### 3R - 027

# ANNUAL MONITORING REPORTS

## 3/30/2005



Via Federal Express

March 30, 2005

Mr. Ed Martin New Mexico Oil Conservation Division 1220 St. Francis Dr. Santa Fe, NM 87504

#### RE: 2004 ANNUAL REPORT FOR THE JAQUEZ COM E #1 AND C #1 AND THE SAN JUAN RIVER PLANT - スペア ンス--

Dear Mr. Martin:

El Paso Field Services (EPFS) hereby submits the 2004 Annual Report for the Jaquez Com E #1 and C #1 located near Blanco, New Mexico and the San Juan River Plant located near Kirtland, New Mexico. The enclosed reports detail the remediation and sampling activities for the year 2004.

If you have any questions concerning the enclosed reports, please call me at (719) 520-4433.

Sincerely,

Swee T. Parm

Scott T. Pope P.G. Senior Environmental Scientist

Enclosures: as stated

xc: Mr. Denny Foust, NMOCD, Aztec - w / enclosures; via Fed Ex Mr. John Jaquez, Landowner, Jaquez Report Only - w / enclosures; via Fed Ex

#### FINAL

#### 2004 ANNUAL REPORT JAQUEZ COM. C#1 AND JAQUEZ COM. E#1

March 2005

Prepared for:

EL PASO FIELD SERVICES 2 North Nevada Colorado Springs, Colorado 80903

**Prepared by:** 

#### **MWH**

1475 Pine Grove Road, Suite 109 Steamboat Springs, Colorado 80487

Table of Contents



1. N. .

#### **TABLE OF CONTENTS**

<u>Sectio</u>	<u>on No.</u>	Page No.
EXEC	CUTIVE SUMMARY	ES-1
1.0	INTRODUCTION	
1.1 1.2	SUMMARY OF PREVIOUS ACTIVITIES REPORT ORGANIZATION	1-1 1-6
2.0	DESCRIPTION OF 2004 ACTIVITIES	
2.1 2.2 2.3	ORC INJECTION SOIL VAPOR EXTRACTION / AIR SPARGING ACTIVITIES GROUNDWATER SAMPLING	2-1 2-1 2-3
3.0	DISCUSSION OF 2004 RESULTS	
3.1 3.2 3.3 3.4 3. 3.	ORC INJECTION RESULTS SOIL VAPOR EXTRACTION AND AIR SPARGING RESULTS GROUNDWATER ELEVATION MONITORING GROUNDWATER ANALYTICAL RESULTS 4.1 Area North of Citizens Ditch 4.2 Area South of Citizens Ditch	3-1 3-1 3-1 3-2 3-2 3-3
4.0	CONCLUSIONS AND RECOMMENDATIONS	
5.0	REFERENCES	

#### LIST OF TABLES

Т	able	No.	Description

3-1 Summary of 2004 Analytical Data

#### LIST OF FIGURES

#### Figure No. Description

- 1 Site Location Map
- 2 Jaquez Site Layout
- 3 Potentiometric Surface Map (February 2004)
- 4 Potentiometric Surface Map (May 2004)
- 5 Potentiometric Surface Map (August 2004)
- 6 Potentiometric Surface Map (November 2004)

#### LIST OF APPENDICES

#### Appendix No. Description

- A 2004 Operations and Maintenance Activities Documentation
- B 2004 Field Sampling Documentation
- C 2004 Laboratory Reports for Groundwater Samples
- D Summary of Historical Groundwater Data
- E Historical Benzene Concentrations vs Groundwater Elevations

#### LIST OF ACRONYMS

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
DO	dissolved oxygen
EC	electrical conductivity
EPFS	El Paso Field Services
IDW	Investigation-derived waste
LNAPL	light, non-aqueous phase liquid
m <sup>3</sup>	cubic meters
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
μg/L	micrograms per liter
NMWQCC	New Mexico Water Quality Control Commission
NMOCD	New Mexico Oil Conservation Division
O&M	operation and maintenance
ORC	oxygen-releasing compound
PID	photoionization detector
PSH	phase-separated hydrocarbons
psi	pounds per square inch
PVC	polyvinyl chloride
scfm	standard cubic feet per minute
SVE	soil vapor extraction
TPH	total petroleum hydrocarbons
yd <sup>3</sup>	cubic yards

Executive Summary



1.2.34

A 2.17 .

1 A A A

1.4.4.4.1.1

1.00

1. 1. 6.2

410

S. S. S.

4.5 B. 4.

Tata and

1 A. .

ار مرموسات ارد افسا سوافسا ها د



#### EXECUTIVE SUMMARY

The Jaquez Com. C#1 and Jaquez Com. E#1 (Jaquez) groundwater site is located in Township 29N, Range 9W, Section 6, in San Juan County, near Blanco, New Mexico. El Paso Field Services (EPFS) manages the site that includes two meter stations located within 40 feet of one another. Environmental concerns at the Jaquez site include dissolved-phase hydrocarbons in groundwater at concentrations above New Mexico Water Quality Control Commission (NMWQCC) standards and petroleum hydrocarbons in soil at concentrations potentially above NMWQCC standards. The land adjacent to the site is presently occupied by the local residents and is used primarily for farming. The Citizens Ditch, an elevated surface water conveyance for irrigation and potable water for the City of Bloomfield, bisects the site.

EPFS has delineated the groundwater plume and is aggressively remediating the area north of Citizens Ditch using air sparging and soil vapor extraction. Free-product has been removed and active free-product recovery is no longer required at this site. In 2002, the area south of Citizens Ditch underwent subsurface injection of oxygen-releasing compound (ORC) in the area south of Citizens Ditch to enhance natural biodegradation of residual hydrocarbons.

During 2003 and 2004, the air sparging and soil vapor extraction remediation systems have periodically been shut down for performance monitoring due to groundwater benzene, toluene, ethylbenzene and total xylenes (BTEX) concentrations below closure standards. However, the systems have subsequently been restarted during periods of the year in response to rebound of benzene concentrations at two wells (R-1 and R-4). The air sparging and soil vapor extraction remediation systems continue to significantly reduce dissolved-phase hydrocarbon concentrations in groundwater beneath the area north of Citizens Ditch. Currently, the remediation systems are operating pending additional groundwater sampling.

Currently, all wells at the site are being sampled annually (May) for BTEX compounds, and in addition, monitoring wells M-4, R-1, R-2 and R-4 are being sampled quarterly. As recommended in the 2003 Annual Report, nitrate concentrations will only be monitored again at closure. BTEX concentrations in wells located in the area south of Citizens Ditch were all below closure standards during 2004. Benzene concentrations in monitoring well M-4 (located south of Citizens Ditch) continued to decrease from 2002 levels, likely due to upgradient injection of ORC in November 2002. During the first and third quarters of sampling (February and August 2004), BTEX concentrations in wells north of Citizens Ditch were also below standards; however, during the second and fourth quarters (May and November 2004), the benzene concentrations in R-1 rebounded to 13.0 and 20.6  $\mu$ g/L, respectively, and the benzene concentrations in R-4 rebounded to 10.0  $\mu$ g/L (equal to the standard) and 14.8  $\mu$ g/L, respectively.

This report presents the results of on-going groundwater remediation and monitoring for 2004.

#### **1.0** INTRODUCTION

This annual report has been prepared on behalf of El Paso Field Services (EPFS) to present a summary of activities performed and analytical data collected at the Jaquez Com. C#1 and Jaquez Com. E#1 (Jaquez) meter stations during 2004. These meter stations are located approximately 40 feet apart in Township 29N, Range 9W, Section 6, in San Juan County, New Mexico, as shown in Figure 1, *Site Location Map*. The Jaquez Site is bisected by Citizens Ditch and is divided into the area north of Citizens Ditch and the area south of Citizens Ditch. Figure 2, *Jaquez Site Layout*, presents a detailed map of the Jaquez Site.

This annual report presents a summary of field activities performed at the Jaquez Site during 2004 including:

- Evaluation of oxygen-releasing compound (ORC) injection conducted in 2002 near monitoring well M-4 in the area south of Citizens Ditch;
- Operation and maintenance (O&M) activities associated with the air sparging and soil vapor extraction systems located in the area north of Citizens Ditch; and
- On-going groundwater monitoring in the areas north and south of Citizens Ditch.

#### 1.1 SUMMARY OF PREVIOUS ACTIVITIES

Following is a summary of previous investigations, remedial actions and site activities through 2004.

**Previous Investigations.** The Jaquez Site was identified in 1992 when the adjoining landowners expressed concern regarding potential hydrocarbon contamination in a garden area south of the two meter site locations. EPFS, then El Paso Natural Gas, initiated a comprehensive soil and groundwater investigation of the meter sites and nearby garden area in March 1993, as directed by the New Mexico Oil Conservation Division (NMOCD). In June 1993, EPFS submitted a remediation plan to NMOCD for excavation activities at areas both north and south of Citizens Ditch, and subsequently excavated hydrocarbon-contaminated soils in August and September 1993. Groundwater monitoring wells R-1 through R-5 (north of Citizens Ditch) and M-1 through M-5 (south of Citizens Ditch) were also installed and sampled.

In June 1999, the landowner encountered discolored soils while plowing in the garden area. As a result, EPFS and NMOCD sampled the site and recommended additional soil and groundwater investigation. In November 1999, a test trench was dug across the field revealing a small area of residual contamination on the western side of the garden area. Additional investigations were conducted in December 1999 to further investigate allegations of a second pit location north of the Citizens Ditch. No evidence of an additional pit or impacted soils were found during that investigation.

March 2005

In January 2000, additional downgradient monitoring wells were installed west of the site near the landowner residence, as requested by NMOCD and the landowner. In addition, a six-inch diameter irrigation well north of Citizens Ditch was sampled in February 2000. No BTEX was detected above analytical laboratory detection limits in these samples. Also in February 2000, six sediment samples were collected from the Citizens Ditch for hydrocarbon analyses during a brief closure of the conveyance. All sediment samples were below NMOCD standards. In July 2000, temporary monitoring wells TMW-1 and TMW-2 were installed and sampled near the fence line in the area south of Citizens Ditch. No detectable contamination was found in these samples. Surface water samples (above and below the site) from the Citizens Ditch have been collected on a regular basis since June 2000. Sampling results to-date have not shown contaminants of concern above NMWQCC standards in surface water conveyed across the Jaquez Site by Citizens Ditch.

**Previous Remedial Actions.** Remedial activities have been ongoing since 1993 at the Jaquez Site. In addition to the excavation of contaminated soils mentioned above, passive and belt-type hydrocarbon skimmers were installed in two wells in the area north of Citizens Ditch to collect free-phase hydrocarbons from wells that indicated seasonal accumulations of free-product. By 1998, approximately 265 gallons of free-phase hydrocarbons were recovered from the wells in the area north of Citizens Ditch. No free-phase hydrocarbons have been measured in any well since March 29, 2000. Dissolved phase hydrocarbon levels continued to decrease in 1999 and during 2000.

In January 2000, air sparging and vapor extraction activities were initiated on the north side of Citizens Ditch to address residual soil and dissolved-phase groundwater contamination in the former pit area. This aggressive remediation has considerably reduced hydrocarbon concentrations in the area north of Citizens Ditch to levels at or near the NMOCD remediation standards.

The area south of Citizens Ditch has been subjected to passive venting and nutrient amendments since 1998 in an effort to enhance biological degradation. Hydrocarbon concentrations in groundwater below the area south of Citizens Ditch exhibited a reducing trend during that time.

**Summary of Previous Activities.** A chronological summary of activities at the Jaquez Site is provided below.

- 1992 Landowner expressed concern regarding potential hydrocarbon contamination in a garden area near the meter site location.
- March 1993 Comprehensive soil and groundwater investigation performed on meter site locations and nearby garden area.
- June 1993 EPNG submits a remedial plan to NMOCD.
- July 1993 NMOCD approves the remedial plan.
- August 1993 Remediation activities initiated.

- September 1993 Remediation activities completed.
- September 1993 Monitoring wells R-1 through R-5 and M-1 through M-5 were installed north and south of Citizens Ditch. Initial sampling for benzene, toluene, ethylbenzene, and total xylenes (BTEX) indicated monitoring wells R-1, R-2, R-4, M-3, and M-4 were above NMWQCC standards.
- October 1993 to October 1996 Phase separated hydrocarbons (PSH) were observed in monitoring wells R-1 and R-2 during the months of seasonally low groundwater levels (i.e., January through May). Passive skimmer systems were installed to remove the PSH during periods of PSH accumulation.
- November 1996 A pumping test was initiated to determine if light non-aqueous phase liquids (LNAPL) could be removed during high seasonal groundwater by depressing the water table in and around R-1 and R-2.
- December 1996 EPFS injected approximately 500 gallons of urea nitrate solution into the passive vent system and installed magnesium peroxide socks in monitoring wells M-3 and M-4 to supply oxygen to enhance natural biodegradation of hydrocarbons in groundwater.
- January 1997 EPFS installed a belt skimmer in R-2 to remove PSH.
- February 1997 EPFS installed a belt skimmer in R-1 to remove PSH.
- November 1997 EPFS installed two temporary monitoring wells inside the excavated area north of R-1 to determine if PSH could be recovered during the high groundwater season.
- June 1997 The belt-skimmer PSH recovery system was shut down due to the seasonal reduction of product thickness related to local irrigation.
- January 1998 EPFS restarted the belt-skimmer system in R-1 and R-2.
- April 1998 The belt-skimmer PSH recovery system was shut down due to the seasonal reduction of product thickness related to local irrigation.
- July 1998 EPFS injected approximately 500 gallons of urea nitrate solution into the passive vent system and installed magnesium peroxide socks in monitoring wells M-3, M-4, R-3, and R-4 to supply oxygen to enhance natural biodegradation of hydrocarbons in groundwater.
- November 1998 EPFS conducted an investigation of possible hydrocarbon seeps from groundwater into the surface water of an arroyo to the south of the property. No hydrocarbon seeps were found during this investigation.
- June 1999 EPFS submitted a soil and groundwater remediation work plan to the NMOCD for air sparging in the area north of Citizens Ditch.
- June 1999 The landowner encountered discolored soils while plowing. EPFS and NMOCD sampled the area of concern.
- August 1999 One air sparging well, one soil vapor extraction (SVE) point, and five monitoring points were installed and a SVE pilot test was performed north of Citizens Ditch.

