GW - 107

REPORTS

YEAR(S):

2002

REMEDIAL ACTION REPORT
CHLORIDE IMPACTED SOIL
JAL NO. 4 GAS PLANT
LEA COUNTY, NEW MEXICO

Prepared for:

EL PASO NATURAL GAS COMPANY
614 REILLY AVENUE
FARMINGTON, NEW MEXICO 87401
(505) 599-2124

Prepared by:

ATKINS BENHAM, INC.
ENVIRONMENTAL DIVISION
2488 East 81st Street, Suite 6000
Tulsa, Oklahoma 74137
(918) 496-0059

November 26, 2002

WORLDWIDE
COMPREHENSIVE
ENVIRONMENTAL
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Atkins Benham
ENVIRONMENTAL DIVISION

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G053A

REMEDIAL ACTION REPORT
CHLORIDE IMPACTED SOIL
JAL NO. 4 GAS PLANT
LEA COUNTY, NEW MEXICO

Prepared for:

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November 26, 2002

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REMEDIAL ACTION REPORT
CHLORIDE IMPACTED SOIL
JAL NO. 4 GAS PLANT
LEA COUNTY, NEW MEXICO

November 26, 2002

1.0 INTRODUCTION AND BACKGROUND

Atkins Benham, Inc. Environmental Division (ABI) was retained by El Paso Natural Gas Company (EPNG) to remediate chloride impacted soils in an area located east of the Jal No. 4 Gas Plant (Plant) in Lea County, New Mexico (Site). The Site location and topographic features are shown on Figure 1. Specifically, the Site is located in the immediate vicinity of recovery well RW-2 and monitor well ACW-9. The impacted soils resulted from the release of brine impacted groundwater that was being pumped from RW-2 when a wellhead connection froze and broke in November 2001. The Site is located in Section 5 of Township 24 South, Range 37 East and is shown on Figure 2. This report describes the activities conducted to remove the impacted soils and to restore the Site in accordance with the Remedial Action Plan (RAP), approved by the NMOCD on July 30, 2002.

1.1 Site History

The Plant was constructed by EPNG in 1952 to treat, compress and transport natural gas to EPNG's main transmission lines. EPNG discontinued their use of the Plant in 1987, leasing portions of the Plant property to Christie Gas Corporation (Christie) that same year. The Plant was eventually sold to Christie in 1991. EPNG has been made aware through discussions with Christie that negotiations are currently underway to sell the Plant to another party.

Brine and wastewater at the Plant was managed in eight (8) unlined retention ponds from 1952 to 1981. Beginning in 1981, brine at the Plant was managed in three (3) synthetic-lined retention ponds. In 1989, a leak was detected in one (1) of the brine retention ponds and two (2) ponds were retired. In response to the reported leak, the NMOCD requested that a hydrologic study be performed at the Plant. This request led to the drilling of three

(3) groundwater monitor wells and a limited groundwater study at the Site in May 1989. The preliminary findings of this study indicated that chloride-impacted groundwater was present beneath the Plant. Subsequent to this discovery, numerous investigations have been conducted at the Site to characterize and delineate the affected groundwater plume.

To date, eighteen (18) groundwater monitor wells have been installed at the Site. These wells are located generally along the east side of the Plant property, and on off-site properties located east and southeast of the Plant. In addition to these groundwater monitor wells, two (2) groundwater recovery wells have been installed to recover brine impacted groundwater and prevent its downgradient migration. Impacted groundwater recovery was initiated in recovery well RW-1 in October 1999, and in recovery well RW-2 in January 2000. Groundwater recovered by the remediation system is disposed via an existing on-site injection well located within the Plant.

On November 28, 2001, a valve on the pipeline integral to the groundwater remediation system froze and broke. This break resulted in the release of approximately 71 barrels of chloride-affected groundwater in the immediate vicinity of monitor well ACW-9 and recovery well RW-2. The groundwater being recovered from RW-2 on October 25, 2001 contained a chloride concentration of 2,400 mg/L and a TDS of 5,050 mg/L. A sample of the groundwater being recovered by RW-2 was collected in November 2000 and analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX). No detectable concentrations of BTEX were observed in this sample.

1.2 Previous Investigations

On the day following the groundwater release (November 29, 2001), EPNG collected four (4) surficial soil samples (samples M01-0528 through M01-0531) that were all analyzed for chloride and total petroleum hydrocarbons (TPH). Three (3) of these soil samples were collected from within the affected area and one (1) soil sample was collected outside the affected area as a background sample. The analytical results of these samples indicated that within the affected area the soils contained elevated chloride levels, but did not contain TPH.

2.0 REMEDIAL ACTION OBJECTIVES

As outlined in the RAP, the objectives of the remedial action were to accomplish the following:

- Excavate all soils from the affected area exhibiting EC levels greater than 4 mmhos/cm,
- Transport and dispose the excavated soils at a permitted off-site disposal facility,
- Conduct post-excavation soil sampling and analysis to confirm that soils remaining on-site exhibit EC levels less than 4 mmhos/cm, and
- Backfill and restore the disturbed areas of the Site.

3.0 FIELD ACTIVITIES

The following sections summarize the field activities performed to achieve the remedial objectives and restore the affected portions of the Site. All field activities were conducted in accordance with the RAP and ABI's site-specific Health and Safety Plan, and were documented in a dedicated field logbook. Field activities were conducted during the period October 22 through 29, 2002. Photographs documenting the various phases of the remedial activities are provided in Appendix B.

3.1 Impacted Soil Excavation and Disposal

Prior to commencing excavation activities, ABI re-established the grid system utilized during the soil-sampling event conducted in March 2002. Once the grid system was re-established, ABI laid out the limits of excavation proposed in the RAP. These proposed excavation limits are shown on Figure 3. All underground utilities were then exposed to verify their location and insure they would not be damaged during excavation. In performing the remediation, ABI subcontracted the services of Environmental Plus, Inc. (Eunice, New Mexico).

During the period October 22 through 24, 2002, the impacted soils were excavated using a backhoe. The soils excavated were loaded directly into dump trucks for transportation to the disposal facility. Throughout the excavation activities, ABI performed frequent surveys to insure that the projected excavation depths within each area were achieved. Approximately 312 cubic yards of impacted soil materials were ultimately excavated and removed from the Site. These impacted soil materials were transported to Doom Landfarm, LLC (NMOCD Permit #01-0033 and SCC #2157071) for disposal. This land farm is located in Section 5 of Township 25 South, Range 37 East, Lea County, New Mexico. Copies of the Environmental Plus, Inc. Transporter Manifests and the Doom Land Farm Waste Manifests are provided in Appendix C.

3.2 Confirmation Soil Sampling

During remediation of the Site, each portion of the affected area was excavated to the proposed depths indicated in the RAP. In addition, soil grab samples were collected at the

locations proposed in the RAP for field EC analysis to ensure sufficient material had been removed from the Site. The excavation depths and soil sample locations proposed in the RAP are shown on Figure 3.

Pursuant to the RAP, if a field EC greater than 1 mmhos/cm was observed in a soil sample, then the soil immediately surrounding that sampled location was over-excavated. The correlation between the field and the laboratory ECs was discussed previously within the RAP, however, this correlation indicated that a field EC of less than 1 mmhos/cm would have a corresponding laboratory EC of less than 4 mmhos/cm. The lateral extent of the over-excavation was five (5) feet square with the sample location exhibiting the elevated field EC value in the center of the square, and the over-excavation vertical depth was 0.5 foot. Based upon the initial field EC data from soil samples taken from the PE-6 and PE-7 sample locations, this vertical over-excavation depth was modified to 1.0 foot. Following these additional excavation activities, an additional soil grab sample for field EC analysis was collected from the newly excavated surface at a location beneath the location previously exhibiting an elevated field EC value. A summary of the field EC measurements taken during these activities is provided on Table 1. The units of field EC presented on Table 1 are provided in milliSiemens per centimeter (mS/cm) because the specific conductance meter employed during these activities utilized these units. One (1) mS/cm is approximately equivalent to one (1) mmhos/cm. As can be seen on Table 1, eleven (11) soil sample locations within the affected area required additional soil excavation and sampling than was proposed in the RAP. These sample locations were PE-6, PE-7, PE-9, PE-11 through PE-15, PE-19, PE-20 and PE-22. These sample locations are shown on Figure 4. The most notable of these locations were sample locations PE-6 and PE-7 where vertically an additional 2.5 feet and 3.5 feet of soil material was removed, respectively. An additional one (1) foot of soil material than was proposed in the RAP was removed vertically at sample locations a PE-9, PE-11 through PE-15, PE-19, PE-20 and PE-22. The remaining sample locations within the affected area did not require more excavation than was proposed in the RAP. The final excavation limits in the affected area are shown on Figure 4 and totaled an area of approximately 2,600 square feet.

When the excavation activities were complete and the field EC levels of the post-excavation soils were found to be less than 1 mS/cm, ABI collected post-excavation confirmation soil samples for submittal to Inter-Mountain Laboratories, Inc. (IML) (Farmington, New Mexico). These post-excavation samples were all grab samples and were analyzed for EC and chloride. The post-excavation soil sample locations are shown on Figure 4.

A summary of the laboratory analyses for the post-excavation soil samples is provided on Table 2, and a complete copy of the laboratory analytical report and chain-of-custody documentation is provided in Appendix D. As can be seen on Table 2, the soil EC values of these post-excavation soil samples ranged from 0.38 mmhos/cm (PE-23, 2.0 feet BGL) to 3.81 mmhos/cm (PE-6, 5.0 feet BGL), and the chloride concentrations ranged from 1.5 mg/kg (PE-23, 2.0 feet BGL) to 380 mg/kg (PE-6, 5.0 feet BGL). These levels are below the remediation goal level established by the RAP and approved by the NMOCD.

3.3 Site Restoration

On October 29, 2002, ABI received the laboratory results for the post-excavation soil samples. Upon receipt of these data indicating that the soil materials remaining within the affected area exhibited EC values less than 4 mmhos/cm, the excavated area was backfilled. Restoration of the Site was performed on October 29, 2002, and consisted of the placement, compaction and contouring of 312 cubic yards of soil backfill material. This soil backfill material was derived from an off-site borrow source owned by Mrs. Rebecca Doom.

On October 9, 2002, EPNG collected a grab sample of the soil from this off-site borrow source. This sample, identified as sample #1, was submitted to NEL Laboratories (Las Vegas, Nevada) and IML for EC, chloride TCLP metals, BTEX and TPH analyses. The EC value for this sample was 0.14 mmhos/cm, the metals were all below the TCLP regulatory limits, and the chloride BTEX and TPH were not detectable. On October 24, 2002, ABI collected a second sample of the soil from the off-site borrow source. This sample, identified as sample BS-1, was submitted to IML for EC and chloride analyses. The EC

value for this sample was 0.49 mmhos/cm and the chloride concentration was 2.0 mg/kg. A summary of the analytical results for these samples is provided in Table 3 and a copy of the laboratory analytical report and chain-of-custody documentation is provided in Appendix D.

At the request of the landowner, revegetation of the Site will be conducted in the Spring of 2003 when conditions are more favorable for vegetation establishment.

4.0 CONCLUSIONS

Based upon the remedial actions described within this report, the remedial action objectives presented in the RAP, dated May 3, 2002, have been achieved.

TABLES

TABLES

Table 1 : Summary of Field EC Measurements for Soil Samples
JAL No.4 Gas Plant
Lea County, New Mexico

Field Sample Number	Sample Location	Sample Depth (Feet BGL)	Field EC (mS/cm)
PE-1	I-8	2.0	0.22
PE-2	H-8	2.0	0.21
PE-3	G-8	2.0	0.15
PE-4	E-8	2.0	0.81
PE-5	D-8	2.0	0.66
PE-6	I-7	2.5	3.39
PE-6	I-7	3.0	2.08
PE-6	I-7	4.0	2.18
PE-6	I-7	5.0	0.64
PE-7	G-7	2.0	2.63
PE-7	G-7	2.5	2.67
PE-7	G-7	3.5	2.13
PE-7	G-7	4.5	2.29
PE-7	G-7	5.5	0.82
PE-7D	G-7	5.5	0.82
PE-8	E-7	2.5	0.31
PE-9	C-7	2.0	2.27
PE-9	C-7	3.0	0.14
PE-10	I-6	2.0	0.17
PE-11	H-6	2.0	1.59
PE-11	H-6	3.0	0.11
PE-12	G-6	2.0	1.52
PE-12	G-6	3.0	0.83
PE-13	F-6	2.0	2.06
PE-13	F-6	3.0	0.35
PE-14	E-6	2.0	2.12
PE-14	E-6	3.0	0.54
PE-15	D-6	2.0	2.34
PE-15	D-6	3.0	0.08

Table 1 : Summary of Field EC Measurements for Soil Samples
JAL No.4 Gas Plant
Lea County, New Mexico

Field Sample Number	Sample Location	Sample Depth (Feet BGL)	Field EC (mS/cm)
PE-16	C-6	1.0	0.50
PE-17	I-5	1.0	0.16
PE-18	H-5	1.0	0.36
PE-19	F-5	2.0	2.75
PE-19	F-5	3.0	0.67
PE-20	E-5	2.0	1.42
PE-20	E-5	3.0	0.78
PE-21	D-5	1.0	0.34
PE-22	H-4	1.0	1.05
PE-22	H-4	2.0	0.32
PE-22D	H-4	2.0	0.32
PE-23	E-4	1.0	0.93
PE-23	E-4	2.0	0.25

Notes:

1. D: Denotes duplicate sample
2. The actual location of PE-21 is 2.5' North and 2.5' East of grid point D-5
3. BGL: denotes below preexcavation ground level
4. mS/cm: denotes microSiemens per centimeter
5. 1 mS/cm is approximately equivalent to 1 mmhos/cm
6. Soil samples were grab samples collected from the excavated surface of the depth interval indicated.

Table 2 : Summary of Laboratory Analytical Results for Post-Excavation Soil Samples
JAL No.4 Gas Plant
Lea County, New Mexico

Field Sample Number	Sample Location	Sample Depth (Feet BGL)	Laboratory Sample ID Number	EC (mmhos/cm)	Chloride (mg/kg)
PE-2	H-8	2.0	0302S04616	0.79	5.7
PE-5	D-8	2.0	0302S04617	3.04	260
PE-6	I-7	5.0	0302S04618	3.81	380
PE-7	G-7	5.5	0302S04619	0.43	3.2
PE-7D	G-7	5.5	0302S04619D	0.41	3
PE-8	E-7	2.5	0302S04620	1.67	22
PE-9	C-7	3.0	0302S04621	0.42	1.8
PE-11	H-6	3.0	0302S04622	0.4	16
PE-13	F-6	3.0	0302S0423	1.27	86
PE-15	D-6	3.0	0302S04624	0.43	1.7
PE-16	C-6	1.0	0302S04625	2.27	6.5
PE-17	I-5	1.0	0302S04626	1.33	55
PE-20	E-5	3.0	0302S04627	0.39	1.7
PE-21	D-5	3.0	0302S04628	2.43	9
PE-22	H-4	1.0	0302S04629	1.37	25
PE-22D	H-4	2.0	0302S04629D	1.41	25
PE-23	E-4	2.0	0302S04630	0.38	1.5

Notes:

1. D: Denotes duplicate sample.
2. mmhos/cm: Denotes millimhos per centimeter.
3. BGL: Denotes below preexcavation ground level.
4. mg/kg: Denotes milligrams per kilogram.
5. Soil samples were grab samples collected from the excavated surface of the depth interval indicated.
6. The actual location of PE-21 is 2.5' North and 2.5' East of grid point D-5.

Table 3 : Summary of Laboratory Analytical Results for Borrow Source Soil Samples
JAL No.4 Gas Plant
Lea County, New Mexico

Sample ID	#1	BS-1
Date Sampled	10/09/2002	10/24/2002
Analyte		
BTEX (µg/kg)		
Benzene	ND	---
Ethylbenzene	ND	---
Toluene	ND	---
Xylenes (total)	ND	---
MTBE	ND	---
TPH (mg/kg)		
Gasoline Range	ND	---
Diesel Range	ND	---
Oil Range	ND	---
Total Petroleum Hydrocarbons	ND	---
TCLP Metals (mg/L)		
Arsenic	0.52	---
Barium	1.3	---
Cadmium	0.49	---
Chromium	0.48	---
Lead	0.95	---
Mercury	ND	---
Selenium	0.52	---
Silver	0.2	---
Electrical Conductivity (mmhos/cm)	0.14	0.49
Chloride (mg/kg)	ND	2.0

Notes:

1. mg/kg: Denotes milligrams per kilogram.
2. mmhos/cm: Denotes millimhos per centimeter.
3. mg/L: Denotes milligrams per Liter.
4 µg/kg: Denotes micrograms per kilogram.

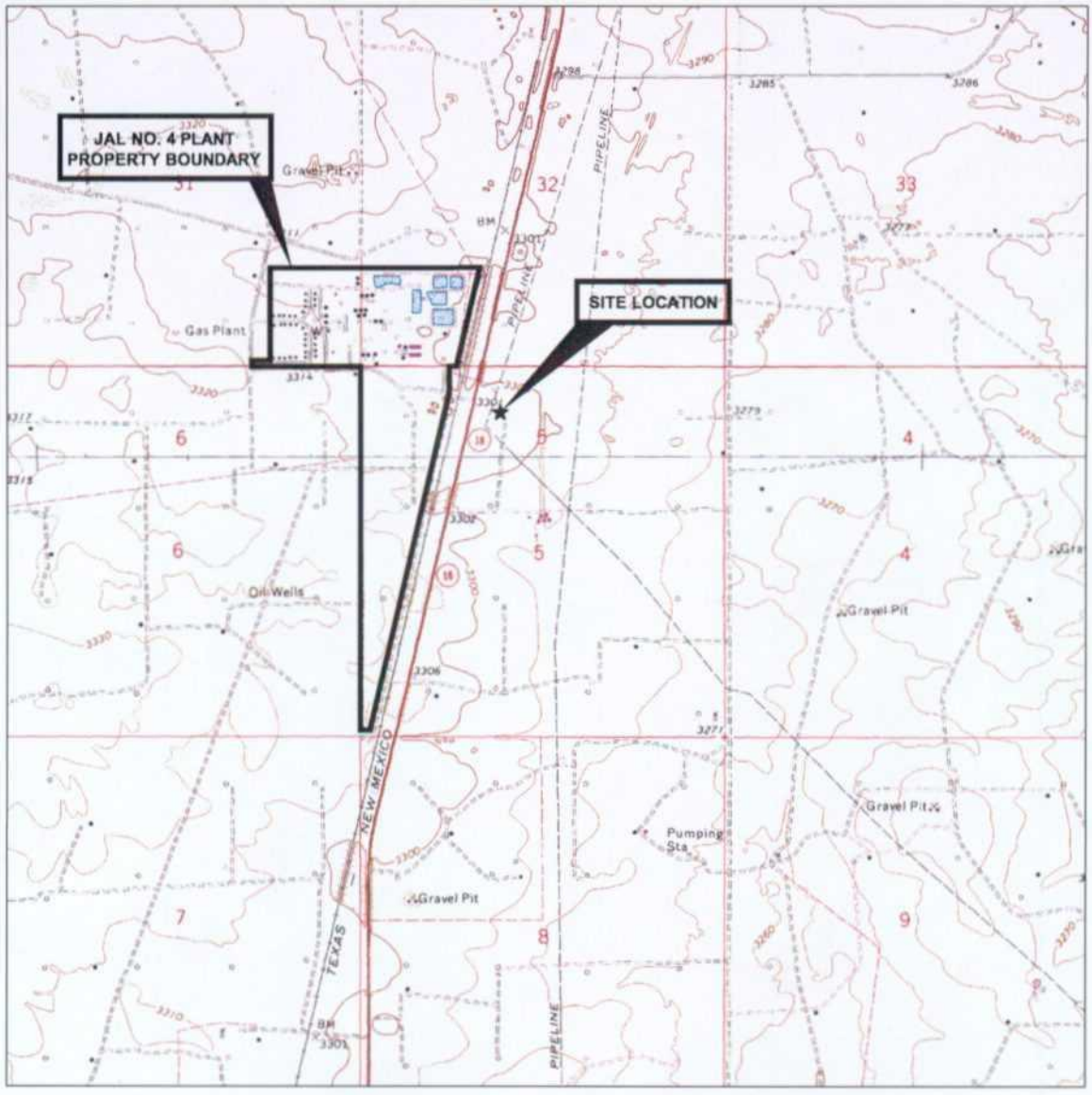
FIGURES

FIGURES

R 37 E

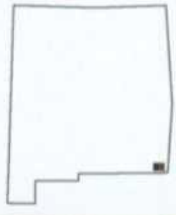
T 23 S

T 24 S



AFTER U.S.G.S. 7.5 MIN. TOPO. QUAD., RATTLESNAKE CANYON, N.M., 1979, AND JAL NW, N.M., 1979

NEW MEXICO



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SCALE

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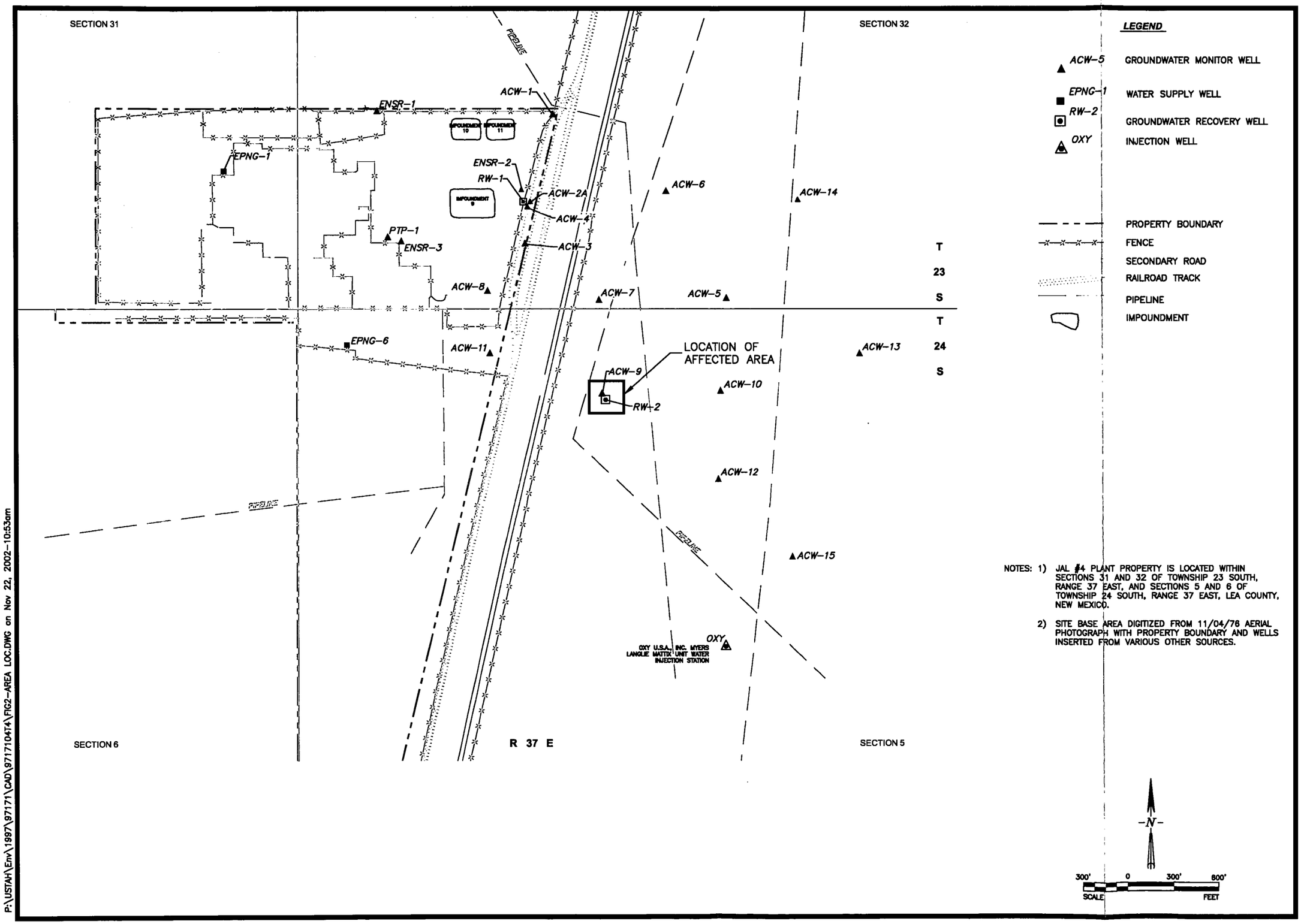
FIGURE TITLE	*SITE LOCATION AND TOPOGRAPHIC FEATURES*
DOCUMENT TITLE	REMEDIAL ACTION REPORT CHLORIDE IMPACTED SOIL
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL NO. 4 GAS PLANT LEA COUNTY, NEW MEXICO

DATE	11/21/02
SCALE	AS NOTED
DESIGNED BY	BEM
APPROVED BY	BEM
DRAWN BY	SKG
PROJECT NUMBER	9717104 T4
FIGURE NUMBER	1

P:\USTAH\Env\1997\97171\CAD\9717104T4\FIG 1 - TOPO.DWG on Nov 22, 2002-10:52am



NOTES:
1) JAL #4 PLANT PROPERTY IS LOCATED WITHIN SECTIONS 31 AND 32 OF TOWNSHIP 23 SOUTH, RANGE 37 EAST, AND SECTIONS 5 AND 6 OF TOWNSHIP 24 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO.
2) SITE BASE AREA DIGITIZED FROM 11/04/76 AERIAL PHOTOGRAPH WITH PROPERTY BOUNDARY AND WELLS INSERTED FROM VARIOUS OTHER SOURCES.

FIGURE TITLE	LOCATION OF AFFECTED AREA
DOCUMENT TITLE	REMEDIAL ACTION REPORT CHLORIDE IMPACTED SOIL
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL NO. 4 GAS PLANT LEA COUNTY, NEW MEXICO

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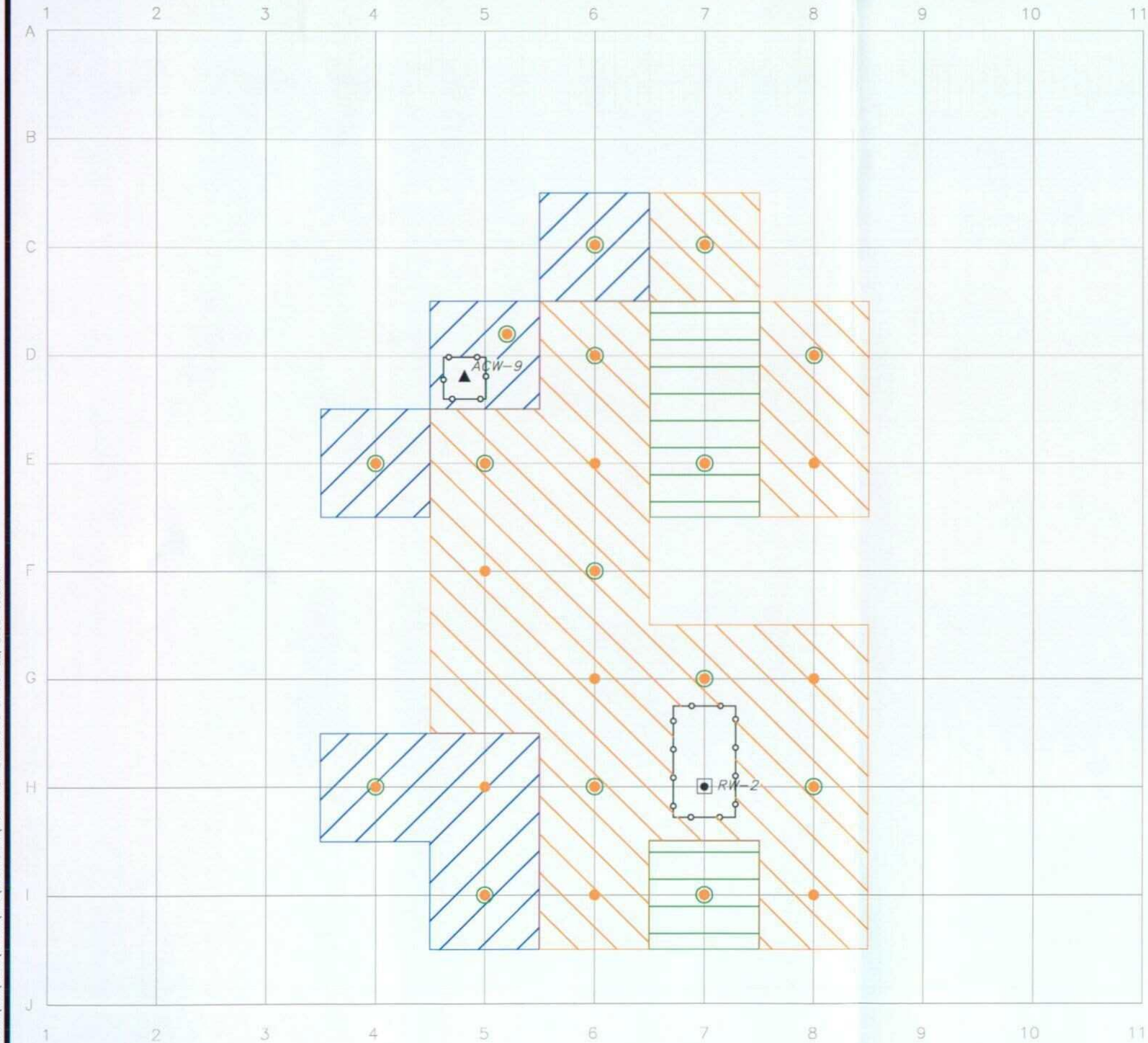
DATE	11/21/02
SCALE	1"= 600'
DESIGNED BY	BEM
APPROVED BY	BEM
DRAWN BY	SKG

PROJECT NUMBER
9717104 T4
FIGURE NUMBER
2

P:\USTAH\Env\1997\97171\CAD\97171041\FIG2-AREA LOC.DWG on Nov 22, 2002-10:53am



LEGEND

- ACW-9 — GROUNDWATER MONITOR WELL AND IDENTIFICATION
- RW-2 — GROUNDWATER RECOVERY WELL AND IDENTIFICATION
- WELL HEAD PROTECTION RAILS AND POSTS
- PROPOSED FIELD EC CONFIRMATION SOIL SAMPLE LOCATION
- PROPOSED LABORATORY EC CONFIRMATION SOIL SAMPLE LOCATION
- PROPOSED LIMITS OF EXCAVATION TO 1 FOOT DEPTH
- PROPOSED LIMITS OF EXCAVATION TO 2 FEET DEPTH
- PROPOSED LIMITS OF EXCAVATION TO 2.5 FEET DEPTH

NOTES: 1) SAMPLE GRID ESTABLISHED ON 10' x 10' INTERSECTS.

2) COMPASS DIRECTION APPROXIMATE

N

10' 0 10'

SCALE IN FEET

FIGURE TITLE	***AFFECTED AREA PROPOSED LIMITS OF EXCAVATION AND SOIL SAMPLE LOCATIONS***
DOCUMENT TITLE	REMEDIAL ACTION REPORT CHLORIDE IMPACTED SOIL
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL NO. 4 GAS PLANT LEA COUNTY, NEW MEXICO

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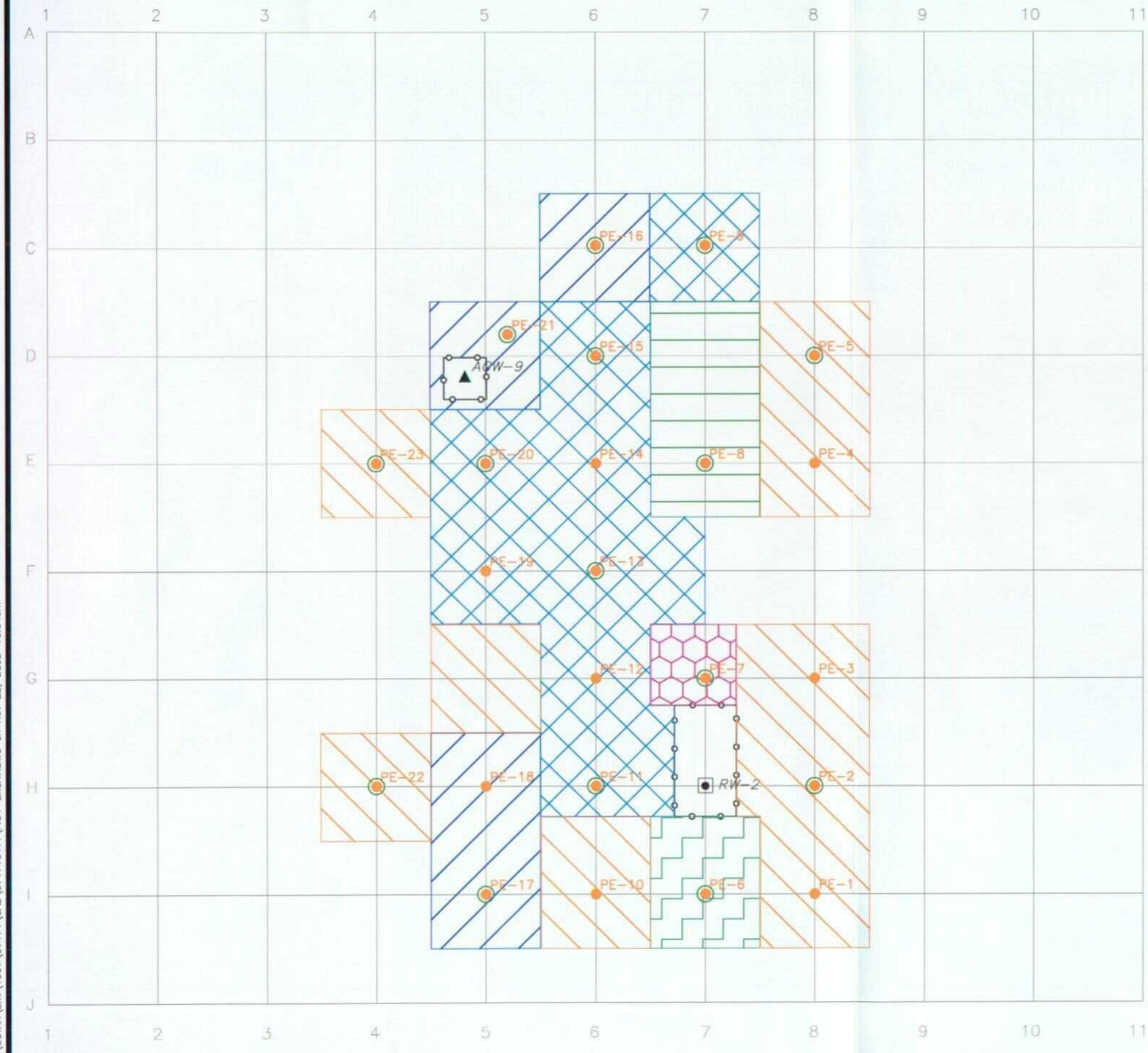
SCALE	1"=10'
DESIGNED BY	BEM
APPROVED BY	BEM
DRAWN BY	SKG

PROJECT NUMBER
9717104 T4
FIGURE NUMBER
3

P:\USTAH\Env\1997\97171\CAD\97171041T4\FIG3-PROP EXCAV.DWG on Nov 22, 2002-10:54am



LEGEND

- ACW-9 — GROUNDWATER MONITOR WELL AND IDENTIFICATION
- RW-2 — GROUNDWATER RECOVERY WELL AND IDENTIFICATION
- WELL HEAD PROTECTION RAILS AND POSTS
- PE-1 — FIELD EC CONFIRMATION SOIL SAMPLE LOCATION
- LABORATORY EC CONFIRMATION SOIL SAMPLE LOCATION
- LIMITS OF EXCAVATION TO 1.0 FOOT DEPTH
- LIMITS OF EXCAVATION TO 2.0 FEET DEPTH
- LIMITS OF EXCAVATION TO 2.5 FEET DEPTH
- LIMITS OF EXCAVATION TO 3.0 FEET DEPTH
- LIMITS OF EXCAVATION TO 5.0 FEET DEPTH
- LIMITS OF EXCAVATION TO 5.5 FEET DEPTH

NOTES: 1) SAMPLE GRID ESTABLISHED ON 10' x 10' INTERSECTS.

2) COMPASS DIRECTION APPROXIMATE

N

10' 0 10'

SCALE IN FEET

FIGURE TITLE	***AFFECTED AREA FINAL LIMITS OF EXCAVATION AND SOIL SAMPLE LOCATIONS***
DOCUMENT TITLE	REMEDIAL ACTION REPORT CHLORIDE IMPACTED SOIL
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL NO. 4 GAS PLANT LEA COUNTY, NEW MEXICO

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DATE	11/21/02
SCALE	1"=10'
DESIGNED BY	BEM
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DRAWN BY	SKG

PROJECT NUMBER
9717104 T4
FIGURE NUMBER
4

P:\USTAH\Env\1997\97171\CAD\97171047\FIG4-EXCAV.DWG on Nov 22, 2002-10:54am

APPENDICES

APPENDICES

APPENDIX A

APPENDIX A

NMOCD LETTER APPROVING REMEDIAL ACTION PLAN

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Betty Rivera
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

July 30, 2002

CERTIFIED MAIL
RETURN RECEIPT NO. 7001-1940-0004-7923-0483

Mr. Scott T. Pope
El Paso Natural Gas Company
614 Reilly Ave.
Farmington, NM 87401

RE: SPILL REMEDIAL ACTION PLAN FOR CHLORIDE IMPACTED SOILS
CASE # GW-107R
JAL #4 PLANT
LEA COUNTY, NEW MEXICO

Dear Mr. Pope:

The New Mexico Oil Conservation Division (OCD) has reviewed El Paso Natural Gas Company's (EPNG) June 12, 2002 "REMEDIAL ACTION PLAN FOR CHLORIDE IMPACTED GROUNDWATER SPILL AT THE JAL NO. 4 GAS PLANT LOCATED IN LEA COUNTY, NEW MEXICO". This document contains EPNG's work plan for remediation of contaminated soil from a November 28, 2001 flowline spill of chloride contaminated ground water associated with the Jal No. 4 Plant ground water remediation system.

The above-referenced work plan is approved with the following conditions:

1. All final excavation bottom and backfill soil samples taken for laboratory analysis shall also be analyzed for concentrations of chloride.

2. All samples shall be obtained and analyzed using EPA approved methods and quality assurance/quality control (QA/QC) procedures.

3. The final closure report shall be submitted to the OCD Santa Fe Office by October 31, 2002 with a copy provided to the OCD Hobbs District Office. The report shall contain:

   a. A description of the remediation activities which occurred including conclusions and recommendations.

   b. A map showing the location of the release, sample locations, excavations pipelines, monitor wells, private water wells and any other pertinent site features.

   c. Summary tables of all soil sampling results and copies of all laboratory analytical data sheets and associated QA/QC data.

   d. The disposition of all wastes generated.

4. EPNG shall notify the OCD at least 48 hours in advance of all scheduled activities such that the OCD has the opportunity to witness the events and split samples.

Please be advised that OCD approval does not limit EPNG to the proposed work plan should the plan fail to remediate contamination at the site, or if contamination exists which is outside the scope of the plan. In addition, OCD approval does not relieve EPNG of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please call me at (505) 476-3491.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor

APPENDIX B

APPENDIX B

SITE REMEDIATION PHOTOGRAPHS

Photo No 1: Affected Area prior to excavation during underground utility location. View looking North.

Photo No 2: Northeast portion of the Affected Area following excavation. Note RW-2 discharge line exposed in foreground. View looking Northeast.

Photo No 3: Impacted soil loading operations. View looking Southeast.

Photo No 4: Affected Area following completion of excavation activities and prior to backfilling/site restoration activities. View looking North.

Photo No 5: Affected Area following completion of site restoration activities. View looking East.

APPENDIX C

APPENDIX C

TRANSPORTER AND WASTE MANIFESTS

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 001

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-22-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-22-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 002

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-22-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-22-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE Cis Bundy
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 003

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-22-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-22-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 004

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-22-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-22-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 005

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-22-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-22-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE Cleo Bundy
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 006

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-22-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-22-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 008

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-22-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-22-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE Cis Bush
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 009

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE Chris Bush
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 010

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 011

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE Cis Burks
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 012

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 613

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 014

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE Curtis Brooks
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 615

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE Curtis Burks
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 016

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 017

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

018

MANIFEST #_____

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 019

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-23-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10 23-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/23/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 020

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-24-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-24-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/24/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 021

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-24-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-24-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/24/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 022

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-24-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-24-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/24/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 023

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-24-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-24-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/24/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 024

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-24-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-24-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/24/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 0254

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-24-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-24-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/24/02

ENVIRONMENTAL PLUS INC.
TRANSPORTER MANIFEST

MANIFEST # 026

SHIPPING FACILITY NAME & ADDRESS — LOCATION:

EL Paso Natural Gas — Jal#4

TRANSPORTER NAME & ADDRESS

ENVIRONMENTAL PLUS INC, P.O. BOX 1558 EUNICE N.M. 88231

DESCRIPTION OF WASTE — QUANITY:

CONTAMINATED SOIL — 1 Load at 12 Yards

Sec 5 T 24S R 37E
FACILITY CONTACT

SIGNATURE OF CONTACT Roger Boone
DATE 10-24-02

NAME OF TRANSPORTER: (DRIVER) Michael Montanez

SIGNATURE OF DRIVER Michael Montanez
DATE 10-24-02

DISPOSAL SITE: Doom Land Farm

FACILITY REPRESENTIVE
DATE 10/24/02

Doom Land Farm
Waste Manifest

001A

Generators/Originating Site Location: CPNG JAL #4

Section 5 Township 24S Range 37E

Trucking Company ENVIRONMENTAL PLUS INC

Drivers Signature: Michael Montanez

Type of Material CONTAMINATED SOIL

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature: Tony Sh

002A

Doom Land Farm
Waste Manifest

Generators/Originating Site Location: EPNG JAL #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: Michael Montanez

Type of Material Contaminated soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature: Terry Sch

Doom Land Farm
Waste Manifest

003 A

Generators/Originating Site Location: EPNG JAL # 4

Section 5 Township 24S Range 37E

Trucking Company ENVIRONMENTAL PLUS INC.

Drivers Signature: Michael Montano

Type of Material CONTAMINATED SOIL

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature: Tony Sch

Doom Land Farm
Waste Manifest

004A

Generators/Originating Site Location: EPNG JA1 #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: Michael Montanez

Type of Material Contaminated soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature: Tony Sim

Doom Land Farm
Waste Manifest

005A

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc.

Drivers Signature: Michael Montano

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm _____

Comments: _____

Attendant on duty signature: _____

Date _____

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature: Tony Tilton

Doom Land Farm
Waste Manifest

0061

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: Michael Montoya

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

007A

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc.

Drivers Signature: Ufichael Ufontanez

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

0084

Generators/Originating Site Location: EPNG JAL #4

Section 5 Township 24S Range 37E

Trucking Company ENVIRONMENTAL PLUS INC.

Drivers Signature: [signature]

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm _____

Comments: _____

Attendant on duty signature: _____

Date _____

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature: [signature]

Doom Land Farm
Waste Manifest

009A

Generators/Originating Site Location: EPNG JA/#4

Section 5 Township 24S Range R32E

Trucking Company Environmental Plus Inc

Drivers Signature: Michael Montanez

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

010 A

Generators/Originating Site Location: EPNG JAL #4

Section 25 Township 24S Range 37E

Trucking Company Environmental Plus Inc.

Drivers Signature: Michael Montoya

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

011A

Generators/Originating Site Location: EPNG JAL #4

Section 5 Township 24S Range 37E

Trucking Company ENVIRONMENTAL PLUS INC

Drivers Signature: Michael Montano

Type of Material CONTAMINATED SOIL

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

C12A

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: [signature]

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

013A

Generators/Originating Site Location: EPNG JAL #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: Michael Montanez

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

C14A

Generators/Originating Site Location: EPNG JAI #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc.

Drivers Signature: Michael Montanez

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

615A

Generators/Originating Site Location: EPNG Jal #3

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: Michael Montano

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

016A

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: Michael Montano

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

017A

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: Michael Montanez

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

Generators/Originating Site Location: EPNG J.C. #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: [signature]

Type of Material Condensate

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

0194

Generators/Originating Site Location: EANG jpl #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: Michael Montano

Type of Material Contaminated soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

020A

Generators/Originating Site Location: EPNG JAL #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: [illegible]

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

021A

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: [signature]

Type of Material Contaminated soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

022A

Generators/Originating Site Location: EPNG JAL #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: (illegible)

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

023A

Generators/Originating Site Location: EPNG JAL #4.

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc.

Drivers Signature: Michael Montanez

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

024A

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc.

Drivers Signature: Michael Upchurch

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

02SA

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: [signature]

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

Doom Land Farm
Waste Manifest

026A

Generators/Originating Site Location: EPNG Jal #4

Section 5 Township 24S Range 37E

Trucking Company Environmental Plus Inc

Drivers Signature: [signature]

Type of Material Contaminated Soil

Quantity 1 Loads By 12 yd Dump Truck 12 Total yds

Cell Number material was placed in land farm 1

Comments:

Attendant on duty signature:

Date

As a condition of acceptance for disposal, I hereby certify that this waste is exempt waste as defined by the EPA. The waste listed above was generated as a result of oil and gas operations and is exempt from RCRA sub title c regulations and not mixed with non-exempt waste.

Signature:

APPENDIX D

APPENDIX D
LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

CASE NARRATIVE

Client:	Atkins Benham, Inc.
Project:	El Paso Corp. – Jal
Set number:	0302S04616-4631
Date received:	10/25/02
Date reported:	11/13/02
Chain of Custody:	

Inter-Mountain Laboratories, Inc., Farmington, NM received the samples listed above for analysis on October 25, 2002. Enclosed are the results of the sample analyses.

Comment:

The Electrical Conductivity of saturated paste extract was determined for each sample using American Society of Agronomy Monograph 9, 2nd Edition (1982), Method 10-3.3. The units are in milli mhos per cm (mmhos/cm) which is equivalent to deci Seimens per meter at 25°C (dS/m @ 25°C). The chloride ion content of the saturated paste extract was determined by ion chromatograph. The chloride ion content (mg/L of saturated paste extract) was multiplied by the saturation % of the saturated paste extract to convert the value to mg/kg as per your request.

If you have any question concerning the data, please feel free to call the laboratory,
(505) 326-4737.

Reviewed by:

Phone (505) 326-4737 Fax (505) 325-4182

Inter-Mountain Laboratories, Inc.
2506 West Main Street, Farmington, NM 87401

Client Project ID: El Paso Corp. - Jal
Date Received: 10/25/02

Atkins Benham, Inc.
Tulsa, OK

IML Project #0302S04616
Report Date: 11/13/02

Lab Id	Sample Id	Depths	Electrical Conductivity mmhos/cm	Saturation %	Chloride mg/Kg
0302S04616	PE-2 (2'-0")	N/A	0.79	26	5.7
0302S04617	PE-5 (2'-0")	N/A	3.04	30	260
0302S04618	PE-6 (5'-6")	N/A	3.81	35	380
0302S04619	PE-7 (6'-0")	N/A	0.43	23	3.2
0302S04620	PE-8 (2'-6")	N/A	1.67	37	22
0302S04621	PE-9 (3'-0")	N/A	0.42	23	1.8
0302S04622	PE-11 (3'-0")	N/A	0.40	40	16
0302S04623	PE-13 (3'-0")	N/A	1.27	42	86
0302S04624	PE-15 (3'-0")	N/A	0.43	23	1.7
0302S04625	PE-16 (2'-0")	N/A	2.27	23	6.5
0302S04626	PE-17 (1'-0")	N/A	1.33	22	55
0302S04627	PE-20 (3'-0")	N/A	0.39	23	1.7
0302S04628	PE-21 (1'-0")	N/A	2.43	23	9.0
0302S04629	PE-22 (2'-0")	N/A	1.37	31	25
0302S04630	PE-23 (2'-0")	N/A	0.38	22	1.5
0302S04631	BS-1	N/A	0.49	23	2.0

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Atkins Benham, Inc.

Tulsa, OK

Client Project ID: El Paso Corp. - Jal

Date Received: 10/25/02

IML Project #0302S04616

Report Date: 11/13/02

Lab Id	Sample Id	Depths	Electrical Conductivity	Saturation	Chloride
			mmhos/cm	%	mg/Kg
0302S04619	PE-7 (6'-0")	N/A	0.43	23	3.2
0302S04619D	PE-7 (6'-0")	N/A	0.41	23	3.0
0302S04629	PE-22 (2'-0")	N/A	1.37	31	25
0302S04629D	PE-22 (2'-0")	N/A	1.41	32	25

4733

CHAIN-OF-CUSTODY RECORD

Atkins Benham
ENVIRONMENTAL DIVISION
FORMERLY ROBERTS / SCHORNICK & ASSOCIATES

- Norman, OK 405/321-3895
- Tulsa, OK 918/496-0059
- Arlington, TX 817/640-6407
- Houston, TX 281/496-1073

(Complete Addresses on reverse side of form)

CLIENT NAME: EL PASO

SITE MANAGER: Buddy Richardson

PROJECT NO.: 1897117104

PROJECT NAME: JAL #4 Gas Plant

PAGE: OF

LAB.: PO#

DATE	TIME	MATRIX	SAMPLE IDENTIFICATION	LAB ID NUMBER (LAB USE ONLY)	NUMBER OF CONTAINERS	PARAMETERS/METHOD NUMBER: EC	PARAMETERS/METHOD NUMBER: CHLORIDES	REMARKS (I.E., FILTERED, UNFILTERED, PRESERVED, UNPRESERVED, GRAB COMPOSITE
10-23-02	1210	Soil	PE-2 (2'-0")	4616	1	X	X	
10-23-02	1240	Soil	PE-5 (2'-0")	17	1	X	X	
10-24-02	1130	Soil	PE-6 (5.6")	18	1	X	X	
10-24-02	1220	Soil	PE-7 (6'-0")	19	1	X	X	
10-23-02	1330	Soil	PE-8 (2'.6")	20	1	X	X	
10-23-02	1720	Soil	PE-9 (3'.0")	21	1	X	X	
10-24-02	840	Soil	PE-11 (3'.0")	22	1	X	X	
10-23-02	930	Soil	PE-13 (3'.0")	23	1	X	X	
10-23-02	950	Soil	PE-15 (3'.0")	24	1	X	X	
10-23-02	1510	Soil	PE-16 (2'.0")	25	1	X	X	
10-23-02	1550	Soil	PE-17 (1'.0")	26	1	X	X	
10-24-02	1605	Soil	PE-20 (3'.0")	27	1	X	X	
10-23-02	1610	Soil	PE-21 (1'.0")	28	1	X	X	

SAMPLED BY: (Signature) TERRY FISHER
DATE: SAME AS
TIME: ABOVE

RELINQUISHED BY: (Signature)
DATE: 10-24-02
TIME: 1700

RECEIVED BY: (Signature)
DATE:
TIME:

RELINQUISHED BY: (Signature)
DATE:
TIME:

RECEIVED BY: (Signature)
DATE:
TIME:

SAMPLE SHIPPED BY: (Circle) AIRBILL #
FEDEX PONY XPS VEL XPS
HAND DELIVERED UPS OTHER

COMMENTS:

TURN AROUND TIME NEEDED
(ASAP) or (30 DAY)

RECEIVING LABORATORY: Intermountain Laboratories
ADDRESS: 2506 West Main Street
CITY: Farmington STATE: NM ZIP: 87401
CONTACT: Jeff Goats
PHONE: (505) 326-4737

RECEIVED BY LABORATORY:
Signature
DATE: TIME:

SAMPLE CONDITION UPON RECEIPT (Lab Use Only)
Temperature: Ice Present? Y N
Custody Seals Present? Y N
Comments:

ABI CONTACT PERSON(S): DEBBY McELREATH/

PHONE #: 405-321-3895 / 405-579-0203

POINT OF ORIGIN: ☐ ABI - NORMAN ☒ ABI - TULSA ☐ ABI - ARLINGTON ☐ OTHER:

PAGE #1 - RECEIVING LAB
PAGE #2 - RETURN TO ABI
PAGE #3 - PROJECT MANAGER
PAGE #4 - QA/QC COORDINATOR

4734

CHAIN-OF-CUSTODY RECORD

Atkins Benham
ENVIRONMENTAL DIVISION
FORMERLY ROBERTS / SCHORNICK & ASSOCIATES

- Norman, OK 405/321-3895
- Tulsa, OK 918/496-0059
- Arlington, TX 817/640-6407
- Houston, TX 281/496-1073

(Complete Addresses on reverse side of form)

CLIENT NAME: EL PASO

SITE MANAGER: BUDDY Richardson

PROJECT NO.: 1897117104 T3

PROJECT NAME: JAL #4 GAS PLANT

PAGE: 2 OF 2

LAB.: PO#

DATE	TIME	MATRIX	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	EC	CHLORIDE	LAB I.D. NUMBER (LAB USE ONLY)	REMARKS (I.E., FILTERED, UNFILTERED, PRESERVED, UNPRESERVED, GRAB COMPOSITE
10-24-02		Soil	PE-22 (2'0") 4629	1	X	X		
10-24-02	1015	Soil	PE-23 (2'0") 30	1	X	X		

SAMPLED BY: (Signature) TERRY FISHER — DATE: Same As TIME: Above

RELINQUISHED BY: (Signature) [signature] — DATE: 10-24-02 TIME: 1700

RECEIVED BY: (Signature) — DATE: TIME:

RELINQUISHED BY: (Signature) — DATE: TIME:

RECEIVED BY: (Signature) — DATE: TIME:

SAMPLE SHIPPED BY: (Circle) AIRBILL #

FEDEX PONY XPS VEL XPS

HAND DELIVERED UPS OTHER

COMMENTS:

TURN AROUND TIME NEEDED: (ASAP) or (3 Days)

RECEIVING LABORATORY: Intermountain Laboratories

ADDRESS: 2506 West Main Street

CITY: Farmington STATE: NM ZIP: 87401

CONTACT: Jeff Goats

PHONE: (505) 326-4737

SAMPLE CONDITION UPON RECEIPT (Lab Use Only)

ABI CONTACT PERSON(S): DEBBY McELREATH/

PHONE #: 405-321-3895 / 405-579-0203

POINT OF ORIGIN: ☐ ABI - NORMAN ☒ ABI - TULSA ☐ ABI - ARLINGTON ☐ OTHER:

PAGE #1 - RECEIVING LAB PAGE #2 - RETURN TO ABI PAGE #3 - PROJECT MANAGER PAGE #4 - QA/QC COORDINATOR

4735

CHAIN-OF-CUSTODY RECORD

Atkins Benham
ENVIRONMENTAL DIVISION
FORMERLY ROBERTS / SCHORNICK & ASSOCIATES

- Norman, OK 405/321-3895
- Tulsa, OK 918/496-0059
- Arlington, TX 817/640-6407
- Houston, TX 281/496-1073

(Complete Addresses on reverse side of form)

CLIENT NAME: EL PASO

SITE MANAGER: BUDDY Richardson

PROJECT NO.: 18971171O4 T3

PROJECT NAME: JAL #4 Gas Plant

PAGE: OF

LAB.: PO#

DATE	TIME	MATRIX	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	PARAMETERS/METHOD NUMBER: CHLORIDE							LAB I.D. NUMBER (LAB USE ONLY)	REMARKS (I.E., FILTERED, UNFILTERED, PRESERVED, UNPRESERVED, GRAB COMPOSITE
10-24-02	1540	SOIL	BS-1 4631	1	X								

SAMPLED BY: (Signature) TERRY FISHER

DATE: SAME AS
TIME: Above

RELINQUISHED BY: (Signature) [signature]

DATE: 10-24-02
TIME: 1700

RECEIVED BY: (Signature)

DATE:
TIME:

RELINQUISHED BY: (Signature)

DATE:
TIME:

RECEIVED BY: (Signature)

DATE:
TIME:

SAMPLE SHIPPED BY: (Circle) AIRBILL #

FEDEX PONY XPS VEL XPS

HAND DELIVERED UPS OTHER

COMMENTS:

TURN AROUND TIME NEEDED: ASAP or 3 Days

RECEIVING LABORATORY: Intermountain Laboratories

ADDRESS: 2506 West Main Street

CITY: Farmington STATE: NM ZIP: 87401

CONTACT: Jeff Gaets

PHONE: (505) 326 4737

RECEIVED BY LABORATORY:

SAMPLE CONDITION UPON RECEIPT (Lab Use Only)

ABI CONTACT PERSON(S): DEBBY McELREATH/

PHONE #: 405-321-3895 / 405-579-0203

POINT OF ORIGIN: ☐ ABI - NORMAN ☒ ABI - TULSA ☐ ABI - ARLINGTON ☐ OTHER:

PAGE #1 - RECEIVING LAB PAGE #2 - RETURN TO ABI PAGE #3 - PROJECT MANAGER PAGE #4 - QA/QC COORDINATOR

NEL LABORATORIES

Corporate Headquarters / Reno Laboratory
4750 Longley Lane, Suite 106
Reno, NV 89502
Phone: 775.348.2522
Fax: 775.348.2546

Las Vegas Laboratory
4208 Arcata Way, Suite A
Las Vegas, NV 89030
Phone: 702.657.1010
Fax: 702.657.1577

Darrell Campbell
El Paso Natural Gas
8645 Railroad Drive
El Paso, TX 79904

TEL: (915) 587-3729

RE Project: **Plains Area Remediation** Order No.: **L0210184**

Dear Darrell Campbell:

NEL Laboratories, Las Vegas received 1 sample on 10/11/02 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications unless noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Rod T. Miller
Laboratory Director

10/28/02
Date

Certifications:

Arizona	AZ0518
California	2002
Idaho	Certified
Montana	Certified
Nevada	NV052
New Mexico	Certified

NEL LABORATORIES

NEL Laboratories, Las Vegas **Date:** *29-Oct-02*

CLIENT: El Paso Natural Gas
Project: Plains Area Remediation
Lab Order: L0210184

CASE NARRATIVE

Attached are the analytical results for samples in support of the above referenced project.

The samples submitted for this project were not sampled by NEL. Should you have any questions or comments, please feel free to contact our Client Services Department.

Analytical Comments:

8260 Analysis:

S: Surrogate recovery fell outside laboratory-derived control limits; however the recovery observed was within method specified acceptance limits.

