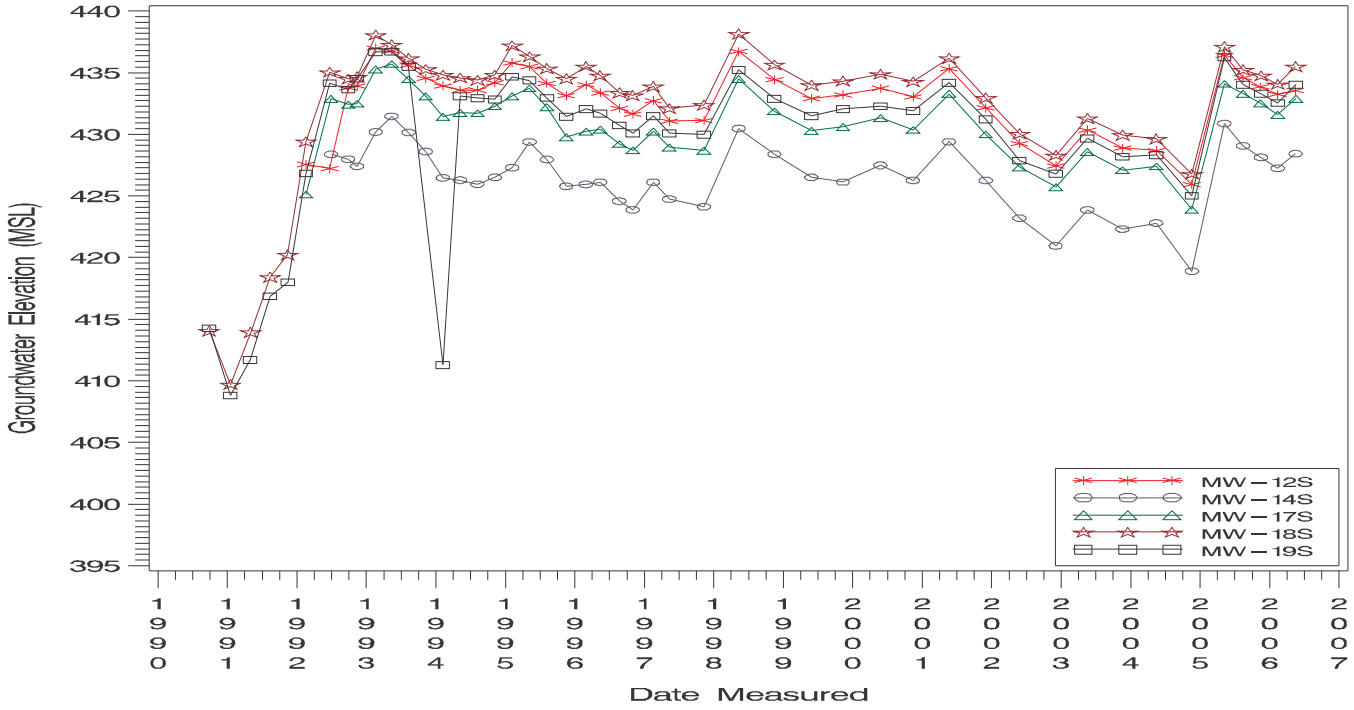


Figure 4a. Historical Hydrographs
for Fillmore Pacific Coast Pipeline Site

Attachment B



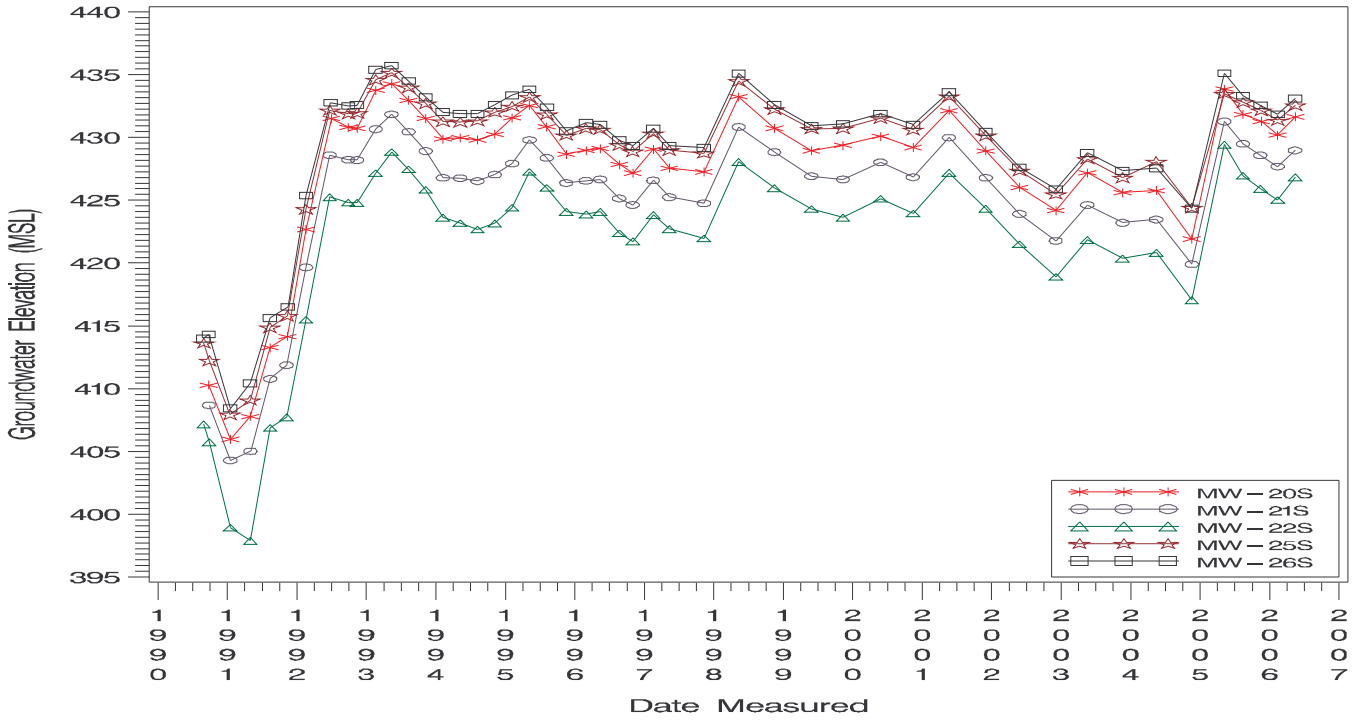
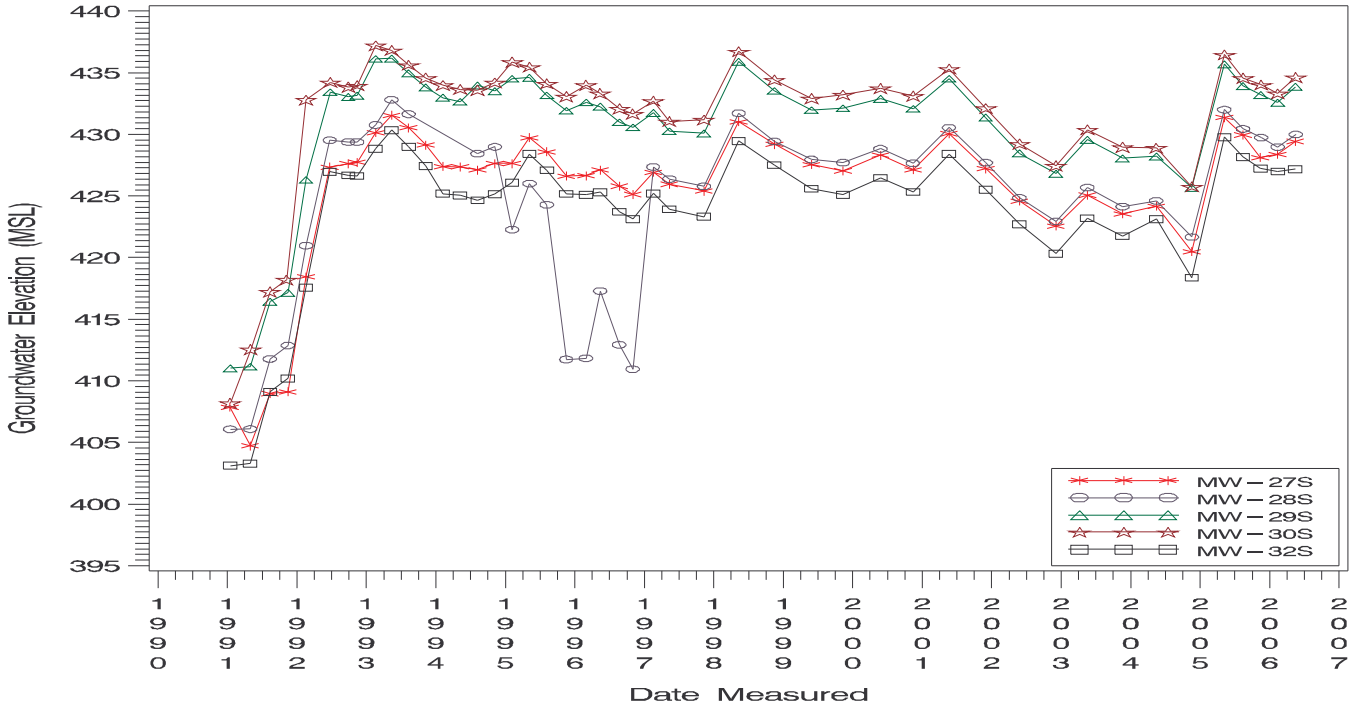


Figure 4b. Historical Hydrographs
for Fillmore Pacific Coast Pipeline Site

Attachment B



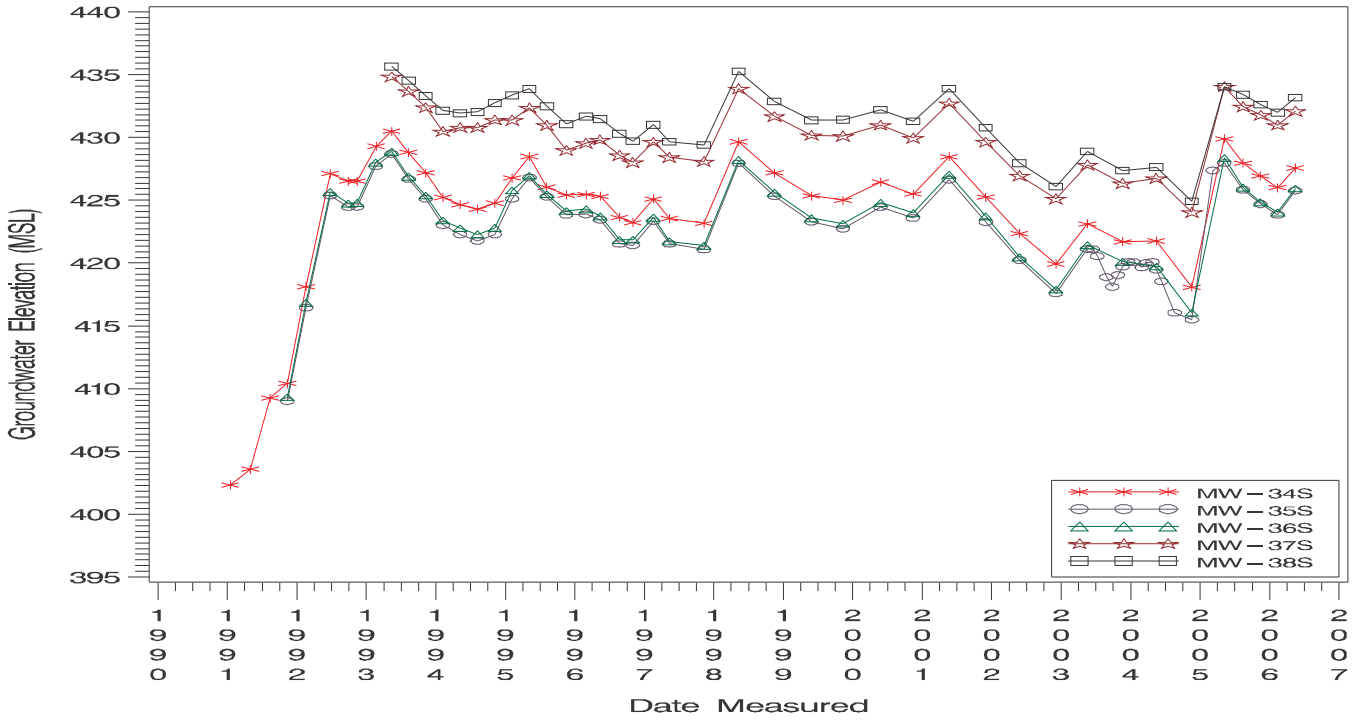
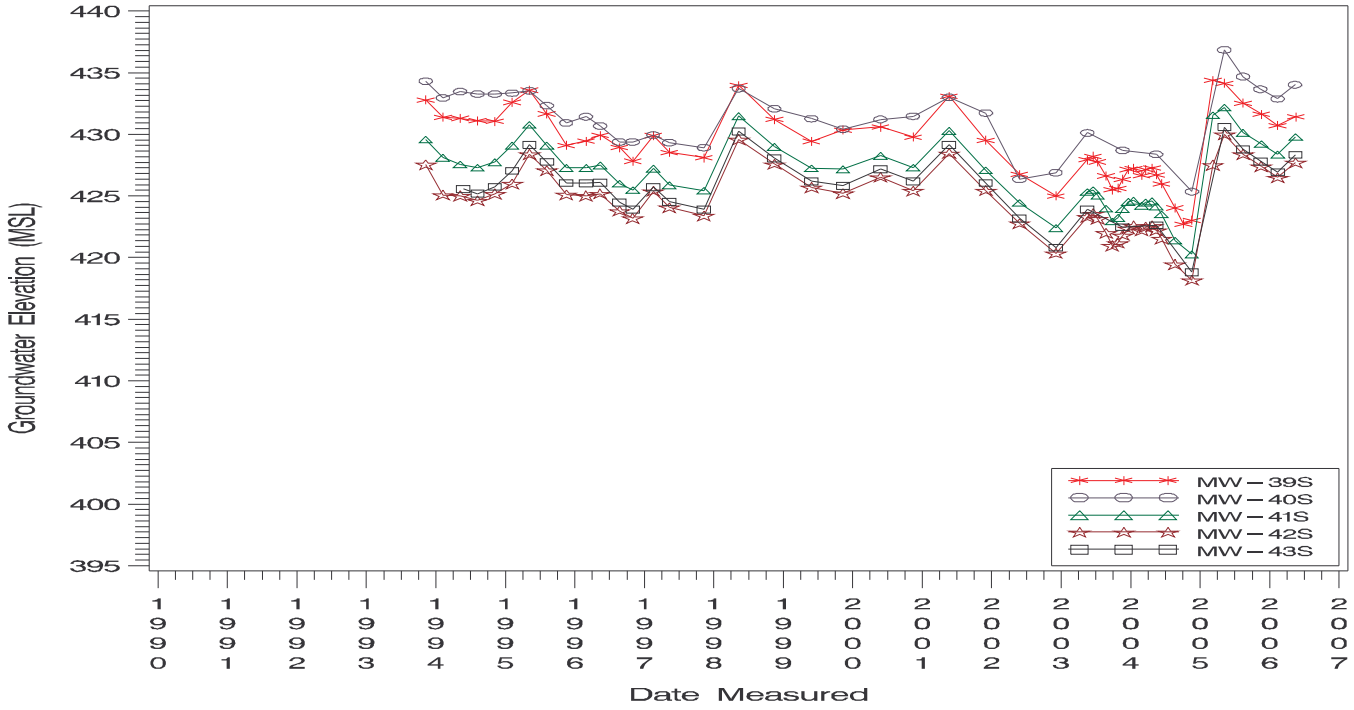