- August 1999 EPFS submitted soil sampling results and a work plan for additional soil and groundwater investigations, as requested by NMOCD.
- September 1999 NMOCD approved the soil and groundwater investigation work plan with modifications.
- October 1999 EPFS submitted the SVE Pilot Test Report and a work plan for soil and groundwater remediation using air sparging to the NMOCD.
- November 1999 The landowner requested a test trench across the field. The test trench revealed a small area of residual contamination on the western side of the garden area.
- December 1999 A meeting with the landowner revealed a possible second pit location on the north side of Citizens Ditch. Four test trenches were excavated in the possible pit area. No evidence of a pit or impacted soils were found.
- January 2000 EPFS submitted soil investigation results and amended the work plan for the soil and groundwater investigation.
- January 2000 EPFS began air sparging remediation.
- January 2000 EPFS installed two additional downgradient monitoring wells, as requested by the landowner and the NMOCD.
- February 2000 EPFS sampled the existing six-inch irrigation well, as requested by the landowner and the NMOCD.
- February 2000 EPFS sampled sediments in Citizens Ditch, as requested by the landowner.
- May 2000 New Mexico Air Quality Board advised on air permit requirements and notice of intent requirements for the remediation system effluent.
- June 2000 EPFS collected a series of air samples from the effluent of the SVE system for calculating the total estimated emissions.
- June 2000 EPFS sampled surface water from Citizens Ditch both upgradient and down gradient of the Jaquez Com E #1 and Com C #1 site.
- June 2000 EPFS excavated approximately 204 cubic yards of soil from the northwestern corner of the garden area, and backfilled the excavation with aggregate rock topped with a mixture of clean soil and livestock manure.
- June 2000 EPFS injected 70 gallons of urea nitrate mixed with 600 gallons of potable water into the passive air system south of Citizens Ditch.
- July 2000 EPFS installed two temporary groundwater monitoring wells in the garden area south of Citizens Ditch.
- August 2000 EPFS sampled a seep that had developed at the toe of the Citizens Ditch embankment on the north side of the former cornfield.
- October 2000 EPFS began an evaluation of the remediation system to ensure optimum performance and effectiveness.

- December 2000 EPFS concluded the evaluation of the air sparging and SVE system and incorporated functional changes to the system.
- March 2001 EPFS installed two new air sparging wells and one new SVE well in the northern portion of the site.
- September 2001 EPFS injected aqueous urea nitrate into the passive system located on the southern side of Citizens Ditch.
- November 2002 EPFS installed two new air sparging points SP-1 and SP-2, located on the south side of Citizens Ditch immediately north of monitoring well M-4.
- November 2002 EPFS injected ORC into four injection locations immediately north of monitoring well M-4, as shown on Figure 2.
- December 2002 EPFS abandoned temporary wells TMW-1 and TMW-2.
- December 2002 EPFS installed one new monitor well M-7 at the approximate location of TMW-2.
- 2002 EPFS conducted on-going groundwater and surface water monitoring in the areas north and south of Citizens Ditch.
- 2003 EPFS evaluated the effectiveness of ORC injection near monitoring well M-4 in the area south of Citizens Ditch; conducted O&M activities associated with the air sparging and soil vapor extraction systems located in the area north of Citizens Ditch; and conducted on-going groundwater monitoring in the areas north and south of Citizens Ditch.
- April 2003 Remediation systems were temporarily suspended for performance monitoring, and were later resumed due to groundwater concentration rebound.
- February through May 2004 Remediation systems were shut down during this period, due to groundwater concentrations below closure criteria during the February sampling event.
- June through August 2004 Remediation systems were restarted in June, due to a rebound in benzene concentrations at two wells (R1 and R4) during the May sampling event.
- August through November 2004 Remediation systems were again shut down during this period, due to groundwater concentrations below closure criteria during the August sampling event.
- December 2004 The systems were restarted on December 7<sup>th</sup>, in response to benzene concentrations above standards in two wells (R1 and R4) during the November sampling event.
- December 2004 to present Remediation systems were shut down during the holidays, and then restarted on January 4, 2005. The vent blower is not operational, but the air sparging system is currently running.

#### 1.2 **REPORT ORGANIZATION**

This report is organized into five sections and appendices containing supporting documentation. Section 1.0 contains an introduction and summary of site activities through 2004. Section 2.0 presents a detailed summary of activities performed at the site during 2004, and Section 3.0 contains a discussion of results from operations and maintenance and sampling activities. Conclusions and recommendations are presented in Section 4.0, and references are provided in Section 5.0. The attached appendices include supporting documentation for activities performed at the site during 2004, and historical data and trends.

#### 2.0 DESCRIPTION OF 2004 ACTIVITIES

This section contains a detailed discussion of activities performed at the Jaquez Site during 2004. In accordance with the conclusions and recommendations in the 2003 Annual Report, and as approved by NMOCD, the following activities were conducted at the Jaquez Site:

- Continued evaluation of the effectiveness of ORC injection conducted in 2002 near monitoring well MW-4;
- Continued operation of the air sparging and SVE systems, as needed, with associated O&M activities; and
- Continued annual and quarterly monitoring of groundwater at selected wells.

The following sections describe the activities listed above, conducted during 2004.

#### 2.1 ORC INJECTION

In November 2002, approximately 30 pounds of oxygen-releasing compound slurry were injected using direct-push drilling technology to approximately 15 feet below ground surface (bgs) at four injection points immediately upgradient of existing monitoring well M-4, as shown in Figure 2. The purpose of this activity was to reduce concentrations of dissolved-phase hydrocarbons in the southern portion of the site by increasing the dissolved oxygen concentration in the shallow groundwater to enhance natural biodegradation of these contaminants. In 2004, the effectiveness of the ORC injection was evaluated, using analytical results and dissolved oxygen readings.

#### 2.2 SOIL VAPOR EXTRACTION / AIR SPARGING ACTIVITIES

The following section describes the schedule of SVE and air sparging operation during 2004, and describes the O&M activities performed during this time.

**Summary of SVE and Air Sparging Operations.** As recommended in the 2003 Annual Report, the SVE and air sparging systems were operated on an as-needed basis during 2004. Twice in 2004 (February and August), in response to groundwater concentrations below NMWQCC standards, the SVE and air sparging systems were shut down in anticipation of additional closure sampling. Subsequent quarterly sampling events (May and November) indicated rebounding conditions at wells R-1 and R-4 and the system was subsequently restarted. The sequence of these events in 2004 is outlined below:

• The remediation systems operated on schedule during January through mid-February 2004.

- On February 13, 2004, the systems were shut down pending groundwater sampling.
- Groundwater sampling was conducted on February 25 and 26, 2004, at eight wells. Sampling data indicated that contaminant concentrations at all wells were below closure criteria (all BTEX concentrations were non-detect); therefore, the remediation systems remained off. As a result, the O&M visits scheduled for March and April 2004 were not conducted.
- Groundwater monitoring and sampling was again performed on May 19, 2004. Due to benzene concentrations at or above the NMWQCC standard in well R-1 (13 mg/L) and in well R-4 (10 mg/L), the systems were restarted on June 10, 2004.
- In June 2004, the remediation system was operated on a new timer schedule of Monday through Friday, 800 am to 1800 pm.
- During the scheduled O&M visit on July 28, 2004, the system was found without electricity and the vent blower was off. The system was restarted.
- The system was shut down on August 13, 2004, pending groundwater sampling.
- Groundwater sampling was conducted on August 17, 2004, at four wells (M4, R1, R2 and R4). Sampling data indicated that contaminant concentrations at Jaquez were below closure criteria; therefore, the remediation systems remained off. As a result, the O&M visit scheduled for September was not conducted.
- The remediation systems remain off pending additional groundwater sampling scheduled for November 2004.
- Groundwater sampling was conducted on November 11, 2004, at four wells (M4, R1, R2 and R4). Sampling data indicated that contaminant concentrations at all wells were below closure criteria with the exception of benzene concentrations at M-4 and R1 which were slightly above closure criteria (14.8 µg/L and 20.6 µg/L, respectively). The dissolved oxygen concentration was below 1.0 mg/L in all four sampled wells.
- The system was re-started and operated from December 7 22, 2004, on a set timer between 700 and 1700 hours, Monday through Friday. The vent system is not operational.
- The system was shut down over the holidays, and then re-started again on January 4, 2005.

**Operation and Maintenance.** The existing SVE and air sparging systems continued to operate effectively, as needed, during operation in 2004; although, as of mid-December 2004, the vent blower on the SVE system is not operational. During system operation, the SVE and air sparging systems were operated on a 10-hour per day, 5-day per week operation schedule. Bi-weekly operation and maintenance visits to the SVE system were conducted in January, with periodic visits in February, June, July, and December 2004. O&M for the SVE system typically included monitoring of the influent and effluent pressure and flow. As recommended in the 2002 and 2003 Annual Reports and as approved by NMOCD, effluent air monitoring and total volatile hydrocarbon measurements were not conducted in 2004. Air permitting is not required for this SVE system as long as air emissions remain below 25 tons of benzene per year. The air sparging system included monitoring of the pressure and flow rate at each injection point. In addition, the O&M technician performed any necessary maintenance and repairs to the systems. Field documentation of O&M activities for 2004 is presented in Appendix A.

#### 2.3 GROUNDWATER SAMPLING

Monitoring wells R-1, R-2, R-4, and M-4 were scheduled for quarterly groundwater sampling in February, May, August, and November 2004, and monitoring wells R-3, R-5, R-6, M-1, M-2, M-3, M-5, and M-6 were scheduled for annual sampling in May 2004. All samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Accutest Laboratories of Houston, Texas. Field sampling documentation is presented in Appendix B, while laboratory reports are provided in Appendix C.

Prior to sampling, field personnel checked for phase-separated hydrocarbons (PSH) and measured water levels using an oil-water interface probe. Measurements were recorded on a field sampling sheet. All measurements were collected at least 24 hours after the remediation systems were turned off. Monitoring wells were bailed and sampled using a disposable bailer. Field parameters collected during each sampling event included temperature, pH, electrical conductivity (EC), and dissolved oxygen (DO). Purge volumes, water levels, DO, pH, and EC measurements were recorded on the field sampling sheets provided in Appendix B.

March 2005

#### 3.0 DISCUSSION OF 2004 RESULTS

This section describes the results of activities conducted at the Jaquez site during 2004.

#### 3.1 ORC INJECTION RESULTS

As discussed in Section 2.0, approximately 30 pounds of ORC slurry were injected immediately upgradient of monitoring well M-4 on November 19, 2002. The purpose of the ORC injection was to increase the dissolved oxygen concentration in the shallow groundwater to enhance natural attenuation processes. The dissolved oxygen concentrations in MW-4 ranged from 0.99 to 5.18 mg/L during sampling events in 2004 (see Table 3-1), indicating that sufficient dissolved oxygen was available for biodegradation. In all four quarters of 2004, BTEX concentrations in MW-4 were consistently below NMWQCC standards. Benzene concentrations ranged from below analytical detection to 4.4 micrograms per liter ( $\mu$ g/L), compared to concentrations of 34 and 51 µg/L in early 2002. (Although, it should be noted that the benzene concentration at monitoring well M-4 was decreasing prior to ORC injection, with approximately 1.2 µg/L benzene detected in the November 6, 2002 sample). This decline in benzene concentration indicates that the injection of ORC into the subsurface successfully affected the natural biodegradation process to reduce contaminant levels.

#### 3.2 SOIL VAPOR EXTRACTION AND AIR SPARGING RESULTS

The SVE system was operated periodically throughout 2004. When operating, the average well-head extraction rate was approximately 14 standard cubic feet per minute (scfm). PID measurements were not made in 2004. By the end of 2002, air emissions from the Jaquez SVE system had not exceeded the potential emission rate of 25 tons of benzene/year during its operational span, therefore, no permit for emissions is required by the State of New Mexico. As approved by NMOCD following the 2002 Annual Report, air emission samples were not collected in 2004.

The air sparging system operated at sparge wells SW-1, SW-4, and SW-5 in 2004. The system operated within the expected ranges for air injection pressure and flow rate. Injection pressures for the sparging system ranged from 10 to 12 pounds per square inch. In September 2003, the air sparging system was reconfigured such that air flow was focussed to the area near monitoring wells R-1 and R-4, where groundwater benzene concentrations remained above standards. Results for the air sparging system are discussed later in this section in terms of contaminant concentrations.