NEL LABORATORIES

CLIENT: El Paso Natural Gas
PROJECT ID: Plains Area Remediation
PROJECT #: 2002100795
MATRIX: SOIL

CLIENT ID: #1
DATE SAMPLED: 10/9/02
NEL SAMPLE ID: L0210184-001A

Parameter	Result	Unit	Reporting Limit	DF	Method	Prep Date	Analyzed	Analyst
Arsenic	0.52	mg/L	0.050	1	SW 6010B-To	10/14/02	10/14/02	VVG-LV
Barium	1.3	mg/L	0.0050	1	SW 6010B-To	10/14/02	10/14/02	VVG-LV
Cadmium	0.49	mg/L	0.0050	1	SW 6010B-To	10/14/02	10/14/02	VVG-LV
Chromium	0.48	mg/L	0.010	1	SW 6010B-To	10/14/02	10/14/02	VVG-LV
Lead	0.95	mg/L	0.050	1	SW 6010B-To	10/14/02	10/14/02	VVG-LV
Selenium	0.52	mg/L	0.050	1	SW 6010B-To	10/14/02	10/14/02	VVG-LV
Silver	0.20	mg/L	0.010	1	SW 6010B-To	10/14/02	10/14/02	VVG-LV
Mercury	ND	mg/L	0.0020	1	SW 7470-Tota	10/15/02	10/15/02	FAS-LV

ND - Not Detected at the Reporting Limit
DF - Dilution Factor
Date: *28-Oct-02*

B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
E - Value above quantitation range

NEL LABORATORIES

CLIENT: El Paso Natural Gas
PROJECT ID: Plains Area Remediation
PROJECT #: 2002100795
MATRIX: SOIL

CLIENT ID: #1
DATE SAMPLED: 10/9/02
NEL SAMPLE ID: L0210184-001B

Parameter	Result	Unit		Reporting Limit	DF	Method	Prep Date	Analyzed	Analyst
Methyl t-butyl ether (MTBE)	ND	µg/Kg		120	25	SW8260B		10/14/02	DRM-LV
Benzene	ND	µg/Kg		50	25	SW8260B		10/14/02	DRM-LV
Ethylbenzene	ND	µg/Kg		50	25	SW8260B		10/14/02	DRM-LV
Toluene	ND	µg/Kg		50	25	SW8260B		10/14/02	DRM-LV
Total Xylenes	ND	µg/Kg		100	25	SW8260B		10/14/02	DRM-LV
Surr: Dibromofluoromethane	**89.8**	**%REC**	S	95.8-137	25	SW8260B		10/14/02	DRM-LV
Surr: Toluene-d8	**100**	**%REC**	S	101-142	25	SW8260B		10/14/02	DRM-LV
Surr: 4-Bromofluorobenzene	**85.2**	**%REC**		17.6-173	25	SW8260B		10/14/02	DRM-LV

ND - Not Detected at the Reporting Limit
DF - Dilution Factor
Date: *28-Oct-02*

B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
E - Value above quantitation range

NEL LABORATORIES

CLIENT: El Paso Natural Gas
PROJECT ID: Plains Area Remediation
PROJECT #: 2002100795
MATRIX: SOIL

CLIENT ID: #1
DATE SAMPLED: 10/9/02
NEL SAMPLE ID: L0210184-001C

Parameter	Result	Unit	Reporting Limit	DF	Method	Prep Date	Analyzed	Analyst
Gasoline Range Organics (C8-C12)	ND	mg/Kg	20	1	SW8015Ext	10/11/02	10/15/02	COP-LV
Diesel Range Organics (C12-C22)	ND	mg/Kg	20	1	SW8015Ext	10/11/02	10/15/02	COP-LV
Oil Range Organics (C22-C34)	ND	mg/Kg	50	1	SW8015Ext	10/11/02	10/15/02	COP-LV
Total Petroleum Hydrocarbons	ND	mg/Kg	20	1	SW8015Ext	10/11/02	10/15/02	COP-LV
Surr: n-Octacosane	**64.1**	**%REC**	55-130	1	SW8015Ext	10/11/02	10/15/02	COP-LV

ND - Not Detected at the Reporting Limit
DF - Dilution Factor
Date: *28-Oct-02*

B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
E - Value above quantitation range

NEL LABORATORIES

CLIENT: El Paso Natural Gas
PROJECT ID: Plains Area Remediation
PROJECT #: 2002100795
MATRIX: SOIL

CLIENT ID: #1
DATE SAMPLED: 10/9/02
NEL SAMPLE ID: L0210184-001D

Parameter	Result	Unit	Reporting Limit	DF	Method	Prep Date	Analyzed	Analyst
Chloride	ND	mg/Kg	100	100	EPA 300.0	10/28/02	10/28/02	RDA-LV

ND - Not Detected at the Reporting Limit
DF - Dilution Factor
Date: *28-Oct-02*

B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
E - Value above quantitation range

NEL LABORATORIES

CLIENT: El Paso Natural Gas
Work Order: L0210184
Project: Plains Area Remediation

ANALYTICAL QC SUMMARY REPORT

300_S **Test Method:** EPA 300.0

Sample ID: L0210184-001DMS SampType: MS TestCode: 300_S Units: mg/Kg Prep Date: Run ID: L_IC-1_021028A
Batch ID: 1535 TestNo: E300 Analysis Date: 10/28/02 SeqNo: 73645

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1048	100	1000	0	105	80	120	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J1 - MS or MSD outside accepance limits. LCS acceptable.
J - This concentration is considered an estimate due to LCS failure.
C - Unspiked sample >5 times the amount spiked
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Date: *29-Oct-02*

CLIENT: El Paso Natural Gas
Work Order: L0210184
Project: Plains Area Remediation

ANALYTICAL QC SUMMARY REPORT

6010W_T **Test Method:** SW 6010B-Total

Sample ID: MB-1361	SampType: MBLK	TestCode: 6010W_T	Units: mg/L	Prep Date: 10/14/02	Run ID: R_ICP-1_021014A
	Batch ID: 1361	TestNo: SW6010B		Analysis Date: 10/14/02	SeqNo: 69625

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.050									
Barium	ND	0.0050									
Cadmium	ND	0.0050									
Chromium	ND	0.010									
Lead	ND	0.050									
Selenium	ND	0.050									
Silver	ND	0.010									

Sample ID: LCS-1361	SampType: LCS	TestCode: 6010W_T	Units: mg/L	Prep Date: 10/14/02	Run ID: R_ICP-1_021014A
	Batch ID: 1361	TestNo: SW6010B		Analysis Date: 10/14/02	SeqNo: 69626

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.479	0.050	0.5	0	95.8	85	115	0	0		
Barium	0.9644	0.0050	1	0	96.4	85	115	0	0		
Cadmium	0.4873	0.0050	0.5	0	97.5	85	115	0	0		
Chromium	0.486	0.010	0.5	0	97.2	85	115	0	0		
Lead	0.9594	0.050	1	0	95.9	85	115	0	0		
Selenium	0.526	0.050	0.5	0	105	85	115	0	0		
Silver	0.4451	0.010	0.5	0	89	85	115	0	0		

Sample ID: L0210157-001AMS	SampType: MS	TestCode: 6010W_T	Units: mg/L	Prep Date: 10/14/02	Run ID: R_ICP-1_021014A
	Batch ID: 1361	TestNo: SW6010B		Analysis Date: 10/14/02	SeqNo: 69630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.487	0.050	0.5	0.5	-2.6	75	125	0	0		S
Barium	1.613	0.0050	1	1.512	10.1	75	125	0	0		S
Cadmium	0.842	0.0050	0.5	0.8523	-2.04	75	125	0	0		S
Chromium	0.4834	0.010	0.5	0.504	-4.12	75	125	0	0		S
Lead	1.396	0.050	1	2.478	-108	75	125	0	0		S
Selenium	0.664	0.050	0.5	0.608	11.2	75	125	0	0		S

Qualifiers: ND - Not Detected at the Reporting Limit
J1 - MS or MSD outside accepance limits. LCS acceptable.
J - This concentration is considered an estimate due to LCS failure.
C - Unspiked sample >5 times the amount spiked
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Date: *29-Oct-02*

CLIENT: El Paso Natural Gas
Work Order: L0210184
Project: Plains Area Remediation

ANALYTICAL QC SUMMARY REPORT

6010W_T **Test Method:** SW 6010B-Total

Sample ID: L0210157-001AMS	SampType: MS	TestCode: 6010W_T	Units: mg/L	Prep Date: 10/14/02	Run ID: R_ICP-1_021014A
	Batch ID: 1361	TestNo: SW6010B		Analysis Date: 10/14/02	SeqNo: 69630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	0.1407	0.010	0.5	0.1123	5.67	75	125	0	0		S

Sample ID: L0210157-001AMSD	SampType: MSD	TestCode: 6010W_T	Units: mg/L	Prep Date: 10/14/02	Run ID: R_ICP-1_021014A
	Batch ID: 1361	TestNo: SW6010B		Analysis Date: 10/14/02	SeqNo: 69631

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.482	0.050	0.5	0.488	-1.2			0.487	1.03	20	
Barium	1.513	0.0050	1	1.61	-9.69			1.613	6.40	20	
Cadmium	0.8368	0.0050	0.5	0.842	-1.04			0.842	0.628	20	
Chromium	0.5028	0.010	0.5	0.4797	4.62			0.4834	3.93	20	
Lead	2.585	0.050	1	1.357	123			1.396	59.7	20	R
Selenium	0.594	0.050	0.5	0.617	-4.6			0.664	11.1	20	
Silver	RSD over 20%.	0.010	0.5	0.09837	-10.4			0.1407	100	20	R

Qualifiers:
ND - Not Detected at the Reporting Limit
JJ - MS or MSD outside accepance limits. LCS acceptable.
J - This concentration is considered an estimate due to LCS failure.
C - Unspiked sample >5 times the amount spiked
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Date: *29-Oct-02*

CLIENT: El Paso Natural Gas
Work Order: L0210184
Project: Plains Area Remediation

ANALYTICAL QC SUMMARY REPORT

8015FFP_S **Test Method:** SW8015Ext

Sample ID: 021011TPHS-MB2	SampType: MBLK	TestCode: 8015FFP_S	Units: mg/Kg	Prep Date: 10/11/02	Run ID: L_FID-1_021015C
	Batch ID: 1365	TestNo: SW8015M		Analysis Date: 10/16/02	SeqNo: 70361

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (C8-C12)	ND	20									
Diesel Range Organics (C12-C22)	ND	20									
Oil Range Organics (C22-C34)	ND	50									
Total Petroleum Hydrocarbons	ND	20									
Surr: n-Octacosane	4.767	0.010	3.33	0	143	55	130	0	0		S

Sample ID: 021011TPHS-LCS	SampType: LCS	TestCode: 8015FFP_S	Units: mg/Kg	Prep Date: 10/11/02	Run ID: L_FID-1_021015C
	Batch ID: 1365	TestNo: SW8015M		Analysis Date: 10/15/02	SeqNo: 70359

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (C12-C22)	100.7	20	166.5	0	60.5	54	91	0	0		
Surr: n-Octacosane	2.464	0.010	3.327	0	74.1	55	130	0	0		

Sample ID: L0210167-004AMS	SampType: MS	TestCode: 8015FFP_S	Units: mg/Kg	Prep Date: 10/11/02	Run ID: L_FID-1_021015C
	Batch ID: 1365	TestNo: SW8015M		Analysis Date: 10/17/02	SeqNo: 71294

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (C12-C22)	ND	400	166.4	0	0	54	91	0	0		M4
Surr: n-Octacosane	ND	0.20	3.324	0	0	55	130	0	0		D

Sample ID: L0210167-004AMS	SampType: MSD	TestCode: 8015FFP_S	Units: mg/Kg	Prep Date: 10/11/02	Run ID: L_FID-1_021015C
	Batch ID: 1365	TestNo: SW8015M		Analysis Date: 10/17/02	SeqNo: 71293

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (C12-C22)	ND	400	166.4	0	0	54	91	0	0	25	M4
Surr: n-Octacosane	ND	0.20	3.324	0	0	55	130	0	0	0	D

Qualifiers:
ND - Not Detected at the Reporting Limit
J1 - MS or MSD outside accepance limits. LCS acceptable.
J - This concentration is considered an estimate due to LCS failure.
C - Unspiked sample >5 times the amount spiked
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Date: *29-Oct-02*

CLIENT: El Paso Natural Gas
Work Order: L0210184
Project: Plains Area Remediation

ANALYTICAL QC SUMMARY REPORT

BTEX_8260_S **Test Method:** SW8260B

Sample ID: BLANK 021014A	SampType: MBLK	TestCode: BTEX_8260_S	Units: µg/Kg	Prep Date:	Run ID: L_VOAMS-1_021014B
	Batch ID: R8071	TestNo: SW8260B		Analysis Date: 10/14/02	SeqNo: 69894

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl t-butyl ether (MTBE)	ND	5.0									
Benzene	ND	2.0									
Ethylbenzene	ND	2.0									
Toluene	ND	2.0									
Total Xylenes	ND	4.0									
Surr: Dibromofluoromethane	41.49	0.50	50	0	83	95.8	137	0	0		
Surr: Toluene-d8	44.6	0.50	50	0	89.2	101	142	0	0		
Surr: 4-Bromofluorobenzene	38.55	0.50	50	0	77.1	17.6	173	0	0		

Sample ID: Vstd050 021014A	SampType: LCS	TestCode: BTEX_8260_S	Units: µg/Kg	Prep Date:	Run ID: L_VOAMS-1_021014B
	Batch ID: R8071	TestNo: SW8260B		Analysis Date: 10/14/02	SeqNo: 69895

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl t-butyl ether (MTBE)	42.08	5.0	50	0	84.2	70	130	0	0		
Benzene	44.72	2.0	50	0	89.4	70	130	0	0		
Ethylbenzene	45.01	2.0	50	0	90	70	130	0	0		
Toluene	42.97	2.0	50	0	85.9	70	130	0	0		
Total Xylenes	134.5	4.0	150	0	89.6	70	130	0	0		
Surr: Dibromofluoromethane	40.74	0.50	50	0	81.5	95.8	137	0	0		
Surr: Toluene-d8	45.11	0.50	50	0	90.2	101	142	0	0		
Surr: 4-Bromofluorobenzene	39.82	0.50	50	0	79.6	17.6	173	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J1 - MS or MSD outside accepance limits. LCS acceptable.
J - This concentration is considered an estimate due to LCS failure.
C - Unspiked sample >5 times the amount spiked
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Date: *29-Oct-02*

CLIENT: El Paso Natural Gas
Work Order: L0210184
Project: Plains Area Remediation

ANALYTICAL QC SUMMARY REPORT

HG_7470_T **Test Method:** SW 7470-Total

Sample ID: MB-1371	SampType: MBLK	TestCode: HG_7470_T	Units: mg/L	Prep Date: 10/15/02	Run ID: R_HG-1_021015A
	Batch ID: 1371	TestNo: SW7470		Analysis Date: 10/15/02	SeqNo: 69890

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.00020									

Sample ID: LCS-1371	SampType: LCS	TestCode: HG_7470_T	Units: mg/L	Prep Date: 10/15/02	Run ID: R_HG-1_021015A
	Batch ID: 1371	TestNo: SW7470		Analysis Date: 10/15/02	SeqNo: 69889

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00453	0.00020	0.005	0	90.6	85	115	0	0		

Sample ID: L0210164-001BMS	SampType: MS	TestCode: HG_7470_T	Units: mg/L	Prep Date: 10/15/02	Run ID: R_HG-1_021015A
	Batch ID: 1371	TestNo: SW7470		Analysis Date: 10/15/02	SeqNo: 69885

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00408	0.00020	0.005	0	81.6	85	115	0	0		S

Sample ID: L0210164-001BMSD	SampType: MSD	TestCode: HG_7470_T	Units: mg/L	Prep Date: 10/15/02	Run ID: R_HG-1_021015A
	Batch ID: 1371	TestNo: SW7470		Analysis Date: 10/15/02	SeqNo: 69886

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00473	0.00020	0.005	0	94.6			0.00408	14.8	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J1 - MS or MSD outside accepance limits. LCS acceptable.
J - This concentration is considered an estimate due to LCS failure.
C - Unspiked sample >5 times the amount spiked
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Date: *29-Oct-02*

elpaso Natural Gas

10/16 L0210184 L 228

CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT NUMBER	PROJECT NAME
2002100795	Plains Area Remediation

SAMPLERS: (Signature) Charles R. Padilla DATE:

LAB ID	DATE	TIME	MATRIX	SAMPLE NUMBER	TOTAL NUMBER OF CONTAINERS	COMPOSITE OR GRAB	REQUESTED ANALYSIS: TPH Mods	BTEX	TPH Sec Mod	
01	10-9-02	15:30	Soil	#1	2	C	✓	✓	✓	

CONTRACT LABORATORY: N.E.L. Las Vegas

REMARKS:

Note: TPH- Please run both the Diesel Range and Gasoline Range

Samples collected in Texas

As per Chucks request BTEX Method will be 8260 (10-10-02 1230) CJK.

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Charles R. Padilla	10-10-02 16:20		Fed-X	10/11 1078	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED OF LABORATORY BY: (Signature)

REQUESTED TURNAROUND TIME: ☐ ROUTINE ☒ RUSH 3-day Per Bruce

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

LABORATORY SERVICES
EL PASO NATURAL GAS COMPANY
8645 RAILROAD DRIVE
EL PASO, TEXAS 79904

915-759-2229 FAX: 915-759-2335

White - Testing Laboratory Canary - EPNG Lab Pink - Field Sampler

FM-03-0566 (01/02)

NEL Laboratories

CHAIN OF CUSTODY CHANGE ORDER FORM

Date: 10/24/02 NEL Order ID: L0210184 Matrix: Soil

Client Name / Contact: El Paso Nat'l Gas Date Contacted: 10/24/02

Please Mark All That Apply	Required Information
New Project Due Date	10/29/02
Analysis Added	Chloride
Analysis Deleted	—
Samples Added	—
Samples Deleted	—
Samples Placed On-Hold	—
Samples Taken Off-Hold	—

Additional Requests or Comments

Required Information

Is there sufficient sample volume for the analysis or sample added? Yes ☐ No ☐ N/A ☐

Is the sample(s) properly preserved for the analysis added? Yes ☐ No ☐ N/A ☐

Can the sample(s) be analyzed within hold time? Yes ☐ No ☐ N/A ☐

Change Order Faxed To

Boise ☐ Las Vegas ☐ Phoenix ☐ Reno ☐ Sacramento ☐

Date Faxed: _____ Time Faxed: _____ am / pm

Change Requested By: Darrell Campbell Signed: Stacey L. Knight

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington , NM 87401

Date: 10/11/02

Client: EL PASO NATURAL GAS

Lab ID: 0302W04338

Project: PLAINS AREA REMEDIATION

Dear Client:

The samples were received for analysis at Inter-Mountain Laboratories (IML), Farmington, New Mexico. Enclosed is the result of the analyses.

Comment:

The enclosed report has been independently reviewed for compliance with IML-Farmington's Quality Assurance Plan and Data Quality Objectives. IML has examined all of the data in the report and has made every effort possible to make sure it is complete, accurate, and compliant. Quality Assurance data, if not included, is on file and available upon request.

Unless otherwise noted, all results were obtained by approved methods. Practical Quantification Limits (PQLs) are based on statistically derived determinations, and upon any dilutions necessary to obtain proper method response without matrix interference.

William Lipps
Laboratory Director/IML-Farmington, NM

2506 West Main Street
Farmington, NM 87401

Client: El Paso Natural Gas
Project: Plains Area Remediation
Sample ID: #1
Lab ID: 0302W04338
Matrix: Soil
Condition: Intact

Date Received: 10/11/02
Date Reported: 10/16/02
Date Sampled: 10/09/02
Time Sampled: 1530

Parameter	Analytical Result	Units	Units	PQL	Method	Analysis Date	Time	Init.
1:1 Paste Extract								
Electrical Conductivity	0.14	mmhos/cm		0.01	USDA	10/11/02	1330	ZW

Reference: USDA Agricultural Handbook 60. Diagnosis and Improvement of Saline and Alkali Soils. 1954.

Reviewed By: _____

elpaso Natural Gas

CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT NUMBER: 2002100795
PROJECT NAME: Plains Area Remediation
SAMPLERS: (Signature) Charles R. Padilla - 599-3288
DATE: 3551 HAK

LAB ID	DATE	TIME	MATRIX	SAMPLE NUMBER	TOTAL NUMBER OF CONTAINERS	COMPOSITE OR GRAB	REQUESTED ANALYSIS: EC	REMARKS
4338	10-9-02	15:30	Soil	#1	1	C	X	

CONTRACT LABORATORY

RELINQUISHED BY: (Signature) Charles R. Padilla — DATE/TIME 10-11-02 09:45
RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)
DATE/TIME
RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature)
DATE/TIME
RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)
DATE/TIME 10/11/02 09:45
RECEIVED OF LABORATORY BY: (Signature) Jan Cruz

REQUESTED TURNAROUND TIME: ☐ ROUTINE ☑ RUSH
CARRIER CO.:
BILL NO.:

SAMPLE RECEIPT REMARKS
CHARGE CODE

RESULTS & INVOICES TO:
LABORATORY SERVICES
EL PASO NATURAL GAS COMPANY
8645 RAILROAD DRIVE
EL PASO, TEXAS 79904
915-759-2229 ~~FAX: 915-759-2395~~
Results to Darrell Campbell
915- 580-3835

White - Testing Laboratory Canary - EPNG Lab Pink - Field Sampler

FM-08-0566 (01/02)

Air Quality Permitting & Modeling
Cultural Resources/Threatened & Endangered Species
Environmental Engineering
Environmental Management Systems
Environmental Site Assessment/Audit
Expert Witness Testimony/Litigation Support
Field Investigation/Remediation
Health & Safety/Industrial Hygiene
Regulatory Compliance & Assessment
Risk Assessment
Soil/Groundwater Investigation
Soil/Groundwater Remediation
Soil/Hazardous Waste Management/Permitting
Spill Prevention Control & Countermeasures
Surface Impoundment Closure/Pits
Water Quality Permitting & Management
Wastewater Treatment Planning & Design

ENVIRONMENTAL DIVISION FORMERLY ROBERTS / SCHORNICK & ASSOCIATES

NORMAN OFFICE
3700 West Robinson
Suite 200
Norman, OK 73072
telephone 405/321-3895
fax 405/364-1708

TULSA OFFICE
2488 East 81st Street
Suite 7000
Tulsa, OK 74137
telephone 918/496-0059
fax 918/496-0132

ARLINGTON OFFICE
2225 East Randol Mill Road
Suite 315
Arlington, TX 76011
telephone 817/640-6407
fax 817/640-6447

HOUSTON OFFICE
11200 Richmond Avenue
Suite 300
Houston, TX 77082
telephone 281/496-1073
fax 281/496-1225

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WS/Atkins

G053B

2002 ANNUAL GROUNDWATER REMEDIATION REPORT JAL NO. 4 PLANT LEA COUNTY, NEW MEXICO

Prepared for:

EL PASO NATURAL GAS COMPANY
614 REILLY AVENUE
FARMINGTON, NEW MEXICO 87401
(505) 599-2124

Prepared by:

ATKINS AMERICAS, INC.
ENVIRONMENTAL DIVISION
2488 East 81st Street, Suite 6000
Tulsa, Oklahoma 74137
(918) 496-0059

February 15, 2003

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APPENDIX

2002 ANNUAL GROUNDWATER REMEDIATION REPORT JAL NO. 4 PLANT LEA COUNTY, NEW MEXICO

1.0 INTRODUCTION

Atkins Americas, Inc. Environmental Division (Atkins), formerly Atkins Benham, Inc., has been retained by El Paso Natural Gas Company (EPNG) to compile the 2002 Annual Groundwater Remediation Report for the Jal No. 4 Plant (Plant) located in Lea County, New Mexico. The remedial activities conducted at the Plant have been performed under EPNG's Project Work Plan, dated February 1995 (Plan). This Plan was approved by the New Mexico Oil Conservation Division (NMOCD) on April 27, 1995, with subsequent revisions approved on August 10, 1995, July 8, 1997 and July 30, 2002.

The Plant property is comprised of approximately 181 acres of land located west of State Highway 18, approximately 9 miles north of the town of Jal, New Mexico. The location of the Plant property and topographic features are shown on Figure 1. As is shown, the Plant property occupies portions of Sections 31 and 32 of Township 23 South, Range 37 East, and Sections 5 and 6 of Township 24 South, Range 37 East, all in Lea County, New Mexico.

The Plant was constructed by EPNG in 1952 to treat, compress and transport natural gas to EPNG's main transmission lines. EPNG discontinued their use of the Plant in 1987, leasing portions of the Plant property to Christie Gas Corporation (Christie) that same year. The Plant was eventually sold to Christie in 1991. EPNG has been made aware through discussions with Christie that negotiations are currently underway to sell the Plant to another party.

1.1 Program Wells and Sampling Schedule

To assess brine and hydrocarbon impacts to the shallow groundwater system in the Plant area, EPNG has installed 18 monitor wells, 1 piezometer, and 2 recovery wells on Plant property and adjoining properties to the east (located hydraulically downgradient). In accordance with the NMOCD's approval of the revised Plan, obtained July 8, 1997, EPNG designated thirteen (13) monitor wells as ***"program monitor wells"*** from which groundwater samples are frequently collected and submitted to an analytical laboratory for mineral composition, organic compounds, and metals analyses. Monitor well ACW-15 was added to this list in 1999, bringing the total number of monitor wells designated as ***"program monitor wells"*** to fourteen (14). The locations of these wells are shown on Figures 2 through 7.

In the 2001 Annual Groundwater Remediation Report, Atkins recommended that the groundwater sampling program be modified. These recommended modifications included:

- 1st Quarter - sample monitor wells ACW-13, ACW-14 and ACW-15 for the following: BTEX, TDS, specific conductance, chloride and sodium.

- 2nd Quarter - sample monitor wells ACW-13, ACW-14 and ACW-15 for the following: BTEX, calcium, hardness, alkalinity, TDS, specific conductance, chloride, pH, temperature and sodium.

- 3rd Quarter - sample monitor wells ACW-13, ACW-14 and ACW-15 for the following: BTEX, TDS, specific conductance, chloride and sodium.

- 4th Quarter - sample all program and non program wells for the following: BTEX, calcium, hardness, alkalinity, TDS, specific conductance, chloride, pH, temperature, sodium, magnesium, sulfate, bromide, fluoride, nitrate-N, nitrate as NO_3, arsenic, boron, iron, manganese, potassium and silica.

The recommended modifications were approved by the NMOCD on July 30, 2002 and implementation of the changes was initiated during the 2002 3rd quarterly sampling event. A copy of the NMOCD letter approving the sampling program modifications has been included in Appendix A.

A list of EPNG's program monitor wells and the calendar year 2002 sample collection schedule for each well is as follows:

Monitor Well	Sampled February[1], May[1], September[3], November[4]	Sampled May[2], November[4]
ACW-1		X
ACW-2A		X
ACW-3		X
ACW-4		X
ACW-5		X
ACW-6		X
ACW-7		X
ACW-8		X
ACW-9		X
ACW-10		X
ACW-11		X
ACW-12	X	
ACW-13	X	
ACW-14	X	
ACW-15	X	

Notes:

1. Groundwater samples collected during these sample events were submitted to the laboratory for the following analyses: benzene, toluene, ethylbenzene, and total xylenes (collectively referred to as BTEX), total dissolved solids (TDS), specific conductance, pH, temperature and the major cations and anions (including bromide, calcium, chloride, fluoride, magnesium, nitrate, potassium, silica, sodium, sulfate, alkalinity and hardness).

2. Groundwater samples collected during these sample events were submitted to the laboratory for the following analyses: TDS, specific conductance and chloride.

3. Groundwater samples collected during these sample events were submitted to the laboratory for the following analyses: BTEX, TDS, specific conductance, chloride and sodium.

4. Groundwater samples collected during these sample events were submitted to the laboratory for the following analyses: BTEX, TDS, specific conductance, pH, temperature, arsenic, boron, bromide, calcium, chloride, fluoride, iron, magnesium, manganese, nitrate, potassium, silica, sodium, sulfate, alkalinity and hardness.

1.2 Non-Program Wells and Sampling Schedule

In addition to these program monitor wells, EPNG also collects groundwater samples from two (2) non-program monitor wells (ENSR-1 and ENSR-3), one (1) piezometer (PTP-1), one (1) upgradient water supply well (EPNG-1), and two (2) downgradient active water supply wells (Oxy Production Well and Doom Production Well). Monitor well ENSR-2 was converted into a groundwater recovery well and connected to the remediation system active at the Site. Groundwater samples were not collected from ENSR-2 during sample year 2002. The ENSR monitor wells are located within the Plant process areas as shown on Figures 2 through 7. Water supply well EPNG-1 is located at the northwest corner of the Plant property. The Oxy Production Well is located approximately in the center of Section 5-T24S-R37E and provides potable water to Oxy's Myers Langlie Mattix Unit Water Injection Station. The locations of the Oxy injection station and supply well are shown on Figures 2 through 7. The Doom Production Well is a private water supply well that provides water to the residence of Jimmie J. and Rebecca J. Doom, and is located in the approximate center of the northwest quarter of Section 8-T24S-R37E. The location of the Doom Production Well is not shown on the Figures provided, however, the well is approximately 5,800 feet south of the Oxy water injection station.

To date, EPNG has collected groundwater samples from these non-program wells at least annually. During sample year 2002, non-program monitor wells ENSR-1 and ENSR-3, and piezometer PTP-1 were sampled during the second and fourth quarterly sampling events. During the second quarterly sampling event, groundwater samples from these wells were submitted to the laboratory for the following analyses: specific

conductance, TDS and chloride. During the fourth quarterly sampling event, groundwater samples from these wells were submitted to the laboratory for the following analyses: BTEX, specific conductance, pH, TDS, chloride, sulfate, bromide, fluoride, nitrate, arsenic, boron, calcium, iron, magnesium, manganese, potassium, silica, sodium, alkalinity and hardness. The Oxy Production Well was sampled during the third and fourth quarterly sampling events. During the third sample event, groundwater samples from this well were submitted to the laboratory for the following analyses: BTEX, specific conductance, pH, TDS, chloride and sodium. During the fourth quarterly sampling event, groundwater samples taken from the Oxy Production Well were submitted to the laboratory for the following analyses: BTEX, specific conductance, pH, TDS, chloride, sulfate, bromide, fluoride, nitrate, arsenic, boron, calcium, iron, magnesium, manganese, potassium, silica, sodium, alkalinity and hardness. The Doom Production Well was sampled quarterly in 2002. During the first two (2) quarterly sampling events, groundwater samples taken from this well were submitted to the laboratory for the following analyses: BTEX, specific conductance, pH, TDS, chloride, sulfate, bromide, fluoride, nitrate, calcium, magnesium, potassium, silica, sodium, alkalinity and hardness. During the third quarterly sampling event, groundwater samples taken from the Doom Production Well were submitted to the laboratory for the following analyses: BTEX, specific conductance, pH, TDS, chloride and sodium. During the fourth quarterly sampling event, the groundwater samples taken from this well were submitted to the laboratory for the following analyses: BTEX, specific conductance, pH, TDS, chloride, sulfate, bromide, fluoride, nitrate, arsenic, boron, calcium, iron, magnesium, manganese, potassium, silica, sodium, alkalinity and hardness.

1.3 Depth to Groundwater Measurements

During each groundwater sampling event, and prior to disturbing the water columns within each well, EPNG personnel measured the static depths to groundwater within the well casings using an electronic water level indicator. All depths to groundwater were measured relative to the surveyed top of casing (TOC) datums so that groundwater

elevations could be determined. Table 1 provides a summary of the depths to groundwater, TOC elevations, and groundwater elevations that have been compiled throughout EPNG's monitoring program.

1.4 Sampling Procedures

The groundwater samples were collected by EPNG personnel in accordance with EPA methods and quality assurance/quality control guidance. All monitor wells were purged thoroughly prior to sample collection using electric submersible pumps. Groundwater produced during purging operations was contained and disposed of within the Plant's lined Surface Impoundment #9.

Upon collection, the groundwater samples were placed directly into laboratory-prepared containers, labeled as to source, packed on ice, and placed under chain-of-custody control for transfer to the laboratory. The results of the 2002 groundwater analyses and all previous analyses are summarized on Table 2. The complete 2002 laboratory analytical reports and chain-of-custody documents are provided in Appendix B.

2.0 RESULTS OF MONITORING ACTIVITIES

The following Sections summarize the field measurements and laboratory analytical results obtained throughout the 2002 groundwater sampling program. These data have been compared with historic data to assess any trends that may be apparent. To facilitate these comparisons, forty-two (42) trend graphs have been prepared that show the TDS, chloride, sodium, and benzene concentrations that have been detected within the groundwater samples taken from the fourteen (14) program monitor wells. These graphs are presented in the section of this report tabbed "Graphs".

2.1 Field Measurements

Depth to groundwater measurements taken during each of the sampling events are shown on Table 1. These data indicate that the depths to groundwater across the Plant are approximately 100 feet below ground surface, and that the static groundwater elevations exhibit little seasonal variability. With the exception of ACW-5 and ACW-9, the fluctuations in the groundwater elevations observed in the wells have been less than one (1) foot since monitoring began in 1997. In 2002, the depth to groundwater elevations for ACW-5 and ACW-9 appear to be influenced by groundwater withdrawals from ENSR–2 and RW-2 resulting in groundwater elevations fluctuations greater than one (1) foot.

Groundwater potentiometric surface maps have been prepared for each sampling quarter. These maps are presented on Figures 2 through 5. As is shown on these figures, the groundwater flow direction across the Plant, in general, is from northwest to southeast (S46E). The hydraulic gradient across the Plant is approximately 0.002 feet per foot. In general, the groundwater flow direction and hydraulic gradient at the Site appear to have changed little since 1997. A notable exception is those localized areas near the active recovery wells where the groundwater flow direction and hydraulic gradient have been altered by the extraction of groundwater from these wells.

2.2 Inorganic Constituents

The primary inorganic parameters being utilized to assess plume migration at the Plant include: TDS, chloride and sodium. Atkins has reviewed the concentration trend graphs for these parameters in each of the program monitor wells.

It is Atkins' opinion, based upon our review, that certain trends are apparent in the levels of these parameters. The following table summarizes Atkins' opinions of the trends that are observable from the inorganic database provided herein. The trends observed in calendar year 2001 are shown in parentheses.

MONITOR WELL	CONCENTRATION TRENDS		
	TDS	CHLORIDE	SODIUM
ACW-1	↓ (↓)	↓ (↓)	↓ (↓)
ACW-2A	↓ (↓)	↔ (↓)	↔ (↓)
ACW-4	↓ (↓)	↓ (↓)	↓ (↓)
ACW-5	↓ (↓)	↔ (↑)	↔ (↔)
ACW-6	↓ (↓)	↓ (↓)	↓ (↓)
ACW-7	↑ (↑)	↑ (↑)	↑ (↑)
ACW-8	↓ (↓)	↓ (↓)	↓ (↔)
ACW-9	↑ (↑)	↔ (↑)	↑ (↑)
ACW-10	↑ (↑)	↑ (↑)	↑ (↔)
ACW-11	↑ (↑)	↑ (↑)	↑ (↑)
ACW-12	↔ (↑)	↑ (↑)	↑(↔)
ACW-13	↔ (↔)	↔ (↔)	↔ (↔)
ACW-14	↔ (↔)	↔ (↔)	↔ (↔)
ACW-15	↔ (↓)	↔ (↓)	↔ (↓)

Key: ↔ denotes no observable trend, ↓ denotes a decreasing trend, ↑ denotes an increasing trend.

In general, these trends indicate that the overall levels of inorganic constituents are decreasing in five (5) wells, increasing in four (4) wells, and no observable trend in five (5) wells. The wells and their overall trends for inorganic constituents can be grouped as follows:

Monitor Wells with Decreasing Overall Inorganic Levels

ACW-1	ACW-2A	ACW-4
ACW-6	ACW-8	

Monitor Wells with Increasing Overall Inorganic Levels

ACW-7	ACW-9	ACW-10
ACW-11	ACW-12	

Monitor Wells with No Observable Overall Inorganic Levels

ACW-5	ACW-13	ACW-14
ACW-15		

On Figure 6, Atkins has prepared an isopleth of the chloride concentrations detected in groundwater during the 2002 sampling program. NMAC 20.6.2.3103 (B) has established a standard for Other Standards for Domestic Water Supply of 250 mg/L for chloride in groundwater containing Total Dissolved Solids (TDS) levels of 10,000 mg/L or less. On this isopleth, the value posted at each well location represents the highest chloride concentration detected in any groundwater sample taken from that well during the 2002 monitoring program.

Decreasing or stable chloride trends are evident in the monitor wells immediately adjacent to RW-1 and ENSR-2 (i.e., monitor wells ACW-2A, ACW-4 and ACW-8). These trends indicate the remediation system is effective in removing the highest levels of brine impact and that fresher groundwater is converging on these wells.

2.3 Organic Constituents

The primary organic constituent being utilized to assess plume migration at the Plant is benzene. NMAC regulation 20.6.2.3103 (A) has established a Human Health Standard of 0.01 mg/L for benzene in groundwater containing TDS levels of 10,000 mg/L or less. Atkins has reviewed the concentration trend graphs for benzene in each of the program monitor wells. It is Atkins' opinion, based upon our review, that certain trends are

apparent in the levels of this compound. The following table summarizes Atkins' opinions of the trends that are observable from the benzene database provided herein. The trends observed in calendar year 2001 are shown in parentheses.

MONITOR WELL	BENZENE CONCENTRATION TREND
ACW-1	↔ (↔)
ACW-2A	↓ (↓)
ACW-4	↓ (↓)
ACW-5	↔ (↔)
ACW-6	↑ (↑)
ACW-7	↑ (↔)
ACW-8	↓ (↓)
ACW-9	↔ (↔)
ACW-10	↔ (↔)
ACW-11	↑ (↑)
ACW-12	↔ (↔)
ACW-13	↔ (↔)
ACW-14	↔ (↔)
ACW-15	↔ (↔)

Key: ↔ denotes no observable trend, ↓ denotes a decreasing trend, ↑ denotes an increasing trend, trends shown in parentheses were reported in previous years monitoring program.

In general, these trends indicate that benzene levels are remaining relatively constant or are decreasing slightly across the Plant (8 stable and 3 decreasing trends). However, an increasing benzene trend is indicated in monitor wells ACW-6 and ACW-11. These monitor wells are located along the eastern Plant property boundary. ACW-11 is located on Plant and ACW-6 is located immediately off-Plant.

On Figure 7, Atkins has prepared an isopleth of the benzene concentrations detected in groundwater during the 2002 sampling program. On this isopleth, the value posted at each well location represents the highest benzene concentration detected in any

groundwater sample taken from that well during the 2002 monitoring program. As can be seen on Figure 7, the highest benzene concentration observed in 2002 was detected in the groundwater sample taken from on Plant monitor well ACW-4 (84 µg/L). In addition, benzene was detected in four (4) off-Plant monitor wells during the sample year 2001. These wells were ACW-6 (18 µg/L), ACW-7 (12 µg/L), ACW-9 (1.1 µg/L) and ACW-12 (3.7 µg/L).

3.0 GROUNDWATER REMEDIATION SYSTEM

To date, EPNG has installed two (2) groundwater recovery wells to mitigate impacts to the shallow groundwater system. These wells are identified as RW-1 and RW-2, and the locations of these wells are shown on Figures 2 through 7. Due to chronic scaling problems that were occurring within the electrical submersible pump in RW-1, monitor well ENSR-2 was tested as a recovery well in 2000 and operated intermittently as a replacement well for RW-1 in 2001 and 2002. ENSR-2 was permitted as a stand-alone recovery well on January 27, 2003. Correspondence concerning the permitting of this recovery well is provided in Appendix C. As shown on Figures 2 through 7, ENSR-2 is located on Plant property in very close proximity to RW-1, and to areas that have likely been sources for brine and hydrocarbon impacts to groundwater. RW-2 is located hydraulically downgradient relative to recovery well ENSR-2 and is approximately 780 feet east of the Plant property boundary. EPNG has installed a below-grade pipeline that connects recovery wells RW-1 and RW-2 to a Class II water disposal well located immediately north of the Plant in the northwest quarter, of the southwest quarter, of Section 32-T23S-R37E. This well, referred to as the SWD-214, was approved for disposal by NMOCD on October 23, 1979 and has a perforated injection interval of 3,866 to 3,982 feet below ground level. During 2001, ENSR-2 was connected to this disposal system. SWD-214 is currently owned and operated by Christie, and in 1999 EPNG entered into an agreement with Christie that provides EPNG with access to the disposal well for the purpose of disposing of all groundwater recovered from the remediation system. EPNG has been made aware through discussions with Christie that the sale of the Plant to Texas LPG was apparently finalized in December 2002.

Groundwater recovery began from recovery well RW-1 in October 1999, RW-2 in January 2000, and ENSR-2 in August 2000. Table 3 provides a summary of the volumes of groundwater pumped from each of these wells in 2002.

Due to Christie's operations at the Plant, EPNG had limited access to the disposal well in 2002 and, therefore, groundwater recovery operations at the Plant were limited.

Groundwater recoveries from recovery wells RW-1, RW-2 and ENSR-2 in calendar year 2002 totaled 267,869 gallons, 2,919,520 gallons and 1,675,670 gallons, respectively, and totaled 4,863,059 gallons. This total volume is equivalent to 14.92 acre-feet of water. Groundwater permits for recovery wells RW-1 and RW-2, obtained in June 1997 from the New Mexico State Engineer's Office, established production limits of 35 acre-feet of water per year from all combined sources at the Plant.

A summary of the amount of groundwater recovered from each of the recovery wells is presented on the following table. This table presents total number of gallons recovered per well, per year. In addition, the total amount of water recovered per year is presented in gallons and in acre-feet.

Groundwater Recovery Volumes

Year	RW-1 (gallons)	RW-2 (gallons)	ENSR-2 (gallons)	Total (gallons)	Total (acre-feet)
1999	319,280	0	0	319,280	1.0
2000	1,575,510	3,967,385	780,240	6,323,135	19.4
2001	0	1,672,990	566,126	2,239,116	6.9
2002	267,869	2,919,520	1,675,670	4,863,059	14.92
Cumulative Total	**2,162,659**	**8,559,895**	**3,022,036**	**13,744,590**	**42.22**

4.0 GROUNDWATER MODEL

As recommended in the ***2001 Annual Groundwater Remediation Report***, Atkins conducted a pump test at the Plant in 2002. Data obtained from this pump test were utilized to complete the computer model of the upper-most groundwater system present beneath the Plant as was proposed in the ***2000 Annual Groundwater Remediation Report***. Upon completion of this model, Atkins conducted a capture zone analysis for the groundwater remediation system. The focus of this analysis was the area of the Site underlain with highly impacted groundwater (i.e., groundwater with chloride concentrations of 5,000 mg/L or greater). It is with this focus that Atkins conducted the following capture zone simulations:

- Current Recovery Well Configuration
- Current Recovery Well Configuration Plus One Additional Recovery Well, and
- Current Recovery Well Configuration Plus Two Additional Recovery Wells.

The findings of the capture zone analysis are presented in a document titled ***Groundwater Modeling Report***, dated February 6, 2003.

5.0 CONCLUSIONS

Based upon Atkins' review of the data presented herein, the following conclusions are presented:

- The uppermost occurrence of groundwater in the Plant area occurs within a shallow groundwater system with saturation occurring at approximately 100 feet below ground surface.

- The groundwater elevations of the shallow groundwater system locally are quite stable. With the exception of two (2) wells, the observed groundwater elevations in all monitor wells have fluctuated less than 1-foot over the last six (6) years.

- Groundwater flow directions at the Plant within the shallow groundwater system appear quite stable with flows occurring from northwest to southeast (S46E) with a hydraulic gradient of approximately 0.002 feet per foot.

- The shallow groundwater system in the Plant area has been impacted by chloride. The groundwater analytical data indicate that a plume containing elevated levels of chloride has migrated hydraulically downgradient from the Plant area.

- In general, chloride concentrations in groundwater appear to be decreasing or remaining stable along the eastern property boundary of the Plant but increasing in areas that are offsite and hydraulically down gradient of the Plant along a line between RW-1 and monitor well ACW-15.

- The shallow groundwater system in the Plant area has been impacted by hydrocarbons. The groundwater analytical data indicate that detectable levels of benzene are present hydraulically downgradient of the Plant area.

- In general, benzene concentrations in groundwater appear to be remaining constant or may be decreasing slightly along the eastern property boundary of the Plant. Only the benzene levels in monitor wells ACW-6 and ACW-11 appear to have an increasing trend.

6.0 RECOMMENDATIONS

Based upon a thorough review of the data contained within this report, Atkins has formulated the following recommendations:

- Continue operation of the current groundwater remediation system at maximum design capacity. Each recovery well should be routinely monitored to identify groundwater recovery volumes, pumping rates, pumping times, and the quality of groundwater being discharged (via field measurements of specific conductance and chloride concentration).

- Efforts should be made to improve access to and capacity in disposal well SWD-214 to maximize groundwater recovery volumes. Ideally, EPNG's disposal capacity and recovery well configuration should be sufficient to allow hydraulic capture of the highly impacted groundwater (i.e., chloride levels greater than 5,000 mg/L). If adequate disposal capacity cannot be developed and maintained, EPNG should pursue another disposal well(s) that can provide the disposal capacity required.

- Remediation efforts should focus on capturing the most highly impacted groundwater. Particular emphasis should be placed upon evaluating vertical variations in brine concentrations that may be present within the groundwater system. Construction of future recovery wells should target those groundwater intervals containing the most highly affected groundwater.

- Drill and install an additional recovery well to enhance the effectiveness of the groundwater remediation system, and prevent further downgradient movement of impacted groundwater.

- Based upon the analytical database created during the last six (6) years of groundwater monitoring, Atkins recommends that the groundwater sampling

program be modified. The recommended modifications to the sampling program include:

- 1st Quarter - sample program monitor wells ACW-13, ACW-14 and ACW-15, and the Oxy and Doom Production Wells for the following: BTEX, TDS, specific conductance, chloride and sodium.

- 2nd Quarter - sample program monitor wells ACW-13, ACW-14 and ACW-15, and the Oxy and Doom Production Wells for the following: BTEX, TDS, specific conductance, chloride and sodium.

- 3rd Quarter - sample program monitor wells ACW-13, ACW-14 and ACW-15, and the Oxy and Doom Production Wells for the following: BTEX, TDS, specific conductance, chloride and sodium.

- 4th Quarter - sample all program and non-program wells for the following: BTEX, TDS, specific conductance, chloride and sodium.

TABLES

TABLE 1: SUMMARY OF DEPTH TO GROUNDWATER MEASUREMENTS, JAL NO. 4 PLANT, EL PASO NATURAL GAS COMPANY, LEA COUNTY, NEW MEXICO

MONITOR WELL	SCREENED INTERVAL (FEET-BGL)	TOP OF CASING ELEVATION (FEET-AMSL)	DEPTH TO GROUNDWATER MEASUREMENT DATE	DEPTH TO GROUNDWATER (FEET-TOC)	GROUNDWATER ELEVATION (FEET-AMSL)
ACW-01	110 to 130	3,300.87	02/19/97	106.65	3,194.22
			05/07/97	105.59	3,195.28
			08/19/97	105.61	3,195.26
			10/21/97	105.71	3,195.16
			02/24/98	105.62	3,195.25
			05/12/98	105.59	3,195.28
			08/11/98	105.61	3,195.26
			10/20/98	105.67	3,195.20
			02/23/99	105.72	3,195.15
			05/11/99	105.66	3,195.21
			08/11/99	105.68	3,195.19
			10/18/99	105.73	3,195.14
			02/22/00	105.81	3,195.06
			05/09/00	105.90	3,194.97
			08/07/00	105.99	3,194.88
			10/26/00	106.10	3,194.77
			02/20/01	106.19	3,194.68
			05/01/01	105.90	3,194.97
			08/01/01	105.89	3,194.98
			10/22/01	106.05	3,194.82
			02/20/02	106.30	3,194.57
			04/29/02	106.30	3,194.57
			09/24/02	106.04	3,194.83
			11/03/02	106.30	3,194.57
ACW-2a	98 to 118	3,300.88	05/12/99	106.00	3,194.88
			10/18/99	106.09	3,194.79
			05/08/00	107.27	3,193.61
			10/26/00	107.51	3,193.37
			05/02/01	106.31	3,194.57
			10/22/01	106.85	3,194.03
			04/30/02	106.82	3,194.06
			09/24/02	106.55	3,194.33
			11/03/02	107.00	3,193.88
ACW-03	112 to 132	3,300.34	05/08/00	105.98	3,194.36
			10/26/00	106.21	3,194.13
			05/01/01	105.94	3,194.40
			10/23/01	106.15	3,194.19
			04/30/02	106.30	3,194.04
			09/24/02	106.13	3,194.21
			11/03/02	106.44	3,193.90
ACW-04	154 to 169	3,299.48	05/08/00	113.57	3,185.91
			10/26/00	113.25	3,186.23
			05/02/01	106.00	3,193.48
			10/22/01	107.99	3,191.49
			04/30/02	107.88	3,191.60
			09/24/02	107.71	3,191.77
			11/02/02	107.90	3,191.58
ACW-05	105 to 115	3,294.75	02/19/97	103.08	3,191.67
			05/07/97	103.06	3,191.69
			08/19/97	103.07	3,191.68
			10/22/97	103.06	3,191.69
			02/24/98	103.10	3,191.65
			05/13/98	103.10	3,191.65
			08/11/98	103.15	3,191.60
			10/21/98	103.22	3,191.53
			02/23/99	103.26	3,191.49
			05/13/99	103.17	3,191.58
			08/11/99	103.17	3,191.58
			10/21/99	103.25	3,191.50
			02/22/00	103.30	3,191.45
			05/10/00	103.32	3,191.43
			08/07/00	103.40	3,191.35
			10/26/00	103.50	3,191.25
			02/20/01	103.62	3,191.13
			05/06/01	103.57	3,191.18

TABLE 1: SUMMARY OF DEPTH TO GROUNDWATER MEASUREMENTS, JAL NO. 4 PLANT, EL PASO NATURAL GAS COMPANY, LEA COUNTY, NEW MEXICO

MONITOR WELL	SCREENED INTERVAL (FEET-BGL)	TOP OF CASING ELEVATION (FEET-AMSL)	DEPTH TO GROUNDWATER MEASUREMENT DATE	DEPTH TO GROUNDWATER (FEET-TOC)	GROUNDWATER ELEVATION (FEET-AMSL)
ACW-05 (con't)	105 to 115	3,294.75	08/01/01	103.46	3,191.29
			10/24/01	103.70	3,191.05
			02/20/02	103.70	3,191.05
			04/30/02	103.70	3,191.05
			09/24/02	103.57	3,191.18
			11/06/02	103.81	3,190.94
ACW-06	110 to 120	3,300.53	02/19/97	107.53	3,193.00
			05/08/97	107.50	3,193.03
			08/18/97	107.51	3,193.02
			10/22/97	107.57	3,192.96
			02/24/98	107.54	3,192.99
			05/13/98	107.55	3,192.98
			08/11/98	107.57	3,192.96
			10/21/98	107.70	3,192.83
			02/23/99	107.68	3,192.85
			05/13/99	107.62	3,192.91
			08/11/99	107.60	3,192.93
			10/21/99	107.68	3,192.85
			02/22/00	107.72	3,192.81
			05/10/00	107.75	3,192.78
			08/07/00	107.84	3,192.69
			10/26/00	107.90	3,192.63
			02/20/01	108.00	3,192.53
			05/06/01	107.95	3,192.58
			08/01/01	107.87	3,192.66
			10/24/01	108.09	3,192.44
			02/20/02	108.07	3,192.46
			04/29/02	108.08	3,192.45
			09/24/02	107.94	3,192.59
			11/04/02	108.16	3,192.37
ACW-07	105 to 115	3,295.36	05/12/99	102.62	3,192.74
			10/21/99	102.75	3,192.61
			05/10/00	102.92	3,192.44
			10/26/00	103.20	3,192.16
			05/06/01	103.08	3,192.28
			10/24/01	103.35	3,192.01
			04/30/02	103.35	3,192.01
			09/24/02	103.21	3,192.15
			11/05/02	103.45	3,191.91
ACW-08	140 to 173	3,297.27	05/11/99	104.17	3,193.10
			10/18/99	104.29	3,192.98
			05/09/00	104.40	3,192.87
			10/26/00	104.64	3,192.63
			05/01/01	104.48	3,192.79
			10/24/01	104.60	3,192.67
			04/29/02	104.81	3,192.46
			09/24/02	104.51	3,192.76
			11/04/02	104.72	3,192.55
ACW-09	140 to 160	3,302.47	02/19/97	110.24	3,192.23
			05/08/97	110.25	3,192.22
			08/19/97	110.26	3,192.21
			10/23/97	110.28	3,192.19
			02/24/98	110.29	3,192.18
			05/13/98	110.30	3,192.17
			08/11/98	110.32	3,192.15
			10/21/98	110.40	3,192.07
			02/23/99	110.54	3,191.93
			05/13/99	110.45	3,192.02
			08/11/99	110.45	3,192.02
			10/22/99	110.50	3,191.97
			02/22/00	111.18	3,191.29
			05/12/00	111.89	3,190.58
			08/07/00	111.22	3,191.25
			10/26/00	112.20	3,190.27
			02/20/01	112.41	3,190.06

TABLE 1: SUMMARY OF DEPTH TO GROUNDWATER MEASUREMENTS, JAL NO. 4 PLANT, EL PASO NATURAL GAS COMPANY, LEA COUNTY, NEW MEXICO

MONITOR WELL	SCREENED INTERVAL (FEET-BGL)	TOP OF CASING ELEVATION (FEET-AMSL)	DEPTH TO GROUNDWATER MEASUREMENT DATE	DEPTH TO GROUNDWATER (FEET-TOC)	GROUNDWATER ELEVATION (FEET-AMSL)
ACW-09 (con't)	140 to 160	3,302.47	05/04/01	110.85	3,191.62
			08/01/01	110.70	3,191.77
			10/25/01	112.17	3,190.30
			02/20/02	111.98	3,190.49
			05/01/02	111.29	3,191.18
			09/24/02	111.08	3,191.39
			11/06/02	112.11	3,190.36
ACW-10	140 to 160	3,297.57	02/19/97	106.31	3,191.26
			05/08/97	106.32	3,191.25
			08/19/97	106.33	3,191.24
			10/23/97	106.35	3,191.22
			02/24/98	106.38	3,191.19
			05/14/98	106.38	3,191.19
			08/11/98	106.41	3,191.16
			10/22/98	106.54	3,191.03
			02/23/99	106.52	3,191.05
			05/14/99	106.45	3,191.12
			08/11/99	106.47	3,191.10
			10/22/99	106.52	3,191.05
			02/22/00	106.39	3,191.18
			05/12/00	106.63	3,190.94
			08/07/00	106.77	3,190.80
			10/26/00	106.89	3,190.68
			02/20/01	106.99	3,190.58
			05/06/01	106.82	3,190.75
			08/01/01	106.76	3,190.81
			10/25/01	107.01	3,190.56
			02/20/02	107.08	3,190.49
			05/01/02	107.05	3,190.52
			09/24/02	106.91	3,190.66
			11/08/02	107.09	3,190.48
ACW-11	140 to 160	3,299.33	02/19/97	106.01	3,193.32
			05/06/97	105.95	3,193.38
			08/19/97	106.00	3,193.33
			10/21/97	106.02	3,193.31
			02/24/98	106.02	3,193.31
			05/12/98	106.00	3,193.33
			08/11/98	106.07	3,193.26
			10/20/98	106.17	3,193.16
			02/23/99	106.20	3,193.13
			05/12/99	106.07	3,193.26
			08/11/99	106.15	3,193.18
			10/20/99	106.16	3,193.17
			02/22/00	106.27	3,193.06
			05/09/00	106.31	3,193.02
			08/07/00	106.54	3,192.79
			10/26/00	106.65	3,192.68
			02/20/01	106.70	3,192.63
			05/01/01	106.45	3,192.88
			08/01/01	106.40	3,192.93
			10/23/01	106.57	3,192.76
			02/20/02	106.79	3,192.54
			04/29/02	106.78	3,192.55
			09/24/02	106.60	3,192.73
			11/06/02	106.80	3,192.53
ACW-12	150 to 170	3,299.56	02/19/97	109.32	3,190.24
			05/08/97	109.32	3,190.24
			08/20/97	99.29	3,200.27
			10/23/97	109.39	3,190.17
			02/24/98	109.38	3,190.18
			05/14/98	109.35	3,190.21
			08/11/98	109.40	3,190.16

TABLE 1: SUMMARY OF DEPTH TO GROUNDWATER MEASUREMENTS, JAL NO. 4 PLANT, EL PASO NATURAL GAS COMPANY, LEA COUNTY, NEW MEXICO

MONITOR WELL	SCREENED INTERVAL (FEET-BGL)	TOP OF CASING ELEVATION (FEET-AMSL)	DEPTH TO GROUNDWATER MEASUREMENT DATE	DEPTH TO GROUNDWATER (FEET-TOC)	GROUNDWATER ELEVATION (FEET-AMSL)
ACW-12 (con't)	150 to 170	3,299.56	10/22/98	109.51	3,190.05
			02/23/99	109.54	3,190.02
			05/14/99	109.44	3,190.12
			08/11/99	109.54	3,190.02
			10/22/99	109.52	3,190.04
			02/22/00	109.50	3,190.06
			05/11/00	109.57	3,189.99
			08/07/00	109.65	3,189.91
			10/26/00	109.78	3,189.78
			02/20/01	109.90	3,189.66
			05/03/01	109.75	3,189.81
			08/01/01	109.76	3,189.80
			10/25/01	109.99	3,189.57
			02/20/02	109.97	3,189.59
			05/01/02	109.98	3,189.58
			09/24/02	109.77	3,189.79
			11/07/02	109.91	3,189.65
ACW-13	153 to 173	3,289.46	02/20/97	99.28	3,190.18
			05/08/97	99.29	3,190.17
			08/20/97	99.29	3,190.17
			10/23/97	99.27	3,190.19
			02/24/98	99.31	3,190.15
			05/14/98	99.31	3,190.15
			08/11/98	99.36	3,190.10
			10/22/98	99.40	3,190.06
			02/23/99	99.45	3,190.01
			05/14/99	99.38	3,190.08
			08/11/99	99.44	3,190.02
			10/22/99	99.44	3,190.02
			02/23/00	99.48	3,189.98
			05/11/00	99.47	3,189.99
			08/07/00	99.53	3,189.93
			10/26/00	99.50	3,189.96
			02/20/01	99.65	3,189.81
			05/06/01	99.62	3,189.84
			08/01/01	99.61	3,189.85
			10/25/01	99.61	3,189.85
			02/20/02	99.72	3,189.74
			05/01/02	99.73	3,189.73
			09/24/02	99.61	3,189.85
			11/07/02	99.80	3,189.66
ACW-14	157 to 177	3,291.18	02/19/97	NM	NM
			05/06/97	NM	NM
			08/20/97	100.41	3,190.77
			10/22/97	100.38	3,190.80
			02/24/98	100.47	3,190.71
			05/13/98	100.42	3,190.76
			08/11/98	100.47	3,190.71
			10/21/98	100.54	3,190.64
			02/23/99	100.57	3,190.61
			05/13/99	100.49	3,190.69
			08/09/99	100.49	3,190.69
			10/21/99	100.55	3,190.63
			02/22/00	100.56	3,190.62
			05/10/00	100.52	3,190.66
			08/07/00	100.61	3,190.57
			10/26/00	100.62	3,190.56
			02/20/01	100.75	3,190.43
			05/03/01	100.72	3,190.46
			08/01/01	100.75	3,190.43
			10/24/01	100.75	3,190.43
			02/19/02	100.80	3,190.38
			04/30/02	100.80	3,190.38
			09/24/02	100.71	3,190.47
			11/04/02	100.80	3,190.38

TABLE 1: SUMMARY OF DEPTH TO GROUNDWATER MEASUREMENTS, JAL NO. 4 PLANT, EL PASO NATURAL GAS COMPANY, LEA COUNTY, NEW MEXICO

MONITOR WELL	SCREENED INTERVAL (FEET-BGL)	TOP OF CASING ELEVATION (FEET-AMSL)	DEPTH TO GROUNDWATER MEASUREMENT DATE	DEPTH TO GROUNDWATER (FEET-TOC)	GROUNDWATER ELEVATION (FEET-AMSL)
ACW-15	150 to 170	3,290.54	10/23/99	102.39	3,188.15
			02/23/00	102.41	3,188.13
			05/11/00	102.42	3,188.12
			08/07/00	102.45	3,188.09
			10/26/00	102.42	3,188.12
			02/20/01	102.55	3,187.99
			05/06/01	102.51	3,188.03
			08/01/01	102.58	3,187.96
			10/25/01	102.56	3,187.98
			02/19/02	102.57	3,187.97
			05/02/02	102.65	3,187.89
			09/24/02	102.55	3,187.99
			11/07/02	102.68	3,187.86

NOTES:
1. TOC : Top of Casing
2. AMSL : Above Mean Sea Level
3. NM : No Measurement Taken
4. BGL: Below Ground Level

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
ACW #01	ACW #01	05-Mar-93	---	---	---	---	---	---	---	---	---	14,350	---	8,505	4,045	---	---
ACW #01	ACW #01	15-Sep-93	---	---	---	---	---	---	---	---	---	10,360	---	6,016	2,915	---	---
ACW #01	ACW #01	10-Nov-93	---	---	---	---	---	---	---	---	---	11,780	---	7,340	3,683	---	---
ACW #01	ACW #01	20-Apr-94	---	---	---	---	---	---	---	---	---	16,520	---	8,430	5,400	---	---
ACW #01	ACW #01	27-Oct-94	---	---	---	---	---	---	---	---	---	14,630	---	8,440	3,700	---	---
ACW #01	ACW #01	16-May-95	<5	<10	<5	<5	<5	<5	<15	---	---	14,000	8.3	8,200	4,100	240	---
ACW #01	ACW #01	27-Jun-95	4.6	4.6	<2.5	---	---	---	140	---	---	1,400	8.4	8,400	6,700	260	---
ACW #01	ACW #01	29-Aug-95	6	<10	<5	---	---	---	<15	---	---	21,000	8.2	12,000	3,300	210	---
ACW #01	ACW #01	06-Feb-96	6.1	3	1.9	---	---	---	2.8	---	---	16,000	8.3	9,700	5,200	280	---
ACW #01	ACW #01	06-Feb-96	5.6	2.7	3	---	---	---	<7.5	---	---	16,170	8.2	9,440	5,770	293	---
ACW #01	ACW #01	08-May-96	6.3	2.03	<1.0	---	---	---	<3.0	---	---	14,620	8.2	8,190	4,130	268	---
ACW #01	ACW #01	13-Aug-96	3.5	1.2	<1.0	---	---	---	<2.0	---	---	12,000	8.1	7,400	3,500	270	---
ACW #01	ACW #01	05-Nov-96	5.6	2.5	<1.0	---	---	---	1.3	---	---	11,000	8.1	7,200	3,700	250	---
ACW #01	ACW #01	06-May-97	14	15	<5.0	---	---	---	5.7	---	---	14,800	---	8,800	5,200	---	---
ACW #01	ACW #01	21-Nov-97	6.1	4.8	<0.5	---	---	---	2.4	---	---	20,800	8.4	12,000	7,800	320	---
ACW #01D	ACW #01D	21-Nov-97	6.7	5.7	<0.5	---	---	---	2.1	---	---	20,700	8.2	12,000	7,500	320	---
S98-0170	ACW #01	12-May-98	6.8	11	4.4	---	---	---	3.4	---	---	16,000	---	9,600	5,200	---	---
S98-0458	ACW #01	20-Oct-98	7	4	<2 Jm	---	---	---	<2 Jm	---	---	20,300	8.18	12,900	6,100	260	17.7
M99-0005	ACW #01	11-May-99	---	---	---	---	---	---	---	---	---	16,900	---	8,500	5,400	---	---
M99-0187	ACW #01	19-Oct-99	7.5	3.6	<2	---	---	---	<4	---	---	14,800	8.02	7,800	5,500	210	20.6
M00-0081	ACW #01	09-May-00	---	---	---	---	---	---	---	---	---	19,300	---	11,300	7,000	---	---
M00-0219	ACW #01	26-Oct-00	<2	<2	<2	---	---	---	8.3	---	---	15,500	8.13	9,900	5,500	300	15.2
M01-0133	ACW #01	01-May-01	---	---	---	---	---	---	---	---	---	14,200	---	7,640	5,300	---	---
M01-0469	ACW #01	22-Oct-01	<2	<2	<2	---	---	---	11.0	---	---	12,400	7.92	6,580	4,400	380	20.3
2002040220-03	ACW #01	29-Apr-02	---	---	---	---	---	---	---	---	---	12,400	---	6,730	4,800	---	---
2002110896-6	ACW #01	03-Nov-02	<5.0	<5.0	<5.0	<10		<5.0	<15	---	---	6,400	7.65 H	4,000	1,900	420	---
ACW #02A	ACW #02A	06-May-97	140	100	<50	---	---	---	<100	---	---	26,800	---	17,000	11,000	---	---
ACW #02A	ACW #02A	20-Oct-97	89	100	13	---	---	---	26	---	---	24,400	9.2	16,000	8,600	<10	---
S98-0167	ACW #02A	11-May-98	120	210	20	---	---	---	33	---	---	26,000	---	16,000	8,200	---	---
S98-0455	ACW #02A	19-Oct-98	180	340	38	---	---	---	72	---	---	25,200	9.40	20,200	7,800	17	18.3
M99-0013	ACW #02A	12-May-99	---	---	---	---	---	---	---	---	---	24,400	---	12,000	7,400	---	---
M99-0181	ACW #02A	18-Oct-99	17 P	42 P	8.1 P	---	---	---	14 P	---	---	24,000	9.42	13,000	7,600	25	19.8
M00-0078	ACW #02A	08-May-00	---	---	---	---	---	---	---	---	---	21,500	---	13,600	7,200	---	---
M00-0215	ACW #02A	26-Oct-00	35	78	16	---	---	---	32	---	---	19,100	9.75	12,800	6,500	28	14.1
M01-0136	ACW #02A	02-May-01	---	---	---	---	---	---	---	---	---	18,500	---	10,900	5,400	---	---
M01-0468	ACW #02A	22-Oct-01	39	34	30	---	---	---	57	---	---	19,900	9.88	12,100	4,600	6.5	19.8
2002040220-11	ACW #02A	30-Apr-02	---	---	---	---	---	---	---	---	---	22,300	---	14,000	6,300	---	---
2002110896-4	ACW #02A	03-Nov-02	61	32	35	47		<20	47	---	---	19,000	9.85 H	8,800	8,900	3.2	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
ACW #01	ACW #01	05-Mar-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	15-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	10-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	20-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	27-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	16-May-95	1.8	25	<2.0	---	---	---	---	0.9	---	66	---	---	<0.025	0.38	---	72
ACW #01	ACW #01	27-Jun-95	1.9	22	<2.0	---	---	---	---	1.0	---	74	---	---	<0.025	0.59	---	92
ACW #01	ACW #01	29-Aug-95	2.2	18	<20	---	---	---	---	0.8	---	67	---	---	<0.025	0.18	---	78
ACW #01	ACW #01	06-Feb-96	2.1	0.88	0.02	---	---	---	---	1.0	---	78	---	---	<0.006	0.56	---	100
ACW #01	ACW #01	06-Feb-96	2.06	2.1	<1.25	---	---	---	---	1.1	---	84	---	---	<0.1	0.7	---	102
ACW #01	ACW #01	08-May-96	<1.25	2.2	<1.25	---	---	---	---	1.0	---	93	---	---	0.01	0.6	---	118
ACW #01	ACW #01	13-Aug-96	1.9	4.9	<0.05	---	---	---	---	1.1	---	110	---	---	0.019	0.68	---	100
ACW #01	ACW #01	05-Nov-96	2	4.4	<0.05	---	---	---	---	1.0	---	81	---	---	<0.007	0.59	---	98
ACW #01	ACW #01	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	21-Nov-97	<2	2.1	<0.5	---	---	---	---	1.0	---	83	---	---	<0.01	0.6	---	110
ACW #01D	ACW #01D	21-Nov-97	2	2.2	<0.5	---	---	---	---	0.9	---	76	---	---	<0.01	0.5	---	100
S98-0170	ACW #01	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0458	ACW #01	20-Oct-98	<5	2.3	<0.05	---	---	---	---	1.1	---	100	---	---	<0.0025	0.74	---	110
M99-0005	ACW #01	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0187	ACW #01	19-Oct-99	<4	2.2	<0.05	---	0.047	0.62	0.33	1.2	<0.002	160	<0.005	<0.005	<0.0025	1.6	<0.005	110
M00-0081	ACW #01	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0219	ACW #01	26-Oct-00	<2	2.3	<1	---	---	0.30	0.29	1.0	<0.01	120	<0.01	---	<0.005	3.6	<0.05	82
M01-0133	ACW #01	01-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0469	ACW #01	22-Oct-01	<5	2.5	<2.5	---	<0.05	0.21	0.24	0.92	<0.005	82	<0.01	<0.01	<0.005	2.3	<0.05	60
2002040220-03	ACW #01	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-6	ACW #01	03-Nov-02	1.4	<0.40	<0.20	---	---	0.13	---	1.1	---	180	---	---	---	6.9	---	120
ACW #02A	ACW #02A	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #02A	ACW #02A	20-Oct-97	5	7.6	<0.5	---	---	---	---	1.1	---	3	---	---	<0.01	0.2	---	<1
S98-0167	ACW #02A	11-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0455	ACW #02A	19-Oct-98	<5	12	<0.05	---	---	---	---	1.4	---	3.0	---	---	<0.0025	0.37	---	0.96
M99-0013	ACW #02A	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0181	ACW #02A	18-Oct-99	<4	16	<0.05	---	0.35	3.6	0.48	2.3	0.016	4.2	<0.005	0.0041	0.0086	0.30	<0.005	1.1
M00-0078	ACW #02A	08-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0215	ACW #02A	26-Oct-00	<2	11	<1	---	---	1.4	0.31	1.2	0.018	6.4	0.018	---	0.034	1.0	<0.05	1.0
M01-0136	ACW #02A	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0468	ACW #02A	22-Oct-01	<10	11	<5	---	0.16	1.4	0.26	1.4	0.016	3.3	<0.01	<0.01	<0.005	0.4	<0.05	0.23
2002040220-11	ACW #02A	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-4	ACW #02A	03-Nov-02	<0.50	14	<0.20	---	---	1.6	---	0.98	---	4.5	---	---	---	0.81	---	<2.0

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
ACW #01	ACW #01	05-Mar-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	15-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	10-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	20-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	27-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	16-May-95	0.062	---	---	---	12	---	33	---	2,600	---	<0.020	700	---	---	---	470
ACW #01	ACW #01	27-Jun-95	0.077	---	---	---	15	---	35	---	3,200	---	<0.02	710	---	---	---	510
ACW #01	ACW #01	29-Aug-95	0.069	---	---	---	11	---	28	---	2,400	---	<0.02	820	---	---	---	590
ACW #01	ACW #01	06-Feb-96	0.069	---	---	---	16	---	36	---	4,300	---	<0.010	830	---	---	---	620
ACW #01	ACW #01	06-Feb-96	0.1	---	---	---	17	---	41	---	3,900	---	<0.1	759	---	---	---	630
ACW #01	ACW #01	08-May-96	0.09	---	---	---	18	---	54	---	3,070	---	<0.05	310	---	---	---	718
ACW #01	ACW #01	13-Aug-96	0.078	---	---	---	8.6	---	41	---	2,400	---	0.008	730	---	---	---	690
ACW #01	ACW #01	05-Nov-96	0.062	---	---	---	11	---	16	---	3,000	---	0.011	810	---	---	---	610
ACW #01	ACW #01	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #01	ACW #01	21-Nov-97	0.06	---	---	---	20	---	14	---	3,900	---	0.04	680	---	---	---	---
ACW #01D	ACW #01D	21-Nov-97	0.07	---	---	---	20	---	13	---	4,000	---	0.03	670	---	---	---	---
S98-0170	ACW #01	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0458	ACW #01	20-Oct-98	0.062	---	---	---	16	---	15	---	3,800	---	<0.05	840	840	<25	<25	700
M99-0005	ACW #01	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0187	ACW #01	19-Oct-99	0.13	<0.0002	0.013	<0.02	13	---	24	<0.005	3,100	<0.005	<0.05	780	780	<25	<25	870
M00-0081	ACW #01	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0219	ACW #01	26-Oct-00	0.21	<0.0002	---	---	9.5	<0.1	25	<0.02	2,600	---	<0.1	720	720	<25	<25	640
M01-0133	ACW #01	01-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0469	ACW #01	22-Oct-01	0.18	<0.0002	<0.01	<0.04	11	<0.1	26	<0.02	3,000	<0.005	<0.1	600	600	<25	<25	450
2002040220-03	ACW #01	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-6	ACW #01	03-Nov-02	0.33	---	---	---	18	---	45	---	1,500	---	---	500	500	<2.0	<2.0	930
ACW #02A	ACW #02A	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #02A	ACW #02A	20-Oct-97	<0.01	---	---	---	12	---	10	---	6,000	---	<0.02	2,200	---	---	---	---
S98-0167	ACW #02A	11-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0455	ACW #02A	19-Oct-98	<0.0025	---	---	---	12	---	12	---	6,400	---	<0.05	2,400	1500	860	<25	11
M99-0013	ACW #02A	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0181	ACW #02A	18-Oct-99	0.0041	0.00051	0.085	0.041	14	---	26	<0.005	6,100	0.037	<0.05	2,700	1700	990	<50	15
M00-0078	ACW #02A	08-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0215	ACW #02A	26-Oct-00	0.011	0.0002	---	---	8.5	<0.1	28	<0.02	3,600	---	<0.1	870	870	<25	<25	18
M01-0136	ACW #02A	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0468	ACW #02A	22-Oct-01	0.0062	0.00066	0.053	<0.04	8.9	<0.1	36	<0.02	5,200	0.027	<0.1	3,700	1,300	2,400	<125	9.2
2002040220-11	ACW #02A	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-4	ACW #02A	03-Nov-02	<0.010	---	---	---	25	---	36	---	5,800	---	---	3,500	1,300	2,200	<2.0	<13