Figure 4c. Historical Hydrographs
for Fillmore Pacific Coast Pipeline Site

Attachment B



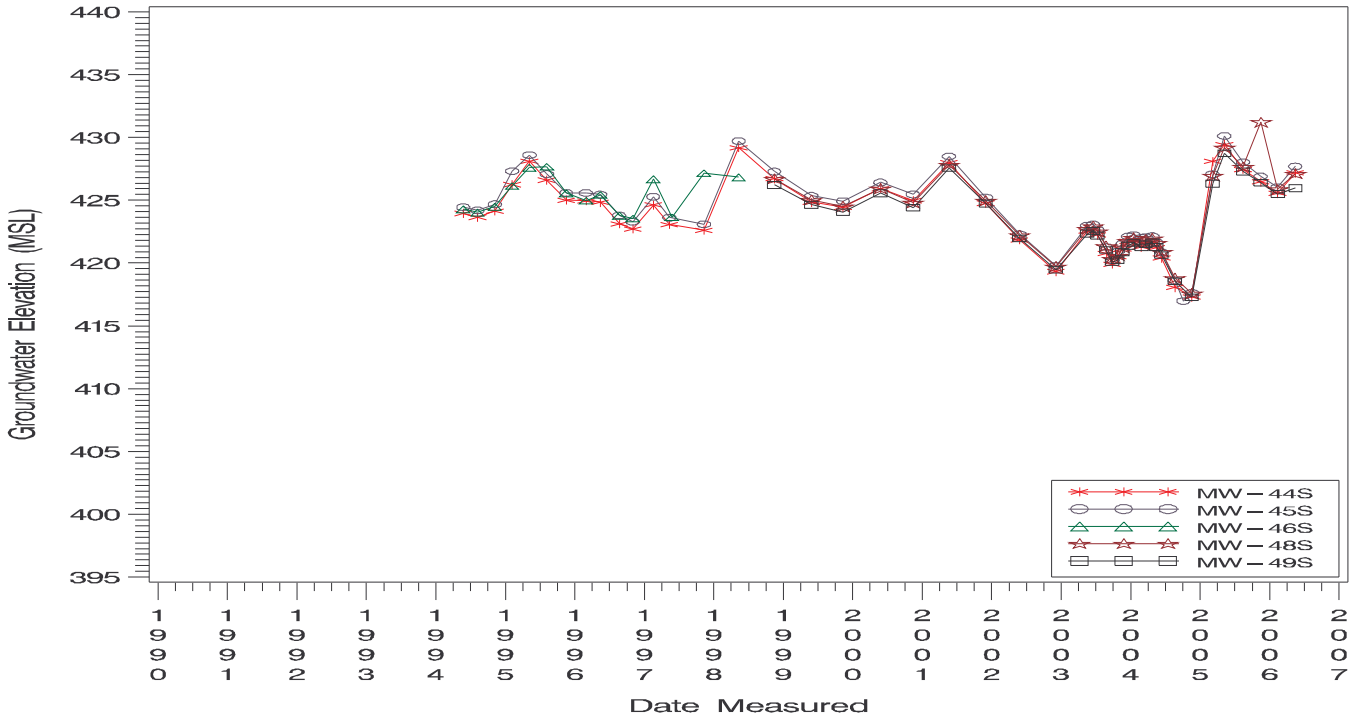
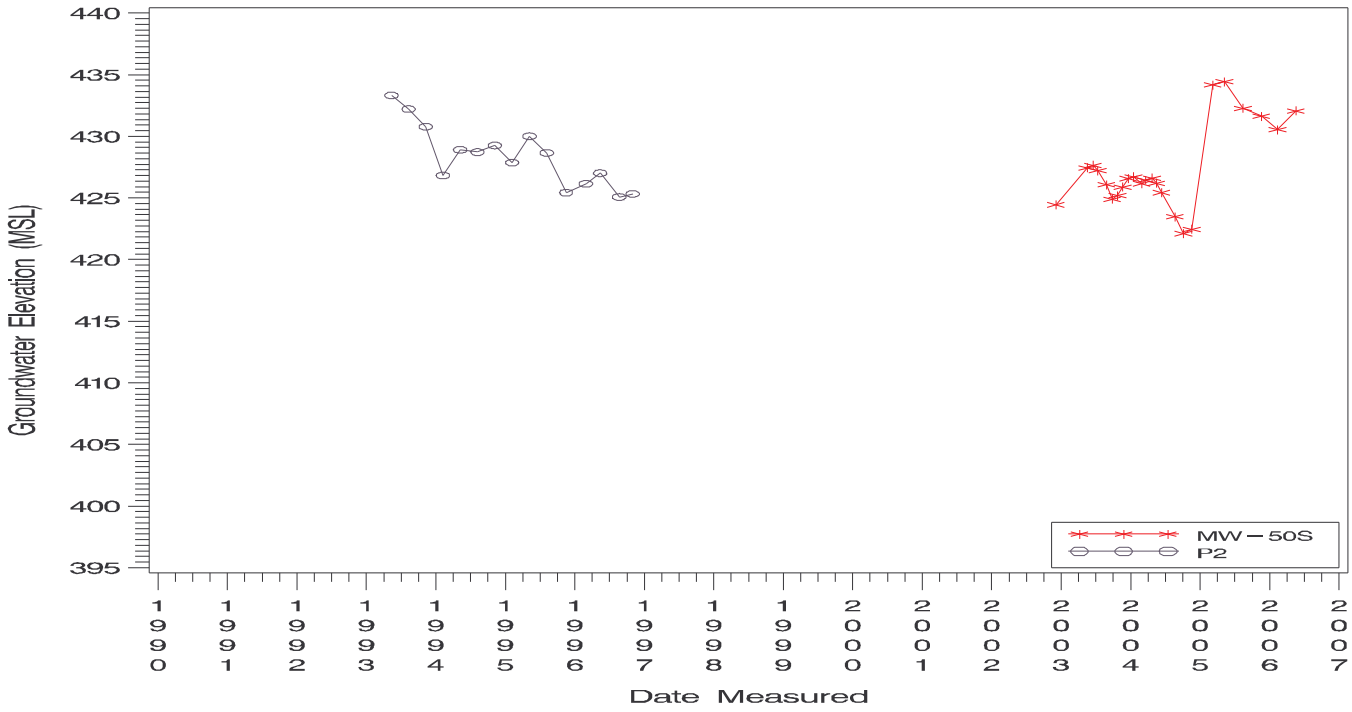


Figure 4d. Historical Hydrographs
for Fillmore Pacific Coast Pipeline Site

Attachment B



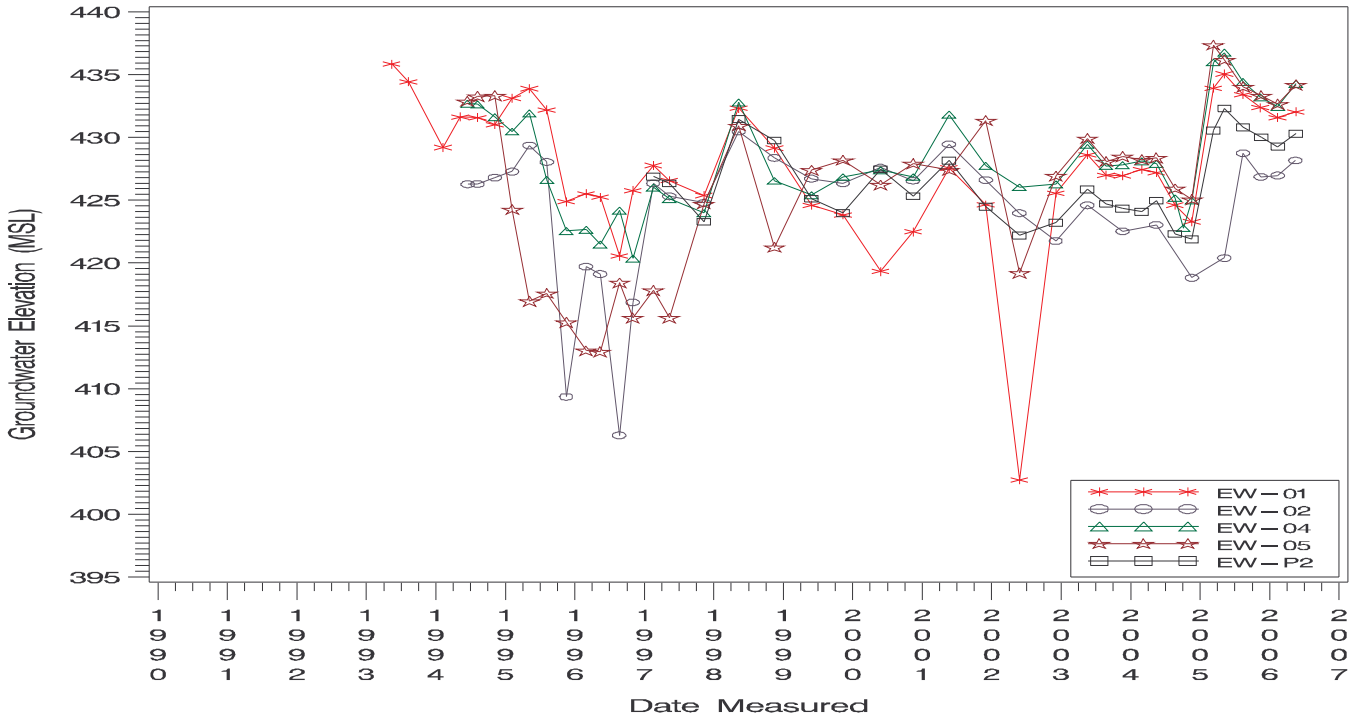
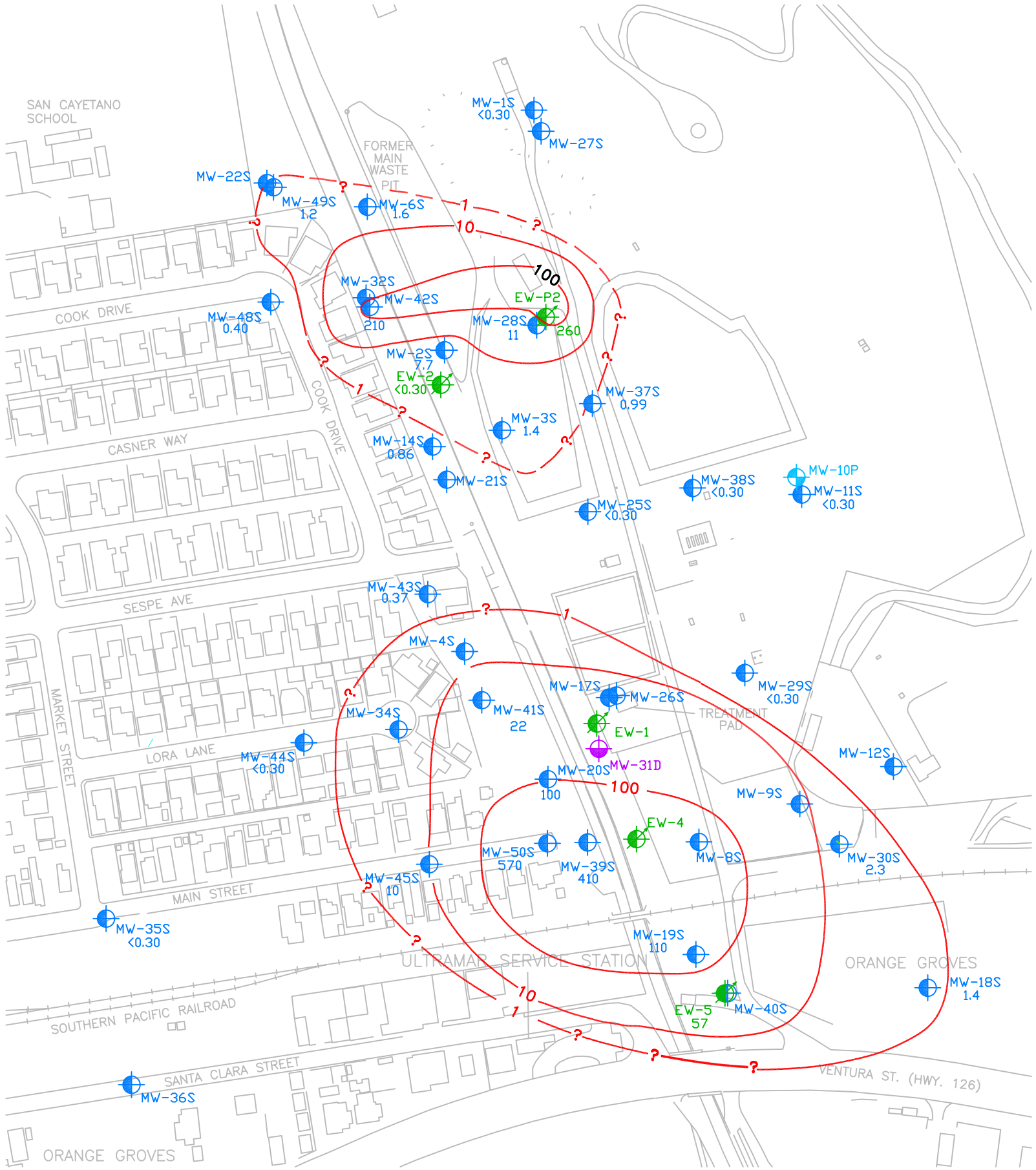


Figure 4e. Historical Hydrographs
for Fillmore Pacific Coast Pipeline Site

Attachment B



LEGEND:

MW-11S	EXISTING AQUIFIER I MONITORING WELL
EW-1	EXISTING AQUIFIER & EXTRACTION/MONITORING WELL
570	BENZENE CONCENTRATION (MICROGRAMS PER LITER)
< 0.30	ANALYTE NOT DETECTED ABOVE LABORATORY REPORTING LIMIT
100 ——— ?	BENZENE ISOCONCENTRATION CONTOUR, DASHED WHERE INFERRED, QUERIED WHERE UNCERTAIN