#### 3.3 GROUNDWATER ELEVATION MONITORING

Potentiometric surface maps were prepared for each of the quarterly monitoring rounds conducted in February (Figure 3), May (Figure 4), August (Figure 5), and November 2004 (Figure 6). Groundwater elevation measurements at this site indicate that the shallow groundwater mounds in the immediate vicinity of Citizens Ditch because the conveyance is losing water to the shallow aquifer as it travels across the site. In addition, the shallow groundwater mound may be enhanced by the injection of sparge air below the water table immediately north of Citizens Ditch. The regional groundwater appears to enter the site

approximately from the north, then trends to the south across Citizens Ditch. There is also likely a westerly component of flow in the northern portion of the site in the flow direction of Citizens Ditch.

#### 3.4 GROUNDWATER ANALYTICAL RESULTS

Table 3-1 presents a summary of the analytical results for all groundwater samples collected at the Jaquez Site during 2004. Analytical data is also tabulated on the potentiometric surface maps, Figures 3 through 6. Field sampling documentation for groundwater sampling is provided in Appendix B, laboratory reports are provided in Appendix C, and a summary of historical groundwater data is presented in Appendix D.

#### 3.4.1 Area North of Citizens Ditch

**Dissolved Hydrocarbon Results.** Benzene concentrations in the area north of Citizens Ditch, as defined by monitoring wells R-1 through R-6, continued to decline during 2004. During the first and third quarters of sampling (February and August 2004), benzene concentrations in all wells were below the NMWQCC standard of 10  $\mu$ g/L. However, during the second and fourth quarters (May and November 2004), the benzene concentrations in R-1 rebounded to 13.0 and 20.6  $\mu$ g/L, respectively, and the benzene concentration in R-4 rebounded to 10  $\mu$ g/L (equal to the standard) and 14.8  $\mu$ g/L respectively. With the exception of R-2, the remaining monitoring wells located in the area north of Citizens Ditch (R-3, R-5, and R-6) did not contain detectable concentrations of benzene during 2004, which is consistent with analytical results from samples collected during 2001, 2002 and 2003. Monitoring well R-2 contained measurable (though very low and well below the NMWQCC standard) concentrations of 1.2  $\mu$ g/L for benzene in the May quarterly sampling event. Appendix E presents benzene concentrations and groundwater elevations versus time charts.

**Dissolved Oxygen Results.** Dissolved oxygen in groundwater was typically measured during sampling at monitoring wells in the area north of Citizens Ditch. The purpose of this monitoring was to ensure that sparge system was delivering adequate oxygen to the groundwater to support natural attenuation processes. Dissolved oxygen measurements are presented in Table 3-1. During the annual sampling event in May, dissolved oxygen measurements ranged from 1.15 to 7.98 mg/L. In November, the values were generally lower and ranged from 0.38 to 0.82 mg/L. Generally, a dissolved oxygen concentration in groundwater of greater than 0.5 mg/L is considered sufficient for supporting aerobic natural attenuation processes. Results from the dissolved oxygen monitoring performed during 2004 indicate that the sparge system, when operating, is delivering adequate oxygen to the monitoring wells located in the area north of Citizens Ditch.

#### 3.4.2 Area South of Citizens Ditch

**Dissolved Hydrocarbon Results.** There were no detections of BTEX concentrations above NMWQCC groundwater standards in any of the monitoring wells in this area in 2004. Groundwater in the area south of Citizens Ditch, as defined by monitoring wells M-1, M-2, M-3, M-5, M-6 and M-7, contained no detectable concentrations of BTEX. In 2004, benzene concentrations in M-4 and M-6 reached maximum concentrations of 4.4  $\mu$ g/L and 0.8  $\mu$ g/L, respectively, which remains generally consistent with historic levels. Benzene concentrations in M-4 maintained a decreasing trend compared to concentrations of 34 and 51  $\mu$ g/L in early 2002, and an average concentration of 70  $\mu$ g/L in 2001. It should be noted that benzene concentrations at M-4 fell below NMWQCC standards in November 2002, and have remained below standards through 2004. Appendix E presents charts for benzene concentrations and groundwater elevations versus time.

**Nitrate Results.** As recommended in the 2003 Annual Report, nitrate concentrations were not analyzed in 2004, but will be tested at closure.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the review of data collected at the Jaquez Site during 2004, the following conclusions are provided:

- During the annual sampling event in May 2004, all wells at the site were below NMWQCC standards, with the exception of benzene concentrations in two wells (R-1 and R-4), as discussed below.
- BTEX concentrations in wells located in the area south of Citizens Ditch, represented by monitoring wells M-1 through M-7, were all below closure standards in 2004, consistent with historic data.
- In groundwater north of Citizens Ditch, as defined by monitoring wells R-1 through R-6, benzene concentrations continued to decline during 2004 as a result of on-going remediation efforts. During the first and third quarters (February and August 2004), benzene concentrations in these wells were below standards; however during the second and fourth quarters (May and November 2004), benzene concentrations in R-1 rebounded to 13.0 and 20.6  $\mu$ g/L, respectively, and benzene concentrations in R-4 rebounded to 10  $\mu$ g/L (equal to the standard) and 14.8  $\mu$ g/L, respectively.
- Remediation systems were periodically shut down for performance monitoring following the first and third quarter sampling results.
- Remediation systems were re-started in December, following benzene concentration rebounds during the fourth quarter event. The systems are currently turned on; however, the vent blower is currently not operational.
- Benzene concentrations in monitoring well M-4 (located south of Citizens Ditch) continued to decrease to below standards, due in part to upgradient injection of ORC in November 2002.

Based upon the review of data collected at the Jaquez Site during 2004, the following recommendations are provided:

- The SVE and air sparging systems appear to have effectively reduced benzene concentrations in groundwater beneath the area north of Citizens Ditch to levels near cleanup standards. All monitoring wells in this portion of the site had at least two sampling events during 2004 where benzene was below standards. Therefore, EPFS recommends that the remediation systems continue to be operated, as needed, based on results of the quarterly groundwater sampling events.
- Based on historically low analytical results from BTEX samples collected at monitoring wells M-1, M-2, M-3, M-5, M-6, M-7, R-3, R-5 and R-6, EPFS recommends that these monitoring wells continue to be sampled annually for BTEX.
- Quarterly BTEX samples will continue to be collected from monitoring wells M-4, R-1, R-2 and R-4.
- Quarterly groundwater level measurements will be collected from all wells after the remediation systems have been shut off for 24 hours (if necessary).
- Dissolved oxygen measurements will be collected from monitoring wells during sampling.
- Nitrate concentrations at M-3 and M-4 will be tested at closure.

2.5.5.6

#### 5.0 **REFERENCES**

- EPFS, 2004. Jaquez Com C #1 and Jaquez Com E #1 2003 Annual Report. March 2004.
- EPFS, 2003. Jaquez Com C #1 and Jaquez Com E #1 2002 Annual Report. April 2003.
- EPFS, 2002. Jaquez Com C #1 and Jaquez Com E #1 2001 Annual Report. April 2002.
- EPFS, 2002. Monthly Report for December 2001 Jaquez Com C #1 and Jaquez Com E #1 Site. January 2002.
- EPFS, 2002. Monthly Report for November 2001 Jaquez Com C #1 and Jaquez Com E #1 Site. January 2002.
- EPFS, 2001. Jaquez Com C #1 and Jaquez Com E #1 Soil Vapor Extraction Remediation System. October 2001.
- EPFS, 2001. Jaquez Com C #1 and Jaquez Com E #1 Annual Report for Soil and Groundwater Remediation. April 2001.
- EPFS, 2001. Monthly Report for Jaquez Com C #1 and Jaquez Com E #1 Site. September 2001.
- EPFS, 2001. Monthly Report for Jaquez Com C #1 and Jaquez Com E #1 Site. August 2001.
- EPFS, 2001. Monthly Report for Jaquez Com C #1 and Jaquez Com E #1 Site. July 2001.
- EPFS, 2001. Monthly Report for Jaquez Com C #1 and Jaquez Com E #1 Site. April 2001.
- EPFS, 2001. Monthly Report for Jaquez Com C #1 and Jaquez Com E #1 Site. March 2001.
- EPFS, 2001. Monthly Report for Jaquez Com C #1 and Jaquez Com E #1 Site. February 2001.
- EPFS, 2001. Jaquez Com C #1 and Jaquez Com E #1 Remediation System Evaluation. December 2000.

Tables



				JL	AQUEZ PROJ	ECT				
Location Identification	Sample Date	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	m,p-Xylene (µg/l)	o-Xylene (μg/l)	Total Xylenes (µg/l)	Nitrate+Nitrite as N (mg/l)	Dissolved Oxygen (mg/l)	Depth to Water (feet bgs)
MI	2/26/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	NA	5.88
M	5/19/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	4.85	3.50
MI	8/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	3.02
MI	11/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	4.76
M2	2/26/2004	NA	NA	NA	NA	NA	NA	NA	NA	5.65
M2	5/19/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	0.98	2.72
M2	8/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	2.74
M2	11/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	4.53
M3	2/26/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	NA	5.63
M3	5/19/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	4.27	3.22
M3	8/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	2.63
M3	11/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	5.67
M4	2/26/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	4.31	5.58
M4	5/19/2004	0.5	<1.0	<1.0	<1.0	<2.0	<3.0	. VA	5.18	2.12
M4	8/17/2004	4.4	<1.0	<1.0	<1.0	<2.0	<3.0	NA	3.84	1.59
M4	11/17/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	NA	0.99	4.34
MS	2/26/2004	NA	NA	NA	NA	NA	NA	NA	NA	5.69
MS	5/19/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	4.90	2.88
M5	8/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	2.56
M5	11/17/2004	NA	NA	NA	NA	NA	Ν	NA	NA	5.36
M6	2/26/2004	NA	NA	NA	NA	NA	NA	NA	NA	9.70
M6	5/19/2004	0.8	0.6	<1.0	<1.0	<2.0	<3.0	NA	3.40	7.06
M6	8/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	6.30
M6	11/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	8.42
M7	2/25/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	NA	6.50
M7	5/19/2004	<1.0	<1.0	0.1>	<1.0	<2.0	<3.0	NA	0.30	4.15
M7	8/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	3.93
M7	11/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	5.44

SUMMARY OF 2004 ANALYTICAL DATA **TABLE 3-1** 

\* B

, s

:

Ì

1

Page 1 of 2

i				٦L	AQUEZ PROJ	ECT				
Location entification	Sample Date	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (μg/l)	m,p-Xylene (µg/l)	o-Xylene (μg/l)	Total Xylenes (µg/l)	Nitrate+Nitrite as N (mg/l)	Dissolved Oxygen (mg/l)	Depth to Wate (feet bgs)
RI	2/25/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	3.40	17.02
RI	5/19/2004	13.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	1.15	13.02
RI	8/17/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	7.10	12.23
RI	11/17/2004	20.6	3.8	0.6	1.9	0.5	2.5	NA	0.38	15.46
R2	2/25/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	1.13	15.91
R2	5/19/2004	1.2	2.1	<1.0	<1.0	1.1	1.1	NA	2.65	11.80
R2	8/17/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	1.10	10.96
R2	11/17/2004	<1.0	<1.0	<1.0	<1.0	<2.0	1.1	NA	0.51	14.32
R3	2/25/2004	ΝĄ	NA	NA	NA	NA	ΝA	NA	2.24	16.94
R3	5/19/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	2.37	12.74
R3	8/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	11.71
R3	11/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	15.28
R4	2/25/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	1.31	16.23
R4	5/19/2004	10.0	<1.0	<1.0	1.2	3.1	4.2	NA	7.89	12.22
R4	8/17/2004	0.6	<1.0	<1.0	<1.0	<2.0	<3.0	NA	1.03	11.41
R4	11/17/2004	14.8	<1.0	0.5	2.7	<2.0	3.1	NA	0.82	14.71
R5	2/25/2004	NA	NA	NA	NA	NA	NA	NA	NA	19.02
R5	5/19/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	2.89	16.86
RS	8/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	14.71
RS	11/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	17.09
R6	2/25/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	NA	18.22
R6	5/19/2004	<1.0	<1.0	<1.0	<1.0	<2.0	<3.0	NA	7.98	13.41
R6	8/17/2004	NA	NA	NA	NA	NA	NA	NA	NA	10.66
R6	11/17/2004	NA	NA	NA	NA	AN	NA	NA	A N	16.57

1 - 20 A X

のいうない

N. a.Y. W.E.A

のないない

「東京ない

in the state of

TH Y And

J & Bar A. 4. 4. 5

ひんごた

265024

at Ser is

an " 2" ( 2.

"Salara"

و چېرمر نورو و

We Lange

A CLOCK

- - 2 - - J

**TABLE 3-1** 

Not Analyzed/Not Measured

NA

Page 2 of 2

### Figures



5 - <del>2</del> - 5



Jaquez Gas Com E#1 & C#1Figure 1Site Location MapFigure 1



1. A. . B

. 15 an

\* \* . . § 24

1.00



23.52 at the set Sec. 2 1990 A.S 8 40 A 8 a marine 10 T. B. -100 Q- 82

A. 24 . 44

Same a

1. 22



Sec. 1. 4.



1. e. 14

P. 6 m. 5 .



Appendix A



۲. «۴.»

A da X

10 - 4 - 10 - 10 10 - 4 - 10 - 10 10 - 10 - 10

[A,Z]

1. A2

1. 19

2. 14 7.2

Bernel Bud

1 bi e

 $(\mathcal{X}, \mathcal{Y})$ 

#### APPENDIX A

#### 2004 OPERATIONS AND MAINTENANCE ACTIVITIES DOCUMENTATION

. . .