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
ACW #03	ACW #03	06-May-97	350	22	110	---	---	---	43	---	---	18,500	---	11,000	6,900	---	---
ACW #03	ACW #03	20-Oct-97	160	8.2	69	---	---	---	32	---	---	23,000	---	13,000	7,800	---	---
S98-0157	ACW #03	11-May-98	130	21	41	---	---	---	19	---	---	24,000	---	15,000	8,500	---	---
S98-0456	ACW #03	19-Oct-98	---	---	---	---	---	---	---	---	---	20,800	---	12,400	7,700	---	---
M99-0011	ACW #03	12-May-99	---	---	---	---	---	---	---	---	---	19,600	---	10,100	6,600	---	---
M99-0185	ACW #03	19-Oct-99	---	---	---	---	---	---	---	---	---	18,900	---	9,120	6,900	---	---
M00-0077	ACW #03	08-May-00	---	---	---	---	---	---	---	---	---	19,400	---	11,900	7,600	---	---
M00-0217	ACW #03	26-Oct-00	---	---	---	---	---	---	---	---	---	17,500	---	11,900	7,400	---	---
M01-0132	ACW #03	01-May-01	---	---	---	---	---	---	---	---	---	19,200	---	9,900	9,500	---	---
M01-0474	ACW #03	23-Oct-01	---	---	---	---	---	---	---	---	---	18,800	---	10,600	7,100	---	---
2002040220-13	ACW #03	30-Apr-02	---	---	---	---	---	---	---	---	---	18,500	---	10,600	6,000	---	---
2002110896-3	ACW #03	03-Nov-02	37	<10	28	<20		<10	<30	---	---	13,000	7.56 H	13,000	4,700	13	---
ACW #04	ACW #04	06-May-97	29	12	<5.0	---	---	---	<10	---	---	48,500	---	25,000	21,000	---	---
ACW #04	ACW #04	20-Oct-97	170	150	<5.0	---	---	---	110	---	---	172,000	7.3	94,000	58,000	2,100	---
S98-0168	ACW #04	12-May-98	190	170	60	---	---	---	100	---	---	160,000	---	99,000	74,000	---	---
S98-0454	ACW #04	19-Oct-98	190	140	49	---	---	---	90	---	---	121,000	6.74	83,100	56,000	1,800	17.6
M99-0012	ACW #04	12-May-99	---	---	---	---	---	---	---	---	---	131,000	---	84,800	45,000	---	---
M99-0184	ACW #04	19-Oct-99	240	160	44	---	---	---	81	---	---	95,000	6.95	46,300	44,000	1,300	20.7
M00-0079	ACW #04	08-May-00	---	---	---	---	---	---	---	---	---	106,000		72,300	47,000	---	---
M00-0216	ACW #04	26-Oct-00	63	17	41	---	---	---	190	---	---	25,600	7.73	16,300	10,000	88	15.1
M01-0137	ACW #04	02-May-01	---	---	---	---	---	---	---	---	---	29,600	---	17,400	12,000	---	---
M01-0467	ACW #04	22-Oct-01	12	3	32	---	---	---	100	---	---	35,300	7.15	21,400	13,000	200	20.2
2002040220-12	ACW #04	30-Apr-02	---	---	---	---	---	---	---	---	---	35,600	---	24,500	15,000	---	---
2002110896-5	ACW #04	03-Nov-02	84	17	27	34		11	45	---	---	33,000	7.71 H	24,000	11,000	450	---
ACW #05	ACW #05	10-Mar-93	---	---	---	---	---	---	---	---	---	10,400	---	6,110	2,544	---	---
ACW #05	ACW #05	17-Jun-93	---	---	---	---	---	---	---	---	---	4,480	---	323	1,228	---	---
ACW #05	ACW #05	16-Sep-93	---	---	---	---	---	---	---	---	---	4,140	---	3,064	650	---	---
ACW #05	ACW #05	09-Nov-93	---	---	---	---	---	---	---	---	---	4,390	---	3,202	720	---	---
ACW #05	ACW #05	21-Apr-94	---	---	---	---	---	---	---	---	---	4,131	---	3,300	800	---	---
ACW #05	ACW #05	28-Oct-94	---	---	---	---	---	---	---	---	---	4,500	---	3,112	550	---	---
ACW #05	ACW #05	31-Jan-95	---	---	---	---	---	---	---	---	---	4,050	---	2,848	499	---	---
ACW #05	ACW #05	16-May-95	<5	<10	<5	<5	<5	<5	<15	---	---	3,900	7.0	2,800	530	1,100	---
ACW #05	ACW #05	27-Jun-95	<2.5	<2.5	<2.5	---	---	---	<5.0	---	---	3,800	7.3	2,800	460	800	---
ACW #05	ACW #05	30-Aug-95	<5	<10	<5	---	---	---	<15	---	---	3,900	7.0	2,700	510	890	---
ACW #05	ACW #05	06-Feb-96	<1.0	<1.0	<1.0	---	---	---	<2.0	---	---	3,800	7.5	2,200	510	920	---
ACW #05	ACW #05	06-Feb-96	<2.5	<2.5	<2.5	---	---	---	<7.5	---	---	3,090	7.3	2,745	506	835	---
ACW #05	ACW #05	08-May-96	<1.0	<1.0	<1.0	---	---	---	<3.0	---	---	3,650	7.2	2,460	519	653	---
ACW #05	ACW #05	13-Aug-96	<1.0	1.2	<1.0	---	---	---	<2.0	---	---	3,400	7.3	2,500	500	710	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
ACW #03	ACW #03	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #03	ACW #03	20-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0157	ACW #03	11-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0456	ACW #03	19-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0011	ACW #03	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0185	ACW #03	19-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0077	ACW #03	08-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0217	ACW #03	26-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0132	ACW #03	01-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0474	ACW #03	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-13	ACW #03	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-3	ACW #03	03-Nov-02	2.2	<0.40	<0.20 H	---	---	0.043	---	1.0	---	220	---	---	---	10	---	98
ACW #04	ACW #04	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #04	ACW #04	20-Oct-97	33	<0.5	<0.5	---	---	---	---	0.7	---	580	---	---	<0.01	0.2	---	360
S98-0168	ACW #04	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0454	ACW #04	19-Oct-98	<20	0.51	<0.5	---	---	---	---	1.1	---	610	---	---	<0.0025	0.14	---	370
M99-0012	ACW #04	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0184	ACW #04	19-Oct-99	<20	0.64	<0.05	---	<0.025	0.092	0.15	1.4	<0.002	650	<0.005	0.018	0.0080	0.23	<0.005	370
M00-0079	ACW #04	08-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0216	ACW #04	26-Oct-00	<2	12	<1	---	---	0.47	0.87	2.0	<0.01	57	<0.01	---	<0.005	1.7	<0.05	28
M01-0137	ACW #04	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0467	ACW #04	22-Oct-01	<20	8.2	<10	---	<0.05	0.31	0.81	1.5	<0.005	290	<0.01	<0.01	<0.005	1.5	<0.05	110
2002040220-12	ACW #04	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-5	ACW #04	03-Nov-02	1.9	1.3	0.69	---	---	0.21	---	1.1	---	440	---	---	---	1.6	---	150
ACW #05	ACW #05	10-Mar-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	17-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	16-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	09-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	21-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	28-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	31-Jan-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	16-May-95	1.3	<1.0	3.5	---	---	---	---	0.9	---	270	---	---	<0.025	0.46	---	39
ACW #05	ACW #05	27-Jun-95	1.1	<1.0	3.4	---	---	---	---	1.0	---	270	---	---	<0.025	0.34	---	40
ACW #05	ACW #05	30-Aug-95	1	<10	<20	---	---	---	---	1.1	---	240	---	---	<0.025	<0.10	---	36
ACW #05	ACW #05	06-Feb-96	0.92	0.12	4.7	---	---	---	---	1.4	---	240	---	---	<0.006	1.5	---	32
ACW #05	ACW #05	06-Feb-96	<1.25	0.29	4.9	---	---	---	---	1.4	---	240	---	---	<0.1	2	---	32
ACW #05	ACW #05	08-May-96	4.5	0.42	5	---	---	---	---	0.8	---	167	---	---	0.01	0.2	---	24
ACW #05	ACW #05	13-Aug-96	1	0.7	5.4	---	---	---	---	2.0	---	200	---	---	<0.006	0.024	---	28

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
ACW #03	ACW #03	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #03	ACW #03	20-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0157	ACW #03	11-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0456	ACW #03	19-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0011	ACW #03	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0185	ACW #03	19-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0077	ACW #03	08-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0217	ACW #03	26-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0132	ACW #03	01-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0474	ACW #03	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-13	ACW #03	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-3	ACW #03	03-Nov-02	0.48	---	---	---	28	---	55	---	4200	---	---	960	960	<2.0	<2.0	960
ACW #04	ACW #04	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #04	ACW #04	20-Oct-97	6.1	---	---	---	250	---	13	---	33,000	---	<0.02	500	---	---	---	---
S98-0168	ACW #04	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0454	ACW #04	19-Oct-98	7.0	---	---	---	170	---	10	---	37,000	---	<0.05	480	480	<25	<25	3100
M99-0012	ACW #04	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0184	ACW #04	19-Oct-99	12	<0.0002	0.0076	<0.02	170	---	14	<0.005	42,000	0.14	<0.05	500	500	<25	<25	3200
M00-0079	ACW #04	08-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0216	ACW #04	26-Oct-00	0.50	<0.0002	---	---	23	<0.1	25	<0.02	3,600	---	<0.1	1600	1600	<25	<25	260
M01-0137	ACW #04	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0467	ACW #04	22-Oct-01	0.58	0.00086	0.032	<0.04	32	<0.1	30	<0.02	7,300	0.0066	<0.1	970	970	<25	<25	1200
2002040220-12	ACW #04	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-5	ACW #04	03-Nov-02	1.2	---	---	---	96	---	37	---	8,400	---	---	560	560	<2.0	<2.0	1700
ACW #05	ACW #05	10-Mar-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	17-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	16-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	09-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	21-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	28-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	31-Jan-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	16-May-95	0.026	---	---	---	6.6	---	57	---	540	---	<0.020	320	---	---	---	980
ACW #05	ACW #05	27-Jun-95	0.02	---	---	---	6.9	---	56	---	530	---	<0.020	320	---	---	---	240
ACW #05	ACW #05	30-Aug-95	<0.015	---	---	---	8.7	---	44	---	550	---	<0.020	310	---	---	---	810
ACW #05	ACW #05	06-Feb-96	0.026	---	---	---	6.5	---	64	---	580	---	0.015	260	---	---	---	740
ACW #05	ACW #05	06-Feb-96	0.1	---	---	---	8.1	---	66	---	580	---	<0.1	284	---	---	---	730
ACW #05	ACW #05	08-May-96	<0.05	---	---	---	8	---	35	---	506	---	<0.05	190	---	---	---	515
ACW #05	ACW #05	13-Aug-96	<0.007	---	---	---	6.3	---	58	---	520	---	0.033	320	---	---	---	620

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
ACW #05	ACW #05	06-Nov-96	1.1	1.4	1.2	---	---	---	<2.0	---	---	3,300	7.5	2,300	500	710	---
ACW #05	ACW #05	07-May-97	0.84	1.2	0.93	---	---	---	<1.0	---	---	3,020	---	2,000	430	---	---
ACW #05	ACW #05	22-Oct-97	0.9	1.6	0.8	---	---	---	1.9	---	---	3,160	7.7	2,000	470	320	---
S98-0183	ACW #05	13-May-98	0.79	1.5	0.77*	---	---	---	12*	---	---	3,100	---	2,800	570	---	---
S98-0470	ACW #05	21-Oct-98	---	---	---	---	---	---	---	---	---	2,930	---	1,910	440	---	---
M99-0020	ACW #05	13-May-99	---	---	---	---	---	---	---	---	---	3,190	---	1,960	450	---	---
M99-0196	ACW #05	21-Oct-99	<2	2.7	<2	---	---	---	<4	---	---	3,250	7.23	1,890	1,000	440	18.5
M00-0092	ACW #05	10-May-00	---	---	---	---	---	---	---	---	---	3,180	---	1,960	750	---	---
M00-0234	ACW #05	02-Nov-00	<5	<5	<5	---	---	---	<10	---	---	2,650	7.3	1,920	860	750	18.5
M01-0157	ACW #05	06-May-01	---	---	---	---	---	---	---	---	---	3,030	---	1,920	540	---	---
M01-0481	ACW #05	24-Oct-01	---	---	---	---	---	---	---	---	---	3,120	---	1,860	590	---	---
2002040220-17	ACW #05	30-Apr-02	---	---	---	---	---	---	---	---	---	3,110	---	1,900	570	---	---
2002110896-20	ACW #05	06-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	3,000	7.26 H	2,200	560	520	---
ACW #06	ACW #06	18-Jun-93	---	---	---	---	---	---	---	---	---	8,220	---	5,027	2,108	---	---
ACW #06	ACW #06	16-Sep-93	---	---	---	---	---	---	---	---	---	11,130	---	6,656	2,737	---	---
ACW #06	ACW #06	08-Nov-93	---	---	---	---	---	---	---	---	---	8,540	---	5,646	2,154	---	---
ACW #06	ACW #06	21-Apr-94	---	---	---	---	---	---	---	---	---	11,080	---	6,930	3,600	---	---
ACW #06	ACW #06	28-Oct-94	---	---	---	---	---	---	---	---	---	11,988	---	6,910	2,100	---	---
ACW #06	ACW #06	31-Jan-95	---	---	---	---	---	---	---	---	---	11,530	---	6,755	2,873	---	---
ACW #06	ACW #06	16-May-95	<5	<10	<5	<5	<5	<5	<15	---	---	10,000	8.1	6,400	2,800	110	---
ACW #06	ACW #06	27-Jun-95	14	<2.5	<2.5	---	---	---	<5.0	---	---	10,000	9.0	8,600	3,500	110	---
ACW #06	ACW #06	29-Aug-95	7	<10	<5	---	---	---	<15	---	---	12,000	8.4	7,100	3,000	110	---
ACW #06	ACW #06	06-Feb-96	6.6	3.2	<1.0	---	---	---	<2.0	---	---	11,000	8.0	6,600	2,600	72	---
ACW #06	ACW #06	06-Feb-96	<2.5	<2.5	<2.5	---	---	---	<7.5	---	---	10,320	7.8	5,630	3,180	79	---
ACW #06	ACW #06	08-May-96	4.08	1.58	<1.0	---	---	---	<3.0	---	---	10,620	7.7	6,460	2,880	48	---
ACW #06	ACW #06	14-Aug-96	4.2	2.6	<2.0	---	---	---	<2.0	---	---	11,000	7.9	7,100	2,900	88	---
ACW #06	ACW #06	06-Nov-96	4.5	1.5	<1.0	---	---	---	<2.0	---	---	12,000	8.6	7,700	3,400	74	---
ACW #06	ACW #06	06-Nov-96	4.6	1.5	<1.0	---	---	---	<2.0	---	---	12,000	8.6	7,700	3,600	62	---
ACW #06	ACW #06	08-May-97	8.2	2.8	2.6	---	---	---	2.7	---	---	8,450	---	5,500	2,300	---	---
ACW #06	ACW #06	22-Oct-97	10	3.8	1.4	---	---	---	1.2	---	---	10,200	8.2	6,500	2,900	100	---
ACW #06D	ACW #06D	22-Oct-97	9.5	3.1	1.2	---	---	---	1.2	---	---	10,700	8.3	6,200	2,900	98	---
S98-0181	ACW #06	13-May-98	15	12	<0.50	---	---	---	3.8	---	---	12,000	---	10,000	3,300	---	---
S98-0469	ACW #06	21-Oct-98	11	6	3	---	---	---	3	---	---	11,600	8.00	6,530	3,000	74	20.1
M99-0019	ACW #06	13-May-99	---	---	---	---	---	---	---	---	---	11,200	---	6,620	2,900	---	---
M99-0195	ACW #06	21-Oct-99	<20	<20	<20	---	---	---	<40	---	---	11,500	8.54	6,170	2,800	230	19.1
M00-0089	ACW #06	10-May-00	---	---	---	---	---	---	---	---	---	10,300	---	6,290	3,600	---	---
M00-0232	ACW #06	02-Nov-00	<5	<5	<5	---	---	---	<10	---	---	8,520	8.2	4,350	3,100	340	18.4
M01-0156	ACW #06	06-May-01	---	---	---	---	---	---	---	---	---	9,020	---	5,240	2,600	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
ACW #05	ACW #05	06-Nov-96	1.2	0.57	<0.05	---	---	---	---	1.9	---	180	---	---	<0.007	0.3	---	25
ACW #05	ACW #05	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	22-Oct-97	1.7	0.6	6	---	---	---	---	1.3	---	170	---	---	<0.01	0.5	---	24
S98-0183	ACW #05	13-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0470	ACW #05	21-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0020	ACW #05	13-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0196	ACW #05	21-Oct-99	<2	0.77	6.5	---	0.094	0.0061	0.034	1.1	<0.002	190	0.019	<0.005	<0.0025	0.15	<0.005	24
M00-0092	ACW #05	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0234	ACW #05	02-Nov-00	<40	0.85	5.3	---	---	<0.1	0.051	1.1	<0.01	200	0.028	---	0.0095	1.6	<0.05	23
M01-0157	ACW #05	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0481	ACW #05	24-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-17	ACW #05	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-20	ACW #05	06-Nov-02	0.99	0.88	4.7	---	---	<0.0050	---	0.92	---	160	---	---	---	0.89	---	23
ACW #06	ACW #06	18-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	16-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	08-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	21-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	28-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	31-Jan-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	16-May-95	1.4	31	<2.0	---	---	---	---	0.9	---	70	---	---	<0.025	3.9	---	19
ACW #06	ACW #06	27-Jun-95	1.8	44	<2.0	---	---	---	---	1.1	---	64	---	---	<0.025	5.8	---	16
ACW #06	ACW #06	29-Aug-95	1.8	26	<20	---	---	---	---	0.9	---	42	---	---	<0.025	0.54	---	16
ACW #06	ACW #06	06-Feb-96	1.3	3.8	<0.0071	---	---	---	---	1.1	---	91	---	---	<0.006	4.6	---	23
ACW #06	ACW #06	06-Feb-96	1.52	10	<1.25	---	---	---	---	1.3	---	76	---	---	<0.1	5	---	21
ACW #06	ACW #06	08-May-96	<1.25	6.4	<1.25	---	---	---	---	1.3	---	35	---	---	0.02	4.1	---	21
ACW #06	ACW #06	14-Aug-96	1.8	21	<0.05	---	---	---	---	1.2	---	85	---	---	<0.006	4.5	---	23
ACW #06	ACW #06	06-Nov-96	1.3	18	<0.05	---	---	---	---	1.2	---	98	---	---	<0.007	5.3	---	27
ACW #06	ACW #06	06-Nov-96	1.3	18	<0.05	---	---	---	---	1.1	---	88	---	---	<0.007	4	---	22
ACW #06	ACW #06	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	22-Oct-97	3	16.5	<0.05	---	---	---	---	0.9	---	68	---	---	<0.01	2.6	---	19
ACW #06D	ACW #06D	22-Oct-97	3	17.2	<0.05	---	---	---	---	0.9	---	68	---	---	<0.01	2.3	---	19
S98-0181	ACW #06	13-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0469	ACW #06	21-Oct-98	<5	25	<0.05	---	---	---	---	1.2	---	*64	---	---	<0.0025	2.4	---	23
M99-0019	ACW #06	13-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0195	ACW #06	21-Oct-99	<4	28	<0.05	---	0.083	1.7	0.35	1.3	0.0061	69	0.0045	0.0084	<0.0025	2.2	<0.005	19
M00-0089	ACW #06	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0232	ACW #06	02-Nov-00	---	22.9	<0.05	---	---	0.82	0.28	1.5	<0.01	83	<0.01	---	0.016	9.7	<0.05	22
M01-0156	ACW #06	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
ACW #05	ACW #05	06-Nov-96	0.008	---	---	---	6	---	27	---	520	---	0.022	350	---	---	---	560
ACW #05	ACW #05	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #05	ACW #05	22-Oct-97	<0.01	---	---	---	5	---	26	---	480	---	<0.02	320	---	---	---	---
S98-0183	ACW #05	13-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0470	ACW #05	21-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0020	ACW #05	13-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0196	ACW #05	21-Oct-99	0.011	<0.0002	<0.005	<0.02	6.3	---	26.0	<0.005	540	0.0055	0.81	270	270	<25	<25	560
M00-0092	ACW #05	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0234	ACW #05	02-Nov-00	0.032	<0.0002	---	---	6.1	<0.1	34	<0.02	450	---	<0.1	280	280	<25	<25	590
M01-0157	ACW #05	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0481	ACW #05	24-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-17	ACW #05	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-20	ACW #05	06-Nov-02	0.014	---	---	---	13	---	51	---	490	---	---	320	320	<2.0	<2.0	490
ACW #06	ACW #06	18-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	16-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	08-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	21-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	28-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	31-Jan-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	16-May-95	0.079	---	---	---	<5.0	---	48	---	2,200	---	<0.020	1,300	---	---	---	200
ACW #06	ACW #06	27-Jun-95	0.082	---	---	---	<5.0	---	44	---	3,000	---	<0.080	1,500	---	---	---	130
ACW #06	ACW #06	29-Aug-95	0.04	---	---	---	<5.0	---	42	---	2,500	---	<0.020	1,500	---	---	---	200
ACW #06	ACW #06	06-Feb-96	0.12	---	---	---	3.6	---	62	---	2,700	---	0.029	1,400	---	---	---	320
ACW #06	ACW #06	06-Feb-96	0.1	---	---	---	3.6	---	50	---	2,400	---	<0.1	1,315	---	---	---	275
ACW #06	ACW #06	08-May-96	0.14	---	---	---	4	---	40	---	2,380	---	<0.05	1,396	---	---	---	175
ACW #06	ACW #06	14-Aug-96	0.13	---	---	---	3.4	---	60	---	2,900	---	0.024	1,400	---	---	---	310
ACW #06	ACW #06	06-Nov-96	0.16	---	---	---	3.8	---	32	---	2,800	---	0.032	1,600	---	---	---	360
ACW #06	ACW #06	06-Nov-96	0.13	---	---	---	3.6	---	27	---	2,400	---	0.019	1,600	---	---	---	310
ACW #06	ACW #06	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #06	ACW #06	22-Oct-97	0.11	---	---	---	3	---	21	---	2,200	---	<0.02	1,400	---	---	---	---
ACW #06D	ACW #06D	22-Oct-97	0.11	---	---	---	3	---	21	---	2,200	---	<0.02	1,400	---	---	---	---
S98-0181	ACW #06	13-May-98	---	---	---	---	---	---	0.56	---	---	---	---	---	---	---	---	---
S98-0469	ACW #06	21-Oct-98	0.099	---	---	---	2.7	---	22	---	2,640	---	<0.05	1,600	1,600	<25	<25	250
M99-0019	ACW #06	13-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0195	ACW #06	21-Oct-99	0.087	<0.0002	0.080	0.030	2.3	---	29	<0.005	2,900	<0.005	<0.05	1,500	1,400	130	<25	250
M00-0089	ACW #06	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0232	ACW #06	02-Nov-00	0.13	<0.0002	---	---	6.9	<0.1	30	<0.02	710	---	<0.1	1,200	1,200	14	<25	300
M01-0156	ACW #06	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
M01-0480	ACW #06	24-Oct-01	5.6	<2	<2	---	---	---	18	---	---	8,350	8.2	4,730	2,400	220	19.5
2002040220-10	ACW #06	29-Apr-02	---	---	---	---	---	---	---	---	---	8,910	---	4,800	2,400	---	---
2002110896-15	ACW #06	05-Nov-02	18	<10	<10	<20		<10	<30	---	---	7,300	8.49 H	4,400	1,800	150	---
ACW #07	ACW #07	07-May-97	7.3	2.5	3.1	---	---	---	1.7	---	---	13,200	---	8,100	3,600	---	---
ACW #07	ACW #07	22-Oct-97	6.4	3.4	3	---	---	---	3	---	---	13,800	7.3	7,500	4,400	50	---
S98-0182	ACW #07	13-May-98	7.0	3.2	2.1*	---	---	---	1.7*	---	---	14,000	---	11,000	4,300	---	---
S98-0467	ACW #07	21-Oct-98	8	3	2	---	---	---	<2	---	---	14,000	7.05	8,290	4,400	130	20.3
M99-0017	ACW #07	12-May-99	---	---	---	---	---	---	---	---	---	14,300	---	7,420	4,900	---	---
M99-0194	ACW #07	21-Oct-99	7.2	5.3	2.4	---	---	---	<4	---	---	14,700	7.05	8,010	4,800	160	18.7
M00-0088	ACW #07	10-May-00	---	---	---	---	---	---	---	---	---	14,900		8,900	7,100	---	---
M00-0231	ACW #07	02-Nov-00	<5	<5	<5	---	---	---	<10	---	---	12,500	7.1	8,400	5,100	200	19.0
M01-0152	ACW #07	06-May-01	---	---	---	---	---	---	---	---	---	16,400	---	8,980	6,800	---	---
M01-0153	ACW #07D	06-May-01	---	---	---	---	---	---	---	---	---	16,300	---	9,640	6,500	---	---
M01-0477	ACW #07	24-Oct-01	7.4	<2	<2	---	---	---	2.4	---	---	17,400	7.11 H	9,180	8,500	110	21.0
2002040220-14	ACW #07	30-Apr-02	---	---	---	---	---	---	---	---	---	17,400	---	9,120	6,400	---	---
2002110896-16	ACW #07	05-Nov-02	12	1.1	2.4	<2.0		<1.0	<3.0	---	---	14,000	7.18 H	8,900	5,200	120	---
ACW #08	ACW #08	06-May-97	99	10	4.1	---	---	---	3.9	---	---	89,200	---	50,000	29,000	---	---
ACW #08	ACW #08	21-Nov-97	36	3.9	2	---	---	---	14	---	---	49,200	7.0	29,000	17,000	800	---
S98-0173	ACW #08	12-May-98	37	4.5	2.9	---	---	---	1.6	---	---	48,000	---	28,000	34,000	---	---
S98-0459	ACW #08	20-Oct-98	140	13	6	---	---	---	6	---	---	44,200	6.79	28,700	24,000	740	17.9
M99-0010	ACW #08	11-May-99	---	---	---	---	---	---	---	---	---	52,500	---	29,800	21,000	---	---
M99-0186	ACW #08	19-Oct-99	32	6.2	3.7	---	---	---	<4	---	---	36,400	7.09	17,700	15,000	580	20.5
M00-0086	ACW #08	09-May-00	---	---	---	---	---	---	---	---	---	62,900	---	41,800	32,000	---	---
M00-0218	ACW #08	26-Oct-00	15	<2	2.1	---	---	---	10	---	---	36,300	6.85	26,000	17,000	740	15.0
M01-0134	ACW #08	01-May-01	---	---	---	---	---	---	---	---	---	51,300	---	28,200	25,000	---	---
M01-0475	ACW #08	23-Oct-01	41	5	3.1	---	---	---	<2	---	---	33,400	7.02	20,000	11,000	590	21.6
2002040220-08	ACW #08	29-Apr-02	---	---	---	---	---	---	---	---	---	69,400	---	53,400	30,000	---	---
2002110896-10	ACW #08	04-Nov-02	10	1.5	1.2	<2.0		<1.0	<3.0	---	---	11,000	7.60 H	6,200	3,900	260	---
ACW #09	ACW #09	17-Jun-93	---	---	---	---	---	---	---	---	---	5,900	---	4,435	2,288	---	---
ACW #09	ACW #09	14-Sep-93	---	---	---	---	---	---	---	---	---	3,100	---	2,119	915	---	---
ACW #09	ACW #09	09-Nov-93	---	---	---	---	---	---	---	---	---	3,670	---	2,300	1,184	---	---
ACW #09	ACW #09	22-Apr-94	---	---	---	---	---	---	---	---	---	3,900	---	2,508	1,150	---	---
ACW #09	ACW #09	01-Dec-94	---	---	---	---	---	---	---	---	---	5,450	---	3,510	1,650	---	---
ACW #09	ACW #09	31-Jan-95	---	---	---	---	---	---	---	---	---	7,110	---	4,240	2,083	---	---
ACW #09	ACW #09	17-May-95	<5	22	<5	<5	<5	<5	<15	---	---	11,000	6.6	6,800	5,600	440	---
ACW #09	ACW #09	28-Jun-95	<2.5	<2.5	<2.5	---	---	---	<5.0	---	---	9,100	7.0	6,200	3,500	360	---
ACW #09	ACW #09	30-Aug-95	<5	<10	<5	---	---	---	<15	---	---	7,150	6.5	4,500	2,500	370	---
ACW #09	ACW #09	07-Feb-96	1.8	<1.0	<1.0	---	---	---	<2.0	---	---	7,500	7.7	5,400	2,400	320	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
M01-0480	ACW #06	24-Oct-01	<10	22	<2.5	---	0.180	0.58	0.21	1.3	<0.005	57	<0.01	<0.01	<0.005	1.8	<0.05	16
2002040220-10	ACW #06	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-15	ACW #06	05-Nov-02	1.5	19	<0.20	---	---	2.4	---	1.5	---	100	---	---	---	9.0	---	13
ACW #07	ACW #07	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #07	ACW #07	22-Oct-97	4	4	<0.05	---	---	---	---	0.6	---	200	---	---	<0.01	14.4	---	80
S98-0182	ACW #07	13-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0467	ACW #07	21-Oct-98	<5	3.8	<0.05	---	---	---	---	0.77	---	220	---	---	<0.0025	15	---	91
M99-0017	ACW #07	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0194	ACW #07	21-Oct-99	<4	3.4	<0.05	---	0.11	0.091	1.2	0.79	<0.002	270	<0.005	<0.005	<0.0025	14	<0.005	93
M00-0088	ACW #07	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0231	ACW #07	02-Nov-00	<20	3.0	<0.05	---	---	<0.1	0.94	0.75	<0.01	240	0.012	---	0.0052	12	<0.05	87
M01-0152	ACW #07	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0153	ACW #07D	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0477	ACW #07	24-Oct-01	<20	2.9	<5	---	0.29	<0.1	1.30	0.74	<0.005	230	0.012	<0.01	<0.005	15	0.075	100
2002040220-14	ACW #07	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-16	ACW #07	05-Nov-02	1.5	<0.40	<0.20	---	---	0.070	---	0.74	---	260	---	---	---	13	---	100
ACW #08	ACW #08	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #08	ACW #08	21-Nov-97	<5	0.6	<0.5	---	---	---	---	0.6	---	440	---	---	<0.01	1.3	---	210
S98-0173	ACW #08	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0459	ACW #08	20-Oct-98	<10	0.82	<0.05	---	---	---	---	0.62	---	370	---	---	<0.0025	1.5	---	200
M99-0010	ACW #08	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0186	ACW #08	19-Oct-99	<10	0.86	<0.05	---	<0.025	<0.005	0.11	0.83	<0.002	500	<0.005	<0.005	<0.0025	2.7	<0.005	230
M00-0086	ACW #08	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0218	ACW #08	26-Oct-00	<2	0.92	<1	---	---	<0.1	0.15	0.79	<0.01	440	<0.01	---	<0.005	3.3	<0.05	220
M01-0134	ACW #08	01-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0475	ACW #08	23-Oct-01	<20	1.1	<10	---	<0.05	<0.1	0.12	0.62	<0.005	410	<0.01	<0.01	<0.005	2.6	0.12	200
2002040220-08	ACW #08	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-10	ACW #08	04-Nov-02	<0.50	<0.40	0.93 H	---	---	0.0055	---	0.27	---	140	---	---	---	1.5	---	53
ACW #09	ACW #09	17-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	14-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	09-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	22-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	01-Dec-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	31-Jan-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	17-May-95	2.1	<1.0	<2.0	---	---	---	---	0.4	---	820	---	---	<0.025	0.17	---	280
ACW #09	ACW #09	28-Jun-95	1.9	<1.0	<2.0	---	---	---	---	0.4	---	770	---	---	<0.025	0.28	---	250
ACW #09	ACW #09	30-Aug-95	1.5	<10	<20	---	---	---	---	0.4	---	640	---	---	<0.025	0.19	---	220
ACW #09	ACW #09	07-Feb-96	1.5	0.16	0.039	---	---	---	---	0.4	---	570	---	---	<0.006	0.48	---	180

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
M01-0480	ACW #06	24-Oct-01	0.081	<0.0002	0.052	<0.04	2.9	<0.1	35	<0.02	1,900	<0.005	<0.1	1,100	1,100	<25	<25	210
2002040220-10	ACW #06	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-15	ACW #06	05-Nov-02	0.12	---	---	---	11	---	110	---	2100	---	---	1400	1400	<2.0	<2.0	320
ACW #07	ACW #07	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #07	ACW #07	22-Oct-97	0.2	---	---	---	3	---	18	---	2,500	---	<0.2	730	---	---	---	---
S98-0182	ACW #07	13-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0467	ACW #07	21-Oct-98	0.15	---	---	---	4.3	---	23	---	3,100	---	<0.05	830	830	<25	<25	920
M99-0017	ACW #07	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0194	ACW #07	21-Oct-99	0.13	<0.0002	0.025	<0.02	3.8	---	23	<0.005	3,300	<0.005	<0.05	870	870	<25	<25	1000
M00-0088	ACW #07	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0231	ACW #07	02-Nov-00	0.11	<0.0002	---	---	4.2	<0.1	31	<0.02	710	---	<0.1	840	840	<25	<25	960
M01-0152	ACW #07	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0153	ACW #07D	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0477	ACW #07	24-Oct-01	0.11	<0.0002	0.025	<0.04	4.2	<0.1	43	<0.02	3,600	<0.005	<0.1	820	820	<25	<25	990
2002040220-14	ACW #07	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-16	ACW #07	05-Nov-02	0.12	---	---	---	15	---	51	---	3600	---	---	870	870	<2.0	<2.0	1100
ACW #08	ACW #08	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #08	ACW #08	21-Nov-97	2.2	---	---	---	57	---	19	---	9,300	---	<0.02	520	---	---	---	---
S98-0173	ACW #08	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0459	ACW #08	20-Oct-98	1.7	---	---	---	46	---	19	---	11,000	---	<0.05	430	430	<25	<25	1,700
M99-0010	ACW #08	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0186	ACW #08	19-Oct-99	2.4	<0.0002	0.031	<0.02	99	---	16	<0.005	12,000	0.048	<0.05	490	490	<25	<25	2,300
M00-0086	ACW #08	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0218	ACW #08	26-Oct-00	2.1	<0.0002	---	---	69	<0.1	24	<0.02	3,600	---	<0.1	410	410	<25	<25	2,000
M01-0134	ACW #08	01-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0475	ACW #08	23-Oct-01	1.9	<0.0002	<0.01	<0.04	58	<0.1	26	<0.02	11,000	0.037	<0.1	350	350	<25	<25	1,800
2002040220-08	ACW #08	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-10	ACW #08	04-Nov-02	0.48	---	---	---	51	---	23	---	3,000	---	---	210	210	<2.0	<2.0	570
ACW #09	ACW #09	17-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	14-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	09-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	22-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	01-Dec-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	31-Jan-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	17-May-95	1	---	---	---	16	---	49	---	910	---	0.025	320	---	---	---	4,500
ACW #09	ACW #09	28-Jun-95	0.98	---	---	---	15	---	51	---	1,000	---	<0.020	300	---	---	---	2,700
ACW #09	ACW #09	30-Aug-95	0.86	---	---	---	14	---	43	---	880	---	<0.040	240	---	---	---	2,000
ACW #09	ACW #09	07-Feb-96	0.71	---	---	---	14	---	47	---	810	---	<0.010	300	---	---	---	2,200

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
ACW #09	ACW #09	07-Feb-96	<2.5	<2.5	<2.5	---	---	---	<7.5	---	---	7,450	6.8	4,620	2,300	341	---
ACW #09	ACW #09	08-May-96	<1.0	<1.0	<1.0	---	---	---	<3.0	---	---	7,530	6.8	4,210	2,210	322	---
ACW #09	ACW #09	14-Aug-96	1.4	1.6	<1.0	---	---	---	<2.0	---	---	4,400	7.4	3,600	1,200	180	---
ACW #09	ACW #09	07-Nov-96	2.3	2.2	<1.0	---	---	---	<2.0	---	---	4,200	7.3	3,100	1,200	---	---
ACW #09	ACW #09	19-Feb-97	1.3	4.0	10	---	---	---	4.2	---	---	4,110	---	2,500	1,260	---	---
ACW #09	ACW #09	08-May-97	2.6	2.6	1.4	---	---	---	1.7	---	---	2,800	---	2,100	830	---	---
ACW #09	ACW #09	23-Oct-97	<0.5	<0.5	<0.5	---	---	---	<1.0	---	---	3,380	7.2	1,600	880	130	---
S98-0185	ACW #09	13-May-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	5,100	---	4,500	1,600	---	---
S98-0472	ACW #09	21-Oct-98	6	<2	<2	---	---	---	<2	---	---	13,200	6.49	8,980	4,100	440	20.8
M99-0022	ACW #09	13-May-99	---	---	---	---	---	---	---	---	---	11,100	---	6,400	3,400	---	---
M99-0199	ACW #09	22-Oct-99	<2	<2	<2	---	---	---	<2	---	---	8,580	6.78	5,950	2,900	280	19.6
M00-0100	ACW #09	12-May-00	---	---	---	---	---	---	---	---	---	7,830	---	4,810	2,500	---	---
M00-0101	ACW #09D	12-May-00	---	---	---	---	---	---	---	---	---	7,960	---	4,930	3,100	---	---
M00-0237	ACW #09	03-Nov-00	<2	<2	<2	---	---	---	<4	---	---	7,630	6.8	5,860	3,000	230	19.0
M00-0238	ACW #09D	03-Nov-00	<2	<2	<2	---	---	---	<4	---	---	7,620	6.8	11,200	2,900	260	19.1
M01-0147	ACW #09	06-May-01	---	---	---	---	---	---	---	---	---	8,300	---	4,640	2,800	---	---
M01-0483	ACW #09	25-Oct-01	<2	<2	<2	---	---	---	2	---	---	7,820	6.8 H	4,390	4,000	200	20.1
M01-0484	ACW #09D	25-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	7,700	6.84 H	4,400	3,700	190	19.9
2002040220-19	ACW #09	01-May-02	---	---	---	---	---	---	---	---	---	8,160	---	3,800	2,900	---	---
2002040220-20	ACW #09D	01-May-02	---	---	---	---	---	---	---	---	---	7,070	---	3,760	2,500	---	---
2002110896-21	ACW #09	06-Nov-02	1.1	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	7,800	6.87 H	3,700	1,800	220	---
ACW #10	ACW #10	18-Jun-93	---	---	---	---	---	---	---	---	---	1,061	---	701	1,027	---	---
ACW #10	ACW #10	14-Sep-93	---	---	---	---	---	---	---	---	---	1,349	---	1,190	421	---	---
ACW #10	ACW #10	09-Nov-93	---	---	---	---	---	---	---	---	---	1,800	---	1,238	420	---	---
ACW #10	ACW #10	22-Apr-94	---	---	---	---	---	---	---	---	---	2,440	---	1,638	700	---	---
ACW #10	ACW #10	28-Oct-94	---	---	---	---	---	---	---	---	---	2,592	---	1,694	600	---	---
ACW #10	ACW #10	01-Feb-95	---	---	---	---	---	---	---	---	---	2,660	---	1,426	619	---	---
ACW #10	ACW #10	17-May-95	<5	<10	<5	<5	<5	<5	<15	---	---	3,900	6.9	2,300	1,600	300	---
ACW #10	ACW #10	28-Jun-95	<2.5	<2.5	<2.5	---	---	---	<5.0	---	---	3,100	7.3	2,300	1,900	230	---
ACW #10	ACW #10	30-Aug-95	<5	<10	<5	---	---	---	<15	---	---	3,100	7.0	2,200	790	210	---
ACW #10	ACW #10	07-Feb-96	3.9	<1.0	<1.0	---	---	---	<2.0	---	---	3,200	7.8	2,300	850	230	---
ACW #10	ACW #10	07-Feb-96	4.3	<2.5	<2.5	---	---	---	<7.5	---	---	3,100	7.1	2,100	829	242	---
ACW #10	ACW #10	08-May-96	1.22	<1.0	<1.0	---	---	---	<3.0	---	---	2,322	7.2	1,290	603	190	---
ACW #10	ACW #10	14-Aug-96	<1.0	<1.0	<1.0	---	---	---	<2.0	---	---	2,400	7.6	1,900	560	160	---
ACW #10	ACW #10	07-Nov-96	1.2	1.5	<1.0	---	---	---	<2.0	---	---	250	7.5	1,800	610	170	---
ACW #10	ACW #10	08-May-97	1.3	1	<0.5	---	---	---	<1.0	---	---	1,880	---	1,500	480	---	---
ACW #10	ACW #10	23-Oct-97	1.14	1.17	<0.5	---	---	---	0.58	---	---	2,870	7.2	1,500	670	210	---
S98-0187	ACW #10	14-May-98	---	---	---	---	---	---	---	---	---	2,400	---	1,200	540	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
ACW #09	ACW #09	07-Feb-96	1.85	0.36	<1.25	---	---	---	---	0.4	---	600	---	---	<0.1	0.4	---	175
ACW #09	ACW #09	08-May-96	3	0.35	<1.25	---	---	---	---	<0.5	---	508	---	---	0.01	0.4	---	183
ACW #09	ACW #09	14-Aug-96	1.2	1.4	0.13	---	---	---	---	0.4	---	490	---	---	<0.006	0.66	---	160
ACW #09	ACW #09	07-Nov-96	---	1.1	0.055	---	---	---	---	0.3	---	360	---	---	<0.007	0.4	---	110
ACW #09	ACW #09	19-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	23-Oct-97	1.3	1.2	<0.05	---	---	---	---	0.2	---	270	---	---	<0.01	0.6	---	84
S98-0185	ACW #09	13-May-98	---	1.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0472	ACW #09	21-Oct-98	<5	0.40	<0.05	---	---	---	---	0.49	---	1,200	---	---	<0.0025	0.63	---	400
M99-0022	ACW #09	13-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0199	ACW #09	22-Oct-99	<4	0.71	<0.05	---	0.030	0.0066	0.13	0.43	<0.002	820	<0.005	<0.005	<0.0025	0.96	<0.005	230
M00-0100	ACW #09	12-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0101	ACW #09D	12-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0237	ACW #09	03-Nov-00	<20	0.68	<0.05	---	---	<0.1	0.14	0.57	<0.01	500	<0.01	---	0.0062	1.4	<0.05	160
M00-0238	ACW #09D	03-Nov-00	<20	0.66	<0.05	---	---	<0.1	0.13	0.57	<0.01	490	<0.01	---	0.0073	1.4	<0.05	150
M01-0147	ACW #09	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0483	ACW #09	25-Oct-01	<5	0.88	<1.25	---	<0.05	<0.1	0.10	0.46	<0.005	280	<0.01	<0.01	<0.005	1.2	0.058	89
M01-0484	ACW #09D	25-Oct-01	<5	0.99	<1.25	---	0.075	<0.1	0.11	0.49	<0.005	290	<0.01	<0.01	<0.005	1.3	0.067	96
2002040220-19	ACW #09	01-May-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-20	ACW #09D	01-May-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-21	ACW #09	06-Nov-02	1.8	0.47	0.22	---	---	0.0082	---	0.60	---	260	---	---	---	1.9	---	97
ACW #10	ACW #10	18-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	14-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	09-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	22-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	28-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	01-Feb-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	17-May-95	1.1	<1.0	1.1	---	---	---	---	0.3	---	320	---	---	<0.025	0.12	---	110
ACW #10	ACW #10	28-Jun-95	0.98	<1.0	<2.0	---	---	---	---	0.3	---	280	---	---	<0.025	0.28	---	94
ACW #10	ACW #10	30-Aug-95	0.9	<10	<20	---	---	---	---	0.2	---	280	---	---	<0.025	<0.20	---	95
ACW #10	ACW #10	07-Feb-96	0.88	0.24	0.42	---	---	---	---	0.3	---	320	---	---	<0.006	0.24	---	110
ACW #10	ACW #10	07-Feb-96	<1.25	0.44	<1.25	---	---	---	---	0.3	---	320	---	---	<0.1	0.4	---	107
ACW #10	ACW #10	08-May-96	4.5	0.46	2.2	---	---	---	---	<0.5	---	206	---	---	<0.01	0.1	---	92
ACW #10	ACW #10	14-Aug-96	0.82	1.4	0.58	---	---	---	---	0.3	---	210	---	---	<0.006	0.14	---	71
ACW #10	ACW #10	07-Nov-96	0.83	1.1	0.49	---	---	---	---	0.2	---	200	---	---	<0.007	0.22	---	70
ACW #10	ACW #10	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	23-Oct-97	1.2	1	0.36	---	---	---	---	0.2	---	220	---	---	<0.01	0.2	---	71
S98-0187	ACW #10	14-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
ACW #09	ACW #09	07-Feb-96	0.7	---	---	---	16	---	56	---	810	---	<0.1	291	---	---	---	2,220
ACW #09	ACW #09	08-May-96	0.49	---	---	---	17	---	60	---	687	---	<0.05	209	---	---	---	2,020
ACW #09	ACW #09	14-Aug-96	0.65	---	---	---	13	---	53	---	730	---	0.027	220	---	---	---	1,900
ACW #09	ACW #09	07-Nov-96	0.44	---	---	---	10	---	---	---	510	---	0.029	---	---	---	---	---
ACW #09	ACW #09	19-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #09	ACW #09	23-Oct-97	0.31	---	---	---	10	---	17	---	320	---	0.05	200	---	---	---	---
S98-0185	ACW #09	13-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0472	ACW #09	21-Oct-98	1.4	---	---	---	25	---	31	---	1,400	---	<0.05	340	340	<25	<25	4,600
M99-0022	ACW #09	13-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0199	ACW #09	22-Oct-99	0.80	<0.0002	0.0062	<0.02	22	---	29	<0.005	990	0.032	<0.05	270	270	<25	<25	3,000
M00-0100	ACW #09	12-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0101	ACW #09D	12-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0237	ACW #09	03-Nov-00	0.43	<0.0002	---	---	18	<0.1	32	<0.02	670	---	<0.1	500	500	<25	<25	1,900
M00-0238	ACW #09D	03-Nov-00	0.42	<0.0002	---	---	18	<0.1	31	<0.02	630	---	<0.1	510	510	<25	<25	1,900
M01-0147	ACW #09	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0483	ACW #09	25-Oct-01	0.22	<0.0002	<0.01	<0.04	14	<0.1	36	<0.02	1,200	0.034	<0.1	460	460	<25	<25	1,100
M01-0484	ACW #09D	25-Oct-01	0.23	<0.0002	<0.01	<0.04	14	<0.1	36	<0.02	1,300	0.036	<0.1	440	440	<25	<25	1,100
2002040220-19	ACW #09	01-May-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-20	ACW #09D	01-May-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-21	ACW #09	06-Nov-02	0.19	---	---	---	33	---	48	---	1,400	---	---	600	600	<2.0	<2.0	1,000
ACW #10	ACW #10	18-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	14-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	09-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	22-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	28-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	01-Feb-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	17-May-95	0.037	---	---	---	8	---	43	---	170	---	<0.020	190	---	---	---	1,300
ACW #10	ACW #10	28-Jun-95	0.029	---	---	---	7.5	---	46	---	160	---	<0.020	190	---	---	---	1,200
ACW #10	ACW #10	30-Aug-95	0.034	---	---	---	52	---	42	---	150	---	<0.040	180	---	---	---	1,100
ACW #10	ACW #10	07-Feb-96	0.032	---	---	---	8.4	---	36	---	190	---	0.011	200	---	---	---	1,200
ACW #10	ACW #10	07-Feb-96	<0.1	---	---	---	9.4	---	54	---	190	---	<0.1	194	---	---	---	1,240
ACW #10	ACW #10	08-May-96	<0.05	---	---	---	8	---	62	---	127	---	<.05	137	---	---	---	893
ACW #10	ACW #10	14-Aug-96	0.019	---	---	---	7	---	47	---	140	---	0.037	170	---	---	---	810
ACW #10	ACW #10	07-Nov-96	0.017	---	---	---	7.4	---	20	---	150	---	0.025	170	---	---	---	800
ACW #10	ACW #10	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #10	ACW #10	23-Oct-97	0.02	---	---	---	6	---	20	---	140	---	<0.02	200	---	---	---	---
S98-0187	ACW #10	14-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
S98-0473	ACW #10	22-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	2,900	7.06	1,960	800	210	20.8
M99-0023	ACW #10	13-May-99	---	---	---	---	---	---	---	---	---	2,810	---	1,660	730	---	---
M99-0201	ACW #10	22-Oct-99	<2	<2	<2	<2	<2	<2	<6	---	---	2,470	7.23	1,720	660	160	19.4
M00-0099	ACW #10	11-May-00	---	---	---	---	---	---	---	---	---	3,620	---	2,430	1,400	---	---
M00-0243	ACW #10	06-Nov-00	<2	<2	<2	---	---	---	<4	---	---	3,100	7.1	2,840	980	220	16.4
M01-0158	ACW #10	06-May-01	---	---	---	---	---	---	---	---	---	3,660	---	2,360	1,000	---	---
M01-0487	ACW #10	25-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	3,350	7.02	2,270	930	220	19.8
2002040220-21	ACW #10	01-May-02	---	---	---	---	---	---	---	---	---	3,440	---	1,970	1,000	---	---
2002110896-25	ACW #10	08-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	2,600	7.15 H	2,000	740	250	---
ACW #11	ACW #11	19-Jun-93	---	---	---	---	---	---	---	---	---	25,000	---	18,670	9,737	---	---
ACW #11	ACW #11	15-Sep-93	---	---	---	---	---	---	---	---	---	10,570	---	6,820	3,437	---	---
ACW #11	ACW #11	09-Nov-93	---	---	---	---	---	---	---	---	---	10,160	---	6,592	3,620	---	---
ACW #11	ACW #11	21-Apr-94	---	---	---	---	---	---	---	---	---	16,290	---	9,520	6,400	---	---
ACW #11	ACW #11	27-Oct-94	---	---	---	---	---	---	---	---	---	20,060	---	13,280	6,200	---	---
ACW #11	ACW #11	27-Oct-94	---	---	---	---	---	---	---	---	---	20,550	---	12,900	6,600	---	---
ACW #11	ACW #11	01-Feb-95	---	---	---	---	---	---	---	---	---	32,200	---	19,880	11,582	---	---
ACW #11	ACW #11	17-May-95	<5	<10	<5	---	---	---	<15	---	---	12,000	6.8	7,200	4,400	250	---
ACW #11	ACW #11	27-Jun-95	5.1	<2.5	<2.5	---	---	---	<5.0	---	---	11,000	7.2	7,000	6,500	210	---
ACW #11	ACW #11	29-Aug-95	8	<10	<5	<5	<5	<5	<15	---	---	10,000	6.8	6,000	3,400	220	---
ACW #11	ACW #11	07-Feb-96	6.9	<1.0	<1.0	---	---	---	<2.0	---	---	11,000	7.8	7,400	3,400	230	---
ACW #11	ACW #11	07-Feb-96	7.6	<2.5	<2.5	---	---	---	<7.5	---	---	11,030	7.2	6,740	3,770	248	---
ACW #11	ACW #11	08-May-96	6.76	<1.0	<1.0	---	---	---	<3.0	---	---	9,840	7.3	5,080	3,120	206	---
ACW #11	ACW #11	13-Aug-96	7.9	2.2	<1.0	---	---	---	<2.0	---	---	12,000	7.3	10,000	4,200	230	---
ACW #11	ACW #11	05-Nov-96	32	1.7	<1.0	---	---	---	1.2	---	---	29	7.3	25,000	13,000	560	---
ACW #11	ACW #11	06-May-97	21	5.3	3.1	---	---	---	3.5	---	---	10,200	---	6,700	3,600	---	---
ACW #11	ACW #11	21-Nov-97	28	3.1	<0.5	---	---	---	2.8	---	---	27,900	7.6	16,000	9,800	520	---
S98-0174	ACW #11	12-May-98	70	8.2	1.3	---	---	---	4.3	---	---	36,000	---	22,000	13,000	---	---
S98-0460	ACW #11	20-Oct-98	51	<2	<2	---	---	---	<2	---	---	42,500	6.60	29,600	17,000	680	18.5
M99-0014	ACW #11	12-May-99	---	---	---	---	---	---	---	---	---	19,800	---	11,100	7,200	---	---
M99-0192	ACW #11	20-Oct-99	14	4.5	<2	---	---	---	<4	---	---	19,300	6.94	13,600	7,800	340	19.1
M00-0087	ACW #11	09-May-00	---	---	---	---	---	---	---	---	---	31,500	---	21,000	18,000	---	---
M00-0227	ACW #11	01-Nov-00	16	<2	<2	---	---	---	<4	---	---	25,700	6.82	21,900	10,000	490	13.1
M01-0135	ACW #11	01-May-01	---	---	---	---	---	---	---	---	---	32,800	---	20,000	15,000	---	---
M01-0476	ACW #11	23-Oct-01	59	<2	<2	---	---	---	<2	---	---	47,800	6.55	32,900	17,000	800	21.5
2002040220-09	AC W #11	29-Apr-02	---	---	---	---	---	---	---	---	---	34,200	---	25,500	15,000	---	---
2002110896-19	ACW #11	06-Nov-02	13	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	11,000	6.98 H	9,700	4,600	320	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
S98-0473	ACW #10	22-Oct-98	<2	0.90	0.83	---	---	---	---	0.29	---	300	---	---	<0.0025	0.099	---	110
M99-0023	ACW #10	13-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0201	ACW #10	22-Oct-99	<2	1.2	0.62	---	0.037	0.010	0.091	0.26	<0.002	260	<0.005	<0.005	<0.0025	0.26	<0.005	84
M00-0099	ACW #10	11-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0243	ACW #10	06-Nov-00	<2	1.0	<1	---	---	<0.1	0.15	0.37	<0.01	470	<0.01	---	0.0061	0.27	<0.05	140
M01-0158	ACW #10	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0487	ACW #10	25-Oct-01	2.1	1.0	<0.5	---	0.057	<0.1	0.10	0.30	<0.005	300	<0.01	<0.01	<0.005	0.19	0.068	95
2002040220-21	ACW #10	01-May-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-25	ACW #10	08-Nov-02	0.64	1.4	0.86	---	---	0.0086	---	0.27	---	290	---	---	---	0.22	---	110
ACW #11	ACW #11	19-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	15-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	09-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	21-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	27-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	27-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---
ACW #11	ACW #11	01-Feb-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	17-May-95	1.9	<1.0	<2.0	---	---	---	---	0.3	---	740	---	---	<0.025	0.36	---	260
ACW #11	ACW #11	27-Jun-95	1.6	<1.0	<2.0	---	---	---	---	0.4	---	720	---	---	<0.025	0.29	---	270
ACW #11	ACW #11	29-Aug-95	2.2	6.2	<2.0	---	---	---	---	0.3	---	550	---	---	<0.025	0.17	---	210
ACW #11	ACW #11	07-Feb-96	1.5	0.15	0.087	---	---	---	---	0.3	---	660	---	---	<0.006	0.38	---	230
ACW #11	ACW #11	07-Feb-96	1.6	0.39	<1.25	---	---	---	---	0.4	---	668	---	---	<0.1	0.5	---	224
ACW #11	ACW #11	08-May-96	<1.25	0.37	<1.25	---	---	---	---	<0.5	---	484	---	---	0.02	0.3	---	220
ACW #11	ACW #11	13-Aug-96	2	1.0	0.18	---	---	---	---	0.4	---	540	---	---	0.013	0.28	---	190
ACW #11	ACW #11	05-Nov-96	2.9	0.4	0.31	---	---	---	---	0.3	---	1,200	---	---	<0.007	0.25	---	430
ACW #11	ACW #11	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	21-Nov-97	<4	<0.5	0.16	---	---	---	---	0.3	---	1,000	---	---	<0.01	0.4	---	330
S98-0174	ACW #11	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0460	ACW #11	20-Oct-98	<10	0.43	0.11	---	---	---	---	0.32	---	1,500	---	---	<0.0025	0.68	---	520
M99-0014	ACW #11	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0192	ACW #11	20-Oct-99	<4	0.60	0.055	---	0.096	0.0088	0.42	0.30	<0.002	1,100	<0.005	<0.005	0.0039	0.68	<0.005	280
M00-0087	ACW #11	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0227	ACW #11	01-Nov-00	<2	<0.4	<1	---	---	<0.1	0.37	0.46	<0.01	1,730	<0.01	---	<0.005	1.1	<0.05	560
M01-0135	ACW #11	01-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0476	ACW #11	23-Oct-01	<20	0.41	<10	---	<0.05	<0.1	0.26	0.36	<0.005	2,500	<0.01	<0.01	<0.005	1.4	0.53	840
2002040220-09	AC W #11	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-19	ACW #11	06-Nov-02	1.5	<0.40	1.4	---	---	0.0083	---	0.33	---	1,200	---	---	---	1.3	---	410

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
S98-0473	ACW #10	22-Oct-98	0.0068	---	---	---	9.0	---	27	---	180	---	<0.05	180	180	<25	<25	1,200
M99-0023	ACW #10	13-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0201	ACW #10	22-Oct-99	0.020	<0.0002	<0.005	<0.02	7.9	---	19	<0.005	170	0.013	<0.05	160	160	<25	<25	1,000
M00-0099	ACW #10	11-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0243	ACW #10	06-Nov-00	0.026	<0.0002	---	---	16	<0.1	30	<0.02	330	---	<0.1	180	180	<25	<25	1,800
M01-0158	ACW #10	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0487	ACW #10	25-Oct-01	0.021	<0.0002	<0.01	<0.04	9.6	<0.1	35	<0.02	180	0.028	<0.1	160	160	<25	<25	1,100
2002040220-21	ACW #10	01-May-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-25	ACW #10	08-Nov-02	0.016	---	---	---	15	---	55	---	270	---	---	180	180	<2.0	<2.0	1,200
ACW #11	ACW #11	19-Jun-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	15-Sep-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	09-Nov-93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	21-Apr-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	27-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	27-Oct-94	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	01-Feb-95	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	17-May-95	0.23	---	---	---	16	---	42	---	1,200	---	<0.020	230	---	---	---	3,300
ACW #11	ACW #11	27-Jun-95	0.2	---	---	---	16	---	45	---	980	---	<0.020	210	---	---	---	2,800
ACW #11	ACW #11	29-Aug-95	0.088	---	---	---	16	---	44	---	880	---	<0.020	220	---	---	---	2,700
ACW #11	ACW #11	07-Feb-96	0.13	---	---	---	26	---	47	---	1,500	---	<0.010	210	---	---	---	2,600
ACW #11	ACW #11	07-Feb-96	0.1	---	---	---	31	---	46	---	1,400	---	<0.1	200	---	---	---	2,590
ACW #11	ACW #11	08-May-96	0.09	---	---	---	29	---	50	---	1,160	---	<0.05	111	---	---	---	2,110
ACW #11	ACW #11	13-Aug-96	0.061	---	---	---	24	---	47	---	1,700	---	0.12	160	---	---	---	2,100
ACW #11	ACW #11	05-Nov-96	0.14	---	---	---	35	---	21	---	5,100	---	0.068	170	---	---	---	4,700
ACW #11	ACW #11	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #11	ACW #11	21-Nov-97	0.22	---	---	---	27	---	18	---	2,700	---	0.21	170	---	---	---	---
S98-0174	ACW #11	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0460	ACW #11	20-Oct-98	0.35	---	---	---	41.0	---	22	---	5,100	---	<0.05	180	180	<25	<25	5,900
M99-0014	ACW #11	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0192	ACW #11	20-Oct-99	0.17	<0.0002	0.0045	<0.02	27	---	19	<0.005	2,300	0.013	<0.05	140	140	<25	<25	3,900
M00-0087	ACW #11	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0227	ACW #11	01-Nov-00	0.37	0.00028	---	---	33	<0.1	26	<0.02	4,440	---	<0.1	190	190	<25	<25	6,600
M01-0135	ACW #11	01-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0476	ACW #11	23-Oct-01	0.38	0.00049	<0.01	<0.04	57	<0.1	31	<0.01	9,500	0.068	<0.1	160	160	<25	<25	9,700
2002040220-09	AC W #11	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-19	ACW #11	06-Nov-02	0.26	---	---	---	50	---	48	---	3,000	---	---	220	220	<2.0	<2.0	4,800

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
ACW #12	ACW #12	19-Feb-97	<0.5	<0.5	1.5	---	---	---	<1.0	---	---	1,610	---	950	380	---	---
ACW #12D	ACW #12D	19-Feb-97	2.9	<0.5	<0.5	---	---	---	<1.0	---	---	1,630	---	960	390	---	---
ACW #12	ACW #12	08-May-97	3	0.89	<0.5	---	---	---	<1.0	---	---	1,240	---	900	290	---	---
ACW #12	ACW #12	20-Aug-97	1.2	<0.5	<0.5	---	---	---	<1.0	---	---	1,120	8.1	740	260	85	---
ACW #12D	ACW #12D	20-Aug-97	1.4	<0.5	<0.5	---	---	---	<1.0	---	---	1,150	8.1	740	280	90	---
ACW #12	ACW #12	23-Oct-97	1.4	0.58	<0.5	---	---	---	<1.0	---	---	1,810	7.5	850	380	120	---
S98-0058	ACW #12	24-Feb-98	7.3	<0.50	<0.50	---	---	---	<1.0	---	---	2,050	7.9	1,200	470	150	---
S98-0059	ACW #12D	24-Feb-98	6.7	<0.50	<0.50	---	---	---	<1.0	---	---	2,090	7.9	1,220	490	160	---
S98-0188	ACW #12	01-Jun-98	<0.50	1.2	<0.50	---	---	---	<1.0	---	---	2,000	7.5	1,500	---	---	---
S98-0189	ACW #12D	01-Jun-98	4.4	2.5	6.1	---	---	---	2.5	---	---	2,300	7.4	1,700	540	150	---
S98-0294	ACW #12	11-Aug-98	2	<2	<2	<2	<2	<2	<6	---	---	1,790	7.61	1,240	440	130	19.8
S98-0295	ACW #12D	11-Aug-98	2	<2	<2	<2	<2	<2	<6	---	---	2,020	7.51	1,300	520	140	19.3
S98-0474	ACW #12	22-Oct-98	6	<2	<2	<2	<2	<2	<6	---	---	2,280	7.39	1,520	610	170	20.0
S98-0475	ACW #12D	22-Oct-98	6	<2	<2	<2	<2	<2	<6	---	---	2,310	7.36	1,690	600	170	20.1
S99-0083	ACW #12	23-Feb-99	6	<2	<2	<2	<2	<2	<6	---	---	2,020	7.68	1,240	500	120	12.3
S99-0084	ACW #12D	23-Feb-99	5	<2	<2	<2	<2	<2	<6	---	---	2,050	7.67	1,280	480	140	12.8
M99-0024	ACW #12	14-May-99	4	<2	<2	<2	<2	<2	<6	---	<0.25	2,390	7.47	1,440	500	120	23.8
M99-0026	ACW #12D	14-May-99	4	<2	<2	<2	<2	<2	<6	---	<0.25	2,350	7.42	1,410	590	150	23.9
M99-0087	ACW #12	11-Aug-99	5.3	<2	<2	<2	<2	<2	<6	---	---	2,650	7.35	1,750	750	160	21.7
M99-0088	ACW #12D	11-Aug-99	2.4	<2	<2	<2	<2	<2	<6	---	---	2,630	7.33	1,880	810	160	21.1
M99-0202	ACW #12	22-Oct-99	4.7	<2	<2	<2	<2	<2	<6	---	---	2,180	7.50	1,620	650	130	19.8
M99-0204	ACW #12D	22-Oct-99	4.4	<2	<2	<2	<2	<2	<6	---	---	2,170	7.48	1,390	560	140	19.8
M00-0024	ACW #12	22-Feb-00	<2	<2	<2	---	---	---	<2	---	---	1,950	7.38	1,260	680	130	16.4
M00-0098	ACW #12	11-May-00	<5	<5	<5	---	---	---	<10	---	---	1,590	7.88	989	470	100	18.5
M00-0197	ACW #12	07-Aug-00	<2	<2	<2	---	---	---	<4	---	---	1,800	7.63	1,270	460	110	25.4
M00-0240	ACW #12	03-Nov-00	<2	<2	<2	---	---	---	<4	---	---	2,520	7.5	1,780	890	130	19.2
M01-0011	ACW #12	20-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	2,230	7.44 H	1,210	670	140	21.5
M01-0145	ACW #12	03-May-01	2.4	<2	<2	---	---	---	<2	<5	---	2,100	7.4	1,060	570	110	22.2
M01-0146	ACW #12D	03-May-01	2.1	<2	<2	---	---	---	<2	<5	---	2,120	7.44	1,150	510	110	22.5
M01-0405	ACW #12	01-Aug-01	<2	<2	<2 Jc	---	---	---	<2	---	---	2,080	7.34	1,290	490	120	24.6
M01-0486	ACW #12	25-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	1,890	7.43 H	1,220	1400	110	19.7
M02-0046	ACW #12	20-Feb-02	---	---	---	---	---	---	---	---	---	2,200	7.27	1,370	720	120	---
M02-0046	ACW #12 R	20-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
2002040220-22	ACW #12	01-May-02	2.6	<2.0	<2.0	---	---	---	<2.0	<5.0	---	2,030	7.43	1,180	490	130	---
2002040220-23	ACW #12D	01-May-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	1,900	7.48	1,100	440	140	---
2002110896-24	ACW #12	07-Nov-02	3.7	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	1,800	7.61 H	1,300	450	150	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
ACW #12	ACW #12	19-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #12D	ACW #12D	19-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #12	ACW #12	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #12	ACW #12	20-Aug-97	0.6	1.3	0.2	---	---	---	---	0.2	---	84	---	---	<0.01	0.5	---	31
ACW #12D	ACW #12D	20-Aug-97	0.7	1.3	0.3	---	---	---	---	0.2	---	91	---	---	<0.01	0.4	---	34
ACW #12	ACW #12	23-Oct-97	1	1	0.34	---	---	---	---	0.2	---	150	---	---	<0.01	0.2	---	54
S98-0058	ACW #12	24-Feb-98	0.8	2.2	0.4	---	---	---	---	---	---	170	---	---	---	---	---	60
S98-0059	ACW #12D	24-Feb-98	0.9	2.1	0.5	---	---	---	---	---	---	170	---	---	---	---	---	60
S98-0188	ACW #12	01-Jun-98	---	---	0.41	---	---	---	---	---	---	210	---	---	---	---	---	73
S98-0189	ACW #12D	01-Jun-98	0.74	1.3	0.54	---	---	---	---	---	---	200	---	---	---	---	---	71
S98-0294	ACW #12	11-Aug-98	<2	1.3	1.4	---	---	---	---	---	---	180	---	---	---	---	---	62
S98-0295	ACW #12D	11-Aug-98	<1	1.1	<2.5	---	---	---	---	---	---	180	---	---	---	---	---	61
S98-0474	ACW #12	22-Oct-98	<2	0.99	0.44	---	---	---	---	0.27	---	210	---	---	<0.0025	0.17	---	80
S98-0475	ACW #12D	22-Oct-98	<2	0.90	0.51	---	---	---	---	0.26	---	200	---	---	<0.0025	0.17	---	72
S99-0083	ACW #12	23-Feb-99	<2	1.2	0.18	---	---	---	---	---	---	200	---	---	---	---	---	73
S99-0084	ACW #12D	23-Feb-99	<2	1.1	0.23	---	---	---	---	---	---	190	---	---	---	---	---	68
M99-0024	ACW #12	14-May-99	<2	0.86	0.14	---	---	---	---	0.28	---	210	---	---	0.0063	0.16	---	74
M99-0026	ACW #12D	14-May-99	<2	0.86	0.18	---	---	---	---	0.26	---	210	---	---	0.0044	0.16	---	73
M99-0087	ACW #12	11-Aug-99	<0.2	0.85	0.45	---	---	---	---	---	---	270	---	---	---	---	---	96
M99-0088	ACW #12D	11-Aug-99	<1	0.85	0.53	---	---	---	---	---	---	280	---	---	---	---	---	98
M99-0202	ACW #12	22-Oct-99	<2	0.98	0.41	---	0.034	0.0094	0.13	0.26	<0.002	220	<0.005	<0.005	<0.0025	0.14	<0.005	0.77
M99-0204	ACW #12D	22-Oct-99	<2	0.95	0.32	---	0.031	0.0084	0.13	0.26	<0.002	230	<0.005	<0.005	<0.0025	0.16	<0.005	79
M00-0024	ACW #12	22-Feb-00	<1.0	1.1	<0.5	---	---	---	---	---	---	210	---	---	---	---	---	71
M00-0098	ACW #12	11-May-00	0.47	1.2	0.15	---	---	---	---	---	---	150	---	---	---	---	---	51
M00-0197	ACW #12	07-Aug-00	0.47	1.1	0.087	---	---	---	---	---	---	140	---	---	---	---	---	45
M00-0240	ACW #12	03-Nov-00	<20	1.1	0.30	---	---	<0.1	0.14	0.29	<0.01	200	<0.01	---	0.0059	1.9	<0.05	71
M01-0011	ACW #12	20-Feb-01	0.74	0.88	0.28	---	---	---	---	---	---	190	---	---	---	---	---	68
M01-0145	ACW #12	03-May-01	1.4	1.00	<1	---	---	---	---	---	---	160	---	---	---	---	---	56
M01-0146	ACW #12D	03-May-01	1.3	0.97	<1	---	---	---	---	---	---	160	---	---	---	---	---	57
M01-0405	ACW #12	01-Aug-01	<2	0.97	<1	---	---	---	---	---	---	180	---	---	---	---	---	64
M01-0486	ACW #12	25-Oct-01	<2	1.10	<0.5	---	<0.05	<0.1	0.11	0.25	<0.005	160	<0.01	<0.01	<0.005	0.29	<0.05	56
M02-0046	ACW #12	20-Feb-02	<10	0.85	0.24	---	---	---	---	---	---	180	---	---	---	---	---	64
M02-0046	ACW #12 R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-22	ACW #12	01-May-02	<2.0	1.0	<2.0	---	---	---	---	---	---	170	---	---	---	---	---	61
2002040220-23	ACW #12D	01-May-02	<2.0	1.1	<2.0	---	---	---	---	---	---	150	---	---	---	---	---	54
2002110896-24	ACW #12	07-Nov-02	0.50	1.1	0.64	---	---	0.0066	---	0.24	---	150	---	---	---	0.24	---	63