N

0 125 250 500

SCALE: IN FEET

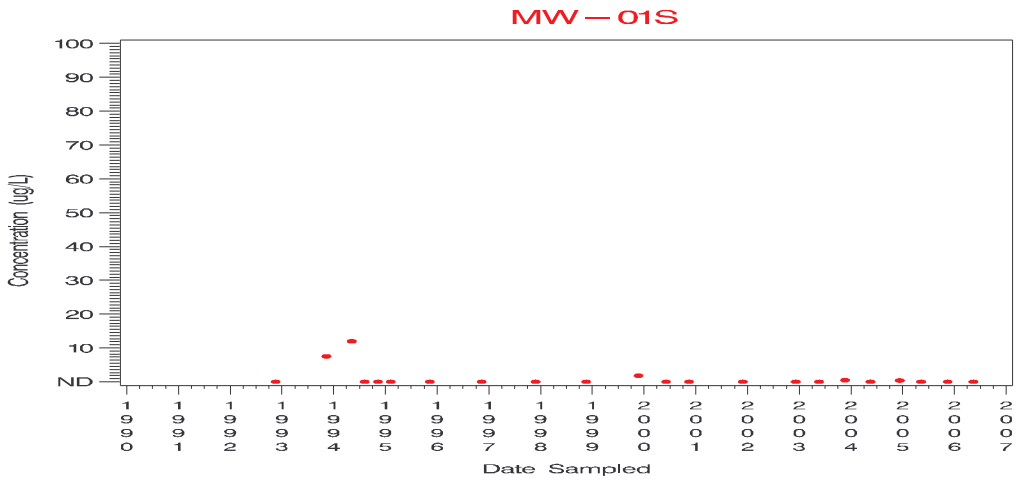
URS Corporation

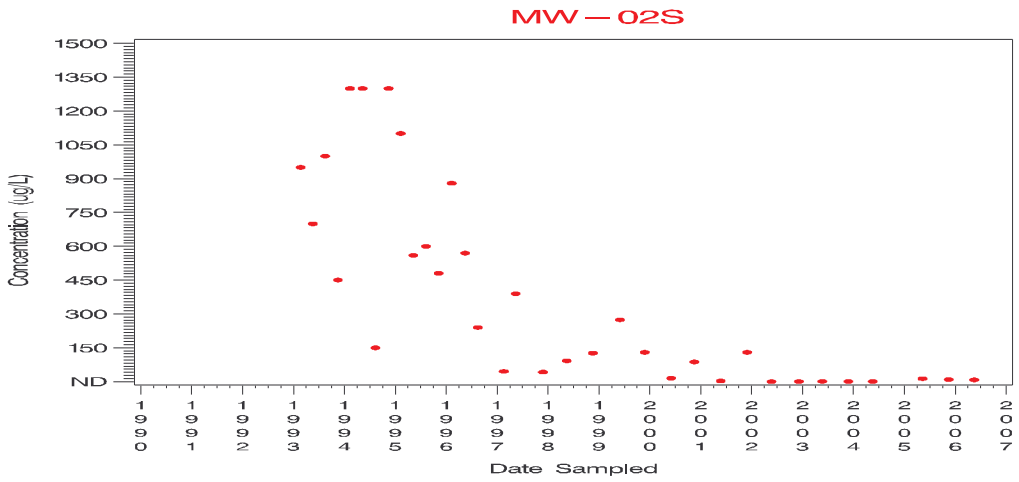
BENZENE DISTRIBUTION – AQUIFER I
(SECOND QUARTER 2006)

Proj. No.:	29869533	Date:	JUNE 2006
Project:	CHEVRON PCPL (Fillmore, Ca)	CAD ID.:	---
Drawn by: JV	Checked by: BP	Figure:	5

P:\00 – CHEVRON FILLMORE\29869533 PCPL Superfund Site\FINAL (Read only)\3119mk Five Year Review\06 Q2 – benzene contour.dwg

Attachment B





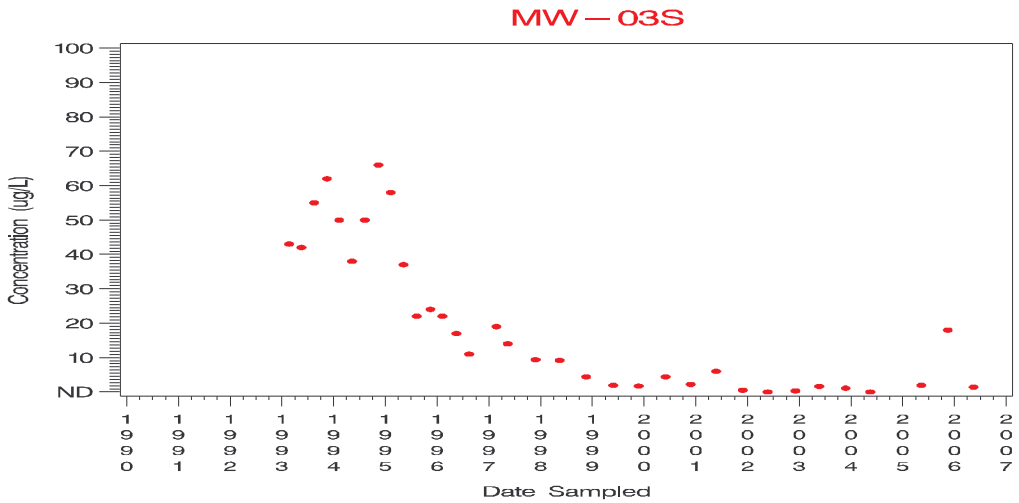
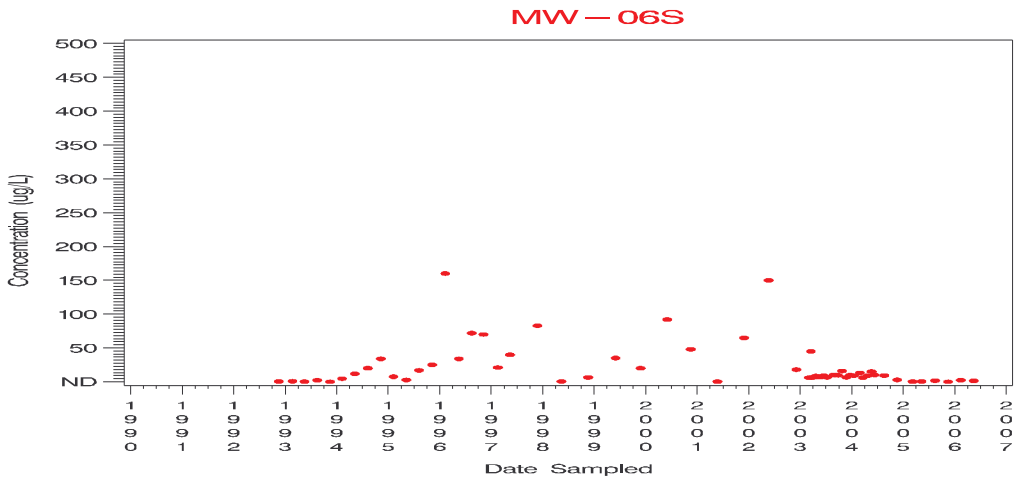
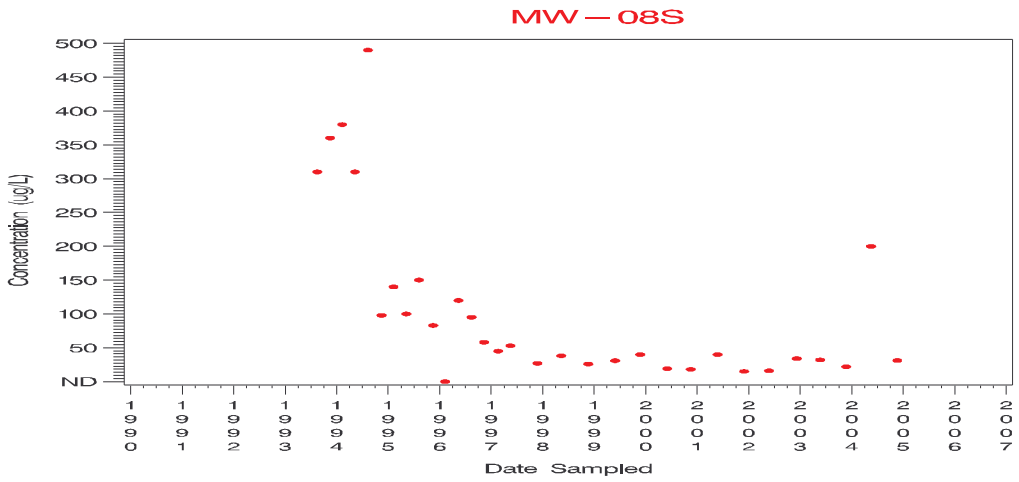


Figure 6a. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





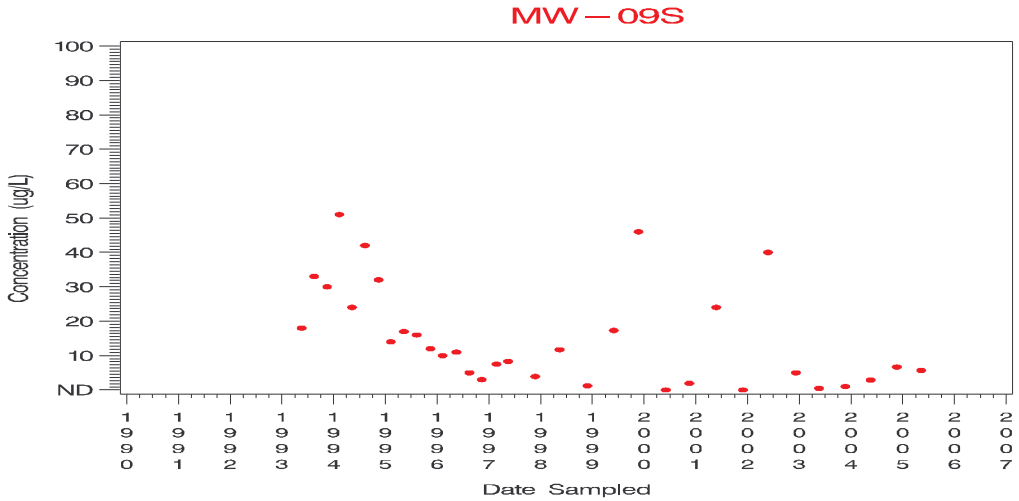
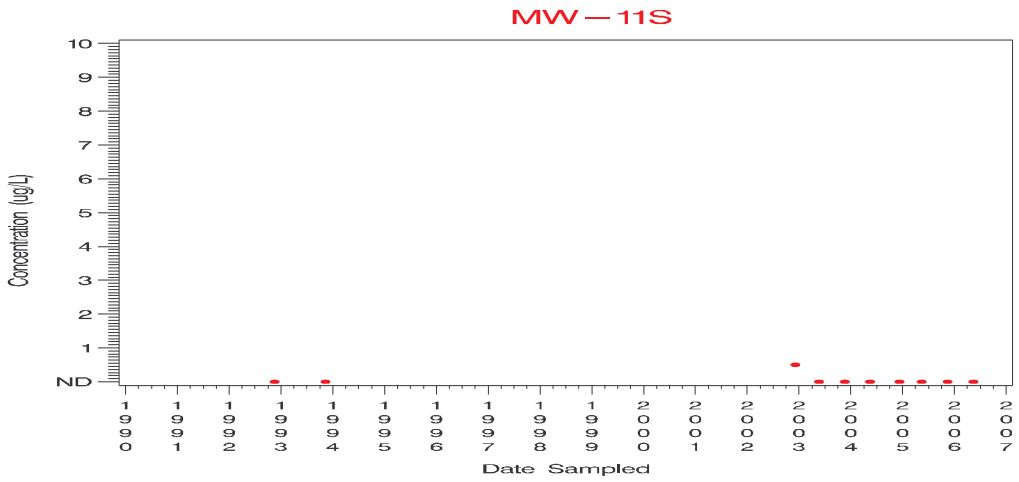
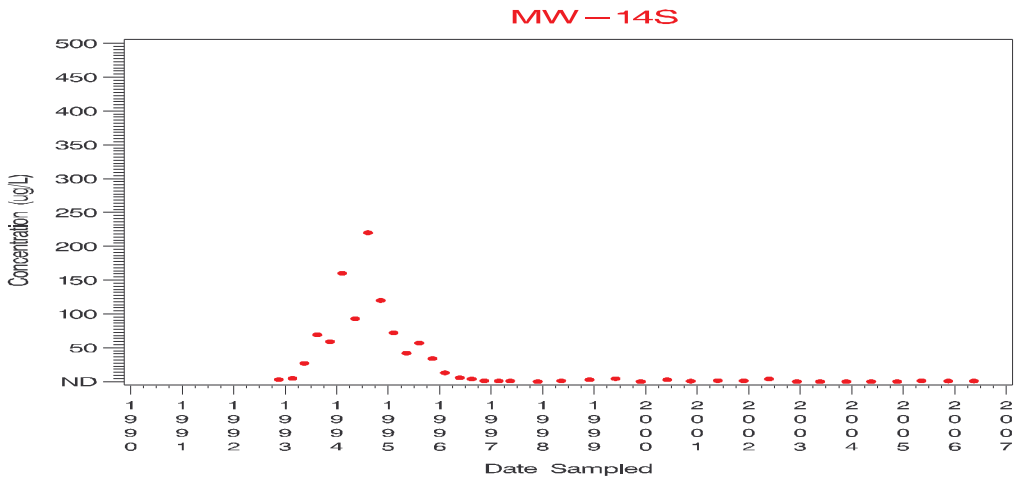


Figure 6b. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





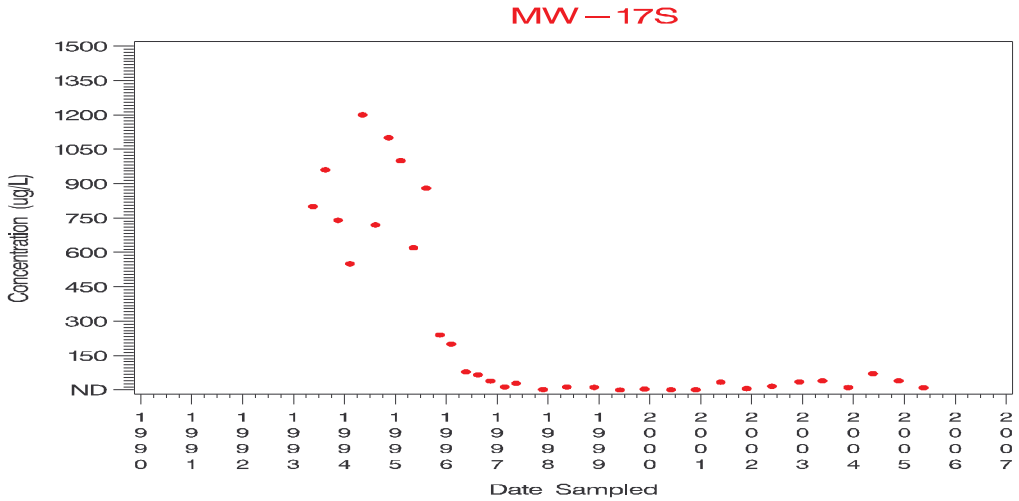
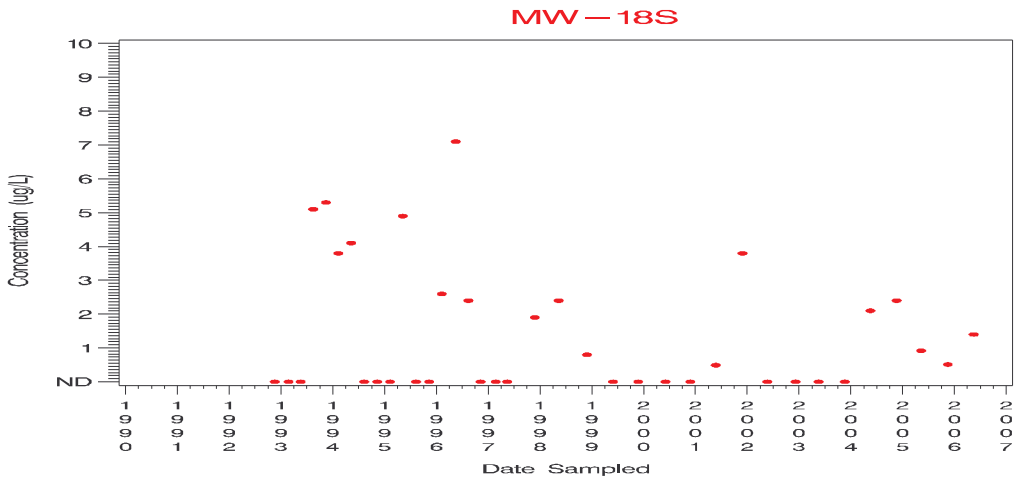
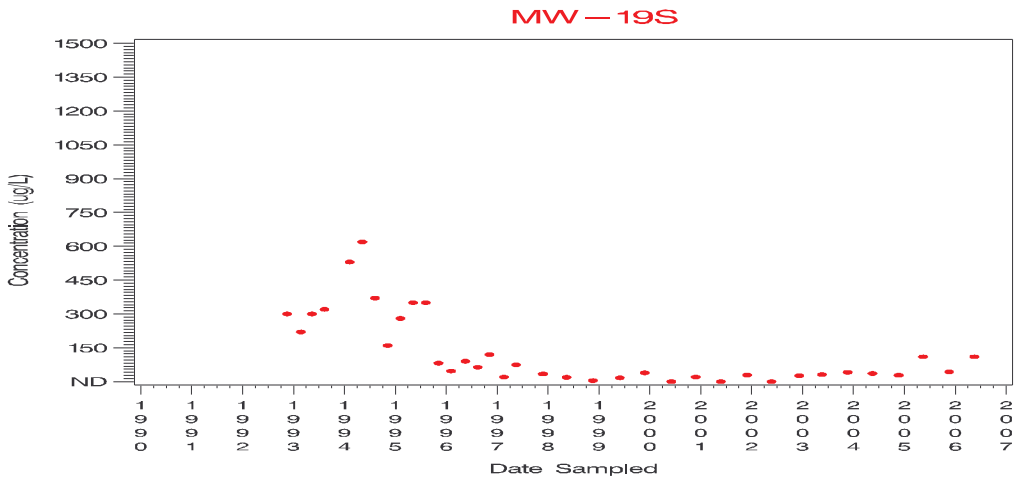