(Included electronically on attached CD)
Appendix B



5. . & B.

1. 1. 1.

r.

· 30 - 4

## **APPENDIX B**

, e 1

4 4

\* 3/d

## 2004 FIELD SAMPLING DOCUMENTATION

(Included electronically on attached CD)

Appendix C



Star .

. . .

- 10 - 20 -

1. 2 Sec.

0'5) 1.00 1.00 1.00 1.00 1.00 1.00

· · · · · · · · ·

## **APPENDIX C**

. .

1.1

9

÷.

6

A Charles

4.74

. . .

## 2004 LABORATORY REPORTS FOR GROUNDWATER SAMPLES

(Included electronically on attached CD)

Appendix D



144 · ·

4 - 10 V

2.5 W 2.

\*\*

. . . .

## APPENDIX D

د <sup>1</sup>ده د مید.

94 P

1. No. 1. 1.

120-57

1. 4. Car

A 10.00

· · · ·

2. 2 2 P

 $\xi \sim 2\pi \xi_{\rm c}$ 

A. . . . . . .

## SUMMARY OF HISTORICAL GROUNDWATER DATA

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 1 of 23)

Nitrates (I/gm) 0.05 NA NA NA NA NA NA A A Z A <0.1 ٨A Floating Product inches)  $\begin{array}{c} N/A \\ N/A$ **3TEX** Total  $(\mu g/l)$ Xylenes Total (l/gµ) <3.0 <3.0 <3.0 <3.0 <3.0 <0.5 <0.5 1.5 <0.5 <0.5 <0.5 <0.5 Toluene Ethylbenzene (l/gµ) <0.5 <0.5 <0.5 0.5 <0.5 <0.5 <0.5 (hg /l) 0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 **3enzene** (l/gµ) <2.0 <2.0 <2.0 <2.0 <2.0 <1.0  $\begin{array}{c} < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\ < 1.0 \\$ 5.08 <1.0 <0.5 <1.0 <1.0 <0.5 <0.5 0.5 <0.5 <0.5 10 Sample Date 25-May-1999 08-May-1995 28-May-1996 06-Aug-1996 9-May-1998 30-May-2000 17-May-1994 15-Dec-1994 25-Aug-1995 02-Nov-1995 05-Feb-1996 28-Oct-1996 20-Nov-1996 28-May-1997 21-Aug-1997 [0-Nov-1997 | 8-Feb-1998 22-Jun-2000 22-Aug-2000 17-Nov-2000 05-Oct-1993 1-Nov-1993 16-Dec-1993 [3-Jan-1994 10-Feb-1994 07-Mar-1994 13-Jun-1994 07-Sep-1994 09-Feb-1995 19-Feb-1997 l 9-Jan-2000 l4-Feb-2001 08-Sep-1993 Sample Number IAQ-0005-MW1 IAQ-0006-MW1 IQ0001MO-1-1 JAQ-0008-M1 JAQ-0011-M1 JAQ-0201-M1 660096 961013 971200 980168 N31062 N31245 N31389 960483 969096 970920 990257 N30974 940032 940239 941009 941262 941624 950103 950566 950899 951183 906096 970128 970505 980408 940497 N/AIdentification Well -- Σ -- Σ Ч-1 Ч-I Ľ-Ξ M-I Ξ Ξ-I Ч-1 <u>Ч</u>-1 Ϋ́ Ξ-M-I M-1 M-1 Δ-1 Ξ-Ξ M-1 M-I M-1 Ч-1 4-1 <u>М-</u>I <u>Ч</u>-1 Ч-1 Ч-Г Ξ <u>Ч</u>-1 М-1 Ξ-Π Ξ

R. J. K.

147.24

Y ...

4.5

1. 2. Sa

120,00

Prod & Same

Sec. 2

alight and

1. 1. Sec. 1.

Sige Sais

and a star

AN

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 2 of 23)

Nitrates (I/gm) NA NA NA NA NA 0.90 NΑ ΝA ΝA ΥA NA NA Floating Product (inches) a a a Ŋ g Ŋ Ŋ QZ Q g g Ŋ 2 g BTEX (l/gul) Total g ą g QN 1.6 ND ND ND Ŋ ą a a 1.6 -Xylenes Total (l/gµ) <0.5 <0.5 <0.5 <1.0 <3.0 <3.0 <3.0 <3.0 <3.0 0.61.3 AN NA -Ethylbenzene (l/gµ) <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 <1.0 <1.0 <1.0 <1.0 <0.5 AN NA Toluene (hg /l) <0.5 <0.5 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <0.5 <0.5 <0.5 0.2 A N NA Benzene (l/gµ) \_\_\_\_\_ ∼\_\_\_\_ <1.0 <1.0 <1.0 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 AN NA 0.1 Sample Date 22-May-2002 22-Feb-2002 06-Nov-2002 21-Aug-2001 28-Nov-2001 31-May-2001 11/24/2003 1/17/2004 2/27/2003 5/28/2003 8/20/2003 2/26/2004 5/19/2004 8/17/2004 Sample Number JAQ-0105-MW1 JAQ-0801-M1 JAQ-0111-M1 JAQ-0202-M1 JAQ-0205-M1 02-6019-1 JAQ-MI JAQ-MI JAQ-M1 JAQ-M1 JAQ-MI JAQ-M1 JAQ-M1 IAQ-MI Identification Well -M -N N-I M-1 Г-И N-I Ч-Ч-I Ч-1 Ч-Г Ч-1 Ч-1 Ч-1 M-1 <u>М-</u>I

San an an

Sec. 64

5. 8 32.8

1. 5° 1. 10. 10. 10.

Sec. Sec.

Call of Strain

· 우는 생 않니

A. + 6 8

きょう

1. 2 E. .

19 B.

2. 4. 4. 2.

4. 4. E 18 m 18 - 34 4 24 and a second and and at the state of a stat i atoke. 5. C 4. C 4.

1.25

1.1

## TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 3 of 23)

Well Identification	Sample Number	Sample Date	Benzene (μg/l)	Toluene (µg /l)	Ethylbenzene (µg/l)	Total Xylenes (μg/l)	Total BTEX (µg/l)	Floating Product (inches)	Nitrates (mg/l)
M-2	N30975	08-Sen-1993	<2.0	<2.0	<2.0	<2.0	N/A	ND	NA
M-2	N31063	05-Oct-1993	5	5	<2.0	<2.0	4.0	ND	NA
M-2	N31246	11-Nov-1993	2.3	2	<2.0	<2.0	4.3	QN	NA
M-2	N31390	16-Dec-1993	<2.0	<2.0	<2.0	<2.0	N/A	ŊŊ	NA
M-2	940033	13-Jan-1994	<2.0	<2.0	<2.0	<2.0	N/A	ŊŊ	NA
M-2	940240	10-Feb-1994	<2.0	<2.0	<2.0	<2.0	N/A	ND	NA
M-2	940498	07-Mar-1994	<0.5	<0.5	<0.5	<0.5	N/A	ND	NA
M-2	N/A	17-May-1994	No Test	No Test	No Test	No Test	No Test	ND	NA
M-2	941010	13-Jun-1994	<2.0	<2.0	<2.0	<2.0	N/A	Ŋ	NA
M-2	941263	07-Sep-1994	<2.5	<2.5	<2.5	<2.5	N/A	QN	NA
M-2	941625	15-Dec-1994	<2.5	<2.5	<2.5	<2.5	N/A	ND	NA
M-2	950104	09-Feb-1995	<2.5	<2.5	<2.5	<2.5	N/A	ND	NA
M-2	950567	05-May-1995	<2.5	<2.5	<2.5	<2.5	N/A	ND	NA
M-2	950900	25-Aug-1995	<2.5	<2.5	<2.5	<2.5	N/A	ND	NA
M-2	951184	02-Nov-1995	<2.5	<2.5	<2.5	<2.5	N/A	ND	NA
M-2	960100	05-Feb-1996	<2.5	<2.5	<2.5	<2.5	N/A	ŊŊ	NA
M-2	960484	28-May-1996	<1.0	<1.0	<1.0	<1.0	N/A	ŊŊ	NA
M-2	960691	06-Aug-1996	<1.0	<1.0	<1.0	<1.0	N/A	ŊŊ	NA
M-2	960907	28-Oct-1996	<1.0	<1.0	<1.0	<3.0	N/A	ND	NA
M-2	961014	20-Nov-1996	<1.0	<1.0	<1.0	<3.0	N/A	ŊŊ	NA
M-2	970129	19-Feb-1997	<1.0	<1.0	<1.0	<3.0	N/A	ND	NA
M-2	970506	28-May-1997	<1.0	<1.0	<1.0	<3.0	N/A	ŊŊ	<1.2
M-2	970921	21-Aug-1997	<1.0	<1.0	<1.0	<3.0	N/A	Q <sub>z</sub> .	<1.2
M-2	971201	10-Nov-1997	<1.0	<1.0	<1.0	<3.0	N/A	ND	<1.2
M-2	980169	18-Feb-1998	<1.0	<1.0	<1.0	<3.0	N/A	QN	<1.2
M-2	980409	19-May-1998	<1.0	<1.0	<1.0	<3.0	9>	QN	<0.1
M-2	990258	25-May-1999	0.5	0.5	0.5	1.5	ຕັ	ŊŊ	0.05
M-2	JQ0001MO-2-1	19-Jan-2000	<0.5	<0.5	<0.5	<0.5	ND	ND	NA
M-2	JAQ-0005-MW2	30-May-2000	<0.5	<0.5	<0.5	<0.5	QN	ŊŊ	NA
M-2	JAQ-0006-MW2	22-Jun-2000	<0.5	<0.5	<0.5	<0.5	ŊŊ	ŊŊ	ΝA
M-2	JAQ-0008-M2	22-Aug-2000	<0.5	<0.5	<0.5	<0.5	QN	ŊŊ	ΝA
M-2	JAQ-0011-M2	20-Nov-2000	<0.5	<0.5	<0.5	<0.5	ŊŊ	ŊŊ	NA
M-2	JAQ-0201-M2	14-Feb-2001	<0.5	<0.5	<0.5	<0.5	ND	ND	NA

12 B Pr. 0

1 4 A

the creat 2 4 1 C 2 4 2 W will be 1. all 1. all 223 headilith as agents white sailed a side of a side of the sail and s William . E. Brits and - 200 - 1 Mar. Stand 3 4 Sale Bari Same Sha

The With

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 4 of 23)

M-2         JAQ-0105-MW2         31-May-2001         <0.5	Well Identification	Sample Number	Sample Date	Benzene (μg/l)	Toluene (μg /l)	Ethylbenzene (μg/l)	Total Xylenes (µg/l)	Total BTEX (μg/l)	Floating Product (inches)	Nitrates (mg/l)
M-2         JAQ-0801-M2         21-Aug-2001         <0.5         <0.5         <0.5         <0.5         <0.5         <0.5         ND           M-2         JAQ-0111-M2         28-Nov-2001         <0.5	M-2	JAQ-0105-MW2	31-May-2001	<0.5	<0.5	<0.5	<0.5	ND	QN	NA
M-2       JAQ-0111-M2       28-Nov-2001       <0.5	M-2	JAQ-0801-M2	21-Aug-2001	<0.5	<0.5	<0.5	<0.5	ΩN	DN	NA
M-2         JAQ-0202-M2         22-Feb-2002         <0.5         <0.5         <0.5         <0.5         <0.5         ND           M-2         JAQ-0205-M2         22-Feb-2002         <0.5	M-2	JAQ-0111-M2	28-Nov-2001	<0.5	<0.5	<0.5	<0.5	QN	DN	NA
M-2       JAQ-0205-M2       22-May-2002       <0.5	M-2	JAQ-0202-M2	22-Feb-2002	<0.5	<1.0	<0.5	<0.5	ND	ND	NA
M-2       02-6019-2       06-Nov-2002       <0.5	M-2	JAQ-0205-M2	22-May-2002	<0.5	<0.5	<0.5	<1.0	ND	ND	NA
M-2       JAQ-M2       2/27/2003       NA       NA <td>M-2</td> <td>02-6019-2</td> <td>06-Nov-2002</td> <td>&lt;0.5</td> <td>&lt;0.5</td> <td>&lt;0.5</td> <td>1</td> <td>1</td> <td>QN</td> <td>NA</td>	M-2	02-6019-2	06-Nov-2002	<0.5	<0.5	<0.5	1	1	QN	NA
M-2       JAQ-M2       5/28/2003       <1.0       <1.0       <3.0       ND         M-2       JAQ-M2       5/28/2003       NA       NA       NA       NA       NA       NA         M-2       JAQ-M2       11/24/2003       NA       NA       NA       NA       NA       NA         M-2       JAQ-M2       11/24/2003       NA       NA       NA       NA       NA         M-2       JAQ-M2       11/24/2003       NA       NA       NA       NA       NA         M-2       JAQ-M2       2/26/2004       NA       NA       NA       NA       NA         M-2       JAQ-M2       5/19/2004       <1.0	M-2	JAQ-M2	2/27/2003	NA	NA	NA	NA	NA	NA	NA
M-2     JAQ-M2     8/20/2003     NA     NA     NA     NA     NA     NA     NA       M-2     JAQ-M2     11/24/2003     NA     NA     NA     NA     NA     NA     NA       M-2     JAQ-M2     11/24/2003     NA     NA     NA     NA     NA     NA       M-2     JAQ-M2     2/26/2004     NA     NA     NA     NA     NA       M-2     JAQ-M2     5/19/2004     <1.0	M-2	JAQ-M2	5/28/2003	<1.0	<1.0	<1.0	<3.0	ND	QN	0.30
M-2         JAQ-M2         11/24/2003         NA	M-2	JAQ-M2	8/20/2003	ΝA	NA	NA	NA	NA	NA	NA
M-2 JAQ-M2 2/26/2004 NA NA NA NA NA NA M-2 JAQ-M2 5/19/2004 <1.0 <1.0 <1.0 <3.0 NA M-2 JAQ-M2 8/17/2004 NA NA NA NA NA M-2 JAQ-M2 11/17/2004 NA NA NA NA NA NA	M-2	JAQ-M2	11/24/2003	NA	NA	NA	NA	NA	NA	NA
M-2 JAQ-M2 5/19/2004 <1.0 <1.0 <1.0 <3.0 NA M-2 JAQ-M2 8/17/2004 NA NA NA NA NA M-2 JAQ-M2 11/17/2004 NA NA NA NA NA NA	M-2	JAQ-M2	2/26/2004	ΝA	NA	NA	NA	NA	DN	NA
M-2 JAQ-M2 8/17/2004 NA NA NA NA NA M-2 JAQ-M2 11/17/2004 NA NA NA NA NA NA	M-2	JAQ-M2	5/19/2004	<1.0	<1.0	<1.0	<3.0	NA	ND	NA
M-2 IAO-M2 11/17/2004 NA NA NA NA NA NA	M-2	JAQ-M2	8/17/2004	NA	ΝA	NA	NA	NA	ND	NA
	M-2	JAQ-M2	11/17/2004	NA	NA	NA	NA	NA	ND	NA

1. 9. and 始新党 1. W. E. K. S. YSREA 2 t all Margania the Andrew Constants and a second second second second ىر. مەركەرىيا ، ئىر. مەركەرمەر an Brahan مردان «مکا an hay at the 

2 for Sty 2.