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
ACW #12	ACW #12	19-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #12D	ACW #12D	19-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #12	ACW #12	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #12	ACW #12	20-Aug-97	0.05	---	---	---	23	---	18	---	100	---	<0.02	130	---	---	---	---
ACW #12D	ACW #12D	20-Aug-97	0.05	---	---	---	22	---	19	---	100	---	<0.02	120	---	---	---	---
ACW #12	ACW #12	23-Oct-97	0.03	---	---	---	13	---	20	---	120	---	<0.02	160	---	---	---	---
S98-0058	ACW #12	24-Feb-98	---	---	---	---	10	---	21	---	120	---	---	160	---	---	---	---
S98-0059	ACW #12D	24-Feb-98	---	---	---	---	10	---	21	---	120	---	---	150	---	---	---	---
S98-0188	ACW #12	01-Jun-98	---	---	---	---	9	---	23	---	130	---	---	150	150	---	---	---
S98-0189	ACW #12D	01-Jun-98	---	---	---	---	9	---	22	---	130	---	---	150	150	---	---	---
S98-0294	ACW #12	11-Aug-98	---	---	---	---	9.8	---	21	---	130	---	---	140	140	<25	<25	710
S98-0295	ACW #12D	11-Aug-98	---	---	---	---	9.7	---	24	---	130	---	---	160	160	<25	<25	700
S98-0474	ACW #12	22-Oct-98	0.032	---	---	---	10	---	23	---	140	---	<0.05	150	150	<25	<25	850
S98-0475	ACW #12D	22-Oct-98	0.029	---	---	---	10	---	24	---	130	---	<0.05	150	150	<25	<25	810
S99-0083	ACW #12	23-Feb-99	---	---	---	---	8.8	---	25	---	160	---	---	160	160	<25	<25	810
S99-0084	ACW #12D	23-Feb-99	---	---	---	---	8.5	---	26	---	160	---	---	160	160	<25	<25	750
M99-0024	ACW #12	14-May-99	0.026	---	---	---	9.5	---	23	---	150	---	<0.05	150	150	<25	<25	840
M99-0026	ACW #12D	14-May-99	0.025	---	---	---	9.0	---	26	---	140	---	<0.05	150	150	<25	<25	810
M99-0087	ACW #12	11-Aug-99	---	---	---	---	9.0	---	29	---	160	---	---	140	140	<25	<25	1100
M99-0088	ACW #12D	11-Aug-99	---	---	---	---	9.2	---	36	---	160	---	---	140	140	<25	<25	1100
M99-0202	ACW #12	22-Oct-99	0.024	<0.0002	0.0043	<0.02	8.4	---	21	<0.005	140	0.0088	<0.05	140	140	<25	<25	860
M99-0204	ACW #12D	22-Oct-99	0.024	<0.0002	<0.005	<0.02	8.7	---	20	<0.005	140	0.0086	<0.05	140	140	<25	<25	890
M00-0024	ACW #12	22-Feb-00	---	---	---	---	9.2	---	22	---	130	---	---	130	130	<25	<25	800
M00-0098	ACW #12	11-May-00	---	---	---	---	9.3	---	28	---	120	---	---	140	140	<25	<25	590
M00-0197	ACW #12	07-Aug-00	---	---	---	---	10	---	33	---	110	---	---	140	140	<25	<25	520
M00-0240	ACW #12	03-Nov-00	0.053	<0.0002	---	---	16	<0.1	29	<0.02	280	---	<0.1	140	140	<25	<25	800
M01-0011	ACW #12	20-Feb-01	---	---	---	---	11	---	31	---	170	---	---	150	150	<25	<25	750
M01-0145	ACW #12	03-May-01	---	---	---	---	9.2	---	32	---	150	---	---	140	140	<25	<25	630
M01-0146	ACW #12D	03-May-01	---	---	---	---	8.9	---	31	---	150	---	---	150	150	<25	<25	630
M01-0405	ACW #12	01-Aug-01	---	---	---	---	9.6	---	28	---	140	---	---	140	140	<25	<25	710
M01-0486	ACW #12	25-Oct-01	0.032	<0.0002	<0.01	<0.04	9.3	<0.1	34	<0.02	120	0.011	<0.1	140	140	<25	<25	630
M02-0046	ACW #12	20-Feb-02	---	---	---	---	8.6	---	36	---	140	---	---	140	140	<25	<25	750
M02-0046	ACW #12 R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-22	ACW #12	01-May-02	---	---	---	---	8.9	---	35	---	130	---	---	140	140	<25	<25	670
2002040220-23	ACW #12D	01-May-02	---	---	---	---	8.8	---	33	---	110	---	---	150	150	<25	<25	600
2002110896-24	ACW #12	07-Nov-02	0.020	---	---	---	11	---	44	---	150	---	---	150	150	<2.0	<2.0	640

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
ACW #13	ACW #13	20-Feb-97	<0.5	<0.5	1.5	---	---	---	<1.0	---	---	681	---	440	53	---	---
ACW #13	ACW #13	08-May-97	0.61	0.58	<0.5	---	---	---	<1.0	---	---	643	---	460	57	---	---
ACW #13D	ACW #13D	08-May-97	0.65	0.62	<0.5	---	---	---	<1.0	---	---	630	---	460	52	---	---
ACW #13	ACW #13	20-Aug-97	<0.5	<0.5	<0.5	---	---	---	<1.0	---	---	654	8.3	440	55	96	---
ACW #13	ACW #13	23-Oct-97	0.59	0.76	<0.5	---	---	---	<1.0	---	---	728	8.3	400	50	95	---
S98-0060	ACW #13	24-Feb-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	727	8.4	450	59	100	---
S98-0190	ACW #13	01-Jun-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	700	8.0	450	---	---	---
S98-0296	ACW #13	11-Aug-98	<2	<2	<2	<2	<2	<2	<6	---	---	679	7.93	467	48	110	19.7
S98-0476	ACW #13	22-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	686	7.94	439	47	92	19.9
S99-0085	ACW #13	23-Feb-99	<2	<2	<2	<2	<2	<2	<6	---	---	792	8.18	493	74	93	12.6
M99-0027	ACW #13	14-May-99	<2	<2	<2	<2	<2	<2	<6	---	<0.25	693	7.96	403	45	96	24.1
M99-0089	ACW #13	11-Aug-99	<2	<2	<2	<2	<2	<2	<6	---	---	676	7.95	359	41	97	21.9
M99-0205	ACW #13	22-Oct-99	<2	<2	<2	<2	<2	<2	<6	---	---	674	7.98	436	48	93	20.0
M00-0028	ACW #13	23-Feb-00	<2	<2	<2	---	---	---	<2	---	---	697	7.84	479	53	98	16.9
M00-0096	ACW #13	11-May-00	<5	<5	<5	---	---	---	<10	---	---	697	8.00	459	47	120	18.2
M00-0198	ACW #13	08-Aug-00	<2	<2	<2	---	---	---	<4	---	---	676	7.90	363	41	100	25.6
M00-0199	ACW #13D	08-Aug-00	<2	<2	<2	---	---	---	<4	---	---	662	7.94	381	44	95	25.7
M00-0242	ACW #13	06-Nov-00	<2	<2	<2	---	---	---	<4	---	---	1,330	7.7	947	360	110	16.7
M01-0013	ACW #13	20-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	893	7.81 H	518	110	90	21.6
M01-0159	ACW #13	07-May-01	<2	<2	<2	---	---	---	<2	<5	---	685	7.79 H	444	57	110	26.6
M01-0406	ACW #13	01-Aug-01	<2	<2	<2 Jc	---	---	---	<2	---	---	694	7.73	402	42	98	23.3
M01-0407	ACW #13D	01-Aug-01	<2	<2	<2 Jc	---	---	---	<2	---	---	690	7.73	439	45	98	23.6
M01-0490	ACW #13	25-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	690	7.75	422	42	96	20.0
M02-0047	ACW #13	20-Feb-02	<2.0	2.1	<2.0	---	---	---	<2.0	---	---	680	7.67	389	44	88	---
M02-0047	ACW #13 R	20-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
2002040220-24	ACW #13	01-May-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	760	7.73 H	407	54	140	---
2	ACW #13	25-Sep-02	<2.0	<2.0	<2.0	---	---	---	<4.0	<5.0	---	807	7.76 H	643	50	---	---
3	ACW #13D	25-Sep-02	<2.0	<2.0	<2.0	---	---	---	<4.0	<5.0	---	789	7.73 H	603	130	---	---
2002110896-23	ACW #13	07-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	740	7.59 H	450	45	140	---
ACW #14	ACW #14	20-Feb-97	<0.5	<0.5	<0.5	---	---	---	<1.0	---	---	830	---	570	86	---	---
ACW #14	ACW #14	07-May-97	0.88	1.1	0.52	---	---	---	<1.0	---	---	746	---	480	72	---	---
ACW #14	ACW #14	20-Aug-97	<0.5	<0.5	<0.5	---	---	---	<1.0	---	---	691	7.8	460	80	82	---
ACW #14	ACW #14	22-Oct-97	<0.5	1.2	<0.5	---	---	---	1.5	---	---	747	8.1	440	71	95	---
S98-0173	ACW #14	24-Feb-98	<0.50	<0.50	<0.50	---	---	---	0.58 J	---	---	755	8.2	470	40	130	---
S98-0184	ACW #14	13-May-98	0.75	<0.50	<0.50	---	---	---	<1.0	---	---	880	7.9	530	58	110	---
S98-0293	ACW #14	11-Aug-98	<2	<2	<2	<2	<2	<2	<6	---	---	730	7.76	496	160	110	19.2
S98-0471	ACW #14	21-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	771	7.70	466	71	100	20.2
S99-0080	ACW #14	23-Feb-99	<2	<2	<2	<2	<2	<2	<6	---	---	859	7.92	524	88	92	12.2

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
ACW #13	ACW #13	20-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #13	ACW #13	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #13D	ACW #13D	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #13	ACW #13	20-Aug-97	0.4	1.3	0.99	---	---	---	---	0.2	---	39	---	---	<0.01	0.3	---	14
ACW #13	ACW #13	23-Oct-97	0.4	1.3	1	---	---	---	---	0.2	---	34	---	---	<0.01	0.2	---	14
S98-0060	ACW #13	24-Feb-98	0.5	1.6	1.2	---	---	---	---	---	---	31	---	---	---	---	---	14
S98-0190	ACW #13	01-Jun-98	---	---	1.2	---	---	---	---	---	---	40	---	---	---	---	---	14
S98-0296	ACW #13	11-Aug-98	<5	1.6	3.3	---	---	---	---	---	---	43	---	---	---	---	---	14
S98-0476	ACW #13	22-Oct-98	<5	1.3	1.3	---	---	---	---	0.23	---	48	---	---	<0.0025	0.37	---	16
S99-0085	ACW #13	23-Feb-99	0.3	1.5	0.74	---	---	---	---	---	---	44	---	---	---	---	---	15
M99-0027	ACW #13	14-May-99	0.4	1.3	1.4	---	---	---	---	0.25	---	46	---	---	0.0062	0.17	---	15
M99-0089	ACW #13	11-Aug-99	1.2	1.4	1.4	---	---	---	---	---	---	49	---	---	---	---	---	16
M99-0205	ACW #13	22-Oct-99	0.36	1.4	1.3	---	0.11	0.013	0.057	0.23	<0.002	49	0.0055	<0.005	<0.0025	0.23	<0.005	15
M00-0028	ACW #13	23-Feb-00	<1.0	1.5	1.4	---	---	---	---	---	---	44	---	---	---	---	---	14
M00-0096	ACW #13	11-May-00	0.33	1.3	1.5	---	---	---	---	---	---	48	---	---	---	---	---	16
M00-0198	ACW #13	08-Aug-00	0.31	1.3	1.2	---	---	---	---	---	---	49	---	---	---	---	---	15
M00-0199	ACW #13D	08-Aug-00	0.30	1.4	1.2	---	---	---	---	---	---	50	---	---	---	---	---	16
M00-0242	ACW #13	06-Nov-00	<2	1.4	1.0	---	---	<0.1	0.061	0.26	<0.01	55	<0.01	---	<0.005	0.34	<0.05	19
M01-0013	ACW #13	20-Feb-01	0.39	1.3	1.4	---	---	---	---	---	---	48	---	---	---	---	---	16
M01-0159	ACW #13	07-May-01	0.34	1.3	1.5	---	---	---	---	---	---	47	---	---	---	---	---	6
M01-0406	ACW #13	01-Aug-01	<2	1.4	1.6	---	---	---	---	---	---	46	---	---	---	---	---	16
M01-0407	ACW #13D	01-Aug-01	<2	1.3	1.6	---	---	---	---	---	---	42	---	---	---	---	---	14
M01-0490	ACW #13	25-Oct-01	<1	1.4	1.5	---	<0.05	<0.1	0.046	0.22	<0.005	45	<0.01	<0.01	<0.005	0.17	<0.05	15
M02-0047	ACW #13	20-Feb-02	2.7	1.4	1.4	---	---	---	---	---	---	44	---	---	---	---	---	14
M02-0047	ACW #13 R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-24	ACW #13	01-May-02	<1	1.5	1.4	---	---	---	---	---	---	52	---	---	---	---	---	18
2	ACW #13	25-Sep-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3	ACW #13D	25-Sep-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-23	ACW #13	07-Nov-02	<0.50	1.4	1.6	---	---	0.010	---	0.23	---	53	---	---	---	0.21	---	19
ACW #14	ACW #14	20-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #14	ACW #14	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #14	ACW #14	20-Aug-97	0.4	1.6	0.94	---	---	---	---	0.2	---	45	---	---	<0.01	0.5	---	15
ACW #14	ACW #14	22-Oct-97	0.5	1.5	0.9	---	---	---	---	0.2	---	46	---	---	<0.01	0.3	---	16
S98-0173	ACW #14	24-Feb-98	0.5	2	1.8	---	---	---	---	---	---	46	---	---	---	---	---	16
S98-0184	ACW #14	13-May-98	<2	1.7	1.7	---	---	---	---	---	---	47	---	---	---	---	---	18
S98-0293	ACW #14	11-Aug-98	<5	1.9	2.5	---	---	---	---	---	---	48	---	---	---	---	---	16
S98-0471	ACW #14	21-Oct-98	<2	1.9	1.7	---	---	---	---	0.25	---	52	---	---	0.0026	0.20	---	19
S99-0080	ACW #14	23-Feb-99	0.3	1.8	1.9	---	---	---	---	---	---	47	---	---	---	---	---	17

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
ACW #13	ACW #13	20-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #13	ACW #13	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #13D	ACW #13D	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #13	ACW #13	20-Aug-97	0.02	---	---	---	10	---	20	---	79	---	<0.02	160	---	---	---	---
ACW #13	ACW #13	23-Oct-97	<0.01	---	---	---	15	---	21	---	84	---	<0.02	170	---	---	---	---
S98-0060	ACW #13	24-Feb-98	---	---	---	---	17	---	21	---	87	---	---	170	---	---	---	---
S98-0190	ACW #13	01-Jun-98	---	---	---	---	10	---	21	---	85	---	---	170	170	---	---	---
S98-0296	ACW #13	11-Aug-98	---	---	---	---	9.4	---	15	---	85	---	---	170	170	<25	<25	170
S98-0476	ACW #13	22-Oct-98	0.017	---	---	---	7.5	---	23	---	87	---	<0.05	170	170	<25	<25	190
S99-0085	ACW #13	23-Feb-99	---	---	---	---	7.0	---	23	---	110	---	---	180	180	<25	<25	170
M99-0027	ACW #13	14-May-99	0.0084	---	---	---	5.3	---	28	---	86	---	<0.05	170	170	<25	<25	180
M99-0089	ACW #13	11-Aug-99	---	---	---	---	5.0	---	26	---	86	---	---	170	170	<25	<25	190
M99-0205	ACW #13	22-Oct-99	0.018	<0.0002	0.0044	<0.02	5.9	---	19	<0.005	89	<0.005	<0.05	160	160	<25	<25	190
M00-0028	ACW #13	23-Feb-00	---	---	---	---	6.3	---	14	---	82	---	---	160	160	<25	<25	170
M00-0096	ACW #13	11-May-00	---	---	---	---	6.6	---	30	---	88	---	---	170	170	<25	<25	190
M00-0198	ACW #13	08-Aug-00	---	---	---	---	5.8	---	<2.0	---	82	---	---	160	160	<25	<25	180
M00-0199	ACW #13D	08-Aug-00	---	---	---	---	6.0	---	37	---	84	---	---	160	160	<25	<25	180
M00-0242	ACW #13	06-Nov-00	0.024	<0.0002	---	---	11	<0.1	29	<0.02	210	---	<0.1	170	170	<25	<25	220
M01-0013	ACW #13	20-Feb-01	---	---	---	---	7.5	---	34	---	130	---	---	160	160	<25	<25	190
M01-0159	ACW #13	07-May-01	---	---	---	---	4.6	---	33	---	88	---	---	180	180	<25	<25	180
M01-0406	ACW #13	01-Aug-01	---	---	---	---	6.1	---	29	---	86	---	---	170	170	<25	<25	180
M01-0407	ACW #13D	01-Aug-01	---	---	---	---	6	---	30	---	80	---	---	160	160	<25	<25	160
M01-0490	ACW #13	25-Oct-01	0.02	<0.0002	<0.01	<0.04	6	<0.1	34	<0.02	78	<0.005	<0.1	170	170	<25	<25	170
M02-0047	ACW #13	20-Feb-02	---	---	---	---	5.0	---	36	---	78	---	---	160	160	<25	<25	180
M02-0047	ACW #13 R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-24	ACW #13	01-May-02	---	---	---	---	5.0	---	33	---	78	---	---	170	170	<25	<25	200
2	ACW #13	25-Sep-02	---	---	---	---	---	---	---	---	80	---	---	---	---	---	---	---
3	ACW #13D	25-Sep-02	---	---	---	---	---	---	---	---	83	---	---	---	---	---	---	---
2002110896-23	ACW #13	07-Nov-02	<0.010	---	---	---	6.6	---	10	---	96	---	---	180	180	<2.0	<2.0	210
ACW #14	ACW #14	20-Feb-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #14	ACW #14	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ACW #14	ACW #14	20-Aug-97	0.03	---	---	---	5	---	20	---	81	---	0.03	150	---	---	---	---
ACW #14	ACW #14	22-Oct-97	0.01	---	---	---	5	---	20	---	81	---	<0.02	180	---	---	---	---
S98-0173	ACW #14	24-Feb-98	---	---	---	---	5	---	22	---	87	---	---	180	---	---	---	---
S98-0184	ACW #14	13-May-98	---	---	---	---	6	---	24	---	97	---	---	170	170	---	---	---
S98-0293	ACW #14	11-Aug-98	---	---	---	---	5.5	---	25	---	90	---	---	170	170	<25	<25	190
S98-0471	ACW #14	21-Oct-98	0.014	---	---	---	6.2	---	25	---	97	---	<0.05	170	170	<25	<25	210
S99-0080	ACW #14	23-Feb-99	---	---	---	---	6.0	---	25	---	110	---	---	180	180	<25	<25	190

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
M99-0021	ACW #14	13-May-99	<2	<2	<2	<2	<2	<2	<6	---	<0.25	764	7.89	500	62	100	23.5
M99-0086	ACW #14	09-Aug-99	<2	<2	<2	<2	<2	<2	<6	---	---	791	7.80	471	58	120	21.3
M99-0197	ACW #14	21-Oct-99	<2	<2	<2	<2	<2	<2	<6	---	---	753	7.79	469	68	100	20.4
M00-0023	ACW #14	22-Feb-00	<2	<2	<2	---	---	---	<2	---	---	738	7.65	499	53	97	16.1
M00-0093	ACW #14	10-May-00	<5	<5	<5	---	---	---	<10	---	---	761	7.66	485	61	110	21.2
M00-0195	ACW #14	07-Aug-00	<2	<2	<2	---	---	---	<4	---	---	750	7.69	439	65	110	25.4
M00-0230	ACW #14	01-Nov-00	<2	<2	<2	---	---	---	<4	---	---	1,630	7.78	1,090	420	120	17.1
M01-0017	ACW #14	21-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	883	7.78 H	517	100	100	21.7
M01-0144	ACW #14	03-May-01	<2	<2	<2	---	---	---	<2	<5	---	809	7.66	499	89	100	22.7
M01-0411	ACW #14	02-Aug-01	<2	<2	<2	---	---	---	<2	---	---	771	7.90	476	70	110	22.8
M01-0482	ACW #14	24-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	761	7.63	449	71	100	20.0
M02-0042	ACW #14	19-Feb-02	<2.0	3.1	<2.0	---	---	---	7.1	---	---	759	7.57 H	427	65	87	---
M02-0042	ACW #14 R	19-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
2002040220-18	ACW #14	30-Apr-02	<2.0	<2.0	<2.0	---	---	---	<4.0	---	---	844	7.39 H	505	74	250	---
1	ACW #14	25-Sep-02	<2.0	<2.0	<2.0	---	---	---	<4.0	<5.0	---	749	7.71 H	482	58	---	---
2002110896-11	ACW #14	04-Nov-02	2.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	840	7.78 H	670	76	150	---
2002110896-12	ACW #14D	04-Nov-02	1.8	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	830	7.65 H	550	73	150	---
M99-0206	ACW #15	23-Oct-99	3.2	5.3	<2	---	---	---	<4	---	---	1,010	8.24	587	180	87	21.2
M00-0026	ACW #15	23-Feb-00	<2	<2	<2	---	---	---	<2	---	---	665	7.71	402	42	84	16.6
M00-0027	ACW #15D	23-Feb-00	<2	<2	<2	---	---	---	<2	---	---	660	7.71	394	42	92	16.6
M00-0095	ACW #15	11-May-00	<5	<5	<5	---	---	---	<10	---	---	654	7.95	431	49	91	18.4
M00-0200	ACW #15	08-Aug-00	<2	<2	<2	---	---	---	<4	---	---	605	7.94	340	35	84	25.6
M00-0236	ACW #15	02-Nov-00	<5	<5	<5	---	---	---	<10	---	---	1,380	7.8	876	360	100	18.4
M01-0014	ACW #15	20-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	725	7.89 H	423	64	78	21.5
M01-0015	ACW #15D	20-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	727	7.87 H	413	65	81	21.7
M01-0160	ACW #15	07-May-01	<2	<2	<2	<2	<2	<2	<6	<5	---	629	7.81 H	416	52	84	26.0
M01-0161	ACW #15D	07-May-01	<2	<2	<2	<2	<2	<2	<6	<5	---	628	7.84 H	396	46	80	25.8
M01-0410	ACW #15	02-Aug-01	<2	<2	<2	---	---	---	<2	---	---	627	8.03	397	82	75	22.9
M01-0489	ACW #15	25-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	627	7.86	393	56	85	19.9
M02-0043	ACW #15	19-Feb-02	<2.0	3.4	2.0	---	---	---	11	---	---	629	7.83 H	369	27	79	---
M02-0043	ACW #15 R	19-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
M02-0044	ACW #15D	19-Feb-02	<2.0	<2.0	<2.0	---	---	---	7.0	---	---	628	8.11 H	355	31	76	---
M02-0044	ACW #15D R	19-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
200240220-27	ACW #15	02-May-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	670	7.79 H	404	30	110	---
4	ACW #15	25-Sep-02	<2.0	<2.0	<2.0	---	---	---	<4.0	<5.0	---	777	7.91 H	552	130	---	---
2002110896-26	ACW #15	08-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	640	7.76 H	380	30	110	---
2002110896-27	ACW #15D	08-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	620	7.78 H	410	29	110	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
M99-0021	ACW #14	13-May-99	0.4	1.6	2.0	---	---	---	---	0.27	---	49	---	---	0.016	0.17	---	18
M99-0086	ACW #14	09-Aug-99	0.3	1.6	1.8	---	---	---	---	---	---	52	---	---	---	---	---	19
M99-0197	ACW #14	21-Oct-99	0.37	1.8	2.0	---	0.078	0.013	0.046	0.24	<0.002	48	<0.005	<0.005	<0.0025	0.21	<0.005	18
M00-0023	ACW #14	22-Feb-00	<1.0	1.6	2.0	---	---	---	---	---	---	62	---	---	---	---	---	22
M00-0093	ACW #14	10-May-00	0.38	1.5	1.8	---	---	---	---	---	---	51	---	---	---	---	---	19
M00-0195	ACW #14	07-Aug-00	0.27	1.5	1.8	---	---	---	---	---	---	50	---	---	---	---	---	18
M00-0230	ACW #14	01-Nov-00	<2	1.6	1.4	---	---	<0.1	0.068	0.30	<0.01	65	<0.01	---	<0.005	0.27	<0.05	23
M01-0017	ACW #14	21-Feb-01	<2	1.6	2.1	---	---	---	---	---	---	47	---	---	---	---	---	18
M01-0144	ACW #14	03-May-01	1	1.6	3.7	---	---	---	---	---	---	54	---	---	---	---	---	20
M01-0411	ACW #14	02-Aug-01	0.42	1.6	1.9	---	---	---	---	---	---	45	---	---	---	---	---	17
M01-0482	ACW #14	24-Oct-01	<2	1.8	1.8	---	<0.05	<0.1	0.041	0.22	<0.005	46	<0.01	<0.01	<0.005	0.26	<0.05	16
M02-0042	ACW #14	19-Feb-02	0.38	1.7	1.8	---	---	---	---	---	---	46	---	---	---	---	---	16
M02-0042	ACW #14 R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-18	ACW #14	30-Apr-02	<1.0	2.9	1.7	---	---	---	---	---	---	57	---	---	---	---	---	21
1	ACW #14	25-Sep-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-11	ACW #14	04-Nov-02	<0.50	1.8	1.9	---	---	0.012	---	0.27	---	60	---	---	---	0.38	---	22
2002110896-12	ACW #14D	04-Nov-02	0.61	1.8	2.0	---	---	0.011	---	0.27	---	61	---	---	---	0.40	---	23
M99-0206	ACW #15	23-Oct-99	<2	1.6	0.81	---	0.79	0.0089	0.11	0.21	<0.002	66	0.022	<0.005	0.0039	0.75	<0.005	20
M00-0026	ACW #15	23-Feb-00	<1.0	1.4	1.2	---	---	---	---	---	---	62	---	---	---	---	---	15
M00-0027	ACW #15D	23-Feb-00	<20	1.5	1.1	---	---	---	---	---	---	58	---	---	---	---	---	15
M00-0095	ACW #15	11-May-00	0.34	1.4	0.86	---	---	---	---	---	---	47	---	---	---	---	---	14
M00-0200	ACW #15	08-Aug-00	0.25	1.4	0.91	---	---	---	---	---	---	45	---	---	---	---	---	14
M00-0236	ACW #15	02-Nov-00	<20	1.4	0.93	---	---	<0.1	0.064	0.27	<0.01	53	<0.01	---	<0.005	0.22	<0.05	18
M01-0014	ACW #15	20-Feb-01	0.33	1.3	1	---	---	---	---	---	---	40	---	---	---	---	---	14
M01-0015	ACW #15D	20-Feb-01	0.34	1.3	1	---	---	---	---	---	---	38	---	---	---	---	---	13
M01-0160	ACW #15	07-May-01	0.28	1.3	0.99	---	---	---	---	---	---	42	---	---	---	---	---	14
M01-0161	ACW #15D	07-May-01	0.31	1.3	1	---	---	---	---	---	---	42	---	---	---	---	---	14
M01-0410	ACW #15	02-Aug-01	0.39	1.3	0.98	---	---	---	---	---	---	38	---	---	---	---	---	13
M01-0489	ACW #15	25-Oct-01	<1	1.4	1	---	<0.05	<0.1	0.042	0.22	<0.005	37	<0.01	<0.01	<0.005	0.17	<0.05	13
M02-0043	ACW #15	19-Feb-02	0.31	1.4	0.97	---	---	---	---	---	---	35	---	---	---	---	---	12
M02-0043	ACW #15 R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0044	ACW #15D	19-Feb-02	0.32	1.4	0.81	---	---	---	---	---	---	52	---	---	---	---	---	15
M02-0044	ACW #15D R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
200240220-27	ACW #15	02-May-02	<1	1.4	1.0	---	---	---	---	---	---	42	---	---	---	---	---	15
4	ACW #15	25-Sep-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-26	ACW #15	08-Nov-02	<0.50	1.5	1.3	---	---	0.010	---	0.25	---	47	---	---	---	0.16	---	16
2002110896-27	ACW #15D	08-Nov-02	<0.50	1.3	1.3	---	---	0.011	---	0.23	---	46	---	---	---	0.15	---	15

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
M99-0021	ACW #14	13-May-99	0.011	---	---	---	5.7	---	28	---	95	---	<0.05	170	170	<25	<25	200
M99-0086	ACW #14	09-Aug-99	---	---	---	---	5.3	---	24	---	91	---	---	170	170	<25	<25	210
M99-0197	ACW #14	21-Oct-99	0.012	<0.0002	<0.005	<0.02	5.8	---	21	<0.005	98	0.0062	<0.05	170	170	<25	<25	200
M00-0023	ACW #14	22-Feb-00	---	---	---	---	5.4	---	46	---	97	---	---	160	160	<25	<25	250
M00-0093	ACW #14	10-May-00	---	---	---	---	6.6	---	34	---	110	---	---	170	170	<25	<25	200
M00-0195	ACW #14	07-Aug-00	---	---	---	---	6.0	---	39	---	95	---	---	170	170	<25	<25	200
M00-0230	ACW #14	01-Nov-00	0.037	<0.0002	---	---	14	<0.1	25	<0.02	300	---	<0.1	170	170	<25	<25	260
M01-0017	ACW #14	21-Feb-01	---	---	---	---	7.2	---	33	---	110	---	---	170	170	<25	<25	190
M01-0144	ACW #14	03-May-01	---	---	---	---	6.8	---	35	---	100	---	---	160	160	<25	<25	220
M01-0411	ACW #14	02-Aug-01	---	---	---	---	5.8	---	35	---	89	---	---	160	160	<25	<25	180
M01-0482	ACW #14	24-Oct-01	0.012	<0.0002	<0.01	<0.04	6.0	<0.1	34	<0.02	82	0.0085	<0.1	160	160	<25	<25	190
M02-0042	ACW #14	19-Feb-02	---	---	---	---	5.9	---	9.8	---	82	---	---	170	170	<25	<25	180
M02-0042	ACW #14 R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-18	ACW #14	30-Apr-02	---	---	---	---	6.3	---	31	---	90	---	---	180	180	<25	<25	230
1	ACW #14	25-Sep-02	---	---	---	---	---	---		---	81	---	---	---	---	---	---	---
2002110896-11	ACW #14	04-Nov-02	0.018	---	---	---	7.6	---	50	---	97	---	---	180	180	<2.0	<2.0	240
2002110896-12	ACW #14D	04-Nov-02	0.018	---	---	---	7.7	---	51	---	99	---	---	180	180	<2.0	<2.0	240
M99-0206	ACW #15	23-Oct-99	0.051	<0.0002	0.040	<0.02	28	---	30	<0.005	130	<0.0005	0.096	130	130	<25	<25	250
M00-0026	ACW #15	23-Feb-00	---	---	---	---	5.7	---	27	---	81	---	---	170	170	<25	<25	220
M00-0027	ACW #15D	23-Feb-00	---	---	---	---	5.8	---	24	---	82	---	---	180	180	<25	<25	210
M00-0095	ACW #15	11-May-00	---	---	---	---	4.9	---	29	---	76	---	---	170	170	<25	<25	170
M00-0200	ACW #15	08-Aug-00	---	---	---	---	9.1	---	34	---	77	---	---	170	170	<25	<25	160
M00-0236	ACW #15	02-Nov-00	0.026	<0.0002	---	---	16	<0.1	27	<0.02	250	---	<0.1	180	180	<25	<25	210
M01-0014	ACW #15	20-Feb-01	---	---	---	---	8.6	---	31	---	100	---	---	160	160	<25	<25	160
M01-0015	ACW #15D	20-Feb-01	---	---	---	---	7.5	---	31	---	96	---	---	180	180	<25	<25	150
M01-0160	ACW #15	07-May-01	---	---	---	---	5.8	---	32	---	80	---	---	180	180	<25	<25	160
M01-0161	ACW #15D	07-May-01	---	---	---	---	6.2	---	32	---	81	---	---	180	180	<25	<25	160
M01-0410	ACW #15	02-Aug-01	---	---	---	---	9.2	---	35	---	76	---	---	170	170	<25	<25	150
M01-0489	ACW #15	25-Oct-01	0.0073	0.0003	<0.01	<0.04	72	<0.1	34	<0.02	72	<0.005	<0.1	170	170	<25	<25	150
M02-0043	ACW #15	19-Feb-02	---	---	---	---	18	---	18	---	74	---	---	170	170	<25	<25	140
M02-0043	ACW #15 R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0044	ACW #15D	19-Feb-02	---	---	---	---	9.6	---	18	---	49	---	---	160	160	<25	<25	190
M02-0044	ACW #15D R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
200240220-27	ACW #15	02-May-02	---	---	---	---	5.8	---	33	---	77	---	---	180	180	<25	<25	170
4	ACW #15	25-Sep-02	---	---	---	---	---	---	---	---	72	---	---	---	---	---	---	---
2002110896-26	ACW #15	08-Nov-02	<0.010	---	---	---	6.1	---	50	---	85	---	---	190	190	<2.0	<2.0	180
2002110896-27	ACW #15D	08-Nov-02	<0.010	---	---	---	5.9	---	53	---	81	---	---	180	180	<2.0	<2.0	180

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
M00-0241	RW #1	03-Nov-00	130	40	73	---	---	---	120	---	---	62,000	8.3	43,900	32,000	790	19.3
M00-0239	RW #2	03-Nov-00	<5	<5	<5	---	---	---	<10	---	---	7,340	6.8	5,660	2,800	240	19.3
M01-0485	RW #2	25-Oct-01	---	---	---	---	---	---	---	---	---	8,380	---	5,050	2,400	---	---
2002110896-22	RW #2	06-Nov-02	1.5	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	8,700	6.78 H	5,800	3,500	260	---
2002110896-30	EPNG #1	08-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	940	7.20 H	600	60	130	---
ENSR #1	ENSR #1	07-May-97	7.3	3.7	2.4	---	---	---	2	---	---	8,620	---	5,200	3,200	---	---
ENSR #1	ENSR #1	21-Oct-97	13	6.3	4.2	---	---	---	5.6	---	---	13,800	---	7,600	4,400	---	---
S98-0172	ENSR #1	12-May-98	13	4.6	4.0	---	---	---	4.4	---	---	12,000	---	6,700	3,600	---	---
S98-0457	ENSR #1	20-Oct-98	---	---	---	---	---	---	---	---	---	12,400	---	7,590	4,200	---	---
M99-0004	ENSR #1	11-May-99	---	---	---	---	---	---	---	---	---	14,700	---	8,450	5,500	---	---
M99-0188	ENSR #1	20-Oct-99	---	---	---	---	---	---	---	---	---	12,400	---	6,290	4,100	---	---
M00-0082	ENSR #1	09-May-00	---	---	---	---	---	---	---	---	---	12,800	---	7,420	6,200	---	---
M00-0220	ENSR #1	27-Oct-00	---	---	---	---	---	---	---	---	---	10,200	---	6,690	3,800	---	---
M00-0221	ENSR #1D	27-Oct-00	---	---	---	---	---	---	---	---	---	10,600	---	7,140	4,000	---	---
M01-0141	ENSR #1	02-May-01	---	---	---	---	---	---	---	---	---	19,200	---	10,200	7,600	---	---
M01-0470	ENSR #1	23-Oct-01	---	---	---	---	---	---	---	---	---	15,300	---	8,050	5,100	---	---
M01-0471	ENSR #1D	23-Oct-01	---	---	---	---	---	---	---	---	---	11,400	---	6,070	3,600	---	---
2002040220-04	ENSR #1	29-Apr-02	---	---	---	---	---	---	---	---	---	9,480	---	4,770	3,800	---	---
2002110896-7	ENSR #1	04-Nov-02	18	<10	<10	<20		<10	<30	---	---	12,000	7.28 H	7,600	4,500	34	20.8
ENSR #2	ENSR #2	06-May-97	250	230	110	---	---	---	190	---	---	50,000	---	27,000	17,000	---	---
ENSR #2	ENSR #2	20-Oct-97	130	160	77	---	---	---	120	---	---	57,900	---	30,000	17,000	---	---
S98-0169	ENSR #2	12-May-98	---	---	---	---	---	---	---	---	---	38,000	---	21,000	13,000	---	---
S98-0453	ENSR #2	19-Oct-98	---	---	---	---	---	---	---	---	---	44,800	---	30,000	18,000	---	---
M99-0009	ENSR #2	11-May-99	---	---	---	---	---	---	---	---	---	49,100	---	31,200	18,000	---	---
M99-0183	ENSR #2	19-Oct-99	---	---	---	---	---	---	---	---	---	28,900	---	16,600	9,400	---	---
M00-0080	ENSR #2	09-May-00	---	---	---	---	---	---	---	---	---	42,900	---	26,700	18,000	---	---
M01-0495	ENSR #2	29-Oct-01	---	---	---	---	---	---	---	---	---	42,000	---	25,100	13,000	---	---
ENSR #3	ENSR #3	07-May-97	7.6	3.3	2.9	---	---	---	3	---	---	2,050	---	1,500	650	---	---
ENSR #3D	ENSR #3D	07-May-97	6.8	3.1	2.8	---	---	---	2.9	---	---	1,990	---	1,400	480	---	---
ENSR #3	ENSR #3	21-Oct-97	5	2.5	3	---	---	---	4.1	---	---	2,230	---	1,300	580	---	---
S98-0175	ENSR #3	12-May-98	9.5	3.4	1.9	---	---	---	2.7	---	---	2,400	---	1,400	610	---	---
S98-0176	ENSR #3D	12-May-98	14	4.4	2.3	---	---	---	4.4	---	---	2,200	---	1,300	550	---	---
S98-0461	ENSR #3	20-Oct-98	---	---	---	---	---	---	---	---	---	2,260	---	1,580	590	---	---
S98-0462	ENSR #3D	20-Oct-98	---	---	---	---	---	---	---	---	---	2,240	---	1,290	540	---	---
M99-0006	ENSR #3	11-May-99	---	---	---	---	---	---	---	---	---	2,490	---	1,370	500	---	---
M99-0007	ENSR #3D	11-May-99	---	---	---	---	---	---	---	---	---	2,480	---	1,380	610	---	---
M99-0189	ENSR #3	20-Oct-99	---	---	---	---	---	---	---	---	---	2,390	---	1,630	600	---	---
M99-0190	ENSR #3D	20-Oct-99	---	---	---	---	---	---	---	---	---	2,390	---	1,560	590	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
M00-0241	RW #1	03-Nov-00	<200	6.0	0.10	---	---	0.82	0.47	2.4	<0.05	760	<0.05	---	<0.025	<0.5	<0.25	330
M00-0239	RW #2	03-Nov-00	<20	0.44	0.11	---	---	<0.1	0.18	<0.1	<0.01	610	0.012	---	<0.005	0.12	<0.05	190
M01-0485	RW #2	25-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-22	RW #2	06-Nov-02	2.0	<0.40	<0.20	---	---	0.014	---	0.65	---	730	---	---	---	0.45	---	210
2002110896-30	EPNG #1	08-Nov-02	<0.50	1.3	1.5	---	---	0.010	---	0.24	---	98	---	---	---	2.8	---	30
ENSR #1	ENSR #1	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #1	ENSR #1	21-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0172	ENSR #1	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0457	ENSR #1	20-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0004	ENSR #1	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0188	ENSR #1	20-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0082	ENSR #1	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0220	ENSR #1	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0221	ENSR #1D	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0141	ENSR #1	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0470	ENSR #1	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0471	ENSR #1D	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-04	ENSR #1	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-7	ENSR #1	04-Nov-02	1.0	3.0	0.25 H	---	---	0.046	---	0.76	---	140	---	---	---	4.8	---	58
ENSR #2	ENSR #2	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #2	ENSR #2	20-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0169	ENSR #2	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0453	ENSR #2	19-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0009	ENSR #2	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0183	ENSR #2	19-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0080	ENSR #2	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0495	ENSR #2	29-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #3	ENSR #3	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #3D	ENSR #3D	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #3	ENSR #3	21-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0175	ENSR #3	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0176	ENSR #3D	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0461	ENSR #3	20-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0462	ENSR #3D	20-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0006	ENSR #3	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0007	ENSR #3D	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0189	ENSR #3	20-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0190	ENSR #3D	20-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
M00-0241	RW #1	03-Nov-00	2.5	0.0029	---	---	100	<0.5	19	<0.1	22,000	---	<0.5	1,500	1,500	25	<25	3,200
M00-0239	RW #2	03-Nov-00	0.83	<0.0002	---	---	15	<0.1	39	<0.02	680	---	<0.1	470	470	<25	<25	2,300
M01-0485	RW #2	25-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-22	RW #2	06-Nov-02	0.82	---	---	---	27	---	58	---	1,400	---	---	490	490	<2.0	<2.0	2,600
2002110896-30	EPNG #1	08-Nov-02	0.12	---	---	---	8.4	---	57	---	91	---	---	330	330	<2.0	<2.0	370
ENSR #1	ENSR #1	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #1	ENSR #1	21-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0172	ENSR #1	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0457	ENSR #1	20-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0004	ENSR #1	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0188	ENSR #1	20-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0082	ENSR #1	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0220	ENSR #1	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0221	ENSR #1D	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0141	ENSR #1	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0470	ENSR #1	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0471	ENSR #1D	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-04	ENSR #1	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-7	ENSR #1	04-Nov-02	0.54	---	---	---	28	---	58	---	1,900	---	---	610	610	<2.0	<2.0	600
ENSR #2	ENSR #2	06-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #2	ENSR #2	20-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0169	ENSR #2	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0453	ENSR #2	19-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0009	ENSR #2	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0183	ENSR #2	19-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0080	ENSR #2	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0495	ENSR #2	29-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #3	ENSR #3	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #3D	ENSR #3D	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ENSR #3	ENSR #3	21-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0175	ENSR #3	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0176	ENSR #3D	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0461	ENSR #3	20-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0462	ENSR #3D	20-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0006	ENSR #3	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0007	ENSR #3D	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0189	ENSR #3	20-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0190	ENSR #3D	20-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
M00-0083	ENSR #3	09-May-00	---	---	---	---	---	---	---	---	---	2,360	---	1,580	710	---	---
M00-0084	ENSR #3D	09-May-00	---	---	---	---	---	---	---	---	---	2,410	---	1,580	710	---	---
M00-0222	ENSR #3	27-Oct-00	---	---	---	---	---	---	---	---	---	2,410	---	1,870	640	---	---
M01-0138	ENSR #3	02-May-01	---	---	---	---	---	---	---	---	---	2,480	---	1,240	610	---	---
M01-0139	ENSR #3D	02-May-01	---	---	---	---	---	---	---	---	---	2,490	---	1,270	680	---	---
M01-0472	ENSR #3	23-Oct-01	---	---	---	---	---	---	---	---	---	2,480	---	1,300	620	---	---
2002040220-05	ENSR #3	29-Apr-02	---	---	---	---	---	---	---	---	---	2,500	---	1,350	580	---	---
2002040220-06	ENSR #3D	29-Apr-02	---	---	---	---	---	---	---	---	---	2,370	---	1,390	490	---	---
2002110896-8	ENSR #3	04-Nov-02	7.1	<5.0	22	25		<5.0	25	---	---	2,100	7.09 H	1,400	520	45	---
S98-0063	Oxy Production Well	24-Feb-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	802	8.1	480	120	68	---
S98-0186	Oxy Production Well	13-May-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	800	7.8	480	120	61	---
S98-0299	Oxy Production Well	11-Aug-98	<2	<2	<2	<2	<2	<2	<6	---	---	762	7.78	604	120	58	20.2
S98-0465	Oxy Production Well	20-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	734	7.79	488	100	55	17.3
S99-0082	Oxy Production Well	23-Feb-99	<2	<2	<2	---	---	---	<2	---	---	810	7.99	407	120	45	14.5
M99-0025	Oxy Production Well	13-May-99	<2	<2	<2	---	---	---	<2	---	---	808	7.91	468	120	59	23.6
M99-0093	Oxy Production Well	11-Aug-99	<2	<2	<2	---	---	---	<2	---	---	831	7.67	466	140	59	20.5
M99-0203	Oxy Production Well	22-Oct-99	<2	<2	<2	---	---	---	<4	---	---	788	7.86	490	130	56	19.2
M00-0025	Oxy Production Well	23-Feb-00	<2	<2	<2	<2.0	<2.0	<2.0	<6.0	---	---	630	7.85	392	38	77	17.6
M00-0097	Oxy Production Well	11-May-00	<5	<5	<5	---	---	---	<10	---	---	835	7.96	504	120	63	19.6
M00-0196	Oxy Production Well	07-Aug-00	<2	<2	<2	---	---	---	<4	---	---	802	7.96	433	120	59	25.9
M00-0235	Oxy Production Well	02-Nov-00	<2	<2	<2	---	---	---	<4	---	---	662	7.8	475	120	60	18.6
M01-0016	Oxy Production Well	20-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	805	7.83 H	442	130	52	22.6
M01-0165	Oxy Production Well	07-May-01	<2	<2	<2	---	---	---	<2	<5	---	781	7.7 H	481	140	58	24.9
M01-0408	Oxy Production Well	01-Aug-01	<2	<2	<2 Jc	---	---	---	<2	<5	---	807	7.7	532	120	57	22.5
M01-0488	Oxy Production Well	25-Oct-01	<2	<2	<2	---	---	---	<2	---	---	822	7.69	500	120	62	20.3
5	Oxy Production Well	25-Sep-02	<2.0	<2.0	<2.0	---	---	---	<4.0	<5.0	---	827	7.41 H	552	34	---	---
2002110896-18	Oxy Production Well	06-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	820	7.58 H	580	140	65	---
Production Well #1	Production Well #1	08-May-97	0.56	0.55	<0.5	---	---	---	<1.0	---	---	718	---	---	---	---	---
Production Well #1	Production Well #1	23-Oct-97	<0.5	<0.5	<0.5	---	---	---	<1.0	---	---	890	---	470	91	---	---
S98-0193	Production Well #1	14-May-98	---	---	---	---	---	---	---	---	---	850	---	500	67	---	---
S98-0194	Production Well #1D	14-May-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	860	---	520	67	---	---
S98-0479	Production Well #1	22-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	994	---	659	56	---	---
M99-0030	Production Well #1	14-May-99	---	---	---	---	---	---	---	---	---	846	---	469	70	---	---
M99-0210	Production Well #1	23-Oct-99	<2	<2	<2	<2	<2	<2	<6	---	---	891	---	540	2.5	---	---
M00-0224	Production Well #1	27-Oct-00	---	---	---	---	---	---	---	---	---	850	---	603	94	---	---
M01-0496	Production Well #1	29-Oct-01	---	---	---	---	---	---	---	---	---	890	---	523	65	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
M00-0083	ENSR #3	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0084	ENSR #3D	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0222	ENSR #3	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0138	ENSR #3	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0139	ENSR #3D	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0472	ENSR #3	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-05	ENSR #3	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-06	ENSR #3D	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-8	ENSR #3	04-Nov-02	2.3	1.2	H	---	---	0.016	---	0.55	---	200	---	---	---	4.0	---	65
S98-0063	Oxy Production Well	24-Feb-98	0.7	1.3	0.9	---	---	---	---	---	---	60	---	---	---	---	---	18
S98-0186	Oxy Production Well	13-May-98	<2	1.1	0.93	---	---	---	---	---	---	66	---	---	---	---	---	20
S98-0299	Oxy Production Well	11-Aug-98	<1	<0.4	0.85/<0.05	3.7	---	---	---	---	---	72	---	---	---	---	---	20
S98-0465	Oxy Production Well	20-Oct-98	<2	1.1	0.76	---	---	---	---	---	---	---	---	---	---	---	---	---
S99-0082	Oxy Production Well	23-Feb-99	0.5	1.0	0.71	---	---	---	---	---	---	80	---	---	---	---	---	24
M99-0025	Oxy Production Well	13-May-99	0.6	0.96	0.27	---	---	---	---	0.20	---	74	---	---	<0.0025	0.74	---	22
M99-0093	Oxy Production Well	11-Aug-99	0.5	1.0	0.78	---	---	---	---	---	---	75	---	---	---	---	---	22.0
M99-0203	Oxy Production Well	22-Oct-99	0.53	1.0	0.41	---	<0.025	0.011	0.10	0.18	---	72	<0.005	<0.005	0.022	2.8	0.0057	21
M00-0025	Oxy Production Well	23-Feb-00	<1.0	1.1	1.2	---	---	---	---	---	---	48	---	---	---	---	---	16
M00-0097	Oxy Production Well	11-May-00	0.50	0.99	0.84	---	---	---	---	---	---	71	---	---	---	---	---	21
M00-0196	Oxy Production Well	07-Aug-00	0.44	0.99	0.71	---	---	---	---	---	---	74	---	---	---	---	---	21
M00-0235	Oxy Production Well	02-Nov-00	<2	1.1	0.70	---	---	<0.1	0.095	0.21	<0.01	76	<0.01	---	<0.005	0.93	<0.05	22
M01-0016	Oxy Production Well	20-Feb-01	0.57	0.99	0.70	---	---	---	---	---	---	67	---	---	---	---	---	20
M01-0165	Oxy Production Well	07-May-01	0.61	1.0	0.82	---	---	---	---	---	---	69	---	---	---	---	---	20
M01-0408	Oxy Production Well	01-Aug-01	<2	1.0	1.0	---	---	---	---	---	---	68	---	---	---	---	---	21
M01-0488	Oxy Production Well	25-Oct-01	1.1	1.1	0.9	---	<0.05	<0.1	0.095	0.18	<0.005	67	<0.01	<0.01	<0.005	0.31	<0.05	20
5	Oxy Production Well	25-Sep-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-18	Oxy Production Well	06-Nov-02	0.57	1.0	0.73	---	---	0.0085	---	0.18	---	69	---	---	---	2.2	---	21
Production Well #1	Production Well #1	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Production Well #1	Production Well #1	23-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0193	Production Well #1	14-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0194	Production Well #1D	14-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0479	Production Well #1	22-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0030	Production Well #1	14-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0210	Production Well #1	23-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0224	Production Well #1	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0496	Production Well #1	29-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
M00-0083	ENSR #3	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0084	ENSR #3D	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0222	ENSR #3	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0138	ENSR #3	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0139	ENSR #3D	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0472	ENSR #3	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-05	ENSR #3	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-06	ENSR #3D	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-8	ENSR #3	04-Nov-02	0.84	---	---	---	9.0	---	56	---	190	---	---	360	360	<2.0	<2.0	760
S98-0063	Oxy Production Well	24-Feb-98	---	---	---	---	4	---	24	---	60	---	---	160	---	---	---	---
S98-0186	Oxy Production Well	13-May-98	---	---	---	---	5	---	27	---	65	---	---	150	150	---	---	---
S98-0299	Oxy Production Well	11-Aug-98	---	---	---	---	5.0	---	28	---	67	---	---	150	150	<25	<25	260
S98-0465	Oxy Production Well	20-Oct-98	---	---	---	---	---	---	---	---	---	---	---	160	160	<25	<25	240
S99-0082	Oxy Production Well	23-Feb-99	---	---	---	---	6.2	---	24	---	82	---	---	160	160	<25	<25	300
M99-0025	Oxy Production Well	13-May-99	0.015	---	---	---	5.1	---	32	---	71	---	0.28	150	150	<25	<25	280
M99-0093	Oxy Production Well	11-Aug-99	---	---	---	---	4.7	---	27	---	72	---	---	140	140	<25	<25	280
M99-0203	Oxy Production Well	22-Oct-99	0.078	<0.0002	0.0049	<0.02	4.8	---	21	<0.005	73	<0.005	0.50	140	140	<25	<25	270
M00-0025	Oxy Production Well	23-Feb-00	---	---	---	---	4.1	---	23	---	71	---	---	190	190	<25	<25	180
M00-0097	Oxy Production Well	11-May-00	---	---	---	---	5.0	---	35	---	72	---	---	150	150	<25	<25	260
M00-0196	Oxy Production Well	07-Aug-00	---	---	---	---	5.2	---	48	---	68	---	---	150	150	<25	<25	260
M00-0235	Oxy Production Well	02-Nov-00	0.019	<0.0002	---	---	5.8	<0.1	31	<0.02	71	---	0.32	150	150	<25	<25	280
M01-0016	Oxy Production Well	20-Feb-01	---	---	---	---	5.8	---	33	---	68	---	---	140	140	<25	<25	250
M01-0165	Oxy Production Well	07-May-01	---	---	---	---	4.8	---	34	---	65	---	---	160	160	<25	<25	250
M01-0408	Oxy Production Well	01-Aug-01	---	---	---	---	4.3	---	32	---	66	---	---	150	150	<25	<25	260
M01-0488	Oxy Production Well	25-Oct-01	0.0088	<0.0002	<0.01	<0.04	5.1	<0.1	47	<0.02	64	<0.005	0.21	140	140	<25	<25	250
5	Oxy Production Well	25-Sep-02	---	---	---	---	---	---	---	---	60	---	---	---	---	---	---	---
2002110896-18	Oxy Production Well	06-Nov-02	0.086	---	---	---	5.7	---	40	---	73	---	---	150	150	<2.0	<2.0	260
Production Well #1	Production Well #1	08-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Production Well #1	Production Well #1	23-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0193	Production Well #1	14-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0194	Production Well #1D	14-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0479	Production Well #1	22-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0030	Production Well #1	14-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0210	Production Well #1	23-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0224	Production Well #1	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0496	Production Well #1	29-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
S98-0057	Production Well Dooms	24-Feb-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	634	8.1	410	38	85	---
S98-0180	Production Well Dooms	13-May-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	640	7.8	410	30	81	---
S98-0292	Production Well Dooms	10-Aug-98	<2	<2	<2	<2	<2	<2	<6	---	---	629	7.76	450	34	83	20.2
S98-0464	Production Well Dooms	20-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	636	7.71	464	35	80	18.0
S99-0081	Production Well Dooms	23-Feb-99	<2	<2	<2	---	---	---	<2	---	---	627	7.86	364	31	73	14.9
M99-0018	Production Well Dooms	13-May-99	<2	<2	<2	---	---	---	<2	---	---	630	7.76	381	34	80	23.6
M99-0092	Production Well Dooms	11-Aug-99	<2	<2	<2	---	---	---	<2	---	---	629	7.69	372	30	79	19.8
M99-0193	Production Well Dooms	21-Oct-99	<2	<2	<2	---	---	---	<4	---	---	617	7.74	400	32	74	19.2
M00-0022	Production Well Dooms	23-Feb-00	<2	<2	<2	<2.0	<2.0	<2.0	<6.0	---	---	814	7.92	506	130	54	17.4
M00-0094	Production Well Dooms	10-May-00	<5	<5	<5	---	---	---	<10	---	---	619	7.69	417	31	77	21.3
M00-0204	Production Well Dooms	14-Aug-00	<5	<5	<5	---	---	---	<10	---	---	597	7.72	400	28	75	27.2
M00-0233	Production Well Dooms	02-Nov-00	<2	<2	<2	---	---	---	<4	---	---	530	7.8	375	32	79	18.4
M01-0010	Production Well Dooms	20-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	619	7.75 H	372	33	66	23.0
M01-0143	Production Well Dooms	03-May-01	<2	<2	<2	---	---	---	<2	<5	---	615	7.75	419	30	74	22.7
M01-0409	Production Well Dooms	01-Aug-01	<2	<2	<2 Jc	---	---	---	<2	<5	---	618	7.72	374	28	75	22.7
M01-0497	Production Well Dooms	29-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	622	7.80	396	28	74	22.7
M02-0050	Production Well Dooms	20-Feb-02	<2.0	19	3.9	---	---	---	24	---	---	620	7.68 H	373	31	64	---
M02-0050	Production Well Dooms R	20-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
M02-0062-01	Production Well Dooms	27-Mar-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	---	---	---	---	---	---
2002040220-29	Production Well Dooms	02-May-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	624	7.70 H	351	30	74	---
6	Production Well Dooms	25-Sep-02	<2.0	<2.0	<2.0	---	---	---	<4.0	<5.0	---	626	7.73 H	411	68	---	---
2002110896-17	Production Well Dooms	05-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	620	7.85 H	470	29	86	---
PTP #1	PTP #1	07-May-97	38	0.51	22	---	---	---	8.4	---	---	2,420	---	1,500	490	---	---
PTP #1	PTP #1	21-Oct-97	7.9	<0.5	18	---	---	---	3.1	---	---	2,250	---	1,400	470	---	---
S98-0177	PTP #1	12-May-98	62	1.6	21	---	---	---	13	---	---	2,300	---	1,400	480	---	---
S98-0463	PTP #1	20-Oct-98	---	---	---	---	---	---	---	---	---	2,090	---	1,410	380	---	---
M99-0008	PTP #1	11-May-99	---	---	---	---	---	---	---	---	---	2,250	---	1,240	330	---	---
M99-0191	PTP #1	20-Oct-99	---	---	---	---	---	---	---	---	---	2,300	---	1,630	460	---	---
M00-0085	PTP #1	09-May-00	---	---	---	---	---	---	---	---	---	2,210	---	1,400	510	---	---
M00-0223	PTP #1	27-Oct-00	---	---	---	---	---	---	---	---	---	2,050	---	1,570	530	---	---
M01-0140	PTP #1	02-May-01	---	---	---	---	---	---	---	---	---	2,370	---	1,240	520	---	---
M01-0473	PTP #1	23-Oct-01	---	---	---	---	---	---	---	---	---	2,370	---	1,280	550	---	---
2002040220-07	PTP #1	29-Apr-02	---	---	---	---	---	---	---	---	---	2,390	---	1,400	500	---	---
2002110896-9	PTP #1	04-Nov-02	50	<10	15	24		<10	24	---	---	2,000	7.20 H	690	480	3.9	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
S98-0057	Production Well Dooms	24-Feb-98	0.3	1.1	1.2	---	---	---	---	---	---	46	---	---	---	---	---	16
S98-0180	Production Well Dooms	13-May-98	<2	1.2	1.2	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0292	Production Well Dooms	10-Aug-98	<1	<0.4	1.2/<0.05	5.3	---	---	---	---	---	53	---	---	---	---	---	17
S98-0464	Production Well Dooms	20-Oct-98	<2	1.0	1.2	---	---	---	---	0.22	---	52	---	---	<0.0025	0.060	---	17
S99-0081	Production Well Dooms	23-Feb-99	0.3	0.89	0.89	---	---	---	---		---	48	---	---	---	---	---	16
M99-0018	Production Well Dooms	13-May-99	0.4	0.84	0.62	---	---	---	---	0.24	---	51	---	---	<0.0025	0.14	---	17
M99-0092	Production Well Dooms	11-Aug-99	0.2	0.83	1.1	---	---	---	---	---	---	51	---	---	---	---	---	17
M99-0193	Production Well Dooms	21-Oct-99	0.29	0.86	1.1	---	0.042	0.0096	0.047	0.23	<0.002	51	<0.005	<0.005	0.0021	0.16	<0.001	18
M00-0022	Production Well Dooms	23-Feb-00	0.58	1.1	0.72	---	---	---	---	---	---	68	---	---	---	---	---	20
M00-0094	Production Well Dooms	10-May-00	0.27	0.82	1.2	---	---	---	---	---	---	44	---	---	---	---	---	15
M00-0204	Production Well Dooms	14-Aug-00	<0.2	0.93	1.2	---	---	---	---	---	---	50	---	---	---	---	---	16
M00-0233	Production Well Dooms	02-Nov-00	<2	1.0	0.95	---	---	<0.1	0.045	0.25	<0.01	53	<0.01	---	0.037	0.28	<0.05	18
M01-0010	Production Well Dooms	20-Feb-01	0.35	0.85	1.1	---	---	---	---	---	---	46	---	---	---	---	---	15
M01-0143	Production Well Dooms	03-May-01	0.51	0.91	1	---	---	---	---	---	---	49	---	---	---	---	---	16
M01-0409	Production Well Dooms	01-Aug-01	<2	0.92	1.2	---	---	---	---	---	---	44	---	---	---	---	---	15
M01-0497	Production Well Dooms	29-Oct-01	<2	0.96	1.2	---	<0.05	<0.1	0.037	0.21	<0.005	44	<0.01	<0.01	<0.005	0.10	<0.05	15
M02-0050	Production Well Dooms	20-Feb-02	0.33	0.92	0.97	---	---	---	---	---	---	45	---	---	---	---	---	15
M02-0050	Production Well Dooms R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0062-01	Production Well Dooms	27-Mar-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-29	Production Well Dooms	02-May-02	<1.0	0.92	<1.0	---	---	---	---	---	---	45	---	---	---	---	---	15
6	Production Well Dooms	25-Sep-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-17	Production Well Dooms	05-Nov-02	<0.50	1.1	1.0	---	---	0.010	---	0.21	---	43	---	---	---	0.27	---	15
PTP #1	PTP #1	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PTP #1	PTP #1	21-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0177	PTP #1	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0463	PTP #1	20-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0008	PTP #1	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0191	PTP #1	20-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0085	PTP #1	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0223	PTP #1	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0140	PTP #1	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0473	PTP #1	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-07	PTP #1	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-9	PTP #1	04-Nov-02	2.7	0.97	<0.20 H	---	---	0.020	---	0.62	---	220	---	---	---	10	---	61