Figure 6c. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





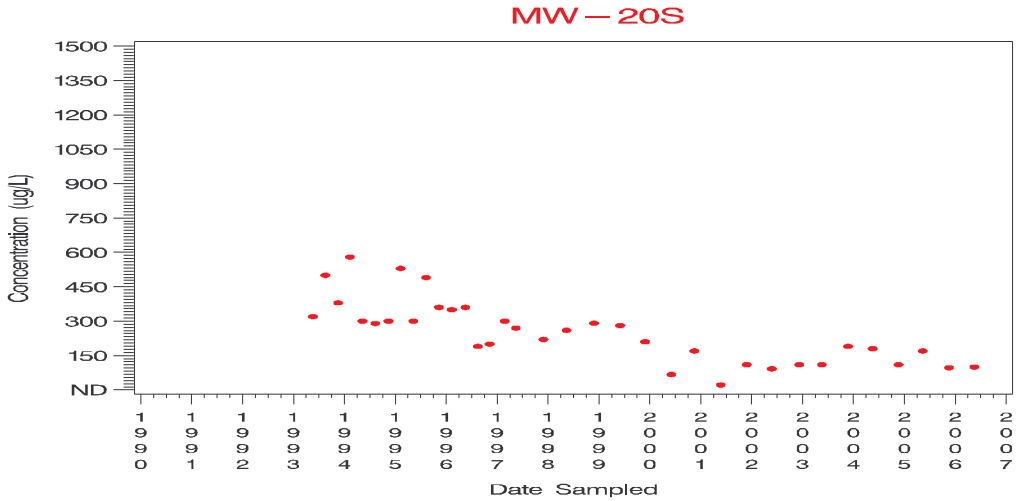
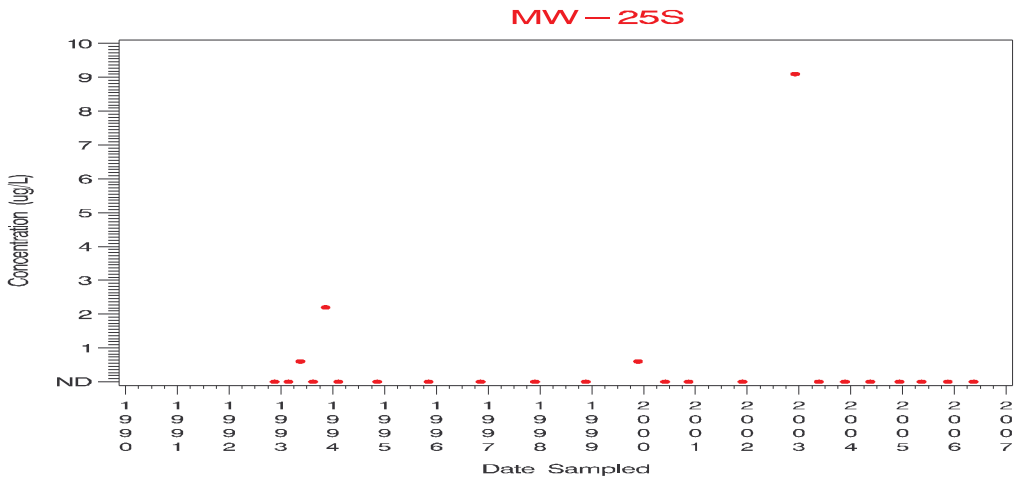
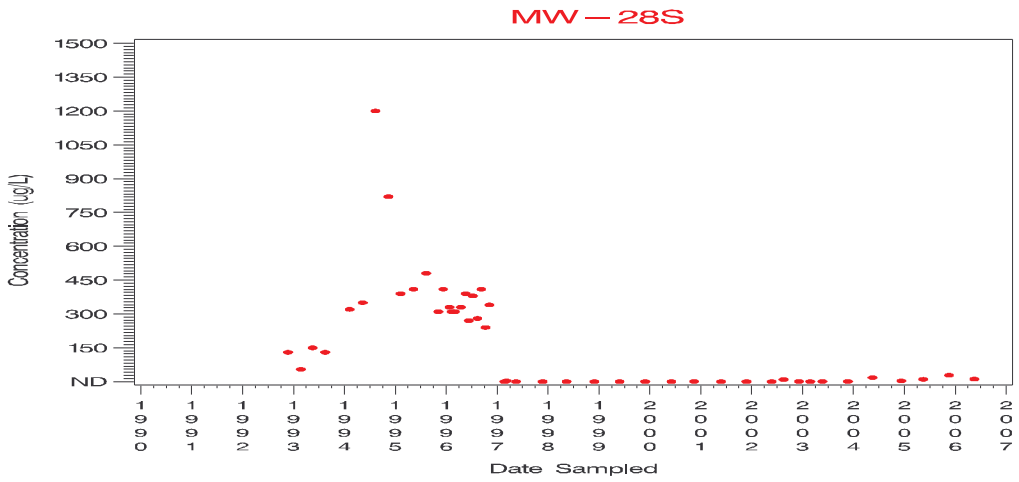


Figure 6d. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





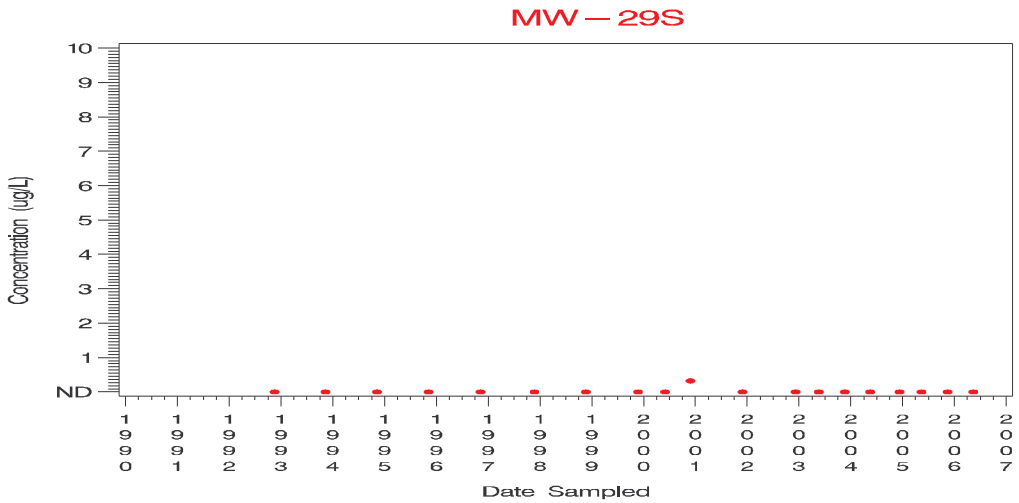
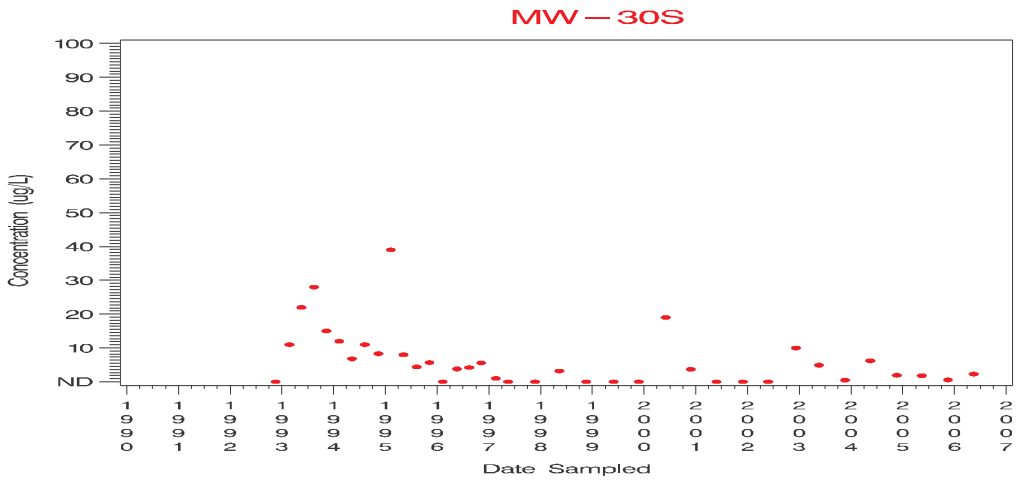
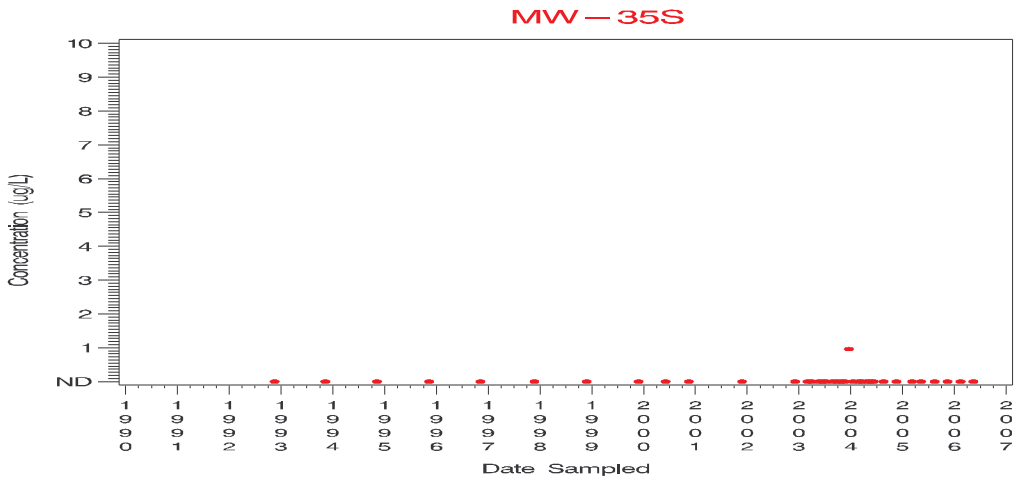


Figure 6e. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





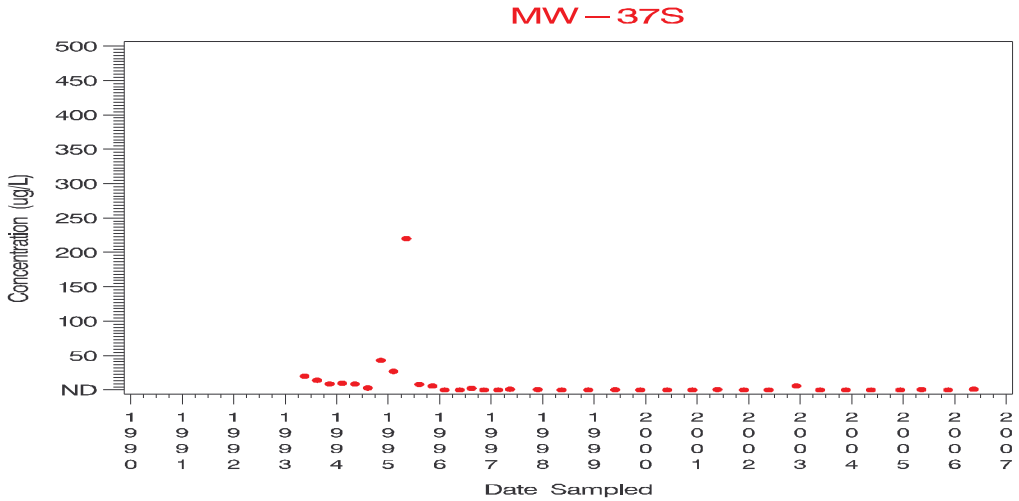
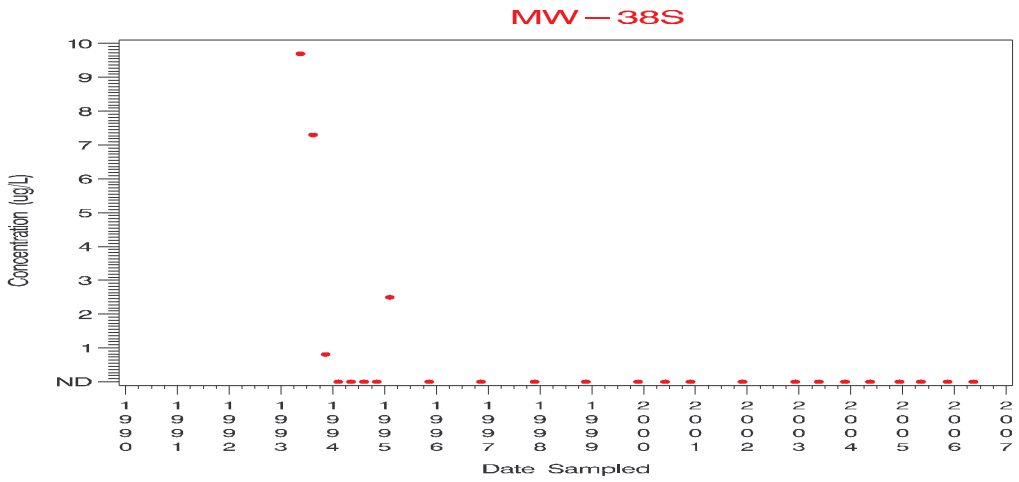
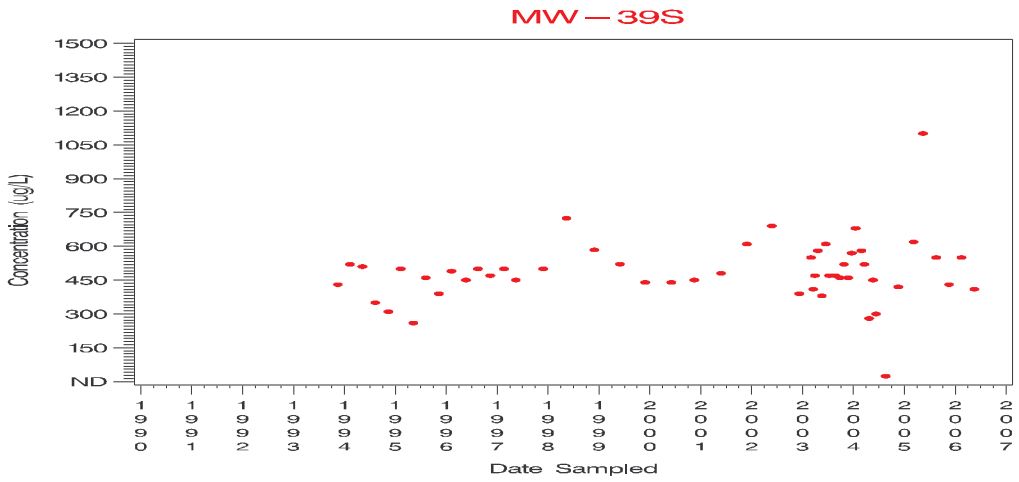