. v 14

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 5 of 23)

						Total	Total	Floating	
Well Identification	Sample Number	Sample Date	Benzene (µg/l)	Toluene (μg /l)	Ethylbenzene (μg/l)	Xylenes (μg/l)	BTEX (µg/l)	Product (inches)	Nitrates (mg/l)
M-3	N30976	08-Sep-1993	116	<2.0	3	37.6	157	QN	NA
M-3	N31064	05-Oct-1993	306	<2.0	4	19	329	ND	NA
M-3	N31247	11-Nov-1993	8.4	5.3	<2.0	2.6	16	DN	NA
M-3	N31391	16-Dec-1993	42	<2.0	<2.0	<2.0	42	ND	NA
M-3	940034	13-Jan-1994	19	2.1	<2.0	<2.0	21	ND	NA
M-3	940241	10-Feb-1994	<2.0	<2.0	<2.0	<2.0	N/A	ND	NA
M-3	940499	07-Mar-1994	<0.5	<0.5	<0.5	2.5	ŝ	ND	NA
M-3	N/A	17-May-1994	No Test	No Test	No Test	No Test	No Test	ND	NA
M-3	941011	13-Jun-1994	3.65	<2.0	<2.0	<2.0	4	QN	NA
M-3	941264	07-Sep-1994	2.87	<2.5	<2.5	2.5	5	ND	NA
M-3	941626	15-Dec-1994	<2.5	<2.5	<2.5	5.61	9	ND	NA
M-3	950105	09-Feb-1995	11.4	<2.5	<2.5	<2.5	11	QN	NA
M-3	950568	08-May-1995	180	67.2	<2.5	53.9	301	QN	NA
M-3	950901	25-Aug-1995	11.8	<2.5	<2.5	16.8	29	ND	NA
M-3	951185	02-Nov-1995	<2.5	<2.5	<2.5	5.03	5	ŊŊ	NA
M-3	960101	05-Feb-1996	236	<2.5	5.77	22.2	264	ND	NA
M-3	960485	28-May-1996	88.4	<1.0	5.93	20.3	115	ND	NA
M-3	960692	06-Aug-1996	96.4	<1.0	2.5	3.27	102	ND	NA
M-3	906096	29-Oct-1996	17.4	<1.0	1.55	2.23	21	ND	NA
M-3	961015	20-Nov-1996	70.2	<1.0	1.89	$\heartsuit$	72	ND	NA
M-3	970130	19-Feb-1997	2.44	<1.0	2.61	7.43	12	ND	NA
M-3	970507	28-May-1997	38	6.1	$\overline{\vee}$	13.5	58	ND	20.1
M-3	970922	21-Aug-1997	$\overline{\vee}$	$\overline{\vee}$	$\overline{\vee}$	7.68	8	QN	<1.2
M-3	971202	10-Nov-1997	$\overline{\vee}$	$\overline{\vee}$	$\overline{\vee}$	7.68	8	ND	<1.2
M-3	980170	18-Feb-1998	$\overline{\vee}$	$\overline{\lor}$	$\overline{\vee}$	$\Diamond$	9>	QN	<1.2
M-3	980410	19-May-1998	26.7	$\overline{\lor}$		2.52	29	Ŋ	0.32
M-3	980589	26-Aug-1998	$\overline{\vee}$	2.8	$\overline{\nabla}$	$\heartsuit$	3	ŊŊ	0.3
M-3	980786	05-Nov-1998	1.93	3.2	$\overline{\vee}$	$\mathcal{O}$	5	ND	NA
M-3	990259	25-May-1999	4.2	0.8	0.5	1.5	7	ND	0.05
M-3	990352	05-Aug-1999	$\overline{\vee}$	1.8	V	$\heartsuit$	9>	ND	<u>.</u> .
M-3	990454	12-Nov-1999	9	2.2	1.7	5.4	15	ND	ND
M-3	JQ0001MO-3-1	19-Jan-2000	4.1	2.8	1.6	3.7	12.2	ND	NA
M-3	JAQ-0002MW3	24-Feb-2000	30	21	2.3	9.4	62.7	ND	NA

1. 4. A. 4. West Bes An a start and 1. C. A.F. of the Tand have for sing to moder Annalian argainteen Santaine Garden the car the " mit 2m c . : N. 29.5. 1 100 6 M 4 1 2 43 Ct 4

1 - - **- 1**20-

A. S. . S . . . .

P relaists

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 6 of 23)

Well Identification	Sample Number	Sample Date	Benzene (μg/l)	Toluene (µg /l)	Ethylbenzene (μg/l)	Total Xylenes (µg/l)	Total BTEX (μg/l)	Floating Product (inches)	Nitrates (mg/l)
M-3	JAQ-0005-MW3	30-May-2000	2.1	<0.5	0.9	2.2	5.2	DN	<0.1
M-3	JAQ-0006-MW3	22-Jun-2000	0.6	<0.5	<0.5	<0.5	0.6	ŊŊ	0.14
M-3	JAQ-0007-MW3	25-Jul-2000	<0.5	<0.5	<0.5	1.1	1.1	ŊŊ	NA
- M-3	JAQ-0008-MW3	22-Aug-2000	0.6	<0.5	<0.5	2.2	2.8	QN	<0.05
M-3	JAQ-0011-M3	20-Nov-2000	1.1	<0.5	<0.5	3.4	4.5	QN	<0.05
M-3	JAQ-0201-M3	14-Feb-2001	0.6	<0.5	<0.5	0.6	1.2	QN	<0.05
M-3	JAQ-0105-MW3	31-May-2001	1.2	<0.5	<0.5	1.7	2.9	QN	0.18
M-3	JAQ-0801-M3	21-Aug-2001	1.6	<0.5	1.2	4.5	7.3	ΟN	0.15
M-3	JAQ-0111-MW03	29-Nov-2001	0.7	<0.5	. <0.5	<0.5	0.7	QN	0.23
M-3	JAQ-0202-MW	22-Feb-2002	<0.5	<0.5	<0.5	1.1	1.1	ND	0.32
-M-3	JAQ-0205-M3	22-May-2002	<0.5	<0.5	<0.5	1	1	ND	0.31
M-3	02-6019-3	06-Nov-2002	0.7	0.4	<0.5	1.2	2.3	ND	NA
M-3	JAQ-M3	2/27/2003	1.3	0.8	<0.5	2.6	4.700	QN	NA
M-3	JAQ-M3	5/28/2003	<1.0	<1.0	<1.0	<3.0	QN	QN	0.40
M-3	JAQ-M3	8/20/2003	<1.0	<1.0	<1.0	<3.0	ND	QN	NA
M-3	JAQ-M3	11/24/2003	<1.0	<1.0	<1.0	<3.0	ND	ŊŊ	NA
M-3	JAQ-M3	2/26/2004	<1.0	<1.0	<1.0	⊲3.0	ŊŊ	ŊŊ	NA
M-3	JAQ-M3	5/19/2004	<1.0	<1.0	<1.0	<3.0	QN	ŊŊ	NA
M-3	JAQ-M3	8/17/2004	NA	NA	NA	NA	ND	ND	NA
M-3	JAQ-M3	11/17/2004	NA	NA	NA	NA	ŊŊ	QN	NA

248 8 4 KM 18.8.34 6 + 3 - 3 3 2 F 30.00 A 8 provide windowski and the state of some the state of the state Star Strate Jan trades 1. Se \$ 44 E Serie 8° 25 1.49

· Jeal

The second

いい、「あた

# TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 7 of 23)

						Total	Total	Floating	
Well Identification	Sample Number	Sample Date	Benzene (µg/l)	Toluene (μg /l)	Ethylbenzene (μg/l)	Xylenes (µg/l)	BTEX (µg/l)	Product (inches)	Nitrates (mg/l)
M-4	N30977	08-Sen-1993	213	13.3	58	519	803	ND	NA
M-4	N31065	05-Oct-1993	302	2	55	395	754	ND	NA
M-4	N31248	11-Nov-1993	234	7	56	383	675	ND	NA
M-4	N31392	16-Dec-1993	171	<2.0	34.3	244	449	ND	NA
M-4	940035	13-Jan-1994	175	2.5	38	288	504	ŊŊ	NA
M-4	940242	10-Feb-1994	137	<2.0	29.8	192	359	ND	NA
M-4	940500	07-Mar-1994	120	<2.5	27	220	367	ND	NA
M-4	N/A	17-May-1994	No Test	No Test	No Test	No Test	No Test	ND	NA
M-4	941012	13-Jun-1994	151	<2.0	28.4	246	425	ND	NA
M-4	941265	07-Sep-1994	145	<2.5	24.1	231	400	ND	NA
M-4	941628	15-Dec-1994	184	<2.5	22.3	215	421	Ŋ	NA
M-4	920106	09-Feb-1995	160	<2.5	19.6	186	366	QN	NA
M-4	950569	08-May-1995	108	<2.5	11.7	119	239	QZ	NA
M-4	950902	25-Aug-1995	29.3	<2.5	13	116	158	q	NA
M-4	951187	02-Nov-1995	15.1	<2.5	12.9	136	164	QN.	NA
M-4	960102	05-Feb-1996	33.5	<2.5	19.3	209	262	ND	NA
M-4	960486	28-May-1996	17	<1.0	8.93	93.6	120	Ŋ	NA
M-4	960693	06-Aug-1996	2.77	<1.0	3.5	38.5	45	ND	NA
M-4	960909	29-Oct-1996	1.03	<1.0	3.66	55.5	60	<b>UN</b>	NA
M-4	961016	22-Nov-1996	3.28	<1.0	7.77	90.3	101	ND	NA
M-4	970131	19-Feb-1997	17.7	1.5	8.3	54	82	<b>ND</b>	NA
M-4	970508	28-May-1997	53.6	11.6	43.4	366	475	ŊŊ	225
M-4	971203	10-Nov-1997	44.8	<1.0	<1.0	11	116	Q N N	1.31
M-4	980171	18-Feb-1998	91	<1.0	1.1	74.9	167	ND	<1.2
M-4	980411	19-May-1998	46.6	<1.0	2.81	83.1	133	ŊŊ	0.21
M-4	980590	26-Aug-1998	51	2.6	2.08	45.1	101	ND	43.9
M-4	980787	05-Nov-1998	69	<1.0	<1.0	33	102	ND	AN
M-4	990048	23-Feb-1999	133	$\overline{\vee}$	1.31	59.3	194	ŊŊ	283
M-4	990260	25-May-1999	230	1.8	1.2	63	296	QN	190
M-4	990353	05-Aug-1999	100	$\Diamond$	<2	15.3	115	QN.	54.9
M-4	990455	12-Nov-1999	110	<2.5	- <2.5	56	166	ŊŊ	57
M-4	JQ0001MO-4-1	19-Jan-2000	27	<0.5	<0.5	9.7	37.7	ŊŊ	ΝA
M-4	JAQ-0002-MW4	24-Feb-2000	11	<0.5	5.6	5.5	22.1	<u>d</u> N	NA

T. Salt in 1.458 18 . A. C.S. 1. S. S. V. 教法教室 8.9.8. 80 V 2. Jack of P. c Att 2mm 1. 20 49 A december ้ เป็นสืบสำคัญ Strates. 9 8 . A. 8 、通量通知 400 to 8 1 a destant 100 -

۲. ۱۹۹۶ میکرد کاری

. 2 6 8 E.