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
S98-0057	Production Well Dooms	24-Feb-98	---	---	---	---	4	---	25	---	64	---	---	200	---	---	---	---
S98-0180	Production Well Dooms	13-May-98	---	---	---	---	---	---	---	---	---	---	---	190	190	---	---	---
S98-0292	Production Well Dooms	10-Aug-98	---	---	---	---	4.3	---	27	---	71	---	---	200	200	<25	<25	200
S98-0464	Production Well Dooms	20-Oct-98	<0.0025	---	---	---	4.1	---	29	---	69	---	<0.05	190	190	<25	<25	200
S99-0081	Production Well Dooms	23-Feb-99	---	---	---	---	4.1	---	26	---	72	---	---	190	190	<25	<25	190
M99-0018	Production Well Dooms	13-May-99	0.039	---	---	---	4.0	---	33	---	72	---	0.089	180	180	<25	<25	200
M99-0092	Production Well Dooms	11-Aug-99	---	---	---	---	3.8	---	27	---	73	---	---	190	190	<25	<25	200
M99-0193	Production Well Dooms	21-Oct-99	0.0093	<0.0002	0.0048	<0.02	4.7	---	24	<0.005	77	0.0055	0.11	180	180	<25	<25	200
M00-0022	Production Well Dooms	23-Feb-00	---	---	---	---	4.9	---	12	---	69	---	---	140	140	<25	<25	250
M00-0094	Production Well Dooms	10-May-00	---	---	---	---	4.2	---	29	---	72	---	---	190	190	<25	<25	170
M00-0204	Production Well Dooms	14-Aug-00	---	---	---	---	70	---	30	---	4.2	---	---	180	180	<25	<25	190
M00-0233	Production Well Dooms	02-Nov-00	0.013	<0.0002	---	---	5.0	<0.1	32	<0.02	79	---	0.19	190	190	<25	<25	210
M01-0010	Production Well Dooms	20-Feb-01	---	---	---	---	4.8	---	35	---	67	---	---	190	190	<25	<25	180
M01-0143	Production Well Dooms	03-May-01	---	---	---	---	3.8	---	34	---	73	---	---	180	180	<25	<25	190
M01-0409	Production Well Dooms	01-Aug-01	---	---	---	---	5.0	---	26	---	66	---	---	190	190	<25	<25	170
M01-0497	Production Well Dooms	29-Oct-01	0.018	<0.0002	<0.01	<0.04	3.7	<0.1	38	<0.02	64	0.0084	<0.1	180	180	<25	<25	170
M02-0050	Production Well Dooms	20-Feb-02	---	---	---	---	3.7	---	40	---	65	---	---	190	190	<25	<25	170
M02-0050	Production Well Dooms R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0062-01	Production Well Dooms	27-Mar-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-29	Production Well Dooms	02-May-02	---	---	---	---	4.1	---	34	---	65	---	---	180	180	<25	<25	170
6	Production Well Dooms	25-Sep-02	---	---	---	---	---	---	---	---	63	---	---	---	---	---	---	---
2002110896-17	Production Well Dooms	05-Nov-02	<0.010	---	---	---	4.4	---	53	---	70	---	---	190	190	<2.0	<2.0	170
PTP #1	PTP #1	07-May-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PTP #1	PTP #1	21-Oct-97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0177	PTP #1	12-May-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0463	PTP #1	20-Oct-98	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0008	PTP #1	11-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0191	PTP #1	20-Oct-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0085	PTP #1	09-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0223	PTP #1	27-Oct-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0140	PTP #1	02-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0473	PTP #1	23-Oct-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-07	PTP #1	29-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-9	PTP #1	04-Nov-02	0.37	---	---	---	6.9	---	26	---	170	---	---	520	520	<2.0	<2.0	810

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
S98-0451	Bailer Blank	19-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	1.13	5.95	<25	<0.1	<0.1	17.8
S98-0066	Bailer Blank Pre Sample	24-Feb-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	3	5.7	<20	<0.2	<1	---
S98-0158	Bailer Blank Pre Sample	11-May-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	9.6	5.8	<20	<0.2	<1	---
S98-0290	Bailer Blank Pre Sample	10-Aug-98	<2	<2	<2	<2	<2	<2	<6	---	---	4.45	5.08	30	<0.1	<2.0	18.8
S98-0178	Bailer Blank-Middle Sample	12-May-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	24	5.6	<20	<0.2	<1	---
S98-0466	Bailer Blank-Middle Sample	21-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	16.9	7.34	<25	<0.1	<0.1	21.0
S98-0061	Bailer Blank Post Sample	24-Feb-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	1	6.0	<20	<0.2	<1	---
S98-0191	Bailer Blank Post Sample	14-May-98	0.66	<0.50	<0.50	---	---	---	<1.0	---	---	15	5.6	<20	<0.2	<1	---
S98-0225	Bailer Blank Post Sample	01-Jun-98	12	<0.50	<0.50	---	---	---	<1.0	---	---	12	5.5	<20	<0.2	<1	---
S98-0297	Bailer Blank Post Sample	11-Aug-98	<2	<2	<2	<2	<2	<2	<6	---	---	3.83	5.16	31	<0.1	<2.0	19.9
S98-0478	Bailer Blank Post Sample	22-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	1.22	5.77	<25	<0.1	<0.1	21.2
S99-0078	Bailer Blank Before	23-Feb-99	<2	<2	<2	<2	<2	<2	<6	---	---	2.17	5.83	<25	<0.1	<0.1	14.3
S99-0087	Bailer Blank After Sampling	23-Feb-99	<2	<2	<2	<2	<2	<2	<6	---	---	1.35	5.78	<25	<0.1	<0.1	16.9
M99-0002	Bailer Blank Before Sampling	10-May-99	<2	<2	<2	<2	<2	<2	<6	---	---	1.63	5.86	32	0.1	0.1	22.7
M99-0016	Bailer Blank Middle	12-May-99	---	---	---	---	---	---	---	---	---	1.21	---	<25	<0.1	---	---
M99-0029	Bailer Blank After Sampling	14-May-99	<2	<2	<2	<2	<2	<2	<6	---	<0.25	1.52	5.86	<25	<0.1	<0.1	24.6
M99-0085	Bailer Blank Before Sampling	09-Aug-99	<2	<2	<2	<2	<2	<2	<6	---	---	898	7.57	565	88	190	19.1
M99-0090	Bailer Blank After Sampling	11-Aug-99	<2	<2	<2	<2	<2	<2	<6	---	---	580	8.41	266	48	1.0	21.0
M99-0182	Bailer Blank Before Sampling	18-Oct-99	<2	<2	<2	<2	<2	<2	<6	---	---	4.00	6.04	<15	0.34	<0.5	20.2
M99-0198	Bailer Blank Middle	22-Oct-99	<2	<2	<2	<2	<2	<2	<6	---	---	4.00	6.04	<15	0.31	<0.5	20.2
M99-0208	Bailer Blank After Sampling	23-Oct-99	<2	<2	<2	<2	<2	<2	<6	---	---	3.75	6.03	<15	0.32	<0.5	22.4
M00-0021	Bailer Blank Before Sampling	22-Feb-00	<2	<2	<2	---	---	---	<2	---	---	3	5.88	<15	<0.1	<0.1	15.9
M00-0030	Bailer Blank After Sampling	23-Feb-00	<2	<2	<2	---	---	---	<2	---	---	3	5.88	<15	<0.1	<0.1	17.3
M00-0076	Bailer Blank Before Sampling	08-May-00	<5	<5	<5	---	---	---	<10	---	---	4	5.52	21	<0.1	<0.1	21.3
M00-0091	Bailer Blank Middle of Sampling	10-May-00	---	---	---	---	---	---	---	---	---	2	---	19	<0.1	---	---
M00-0102	Bailer Blank After Sampling	12-May-00	<5	<5	<5	---	---	---	<10	---	---	41	7.13	42	6.1	1.4	18.5
M00-0194	Bailer Blank Before Sampling	07-Aug-00	<2	<2	<2	---	---	---	<4	---	---	8.0	6.15	<15	<0.1	<0.1	25.6
M00-0201	Bailer Blank After Sampling	08-Aug-00	<2	<2	<2	---	---	---	<4	---	---	4.0	5.63	<15	<0.1	<0.1	25.8
M00-0214	Bailer Blank Before Sampling	26-Oct-00	<2	<2	<2	<2	<2	<2	<6	---	---	13	5.22	<15	3.3	<0.1	16.2
M00-0229	Bailer Blank Middle of Sampling	01-Nov-00	<2	<2	<2	---	---	---	<4	---	---	11.4	5.09	<15	3.3	<0.1	15.1
M00-0245	Bailer Blank After Sampling	06-Nov-00	<2	<2	<2	---	---	---	<4	---	---	13.40	5.3	55	3.3	<0.1	16.9
M01-0012	Bailer Blank Before Sampling	20-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	1	6.28 H	<15	<0.1	<0.1	21.6
M01-0018	Bailer Blank After Sampling	21-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	2	6.18 H	<15	<0.1	<0.1	21.8
M01-0131	Bailer Blank Before Sampling	02-May-01	<2	<2	<2	---	---	---	<2	<5	---	1	7.69	<15	<0.1	36	18.6
M01-0155	Bailer Blank Middle of Sampling Wells	06-May-01	---	---	---	---	---	---	---	---	---	198	---	115	15	---	---
M01-0163	Bailer After Sampling Wells	07-May-01	<2	<2	<2	---	---	---	<2	<5	---	578	8.24 H	327	65	<2	25.4
M01-0404	Bailer Blank Before Sampling	01-Aug-01	<2	<2	<2Jc	---	---	---	<2	---	---	1.82	6.21	<15	1.6	<1	22.5
M01-0412	Bailer After Sampling Wells	02-Aug-01	<2	<2	<2	---	---	---	<2	---	---	1.66	6.54	<15	<0.1	<0.1	23.1

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
S98-0451	Bailer Blank	19-Oct-98	<0.2	<0.4	<0.05	---	---	---	---	<0.01	---	0.49	---	---	<0.0025	<0.05	---	<0.25
S98-0066	Bailer Blank Pre Sample	24-Feb-98	<0.2	<0.1	<0.2	---	---	---	---	---	---	<1	---	---	---	---	---	<1
S98-0158	Bailer Blank Pre Sample	11-May-98	<0.2	<0.1	<0.05	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0290	Bailer Blank Pre Sample	10-Aug-98	<0.1	<0.10	<1.25	---	---	---	---	---	---	<0.25	---	---	---	---	---	<0.25
S98-0178	Bailer Blank-Middle Sample	12-May-98	<0.2	<0.1	<0.05	---	---	---	---	---	---	---	---	---	---	---	---	---
S98-0466	Bailer Blank-Middle Sample	21-Oct-98	<0.2	<0.4	<0.05	---	---	---	---	<0.01	---	3.2	---	---	<0.0025	<0.05	---	<0.25
S98-0061	Bailer Blank Post Sample	24-Feb-98	<0.2	<0.1	<0.2	---	---	---	---	---	---	<1	---	---	---	---	---	<1
S98-0191	Bailer Blank Post Sample	14-May-98	<0.2	<0.1	<0.05	---	---	---	---	---	---	<1	---	---	---	---	---	<1
S98-0225	Bailer Blank Post Sample	01-Jun-98	<0.2	<0.1	0.09	---	---	---	---	---	---	<1	---	---	---	---	---	<1
S98-0297	Bailer Blank Post Sample	11-Aug-98	<0.1	<0.10	<2.5	---	---	---	---	---	---	<0.25	---	---	---	---	---	<0.25
S98-0478	Bailer Blank Post Sample	22-Oct-98	<0.2	<0.4	<0.05	---	---	---	---	0.01	---	<0.25	---	---	<0.0025	<0.05	---	<0.25
S99-0078	Bailer Blank Before	23-Feb-99	<0.2	<0.4	0.09	---	---	---	---	---	---	<0.25	---	---	---	---	---	<0.25
S99-0087	Bailer Blank After Sampling	23-Feb-99	<0.2	<0.4	<0.05	---	---	---	---	---	---	<0.25	---	---	---	---	---	<0.25
M99-0002	Bailer Blank Before Sampling	10-May-99	<0.2	<0.4	<0.05	---	---	---	---	<0.01	---	<0.25	---	---	<0.0025	<0.05	---	<0.25
M99-0016	Bailer Blank Middle	12-May-99	---	---	---	---	---	---	---		---	---	---	---	---	---	---	---
M99-0029	Bailer Blank After Sampling	14-May-99	<0.2	<0.4	<0.05	---	---	---	---	<0.01	---	<0.25	---	---	<0.0025	<0.05	---	<0.25
M99-0085	Bailer Blank Before Sampling	09-Aug-99	0.5	1.6	<0.05		---	---	---	---	---	97	---	---	---	---	---	22
M99-0090	Bailer Blank After Sampling	11-Aug-99	<1	<0.4	0.74	---	---	---	---	---	---	0.68	---	---	---	---	---	<0.25
M99-0182	Bailer Blank Before Sampling	18-Oct-99	<0.2	<0.4	0.064	---	<0.025	<0.005	<0.0025	<0.01	<0.002	0.39	<0.005	<0.005	<0.0025	0.060	<0.005	<0.25
M99-0198	Bailer Blank Middle	22-Oct-99	<0.2	<0.4	0.072	---	<0.025	<0.005	<0.0025	<0.01	<0.002	0.32	<0.005	<0.005	<0.0025	<0.05	<0.005	<0.25
M99-0208	Bailer Blank After Sampling	23-Oct-99	<0.2	<0.4	0.088	---	<0.025	<0.005	<0.0025	<0.01	<0.002	0.32	<0.005	<0.005	<0.0025	<0.05	<0.005	<0.25
M00-0021	Bailer Blank Before Sampling	22-Feb-00	<0.2	<0.4	<0.1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M00-0030	Bailer Blank After Sampling	23-Feb-00	<0.2	<0.4	<0.1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M00-0076	Bailer Blank Before Sampling	08-May-00	<0.2	<0.4	<0.1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M00-0091	Bailer Blank Middle of Sampling	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0102	Bailer Blank After Sampling	12-May-00	<0.2	<0.4	<0.1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M00-0194	Bailer Blank Before Sampling	07-Aug-00	<0.2	<0.4	<0.05	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M00-0201	Bailer Blank After Sampling	08-Aug-00	<0.2	<0.4	<0.05	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M00-0214	Bailer Blank Before Sampling	26-Oct-00	<0.2	<0.4	<0.1	---	---	<0.1	<0.005	0.12	<0.01	<0.5	<0.01	---	0.088	<0.1	<0.05	<0.5
M00-0229	Bailer Blank Middle of Sampling	01-Nov-00	<0.2	<0.4	<0.1	---	---	<0.1	<0.005	0.14	<0.01	0.22	<0.01	---	0.093	0.19	<0.05	<0.5
M00-0245	Bailer Blank After Sampling	06-Nov-00	<0.2	<0.4	<0.1	---	---	<0.1	<0.005	0.13	<0.01	<0.5	<0.01	---	0.092	<0.1	<0.05	<0.5
M01-0012	Bailer Blank Before Sampling	20-Feb-01	<0.2	<0.4	<0.1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M01-0018	Bailer Blank After Sampling	21-Feb-01	<0.2	<0.4	<0.1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M01-0131	Bailer Blank Before Sampling	02-May-01	<0.2	<0.4	<0.1	---	---	---	---	---	---	0.91	---	---	---	---	---	0.49
M01-0155	Bailer Blank Middle of Sampling Wells	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0163	Bailer After Sampling Wells	07-May-01	0.17	<0.4	0.62	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M01-0404	Bailer Blank Before Sampling	01-Aug-01	<2	<0.4	<1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M01-0412	Bailer After Sampling Wells	02-Aug-01	<0.2	<0.4	<0.05	---	---	---	---	---	---	0.56	---	---	---	---	---	<0.5

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
S98-0451	Bailer Blank	19-Oct-98	<0.0025	---	---	---	<1	---	<0.25	---	1.1	---	<0.05	<25	<25	<25	<25	1.2
S98-0066	Bailer Blank Pre Sample	24-Feb-98	---	---	---	---	<1	---	<0.05	---	<1	---	---	<5	---	---	---	---
S98-0158	Bailer Blank Pre Sample	11-May-98	---	---	---	---	---	---	---	---	---	---	---	<5	<5	---	---	---
S98-0290	Bailer Blank Pre Sample	10-Aug-98	---	---	---	---	<0.25	---	<10	---	0.68	---	---	<25	<25	<25	<25	<1
S98-0178	Bailer Blank-Middle Sample	12-May-98	---	---	---	---	---	---	---	---	---	---	---	<5	<5	---	---	---
S98-0466	Bailer Blank-Middle Sample	21-Oct-98	<0.0025	---	---	---	<1	---	<0.25	---	0.30	---	<0.05	<25	<25	<25	<25	7.9
S98-0061	Bailer Blank Post Sample	24-Feb-98	---	---	---	---	<1	---	<0.05	---	<1	---	---	<5	---	---	---	---
S98-0191	Bailer Blank Post Sample	14-May-98	---	---	---	---	<1	---	<0.05	---	<1	---	---	<5	<5	---	---	---
S98-0225	Bailer Blank Post Sample	01-Jun-98	---	---	---	---	<1	---	0.16	---	---	---	---	<5	<5	---	---	---
S98-0297	Bailer Blank Post Sample	11-Aug-98	---	---	---	---	<0.25	---	<10	---	<0.25	---	---	<25	<25	<25	<25	<1
S98-0478	Bailer Blank Post Sample	22-Oct-98	<0.0025	---	---	---	<1	---	<0.25	---	<0.25	---	<0.05	<25	<25	<25	<25	<0.5
S99-0078	Bailer Blank Before	23-Feb-99	---	---	---	---	<1	---	<1	---	0.27	---	---	<25	<25	<25	<25	<1
S99-0087	Bailer Blank After Sampling	23-Feb-99	---	---	---	---	<1	---	<1	---	<0.25	---	---	<25	<25	<25	<25	<1
M99-0002	Bailer Blank Before Sampling	10-May-99	<0.0025	---	---	---	<1	---	<0.2	---	<0.25	---	<0.05	<25	<25	<25	<25	<1
M99-0016	Bailer Blank Middle	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0029	Bailer Blank After Sampling	14-May-99	<0.0025	---	---	---	<1	---	<0.2	---	0.41	---	<0.05	<25	<25	<25	<25	<1
M99-0085	Bailer Blank Before Sampling	09-Aug-99	---	---	---	---	5.2	---	21	---	80	---	---	110	110	<25	<25	330
M99-0090	Bailer Blank After Sampling	11-Aug-99	---	---	---	---	1.4	---	10	---	140	---	---	220	220	2	<25	2.6
M99-0182	Bailer Blank Before Sampling	18-Oct-99	<0.0025	<0.0002	<0.005	<0.02	<1	---	<1	<0.005	<0.25	<0.005	<0.05	<25	<25	<25	<25	<1
M99-0198	Bailer Blank Middle	22-Oct-99	<0.0025	<0.0002	<0.005	<0.02	<1	---	<1	<0.005	<0.25	<0.005	<0.05	<25	<25	<25	<25	<1
M99-0208	Bailer Blank After Sampling	23-Oct-99	<0.0025	<0.0002	<0.005	<0.02	<1	---	<1	<0.005	<0.25	<0.005	<0.05	<25	<25	<25	<25	<1
M00-0021	Bailer Blank Before Sampling	22-Feb-00	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M00-0030	Bailer Blank After Sampling	23-Feb-00	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M00-0076	Bailer Blank Before Sampling	08-May-00	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M00-0091	Bailer Blank Middle of Sampling	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0102	Bailer Blank After Sampling	12-May-00	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M00-0194	Bailer Blank Before Sampling	07-Aug-00	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M00-0201	Bailer Blank After Sampling	08-Aug-00	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M00-0214	Bailer Blank Before Sampling	26-Oct-00	<0.005	<0.0002	---	---	<2	<0.1	1.3	<0.02	1.9	---	<0.1	<25	<25	<25	<25	<2
M00-0229	Bailer Blank Middle of Sampling	01-Nov-00	<0.005	<0.0002	---	---	<2	<0.1	1.1	<0.02	2.3	---	<0.1	<25	<25	<25	<25	<2
M00-0245	Bailer Blank After Sampling	06-Nov-00	<0.005	<0.0002	---	---	<2	<0.1	1.3	<0.02	2.4	---	<0.1	<25	<25	<25	<25	<2
M01-0012	Bailer Blank Before Sampling	20-Feb-01	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M01-0018	Bailer Blank After Sampling	21-Feb-01	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M01-0131	Bailer Blank Before Sampling	02-May-01	---	---	---	---	0.52	---	<1	---	2.4	---	---	<25	<25	<25	<25	4.3
M01-0155	Bailer Blank Middle of Sampling Wells	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0163	Bailer After Sampling Wells	07-May-01	---	---	---	---	<2	---	11	---	140.0	---	---	240	240	<25	<25	<2
M01-0404	Bailer Blank Before Sampling	01-Aug-01	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M01-0412	Bailer After Sampling Wells	02-Aug-01	---	---	---	---	<2	---	<1	---	6.7	---	---	<25	<25	<25	<25	<2

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
M01-0466	Bailer Blank Before Sampling	22-Oct-01	<2	<2	<2	---	---	---	<2	---	---	1.67	5.84	<15	0.16	<0.1	20.5
M01-0479	Bailer Blank Middle of Sampling Wells	24-Oct-01	<2	<2	<2	---	---	---	4	---	---	1.52	6.47 H	<15	0.23	<0.1	20.1
M01-0493	Bailer After Sampling Wells	29-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	1.32	6.39 H	<15	<0.1	<0.1	23.3
M02-0041	Bailer Blank Before Sampling Wells	19-Feb-02	<2.0	8.8	4.7	---	---	---	23	---	---	3.30	6.44 H	<15.0	<0.10	<0.10	---
M02-0041	Bailer Blank Before Sampling Wells R	19-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
M02-0049	Bailer Blank After Sampling Wells	20-Feb-02	2.8	48	18	---	---	---	120	---	---	2.6	6.57 H	<15.0	<0.10	<0.10	---
M02-0049	Bailer Blank After Sampling Wells R	20-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
M02-0062-05	Bailer Blank After Sampling Wells	27-Mar-02	<2.0	<2.0	<2.0	---	---	---	<2.0	---	---	---	---	---	---	---	---
2002040220-2	Bailer Blank Before Sampling Wells	29-Apr-02	<2.0	<2.0	<2.0	---	---	---	<4.0	---	---	22.3	5.58 H	<15.0	3.8	0.31	---
2002040220-16	Bailer Blank During Sampling Wells	30-Apr-02	---	---	---	---	---	---	---	---	---	20.3	---	<15.0	3.4	---	---
2202040220-26	Bailer Blank After Sampling Wells	02-May-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	7.00	6.20 H	<15.0	0.67	<0.10	---
8	Bailer Blank After Sampling Wells	25-Sep-02	<2.0	<2.0	<2.0	---	---	---	<4.0	<5.0	---	1.28	6.28 H	<15.0	1.2	---	---
2002110896-1	Bailer Blank Before Sampling Wells	03-Nov-02	<1.0	1.5	<1.0	<2.0		<1.0	<3.0	---	---	1.0	6.05 H	<10	<2.0	<2.0	---
2002110896-13	Bailer Blank During Sampling Wells	05-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	1.0	6.48 H	<10	<2.0	<2.0	---
2002110896-28	Bailer Blank After Sampling Wells	08-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	1.0	6.17 H	<10	<2.0	<2.0	---
S98-0477	EMP #3 Post Purge	22-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	662	8.26	424	100	50	20.1
S98-0452	EMP #3 Pre Purge Blank	19-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	631	8.26	369	100	50	17.1
S98-0179	EMP #3 Pump Blank Middle Sample	12-May-98	30	20	6.5	---	---	---	1.1	---	---	720	7.9	390	87	57	---
S98-0468	EMP #3 Pump Blank Middle Sample	21-Oct-98	2	3	2	<2	<2	<2	<6	---	---	649	8.23	373	110	48	19.8
S98-0062	EMP #3 Pump Blank Post Sample	24-Feb-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	738	8.2	420	98	60	---
S98-0192	EMP #3 Pump Blank Post Sample	14-May-98	3.0	3.4	1.4	---	---	---	2.8	---	---	670	8.1	400	88	57	---
S98-0224	EMP #3 Pump Blank Post Sample	01-Jun-98	<0.50	0.83	<0.50	---	---	---	<1.0	---	---	690	8.0	420	91	53	---
S98-0298	EMP #3 Pump Blank Post Sample	11-Aug-98	<2	<2	<2	<2	<2	<2	<6	---	---	641	8.13	392	95	54	19.8
S98-0065	EMP #3 Pump Blank Pre Sample	24-Feb-98	<0.50	1.1	0.74	---	---	---	1.1	---	---	746	8.2	432	99	62.2	---
S98-0156	EMP #3 Pump Blank Pre Sample	11-May-98	6.7	1.7	<0.50	---	---	---	6.0	---	---	970	7.7	630	98	200	---
S98-0289	EMP #3 Pump Blank Pre Sample	10-Aug-98	<2	<2	<2	<2	<2	<2	<6	---	---	676	7.84	458	96	57	19.9
S99-0079	EMP #3 Pump Blank Before	23-Feb-99	<2	<2	<2	<2	<2	<2	<6	---	---	1,170	8.44	681	210	42	14.1
S99-0086	EMP #3 Pump Blank After	23-Feb-99	<2	<2	<2	<2	<2	<2	<6	---	---	1,610	8.66	981	350	45	13.5
M99-0003	EMP #3 Before Purging Wells	10-May-99	<2	<2	<2	<2	<2	<2	<6	---	---	1,120	7.86	646	210	51	22.3
M99-0015	EMP #3 Middle	12-May-99	---	---	---	---	---	---	---	---	---	609	---	379	73	---	---
M99-0028	EMP #3 After Purging	14-May-99	<2	3	<2	<2	<2	<2	<6	---	<0.25	599	8.27	356	66	53	24.0
M99-0084	EMP #3 Pump Blank Before	09-Aug-99	<2	<2	<2	<2	<2	<2	<6	---	---	578	8.30	305	49	1.1	20.1
M99-0091	EMP #3 Pump Blank After	11-Aug-99	<2	<2	<2	<2	<2	<2	<6	---	---	588	8.32	305	70	53	22.1
M99-0180	EMP #3 Before Purging Wells	18-Oct-99	14	31	2.0	---	---	---	4.0	---	---	1,070	7.37	673	140	200	20.7
M99-0200	EMP #3 Middle	22-Oct-99	2.6	7.7	2.6	---	---	---	4.1	---	---	624	8.22	397	110	50	19.4
M99-0207	EMP #3 After Purging	23-Oct-99	<2	7.4	2.6	---	---	---	4.4	---	---	640	8.29	367	96	50	21.4
M00-0020	EMP #3 Pump Blank Before Purging	22-Feb-00	<2	<2	<2	---	---	---	7.5	---	---	683	6.60	490	86	54	16.6
M00-0029	EMP #3 After Purging Wells	23-Feb-00	<2	<2	<2	---	---	---	2.5	---	---	681	6.99	460	82	52	17.0

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
M01-0466	Bailer Blank Before Sampling	22-Oct-01	<0.2	<0.4	<0.1	---	<0.05	<0.1	<0.005	<0.1	<0.005	<0.5	<0.01	<0.01	<0.005	<0.1	<0.05	<0.5
M01-0479	Bailer Blank Middle of Sampling Wells	24-Oct-01	<0.2	<0.4	<0.05	---	<0.05	<0.1	<0.005	<0.1	<0.005	<0.5	<0.01	<0.01	<0.005	<0.1	<0.05	<0.5
M01-0493	Bailer After Sampling Wells	29-Oct-01	<0.2	<0.4	<0.05	---	<0.05	<0.1	<0.005	<0.1	<0.005	<0.5	<0.01	<0.01	<0.005	<0.1	<0.05	<0.5
M02-0041	Bailer Blank Before Sampling Wells	19-Feb-02	<0.10	<0.40	<0.10	---	---	---	---	---	---	0.68	---	---	---	---	---	<0.50
M02-0041	Bailer Blank Before Sampling Wells R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0049	Bailer Blank After Sampling Wells	20-Feb-02	<0.10	<0.40	0.080	---	---	---	---	---	---	0.52	---	---	---	---	---	<0.50
M02-0049	Bailer Blank After Sampling Wells R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0062-05	Bailer Blank After Sampling Wells	27-Mar-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-2	Bailer Blank Before Sampling Wells	29-Apr-02	<0.10	<0.40	0.13	---	---	---	---	---	---	<0.50	---	---	---	---	---	<0.50
2002040220-16	Bailer Blank During Sampling Wells	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2202040220-26	Bailer Blank After Sampling Wells	02-May-02	<0.10	<0.40	<0.10	---	---	---	---	---	---	<0.50	---	---	---	---	---	<0.50
8	Bailer Blank After Sampling Wells	25-Sep-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-1	Bailer Blank Before Sampling Wells	03-Nov-02	<0.50	<0.40	0.20 H	---	---	<0.0050	---	<0.050	---	<2.0	---	---	---	<0.050	---	<2.0
2002110896-13	Bailer Blank During Sampling Wells	05-Nov-02	<0.50	<0.40	<0.20	---	---	<0.0050	---	<0.050	---	<2.0	---	---	---	<0.050	---	<2.0
2002110896-28	Bailer Blank After Sampling Wells	08-Nov-02	<0.50	<0.40	<0.20	---	---	<0.0050	---	<0.050	---	<2.0	---	---	---	<0.050	---	<2.0
S98-0477	EMP #3 Post Purge	22-Oct-98	<5	1.6	<0.05	---	---	---	---	0.19	---	45	---	---	<0.0025	0.77	---	13
S98-0452	EMP #3 Pre Purge Blank	19-Oct-98	<2	1.6	<0.05	---	---	---	---	<0.01	---	<0.25	---	---	<0.0025	<0.05	---	<0.25
S98-0179	EMP #3 Pump Blank Middle Sample	12-May-98	<2	1.7	<0.05	---	---	---	---	---	---	50	---	---	---	---	---	13
S98-0468	EMP #3 Pump Blank Middle Sample	21-Oct-98	2.0	1.5	<0.05	---	---	---	---	0.19	---	40	---	---	<0.0025	0.77	---	12
S98-0062	EMP #3 Pump Blank Post Sample	24-Feb-98	0.7	2	<0.2	---	---	---	---	---	---	51	---	---	---	---	---	14
S98-0192	EMP #3 Pump Blank Post Sample	14-May-98	0.63	1.8	0.05	---	---	---	---	---	---	48	---	---	---	---	---	12
S98-0224	EMP #3 Pump Blank Post Sample	01-Jun-98	0.64	1.7	<0.05	---	---	---	---	---	---	50	---	---	---	---	---	13
S98-0298	EMP #3 Pump Blank Post Sample	11-Aug-98	<5	1.8	<2.5	---	---	---	---	---	---	47	---	---	---	---	---	12
S98-0065	EMP #3 Pump Blank Pre Sample	24-Feb-98	0.7	1.9	<0.2	---	---	---	---	---	---	52	---	---	---	---	---	14
S98-0156	EMP #3 Pump Blank Pre Sample	11-May-98	<2	1.8	<0.05	---	---	---	---	---	---	91	---	---	---	---	---	23
S98-0289	EMP #3 Pump Blank Pre Sample	10-Aug-98	<2.5	1.9	<1.25	---	---	---	---	---	---	47Jm	---	---	---	---	---	12
S99-0079	EMP #3 Pump Blank Before	23-Feb-99	<2	1.7	<0.05	---	---	---	---	---	---	52	---	---	---	---	---	14
S99-0086	EMP #3 Pump Blank After	23-Feb-99	<2	1.8	<0.05	---	---	---	---	---	---	51	---	---	---	---	---	14
M99-0003	EMP #3 Before Purging Wells	10-May-99	0.6	1.5	<0.05	---	---	---	---	0.22	---	50	---	---	<0.0025	0.45	---	14
M99-0015	EMP #3 Middle	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0028	EMP #3 After Purging	14-May-99	0.5	1.8	<0.05	---	---	---	---	0.21	---	44	---	---	0.0060	0.76	---	11
M99-0084	EMP #3 Pump Blank Before	09-Aug-99	<0.2	<0.4	0.70	---	---	---	---	---	---	0.79	---	---	---	---	---	<0.25
M99-0091	EMP #3 Pump Blank After	11-Aug-99	2.1	1.7	<0.05	---	---	---	---	---	---	45	---	---	---	---	---	11
M99-0180	EMP #3 Before Purging Wells	18-Oct-99	0.65	1.7	0.29	---	0.043	0.0076	0.053	0.22	<0.002	88	<0.005	<0.005	0.0035	0.69	<0.005	21
M99-0200	EMP #3 Middle	22-Oct-99	0.60	1.6	<0.05	---	0.033	0.0066	0.075	0.20	<0.002	44	<0.005	<0.005	<0.0025	0.72	<0.005	12
M99-0207	EMP #3 After Purging	23-Oct-99	0.58	1.6	<0.05	---	0.059	0.0062	0.092	0.20	<0.002	50	<0.005	<0.005	<0.0025	0.89	<0.005	13
M00-0020	EMP #3 Pump Blank Before Purging	22-Feb-00	<1	1.8	<0.5	---	---	---	---	---	---	47	---	---	---	---	---	12
M00-0029	EMP #3 After Purging Wells	23-Feb-00	0.63	1.8	<0.5	---	---	---	---	---	---	46	---	---	---	---	---	12

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
M01-0466	Bailer Blank Before Sampling	22-Oct-01	<0.005	<0.0002	<0.01	<0.04	<2	<0.1	<1	<0.02	<0.5	<0.005	<0.1	<25	<25	<25	<25	<2
M01-0479	Bailer Blank Middle of Sampling Wells	24-Oct-01	0.0067	<0.0002	<0.01	<0.04	<2	<0.1	<1	<0.02	1.5	<0.005	<0.1	<25	<25	<25	<25	<5
M01-0493	Bailer After Sampling Wells	29-Oct-01	<0.005	<0.0002	<0.01	<0.04	<2	<0.1	<1	<0.02	1.6	<0.005	<0.1	<25	<25	<25	<25	<5
M02-0041	Bailer Blank Before Sampling Wells	19-Feb-02	---	---	---	---	<2.0	---	<0.25	---	1.4	---	---	<25	<25	<25	<25	<2.0
M02-0041	Bailer Blank Before Sampling Wells R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0049	Bailer Blank After Sampling Wells	20-Feb-02	---	---	---	---	<2.0	---	<1.0	---	1.3	---	---	<25	<25	<25	<25	<2.0
M02-0049	Bailer Blank After Sampling Wells R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0062-05	Bailer Blank After Sampling Wells	27-Mar-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-2	Bailer Blank Before Sampling Wells	29-Apr-02	---	---	---	---	<2.0	---	<1.0	---	3.8	---	---	<25	<25	<25	<25	<2.0
2002040220-16	Bailer Blank During Sampling Wells	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2202040220-26	Bailer Blank After Sampling Wells	02-May-02	---	---	---	---	<2.0	---	<1.0	---	<0.50	---	---	<25	<25	<25	<25	<2.0
8	Bailer Blank After Sampling Wells	25-Sep-02	---	---	---	---	---	---	---	---	<2.0	---	---	---	---	---	---	---
2002110896-1	Bailer Blank Before Sampling Wells	03-Nov-02	<0.010	---	---	---	<2.0	---	<0.21	---	<2.0	---	---	<6.0	<2.0	<2.0	<2.0	<13
2002110896-13	Bailer Blank During Sampling Wells	05-Nov-02	<0.010	---	---	---	<2.0	---	<0.21	---	<2.0	---	---	<6.0	2.0	<2.0	<2.0	<13
2002110896-28	Bailer Blank After Sampling Wells	08-Nov-02	<0.010	---	---	---	<2.0	---	<0.21	---	<2.0	---	---	<6.0	<2.0	<2.0	<2.0	<13
S98-0477	EMP #3 Post Purge	22-Oct-98	0.050	---	---	---	4.0	---	15	---	75	---	<0.05	130	130	<25	<25	160
S98-0452	EMP #3 Pre Purge Blank	19-Oct-98	<0.0025	---	---	---	<1	---	13	---	<0.25	---	<0.05	110	110	<25	<25	<1
S98-0179	EMP #3 Pump Blank Middle Sample	12-May-98	---	---	---	---	4	---	18	---	75	---	---	150	150	---	---	---
S98-0468	EMP #3 Pump Blank Middle Sample	21-Oct-98	0.047	---	---	---	4.0	---	14	---	95	---	<0.05	130	130	<25	<25	150
S98-0062	EMP #3 Pump Blank Post Sample	24-Feb-98	---	---	---	---	4	---	14	---	72	---	---	160	---	---	---	---
S98-0192	EMP #3 Pump Blank Post Sample	14-May-98	---	---	---	---	4	---	17	---	72	---	---	140	140	---	---	---
S98-0224	EMP #3 Pump Blank Post Sample	01-Jun-98	---	---	---	---	4	---	16	---	76	---	---	150	150	---	---	---
S98-0298	EMP #3 Pump Blank Post Sample	11-Aug-98	---	---	---	---	4.1	---	17	---	78	---	---	130	130	<25	<25	170
S98-0065	EMP #3 Pump Blank Pre Sample	24-Feb-98	---	---	---	---	4	---	13	---	75	---	---	161.8	---	---	---	---
S98-0156	EMP #3 Pump Blank Pre Sample	11-May-98	---	---	---	---	5	---	13	---	74	---	---	110	110	---	---	---
S98-0289	EMP #3 Pump Blank Pre Sample	10-Aug-98	---	---	---	---	4.2	---	19	---	79	---	---	140	140	<25	<25	170
S99-0079	EMP #3 Pump Blank Before	23-Feb-99	---	---	---	---	4.2	---	18	---	190	---	---	180	170	6	<25	180
S99-0086	EMP #3 Pump Blank After	23-Feb-99	---	---	---	---	4.7	---	18	---	270	---	---	180	160	16	<25	190
M99-0003	EMP #3 Before Purging Wells	10-May-99	0.040	---	---	---	4.3	---	22	---	170	---	0.15	160	160	<25	<25	180
M99-0015	EMP #3 Middle	12-May-99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M99-0028	EMP #3 After Purging	14-May-99	0.054	---	---	---	4.2	---	19	---	65	---	<0.05	150	150	<25	<25	150
M99-0084	EMP #3 Pump Blank Before	09-Aug-99	---	---	---	---	<1	---	11	---	140	---	---	220	220	2	<25	2.8
M99-0091	EMP #3 Pump Blank After	11-Aug-99	---	---	---	---	3.9	---	18	---	77	---	---	130	130	<25	<25	160
M99-0180	EMP #3 Before Purging Wells	18-Oct-99	0.051	<0.0002	0.0062	<0.02	5.6	---	25	<0.005	92	<0.005	0.11	96	96	<25	<25	310
M99-0200	EMP #3 Middle	22-Oct-99	0.051	<0.0002	0.0069	<0.02	4.3	---	17	<0.005	80	<0.005	<0.05	120	120	<25	<25	160
M99-0207	EMP #3 After Purging	23-Oct-99	0.058	<0.0002	0.0083	<0.02	4.4	---	20	<0.005	80	<0.005	<0.05	130	130	<25	<25	180
M00-0020	EMP #3 Pump Blank Before Purging	22-Feb-00	---	---	---	---	5.0	---	19	---	74	---	---	87	87	<25	<25	170
M00-0029	EMP #3 After Purging Wells	23-Feb-00	---	---	---	---	5.2	---	13	---	76	---	---	95	95	<25	<25	160

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
M00-0075	EMP #3 Before Purging Wells	08-May-00	<5	<5	<5	---	---	---	<10	---	---	653	7.16	482	83	51	21.8
M00-0090	EMP #3 Middle of Sampling	10-May-00	---	---	---	---	---	---	---	---	---	648	---	373	98	---	---
M00-0103	EMP #3 Pump Blank After Sampling	12-May-00	<5	<5	<5	---	---	---	<10	---	---	670	8.22	405	91	52	18.5
M00-0193	EMP #3 Before Purging Wells	07-Aug-00	<2	<2	<2	---	---	---	<4	---	---	552	7.49	369	81	38	25.8
M00-0202	EMP #3 Pump Blank After Purging	08-Aug-00	<2	<2	<2	---	---	---	<4	---	---	600	8.18	317	58	45	25.9
M00-0213	EMP #3 Before Purging Wells	26-Oct-00	<2	<2	<2	---	---	---	6.3	---	---	3,030	7.11	1,920	1,300	80	14.5
M00-0228	EMP #3 Middle of Sampling	01-Nov-00	<2	<2	<2	---	---	---	<4	---	---	9,200	8.03	6,080	3,300	240	14.4
M00-0244	EMP #3 After Purging Wells	06-Nov-00	<2	<2	<2	---	---	---	<4	---	---	4,400	8.1	3,500	2,100	150	16.7
M01-0009	EMP # 3 Pump Blank Before Sampling	20-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	1,380	8.17 H	736	340	52	21.5
M01-0019	EMP #3 After Purging Wells	21-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	1,120	8.24 H	592	240	52	21.9
M01-0130	EMP #3 Pump Blank Before Purging Wells	02-May-01	<2	<2	<2	---	---	---	3.8	<5	---	565	7.67	321	67	<2	18.9
M01-0154	EMP #3 Pump Blank Middle of Purging Wells	06-May-01	---	---	---	---	---	---	---	---	---	733	---	426	110	---	---
M01-0162	EMP #3 After Purging Wells	07-May-01	<2	<2	<2	---	---	---	5.2	<5	---	724	8.19 H	426	130	62	25.6
M01-0403	EMP #3 Before Purging Wells	01-Aug-01	<2	<2	<2Jc	---	---	---	4.6	---	---	622	7.4	418	71	35	23.3
M01-0413	EMP #3 After Purging Wells	02-Aug-01	<2	<2	<2	---	---	---	<2	---	---	516	8.2	303	74	52	22.9
M01-0465	EMP #3 Pump Blank Before Purging Wells	22-Oct-01	<2	<2	<2	---	---	---	3	---	---	501	7.27	375	66	24	21.5
M01-0478	EMP #3 Middle of Purging Wells	24-Oct-01	<2	<2	<2	---	---	---	3.2	---	---	565	8.22 H	310	76	44	20.3
M01-0492	EMP #3 After Purging Wells	29-Oct-01	2.2	<2	<2	---	---	---	6.2	---	---	572	8.01 H	343	59	47	23.3
M02-0040	EMP #3 Before Purging Wells	19-Feb-02	<2.0	5.8	2.1	---	---	---	12	---	---	533	8.14 H	290	42	44	---
M02-0040	EMP #3 Before Purging Wells R	19-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
M02-0048	EMP #3 After Purging Wells	20-Feb-02	<2.0	<2.0	<2.0	---	---	---	<2.0	---	---	550	8.14 H	270	42	43	---
M02-0048	EMP #3 After Purging Wells R	20-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
2002040220-01	EMP #3 Pump BlankBefore Purging Wells	29-Apr-02	<2.0	<2.0	<2.0	---	---	---	<4.0	---	---	842	7.33 H	550	51	160	---
2002040220-15	EMP #3 Pump Blank During Purging Wells	30-Apr-02	---	---	---	---	---	---	---	---	---	1,050	---	684	69	---	---
2202040220-25	EMP #3 Pump Blank After Purging Wells	02-May-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	1,040	8.26 H	685	41	150	---
7	EMP #3 Pump Blank After Purging Wells	25-Sep-02	<2.0	<2.0	<2.0	---	---	---	<4.0	<5.0	---	1,060	7.92 H	805	61	---	---
2002110896-2	EMP #3 Pump Blank Before Purging Wells	03-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	1,000	7.71 H	730	61	270	---
2002110896-14	EMP #3 Pump Blank During Purging Wells	05-Nov-02	4.4	3.4	3.4	4.2		1.1	5.3	---	---	970	7.99 H	760	64	280	---
2002110896-29	EMP #3 Pump Blank After Purging Wells	08-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	950	7.92 H	710	62	270	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
M00-0075	EMP #3 Before Purging Wells	08-May-00	0.46	1.7	<1	---	---	---	---	---	---	46	---	---	---	---	---	12
M00-0090	EMP #3 Middle of Sampling	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0103	EMP #3 Pump Blank After Sampling	12-May-00	0.54	1.6	<0.1	---	---	---	---	---	---	49	---	---	---	---	---	13
M00-0193	EMP #3 Before Purging Wells	07-Aug-00	0.29	1.1	<0.05	---	---	---	---	---	---	30	---	---	---	---	---	9.5
M00-0202	EMP #3 Pump Blank After Purging	08-Aug-00	0.50	1.7	0.21	---	---	---	---	---	---	44	---	---	---	---	---	12
M00-0213	EMP #3 Before Purging Wells	26-Oct-00	<2	1.7	<1	---	---	<0.1	0.13	0.23	<0.01	62	<0.01	---	0.0055	2.9	<0.05	20
M00-0228	EMP #3 Middle of Sampling	01-Nov-00	<2	1.9	<1	---	---	<0.1	0.25	0.31	<0.01	120	<0.01	---	0.0061	3.0	<0.05	45
M00-0244	EMP #3 After Purging Wells	06-Nov-00	<4	1.9	<2	---	---	<0.1	0.14	0.28	<0.01	72	<0.01	---	<0.005	1.2	<0.05	27
M01-0009	EMP # 3 Pump Blank Before Sampling	20-Feb-01	0.56	1.7	<0.1	---	---	---	---	---	---	36	---	---	---	---	---	12
M01-0019	EMP #3 After Purging Wells	21-Feb-01	0.53	1.8	0.19	---	---	---	---	---	---	36	---	---	---	---	---	12
M01-0130	EMP #3 Pump Blank Before Purging Wells	02-May-01	<1	0.99	<0.5	---	---	---	---	---	---	34	---	---	---	---	---	13
M01-0154	EMP #3 Pump Blank Middle of Purging Wells	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0162	EMP #3 After Purging Wells	07-May-01	0.60	1.8	<1	---	---	---	---	---	---	34	---	---	---	---	---	11
M01-0403	EMP #3 Before Purging Wells	01-Aug-01	<2	1.7	<1	---	---	---	---	---	---	35	---	---	---	---	---	9.7
M01-0413	EMP #3 After Purging Wells	02-Aug-01	0.48	1.7	<0.05	---	---	---	---	---	---	34	---	---	---	---	---	8.3
M01-0465	EMP #3 Pump Blank Before Purging Wells	22-Oct-01	<2	1.8	<1	---	<0.05	<0.1	0.045	0.20	<0.005	32	<0.01	<0.01	<0.005	1.4	<0.05	7.9
M01-0478	EMP #3 Middle of Purging Wells	24-Oct-01	<2	1.7	<0.5	---	0.067	<0.1	0.059	0.19	<0.005	40	<0.01	<0.01	<0.005	0.64	<0.05	9.8
M01-0492	EMP #3 After Purging Wells	29-Oct-01	<2	1.8	<0.5	---	0.400	<0.1	0.051	0.23	<0.005	38	<0.01	<0.01	<0.005	0.41	<0.05	9.8
M02-0040	EMP #3 Before Purging Wells	19-Feb-02	0.38	1.9	<0.10	---	---	---	---	---	---	43	---	---	---	---	---	11
M02-0040	EMP #3 Before Purging Wells R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0048	EMP #3 After Purging Wells	20-Feb-02	<2.5	1.9	0.080	---	---	---	---	---	---	43	---	---	---	---	---	10
M02-0048	EMP #3 After Purging Wells R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-01	EMP #3 Pump BlankBefore Purging Wells	29-Apr-02	<1	2.1	<1.0	---	---	---	---	---	---	74	---	---	---	---	---	23
2002040220-15	EMP #3 Pump Blank During Purging Wells	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2202040220-25	EMP #3 Pump Blank After Purging Wells	02-May-02	<1.0	2.2	1.1	---	---	---	---	---	---	98	---	---	---	---	---	37
7	EMP #3 Pump Blank After Purging Wells	25-Sep-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002110896-2	EMP #3 Pump Blank Before Purging Wells	03-Nov-02	<0.50	2.3	0.88 H	---	---	0.011	---	0.26	---	93	---	---	---	1.8	---	33
2002110896-14	EMP #3 Pump Blank During Purging Wells	05-Nov-02	<0.50	2.6	1.4	---	---	0.011	---	0.24	---	93	---	---	---	1.2	---	33
2002110896-29	EMP #3 Pump Blank After Purging Wells	08-Nov-02	<0.50	2.4	1.7	---	---	0.0086	---	0.24	---	100	---	---	---	0.88	---	35

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
M00-0075	EMP #3 Before Purging Wells	08-May-00	---	---	---	---	4.7	---	25	---	73	---	---	130	130	<25	<25	160
M00-0090	EMP #3 Middle of Sampling	10-May-00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M00-0103	EMP #3 Pump Blank After Sampling	12-May-00	---	---	---	---	4.4	---	22	---	72	---	---	150	150	<25	<25	170
M00-0193	EMP #3 Before Purging Wells	07-Aug-00	---	---	---	---	3.1	---	21	---	78	---	---	140	140	<25	<25	110
M00-0202	EMP #3 Pump Blank After Purging	08-Aug-00	---	---	---	---	4.1	---	21	---	72	---	---	130	130	<25	<25	150
M00-0213	EMP #3 Before Purging Wells	26-Oct-00	0.13	<0.0002	---	---	19	<0.1	26	<0.02	540	---	<0.1	140	140	<25	<25	240
M00-0228	EMP #3 Middle of Sampling	01-Nov-00	0.29	<0.0002	---	---	65	<0.1	19	<0.02	800	---	<0.1	140	140	<25	<25	480
M00-0244	EMP #3 After Purging Wells	06-Nov-00	0.15	<0.0002	---	---	40	<0.1	23	<0.02	600	---	<0.1	150	150	<25	<25	290
M01-0009	EMP # 3 Pump Blank Before Sampling	20-Feb-01	---	---	---	---	11	---	23	---	220	---	---	140	140	<25	<25	140
M01-0019	EMP #3 After Purging Wells	21-Feb-01	---	---	---	---	9.1	---	22	---	180	---	---	150	150	<25	<25	140
M01-0130	EMP #3 Pump Blank Before Purging Wells	02-May-01	---	---	---	---	3.2	---	22	---	76	---	---	160	160	<25	<25	140
M01-0154	EMP #3 Pump Blank Middle of Purging Wells	06-May-01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M01-0162	EMP #3 After Purging Wells	07-May-01	---	---	---	---	5.5	---	21	---	93	---	---	150	150	<25	<25	130
M01-0403	EMP #3 Before Purging Wells	01-Aug-01	---	---	---	---	5.3	---	26	---	75	---	---	150	150	<25	<25	130
M01-0413	EMP #3 After Purging Wells	02-Aug-01	---	---	---	---	4.7	---	25	---	59	---	---	130	130	<25	<25	120
M01-0465	EMP #3 Pump Blank Before Purging Wells	22-Oct-01	0.056	<0.0002	<0.01	<0.04	4.1	<0.1	25	<0.02	58	<0.005	<0.1	130	130	<25	<25	110
M01-0478	EMP #3 Middle of Purging Wells	24-Oct-01	0.043	<0.0002	<0.01	<0.04	4.0	<0.1	25	<0.02	61	<0.005	<0.1	140	140	<25	<25	140
M01-0492	EMP #3 After Purging Wells	29-Oct-01	0.032	<0.0002	0.01	<0.04	3.7	<0.1	25	<0.02	59	<0.005	<0.1	140	140	<25	<25	140
M02-0040	EMP #3 Before Purging Wells	19-Feb-02	---	---	---	---	3.4	---	12	---	55	---	---	140	140	<25	<25	150
M02-0040	EMP #3 Before Purging Wells R	19-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0048	EMP #3 After Purging Wells	20-Feb-02	---	---	---	---	3.3	---	28	---	52	---	---	150	150	<25	<25	150
M02-0048	EMP #3 After Purging Wells R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2002040220-01	EMP #3 Pump BlankBefore Purging Wells	29-Apr-02	---	---	---	---	4.2	---	31	---	64	---	---	160	160	<25	<25	280
2002040220-15	EMP #3 Pump Blank During Purging Wells	30-Apr-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2202040220-25	EMP #3 Pump Blank After Purging Wells	02-May-02	---	---	---	---	5.2	---	32	---	82	---	---	190	190	<25	<25	400
7	EMP #3 Pump Blank After Purging Wells	25-Sep-02	---	---	---	---	---	---	---	---	77	---	---	---	---	---	---	---
2002110896-2	EMP #3 Pump Blank Before Purging Wells	03-Nov-02	0.15	---	---	---	8.3	---	46	---	86	---	---	180	180	<2.0	<2.0	370
2002110896-14	EMP #3 Pump Blank During Purging Wells	05-Nov-02	0.085	---	---	---	5.8	---	48	---	80	---	---	180	180	<2.0	<2.0	370
2002110896-29	EMP #3 Pump Blank After Purging Wells	08-Nov-02	0.071	---	---	---	6.3	---	49	---	89	---	---	180	180	<2.0	<2.0	390

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Benzene, µg/l	Toluene, µg/l	Ethylbenzene, µg/l	m-Xylene ug/l	p-Xylene ug/l	o-Xylene ug/l	Total Xylene, µg/l	MTBE, µg/l	Gasoline Range Organics, mg/l	Specific Conductance, umho/cm	pH, s.u.	Total Dissolved Solids, mg/L	Chloride, mg/l	Sulfate, mg/l	pH Temperature °C
S98-0064	Field Blank	24-Feb-98	<0.50	0.93	<0.50	---	---	---	2.3	---	---	2	5.8	<20	<0.2	<1	---
S98-0171	Field Blank	12-May-98	<0.50	<0.50	<0.50	---	---	---	<1.0	---	---	54	5.7	<20	<0.2	<1	---
S98-0223	Field Blank	01-Jun-98	17	100	<0.50	---	---	---	120	---	---	3.2	6.0	<20	0.33	<1	---
S98-0291	Field Blank	10-Aug-98	<2	<2	<2	<2	<2	<2	<6	---	---	20.7	9.56	31	<0.1	<2.0	19.3
S98-0480	Field Blank	22-Oct-98	<2	<2	<2	<2	<2	<2	<6	---	---	1.23	5.67	59	<0.1	<0.1	21.8
S99-0077	Field Blank	23-Feb-99	<2	<2	<2	<2	<2	<2	<6	---	---	2.46	5.35	<25	<0.1	<0.1	14.8
M99-0001	Field Blank	10-May-99	<2	<2	<2	<2	<2	<2	<6	---	---	1.32	6.18	41	<0.1	<0.1	21.5
M99-0209	Field Blank	23-Oct-99	<2	<2	<2	<2	<2	<2	<6	---	---	3.70	5.94	<15	0.32	<0.5	21.7
M00-0031	Field Blank	23-Feb-00	<2	<2	<2	<2.0	<2.0	<2.0	<6.0	---	---	1	6.04	<15	<0.1	<0.1	17.4
M00-0104	Field Blank	12-May-00	<5	<5	<5	---	---	---	<10	---	---	6	5.47	17	<0.1	<0.1	18.6
M00-0203	Field Blank	08-Aug-00	<2	<2	<2	---	---	---	<4	---	---	2.0	6.20	<15	<0.1	<0.1	25.8
M00-0246	Field Blank	06-Nov-00	<2	<2	<2	---	---	---	<4	---	---	11.0	5.4	<15	3.3	<0.1	17.2
M01-0020	Field Blank	21-Feb-01	<2	<2	<2	---	---	---	<4	<5	---	1.0	6.14 H	<15	<0.1	<0.1	22.0
M01-0164	Field Blank	07-May-01	<2	<2	<2	---	---	---	<2	<5	---	577.0	8.19 H	342	84	<2	25.2
M01-0414	Field Blank	02-Aug-01	<2	<2	<2	---	---	---	<2	---	---	33.2	6.04	28	6.5	1	22.8
M01-0491	Field Blank	25-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	1.3	6.38	<15	<0.1	<0.1	19.6
M01-0494	Field Blank	29-Oct-01	<2	<2	<2	<2	<2	<2	<6	---	---	1.73	6.25 H	<15	<0.1	<0.1	22.8
M02-0045	Field Blank	20-Feb-02	<2.0	3.1	2.1	---	---	---	9.0	---	---	3.8	6.06 H	<30.0	0.11	<0.10	---
M02-0045	Field Blank R	20-Feb-02	<2.0 H	<2.0 H	<2.0 H	---	---	---	<2.0 H	---	---	---	---	---	---	---	---
M02-0062-03	Field Blank	27-Mar-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	---	---	---	---	---	---
M02-0062-04	Field Blank w/o HCl	27-Mar-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	---	---	---	---	---	---
2202040220-28	Field Blank	02-May-02	<2.0	<2.0	<2.0	---	---	---	<2.0	<5.0	---	26.0	6.33 H	<15.0	3.6	0.28	---
2002110896-31	Field Blank	08-Nov-02	<1.0	<1.0	<1.0	<2.0		<1.0	<3.0	---	---	1.0	5.88 H	<10	<2.0	<2.0	---

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Bromide, mg/l	Fluoride, mg/l	Nitrate-N, mg/l	Nitrate as NO3, mg/l	Aluminum, mg/l	Arsenic, mg/l	Barium, mg/l	Boron, mg/l	Cadmium, mg/l	Calcium, mg/l	Chromium, mg/l	Cobalt, mg/l	Copper, mg/l	Iron, mg/l	Lead, mg/l	Magnesium, mg/l
S98-0064	Field Blank	24-Feb-98	<0.2	<0.1	<0.2	---	---	---	---	---	---	<1	---	---	---	---	---	<1
S98-0171	Field Blank	12-May-98	<0.2	<0.1	<0.05	---	---	---	---	---	---	<1	---	---	---	---	---	<1
S98-0223	Field Blank	01-Jun-98	<0.2	<0.1	<0.05	---	---	---	---	---	---	<1	---	---	---	---	---	<1
S98-0291	Field Blank	10-Aug-98	<0.1	<0.10	<1.25	---	---	---	---	---	---	3.6	---	---	---	---	---	<0.25
S98-0480	Field Blank	22-Oct-98	<0.2	<0.4	<0.05	---	---	---	---	0.016	---	<0.25	---	---	<0.0025	<0.05	---	<0.25
S99-0077	Field Blank	23-Feb-99	<0.2	<0.4	<0.05	---	---	---	---	---	---	<0.25	---	---	---	---	---	<0.25
M99-0001	Field Blank	10-May-99	<0.2	<0.4	<0.05	---	---	---	---	<0.01	---	<0.25	---	---	<0.0025	<0.05	---	<0.25
M99-0209	Field Blank	23-Oct-99	<0.2	<0.4	0.080	---	<0.025	<0.005	<0.0025	<0.01	<0.002	0.33	<0.005	<0.005	<0.0025	<0.05	0.0062	<0.25
M00-0031	Field Blank	23-Feb-00	<0.2	<0.4	<0.1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M00-0104	Field Blank	12-May-00	<0.2	<0.4	<0.1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M00-0203	Field Blank	08-Aug-00	<0.2	<0.4	<0.05	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M00-0246	Field Blank	06-Nov-00	<0.2	<0.4	<0.1	---	---	<0.1	<0.005	0.12	<0.01	<0.5	<0.01	---	0.10	<0.1	<0.05	<0.5
M01-0020	Field Blank	21-Feb-01	<0.2	<0.4	<0.1	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M01-0164	Field Blank	07-May-01	0.17	<0.4	0.630	---	---	---	---	---	---	<0.5	---	---	---	---	---	<0.5
M01-0414	Field Blank	02-Aug-01	0.13	<0.4	0.62	---	---	---	---	---	---	0.51	---	---	---	---	---	<0.5
M01-0491	Field Blank	25-Oct-01	<0.2	<0.4	<0.05	---	<0.05	<0.1	<0.005	<0.1	<0.005	<0.5	<0.01	<0.01	<0.005	<0.1	<0.05	<0.5
M01-0494	Field Blank	29-Oct-01	<0.2	<0.4	<0.05	---	<0.05	<0.1	<0.005	<0.1	<0.005	<0.5	<0.01	<0.01	<0.005	<0.1	<0.05	<0.5
M02-0045	Field Blank	20-Feb-02	<0.10	<0.40	<0.010	---	---	---	---	---	---	<0.50	---	---	---	---	---	<0.50
M02-0045	Field Blank R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0062-03	Field Blank	27-Mar-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0062-04	Field Blank w/o HCl	27-Mar-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2202040220-28	Field Blank	02-May-02	<0.10	<0.40	0.12	---	---	---	---	---	---	<0.50	---	---	---	---	---	<0.50
2002110896-31	Field Blank	08-Nov-02	<0.50	<0.40	<0.20	---	---	<0.0050	---	<0.050	---	<2.0	---	---	---	<0.050	---	<2.0

Table 2: SUMMARY OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES, JAL #4 PLANT, EL PASO CORPORATION, LEA COUNTY, NEW MEXICO

Laboratory Sample Number	Sample Description	Sample Date	Manganese, mg/l	Mercury, mg/l	Molybdenum, mg/l	Nickel, mg/l	Potassium, mg/l	Selenium	Silica, mg/l	Silver, mg/l	Sodium, mg/l	Uranium, mg/l	Zinc, mg/l	Alkalinity (as $CaCO_3$), mg/l	Alkalinity - Bicarbonate, mg/l	Alkalinity - Carbonate, mg/l	Alkalinity - Hydroxide, mg/l	Hardness (as $CaCO_3$), mg/l
S98-0064	Field Blank	24-Feb-98	---	---	---	---	<1	---	<0.05	---	<1	---	---	<5	---	---	---	---
S98-0171	Field Blank	12-May-98	---	---	---	---	<1	---	<0.05	---	<1	---	---	<5	<5	---	---	---
S98-0223	Field Blank	01-Jun-98	---	---	---	---	<1	---	<0.05	---	<1	---	---	<5	<5	---	---	---
S98-0291	Field Blank	10-Aug-98	---	---	---	---	<0.25	---	<10	---	<0.25	---	---	<25	<25	<25	<25	9.0
S98-0480	Field Blank	22-Oct-98	<0.0025	---	---	---	<1	---	<0.25	---	<0.25	---	<0.05	<25	<25	<25	<25	<0.5
S99-0077	Field Blank	23-Feb-99	---	---	---	---	<1	---	<1	---	<0.25	---	---	<25	<25	<25	<25	<1
M99-0001	Field Blank	10-May-99	<0.0025	---	---	---	<1	---	<0.2	---	<0.25	---	<0.05	<25	<25	<25	<25	<1
M99-0209	Field Blank	23-Oct-99	<0.0025	<0.0002	<0.005	<0.02	<1	---	<1	<0.005	<0.25	<0.005	<0.05	<25	<25	<25	<25	<1
M00-0031	Field Blank	23-Feb-00	---	---	---	---	<2.	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M00-0104	Field Blank	12-May-00	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M00-0203	Field Blank	08-Aug-00	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M00-0246	Field Blank	06-Nov-00	<0.005	<0.0002	---	---	<2	<0.1	1.2	<0.02	1.5	---	<0.1	<25	<25	<25	<25	<2
M01-0020	Field Blank	21-Feb-01	---	---	---	---	<2	---	<1	---	<0.5	---	---	<25	<25	<25	<25	<2
M01-0164	Field Blank	07-May-01	---	---	---	---	<2	---	11	---	140.0	---	---	240	240	<25	<25	<2
M01-0414	Field Blank	02-Aug-01	---	---	---	---	<2	---	<1	---	6.0	---	---	<25	<25	<25	<25	<2
M01-0491	Field Blank	25-Oct-01	<0.005	<0.0002	<0.01	<0.04	<2	<0.1	<1	<0.02	<0.5	<0.005	<0.1	<25	<25	<25	<25	<2
M01-0494	Field Blank	29-Oct-01	<0.005	<0.0002	<0.01	---	<2	<0.1	<1	<0.02	1.4	<0.005	<0.1	<25	<25	<25	<25	<5
M02-0045	Field Blank	20-Feb-02	---	---	---	---	<2.0	---	<1.0	---	<0.50	---	---	<25	<25	<25	<25	<2.0
M02-0045	Field Blank R	20-Feb-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0062-03	Field Blank	27-Mar-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M02-0062-04	Field Blank w/o HCl	27-Mar-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2202040220-28	Field Blank	02-May-02	---	---	---	---	<2.0	---	<1.0	---	<0.50	---	---	<25	<25	<25	<25	<2.0
2002110896-31	Field Blank	08-Nov-02	<0.0010	---	---	---	<2.0	---	0.24	---	<2.0	---	---	<6.0	2	<2.0	<2.0	<13

Notes:

1. < : Denotes a sample value of less than the laboratory reporting limit.
2. --- : No analysis performed.
3. Jm : Estimated value--possible matrix effect.
4. Jc: This concentration may be biased because the continuing calibration verification (CCV) standard did not meet QC requirements for this analyte. However, overall CCV standard recoveries meet method requirements and analytical results are in control.
5. * : Method blank had detectable levels of this compound.
6. 1.2/<0.05 : NEL Lab result/Montgomery Watson Lab result.
7. P : Denotes sample was received with a pH greater than 2.
8. H: Sample was analyzed outside the EPA technical holding time.
9. R : Denotes a reanalyzed sample.