Figure 6f. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





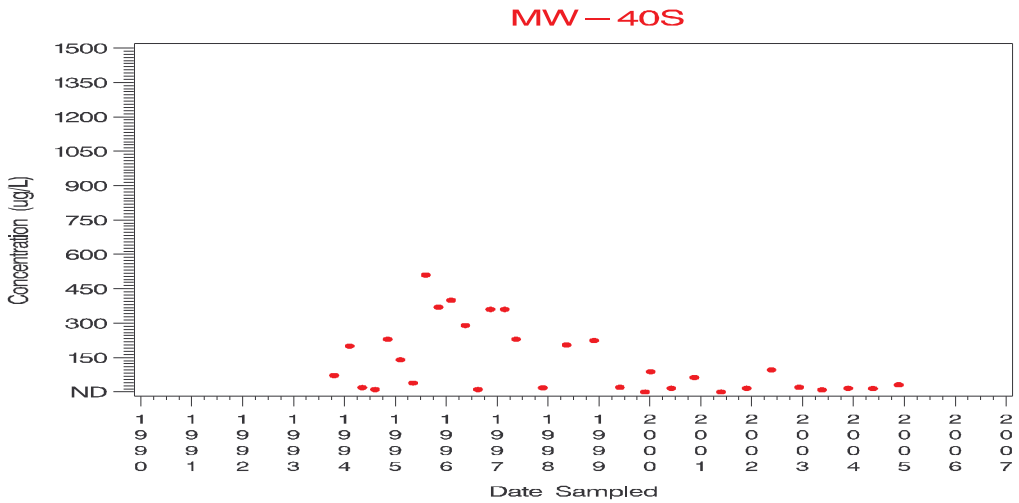
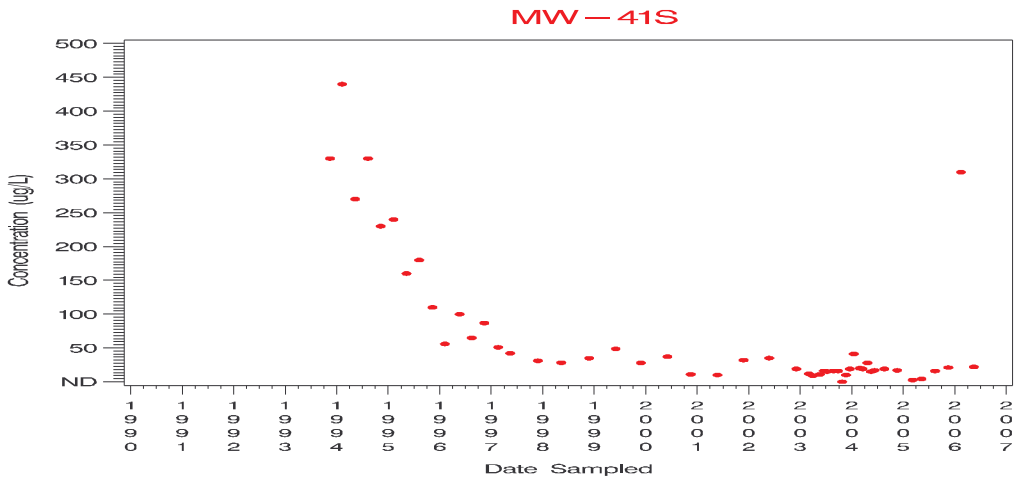
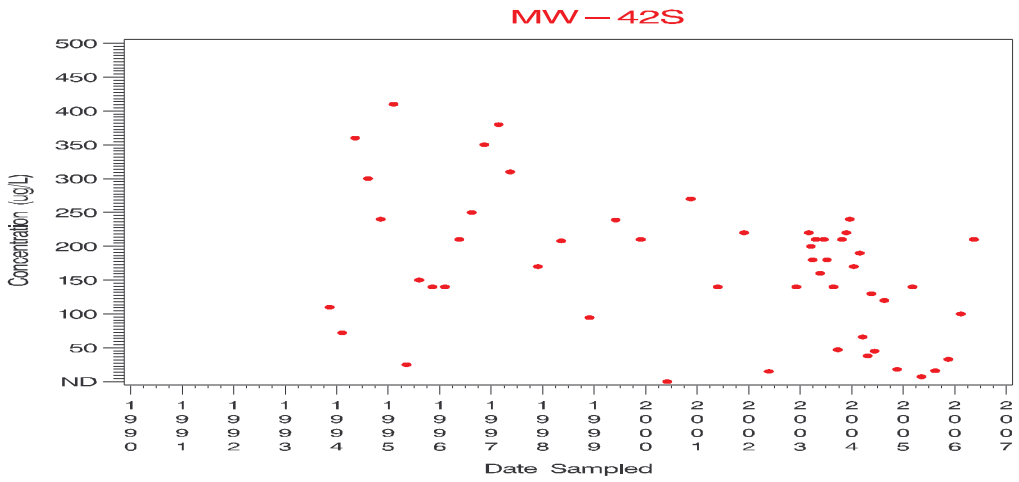


Figure 6g. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





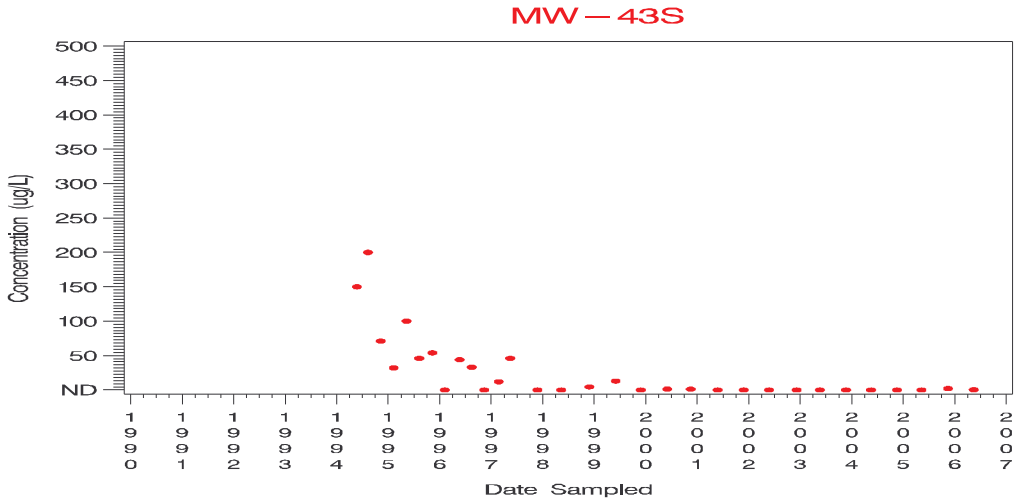
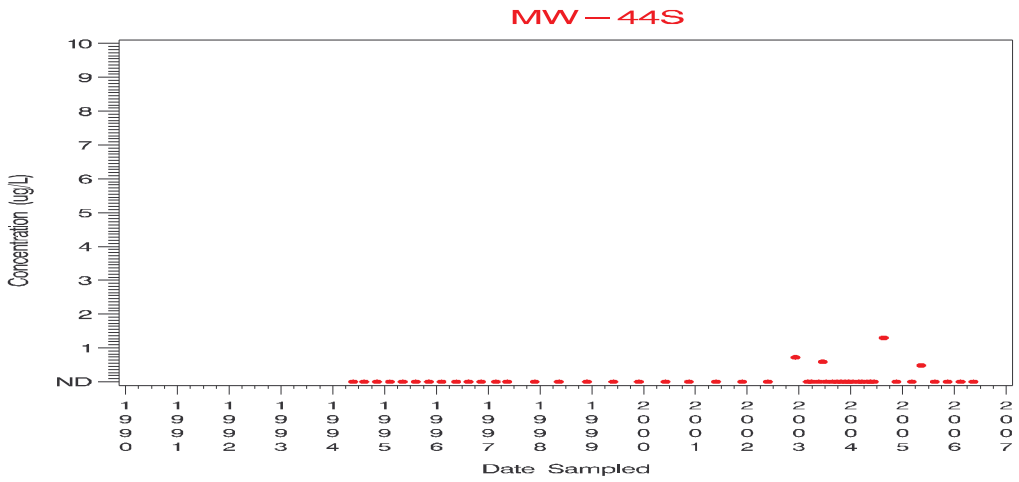
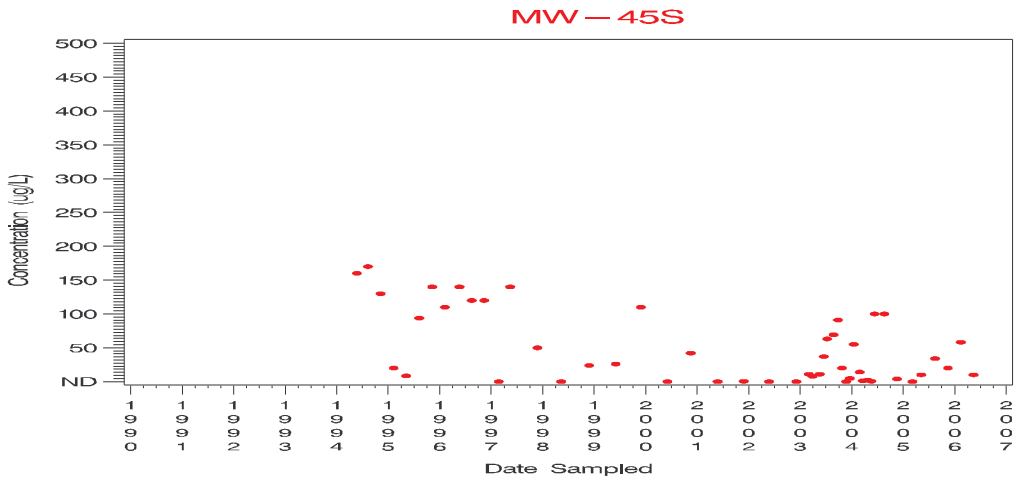


Figure 6h. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





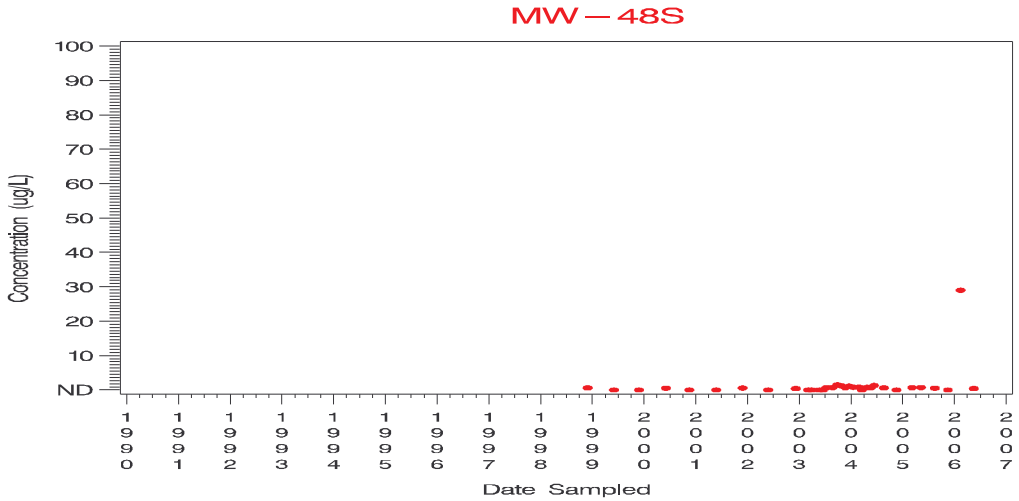
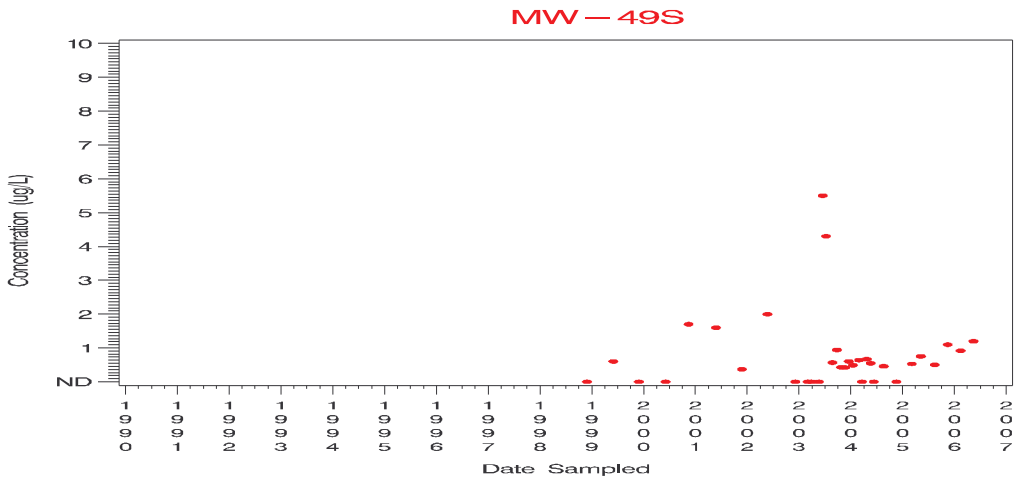
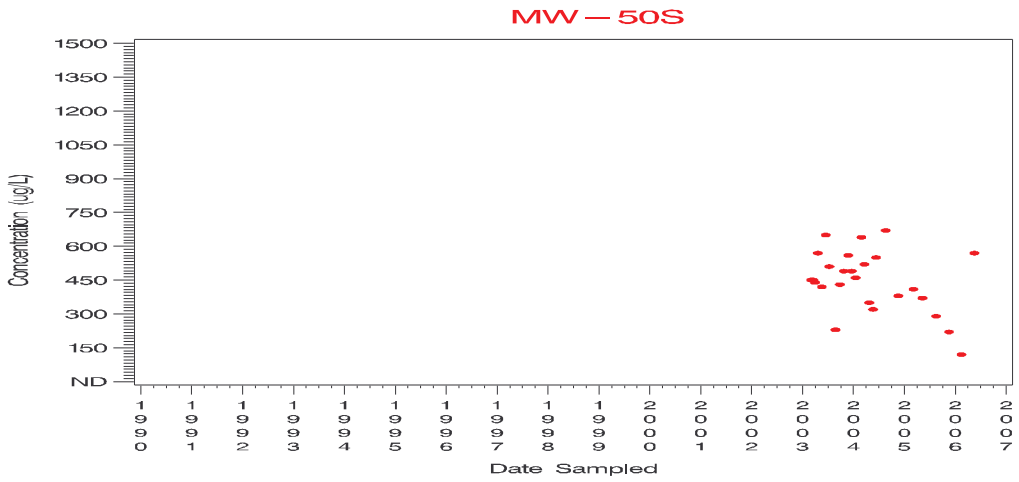