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 8 of 23)

Well	Sample Number	Sample Date	Benzene (μg/l)	Toluene (µg /l)	Ethylbenzene (µg/l)	Total Xylenes (μg/l)	Total BTEX (μg/l)	Floating Product (inches)	Nitrates (mg/l)
M-4	JAO-0005-MW4	30-Mav-2000	38	1.1	<0.5	23	62.1	QN	<0.1
M-4	JAO-0006-MW4	22-Jun-2000	44	1.6	8.9	16	70.5	QN	<0.1
A-A	JAO-0007-MW4	25-Jul-2000	51	0.6	<0.5	13	64.6	QN	NA
M-4	JAO-0008-MW4	22-Aug-2000	87	0.5	1.2	32	120.7	ŊŊ	1.66
M-4	JAO-0011-M4	17-Nov-2000	66	<0.5	0.5	5	104.5	DN	2.66
M-4	JAQ-0201-M4	14-Feb-2001	94	<0.5	0.7	13	107.7	ND	3.37
M-4	JAQ-0105-MW4	31-May-2001	78	<0.5	<0.5	<0.5	78	DN	9.4
M-4	JAO-0801-M4	21-Aug-2001	30	<0.5	1.4	7.8	39.2	ND	5
M-4	JAQ-0111-MW04	29-Nov-2001	78	<0.5	11	78	167	ND	99
M-4	970923	01-Aug-1997	39.7	3.2	1.51	100	145	QN	20.8
M-4	JAQ-0202-MW	22-Feb-2002	34	<0.5	<0.5	3.4	37.4	QN	27.2
M-4	JAQ-0205-M4	22-May-2002	51	<0.5	<0.5	2.2	53.2	QN	16
M-4	02-6019-4	06-Nov-2002	1.2	<0.5	<0.5	0.7	1.9	QN	AN
M-4	JAQ-M4	2/27/2003	1.6	0.3	<0.5	1.3	3.200	ND	ΝA
-4-M	JAQ-M4	5/28/2003	1.5	<1.0	<1.0	<3.0	1.500	QN	4.2
M-4	JAQ-M4	8/20/2003	1.6	<1.0	<1.0	<3.0	1.600	ND	NA
M-4	JAQ-M4	11/24/2003	<1.0	<1.0	<1.0	<3.0	ND	ND	ΝA
M-4	JAQ-M4	2/26/2004	<1.0	<1.0	<1.0	<3.0	Ŋ	ND	NA
M-4	JAQ-M4	5/19/2004	0.5	<1.0	<1.0	<3.0	ND	ND	NA
M-4	JAQ-M4	8/17/2004	4.4	<1.0	<1.0	<3.0	ND	ŊŊ	NA
M-4	JAQ-M4	11/17/2004	<1.0	<1.0	<1.0	<2.0	ND	ND	NA

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 9 of 23)

Nitrates (l/gm) 0.05 NA NA NA NA NA NA A N A N A <1.2 <1.2</pre> <1.2 <0.1 Floating (inches) roduct N/A N/ABTEX Total (l/gµ) Xylenes Total (l/gµ) <0.5 <0.5 <0.5 Foluene Ethylbenzene (l/gµ) <0.5 <0.5 <0.5 <0.5 2.0
2.0
2.0
2.0
2.0
2.0
2.0
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
2.5
3.5
3.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5
4.5 (l/ gn) <0.5 **3enzene** (l/gµ) 2.6 <0.5 <0.5 43 9-May-1998 25-May-1999 17-Nov-2000 Sample Date 08-May-1995 02-Nov-1995 28-May-1996 0-May-2000 22-Aug-2000 1-Nov-1993 6-Dec-1993 07-Mar-1994 17-May-1994 07-Sep-1994 |5-Dec-1994 09-Feb-1995 25-Aug-1995 05-Feb-1996 06-Aug-1996 29-Oct-1996 21-Nov-1996 19-Feb-1997 28-May-1997 21-Aug-1997 21-Aug-1997 8-Feb-1998 19-Jan-2000 22-Jun-2000 3-Jan-1994 0-Feb-1994 13-Jun-1994 |4-Feb-2001 )5-Oct-1993 )8-Sep-1993 Sample Number JAO-0005-MW5 JAQ-0006-MW5 JAQ-0008-MW5 100001M0-5-1 JAQ-0011-M5 JAQ-0201-M5 941267 950570 980172 980413 N31066 N31250 N31393 940036 940243 941013 941629 950107 950904 951188 960103 960487 960694 016096 961017 970132 970509 970925 990262 N30979 940501 971204 N/AIdentification Well M-5 M-5

1. 5 . 2 . 5 . 5 . 5

Ale

4 6 Y Y .

14 B. C. C.

Sur 3 6. 0

1 86 W

Sec. Soft

S. 4. 64

Sec. 1. 18

1. 2. 4. 5 W

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 10 of 23)

Nitrates (l/gm) NA NA 0.30 NA ΝA ΝA NA ΝA AN AN NA ΝA NA NA Floating Product (inches) g g <u>S</u> 2 Z ND g NA Ϋ́ R g 2 g BTEX (l/gµ) Total 0.6 5.6 ND ND AN ND NA ΝA ٨N NA 0.7 NAN Xylenes (l/gµ) Total <0.5 <0.5 <0.5 <1.0 <1.0 3.0 3.0 NA NA 0.7 ΝA ΝA AN NA Ethylbenzene (l/gµ) <0.5 <0.5 <0.5 <0.5 <1.0 <1.0 <0.5 <0.5 A N N NA ΝA AN NA Toluene (l/ gn) <0.5 <0.5 <0.5 <1.0 <1.0 <0.5 <0.5 <0.5 NA NA ΝA AN NA ΝA Benzene (l/gµ) <1.0 <1.0 <0.5 <0.5 <0.5 <0.5 5.6 NA ΝA ΝA ΝA 0.6AN NA Sample Date 22-May-2002 06-Nov-2002 21-Aug-2001 29-Nov-2001 22-Feb-2002 31-May-2001 11/24/2003 1/17/2004 2/27/2003 5/28/2003 8/20/2003 2/26/2004 5/19/2004 8/17/2004 Sample Number JAQ-0105-MW5 JAQ-0111-M5 JAQ-0202-M5 JAQ-0205-M5 JAQ-0801-M5 02-6019-5 JAQ-M5 JAQ-M5 JAQ-M5 JAQ-M5 JAQ-M5 JAQ-M5 IAQ-M5 IAQ-M5 Identification Well M-5 <u>2-</u>2 2-2 M-5 N-5

S .....

1. Jan - 5 44

il in the

State of

10-100 B

No. Braditad

、黄、金融波

Sec. Marine

A STATE

States.

ALL STREET

13' H ( 2

"海豚虎

and - and

Lat The

2 . 1 . 1 . A

A. 2. 4. 1. S. S. S. So themas 1. 4. L' P. We Cake 202 4. 18% and the co 19 . 49. 10. 4. 8. S. 4. 20 1-2-42 63 N. Ser "E Salat Con Sec. 1 of the designation

1. 1. E. C.

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 11 of 23)

Nitrates (mg/l) NA NA ΝA NA NA NA AN Floating Product (inches) 2 2 2 ٨A NA ND g a z BTEX Total (l/gu) QN ٨N ΝA R R NΑ ΝA NAN Xylenes Total (l/gn) <0.5 <0.5 <0.5 <0.5 <0.5 3.0 <0.5 <0.5 <0.5 <0.5 <0.5 3.0 <1.0 1.3 ΝA NA NA NA AN NA Ethylbenzene (l/gn) <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 <0.5 <1.0 ΝA NA NA NΑ AN NA [] Toluene (hg /l) <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 0.4 NA Ϋ́ ΝA NA 0.6A N NA Benzene (l/gµ) <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 ΝA NA ΝA NA 0.8NAN Sample Date 17-Nov-2000 30-May-2000 22-May-2002 06-Nov-2002 19-Jan-2000 22-Jun-2000 22-Aug-2000 22-Feb-2002 15-Feb-2001 31-May-2001 21-Aug-2001 28-Nov-2001 11/24/2003 2/27/2003 1/17/2004 5/28/2003 8/20/2003 2/26/2004 5/19/2004 8/17/2004 Sample Number 1AQ-0006-MW6 1AQ-0008-MW6 JAQ-0105-MW6 JAQ-0005-MW6 1-0-001MO-6-1 JAQ-0011-M6 JAQ-0201-M6 JAQ-0801-M6 JAQ-0111-M6 JAQ-0202-M6 JAQ-0205-M6 02-6019-6 JAQ-M6 JAQ-M6 JAQ-M6 JAQ-M6 JAQ-M6 JAQ-M6 JAQ-M6 JAQ-M6 Identification Well M-6 TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 12 of 23)

Well Identification	Sample Number	Sample Date	Benzene (µg/l)	Toluene (μg /l)	Ethylbenzene (μg/l)	Total Xylenes (μg/l)	Total BTEX (μg/l)	Floating Product (inches)	Nitrates (mg/l)
M-7	JAQ-M7	2/27/2003	0.2	0.2	<0.5	0.9	1.300	ND	NA
M-7	JAQ-M7	5/28/2003	<1.0	<1.0	<1.0	1.3	1.300	QN	ΝA
M-7	JAQ-M7	8/20/2003	<1.0	<1.0	<1.0	<3.0	ND	ND	NA
M-7	JAQ-M7	11/24/2003	<1.0	<1.0	<1.0	<3.0	QN	ND	NA
M-7	JAQ-M7	2/25/2004	<1.0	<1.0	<1.0	<3.0	ND	QN	NA
M-7	JAQ-M7	5/19/2004	<1.0	<1.0	<1.0	<3.0	QN	DN	ΝA
M-7	JAQ-M7	8/17/2004	ΝA	NA	NA	NA	QN	QN	NA
M-7	JAQ-M7	11/17/2004	NA	NA	NA	NA	QN	QN	NA

Witer Aller

. H. 1. 2

a far an

68 A. W.

Ast and

3 ( 10 4) 4.

do. 3. 1.

1.2.4

1. S. L. L.

1. 1. 1. S.

2 mg 20 c

ANANG S

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 13 of 23)

Nitrates (I/gm) AN NA NA NA ΝA NΑ AN AN AN AN AN AN AN AN ٩A Ā Floating roduct inches) Q ---No Test 4394 Vo Test 5115 5115 Vo Test 7380 4520 3450 3450 3450 Vo Test Vo Test Vo Test Vo Test Vo Test 8380 11050 6280 9310 310 36 36 38 38 28.4 144.9 19080 5420 Total **3TEX** 5420 4938 3531 (l/gµ) 2379 3481 673 962 Xylenes 730 2700 vo Test 940 990 vo Test 946 vo Test vo Test vo Test 1200 800 600 Vo Test Vo Test 1900 22000 3100 2200 2200 190 19 18 4.2 24 24 Total (l/gµ) 1111 799 93.9 196 1053 Toluene Ethylbenzene (l/gµ) 113 74 15  $\frac{1}{3.9}$ 1.2 1965 1504 8500 No Test 1930 No Test 2130 No Test 2400 No Test 3080 No Test No Test No Test 3800 (l/ gn) 1970 1540 1000 2900 1400 2700 690 01> <2.5 164 1328 322 411 1.8 1.2 **3enzene** 1450
Vo Test
1890
No Test
2330
2970
1690
1690
1690
1240
Vo Test
Vo Test
Vo Test
Vo Test
Vo Test
2500
2300 1255 7600 No Test (l/gµ) 2400 4900 2500 3500 1280 242 328 1830 120 17 17 22 100 991 Sample Date 28-May-1996 0-Nov-1993 15-Dec-1994 25-Aug-1995 02-Nov-1995 05-Feb-1996 06-Aug-1996 28-Oct-1996 20-Nov-1996 24-Feb-1999 25-May-1999 20-Jan-2000 31-May-2000 26-Jun-2000 23-Aug-2000 20-Nov-2000 5-Feb-2001 07-Mar-1994 l 7-May-1994 07-Sep-1994 19-Feb-1997 26-Jul-2000 23-Aug-2001 28-Nov-2001 5-Dec-1993 )9-Feb-1994 l 3-Jun-1994 01-Jun-2001 05-Jul-2001 04-Oct-1993 2-Jan-1994 )7-Sep-1993 Sample Number JAQ-0107-R1 JAQ-0108-R1 JAQ-0111-R1 JO0001R01-1 JAQ-0006-R1 JAQ-0007-R1 JAQ-0106-R1 JAQ-0005-R1 JAQ-0008-R1 JAQ-0011-R1 JAO-0201-R1 N31240 N31384 940026 940233 N31056 941619 N/A 951178 960684 960900 961007 N30969 940491 941003 N/AN/A N/A N/AN/AN/AN/AIdentification Well R-1 **R-**1 R-1 R-1 R-1 R-1 **R**-1 R-1 R-1 R-1 R-I R-1 R-I R-1 R-1 R-1 R-1 R-1 <u>R-</u> R-1 <u><u>R</u>-1</u> R-1

10 - 2.

C. B. Ban

Section .

The ANSE

S. 8. 1. 6.

Not and

S. Con Bran

1988年

Stranto.

The provide

10 B. A.

\$ 285 P

· . 74 \$8 %

Sec.