TABLE 3: SUMMARY OF 2002 GROUNDWATER RECOVERY/DISPOSAL VOLUMES, JAL NO. 4 PLANT, EL PASO NATURAL GAS COMPANY, LEA COUNTY, NEW MEXICO

Month	CP-37 thru CP-42 Comb-S (RW1)			CP-37 thru CP-42 Comb-S (RW2)			ENSR #2		
	Meter Readings		Difference (gallons)	Meter Readings		Difference (gallons)	Meter Readings		Difference (gallons)
	Present	Previous		Present	Previous		Present	Previous	
	2001 Annual Subtotal		**1,490,680**	**2001 Annual Subtotal**		**4,113,435**	**2001 Annual Subtotal**		**1,346,366**
Jan-02	1,894,790	1,894,790	0	5,236,770	4,907,340	329,430	1,375,740	1,166,360	209,380
Feb-02	1,894,790	1,894,790	0	5,609,220	5,236,770	372,450	1,706,540	1,375,740	330,800
Mar-02	1,894,790	1,894,790	0	5,840,000	5,609,220	230,780	1,920,160	1,706,540	213,620
Apr-02	1,894,790	1,894,790	0	6,006,760	5,840,000	166,760	2,037,980	1,920,160	117,820
May-02	1,894,790	1,894,790	0	6,130,580	6,006,760	123,820	2,101,990	2,037,980	64,010
Jun-02	1,936,380	1,894,790	41,590	6,323,550	6,130,580	192,970	2,162,090	2,101,990	60,100
Jul-02	2,020,000	1,936,380	83,620	6,489,890	6,323,550	166,340	2,190,090	2,162,090	28,000
Aug-02	2,067,630	2,020,000	47,630	6,608,110	6,489,890	118,220	2,298,930	2,190,090	108,840
Sep-02 (3)	2,080,030	2,067,630	48,849	6,894,300	6,608,110	286,190	2,470,690	2,298,930	171,760
Oct-02	2,080,030	2,080,030	0	7,239,800	6,894,300	345,500	2,694,990	2,470,690	224,300
Nov-02	2,126,210	2,080,030	46,180	7,431,420	7,239,800	191,620	2,840,170	2,694,990	145,180
Dec-02	2,126,210	2,126,210	0	7,826,860	7,431,420	395,440	2,842,030	2,840,170	1,860
	2002 Annual Subtotal		**267,869**	**2002 Annual Subtotal**		**2,919,520**	**2002 Annual Subtotal**		**1,675,670**
							2002 Annual Total		**4,863,059**

Notes:

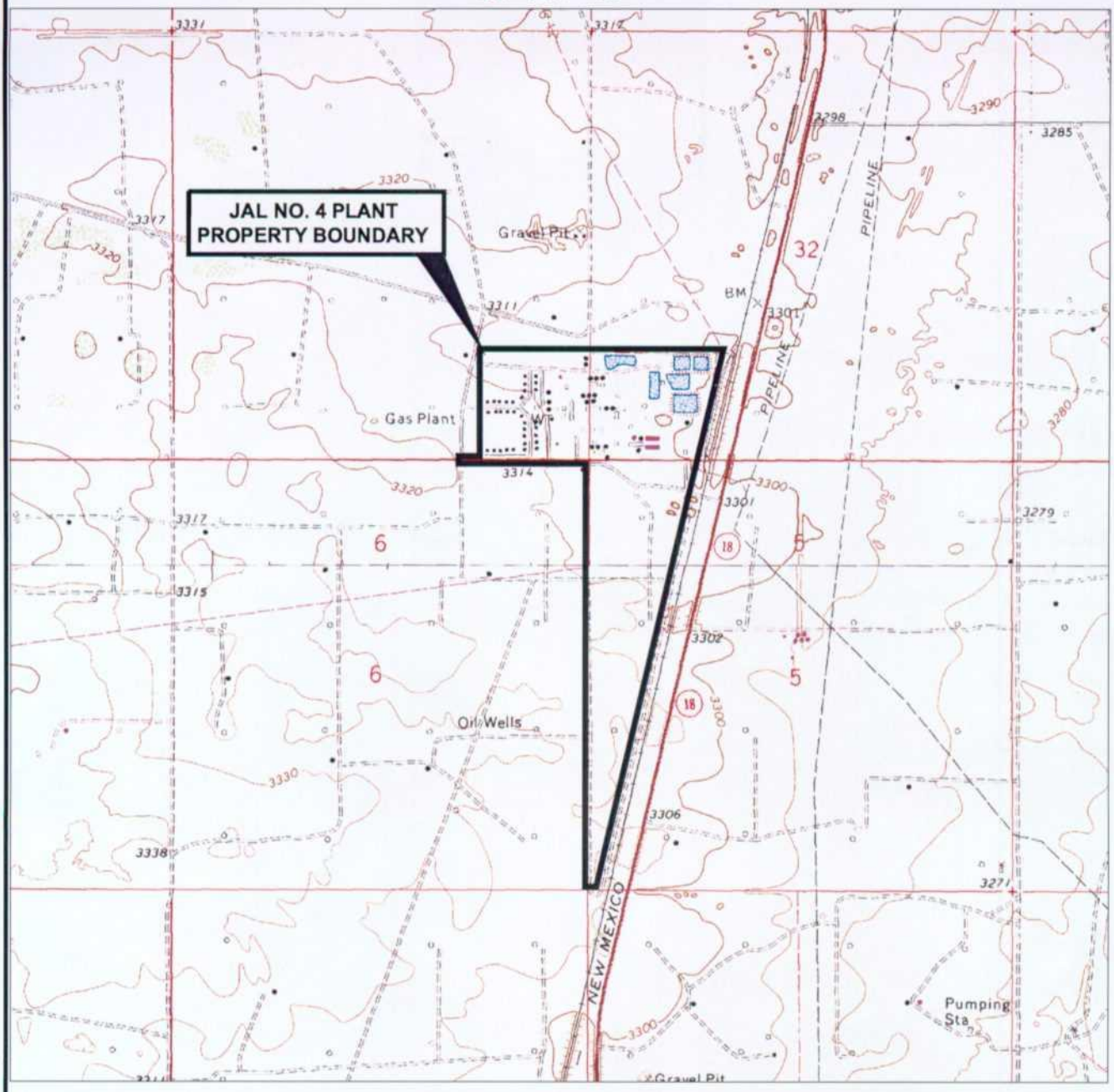
(1) Well designations CP-37 through CP-42 combined - S(RW-1) and (RW-2) denote permit file numbers issued by the New Mexico State Engineer's Office on June 24, 1997. 14.92 acre-ft

(2) Total amount of water discharged includes gallons removed during pump test conducted in March 2002. 115,787 barrels

(3) RW-1 meter inoperable. Total volume this period was determined from totalizer.

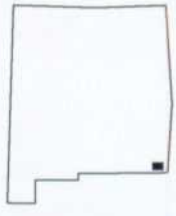
H:\9717103\TABLES\2002Data\T003c

FIGURES



AFTER U.S.G.S. 7.5 MIN. TOPO. QUAD., RATTLESNAKE CANYON, N.M., 1979, AND JAL NW, N.M., 1979

NEW MEXICO



SCALE
0 1/2 1 MILE

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P:\USTAH\Env\1997\97171\CAD\9717103T5\FIG 1-TOPO.DWG on Feb 11, 2003-9:28am

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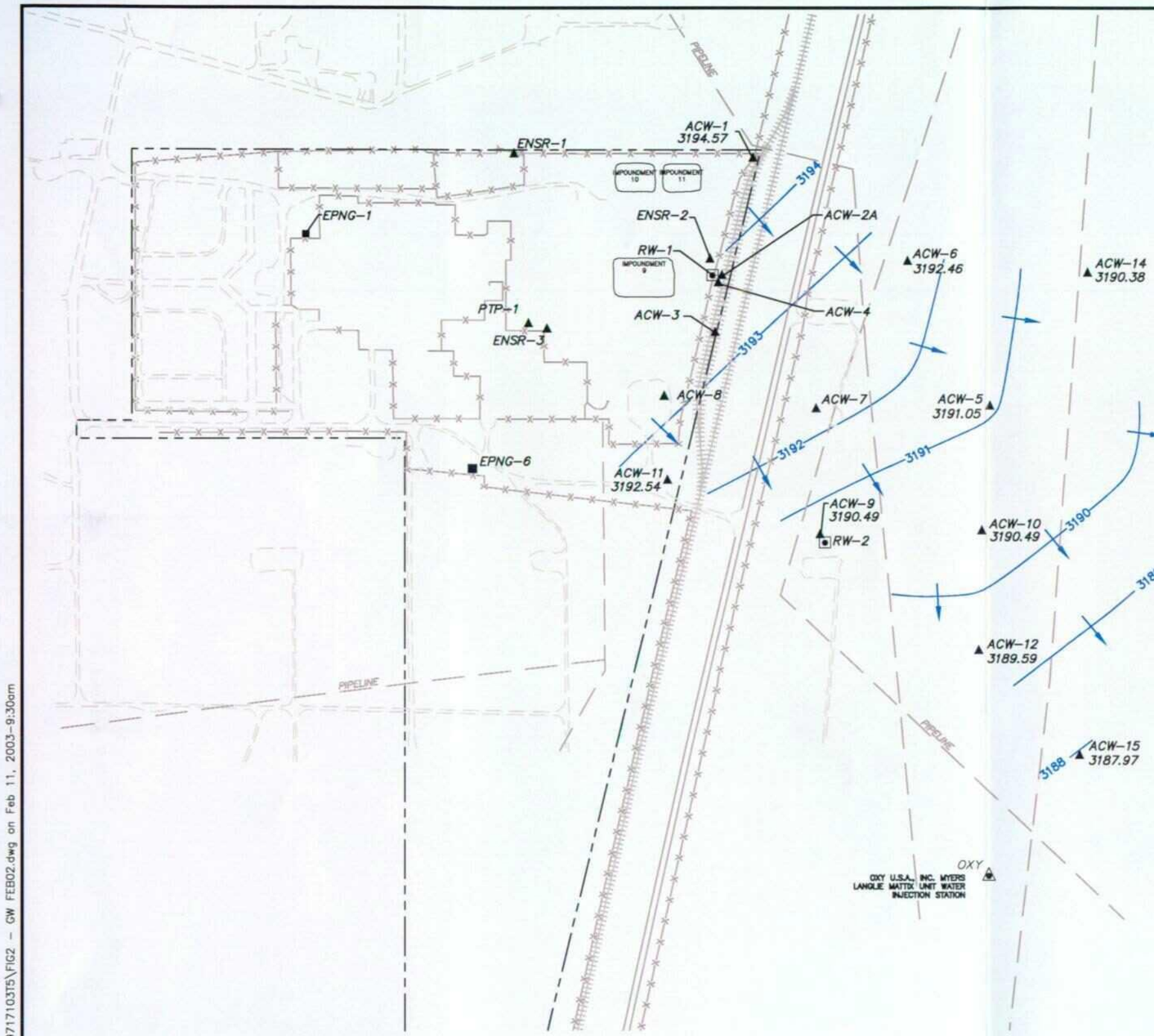
FIGURE TITLE	*PLANT LOCATION AND TOPOGRAPHIC FEATURES*
DOCUMENT TITLE	2002 ANNUAL GROUNDWATER REMEDIATION REPORT
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL #4 PLANT LEA COUNTY, NEW MEXICO

DATE	1/20/03
SCALE	AS SHOWN
DESIGNED BY	BEM
APPROVED BY	BEM
DRAWN BY	SKG
PROJECT NUMBER	9717103 T5
FIGURE NUMBER	1



LEGEND

- ACW-5 3191.05 — GROUNDWATER MONITOR WELL AND GROUNDWATER ELEVATION WITHIN UPPERMOST GROUNDWATER SYSTEM, ON FEBRUARY 19–20, 2002, FEET AMSL
- EPNG-1 — WATER SUPPLY WELL
- RW-2 — GROUNDWATER RECOVERY WELL
- OXY — WATER SUPPLY WELL
- DIRECTION OF GROUNDWATER FLOW
- 3192 — CONTOUR OF GROUNDWATER ELEVATION WITHIN UPPERMOST GROUNDWATER SYSTEM ON FEBRUARY 19–20, 2002, FEET AMSL
- PROPERTY BOUNDARY
- FENCE
- SECONDARY ROAD
- RAILROAD TRACK
- PIPELINE
- IMPOUNDMENT

NOTES:
1) JAL #4 PLANT PROPERTY IS LOCATED WITHIN SECTIONS 31 AND 32 OF TOWNSHIP 23 SOUTH, RANGE 37 EAST, AND SECTIONS 5 AND 6 OF TOWNSHIP 24 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO.
2) SITE BASE AREA DIGITIZED FROM 11/04/76 AERIAL PHOTOGRAPH WITH PROPERTY BOUNDARY AND WELLS INSERTED FROM VARIOUS OTHER SOURCES.

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SCALE FEET

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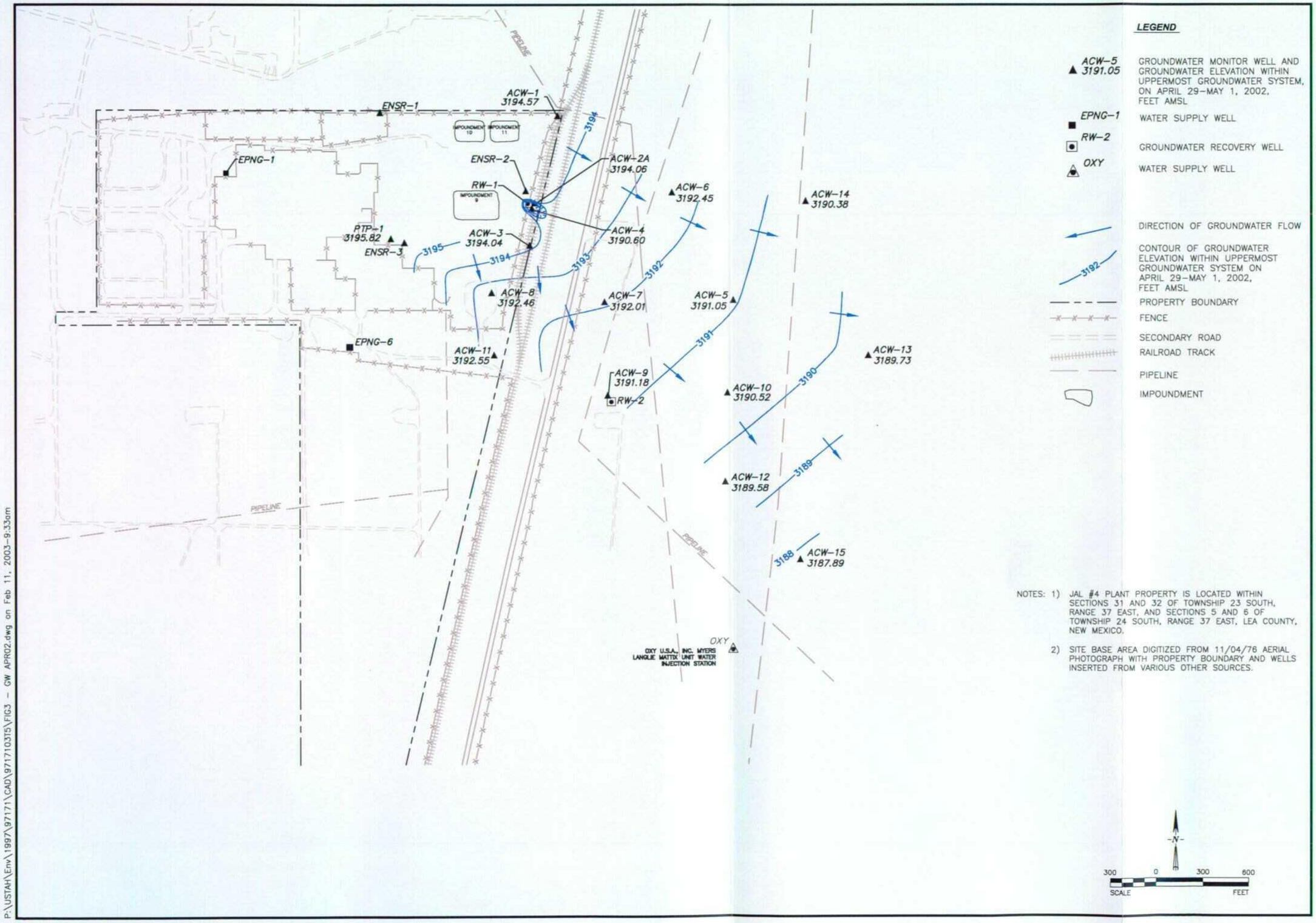
FIGURE TITLE	GROUNDWATER POTENTIOMETRIC SURFACE OF UPPERMOST GROUNDWATER SYSTEM - FEBRUARY 19-20, 2002
DOCUMENT TITLE	2002 ANNUAL GROUNDWATER REMEDIATION REPORT
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

DATE	2/3/03
SCALE	1"=600'
DESIGNED BY	TDB
APPROVED BY	BEM
DRAWN BY	SKG

PROJECT NUMBER
9717103 T5
FIGURE NUMBER
2

P:\USTAH\Env\1997\97171\CAD\97171031S\FIG2 - GW FEB02.dwg on Feb 11, 2003-9:30am



LEGEND

- ACW-5 3191.05 — GROUNDWATER MONITOR WELL AND GROUNDWATER ELEVATION WITHIN UPPERMOST GROUNDWATER SYSTEM, ON APRIL 29–MAY 1, 2002, FEET AMSL
- EPNG-1 — WATER SUPPLY WELL
- RW-2 — GROUNDWATER RECOVERY WELL
- OXY — WATER SUPPLY WELL
- DIRECTION OF GROUNDWATER FLOW
- 3192 — CONTOUR OF GROUNDWATER ELEVATION WITHIN UPPERMOST GROUNDWATER SYSTEM ON APRIL 29–MAY 1, 2002, FEET AMSL
- PROPERTY BOUNDARY
- FENCE
- SECONDARY ROAD
- RAILROAD TRACK
- PIPELINE
- IMPOUNDMENT

NOTES:
1) JAL #4 PLANT PROPERTY IS LOCATED WITHIN SECTIONS 31 AND 32 OF TOWNSHIP 23 SOUTH, RANGE 37 EAST, AND SECTIONS 5 AND 6 OF TOWNSHIP 24 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO.
2) SITE BASE AREA DIGITIZED FROM 11/04/76 AERIAL PHOTOGRAPH WITH PROPERTY BOUNDARY AND WELLS INSERTED FROM VARIOUS OTHER SOURCES.

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SCALE FEET

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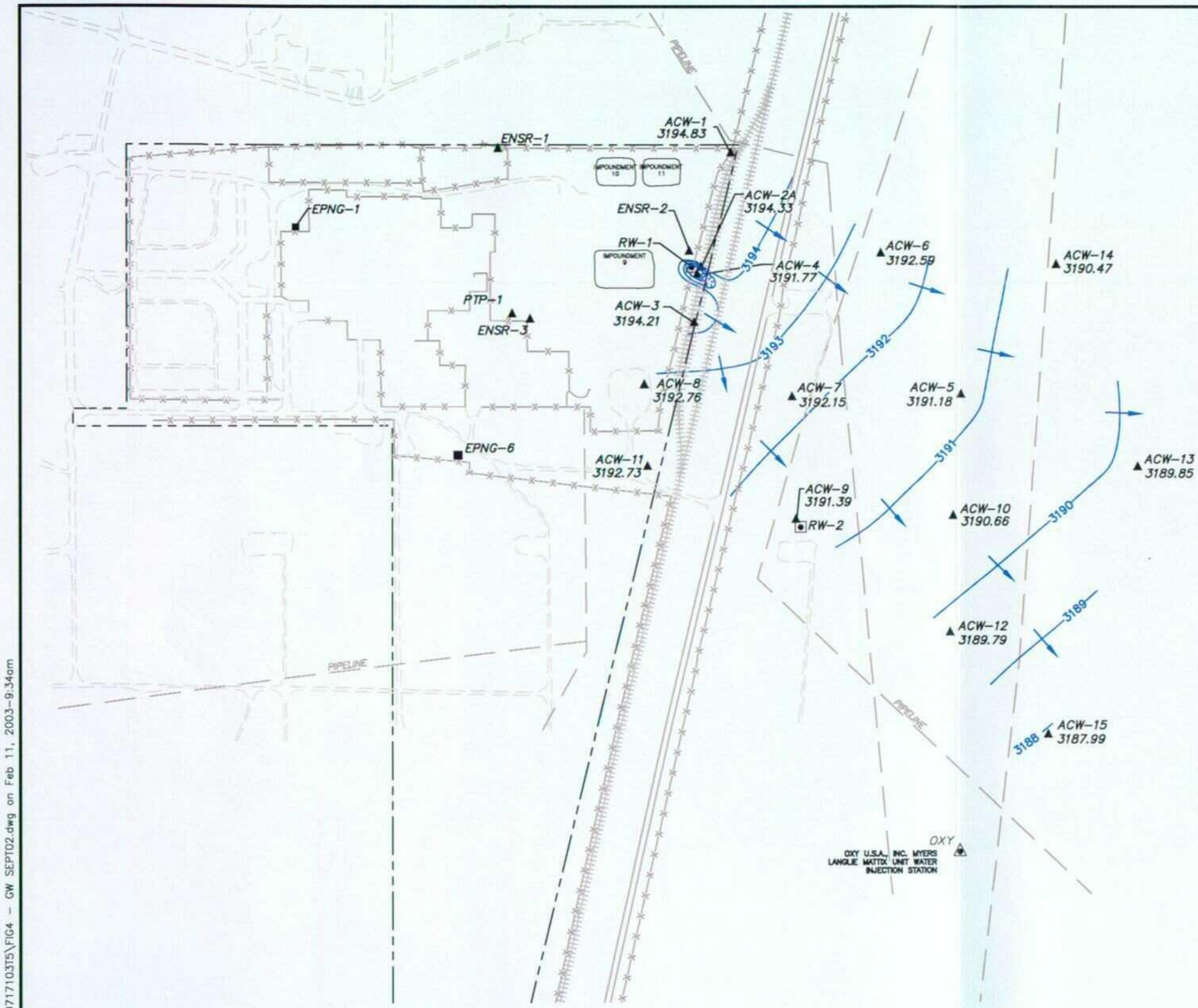
FIGURE TITLE	GROUNDWATER POTENTIOMETRIC SURFACE OF UPPERMOST GROUNDWATER SYSTEM - APRIL 29 - MAY 1, 2002
DOCUMENT TITLE	2002 ANNUAL GROUNDWATER REMEDIATION REPORT
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

DATE	2/3/03
SCALE	1"=600'
DESIGNED BY	TDB
APPROVED BY	BEM
DRAWN BY	SKG

PROJECT NUMBER
9717103 T5
FIGURE NUMBER
3

P:\USTAH\Env\1997\97171\CAD\9717103T5\FIG3 - GW APR02.dwg on Feb 11, 2003-9:33am



LEGEND

ACW-5 3191.18	GROUNDWATER MONITOR WELL AND GROUNDWATER ELEVATION WITHIN UPPERMOST GROUNDWATER SYSTEM, ON SEPTEMBER 24, 2002, FEET AMSL
EPNG-1	WATER SUPPLY WELL
RW-2	GROUNDWATER RECOVERY WELL
OXY	WATER SUPPLY WELL
	DIRECTION OF GROUNDWATER FLOW
3192	CONTOUR OF GROUNDWATER ELEVATION WITHIN UPPERMOST GROUNDWATER SYSTEM ON SEPTEMBER 24, 2002, FEET AMSL
	PROPERTY BOUNDARY
	FENCE
	SECONDARY ROAD
	RAILROAD TRACK
	PIPELINE
	IMPOUNDMENT

NOTES: 1) JAL #4 PLANT PROPERTY IS LOCATED WITHIN SECTIONS 31 AND 32 OF TOWNSHIP 23 SOUTH, RANGE 37 EAST, AND SECTIONS 5 AND 6 OF TOWNSHIP 24 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO.

2) SITE BASE AREA DIGITIZED FROM 11/04/76 AERIAL PHOTOGRAPH WITH PROPERTY BOUNDARY AND WELLS INSERTED FROM VARIOUS OTHER SOURCES.

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SCALE FEET

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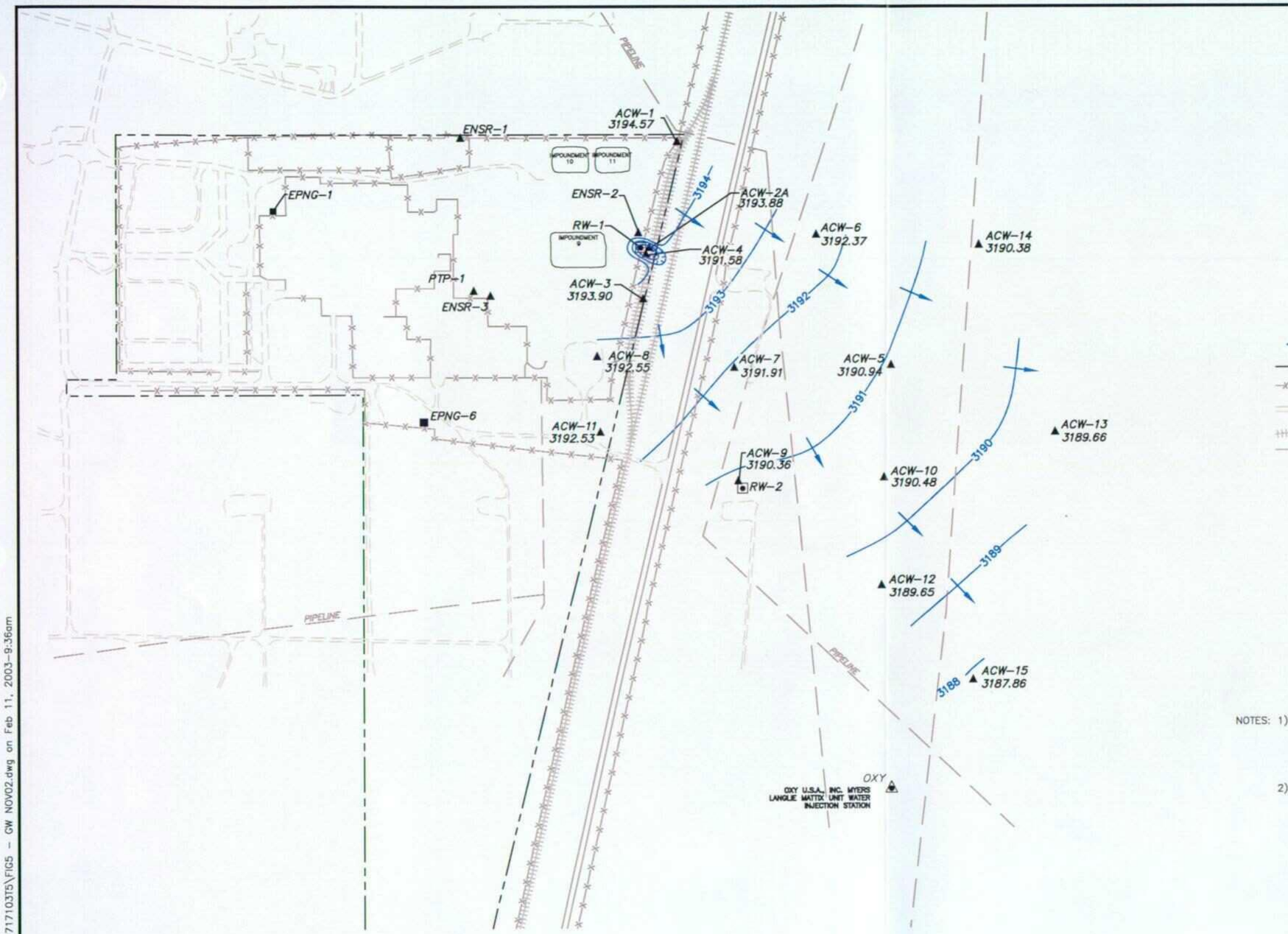
FIGURE TITLE	GROUNDWATER POTENTIOMETRIC SURFACE OF UPPERMOST GROUNDWATER SYSTEM - SEPTEMBER 24, 2002
DOCUMENT TITLE	2002 ANNUAL GROUNDWATER REMEDIATION REPORT
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

DATE	2/3/03
SCALE	1"=600'
DESIGNED BY	TDB
APPROVED BY	BEM
DRAWN BY	SKG

PROJECT NUMBER
9717103 T5
FIGURE NUMBER
4

P:\USTAH\Env\1997\97171\CAD\9717103T5\FIG4 - GW SEPT02.dwg on Feb 11, 2003-9:34am



LEGEND

- ACW-5 3190.94 — GROUNDWATER MONITOR WELL AND GROUNDWATER ELEVATION WITHIN UPPERMOST GROUNDWATER SYSTEM, ON NOVEMBER 3–8, 2002, FEET AMSL
- EPNG-1 — WATER SUPPLY WELL
- RW-2 — GROUNDWATER RECOVERY WELL
- OXY — WATER SUPPLY WELL
- DIRECTION OF GROUNDWATER FLOW
- 3192 — CONTOUR OF GROUNDWATER ELEVATION WITHIN UPPERMOST GROUNDWATER SYSTEM ON NOVEMBER 3–8, 2002, FEET AMSL
- PROPERTY BOUNDARY
- FENCE
- SECONDARY ROAD
- RAILROAD TRACK
- PIPELINE
- IMPOUNDMENT

NOTES:
1) JAL #4 PLANT PROPERTY IS LOCATED WITHIN SECTIONS 31 AND 32 OF TOWNSHIP 23 SOUTH, RANGE 37 EAST, AND SECTIONS 5 AND 6 OF TOWNSHIP 24 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO.
2) SITE BASE AREA DIGITIZED FROM 11/04/76 AERIAL PHOTOGRAPH WITH PROPERTY BOUNDARY AND WELLS INSERTED FROM VARIOUS OTHER SOURCES.

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300 0 300 600
SCALE FEET

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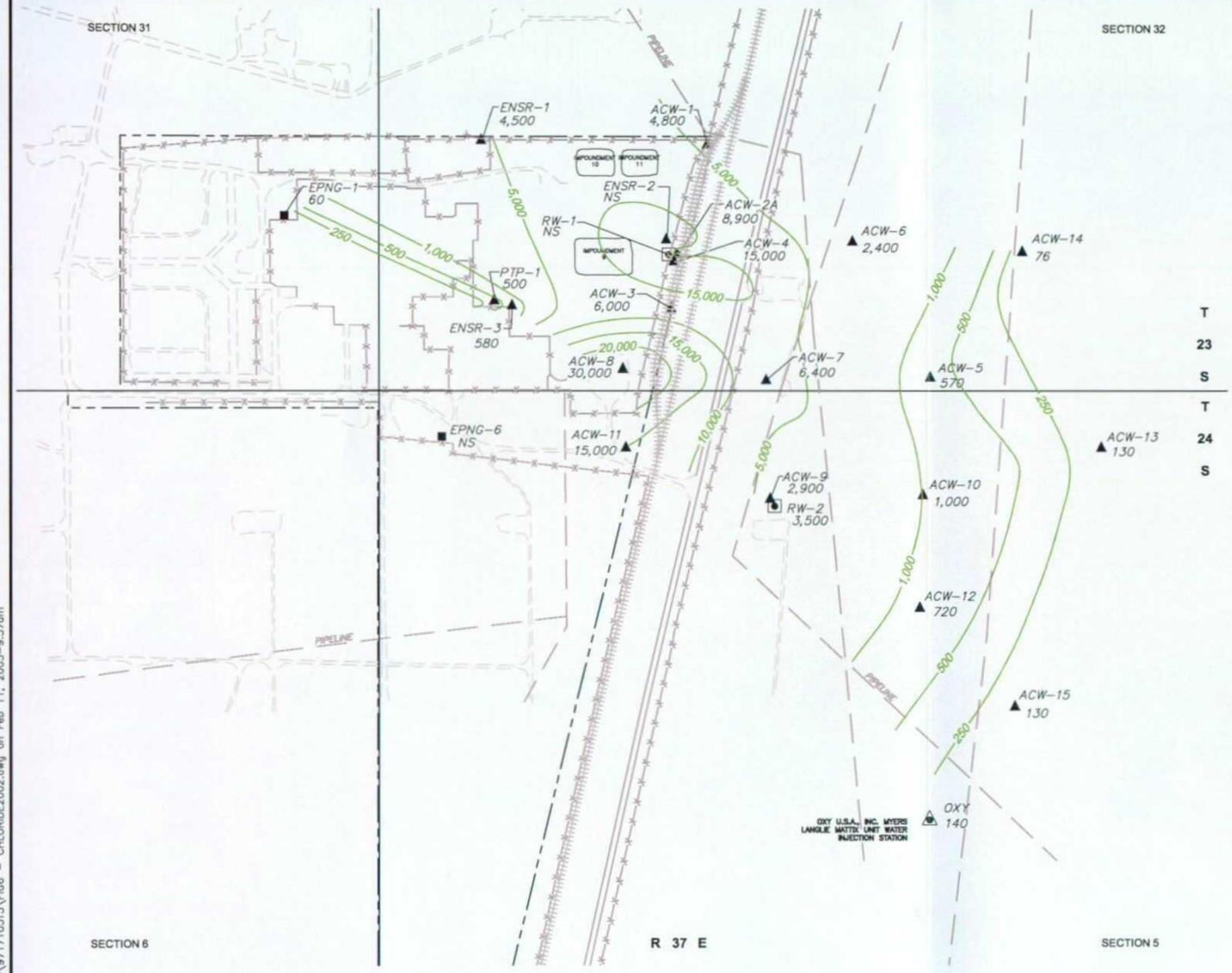
FIGURE TITLE	GROUNDWATER POTENTIOMETRIC SURFACE OF UPPERMOST GROUNDWATER SYSTEM - NOVEMBER 3-8, 2002
DOCUMENT TITLE	2002 ANNUAL GROUNDWATER REMEDIATION REPORT
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

DATE	2/3/03
SCALE	1"=600'
DESIGNED BY	TDB
APPROVED BY	BEM
DRAWN BY	SKG

PROJECT NUMBER
9717103 T5
FIGURE NUMBER
5

P:\USTAH\Env\1997\97171\CAD\9717103T5\FIG5 - GW NOV02.dwg on Feb 11, 2003-9:36am



LEGEND

- ▲ ACW–5 570 — GROUNDWATER MONITOR WELL AND CONCENTRATION OF CHLORIDE IN GROUNDWATER, mg/L
- ■ EPNG–1 60 — WATER SUPPLY WELL AND CONCENTRATION OF CHLORIDE IN GROUNDWATER, mg/L
- ▣ RW–2 3,500 — GROUNDWATER RECOVERY WELL AND CONCENTRATION OF CHLORIDE IN GROUNDWATER, mg/L
- ◭ OXY 140 — WATER SUPPLY WELL AND CONCENTRATION OF CHLORIDE IN GROUNDWATER, mg/L
- NS — NOT SAMPLED
- 250 — CONTOUR LINE SHOWING EQUAL CONCENTRATIONS OF CHLORIDE IN GROUNDWATER, mg/L.
- PROPERTY BOUNDARY
- FENCE
- PRIMARY ROAD OR HIGHWAY
- SECONDARY ROAD
- RAILROAD TRACK
- PIPELINE
- IMPOUNDMENT

NOTES:

1) CHLORIDE CONCENTRATIONS SHOWN ARE THE HIGHEST LEVELS DETECTED IN GROUNDWATER IN EACH WELL DURING THE 2002 MONITORING PROGRAM.
2) EPA's SECONDARY DRINKING WATER STANDRAD (SMCL) FOR PUBLIC WATER SUPPLY SYSTEMS IS 250 mg/L.
3) NEW MEXICO ENVIRONMENTAL DIVISION HAS ESTABLISHED AN OTHER STANDARDS FOR DOMESTIC WATER SUPPLY OF 250 mg/L FOR CHLORIDE IN GROUNDWATER CONTAINING TDS LEVELS OF 10,000 mg/L OR LESS.
4) JAL #4 PLANT PROPERTY IS LOCATED WITHIN SECTIONS 31 AND 32 OF TOWNSHIP 23 SOUTH, RANGE 37 EAST, AND SECTIONS 5 AND 6 OF TOWNSHIP 24 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO.
5) SITE BASE AREA DIGITIZED FROM 11/04/76 AERIAL PHOTOGRAPH WITH PROPERTY BOUNDARY AND WELLS INSERTED FROM VARIOUS OTHER SOURCES.

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300 0 300 600
SCALE FEET

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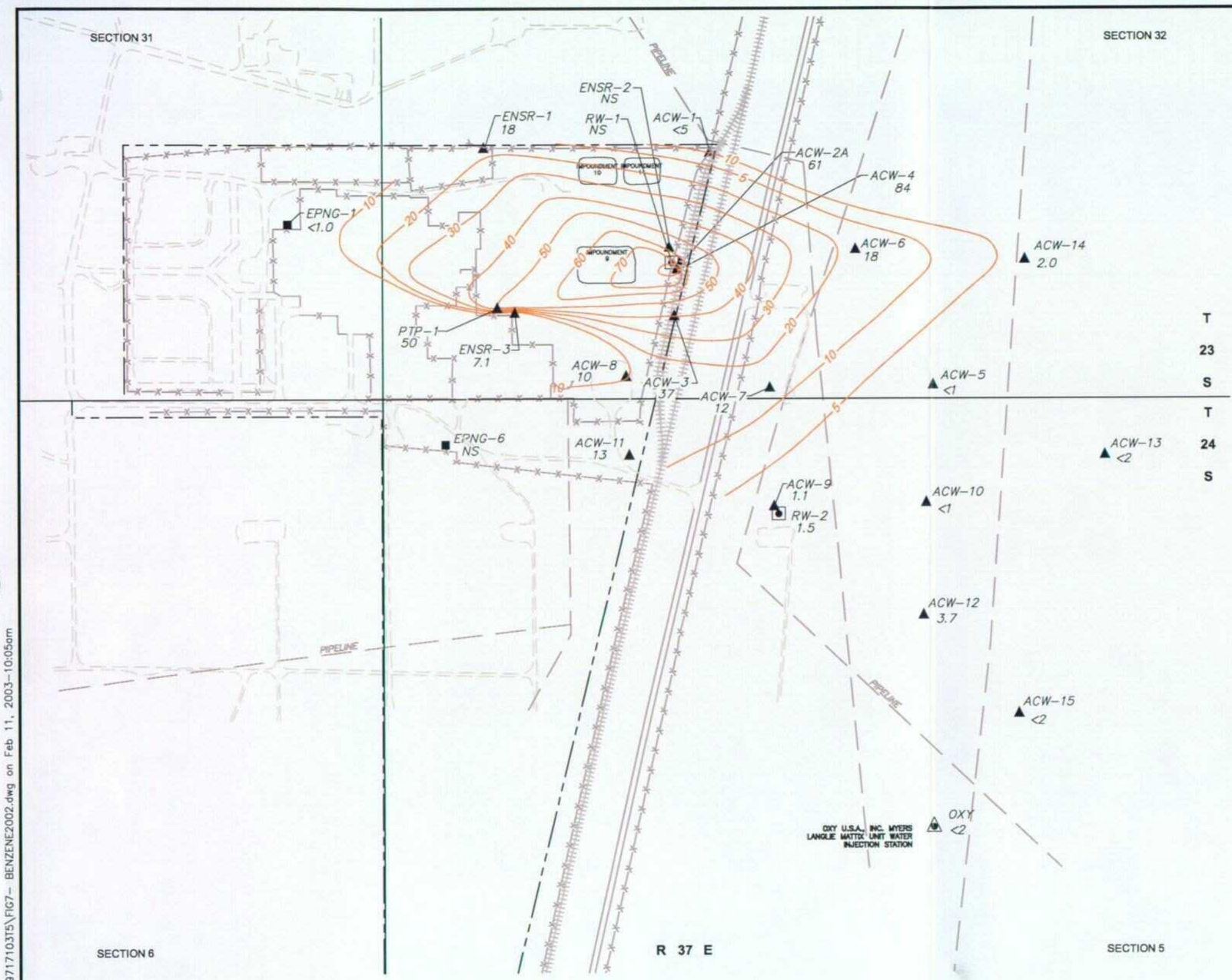
FIGURE TITLE	ISOPLETH OF CHLORIDE CONCENTRATIONS IN GROUNDWATER IN 2002
DOCUMENT TITLE	2002 ANNUAL GROUNDWATER REMEDIATION REPORT
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

DATE	2/3/03
SCALE	1"=600'
DESIGNED BY	TDB
APPROVED BY	BEM
DRAWN BY	SKG

PROJECT NUMBER
9717103 T5
FIGURE NUMBER
6

P:\USTAH\Env\1997\97171\CAD\9717103T5\FIG6 - CHLORIDE2002.dwg on Feb 11, 2003-9:37am



LEGEND

- ACW-7 / 12 — GROUNDWATER MONITOR WELL AND CONCENTRATION OF BENZENE IN GROUNDWATER, µg/L
- EPNG-1 / <1.0 — WATER SUPPLY WELL AND CONCENTRATION OF BENZENE IN GROUNDWATER, µg/L
- RW-2 / 1.5 — GROUNDWATER RECOVERY WELL AND CONCENTRATIONS OF BENZENE IN GROUNDWATER, mg/L
- OXY / <2 — WATER SUPPLY WELL AND CONCENTRATION OF BENZENE IN GROUNDWATER, µg/L
- NS — NOT SAMPLED
- 10 — CONTOUR LINE SHOWING EQUAL CONCENTRATIONS OF BENZENE IN GROUNDWATER, µg/L. (DASHED WHERE INFERRED)
- PROPERTY BOUNDARY
- FENCE
- PRIMARY ROAD OR HIGHWAY
- SECONDARY ROAD
- RAILROAD TRACK
- PIPELINE
- IMPOUNDMENT

NOTES:
1) BENZENE CONCENTRATIONS SHOWN ARE THE HIGHEST LEVELS DETECTED IN GROUNDWATER IN EACH WELL DURING THE 2002 MONITORING PROGRAM.
2) NEW MEXICO ENVIRONMENTAL DIVISION HAS ESTABLISHED A HUMAN HEALTH STANDARD OF 0.01 mg/L (10 µg/L) FOR BENZENE IN GROUNDWATER CONTIANING TDS LEVELS OF 10,000 mg/L OR LESS.
3) EPA'S PRIMARY DRINKING WATER STANDARD (MCL) FOR PUBLIC WATER SUPPLY SYSTEMS IS 0.005 mg/L (5.0 µg/L).
4) JAL #4 PLANT PROPERTY IS LOCATED WITHIN SECTIONS 31 AND 32 OF TOWNSHIP 23 SOUTH, RANGE 37 EAST, AND SECTIONS 5 AND 6 OF TOWNSHIP 24 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO.
5) SITE BASE AREA DIGITIZED FROM 11/04/76 AERIAL PHOTOGRAPH WITH PROPERTY BOUNDARY AND WELLS INSERTED FROM VARIOUS OTHER SOURCES.

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FIGURE TITLE	ISOPLETH OF BENZENE CONCENTRATIONS IN GROUNDWATER IN 2002
DOCUMENT TITLE	2002 ANNUAL GROUNDWATER REMEDIATION REPORT
CLIENT	EL PASO NATURAL GAS COMPANY
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

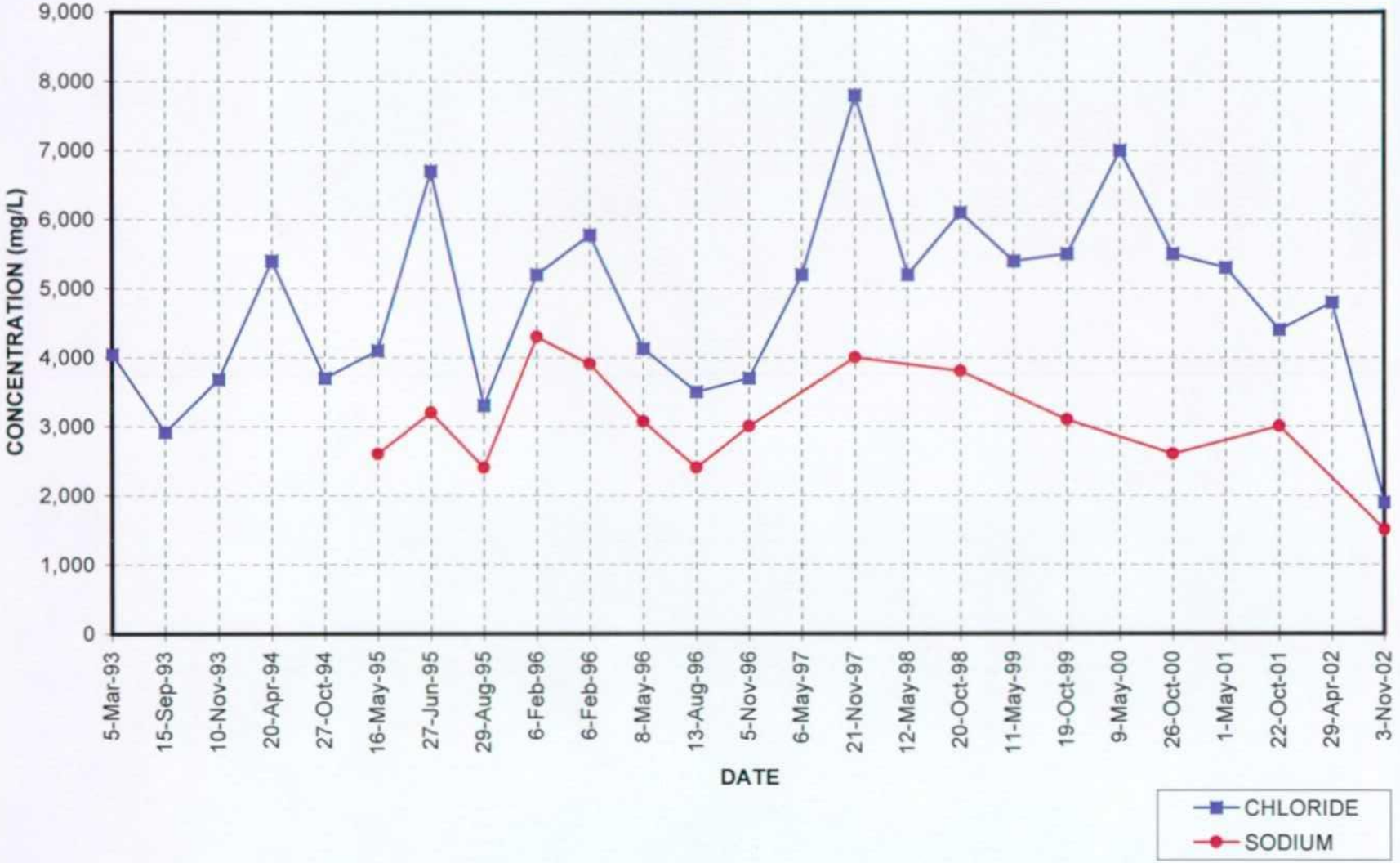
DATE	2/3/03
SCALE	1"=600'
DESIGNED BY	TDB
APPROVED BY	BEM
DRAWN BY	SKG

PROJECT NUMBER
9717103 T5
FIGURE NUMBER
7

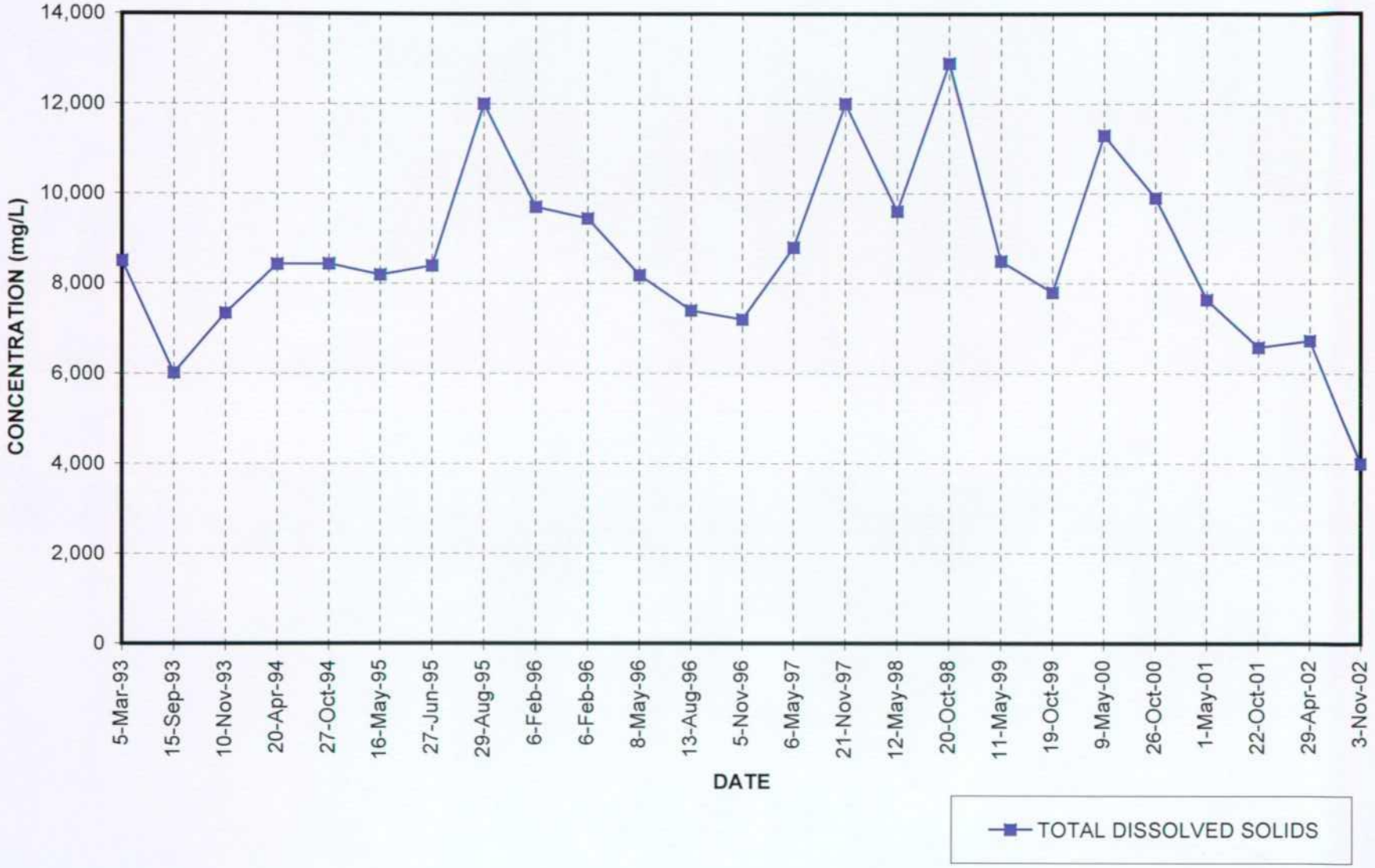
P:\USTAH\Env\1997\97171\CAD\9717103T5\FIG7-- BENZENE2002.dwg on Feb 11, 2003-10:05am

GRAPHS

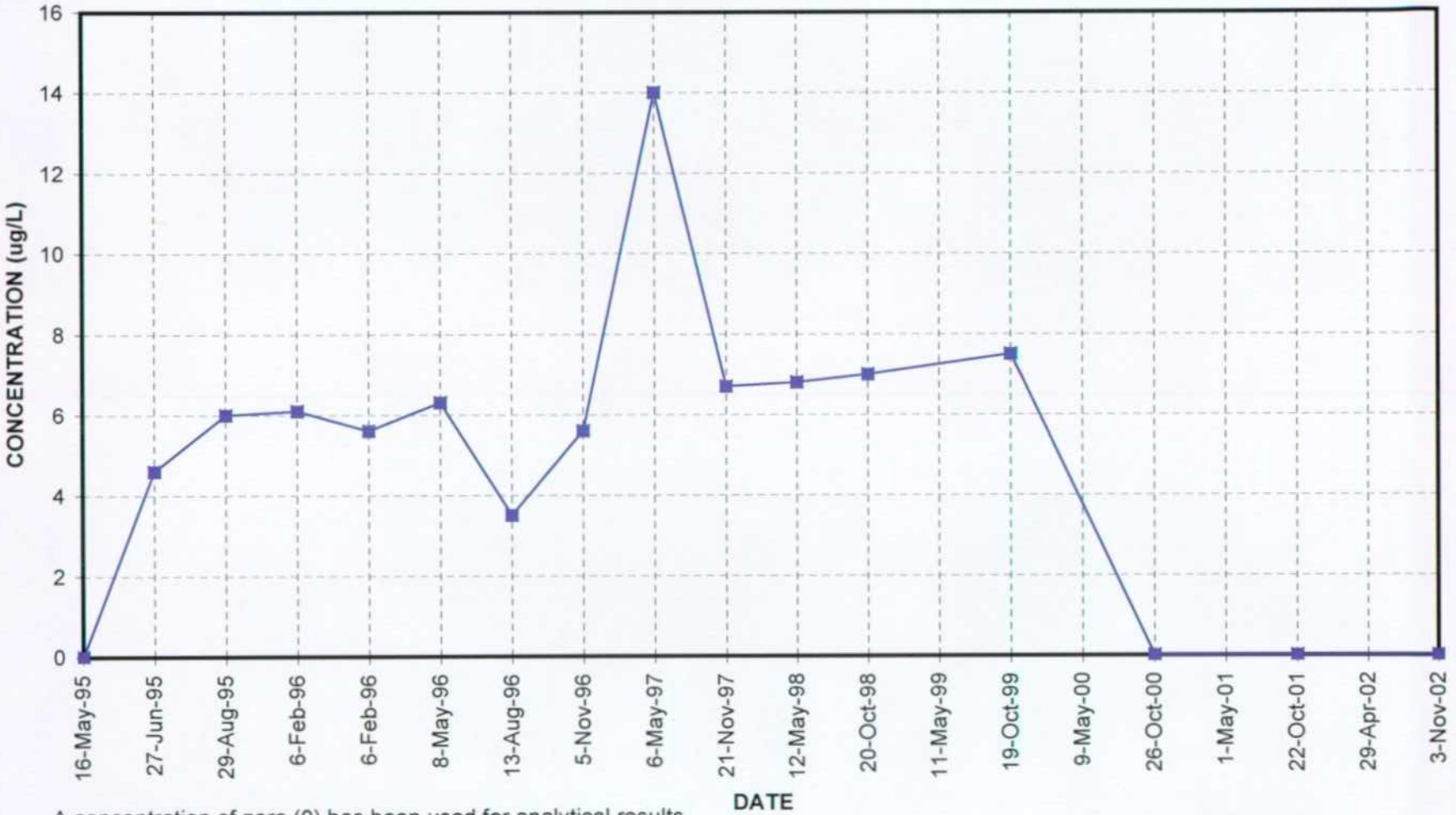
MONITOR WELL ACW-01



MONITOR WELL ACW-01

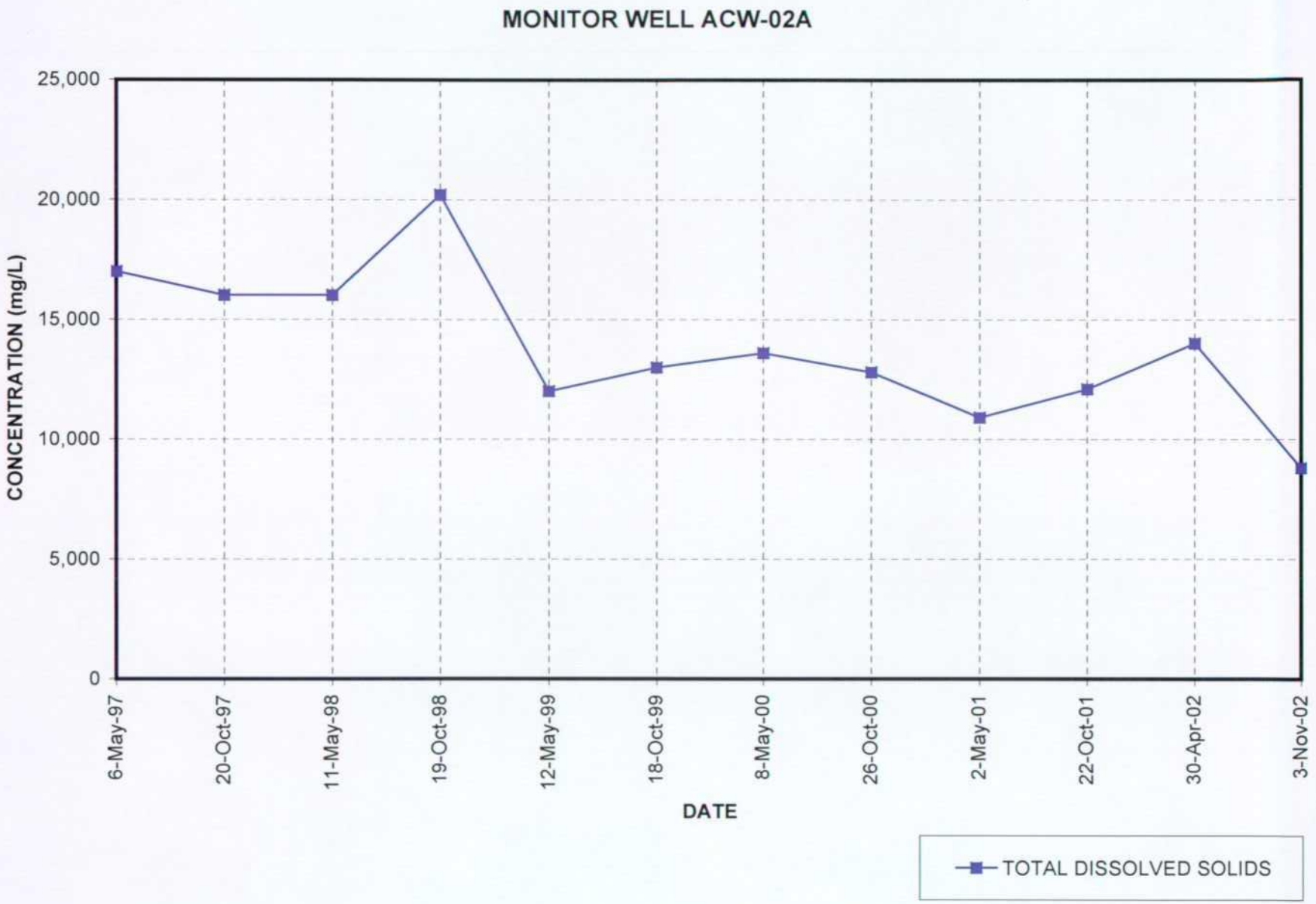


MONITOR WELL ACW-01

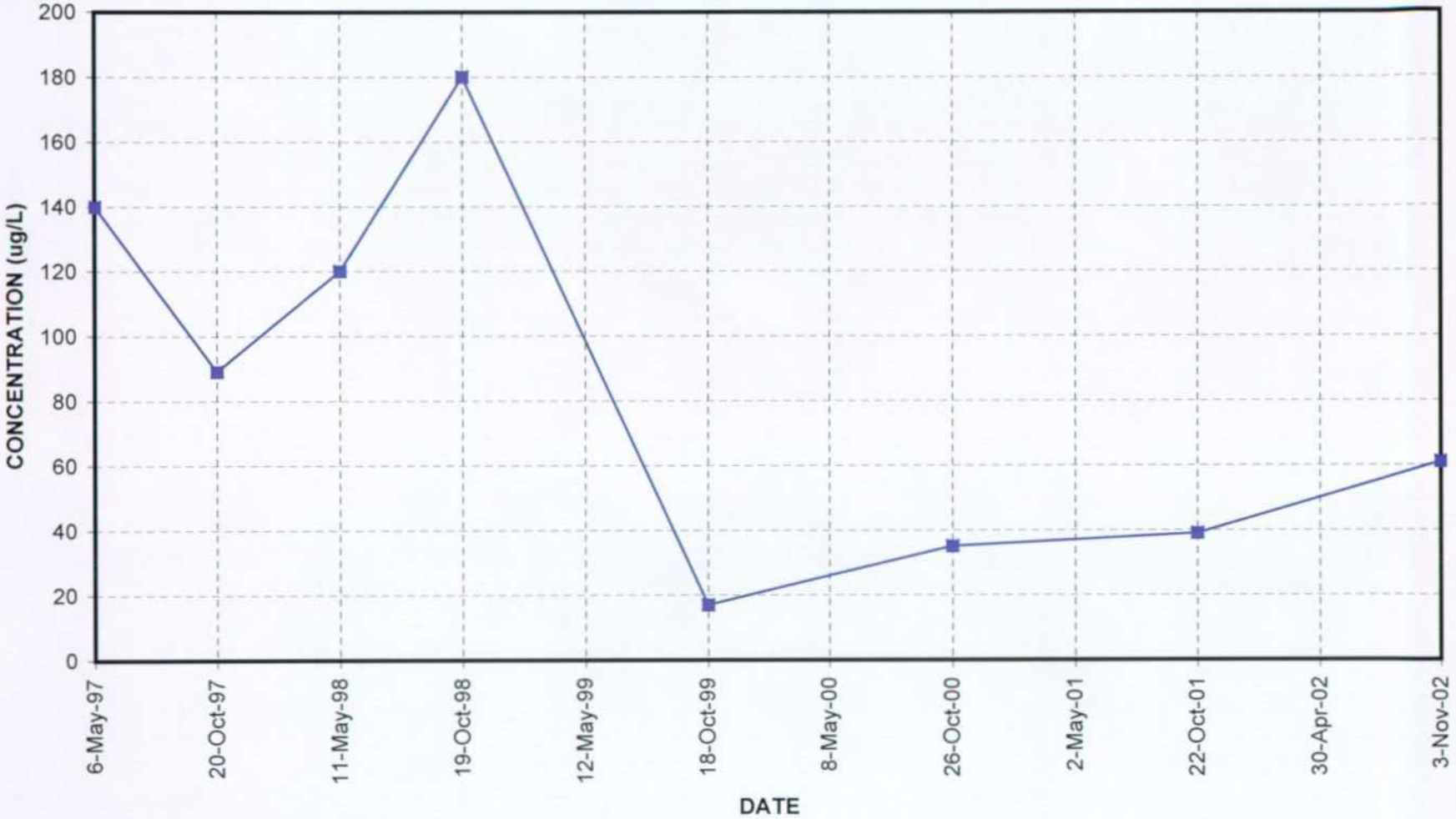


A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

MONITOR WELL ACW-02A

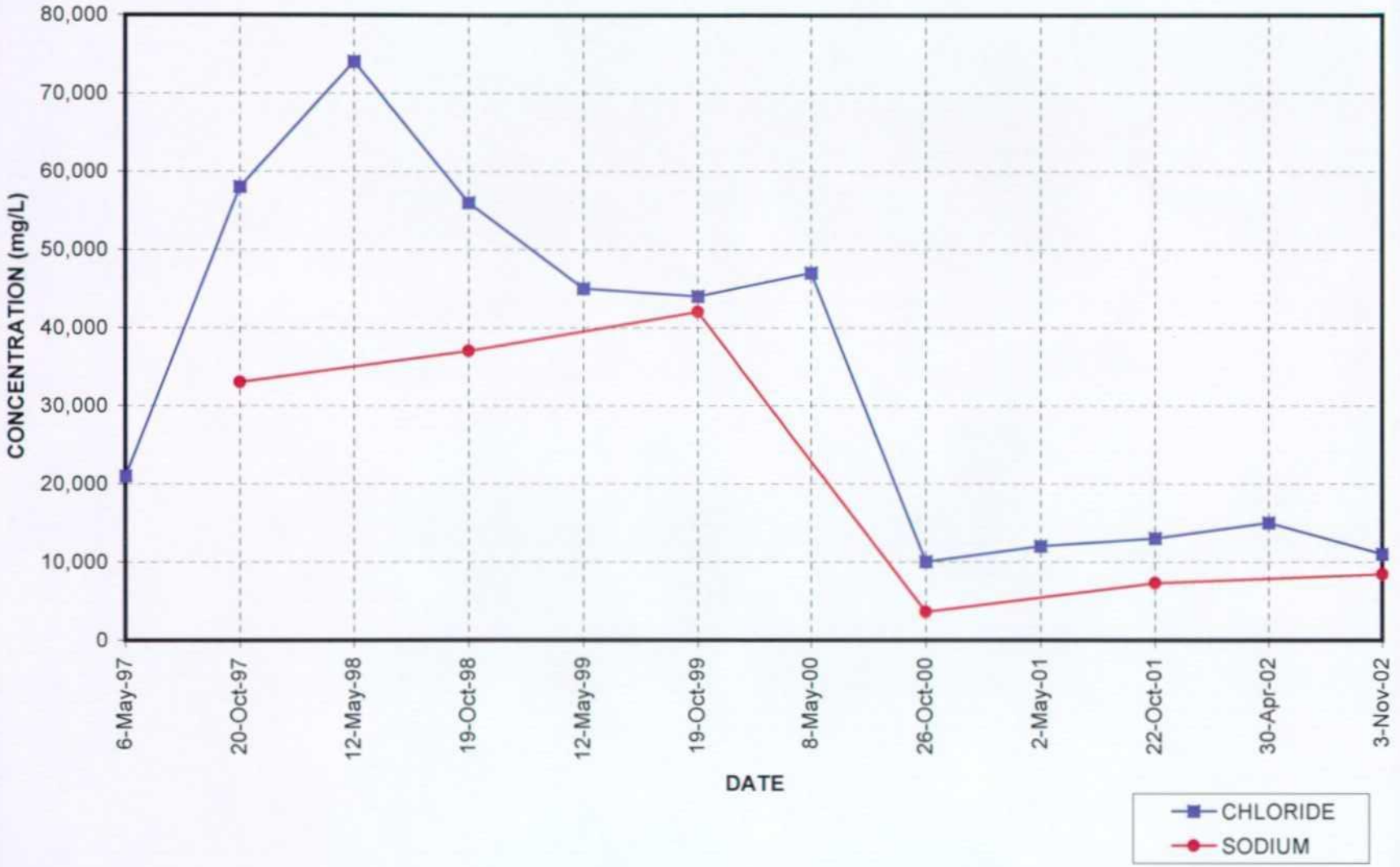

MONITOR WELL ACW-02A
CONCENTRATION (mg/L)
25,000
20,000
15,000
10,000
5,000
0
6-May-97
20-Oct-97
11-May-98
19-Oct-98
12-May-99
18-Oct-99
8-May-00
26-Oct-00
2-May-01
22-Oct-01
30-Apr-02
3-Nov-02
DATE
TOTAL DISSOLVED SOLIDS