Figure 6i. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





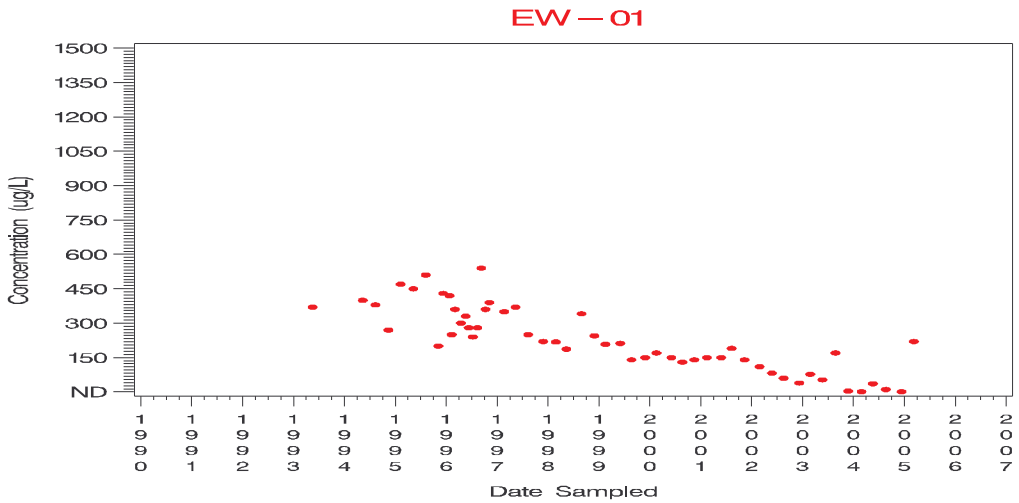
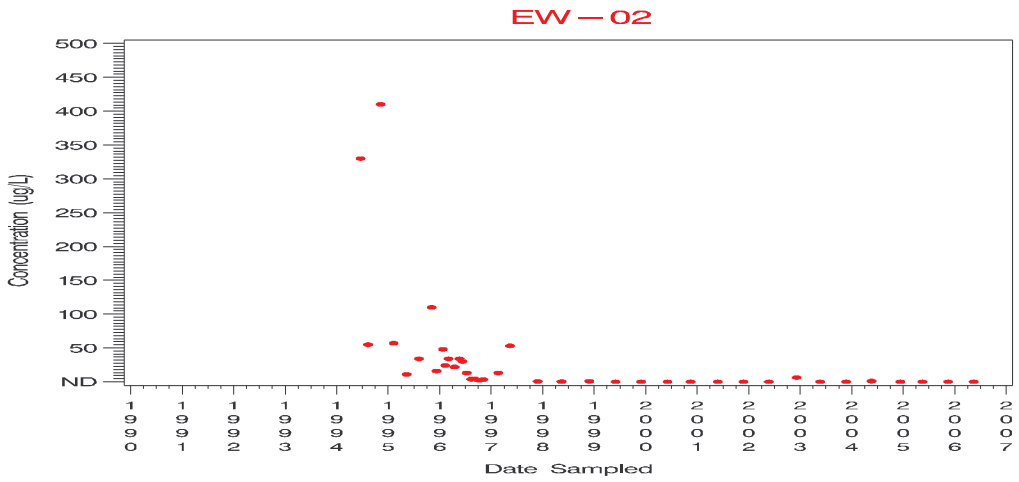
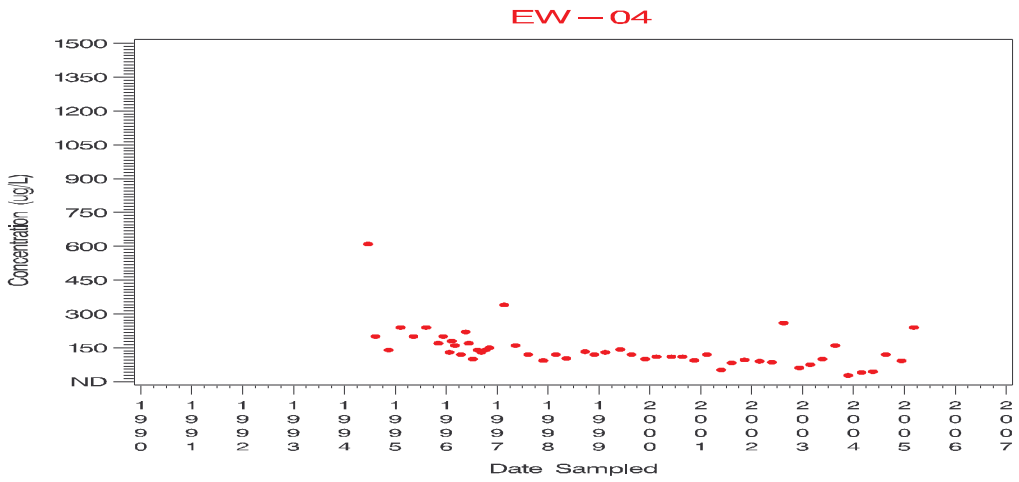


Figure 6j. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B





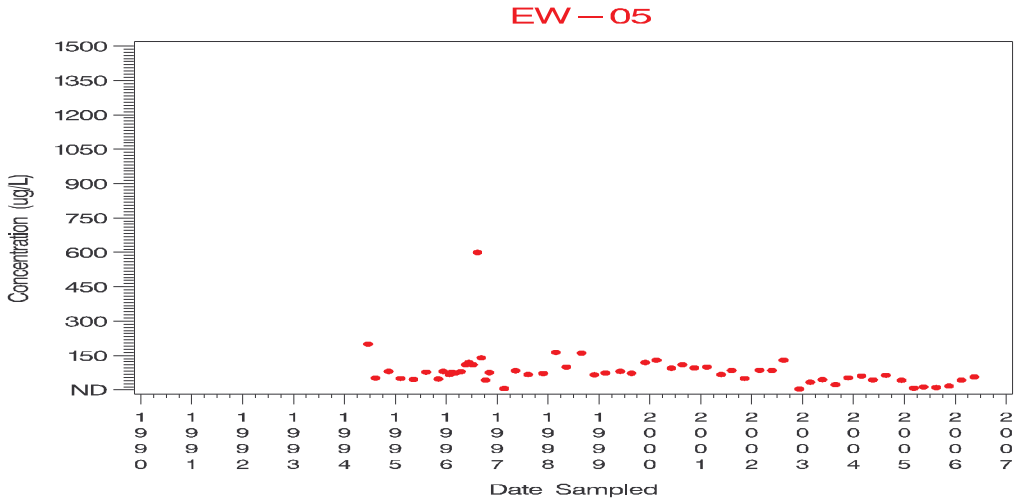


Figure 6k. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B

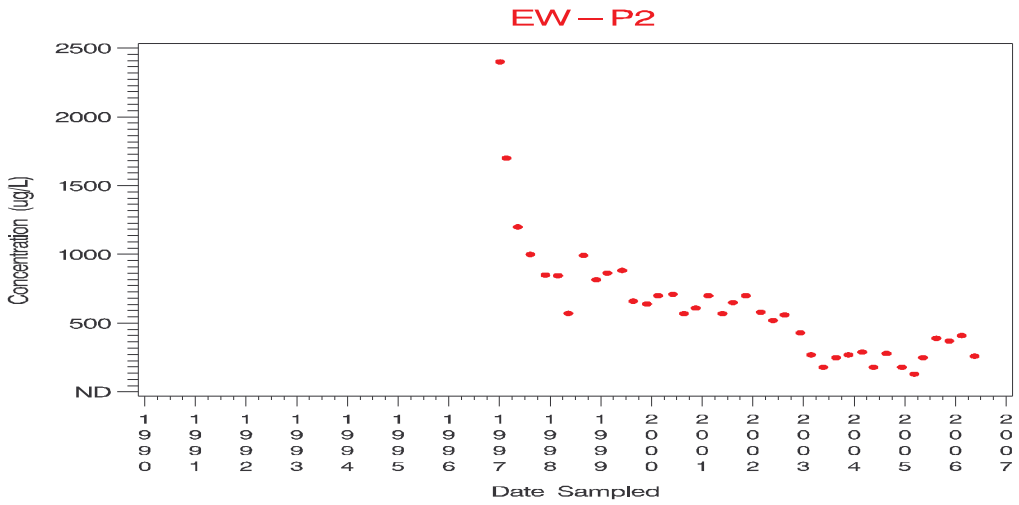


Figure 6l. Historical Benzene Results
for Fillmore Pacific Coast Pipeline Site

Attachment B

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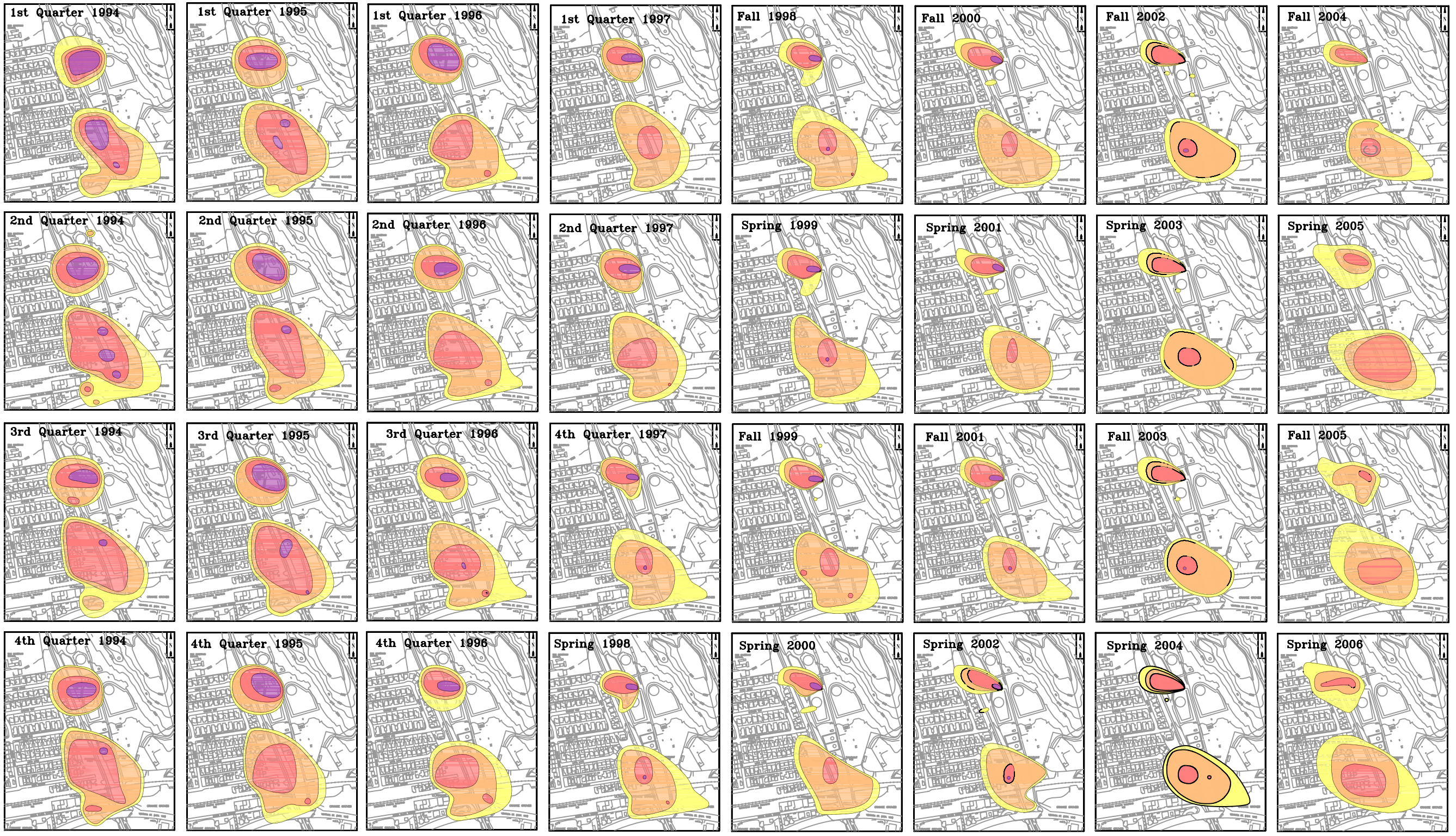


* Computer-assisted contouring replaced hand-drawn contours beginning in Spring 2005. Although the low-level (yellow) contour appears to have changed, actual well concentrations have remained consistent (see Figure 6).

FIGURE 7

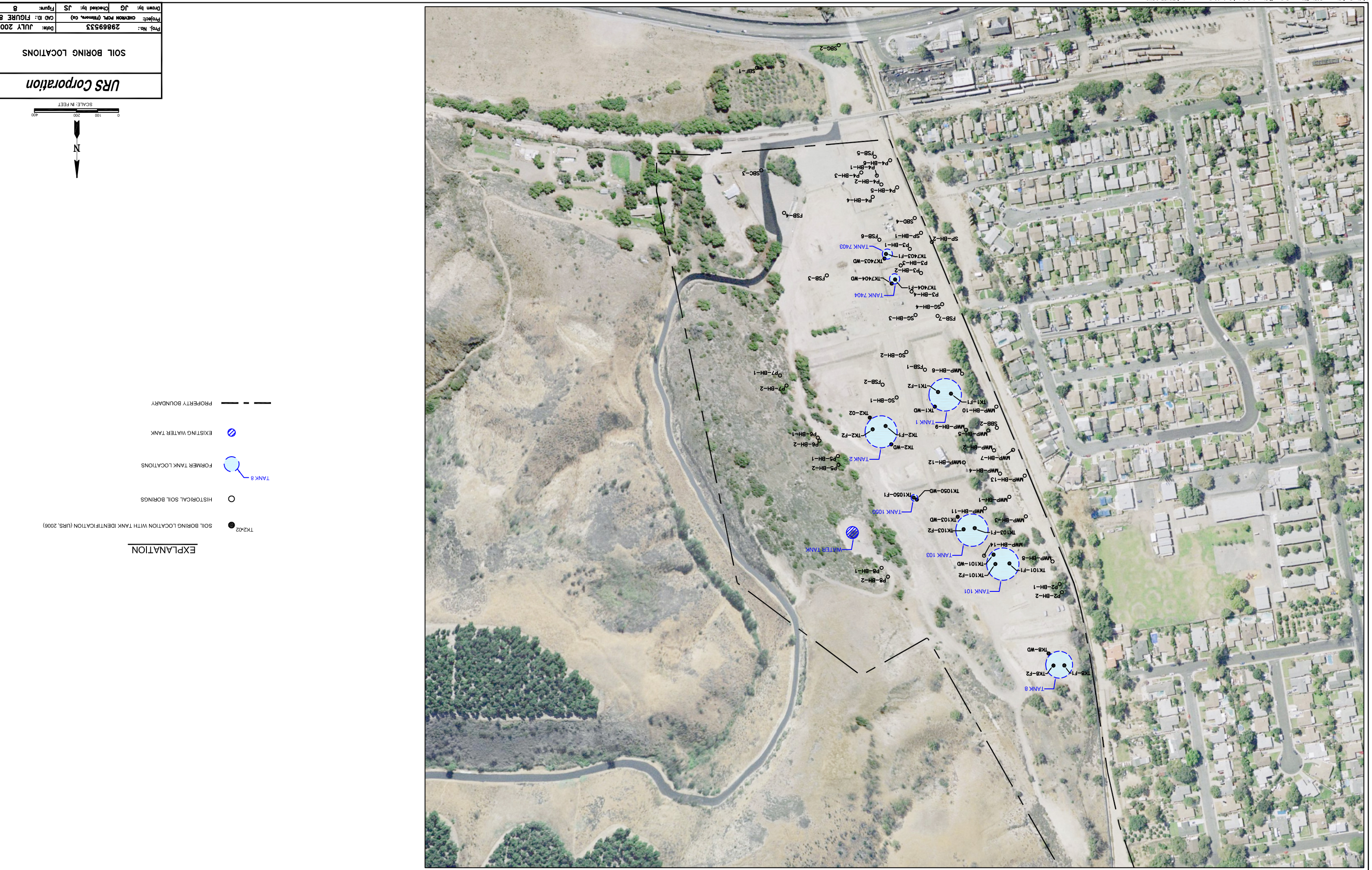
BENZENE IN GROUND WATER 1994 TO 2006

PACIFIC COAST PIPELINE SUPERFUND SITE
FILLMORE, CALIFORNIA

PREPARED FOR

CHEVRON

Attachment B



SCALE: IN FEET

0 100 200 400

N

URS Corporation

SOIL BORING LOCATIONS

Proj. No.: 28869533	Date: JULY 2006
Project: CHEVRON PCPL (Fillmore, ca)	CAD ID: FIGURE 8
Drawn by: JG	Checked by: JS	Figure: 8