1911 - 194 - 1

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 14 of 23)

Nitrates (I/gm) NA NA AN NA (inches) Floating Product BTEX 0.100 ND 27.140 18.000 Total (l/gµ) 32.5 ND 6.5 10 Xylenes Total (l/gµ) <1.0 <3.0 <3.0 <3.0 3.0 ⊲3.0 <3.0 2.5 2.4 5.7 6.1 Ethylbenzene (l/gµ) <1.0 <1.0 <1.0 <1.0  $^{<1.0}_{-0.6}$ 0.902.1 <0.5 1.2 1.1 1.7 Toluene (|/ gn) <1.0 ○○○ <1.0 3.8 1.3 <0.5 <1.0 2.5 0.5 2.2 0.6Benzene (l/gµ) <0.5 <1.0 25.6 18.0 <1.0 13.0 <1.0 20.6 0.5 0.423 9 Sample Date 23-May-2002 08-Aug-2002 06-Nov-2002 21-Feb-2002 8/17/2004 11/17/2004 11/24/2003 2/20/2003 5/29/2003 8/20/2003 2/25/2004 5/19/2004 Sample Number JAQ-0205-R1 JAO-0202-R1 02-4334-1 02-6019-7 JAQ-R1 JAQ-R1 JAQ-R1 JAQ-R1 JAQ-R1 JAQ-R1 JAQ-R1 JAQ-R1 Identification Well R-1 R-J R-1 R-1 R-1 R-1 R-1 R-J R-1 R-1 R-1

NAN STRAND

Parce 1

A States

1. . . . B.

1. 18 B. 2.

2.50

1. 2. Car

A 2. 46

and mark

1. 1 m J. B.S.

Carrow And 1. A. M. M. A. affa, es ない S . 2. 4. 4 it in and the 1 . S. S. . . 2 million Ser. S. Fr. . W. S.A. 8.9 . S . 2 . 2 \$ 0'5 En." 1.00 24 20 A Star 5 10 ar 18 1. S. S. S.

a \$1.4. m

44. 48 . 44. 1

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 15 of 23)

Well			Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	Floating Product	Nitrates
Identification	Sample Number	Sample Date	(l/gµ)	(l/ gµ)	, (l/gμ)	(l/gμ)	(l/gµ)	(inches)	(mg/l)
R-2	N30970	07-Sep-1993	278	651	59	538	1526	QN	NA
R-2	N31057	04-Oct-1993	509	789	73	741	2112	DN	NA
R-2	N31241	10-Nov-1993	284	470	38	401	1193	Ŋ	NA
R-2	N31385	15-Dec-1993	529	864	65.3	709	2167	1"	NA
R-2	940027	12-Jan-1994	1722	2501	150	1702	6075	24"	NA
_R-2	940234	09-Feb-1994	2806	3667	89.5	1520	8083	26"	NA
R-2	940492	07-Mar-1994	5600	6800	290	2700	15390	4"	NA
R-2	N/A	17-May-1994	No Test	No Test	No Test	No Test	No Test	7"	NA
R-2	941004	13-Jun-1994	3210	3790	139	1670	8809	7"	NA
R-2	N/A	07-Sep-1994	No Test	No Test	No Test	No Test	No Test	DN	NA
R-2	941620	15-Dec-1994	1140	2200	148	1520	5008	.0.6	NA
R-2	N/A	25-Aug-1995	No Test	No Test	No Test	No Test	No Test	TR	NA
R-2	951179	02-Nov-1995	1250	2030	116	1010	4406	TR	NA
R-2	N/A	05-Feb-1996	No Test	No Test	No Test	No Test	No Test	2.52	NA
R-2	N/A	28-May-1996	No Test	No Test	No Test	No Test	No Test	2.04"	NA
R-2	960685	06-Aug-1996	2610	3960	165	1540	8275	0.72"	NA
R-2	960901	28-Oct-1996	1100	2300	85.4	1100	4585	0.96"	NA
R-2	961009	20-Nov-1996	428	1340	87.3	821	2680	0.48"	NA
R-2	N/A	19-Feb-1997	No Test	No Test	No Test	No Test	No Test	NA	NA
R-2	N/A	24-Feb-1999	No Test	No Test	No Test	No Test	No Test	0.07	NA
R-2	N/A	25-May-1999	No Test	No Test	No Test	No Test	No Test	TR	NA
R-2	JQ0001R02-1	20-Jan-2000	1200	2000	<130	1500	4700	NO	NA
R-2	JAQ-0005-R2	31-May-2000	2300	3200	280	3000	8780	TR	NA
R-2	JAQ-0006-R2	26-Jun-2000	1300	1300	62	1100	3779	TR	NA
R-2	JAQ-0007-R2	26-Jul-2000	3600	3200	150	2300	9250	TR	NA
R-2	JAQ-0008-R2	23-Aug-2000	1600	1500	82	1100	4282	TR	NA
R-2	JAQ-0011-R2	20-Nov-2000	770	1300	170	1500	3740	TR	NA
R-2	JAQ-0201-R2	15-Feb-2001	620	400	43	440	1503	0.03	NA
R-2	JAQ-0106-R2	01-Jun-2001	120	12	15	70	217	ND	NA
R-2	JAQ-0107-R2	05-Jul-2001	39	31	18	220	308	ND	NA
R-2	JAQ-0108-R2	23-Aug-2001	<2.5	22	22	310	354	QN	NA
R-2	JAQ-0111-R2	28-Nov-2001	26	5.8	<5.0	85	116.8	QN	NA
R-2	JAQ-0202-R2	21-Feb-2002	<20	1.0	⊲3.1	35	36	ND	NA

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 16 of 23)

4

34°

142.24

A. 39

2 E . . .

24 - 28<sup>-</sup>

γ.n. φ. + 9. Ψ.

 $P = \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n}$ 

· 4.40%

1. 5. 4. 5. 4. 5. 4.

. . 4.0° .

1.1 C

4 e .

Well		-	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	Floating Product	Nitrates
Identification	Sample Number	Sample Date	(I/gµ)	(I/ Brl)	(I/gµ)	(l/gµ)	(l/gµl)	(inches)	(I/gm)
R-2	JAQ-0205-R2	23-May-2002	<0.5	<0.5	2.4	30	32.4	QN	NA
R-2	02-4334-2	08-Aug-2002	11.4	0.6	2	9.3	23.3	Ŋ	NA
R-2	02-6019-8	06-Nov-2002	19.8	0.6	1.6	7.6	29.6	QN	NA
R-2	JAQ-R2	2/20/2003	6.1	1.4	1.6	6.5	15.600	ND	NA
R-2	JAQ-R2	5/29/2003	<1.0	<1.0	<1.0	1.7	1.700	DN	NA
R-2	JAQ-R2	8/20/2003	<1.0	<1.0	<1.0	<3.0	DN	ND	NA
R-2	JAQ-R2	11/24/2003	<1.0	<1.0	<1.0	2.7	2.700	ŊŊ	NA
R-2	JAQ-R2	2/25/2004	<1.0	<1.0	<1.0	<3.0	ND	QN	NA
R-2	JAQ-R2	5/19/2004	1.2	2.1	<1.0	1.1	ND	QN	NA
R-2	JAQ-R2	8/17/2004	<1.0	<1.0	<1.0	<3.0	ND	QN	NA
R-2	JAQ-R2	11/17/2004	<1.0	<1.0	<1.0	1.1	ND	ND	NA

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 17 of 23)

Nitrates (I/gm) ٨N ΝA NA NA AN AN NA Product Hoating (inches) Ę 2 g ą g az g ₽₽ ą ĝ Total BTEX (l/gµ) 2.2 2.2 Xylenes (µg/l) 207 310 89.2 178 18 59.6 50.6 188 188 188 114 101 101 101 108 126 109 114 114 114 112.6 109 112.6 123 5.2 5.2 5.2 5.2 5.4 Total <0.5 <0.5 <0.5 <0.5 Ethylbenzene (l/gµ) <0.5 <0.5 <0.5 <0.5 Toluene 61.4 179 27.7 88.4 88.4 2.9 10.9 43 41.4 (l/ gn)  $\begin{array}{c} 12.2\\ 2.7\\ 111.7\\ 15.2\\ 14\\ 1.8.7\\ 18.7\\ 18.7\\ 18.7\\ 12.5\\ 1.9\\ 1.9\\ 1.9\\ 1.9\\ 1.9\\ 1.9\\ 3.3\\ 3.3\\ <0.5\\ <0.5\end{array}$ <0.5 <0.5 1.4 <0.5 <0.5 18 **Benzene** <2.0</li>
5.19
5.19
26
4.4
4.4
4.4
4.7
7.7
7.7
7.36
4.10
7.36
11.7
7.36
11.7
7.36
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05
11.05</ (l/gµ) 0.5 <0.5 <0.5 <0.5 <0.5 2.2 — Sample Date 08-May-1995 25-Aug-1995 28-May-1996 06-Aug-1996 9-May-1998 l 7-May-1994 02-Nov-1995 20-Nov-1996 25-May-1999 31-May-2000 23-Aug-2000 20-Nov-2000 0-Nov-1993 [5-Dec-1993 07-Mar-1994 07-Sep-1994 l 5-Dec-1994 09-Feb-1995 05-Feb-1996 28-Oct-1996 19-Feb-1997 28-May-1997 21-Aug-1997 10-Nov-1997 |8-Feb-1998 20-Jan-2000 26-Jul-2000 07-Sep-1993 04-Oct-1993 l 2-Jan-1994 09-Feb-1994 13-Jun-1994 15-Feb-2001 Sample Number JO0001R03-1 JAQ-0005-R3 JAO-0007-R3 JAQ-0008-R3 JAQ-0011-R3 JAQ-0201-R3 960479 N31058 N31242 N31386 940028 940235 940493 941005 941259 950099 950896 951180 960095 960686 960902 961010 970124 971196 990254 941621 950562 970501 980405 N30971 970917 980164 N/AIdentification Well R-3 **R-3** R-3 R-3 R-3 R-3 R-3 R-3

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 18 of 23)

Nitrates (I/gm) NA ΔA NA ΝA ٨A NA NA Floating Product (inches) a z a a a a a a AN DD g <u>a</u>z NA BTEX (l/gµ) Total NA NA NA ΥN AN NA Xylenes Total (l/gµ) <0.5 <0.5 <0.5 <0.5 <1.0 <1.0 <3.0 <3.0 0.8 ΝA ΝA 1.8 -ΥN NA AN NA Ethylbenzene (l/gµ) <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 <1.0 0.9NA ٩N ΝA NA AN NA Toluene (l/ gn) <0.5 <0.5 <0.5 <0.5 <1.0 <0.5 <0.5 <0.5 <0.5 <1.0 0.5 ΝA ΝA NA ΝA AN NA Benzene (l/gµ) <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 <1.0 1.3 ΝA AN ΝA ΝA NA ΝA Sample Date 23-May-2002 08-Aug-2002 21-Feb-2002 06-Nov-2002 23-Aug-2001 28-Nov-2001 26-Jun-2000 05-Jul-2001 11/24/2003 01-Jun-2001 2/27/2003 5/29/2003 8/20/2003 2/25/2004 5/19/2004 11/17/2004 8/17/2004 Sample Number JAQ-0111-R3 JAQ-0107-R3 JAQ-0108-R3 JAQ-0006-R3 JAQ-0202-R3 JAQ-0106-R3 JAQ-0205-R3 02-4334-3 02-6019-9 JAQ-R3 JAQ-R3 JAQ-R3 JAQ-R3 JAQ-R3 JAQ-R3 IAQ-R3 IAQ-R3 Identification Well R-3 R-3

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 19 of 23)

÷.

•

E<sub>F</sub> E<sub>F</sub>

						Total	Total	Floating	
Well	Comple Number	Comula Data	Benzene	Toluene	Ethylbenzene (	Xylenes	BTEX	Product	Nitrates
Ideliulication	Sample Number	Sample Date	(1/Srl)	(1/ 84)	(1/Srl)	(1/8nl)	(r/Srl)	(mones)	(1/Sm)
R-4	N30972	07-Sep-1993	104	267	39.9	370	781	DN	NA
R-4	N31060	04-Oct-1993	118	266	41	364	789	ND	NA
R-4	N31243	10-Nov-1993	93.6	132	40.4	347	613	<b>ND</b>	NA
R-4	N31387	15-Dec-1993	102	161	48.4	418	729	ND	NA
R-4	940030	12-Jan-1994	124	101	38.5	353	617	ND	NA
R-4	940237	09-Feb-1994	120	51.4	20.8	150	342	ND	NA
R-4	940494	07-Mar-1994	150	63	20	190	423	ŊŊ	NA
R-4	N/A	17-May-1994	No Test	No Test	No Test	No Test	No Test	ŊŊ	NA
R-4	941007	13-Jun-1994	179	60.6	17.2	176	433	ND	NA
R-4	941260	07-Sep-1994	238	102	26	218	584	ND	NA
R-4	941622	15-Dec-1994	222	63.3	26.9	213	525	ND	NA
R-4	950100	09-Feb-1995	273	61	20.4	165	519	ND	NA
R-4	950564	08-May-1995	278	251	23.1	220	772	ND	NA
R-4	950897	25-Aug-1995	646	278	50.8	544	1519	ND	NA
R-4	951181	02-Nov-1995	343	60.4	35.1	284	723	ND	NA
R-4	60094	05-Feb-1996	218	43.3	23.1	200	484	ŊŊ	NA
R-4	960481	28-May-1996	716	199	36.6	394	1346	ŊŊ	NA
R-4	960687	06-Aug-1996	384	156	24	275	839	ŊŊ	NA
R-4	960904	28-Oct-1996	320	53.4	20.1	237	631	ŊŊ	NA
R-4	9601011	20-Nov-1996	289	31.2	19.3	220	560	DN	NA
R-4	970125	19-Feb-1997	162	62.9	34.4	337	599	ND	NA
R-4	970503	28-May-1997	189	92.5	13.3	144	439	ND	<1.2
R-4	910018	21-Aug-1997	343	377	45.5	408	1174	ND	<1.2
R-4	971197	10-Nov-1997	542	129	31.1	267	969	ŊŊ	<1.2
R-4	980166	18-Feb-1998	98	15.9	10	79.3	203	QN	<1.2
R-4	980406	19-May-1998	916	244	38.1	304	1502	ND	NA
R-4	990255	25-May-1999	110	63	15	144	332	ND	NA
R-4	JQ0001R04-1	20-Jan-2000	280	89	60	069	1,119	ŊŊ	NA
R-4	JAQ-0005-R4	31-May-2000	960	980	29	1900	3869	ŊŊ	NA
R-4	JAQ-0006-R4	26-Jun-2000	950	1000	43	2500	4493	ND	NA
R-4	JAQ-0007-R4	26-Jul-2000	520	400	50	1600	2570	ŊŊ	NA
R-4	JAQ-0008-R4	23-Aug-2000	1500	1800	110	1800	5210	ND	NA
R-4	JAQ-0011-R4	20-Nov-2000	590	580	110	1800	3080	ND	NA