MONITOR WELL ACW-02A



A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

MONITOR WELL ACW-04

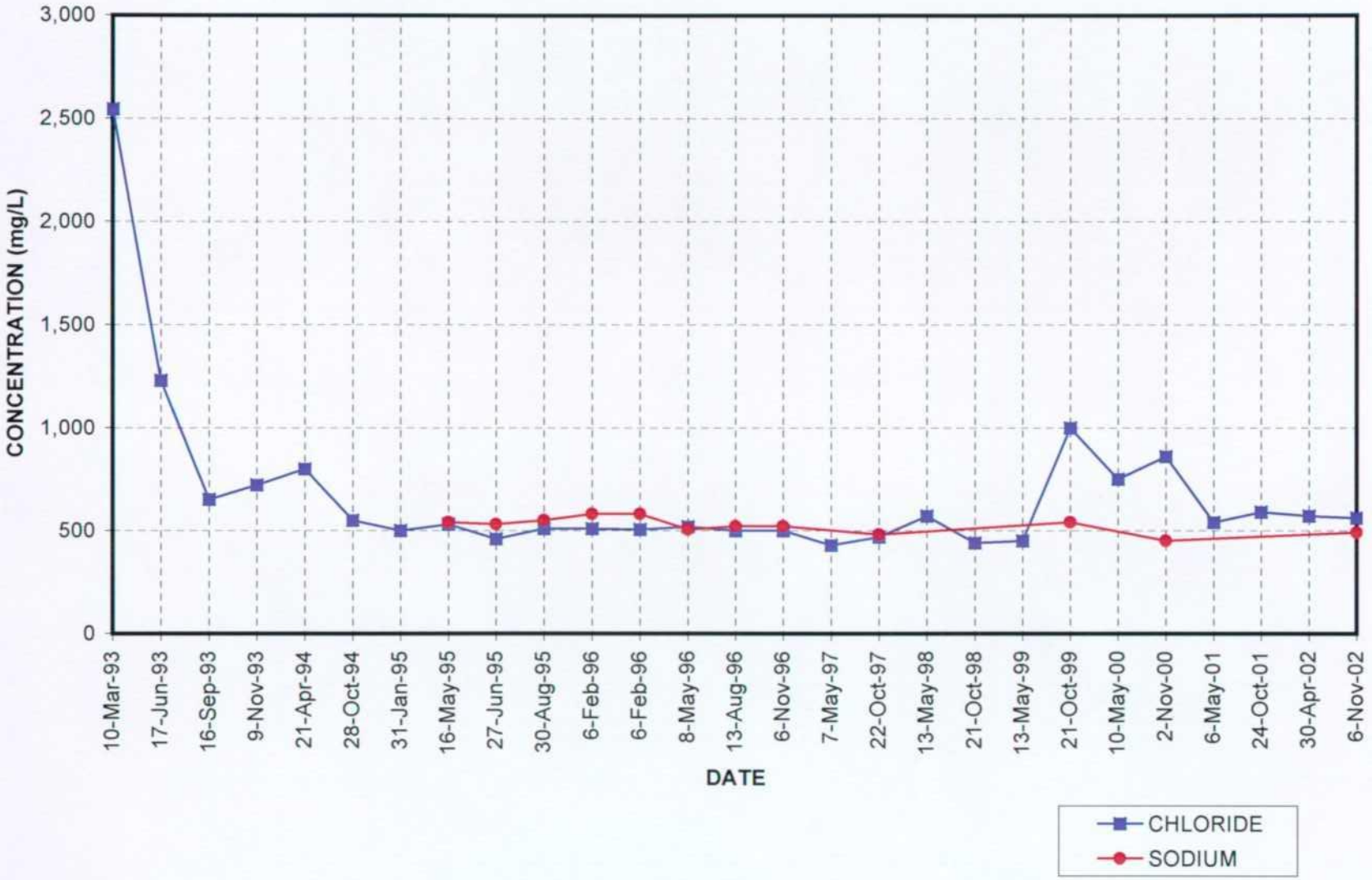


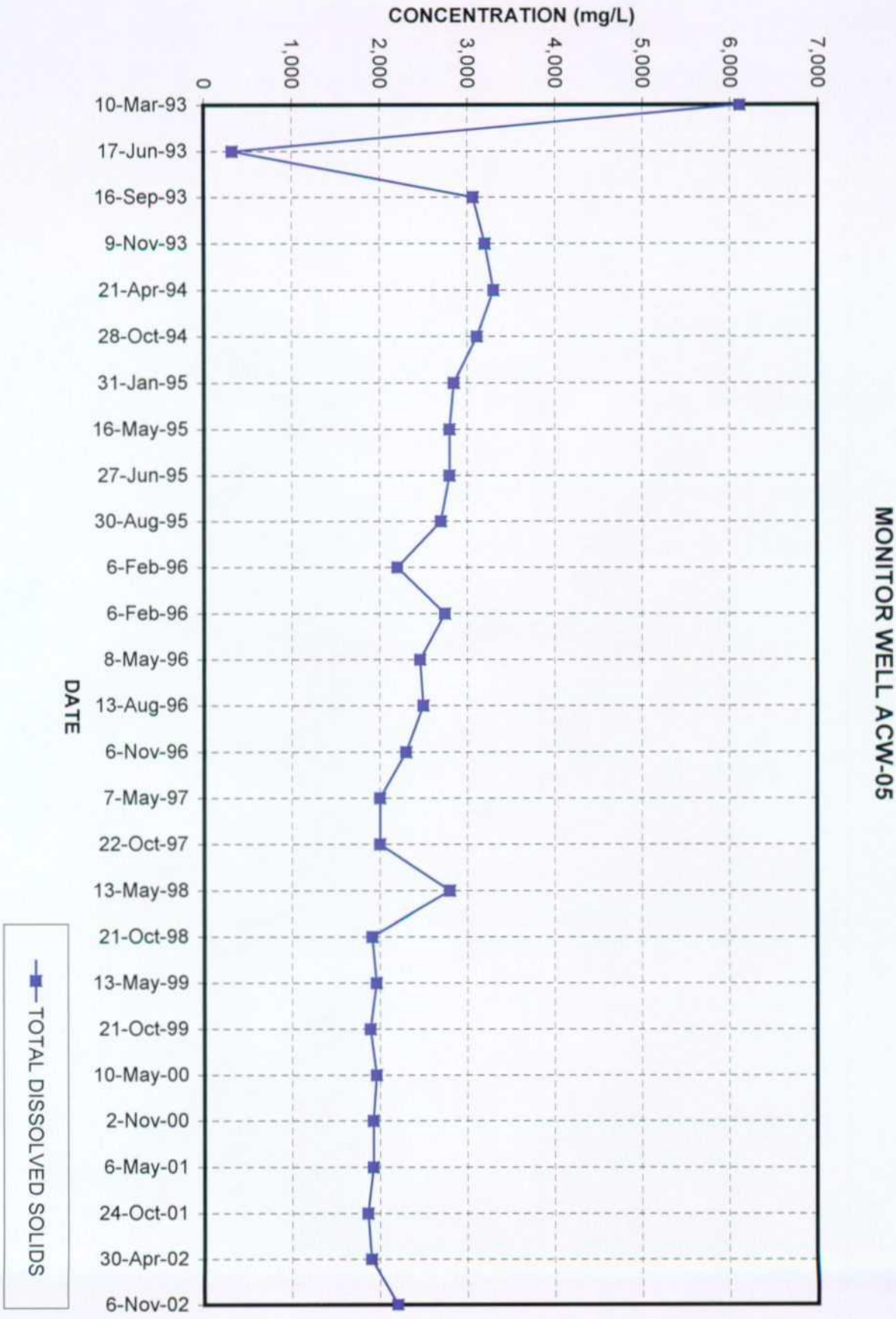
MONITOR WELL ACW-04

MONITOR WELL ACW-04

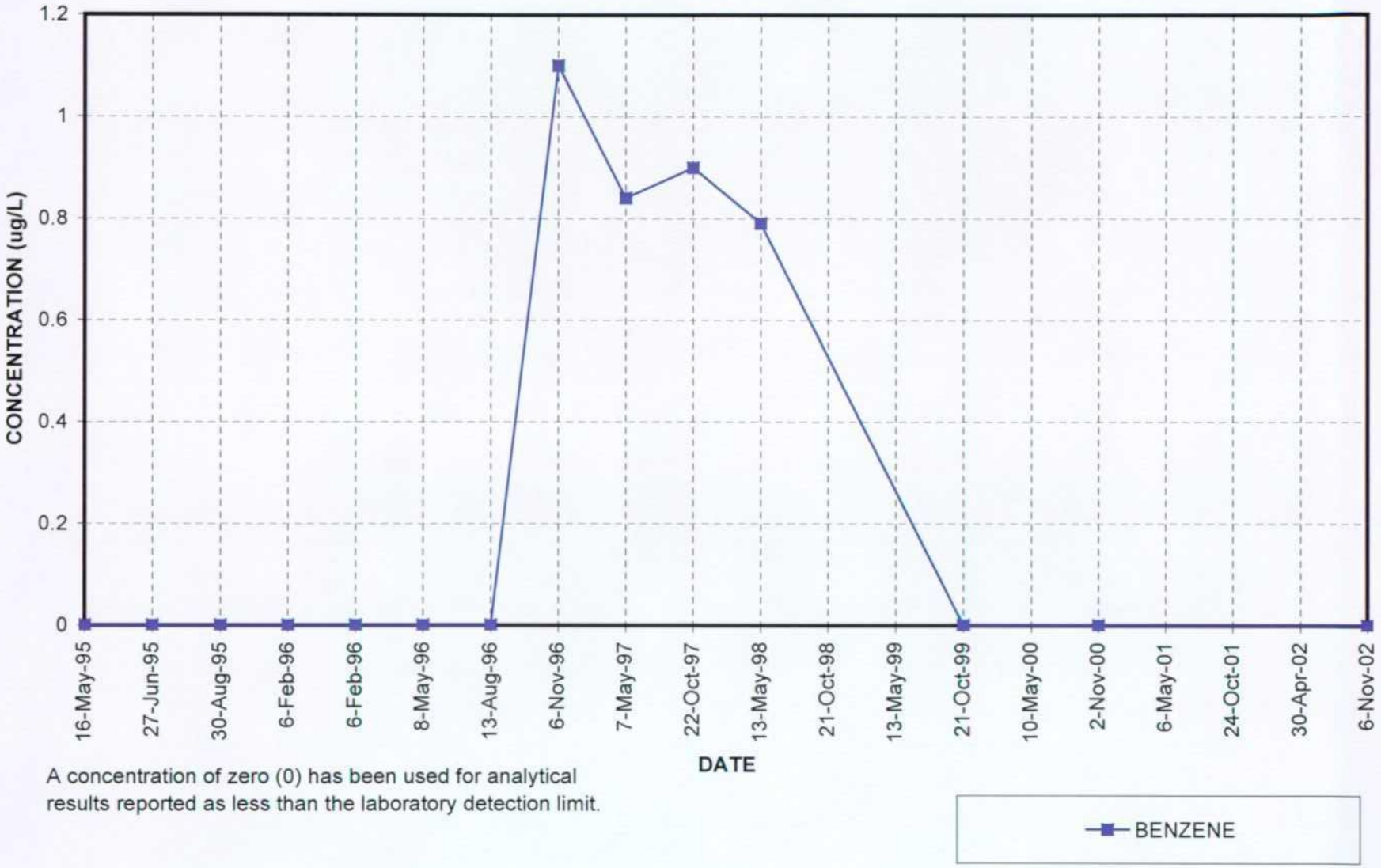
A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

MONITOR WELL ACW-05



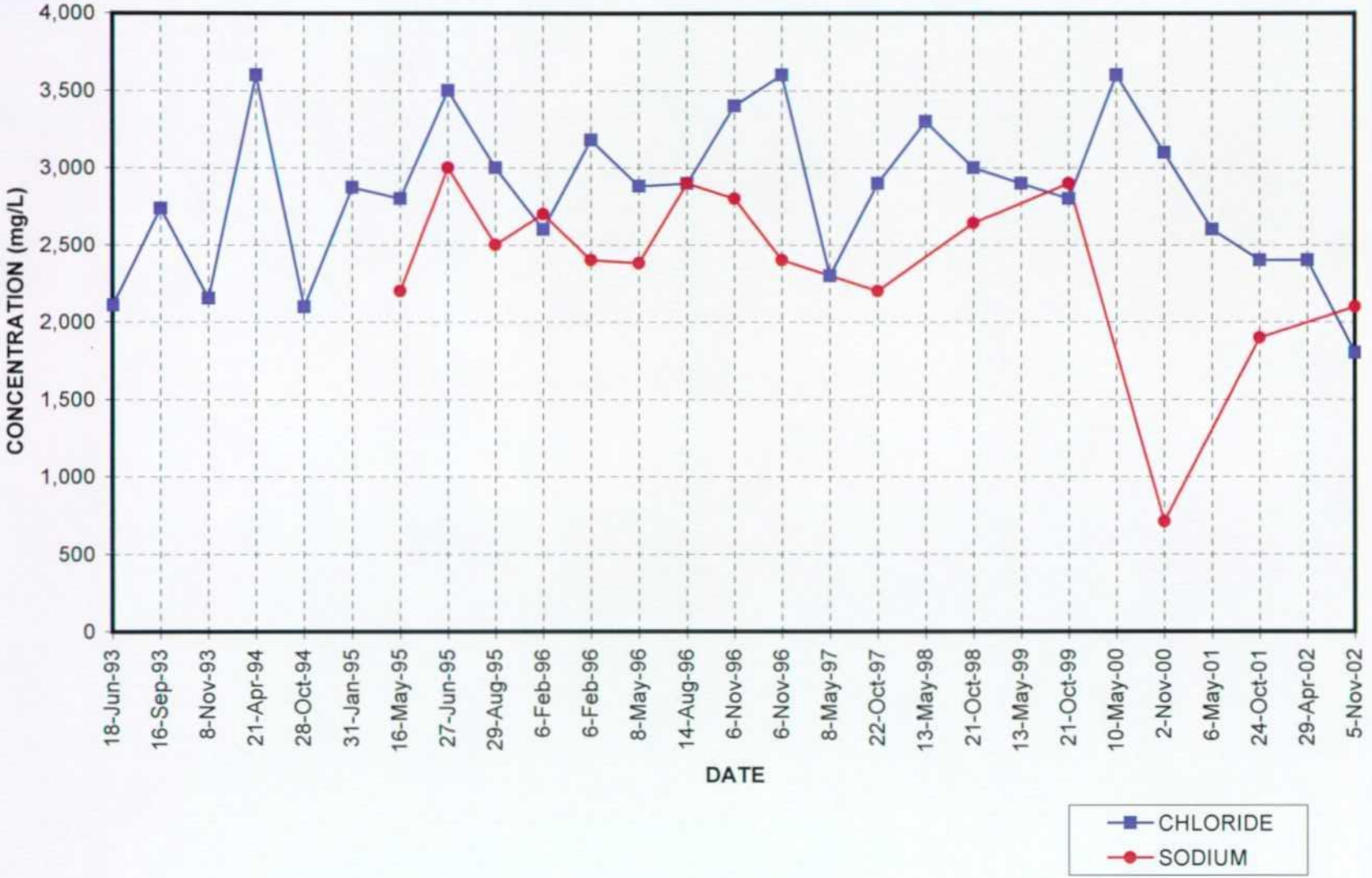

MONITOR WELL ACW-05
CONCENTRATION (mg/L)
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
DATE
10-Mar-93
17-Jun-93
16-Sep-93
9-Nov-93
21-Apr-94
28-Oct-94
31-Jan-95
16-May-95
27-Jun-95
30-Aug-95
6-Feb-96
6-Feb-96
8-May-96
13-Aug-96
6-Nov-96
7-May-97
22-Oct-97
13-May-98
21-Oct-98
13-May-99
21-Oct-99
10-May-00
2-Nov-00
6-May-01
24-Oct-01
30-Apr-02
6-Nov-02
TOTAL DISSOLVED SOLIDS

MONITOR WELL ACW-05

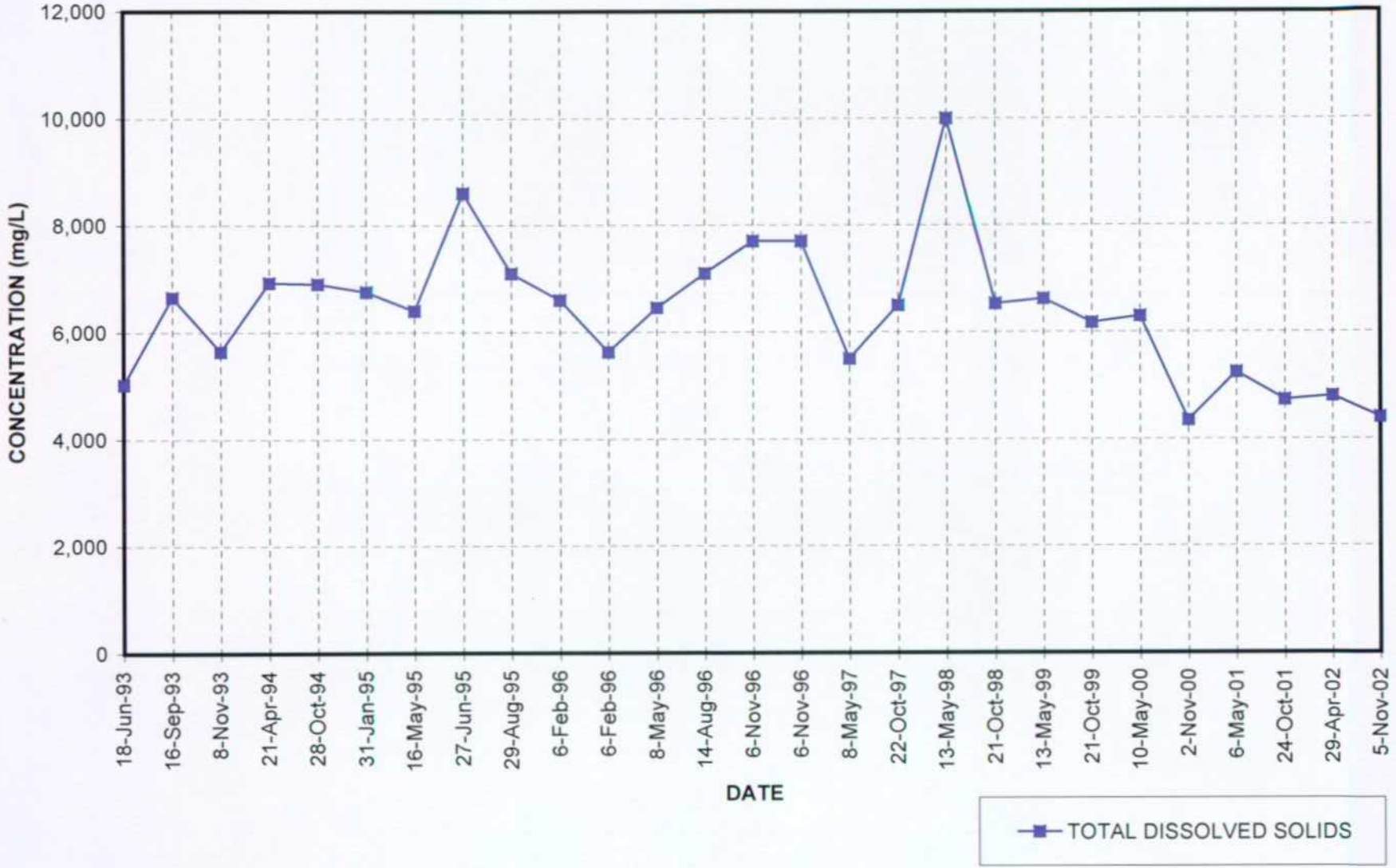


A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

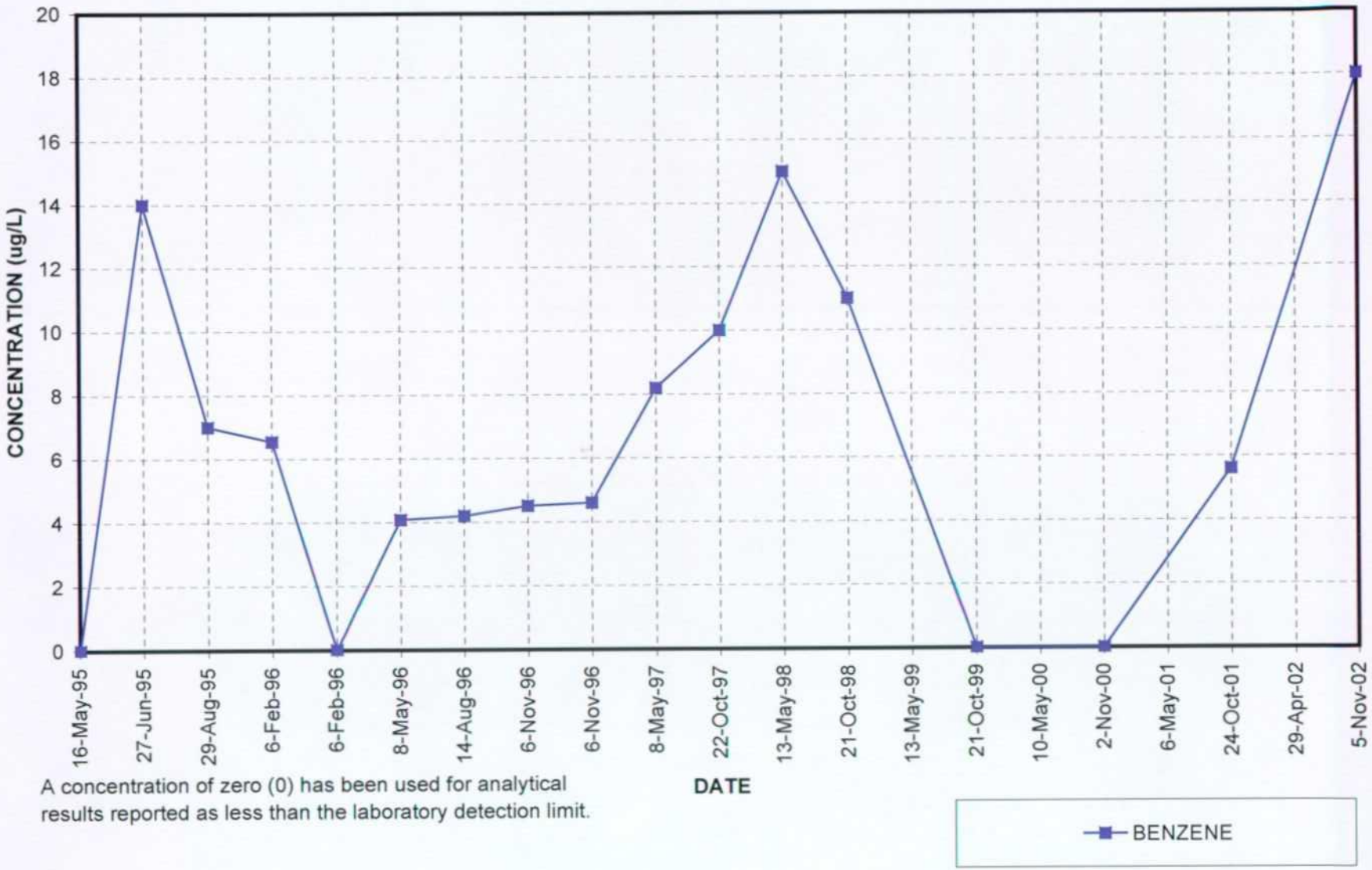
MONITOR WELL ACW-06



MONITOR WELL ACW-06

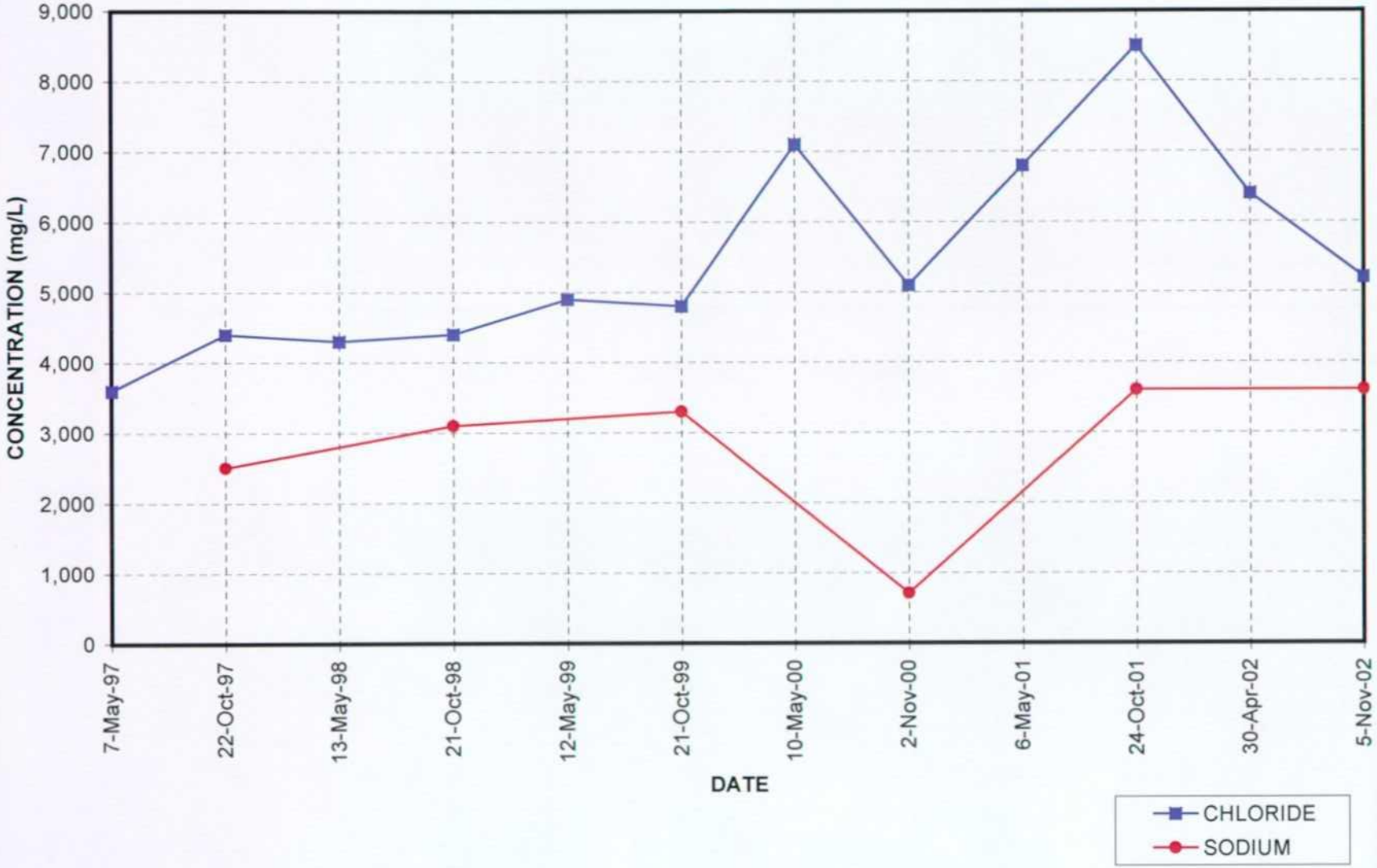


MONITOR WELL ACW-06



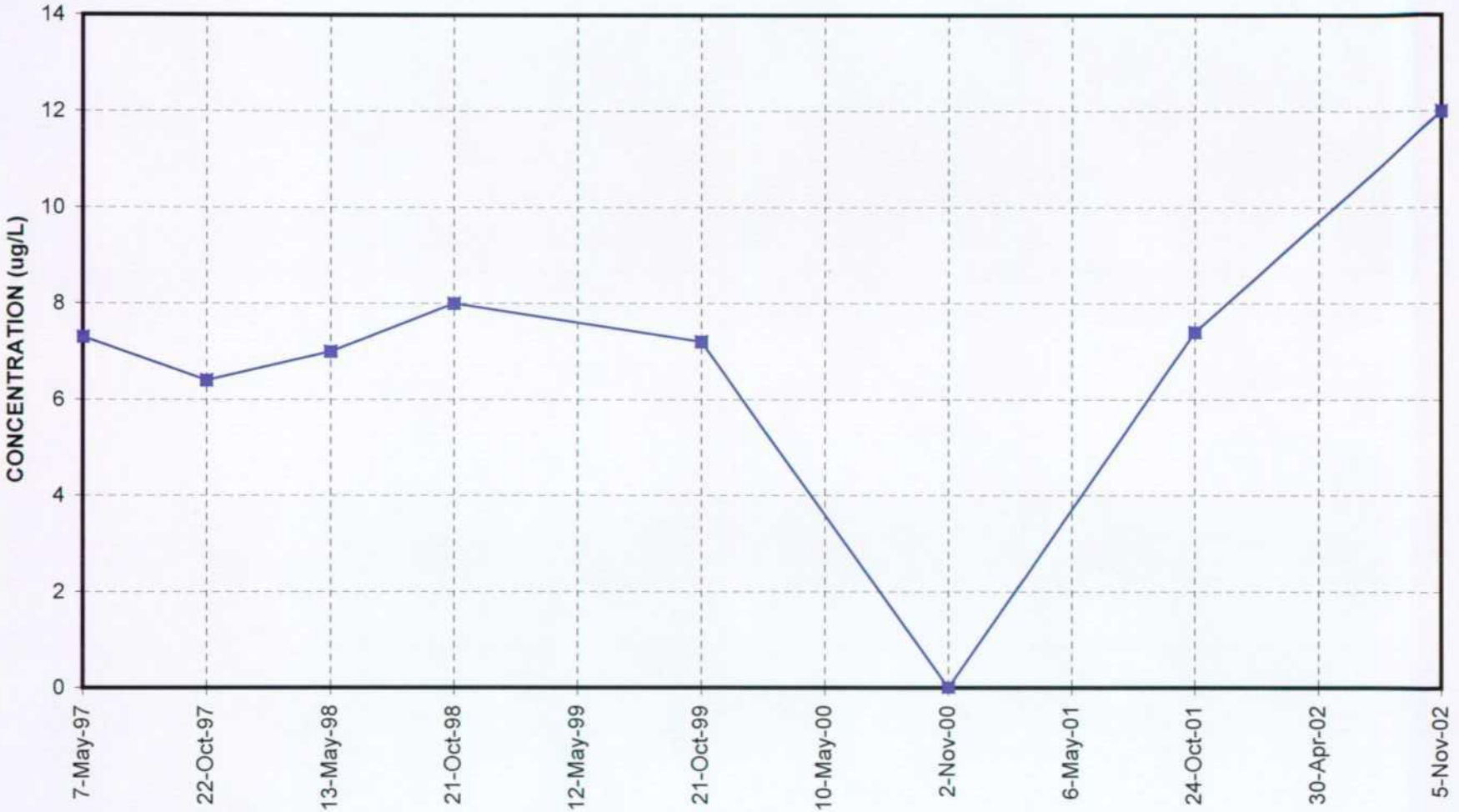
A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

MONITOR WELL ACW-07



MONITOR WELL ACW-07

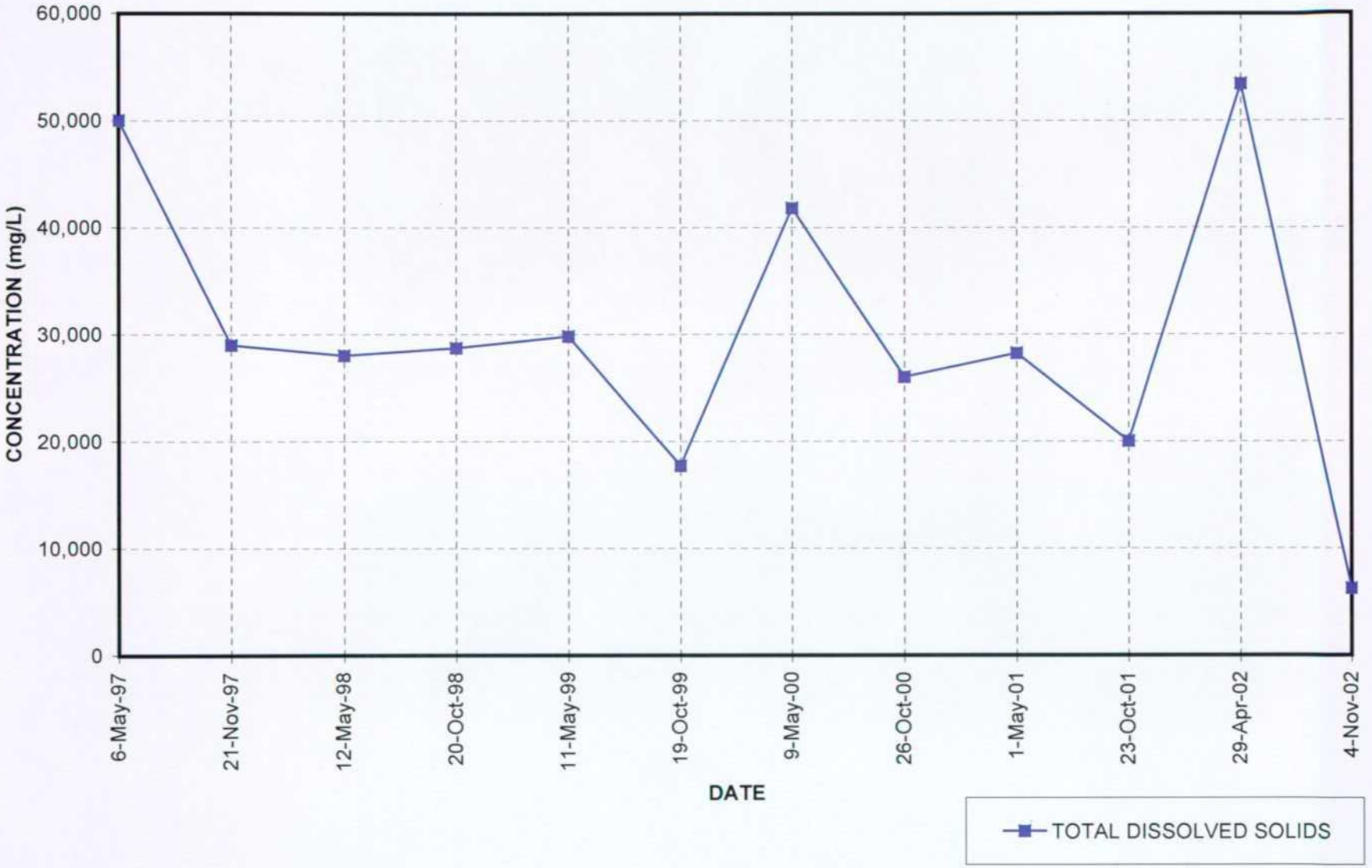
MONITOR WELL ACW-07



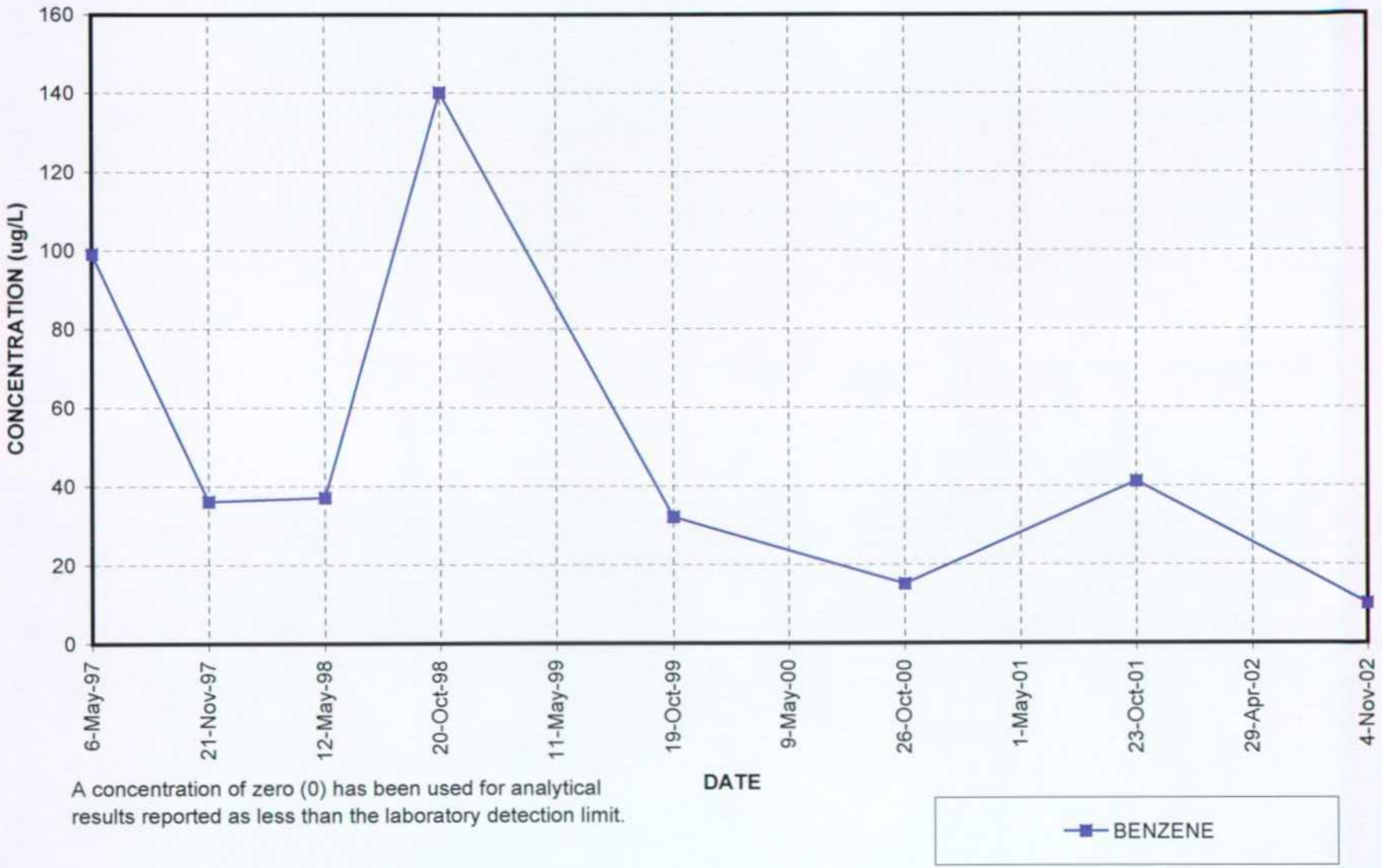
A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

MONITOR WELL ACW-08

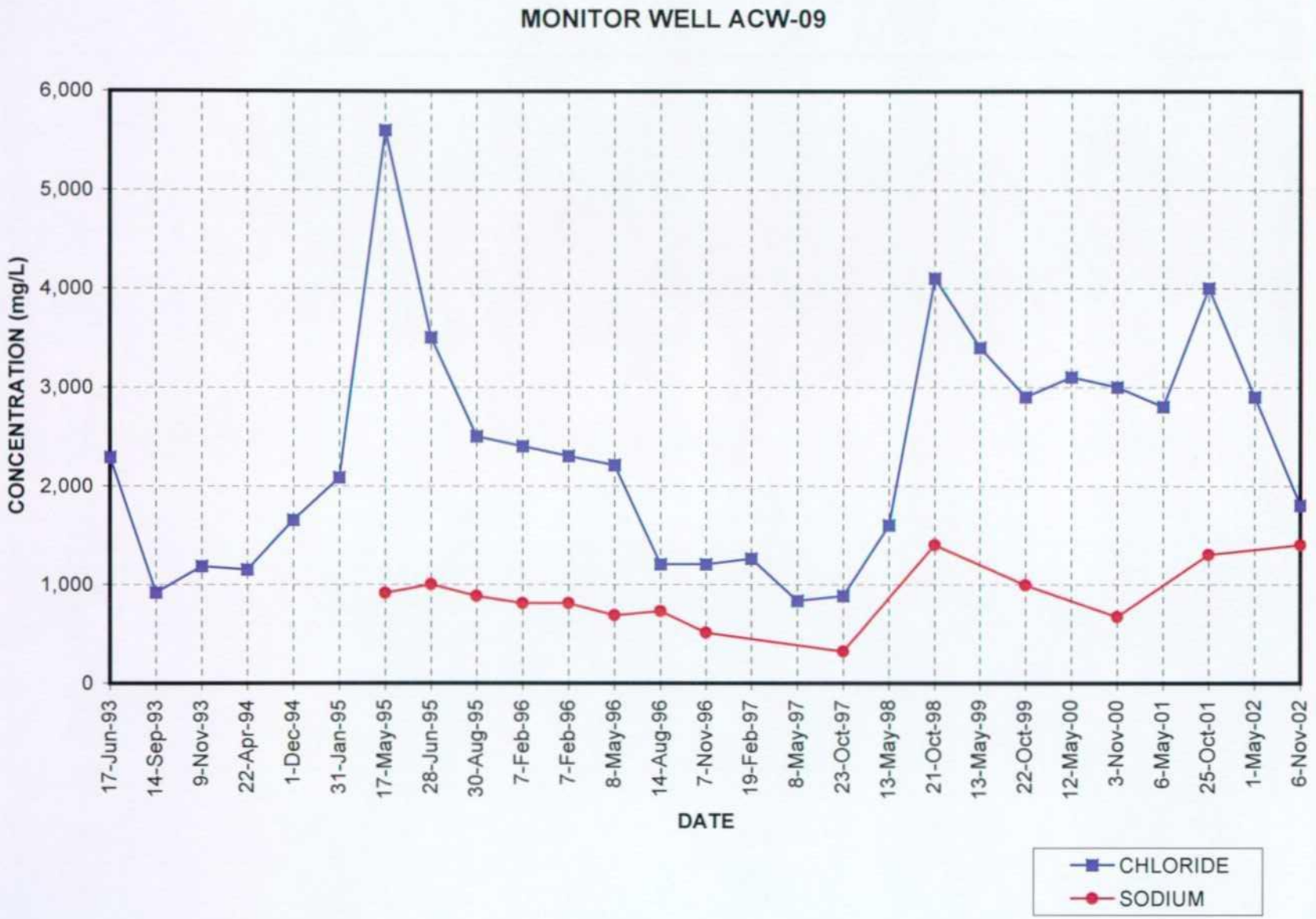
MONITOR WELL ACW-08

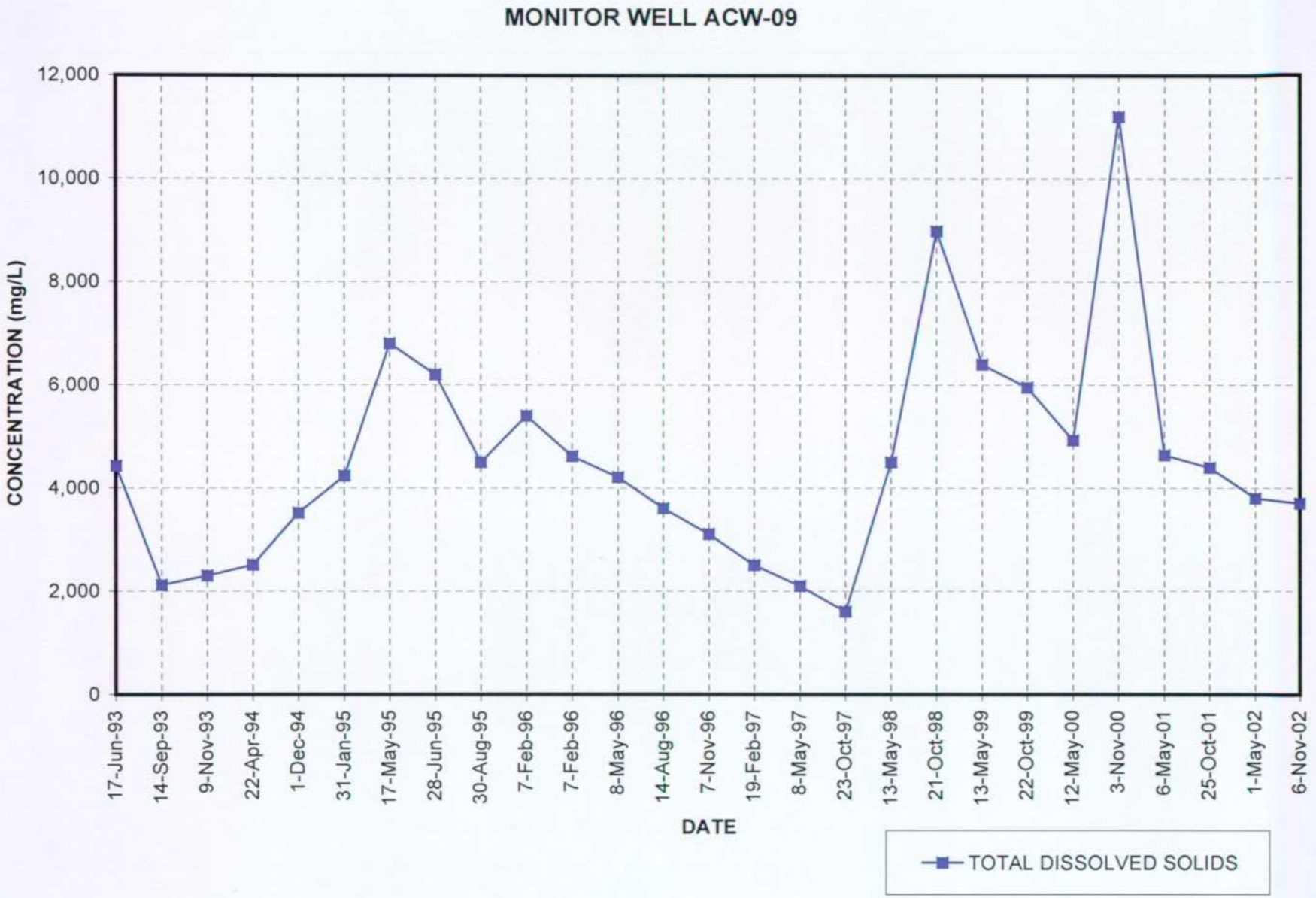


MONITOR WELL ACW-08

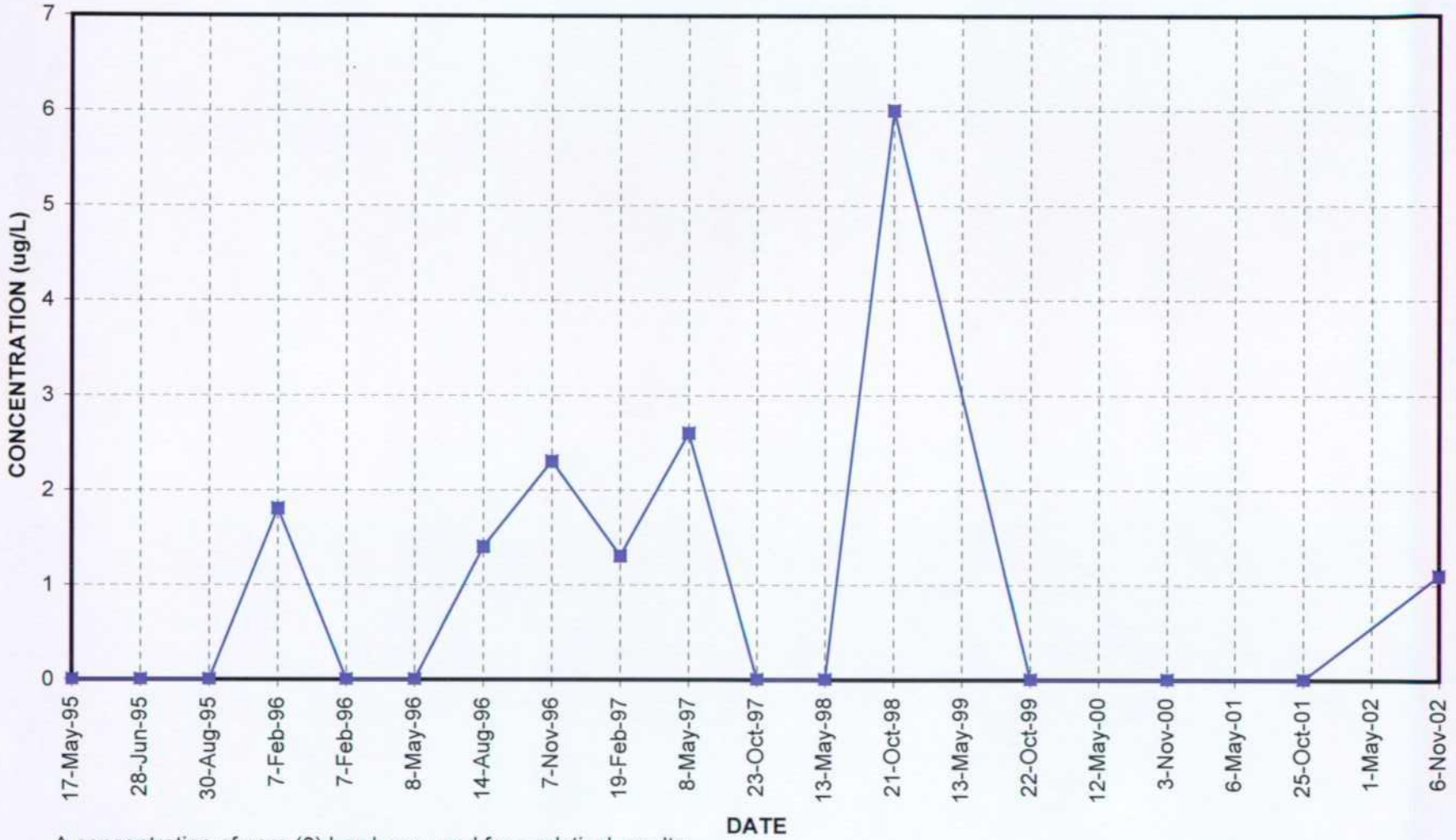


A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

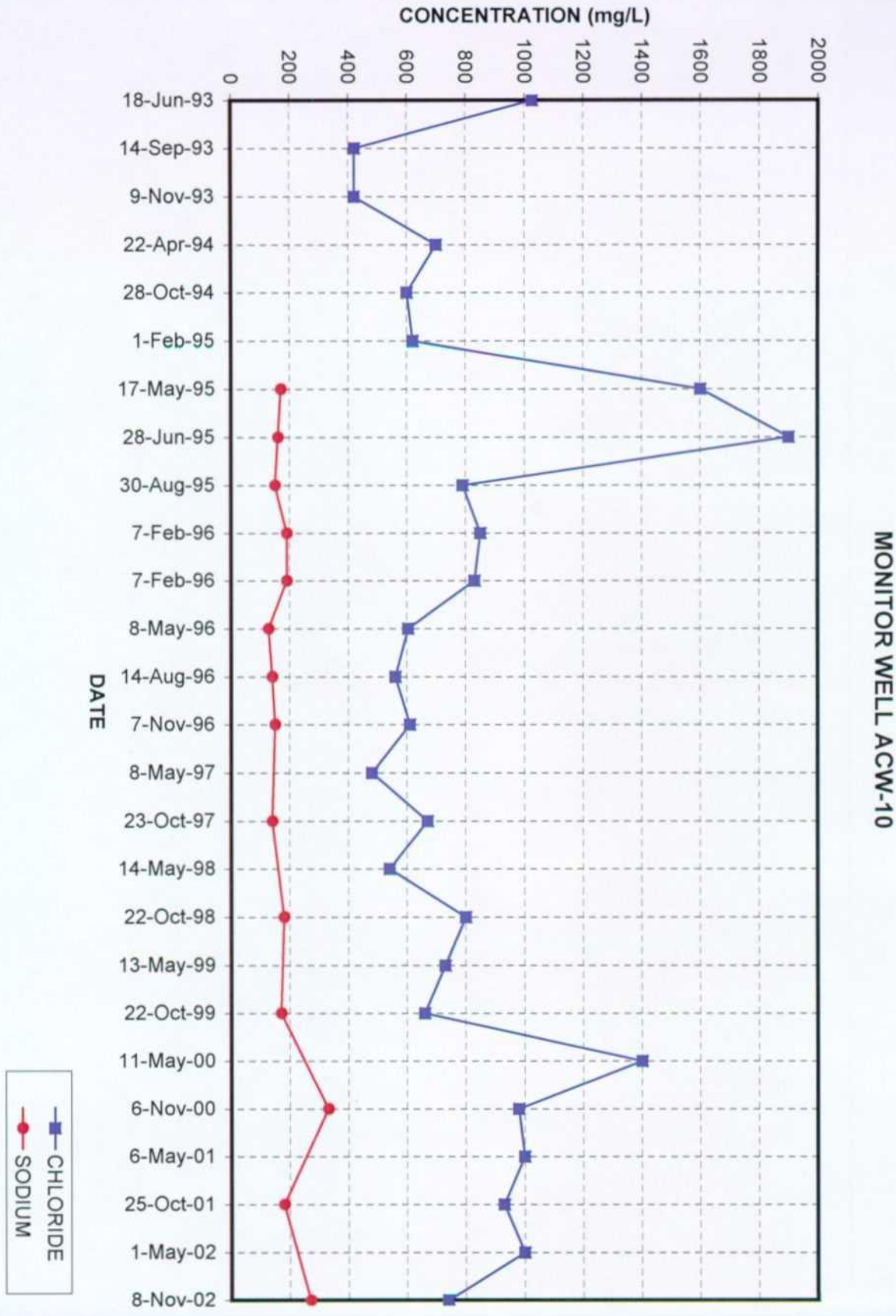

MONITOR WELL ACW-09
CONCENTRATION (mg/L)
6,000
5,000
4,000
3,000
2,000
1,000
0
17-Jun-93
14-Sep-93
9-Nov-93
22-Apr-94
1-Dec-94
31-Jan-95
17-May-95
28-Jun-95
30-Aug-95
7-Feb-96
7-Feb-96
8-May-96
14-Aug-96
7-Nov-96
19-Feb-97
8-May-97
23-Oct-97
13-May-98
21-Oct-98
13-May-99
22-Oct-99
12-May-00
3-Nov-00
6-May-01
25-Oct-01
1-May-02
6-Nov-02
DATE
CHLORIDE
SODIUM


MONITOR WELL ACW-09
CONCENTRATION (mg/L)
12,000
10,000
8,000
6,000
4,000
2,000
0
17-Jun-93
14-Sep-93
9-Nov-93
22-Apr-94
1-Dec-94
31-Jan-95
17-May-95
28-Jun-95
30-Aug-95
7-Feb-96
7-Feb-96
8-May-96
14-Aug-96
7-Nov-96
19-Feb-97
8-May-97
23-Oct-97
13-May-98
21-Oct-98
13-May-99
22-Oct-99
12-May-00
3-Nov-00
6-May-01
25-Oct-01
1-May-02
6-Nov-02
DATE
TOTAL DISSOLVED SOLIDS

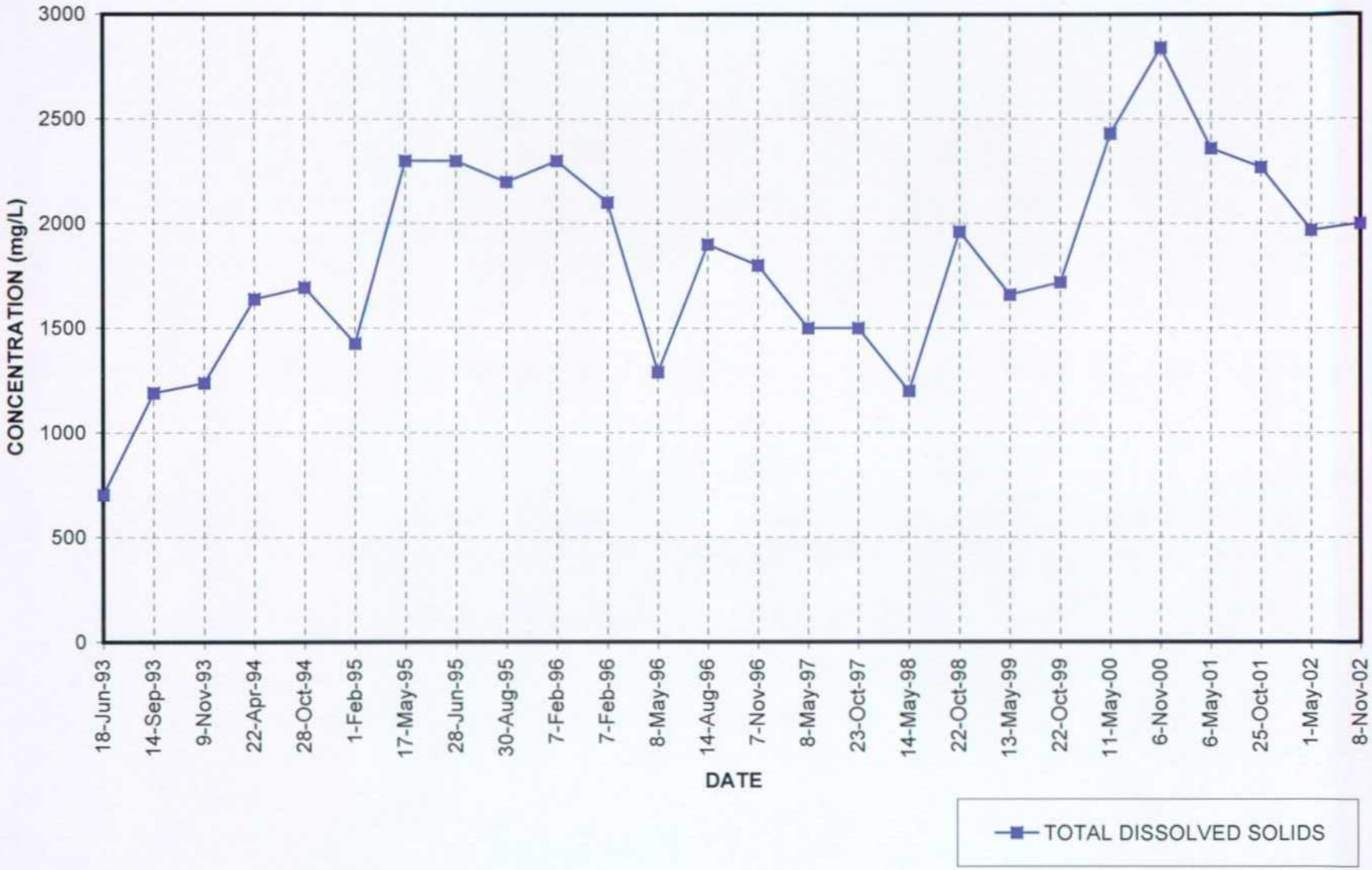
MONITOR WELL ACW-09



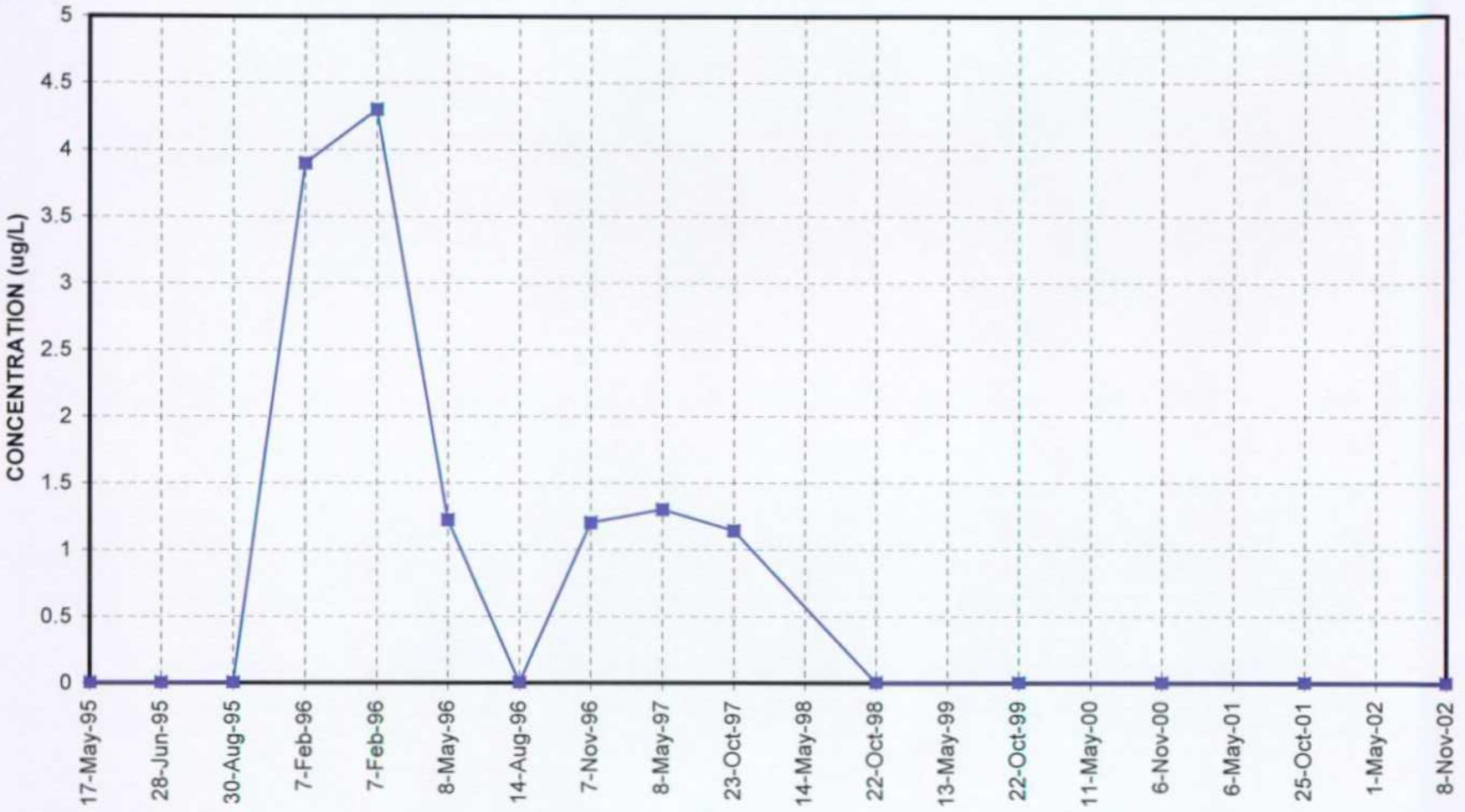
A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.