PROPERTY BOUNDARY

EXISTING WATER TANK

FORMER TANK LOCATIONS

TANK 8

HISTORICAL SOIL BORINGS

SOIL BORING LOCATION WITH TANK IDENTIFICATION (URS, 2006)

TK2-02

EXPLANATION

L:\Gis_Proj\Chevron PCPL (Fillmore Refinery)\Phase1 Soil bh\8-9-06 five year review\FIGURE 8.DWG

Attachment B
Tables

Table B-1. Soil Contaminants, 1986

(Source: Table 2 in the *First Five-Year Review*)

Compounds	Maximum Concentration (ppm)
Metals	
Arsenic	19.0
Barium	140.0
Cadmium	11.0
Chromium	120.0
Lead	3700.0
Mercury	ND
Selenium	1.2
Silver	ND
Benzene	9.3
Toluene	16.0
Ethylbenzene	10.0
Alcohols*	200
Ketones*	100
Aliphatic and Alicyclic Hydrocarbons*	450
Aromatic Hydrocarbons*	140
Alkene and Alkyne Hydrocarbons*	120
*Individual compounds combined and reported in their major hydrocarbon groups	

Table B-2. Primary VOCs in Groundwater

(Source: Table 3 in the First Five-Year Review)

Contaminant	Maximum Concentration (ppb)	Cleanup Standard (ppb)
Benzene	720	1
1,2-Dichloroethane	9	0.5
Ethylbenzene	150	680
Methylene Chloride	56	5
Toluene	110	100

Table B-3. Current Groundwater Monitoring Schedule

Well	First Quarter	Second Quarter		Third Quarter	Fourth Quarter		
	Quarterly Parameters	Quarterly Parameters	Semi-annual Parameters	Quarterly Parameters	Quarterly Parameters	Semi-annual Parameters	Annual Parameters
MW-1S		☑	☑		☑	☑	
MW-2S		☑	☑		☑	☑	
MW-3S		☑	☑		☑	☑	
MW-6S	☑	☑	☑	☑	☑	☑	☑
MW-8S		☑	☑		☑	☑	
MW-9S		☑	☑		☑	☑	
MW-11S		☑	☑		☑	☑	
MW-14S		☑	☑		☑	☑	
MW-17S		☑	☑		☑	☑	
MW-18S		☑	☑		☑	☑	
MW-19S		☑	☑		☑	☑	
MW-20S		☑	☑		☑	☑	
MW-25S		☑	☑		☑	☑	
MW-28S		☑	☑		☑	☑	
MW-29S		☑	☑		☑	☑	
MW-30S		☑	☑		☑	☑	
MW-35S	☑	☑	☑	☑	☑	☑	
MW-37S		☑	☑		☑	☑	
MW-38S		☑	☑		☑	☑	
MW-39S	☑	☑	☑	☑	☑	☑	☑
MW-40S		☑	☑		☑	☑	
MW-41S	☑	☑	☑	☑	☑	☑	
MW-42S	☑	☑	☑	☑	☑	☑	☑
MW-43S		☑	☑		☑	☑	
MW-44S	☑	☑	☑	☑	☑	☑	
MW-45S	☑	☑	☑	☑	☑	☑	☑
MW-48S	☑	☑	☑	☑	☑	☑	
MW-49S	☑	☑	☑	☑	☑	☑	
MW-50S	☑	☑	☑	☑	☑	☑	☑
EW-P2	☑	☑	☑	☑	☑	☑	
EW-1	☑	☑	☑	☑	☑	☑	
EW-2		☑	☑		☑	☑	
EW-4	☑	☑	☑	☑	☑	☑	
EW-5	☑	☑	☑	☑	☑	☑	

Quarterly Parameters include: total petroleum hydrocarbons as gasoline (TPHG) by EPA Method 8015M; benzene, toluene, ethyl benzene, and xylenes (BTEX) by EPA Method 8021B; dissolved oxygen (DO), oxidation reduction potential (ORP), pH, conductivity, and temperature by field measurement.

Semi-annual Parameters include: sulfate by EPA Method 300.

Annual Parameters include: BTEX, methylene chloride, 1,2-dichloroethane (1,2-DCA) by EPA Method 8260B.

Table B-4. Summary of Historical Contaminant Removal from GWTS Operation

(Source: Table 2-2 from the *Fourth Quarter 2002 Quarterly Status Report*)

Year	Quarter	Month	Extraction Wells Connected	Volume of Water Treated (gallons)	Average Concentrations (ug/l)		Mass Removal (pounds)	
					TPHG	Benzene	TPHG	Benzene
1993	4th	Dec	EW-1, MW-19S, MW-28S	891,190	3,700	340	27	3
1994	1st	Jan	EW-1, MW-19S, MW-28S	1,671,880	3,900	370	54	5
		Feb	EW-1, MW-19S, MW-28S	1,067,190	4,600	440	41	4
		Mar	System off due to upset	0	-	-	0	0
	2nd	Apr	"	0	-	-	0	0
		May	"	0	-	-	0	0
		Jun	"	0	-	-	0	0
	3rd	Jul	EW-2, EW-4, EW-5	106,140	1,300	130	1	0.1
		Aug	EW-2, EW-4, EW-5	439,280	1,700	140	6	0.5
		Sept	EW-2, EW-4, EW-5	202,350	2,000	100	3	0.2
	4th	Oct	EW-4	71,070	3,700	140	2	0.1
		Nov	EW-4, EW-5, MW-28S	678,760	2,500	120	14	0.7
		Dec	EW-4, EW-5, MW-28S	1,751,630	2,400	225	35	3.3
1995	1st	Jan	EW-4, EW-5, MW-28S	1,877,660	2,900	210	45	3.3
		Feb	EW-4, EW-5, MW-28S	1,955,050	3,300	240	54	3.9
		Mar	EW-4, EW-5, MW-28S	1,426,650	3,400	290	40	3.4
	2nd	Apr	EW-4, EW-5, MW-28S	1,902,540	3,400	280	54	4.4
		May	EW-4, EW-5, MW-28S	2,131,960	3,100	300	55	5.3
		Jun	EW-4, EW-5, MW-28S	1,917,190	3,100	230	49	3.7
	3rd	Jul	EW-4, EW-5, MW-28S	1,734,940	2,400	220	35	3.2
		Aug	EW-4, EW-5, MW-28S	2,155,060	2,800	260	50	4.7
		Sep	EW-4, EW-5, MW-28S	1,573,990	3,100	270	41	3.5
	4th	Oct	EW-4, EW-5, MW-28S	2,187,940	3,450	235	63	4.3
		Nov	EW-1, EW-2, EW-4, EW-5, MW-28S	3,833,160	4,150	285	132	9.1
		Dec	EW-1, EW-2, EW-4, EW-5, MW-28S	3,720,060	4,500	250	139	7.7
1996	1st	Jan	EW-1, EW-2, EW-4, EW-5, MW-28S	1,702,140	3,000	190	42	2.7
		Feb	EW-1, EW-2, EW-4, EW-5, MW-28S	3,081,240	3,100	210	79	5.4
		Mar	EW-1, EW-2, EW-4, EW-5, MW-28S	3,313,380	3,100	235	85	6.5
	2nd	Apr	EW-1, EW-2, EW-4, EW-5, MW-28S	2,570,670	3,000	190	64	4.1
		May	EW-1, EW-2, EW-4, EW-5, MW-28S	2,648,050	4,300	260	95	5.7
		Jun	EW-1, EW-2, EW-4, EW-5, MW-28S	2,803,882	3,600	200	84	4.7
	3rd	Jul	EW-1, EW-2, EW-4, EW-5, MW-28S	1,961,608	3,000	165	49	2.7
		Aug	EW-1, EW-2, EW-4, EW-5, MW-28S	2,297,569	3,300	210	63	4.0
		Sep	EW-1, EW-2, EW-4, EW-5, MW-28S, P2	2,423,731	3,800	210	77	4.2
	4th	Oct	EW-1, EW-2, EW-4, EW-5, MW-28S	2,730,890	2,600	175	59	4.0
		Nov	EW-1, EW-2, EW-4, EW-5, MW-28S	2,567,960	4,000	245	85	5.2
		Dec	EW-1, EW-4, EW-5, MW-28S	1,268,130	4,500	180	47	1.9

Table B-4 (Continued)

Year	Quarter	Month	Extraction Wells Connected	Volume of Water Treated (gallons)	Average Concentrations (ug/l)		Mass Removal (pounds)	
					TPHG	Benzene	TPHG	Benzene
1997	1st	Jan	MW-28S, EW-P2, EW-1, EW-4, EW-5	1,527,870	3,800	225	48	2.9
		Feb	EW-P2, EW-1, EW-4, EW-5	1,492,250	5,700	525	71	6.5
		Mar	EW-P2, EW-1, EW-4, EW-5	1,037,240	6,900	420	59	3.6
	2nd	Apr	EW-P2, EW-1, EW-4, EW-5	1,374,469	5,700	415	65	4.7
		May	EW-P2, EW-1, EW-4, EW-5	1,741,440	5,100	345	74	5.0
		Jun	EW-P2, EW-1, EW-4, EW-5	1,901,813	3,800	270	60	4.3
	3rd	Jul	EW-P2, EW-1, EW-4, EW-5	1,542,778	4,300	250	55	3.2
		Aug	EW-P2, EW-1, EW-4, EW-5	1,245,910	6,100	380	63	3.9
		Sep	EW-P2, EW-1, EW-4, EW-5	822,125	7,200	460	49	3.1
	4th	Oct	EW-P2, EW-1, EW-4, EW-5	1,621,555	5,100	260	69	3.5
		Nov	EW-P2, EW-1, EW-4, EW-5	1,364,290	5,100	260	58	2.9
		Dec	EW-P2, EW-1, EW-4, EW-5	1,430,620	5,400	250	64	3.0
1998	1st	Jan	EW-P2, EW-1, EW-4, EW-5	1,483,470	5,500	290	68	3.6
		Feb	EW-P2, EW-1, EW-4, EW-5	971,490	4,800	270	39	2.2
		Mar	EW-P2, EW-1, EW-4, EW-5	1,464,850	3,500	260	43	3.2
	2nd	Apr	EW-P2, EW-1, EW-4, EW-5	1,324,170	4,400	280	48	3.1
		May	EW-P2, EW-1, EW-4, EW-5	1,319,570	5,800	310	64	3.4
		Jun	EW-P2, EW-1, EW-4, EW-5	1,412,090	3,700	280	43	3.3
	3rd	Jul	EW-P2, EW-1, EW-4, EW-5	857,260	6,300	432	45	3.1
		Aug	EW-P2, EW-1, EW-5	583,890	7,000	487	34	2.4
		Sep	EW-P2, EW-1, EW-4, EW-5	644,940	8,270	726	44	3.9
	4th	Oct	EW-P2, EW-1, EW-4, EW-5	1,300,670	4,000	186	43	2.0
		Nov	EW-P2, EW-1, EW-4, EW-5	1,555,570	4,700	304	61	3.9
		Dec	EW-P2, EW-1, EW-4, EW-5	1,131,040	5,170	193	49	1.8
1999	1st	Jan	EW-P2, EW-1, EW-4, EW-5	1,514,450	4,050	182	51	2.3
		Feb	EW-P2, EW-1, EW-4, EW-5	1,381,150	4,080	269	47	3.1
		Mar	EW-P2, EW-1, EW-4, EW-5	1,599,590	3,225	211	43	2.8
	2nd	Apr	EW-P2, EW-1, EW-4, EW-5	1,468,610	3,745	250	46	3.1
		May	EW-P2, EW-1, EW-4, EW-5	1,491,250	3,760	349	47	4.3
		Jun	EW-P2, EW-1, EW-4, EW-5	1,425,650	3,610	266	43	3.2
	3rd	Jul	EW-P2, EW-1, EW-4, EW-5	1,252,770	3,850	280	40	2.9
		Aug	EW-P2, EW-1, EW-4, EW-5	1,238,720	4,000	235	41	2.4
		Sep	EW-P2, EW-1, EW-4, EW-5	926,510	4,135	230	32	1.8
	4th	Oct	EW-P2, EW-1, EW-4, EW-5	1,272,970	4,515	240	48	2.5
		Nov	EW-P2, EW-1, EW-4, EW-5	616,180	5,200	230	27	1.2
		Dec	EW-P2, EW-1, EW-4, EW-5	896,890	5,600	240	42	1.8

Table B-4 (Continued)