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 20 of 23)

Nitrates (I/gm) NA ΔA NA ΝA NA ΝA ٨A NΑ Floating Product (inches) g aza ND 13.100 7.200 30.66 BTEX 14.200 0.580 Total 1.9 38.2 3.800 0.000 (l/gn) QN 469 118 94 QN 55 6.1 Xylenes Total (l/gµ) <1.0 20.9 <3.0 3.0 ⊲3.0 0.7 4.2 7.5 2.4 3.1 1.1 36 2.2 4 12 13 3.1 Ethylbenzene (l/gµ) <0.5 <2.5 <2.5 1.5 0.56 <0.5 <0.5 <1.0 <1.0  $\frac{10}{10}$ <1.0 <1.0 <1.0 <1.0 0.5 0.8 0.9 Toluene (l/ gn) <0.5 <1.0 <1.0 <1.0 2.6 0.4 0.60.9 <1.0 <1.0 <1.0 <1.0 0.5 01> 0.5 85 20 Benzene (l/gµ) <0.5 <0.5 15.8 <1.0 10.0 <1.0 10.0 370 120 0.5 0.6 14.8 6.1 19 3.4 86 79 Sample Date 08-Aug-2002 23-May-2002 06-Nov-2002 28-Nov-2001 21-Feb-2002 23-Aug-2001 01-Jun-2001 15-Feb-2001 05-Jul-2001 2/20/2003 11/24/2003 1/17/2004 5/28/2003 8/20/2003 2/25/2004 5/19/2004 8/17/2004 Sample Number JAQ-0108-R4 JAQ-0111-R4 JAQ-0201-R4 JAQ-0106-R4 JAQ-0107-R4 JAQ-0202-R4 JAQ-0205-R4 02-6019-10 02-4334-4 JAQ-R4 JAQ-R4 JAQ-R4 JAQ-R4 JAQ-R4 JAQ-R4 JAQ-R4 JAQ-R4 Identification Well R-4 R-4 R-4 R-4 4-7 R-4 R-4

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 21 of 23)

.

IIoW			Renzene	Toluene	Fthvlhenzene	Total Xvlenes	Total RTEX	Floating Product	Nitrates
ldentification	Sample Number	Sample Date	(hg/l)	(hg /l)	tuynxuxuv (μg/l)	(hg/l)	(l/gµ)	(inches)	(mg/l)
R-5	N30973	07-Sep-1993	<2.0	<2.0	<2.0	<2.0	N/A	ND	NA
R-5	N31061	04-Oct-1993	<2.0	<2.0	<2.0	<2.0	N/A	ND	NA
R-5	N31244	10-Nov-1993	<2.0	<2.0	<2.0	<2.0	N/A	ND	NA
R-5	N31388	15-Dec-1993	<2.0	<2.0	<2.0	<2.0	N/A	ŊŊ	NA
R-5	940031	12-Jan-1994	<2.0	<2.0	<2.0	<2.0	N/A	QN	NA
R-5	940238	09-Feb-1994	<2.0	<2.0	<2.0	<2.0	N/A	ND	NA
R-5	940496	07-Mar-1994	<0.5	<0.5	<0.5	<0.5	N/A	ND	NA
R-5	N/A	17-May-1994	No Test	No Test	No Test	No Test	No Test	ŊŊ	NA
- <b>R-5</b>	941008	13-Jun-1994	<2.0	<2.0	<2.0	<2.0	N/A	ND	NA
R-5	941261	07-Sep-1994	<2.5	<2.5	<2.5	<2.5	N/A	ŊŊ	NA
R-5	941623	15-Dec-1994	<2.5	<2.5	<2.5	<2.5	N/A	ND	NA
R-5	950102	09-Feb-1995	<2.5	<2.5	<2.5	<2.5	N/A	ŊŊ	NA
R-5	950565	08-May-1995	<2.5	<2.5	<2.5	<2.5	N/A	ŊŊ	NA
R-5	950898	25-Aug-1995	<2.5	<2.5	<2.5	<2.5	N/A	ND	NA
R-5	951182	02-Nov-1995	<2.5	<2.5	<2.5	<2.5	N/A	ND	NA
R-5	960098	05-Feb-1996	<2.5	<2.5	<2.5	<2.5	N/A	ŊŊ	NA
R-5	960482	28-May-1996	<1.0	<1.0	<1.0	<1.0	N/A	QN	NA
R-5	960689	06-Aug-1996	<1.0	<1.0	<1.0	<1.0	N/A	ND	NA
R-5	960905	28-Oct-1996	<1.0	<1.0	<1.0	<3.0	N/A	ND	NA
R-5	961012	20-Nov-1996	<1.0	<1.0	<1.0	<3.0	N/A	ND	NA
R-5	970127	19-Feb-1997	<1.0	<1.0	<1.0	<3.0	N/A	ND	NA
R-5	970504	28-May-1997	<1.0	<1.0	<1.0	<3.0	N/A	ND	<1.2
R-5	616026	21-Aug-1997	<1.0	<1.0	<1.0	<3.0	N/A	Ŋ	<1.2
R-5	64116	10-Nov-1997	<1.0	<1.0	<1.0	<3.0	N/A	ND	<1.2
R-5	980167	18-Feb-1998	<1.0	<1.0	<1.0	<3.0	N/A	ND	<1.2
R-5	980407	19-May-1998	<1.0	<1.0	<1.0	<3.0	9>	ND	NA
R-5	990256	25-May-1999	0.5	0.5	0.5	1.5	ŝ	ŊŊ	NA
R-5	JQ0001R05-1	20-Jan-2000	<0.5	<0.5	<0.5	<0.5	ŊŊ	ND	NA
R-5	JAQ-0005-R5	31-May-2000	<0.5	<0.5	<0.5	<0.5	ND	ND	NA
R-5	JAQ-0006-R5	26-Jun-2000	<0.5	<0.5	<0.5	<0.5	ND	ND	NA
R-5	JAQ-0008-R5	23-Aug-2000	<0.5	<0.5	<0.5	<0.5	QN	ŊŊ	NA
R-5	JAQ-0011-R5	20-Nov-2000	<0.5	<0.5	<0.5	0.9	0.9	ŊŊ	NA
R-5	JAQ-0201-R5	15-Feb-2001	<0.5	<0.5	<0.5	<0.5	ΟN	ND	NA

•

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 22 of 23)

Nitrates (I/gm) ΝA ΝA NA NA NA NA NA A N A N ΝA ΝA ΥA ٨A NΑ NΑ Floating Product (inches) a a a ΝA AN UN ₽₽ BTEX (l/gnl) Total ND ΝA NA NA AN A Z Z Xylenes Total (l/gn) <3.0 ⊲3.0 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 0.9 0.8**V**A ¥Ζ ΝA ΝA AN NA Ethylbenzene (l/gµ) <1.0 <1.0 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 0.9 ΝA ΝA NA NA Υ Ν Ν Toluene (I/ grl) <0.5 <0.5 <0.5 <1.0 <0.5 <0.5 <1.0 <1.0 <0.5 ΝA ΝA ΝA 0.4 ΝA AN NA Benzene (l/gµ) <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 <1.0 ΝA ΑN ΝA NA AN NA Sample Date 23-May-2002 06-Nov-2002 08-Aug-2002 23-Aug-2001 28-Nov-2001 21-Feb-2002 05-Jul-2001 11/24/2003 11/17/2004 01-Jun-2001 2/27/2003 8/20/2003 2/25/2004 8/17/2004 5/29/2003 5/19/2004 Sample Number JAQ-0107-R5 JAQ-0108-R5 JAQ-0111-R5 JAQ-0202-R5 JAO-0205-R5 JAO-0106-R5 02-4334-5 02-6019-11 JAQ-R5 JAQ-R5 JAQ-R5 JAQ-R5 JAQ-R5 JAQ-R5 JAQ-R5 JAQ-R5 Identification Well R-5 R-5

A. W. 64.

4 A . . . .

· · · ·

1.4 + 1. 20 B

128.1

1. 200 to

1. 19 ( P. 10

1.28 Se a

Sugar Prairie

a mere a

Sec. 20

TABLE D-1 SUMMARY OF HISTORICAL GROUNDWATER DATA JAQUEZ COM. C#1 JAQUEZ COM. E#1 (Page 23 of 23)

S. Carton A

Sec. 4.

. . . . .

چر خی . چرچ خی .

5 . 8 A. 5

Nitrates (l/gm) AN NA NA NA ΝA ΝA NA Υ NA ΝA AN NA Floating Product (inches) gz Ę Ę g Ę NA A A Ę <u>S</u> g ÊÊ g BTEX (l/gn) Total 15.6 AN UN UN QN ND g QZ g <sup>'</sup>N ą Ŋ 2.3 0.9 a z 2 g 0.5QZ Z g Xylenes Total (l/gµ) <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 <1.0  $\stackrel{<}{\sim} 0.0$  $\lesssim 0.0$ ⊲3.0 ≤3.0 <3.0 <0.5 <0.5 0.9 0.5 NA 13 ----NA NA Ethylbenzene (l/gµ) <0.5 <1.0 <1.0 <1.0 <1.0 <0.5 <0.5 <0.5 <0.5 <1.0 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 2.6 0.9ΝA NAN Toluene (hg /l) <0.5 <0.5 <0.5 <1.0 <1.0 <1.0 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 <1.0 0.4 NA NA ΝA Benzene (l/gµ) <0.5 <0.5 <0.5 <0.5 <1.0 <1.0 <1.0 <0.5 <0.5 <0.5 <0.5 <1.0 <1.0 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 ΝA NA AN Sample Date 08-Aug-2002 31-May-2000 26-Jun-2000 23-Aug-2000 20-Nov-2000 21-Feb-2002 23-May-2002 06-Nov-2002 23-Aug-2001 28-Nov-2001 20-Jan-2000 [5-Feb-200] 01-Jun-2001 05-Jul-2001 5/28/2003 1/24/2003 2/27/2003 8/20/2003 2/25/2004 5/19/2004 8/17/2004 11/17/2004 Sample Number JAQ-0202-R6 JAO-0005-R6 JAQ-0006-R6 JAQ-0008-R6 JAQ-0011-R6 JAO-0201-R6 IAQ-0106-R6 JAQ-0107-R6 JAQ-0108-R6 JAQ-0111-R6 JAQ-0205-R6 JO0001R06-1 02-6019-12 02-4334-6 JAQ-R6 JAQ-R6 JAQ-R6 JAQ-R6 JAQ-R6 JAQ-R6 JAQ-R6 IAQ-R6 Identification Well R-6 R-6 **R-**6 R-6 R-6 R-6 R-6 R-6 R-6 **R-**6 R-6 R-6

Appendix E



A. 7. 2.

\$1 .

A. 1. 8.

5 4.4.1

 $\pi_{\mathcal{H}}^{\mathcal{H}} = \pi_{\mathcal{H}}^{\mathcal{H}}$ 



## **APPENDIX E**

1 30 F 1. 1

Borner State

4. 4r. 2

1

S and

1. S. S.

1. 1. S. S. 1.

6°5 3 7.7 4

( n 2 w 4

× · • •

A. 4. 4. 4

1. 5 K

. 4 4 °

2012

## HISTORICAL BENZENE CONCENTRATIONS VS GROUNDWATER ELEVATIONS







Historic Benzene Concentrations and Groundwater Elevations Monitoring Well R-2, Jaquez Site

Non-dected concentrations are plotted as 1 µg/L.





Non-dected concentrations are plotted as 1 µg/L.



**Historic Benzene Concentrations and Groundwater Elevations** 





Non-dected concentrations are plotted as 1 µg/L.




Non-dected concentrations are plotted as 1 µg/L.

Historic Benzene Concentrations and Groundwater Elevations Monitoring Well M-1, Jaquez Site



Non-dected concentrations are plotted as 1 µg/L.

s 1 µg/L.



Historic Benzene Concentrations and Groundwater Elevations Monitoring Well M-2, Jaquez Site

Non-dected concentrations are plotted as 1 µg/L.

-----Benzene



**Historic Benzene Concentrations and Groundwater Elevations** 

Non-dected concentrations are plotted as 1 µg/L.



**Historic Benzene Concentrations and Groundwater Elevations** Monitoring Well M-4, Jaquez Site Groundwater Elevation (ft msl)



**Historic Benzene Concentrations and Groundwater Elevations** Monitoring Well M-5, Jaquez Site

Non-dected concentrations are plotted as 1 µg/L.