Year	Quarter	Month	Extraction Wells Connected	Volume of Water Treated (gallons)	Average Concentrations (ug/l)		Mass Removal (pounds)	
					TPHG	Benzene	TPHG	Benzene
2000	1st	Jan	EW-P2, EW-1, EW-4, EW-5	1,381,240	4,870	253	56	2.9
		Feb	EW-P2, EW-1, EW-4, EW-5	921,480	3,800	220	29	1.7
		Mar	EW-P2, EW-1, EW-4, EW-5	1,183,920	3,825	170	38	1.7
	2nd	Apr	EW-P2, EW-1, EW-4, EW-5	1,171,730	4,700	250	46	2.4
		May	EW-P2, EW-1, EW-4, EW-5	1,051,670	4,290	210	37	1.8
		Jun	EW-P2, EW-1, EW-4, EW-5, tank 1	1,550,060	3,850	200	50	2.6
	3rd	Jul	EW-P2, EW-1, EW-4, EW-5	998,210	5,300	250	44	2.1
		Aug	EW-P2, EW-1, EW-4, EW-5, tank 1	750,050	5,103	167	32	1.0
		Sep	EW-P2, EW-1, EW-4, EW-5	1,004,170	4,500	200	38	1.7
	4th	Oct	EW-P2, EW-1, EW-4, EW-5	1,184,020	4,900	235	48	2.3
		Nov	EW-P2, EW-1, EW-4, EW-5	1,010,580	4,500	245	38	2.1
		Dec	EW-P2, EW-1, EW-4	927,570	4,650	230	36	1.8
2001	1st	Jan	EW-P2, EW-1, EW-4, EW-5	949,500	5,005	265	39	2.1
		Feb	EW-P2, EW-1, EW-4, EW-5	1,042,010	4,850	280	42	2.4
		Mar	EW-P2, EW-1, EW-4, EW-5	1,176,040	4,290	225	42	2.2
	2nd	Apr	EW-P2, EW-1, EW-4, EW-5	979,370	4,800	230	39	1.9
		May	EW-P2, EW-1, EW-4, EW-5	1,114,750	5,600	215	52	2.0
		Jun	EW-P2, EW-1, EW-4, EW-5	1,103,590	5,650	245	52	2.2
	3rd	Jul	EW-P2, EW-1, EW-4, EW-5	1,219,720	5,950	285	60	2.9
		Aug	EW-P2, EW-1, EW-4, EW-5	987,270	5,750	240	47	2.0
		Sep	EW-P2, EW-1, EW-4, EW-5	827,960	3,700	290	25	2.0
	4th	Oct	EW-P2, EW-1, EW-4, EW-5	293,700	14,000	590	34	1.4
		Nov	EW-P2, EW-1, EW-4, EW-5	1,013,040	6,000	270	51	2.3
		Dec	EW-P2, EW-1, EW-4, EW-5	856,545	6,200	250	44	1.8
2002	1st	Jan	EW-P2, EW-1, EW-4, EW-5	918,210	10,300	460	79	3.5
		Feb	EW-P2, EW-1, EW-4, EW-5	1,228,530	4,650	215	47	2.2
		Mar	EW-P2, EW-1, EW-4, EW-5	1,334,310	4,650	185	52	2.1
	2nd	Apr	EW-P2, EW-1, EW-4, EW-5	581,450	4,200	185	20	0.9
		May	EW-P2, EW-1, EW-4, EW-5	1,187,640	3,700	200	37	2.0
		Jun	EW-P2, EW-1, EW-4, EW-5	1,080,000	3,700	200	33	1.8
	3rd	Jul	EW-P2, EW-1, EW-4, EW-5	81,780	4,200	220	3	0.1
		Aug	EW-P2, EW-1, EW-4, EW-5	60,610	4,800	310	2	0.2
		Sep	EW-P2, EW-1, EW-4, EW-5	105,705	5,300	250	5	0.2
	4th	Oct	EW-P2, EW-1, EW-4, EW-5	496,610	2,200	120	9	0.5
	GWTS Discontinued October 25, 2002							
Total				**140,734,290**	-	-	**4,902**	**301.2**

Table B-5. Summary of Historical Contaminant Removal from Soil Vapor Extraction

(Source: Table 2-3 in the Fourth Quarter 2002 Quarterly Status Report)

Vapor Extraction Well	Extraction Period	Estimated Pounds Removed	
		Total Hydrocarbons	Benzene
PEW-2	June 1994 – February 1995	95,000	40
PEW-1	March 1995 – January 1997	612,000	911
EW-4	May 1996 – November 1996	54,500	6
EW-P2	February 1997 – April 2002	625,729	1,234
Total	June 1994 – April 2002	1,387,229	2,191

Table B-6. Historical Analytical Results for Benzene Plume Areas

	Northern Plume			Southern Plume			
Well	**EW-P2**	**MW-42S**	**MW-49S**	**MW-39S**	**MW-50S**	**MW-19S**	**MW-43S**
	Source Area Well	**Midplume Well**	**NW Downgradient Well**	**Source Area Well**	**Source Area Well**	**Crossgradient/interior Well**	**NW Downgradient Well**
1997 Qt 1	2400	380	-	500	-	20	12
1997 Qt 2	1200	310	-	450	-	74	46
1997 Qt 3	1000	-	-	-	-	-	-
1997 Qt 4	850	170	-	500	-	34	<0.30
1998 Qt 1	845	-	-	-	-	-	-
1998 Qt 2	571	208	-	724	-	19	<0.3
1998 Qt 3	993	-	-	-	-	-	-
1998 Qt 4	893	94.5	<0.5	584	-	4.5	4.5
1999 Qt 1	864	-	-	-	-	-	-
1999 Qt 2	883	239	0.6	521	-	16.8	12.9
1999 Qt 3	660	-	-	-	-	-	-
1999 Qt 4	640	280	<0.3	440	-	39	<0.3
2000 Qt 1	700	-	-	-	-	-	-
2000 Qt 2	710	<0.30	<0.30	440	-	<0.30	1.2
2000 Qt 3	570	-	-	-	-	-	-
2000 Qt 4	610	270	1.7	450	-	20	1.9
2001 Qt 1	700	-	-	-	-	-	-
2001 Qt 2	570	140	1.6	480	-	<0.30	<0.30
2001 Qt 3	650	-	-		-	-	-
2001 Qt 4	700	240	0.37	610	-	29	<0.30
2002 Qt 1	580	-	-	-	-	-	-
2002 Qt 2	520	15	2	690	-	<0.30	<0.30
2002 Qt 3	560	-	-	-	-	-	-
2002 Qt 4	430	200	<0.30	51	510	26	<0.30
2003 Qt 1	270	220	<0.30	550	450	-	-
2003 Qt 2	180	210	5.5	610	650	31	<0.30
2003 Qt 3	250	47	4.3	470	510	-	-
2003 Qt 4	270	240	0.6	570	560	41	<0.30
2004 Qt 1	290	66	0.64	680	640	-	-
2004 Qt 2	180	45	0.67	450	550	36	<0.30
2004 Qt 3	280	120	0.46	24	670	-	-
2004 Qt 4	180	23	<0.30	530	440	28	<0.30
2005 Qt 1	130	140	0.53	620	410	-	-
2005 Qt 2	250	7.2	0.75	470	380	110	<0.30
2005 Qt 3	390	16	0.50	550	290	-	-
2005 Qt 4	370	33	1.1	430	300	43	2.0
2006 Qt 1	410	100	0.92	550	120	-	-
2006 Qt 2	260	210	1.2	410	570	110	0.37

Units are ug/L
Methods included: EPA 8020/8021B, 8240, 8260/8260B

Table B-7. Historical Analytical Results for Benzene at Well EW-P2

Date	Monitoring Period	Analytical Results	
		Benzene in Soil Gas ppmv	Benzene in Groundwater µg/l
February 1997	Well Installed and Extraction began	190	2400 (1997 Qt 1)
May 2001	The end of 1st 5-year review	55	570 (Spring 2001)
April 2002	Pre-SVE Shut Off	7.9	520 (Spring 2002)
November 2002	Last Post-Shutdown Soil Gas Sampling	7.0	430 (Fall 2002)
May 2006	The end of the 2nd five-year review	NA	260 (Spring 2006)

Attachment C

Summary of Analytical Results from
Phase I Soil Investigation,
March 2006

Table C-1. Summary of Analytical Results for Soil Samples Exceeding Industrial Soil PRGs/CAL-modified PRGs
Arsenic, March 2006

Location	Depth	Date	Concentration	MDL/RL	Units	Industrial Soil PRG (mg/kg)	Over ISP?	CAL-Mod PRG (mg/kg)	Over CAL-Mod PRG?
TK101-F1	1	03/21/06	4.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK101-F2	1	03/21/06	2.6	2.0	mg/kg	1.6	Yes	0.25	Yes
TK103-F1	1	03/20/06	4.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK103-F2	1	03/20/06	4.9	2.0	mg/kg	1.6	Yes	0.25	Yes
TK103-WD	1	03/20/06	5.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1050-F1	1	03/20/06	6.4	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1050-WD	1	03/20/06	3.2	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1-F1	1	03/21/06	5.0	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1-F2	1	03/21/06	4.0	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1-WD	1	03/21/06	5.1	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-0	1	03/21/06	5.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-F1	1	03/21/06	4.5	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-F2	1	03/21/06	4.2	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-WD	1	03/21/06	4.5	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-F1	1	03/22/06	5.9	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-F1	1	03/22/06	5.1	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-WD	1	03/22/06	5.6	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-WD	1	03/22/06	4.4	2.0	mg/kg	1.6	Yes	0.25	Yes
TK8-F1	1	03/20/06	4.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK8-F2	1.5	03/20/06	5.0	2.0	mg/kg	1.6	Yes	0.25	Yes
TK8-WD	1.5	03/20/06	6.5	2.0	mg/kg	1.6	Yes	0.25	Yes
TK101-F1	5	03/21/06	5.0	2.0	mg/kg	1.6	Yes	0.25	Yes
TK101-F2	5	03/21/06	5.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK101-WD	5	03/21/06	4.4	2.0	mg/kg	1.6	Yes	0.25	Yes
TK103-F1	5	03/20/06	5.8	2.0	mg/kg	1.6	Yes	0.25	Yes
TK103-F2	5	03/20/06	4.7	2.0	mg/kg	1.6	Yes	0.25	Yes
TK103-WD	5	03/20/06	3.7	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1050-F1	5	03/20/06	3.6	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1050-WD	5	03/20/06	3.8	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1-F1	5	03/21/06	4.8	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1-F2	5	03/21/06	5.1	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1-F2	5	03/21/06	8.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1-WD	5	03/21/06	2.5	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-0	5	03/21/06	5.9	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-F1	5	03/21/06	3.6	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-F2	5	03/21/06	3.1	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-WD	5	03/21/06	4.0	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-F1	5	03/22/06	4.8	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-F1	5	03/22/06	5.7	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-WD	5	03/22/06	3.4	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-WD	5	03/22/06	5.0	2.0	mg/kg	1.6	Yes	0.25	Yes
TK8-F1	5	03/20/06	3.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK8-WD	5	03/20/06	6.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK8-F2	6.5	03/20/06	4.8	2.0	mg/kg	1.6	Yes	0.25	Yes
TK101-F2	10	03/21/06	4.8	2.0	mg/kg	1.6	Yes	0.25	Yes
TK101-WD	10	03/21/06	4.1	2.0	mg/kg	1.6	Yes	0.25	Yes
TK103-F1	10	03/20/06	6.9	2.0	mg/kg	1.6	Yes	0.25	Yes
TK103-F2	10	03/20/06	6.3	2.0	mg/kg	1.6	Yes	0.25	Yes
TK103-WD	10	03/20/06	4.9	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1050-F1	10	03/20/06	2.4	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1050-WD	10	03/20/06	4.0	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1-F1	10	03/21/06	4.5	2.0	mg/kg	1.6	Yes	0.25	Yes
TK1-WD	10	03/21/06	4.1	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-0	10	03/21/06	5.0	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-F1	10	03/21/06	2.8	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-F2	10	03/21/06	4.9	2.0	mg/kg	1.6	Yes	0.25	Yes
TK2-WD	10	03/21/06	3.1	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-F1	10	03/22/06	4.8	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7403-WD	10	03/22/06	2.0	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7404-F1	10	03/22/06	4.9	2.0	mg/kg	1.6	Yes	0.25	Yes
TK7404-WD	10	03/22/06	4.2	2.0	mg/kg	1.6	Yes	0.25	Yes
TK8-F1	10	03/20/06	6.6	2.0	mg/kg	1.6	Yes	0.25	Yes
TK8-F2	10	03/20/06	6.9	2.0	mg/kg	1.6	Yes	0.25	Yes
TK8-WD	10	03/20/06	7.0	4.0	mg/kg	1.6	Yes	0.25	Yes

All samples were analyzed by EPA 6010B.

Notes:

PRG Ind.=U.S.EPA Region 9 Preliminary Remediation Goals for industrial soils, combined cancer risk (inhalation, dermal, ingestion.)

Table C-2. Summary of Analytical Results for Soil Samples Exceeding Industrial Soil PRGs/CAL-modified PRGs
PAHs by EPA Methods 8260B and 8310, March 2006

Location	Depth	Date	Analyte	Concentration	MDL/RL	Units	Industrial Soil PRG (mg/kg)	Industrial Soil PRG (Adjusted for Units)	Over ISP?	CAL-Mod PRG (mg/kg)	CAL-Mod PRG (Adjusted for Units)	Over CAL-Mod PRG?
TK101-WD	1	03/21/06	Benzo(k)fluoranthene	25000	7500	ug/kg	21	21000	Yes	1.3	1300	Yes
TK101-WD	1	03/21/06	Benzo(a)anthracene	53000	7500	ug/kg	2.1	2100	Yes		0	
TK101-WD	1	03/21/06	Benzo(a)pyrene	80000	3800	ug/kg	0.21	210	Yes		0	
TK101-WD	1	03/21/06	Naphthalene*	27000	410	ug/kg	190	190000		4.2	4200	Yes
TK2-0	1	03/21/06	Benzo(a)anthracene	2600	500	ug/kg	2.1	2100	Yes		0	
TK2-0	1	03/21/06	Naphthalene*	4500	250	ug/kg	190	190000		4.2	4200	Yes
TK2-F1	1	03/21/06	Naphthalene	9900	5000	ug/kg	190	190000		4.2	4200	Yes
TK2-F1	1	03/21/06	Naphthalene*	6100	250	ug/kg	190	190000		4.2	4200	Yes
TK2-F1	1	03/21/06	Benzo(a)pyrene	640	250	ug/kg	0.21	210	Yes		0	
TK2-F2	1	03/21/06	Benzo(a)pyrene	840	250	ug/kg	0.21	210	Yes		0	
TK2-WD	5	03/21/06	Naphthalene*	8500	240	ug/kg	190	190000		4.2	4200	Yes
TK2-F1	5	03/21/06	Naphthalene	10000	5000	ug/kg	190	190000		4.2	4200	Yes
TK2-F1	5	03/21/06	Naphthalene*	7200	240	ug/kg	190	190000		4.2	4200	Yes
TK2-F1	5	03/21/06	Benzo(a)pyrene	540	250	ug/kg	0.21	210	Yes		0	
TK2-F2	5	03/21/06	Benzo(a)anthracene	3300	500	ug/kg	2.1	2100	Yes		0	
TK2-F1	10	03/21/06	Naphthalene*	7700	300	ug/kg	190	190000		4.2	4200	Yes
TK2-F2	10	03/21/06	Benzo(a)pyrene	1100	250	ug/kg	0.21	210	Yes		0	

Notes:
* Analyzed by EPA Method 8260B; remainder of results analyzed by EPA Method 8310.
PAHs: Polynuclear Aromatic Hydrocarbons
PRG Ind.=U.S.EPA Region 9 Preliminary Remediation Goals for industrial soils, combined cancer risk (inhalation, dermal, ingestion.)

Table C-3. Summary of Analytical Results for Soil Samples Exceeding Industrial Soil PRGs
Organic Lead, March 2006

Location	Depth	Date	Concentration	MDL/RL	Units	Industrial Soil PRG (mg/kg)	Industrial Soil PRG (Adjusted for Units)	Over ISP?
TK101-F1	1	03/21/06	160	50	ug/kg	0.062	62	Yes
TK101-F2	1	03/21/06	280	120	ug/kg	0.062	62	Yes
TK1050-F1	1	03/20/06	110	25	ug/kg	0.062	62	Yes
TK1-F1	1	03/21/06	73	25	ug/kg	0.062	62	Yes
TK1-WD	1	03/21/06	870	250	ug/kg	0.062	62	Yes
TK7403-WD	1	03/22/06	200	120	ug/kg	0.062	62	Yes
TK7404-F1	1	03/22/06	1000	250	ug/kg	0.062	62	Yes
TK7404-WD	1	03/22/06	100	75	ug/kg	0.062	62	Yes
TK7403-WD	5	03/22/06	170	50	ug/kg	0.062	62	Yes
TK7404-F1	10	03/22/06	400	120	ug/kg	0.062	62	Yes

Notes:
All samples were analyzed by HML 939-M.
PRG Ind.=U.S.EPA Region 9 Preliminary Remediation Goals for industrial soils, combined cancer risk (inhalation, dermal, ingestion.)