MONITOR WELL ACW-10
CONCENTRATION (mg/L)
0
200
400
600
800
1000
1200
1400
1600
1800
2000
DATE
18-Jun-93
14-Sep-93
9-Nov-93
22-Apr-94
28-Oct-94
1-Feb-95
17-May-95
28-Jun-95
30-Aug-95
7-Feb-96
7-Feb-96
8-May-96
14-Aug-96
7-Nov-96
8-May-97
23-Oct-97
14-May-98
22-Oct-98
13-May-99
22-Oct-99
11-May-00
6-Nov-00
6-May-01
25-Oct-01
1-May-02
8-Nov-02
CHLORIDE
SODIUM

MONITOR WELL ACW-10

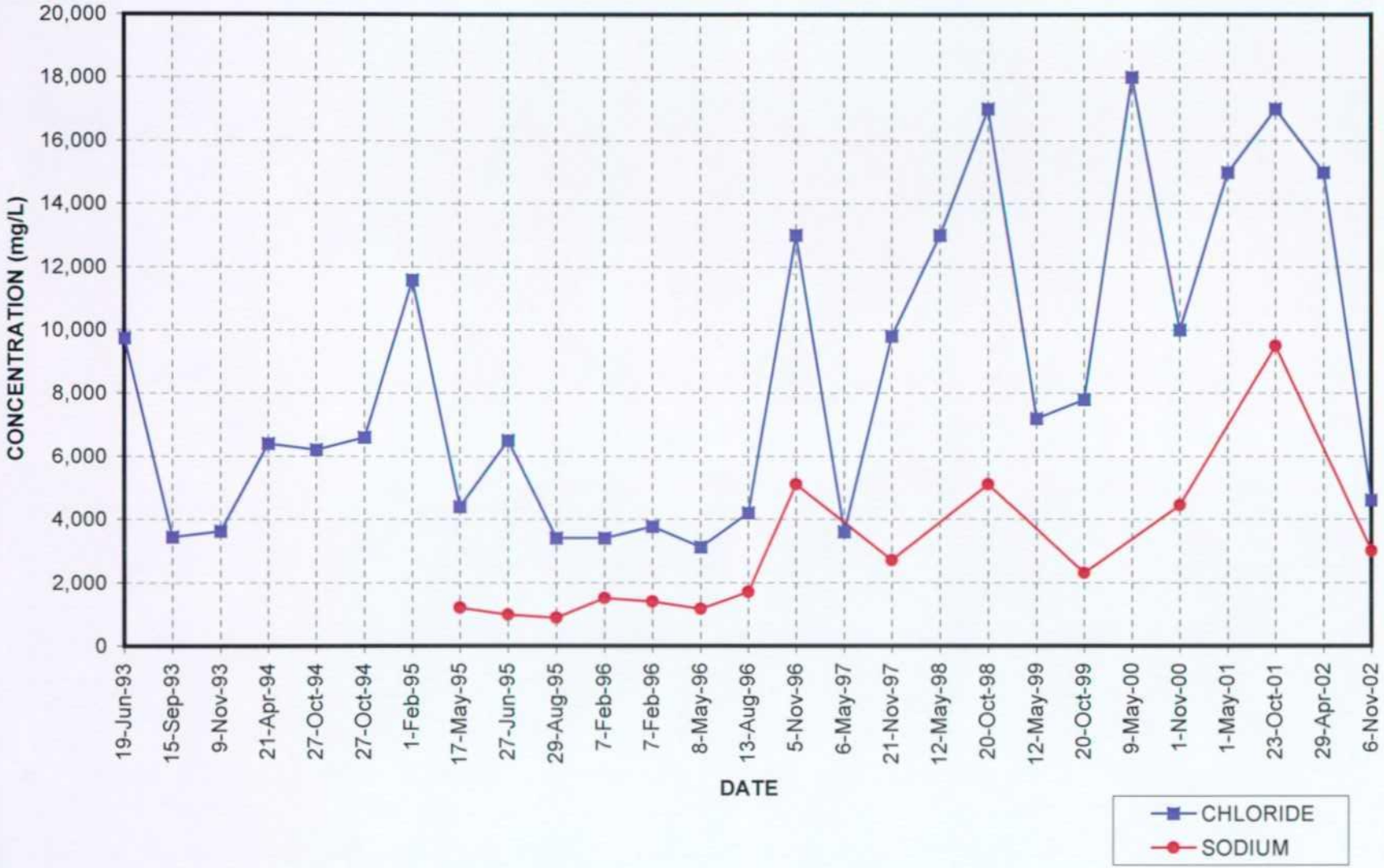


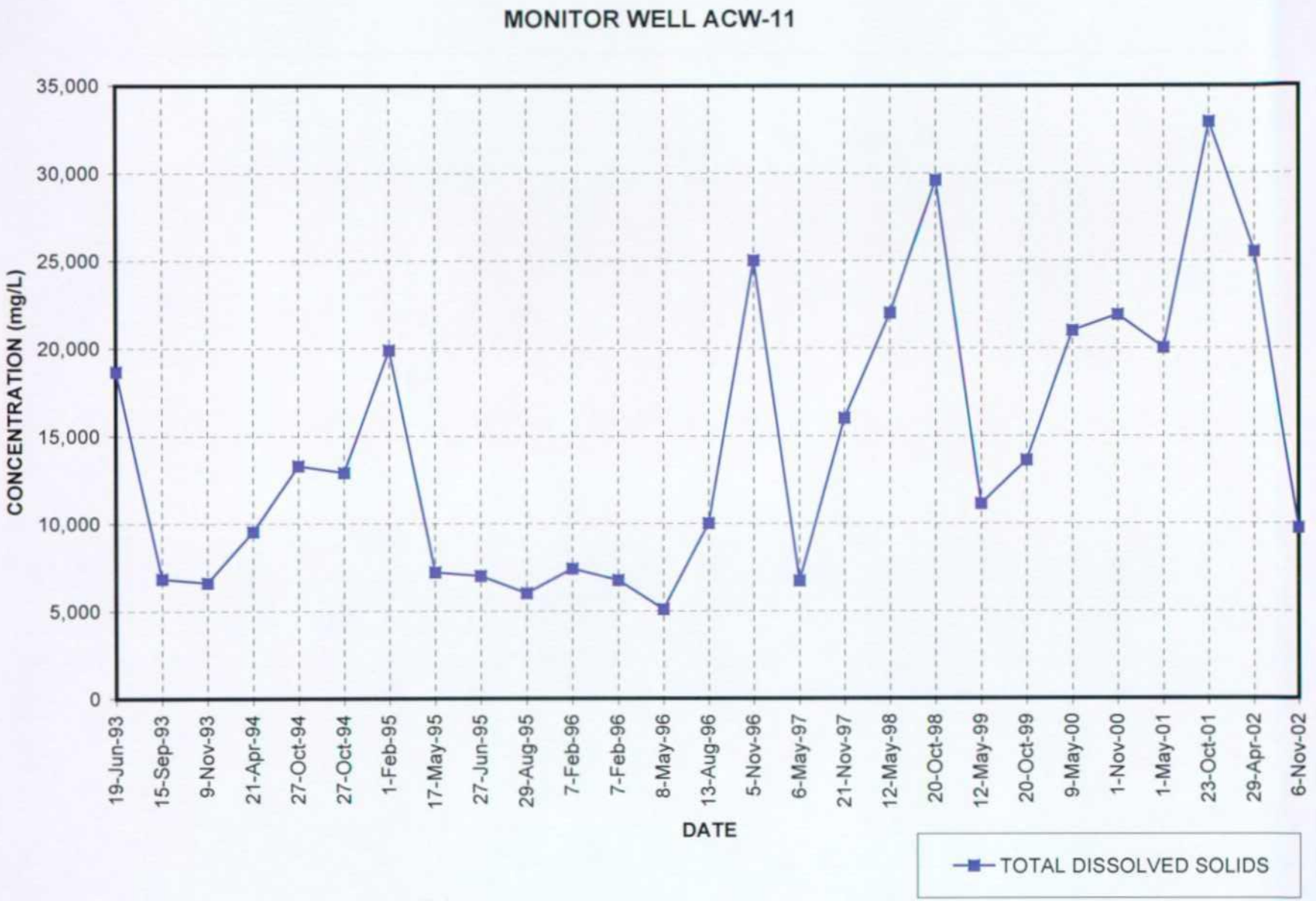
MONITOR WELL ACW-10



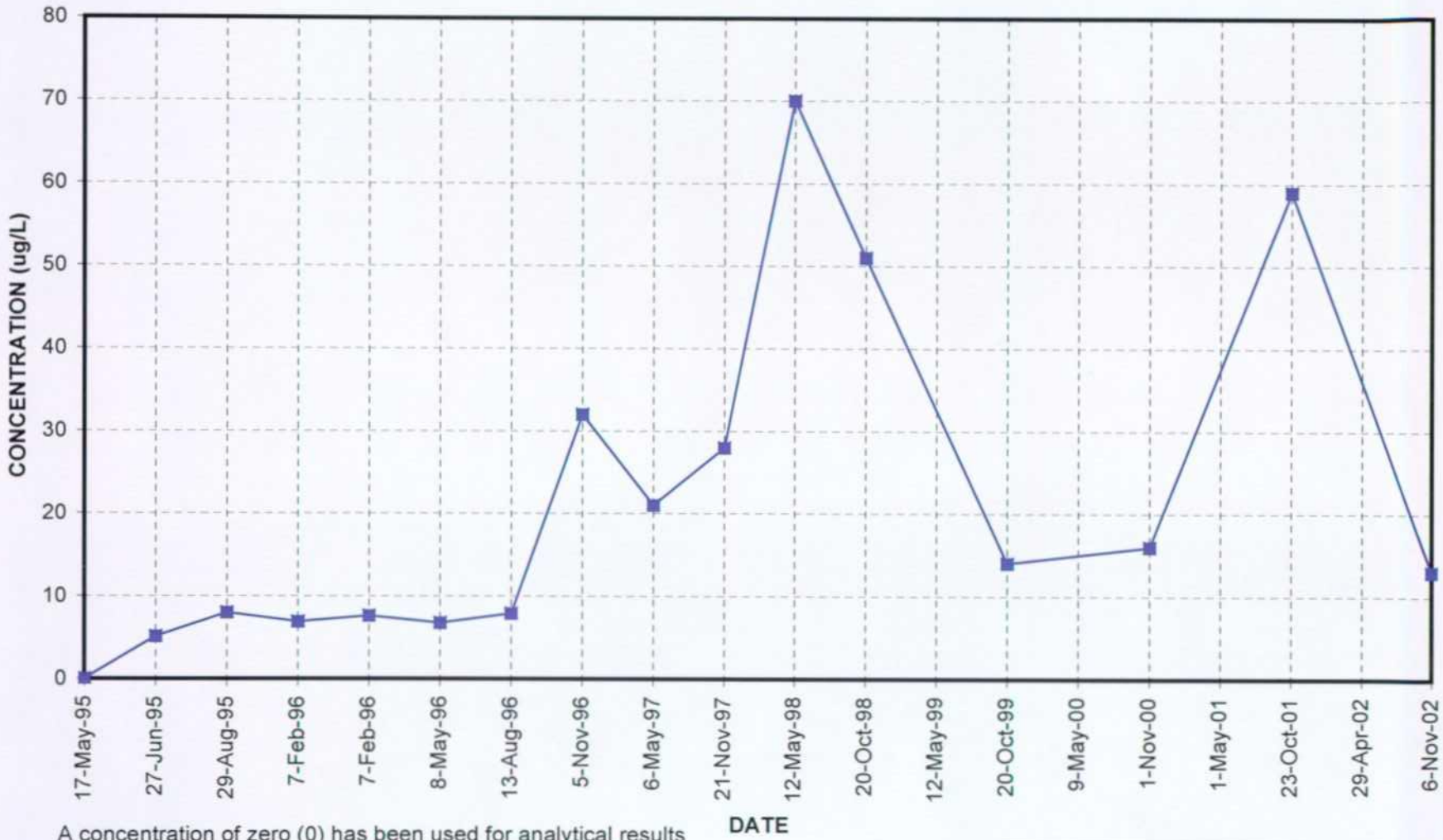
A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

MONITOR WELL ACW-11



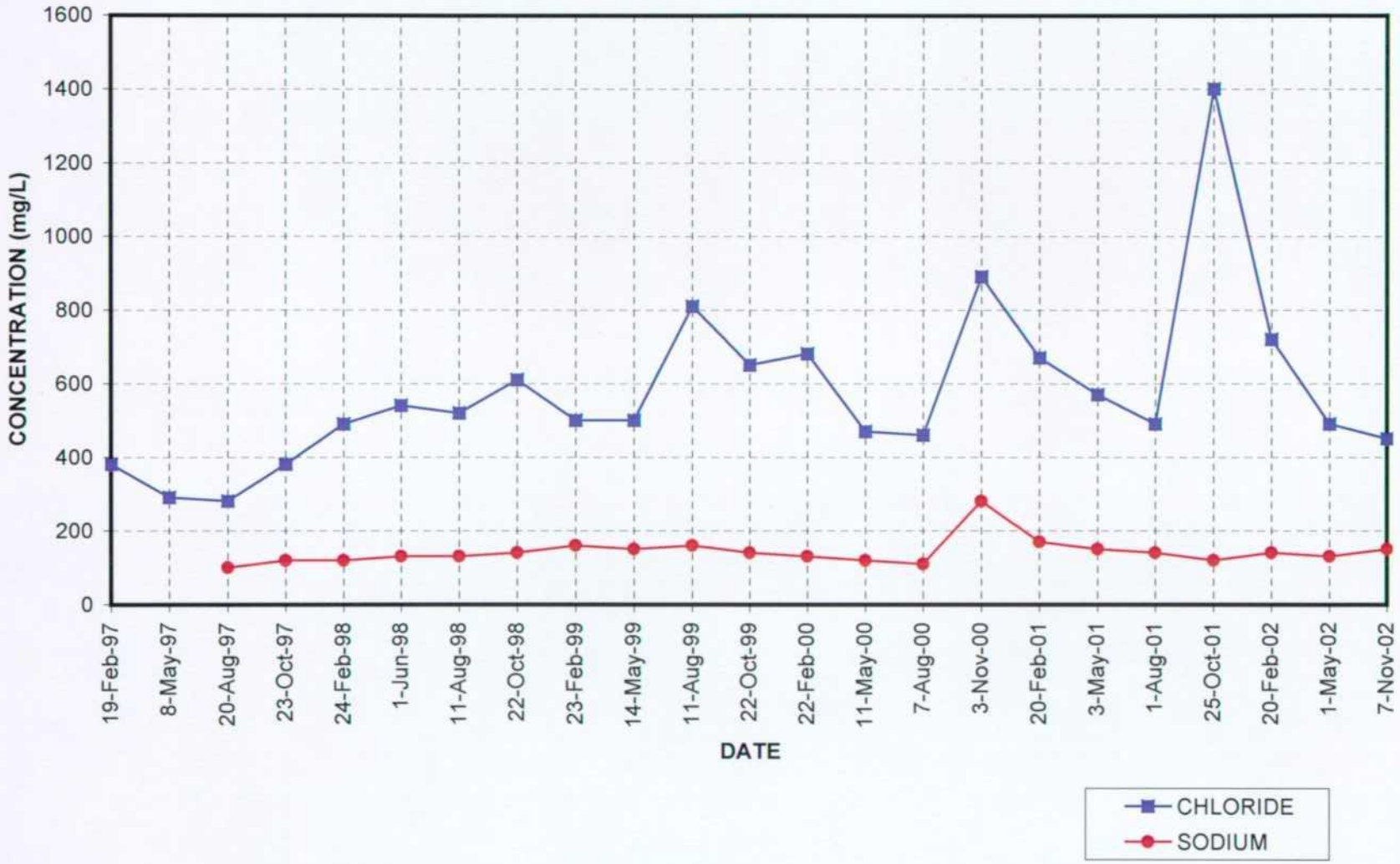

MONITOR WELL ACW-11
CONCENTRATION (mg/L)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
19-Jun-93
15-Sep-93
9-Nov-93
21-Apr-94
27-Oct-94
27-Oct-94
1-Feb-95
17-May-95
27-Jun-95
29-Aug-95
7-Feb-96
7-Feb-96
8-May-96
13-Aug-96
5-Nov-96
6-May-97
21-Nov-97
12-May-98
20-Oct-98
12-May-99
20-Oct-99
9-May-00
1-Nov-00
1-May-01
23-Oct-01
29-Apr-02
6-Nov-02
DATE
TOTAL DISSOLVED SOLIDS

MONITOR WELL ACW-11

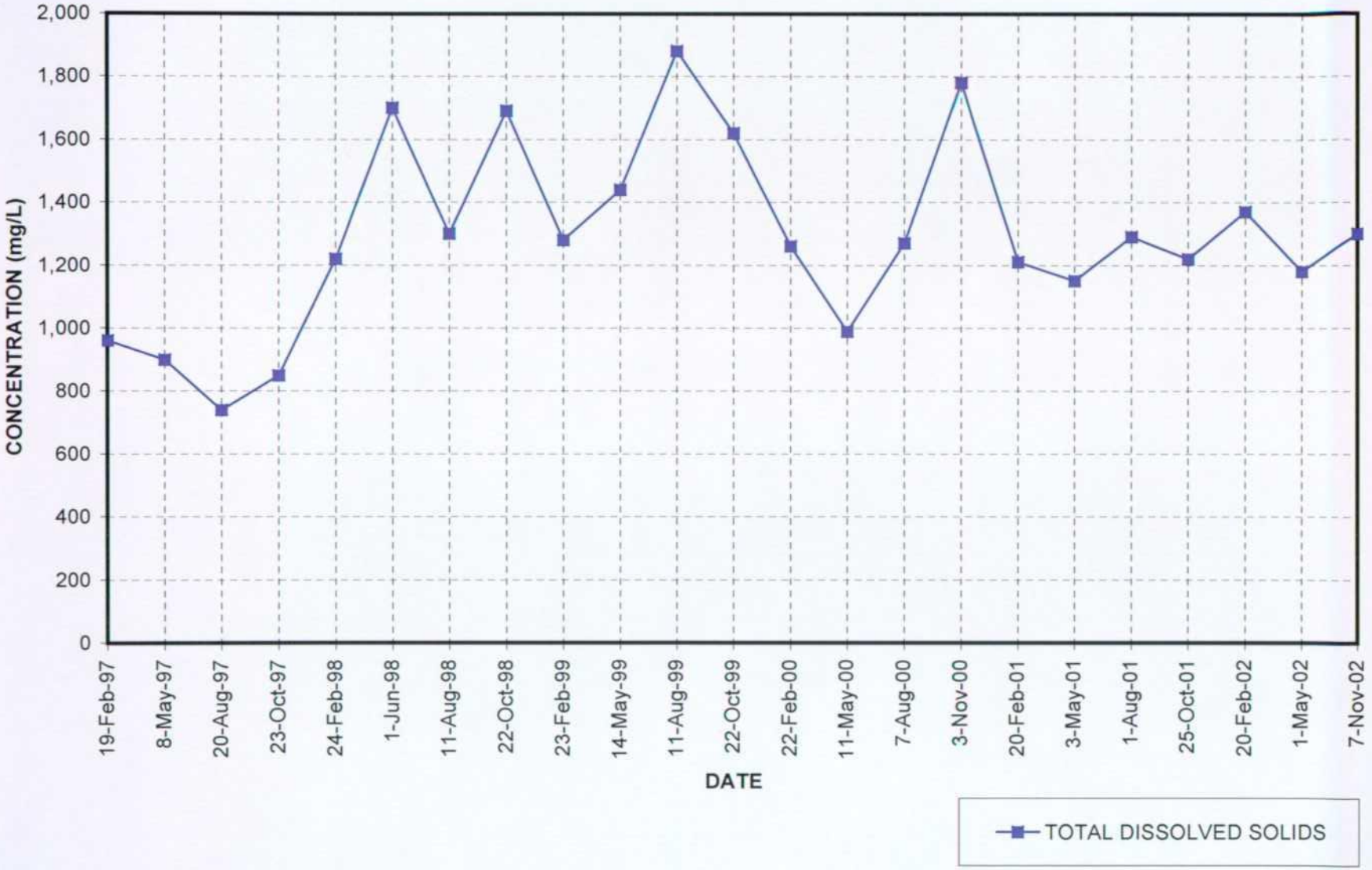


A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

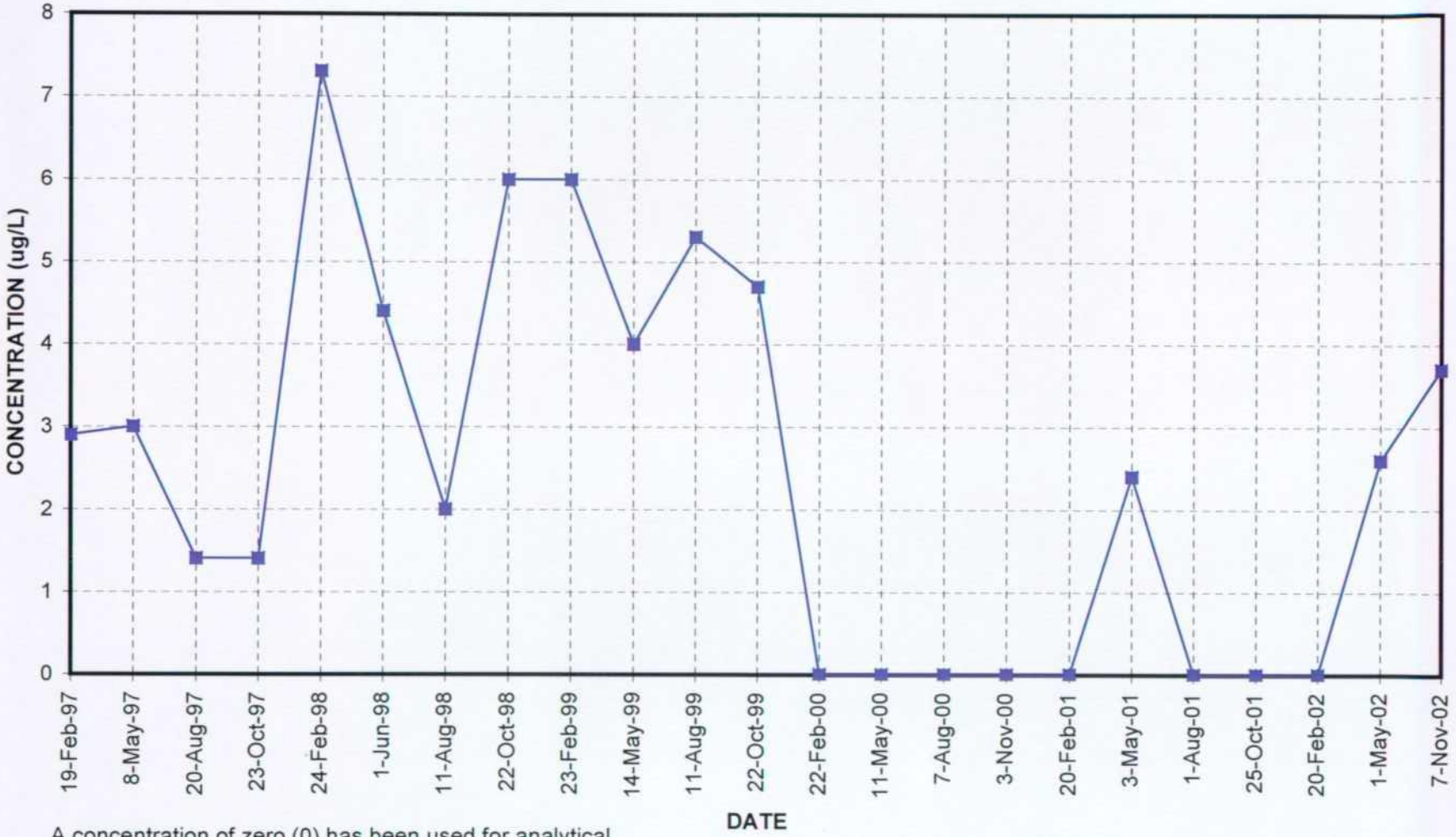
MONITOR WELL ACW-12



MONITOR WELL ACW-12

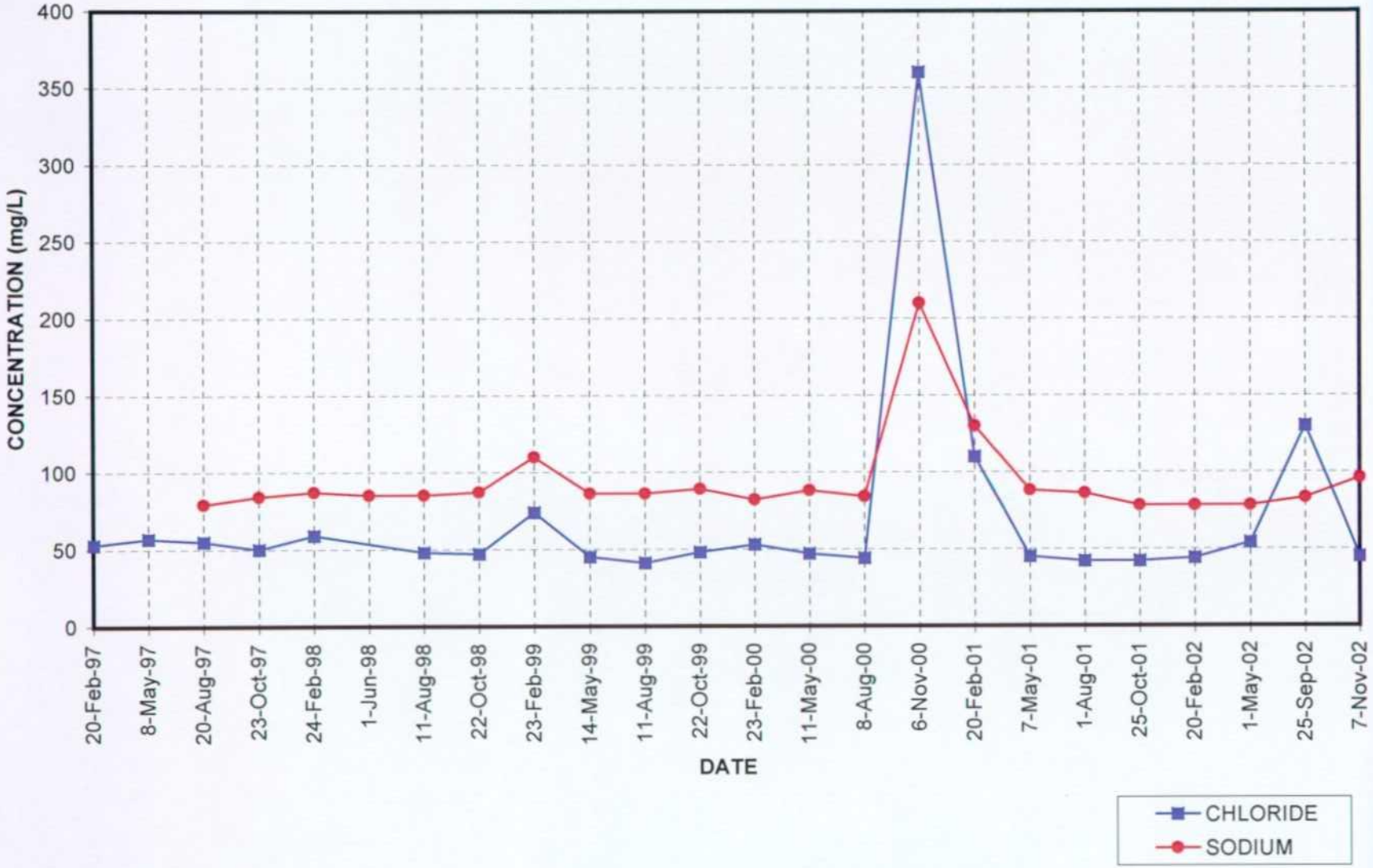


MONITOR WELL ACW-12

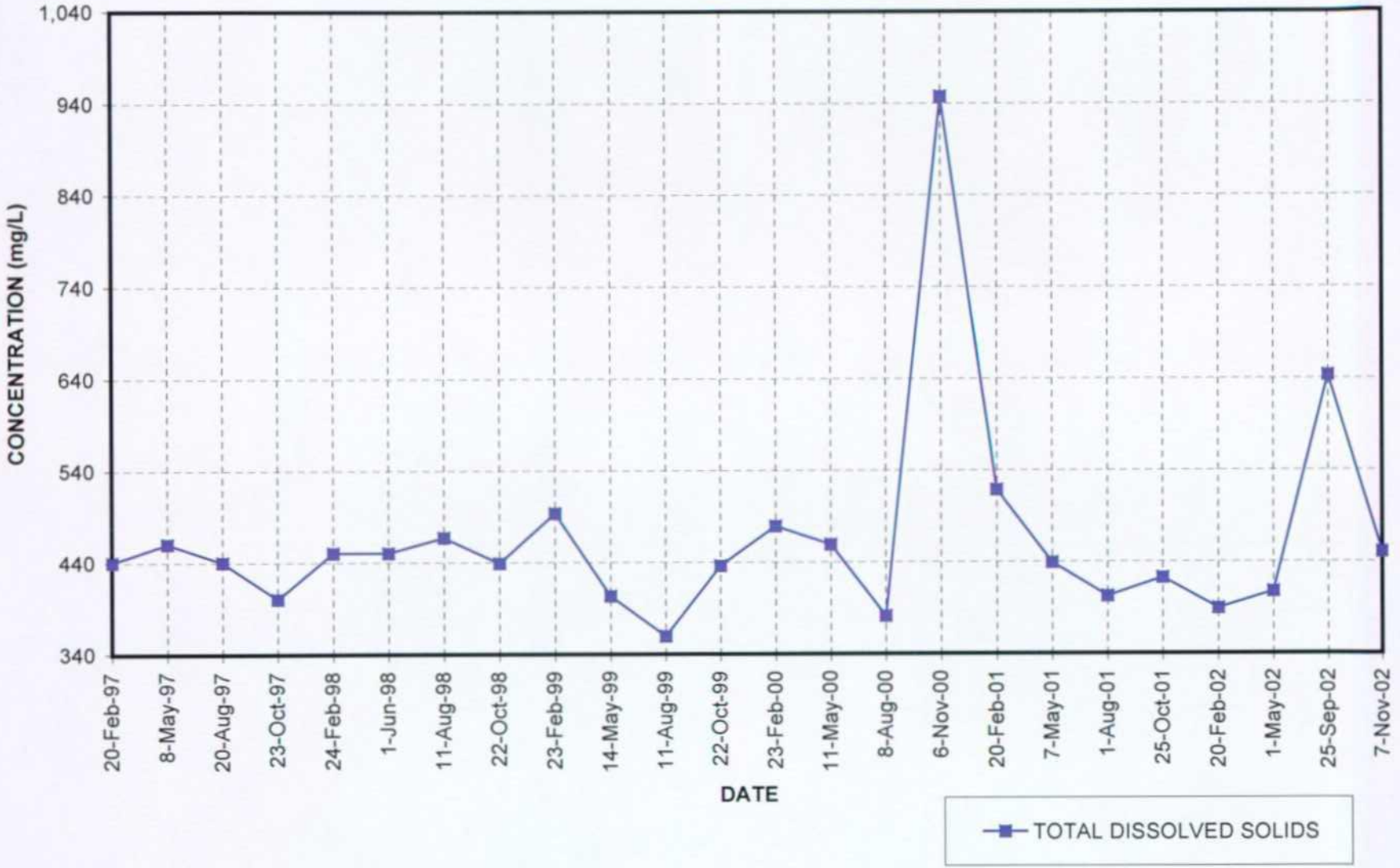


A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

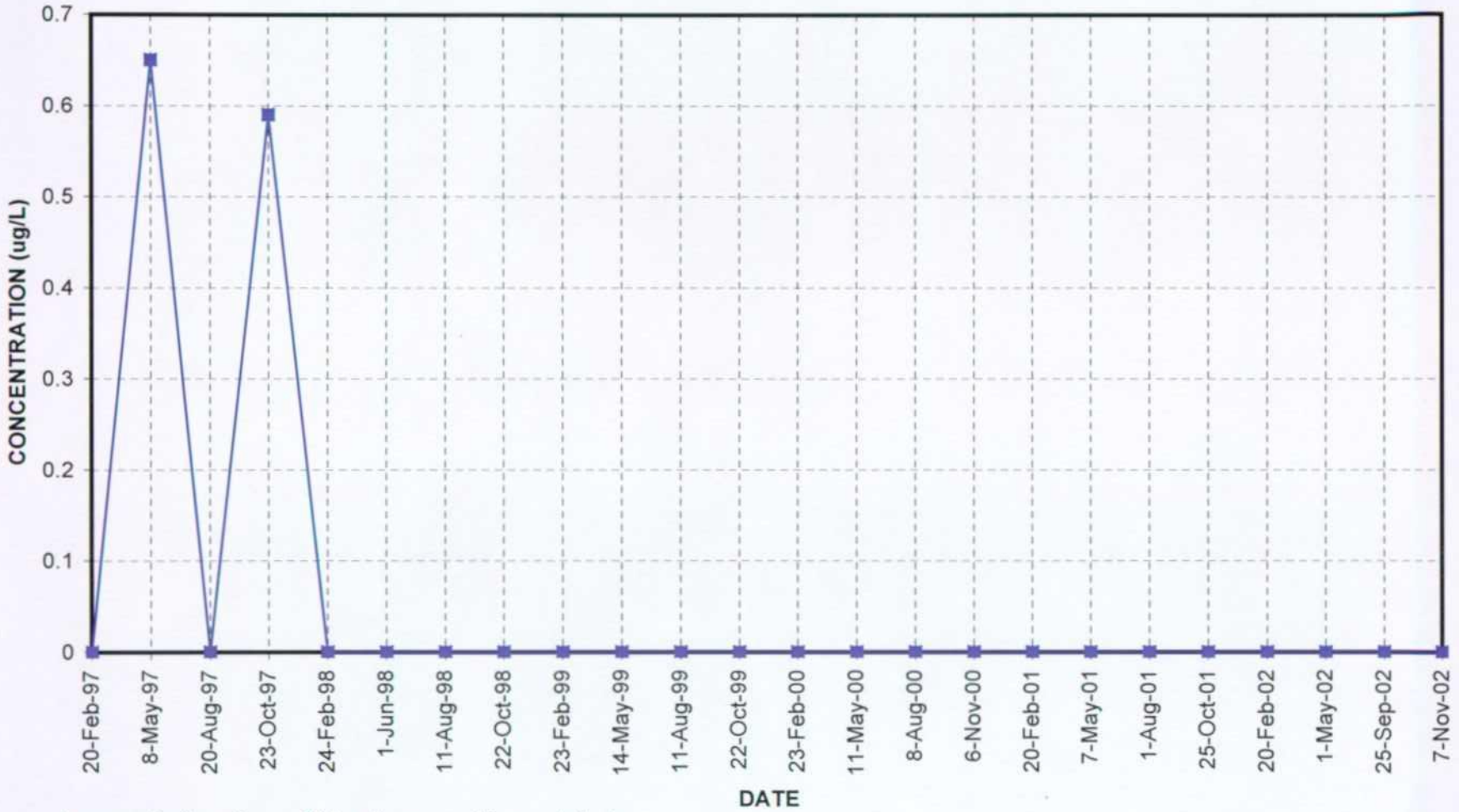
MONITOR WELL ACW-13



MONITOR WELL ACW-13

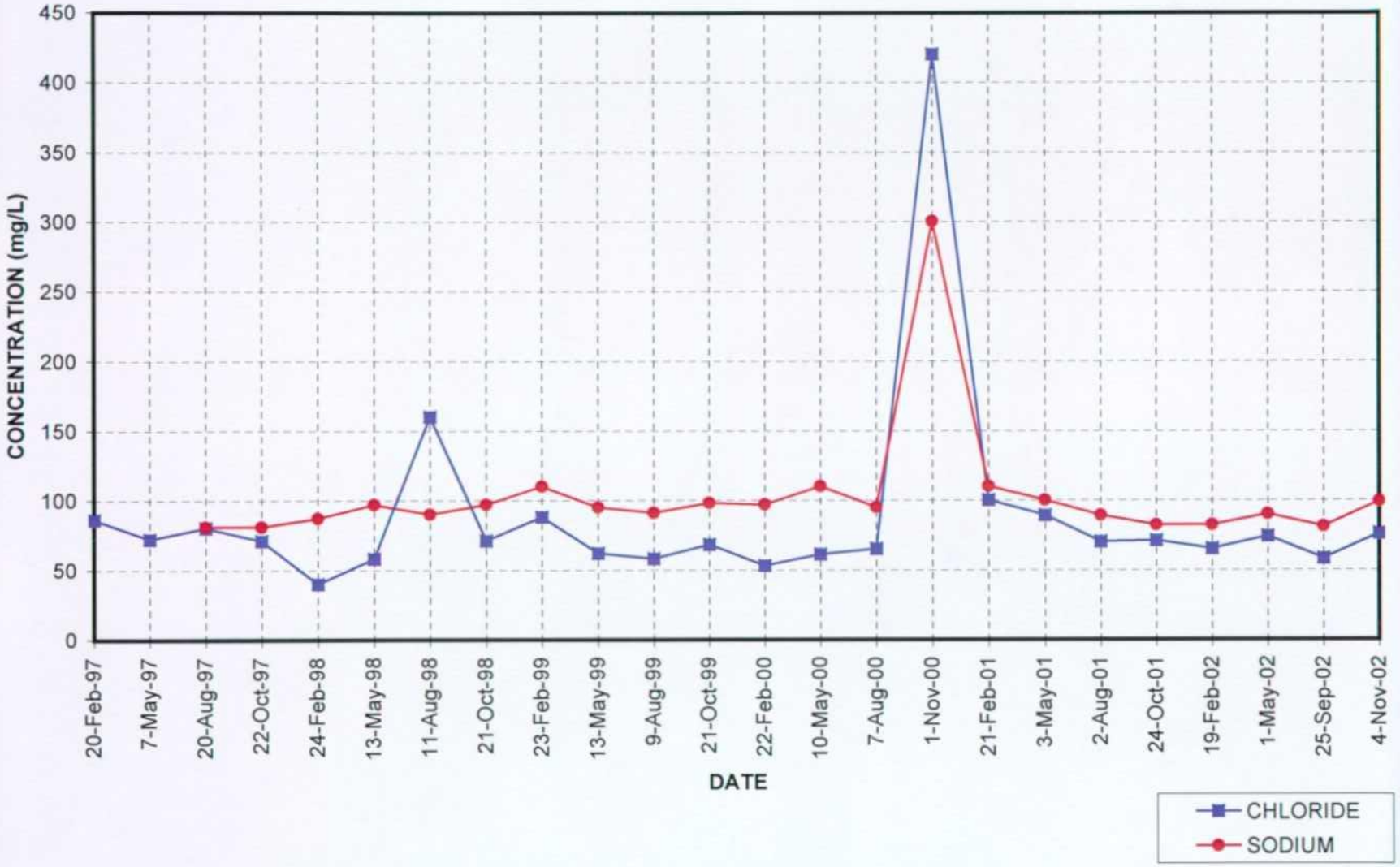


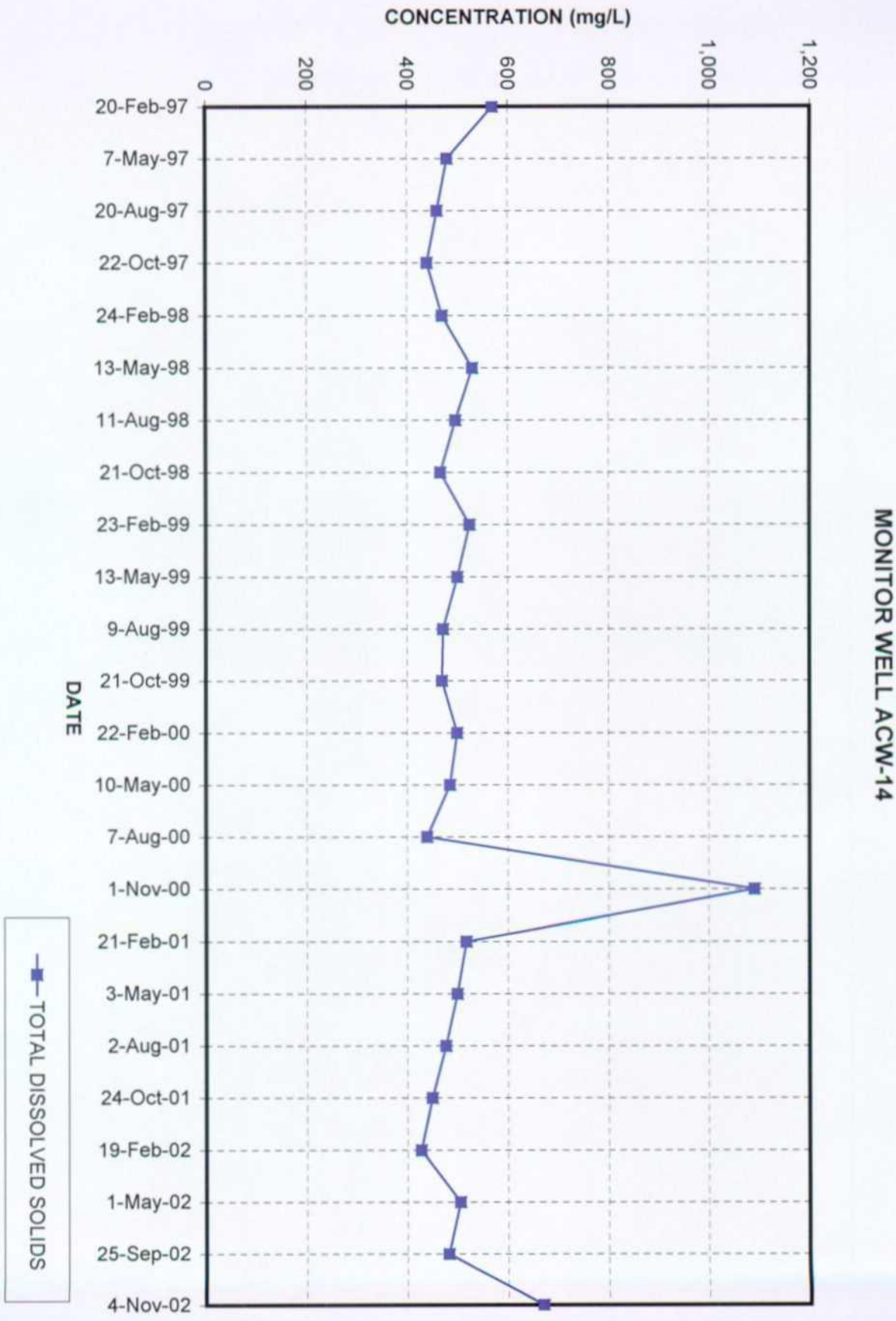
MONITOR WELL ACW-13



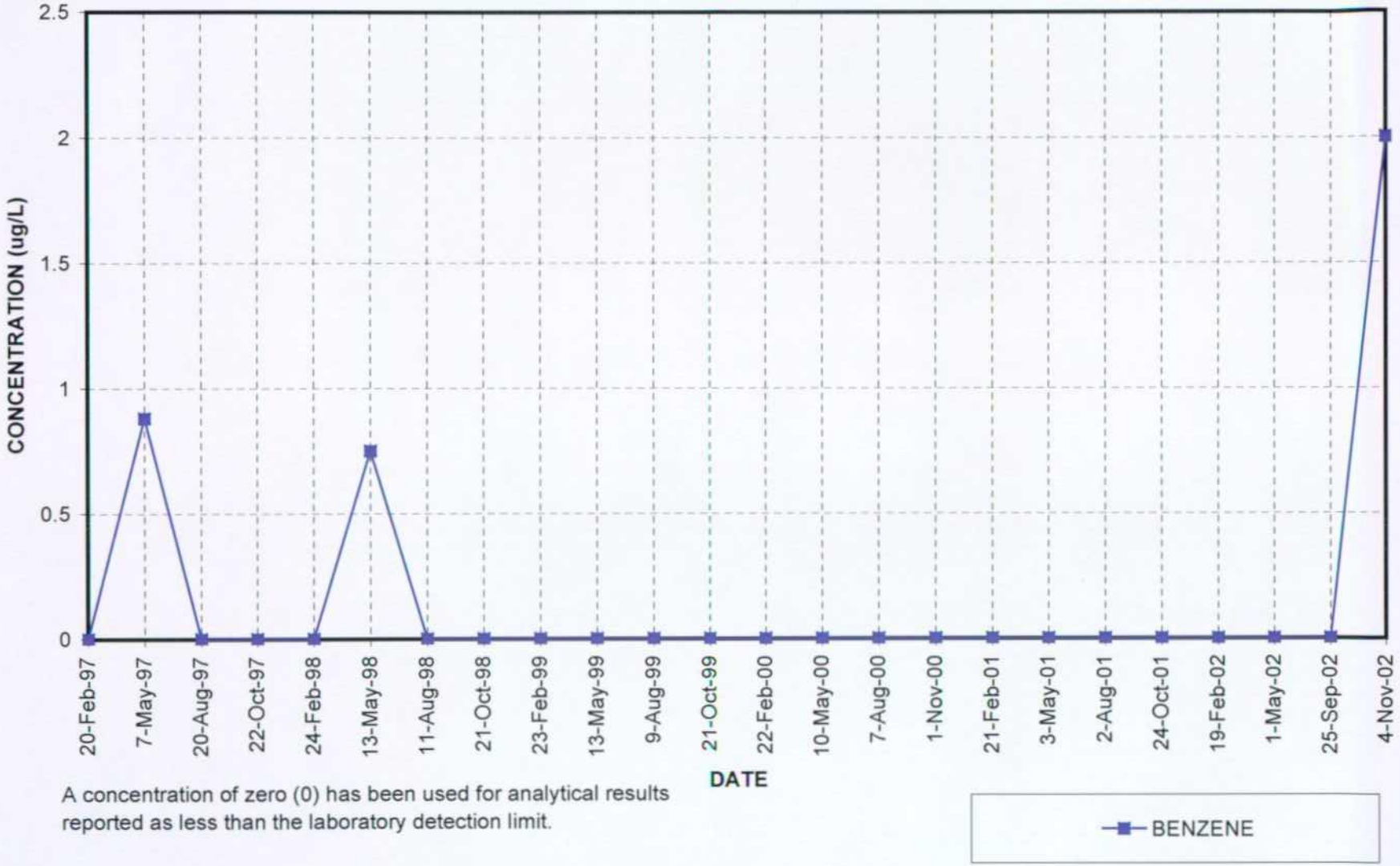
A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

MONITOR WELL ACW-14



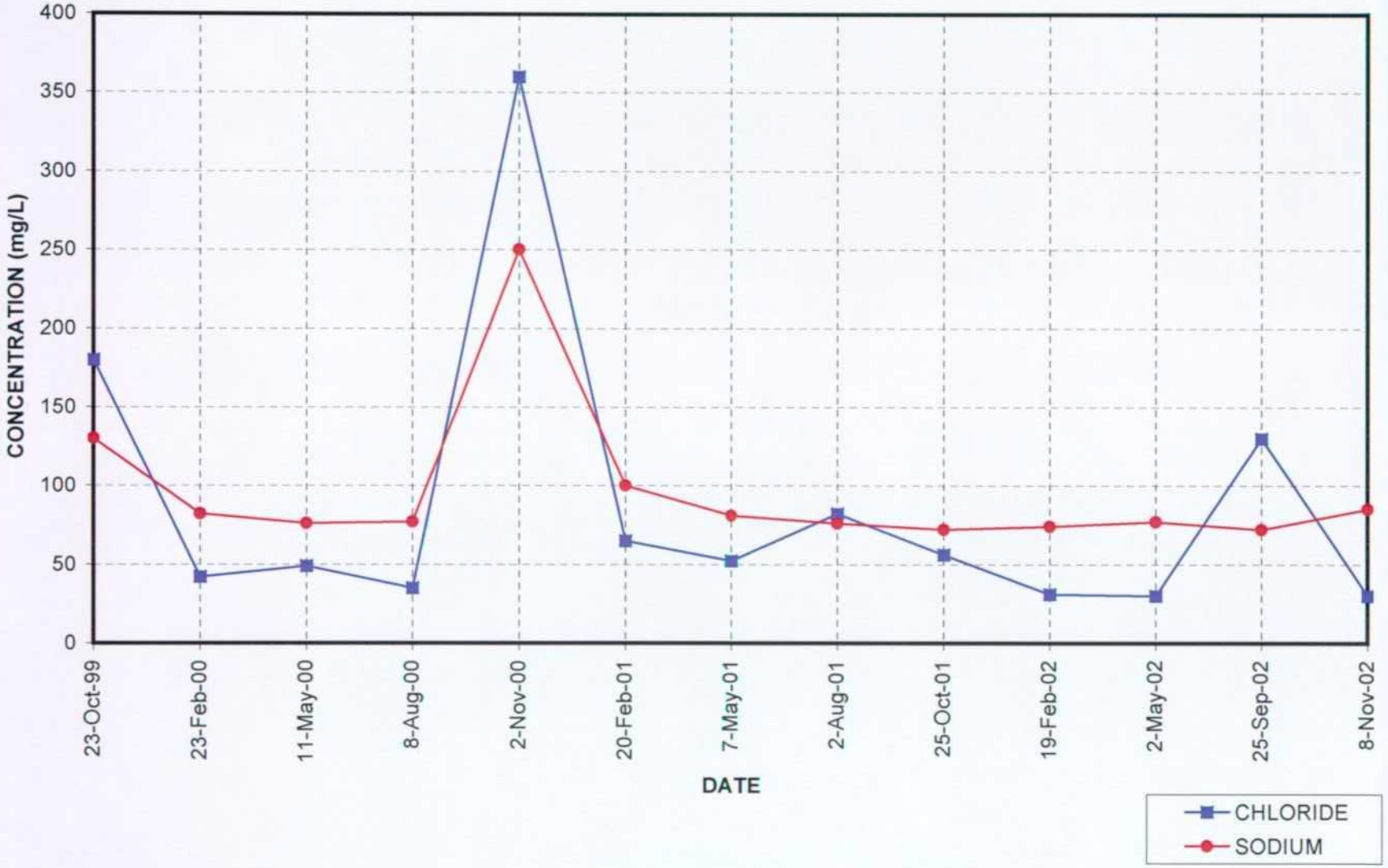

MONITOR WELL ACW-14
CONCENTRATION (mg/L)
0
200
400
600
800
1,000
1,200
DATE
20-Feb-97
7-May-97
20-Aug-97
22-Oct-97
24-Feb-98
13-May-98
11-Aug-98
21-Oct-98
23-Feb-99
13-May-99
9-Aug-99
21-Oct-99
22-Feb-00
10-May-00
7-Aug-00
1-Nov-00
21-Feb-01
3-May-01
2-Aug-01
24-Oct-01
19-Feb-02
1-May-02
25-Sep-02
4-Nov-02
TOTAL DISSOLVED SOLIDS

MONITOR WELL ACW-14

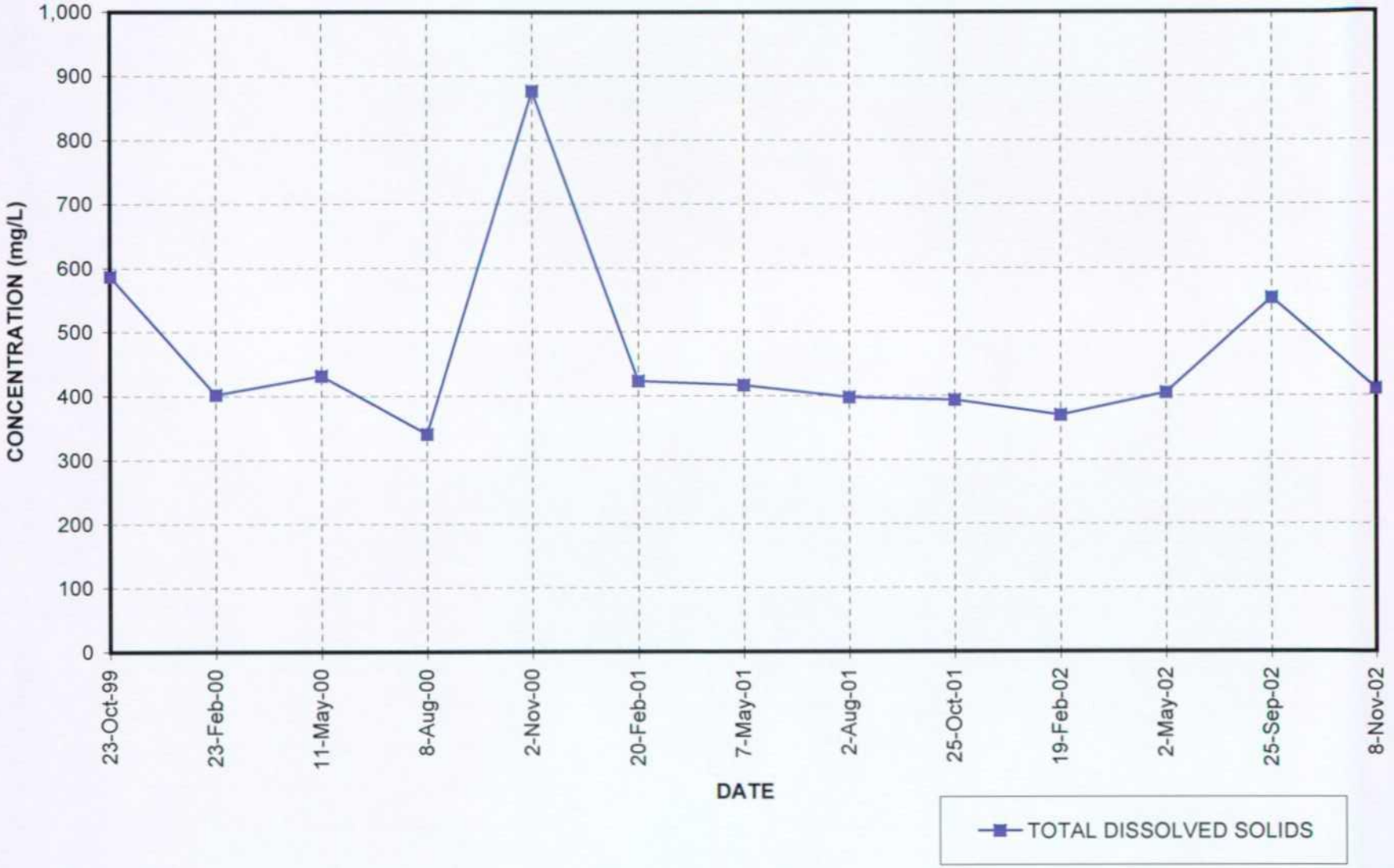


A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

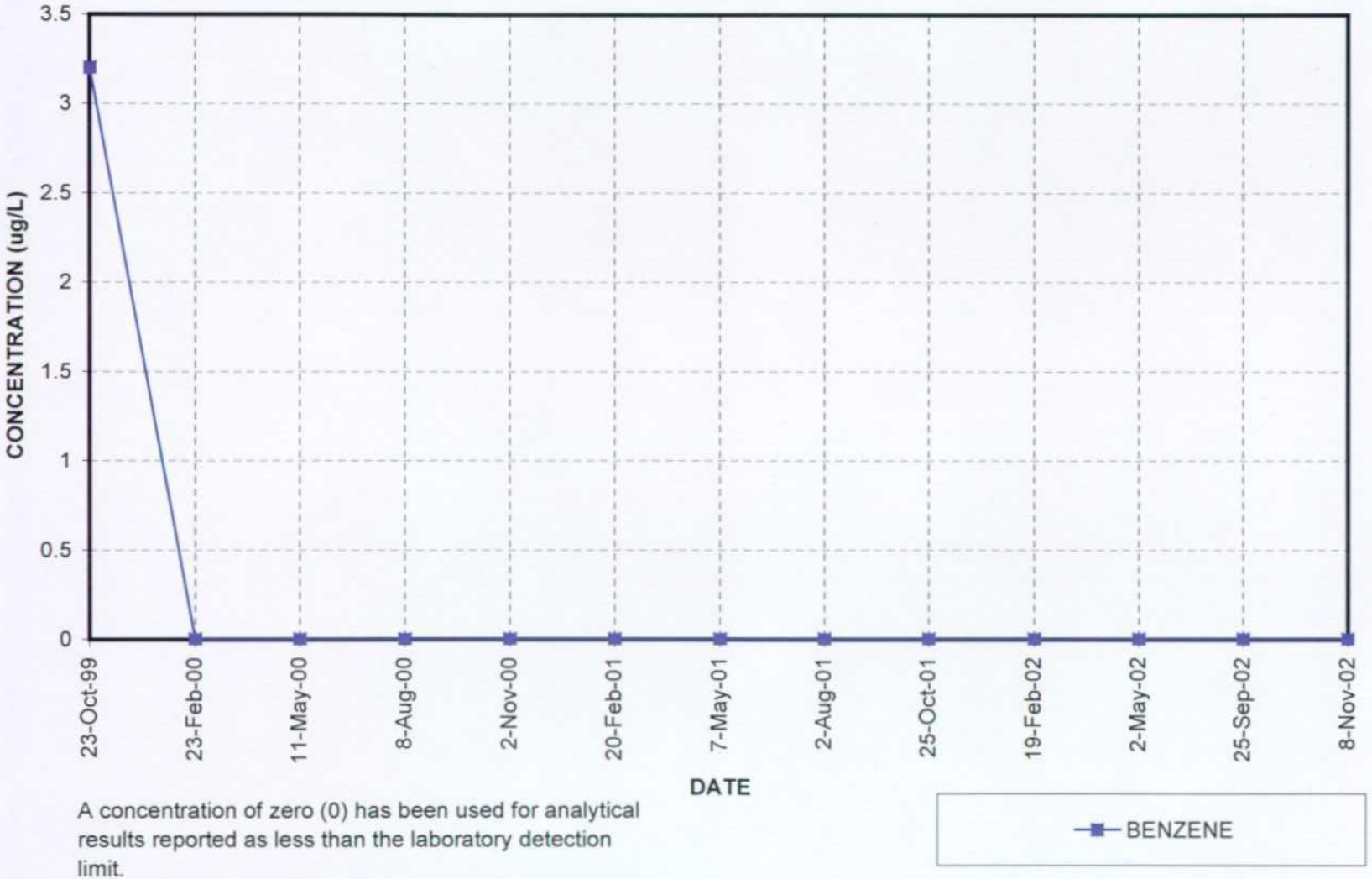
MONITOR WELL ACW-15



MONITOR WELL ACW-15



MONITOR WELL ACW-15



A concentration of zero (0) has been used for analytical results reported as less than the laboratory detection limit.

APPENDIX A

NMOCD LETTER APPROVING MODIFICATIONS TO SAMPLING PROGRAM

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Betty Rivera
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

July 30, 2002

CERTIFIED MAIL
RETURN RECEIPT NO. 7001-1940-0004-7923-0483

Mr. Scott T. Pope
El Paso Natural Gas Company
614 Reilly Ave.
Farmington, NM 87401

RE: ANNUAL REMEDIATION REPORT
CASE # GW-107R
JAL #4 PLANT
LEA COUNTY, NEW MEXICO

Dear Mr. Pope:

The New Mexico Oil Conservation Division (OCD) has reviewed El Paso Natural Gas Company's (EPNG) February 14, 2002 "REPORT SUBMITTAL, 2001 ANNUAL GROUNDWATER REMEDIATION REPORT, JAL NO. 4 PLANT, LEA COUNTY, NEW MEXICO". This document contains the results of EPNG's remediation and monitoring of contaminated ground water at the Jal No. 4 Plant during the 2001 calendar year and recommends changes to the sampling program.

The recommended changes to the ground water sampling and monitoring program, as contained in the above-referenced document, are approved.

Please be advised that OCD approval does not limit EPNG to the proposed work plan should the plan fail to adequately monitor contamination at the site, or if contamination exists which is outside the scope of the plan. In addition, OCD approval does not relieve EPNG of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please call me at (505) 476-3491.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor
Darrell Campbell - EPC - El Paso
Ed Nichols - EPC - ROW - El Paso
Buddy Richardson - ABT - Tulsa

APPENDIX C

ENSR-2 RECOVERY WELL PERMIT CORRESPONDENCE

elpaso

August 14, 2002

Mr. John Hernandez
Lea County Basin Supervisor
Office of the State Engineer
1900 W. Second Street
Roswell, NM 88201

RE: **Permit Application CP-37 thru CP-42 Combined-S (ENSR - 2) at the Jal No. 4 Plant Lea County, New Mexico**

Dear Mr. Hernandez:

El Paso Natural Gas Company (EPNG) is currently involved in a groundwater remediation effort to remove brine impacted groundwater at the formerly owned Jal No. 4 Plant in Lea County, New Mexico. In an effort to enhance removal of impacted groundwater in the source area EPNG would like to pump from RW-1 and ENSR-2 simultaneously. In discussions with your office in May 2002, we were allowed to test the ability to pump from wells RW-1 and ENSR-2 simultaneously. Test pumping began in ENSR-2 on June 23, 2002, but has never run longer than 2 weeks due to plant needs for the injection well. Based on the information gathered to date EPNG would like to move forward with the permitting of ENSR-2.

Attached please find the permit application for ENSR-2 in triplicate along with the $25.00 filing fee. It is our understanding that pumping from ENSR-2 will not have to be suspended during the permit process.

If there is any additional information needed to complete the permitting of ENSR-2 please call me at (505) 599-2124.

Sincerely,

Scott T. Pope
Senior Environmental Scientist
Environmental Remediation

Attachments: as stated

Cc: Darrell Campbell, EPNG
Ed Nichols, EPNG-ROW
Buddy Richardson, ABI
File: Jal #4

Thomas C. Turney
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 255870
File Nbr: CP 00037 COMBS

Jan. 27, 2003

SCOTT T. POPE
EL PASO CORPORATION
614 REILLY AVENUE
FARMINGTON, NM 87401

Greetings:

Enclosed is your copy of the above numbered permit which has been approved subject to the conditions set forth on the approval page thereof.

Proof or Completion of Well(s) will be filed in this office after completion and installation of equipment, but in no event later than 01/31/2005. Proof of Completion of Well forms shall be mailed upon request.

Your rights under this permit will expire on 01/31/2005, unless Proof of Completion of Well(s) is filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,

Andy Morley
(505)622-6467

Enclosure
cc: Santa Fe Office

nonappcw

NEW MEXICO STATE ENGINEER OFFICE
APPLICATION FOR SUPPLEMENTAL WELL (GROUND)

SPECIFIC CONDITIONS OF APPROVAL

1B Depth of the well shall not exceed the thickness of the Ogallala formation.

7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.

B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.

C Driller's well record must be filed with the State Engineer within 10 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.

PCW The Point of Diversion CP 00037 COMB S must be completed and the Proof of Completion of Works filed on or before 01/31/2005.

The well shall be drilled at least 660 feet from all wells of other ownership.

1. This permit is approved as follows:

PERMIT NO: CP-37 thru CP-42 Comb-S (ENSR-2)

SOURCE: Shallow Ground Water

POINT OF DIVERSION:
CP-37 thru CP-42 Comb-S (RW1)
SE1/4SW1/4 Sec. 32, Twp 23S, Rge 37E, NMPM

CP-37 thru CP-42 Comb-S (ENSR-2)
W1/2SE1/4SW1/4 Sec. 32, Twp 23S, Rge 37E, NMPM

PURPOSE OF USE: Pollution Control Well

AMOUNT OF WATER:
35.0 acre-feet (consumptive use) for groundwater remediation at Jal No. 4 Plant.

2. The diversion of shallow groundwater from wells CP-37 thru CP-42 Comb-S (RW1) and CP-37 thru CP-42 Combined-S (ENSR-2) combined under this permit shall be limited to a maximum of 35.0 acre-feet per annum (consumptive use).

NEW MEXICO STATE ENGINEER OFFICE
APPLICATION FOR SUPPLEMENTAL WELL (GROUND)

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Date Rcvd. Corrected:
Formal Application Rcvd: 08/19/2002 Pub. of Notice Ordered: 10/15/2002
Date Returned - Correction: Affidavit of Pub. Filed: 11/13/2002

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 27 day of Jan A.D., 2003

Thomas C. Turney, State Engineer

By: _____
Art Mason

Trn Desc: CP 37 THRU CP 42 COMBS (ENSR2) File Number: CP 00037 COMBS
Trn Number: 255870

RECEIVED

JUN 17 2002

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

REMEDIAL ACTION PLAN FOR CHLORIDE IMPACTED SOIL JAL NO. 4 GAS PLANT LEA COUNTY, NEW MEXICO

Prepared for:

EL PASO CORPORATION
614 REILLY AVENUE
FARMINGTON, NEW MEXICO 87401
(505) 599-2124

Prepared by:

ATKINS BENHAM, INC.
ENVIRONMENTAL DIVISION
2488 East 81st Street, Suite 610
Tulsa, Oklahoma 74137
(918) 496-0059

June 11, 2002

WORLDWIDE COMPREHENSIVE ENVIRONMENTAL SERVICES AND CAPABILITIES

Atkins Benham
ENVIRONMENTAL DIVISION

G053A

REMEDIAL ACTION PLAN FOR CHLORIDE IMPACTED SOIL JAL NO. 4 GAS PLANT LEA COUNTY, NEW MEXICO

Prepared for:

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June 11, 2002

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1.0 INTRODUCTION

The Jal No.4 Gas Plant (Plant) was constructed by an El Paso Corporation (EPC) entity (El Paso Natural Gas Company, or EPNG) in 1952 to treat, compress and transport natural gas to EPC's main transmission lines. EPNG discontinued their use of the Plant in 1987, leasing portions of the Plant property to Christie Gas Corporation (Christie) that same year. The Plant was eventually sold to Christie in 1991.

Brine and wastewater at the Plant was managed in eight (8) unlined retention ponds from 1952 to 1981. Beginning in 1981, brine at the Plant was managed in three (3) synthetic-lined retention ponds. In 1989, a leak was detected in one (1) of the brine retention ponds and two (2) ponds were retired. In response to the reported leak, the New Mexico Oil Conservation Division (NMOCD) requested that a hydrologic study be performed. This request led to the drilling of three (3) groundwater monitor wells and a limited groundwater study at the site in May 1989. The preliminary findings of this study indicated that chloride-impacted groundwater was present beneath the Plant. Subsequent to this discovery, numerous investigations have been conducted at the Plant to characterize and delineate the affected groundwater plume.

To date, eighteen (18) groundwater monitoring wells have been installed. These wells are located generally along the east side of the Plant property, and on off-site properties located east and southeast of the Plant. In addition to these groundwater monitor wells, two (2) groundwater recovery wells have been installed to recover impacted groundwater and prevent its downgradient migration. Impacted groundwater recovery was initiated in recovery well RW-1 in October 1999, and in recovery well RW-2 in January 2000. Groundwater recovered by the remediation system is disposed via an existing on-site injection well that is currently owned by Christie.

On November 28, 2001, a valve on the pipeline integral to the groundwater remediation system froze and broke. This break resulted in the release of approximately seventy-one (71) barrels of chloride affected groundwater in the vicinity of monitor well ACW-9 and recovery well RW-2. This Remedial Action Plan presents analytical data used to delineate the lateral and vertical extent of the chloride impacted soils, the mechanism utilized by the NMOCD to rank and develop remediation goals for the site, and the methodologies to be employed to remediate the affected soils.

1.1 SITE DESCRIPTION

The Plant property is comprised of approximately 181 acres of land located west of State Highway 18, approximately 9 miles north of the town of Jal, New Mexico. The location of the Plant property and topographic features are shown on Figure 1. As is shown, the Plant property occupies portions of Sections 31 and 32 of Township 23 South, Range 37 East, and Sections 5 and 6 of Township 24 South, Range 37 East, in Lea County, New Mexico.

Off-site monitor and recovery wells installed to delineate and remediate the chloride impacted groundwater are located east of State Highway 18. These off-site monitor wells are located in Sections 5 and 6 of Township 24 South, Range 37 East. The area affected by the impacted groundwater release (Affected Area) is located in Section 5 of Township 24 South, Range 37 East and is shown on Figure 2.

1.2 PREVIOUS INVESTIGATIONS

On November 28, 2001, a valve on the flowline associated with the groundwater remediation system froze and broke. This break resulted in the release of approximately seventy-one (71) barrels of chloride affected groundwater in the vicinity of monitor well ACW-9 and recovery well RW-2. On December 7, 2001, EPC submitted Form C-141, Release Notification and Corrective Action (Form C-141) to the NMOCD. A copy of the Form C-141 filed by EPC has been provided in Appendix A.

On November 29, 2001, EPC collected four (4) surface soil samples (M01-0528 through M01-0531) and analyzed for these samples for chlorides and total petroleum hydrocarbon (TPH). Three (3) of these samples were in the Affected Area and one (1) was a background sample. These samples were containerized, labeled, preserved and sent to NEL Laboratory in Las Vegas, Nevada under chain of custody via overnight delivery service. The analytical results indicate that in the Affected Area chlorides were present but TPH was non-detect. A copy of the analytical results has been provided in Appendix B.

On December 18, 2001, EPC collected fifteen (15) soil samples (M01-0534 through M01-0548) from the 0 to 0.5 foot below ground level (bgl) depth interval for the purpose of delineating the horizontal extent of the chloride impacted soil in the Affected Area. The locations of these soil samples are shown on Figure 3. The soil samples were placed in zip-lock plastic bags and shipped to Intermountain Laboratory (IML) located in Farmington, New Mexico, via overnight courier, under chain-of-custody control and analyzed for Electrical Conductance (EC) using the Method 10-3.3, Electrical Conductance as described in Methods of Soil Analysis, Part 2, (2^{nd} edition), dated 1982 and jointly published by the American Society of Agronomy and the Soil Society of America. A complete copy of the analytical results for these soil samples is provided at Appendix B. The results of the laboratory EC analyses are summarized in Table 1.

On March 27, 2002, ABI collected additional soil samples to further delineate the horizontal and vertical extent of the chloride impacted soils in this area. Fourteen (14) hand augered boreholes were installed at the locations shown on Figure 3. The following borehole locations were sampled from the depth interval of 0.0 to 0.5 foot bgl: HA-1 and HA-10 through HA-14. Borehole locations HA-2 though HA-9 were sampled from three (3) depth intervals as follows: 0.0 to 0.5 foot bgl, 0.5 to 1.0 foot bgl and 1.0 to 1.5 feet bgl.

A field EC test was conducted for each interval sampled within each boring. These field EC tests were used as a screening tool to ensure that the hand boring/sampling activities had progressed to a depth interval that was beneath the lower limit of the chloride impacted soil. Each field EC test was conducted by combining a volume (1 cup) of soil from the sampled interval with an equal volume of de-ionized water within a zip-lock plastic bag. Following soil and water combination, the zip-lock bag was sealed and labeled as to source and contents. The soil-water mixture was then mixed completely and allowed to stand for approximately 30 minutes. The electrical conductivity of the soil-water mixture was then taken with an electrical conductivity meter. An EC value of 4 mmhos/cm or less was used as an indicator that the sample collected at each location was beneath the lower limits of the chloride impacted soil. If the field EC value at the proposed final depth of the hand auger was greater than 4 mmhos/cm, then the hand auger boring was advanced an additional six (6) inches, a field EC test was conducted on the soil extracted from this new depth interval and an additional soil sample was collected for submittal to IML.

Soil samples collected for submittal to analytical laboratory were placed directly into zip-lock plastic bags, labeled as to source and contents and transferred to IML, via overnight courier, under chain-of-custody control. These samples were analyzed for EC by Method 10-3.3. A complete copy of the analytical results for these soil samples is provided at Appendix B. The results of the field and laboratory EC analyses are summarized in Table 1.

Isopleths of laboratory EC results for the 0.0 to 0.5 foot bgl, 0.5 to 1.0 foot bgl and 1.0 to 1.5 feet bgl depth intervals have been prepared and are presented on Figures 3, 4 and 5, respectively.

1.3 SITE HYDROGEOLOGICAL CONDITIONS

Site hydrogeological conditions are described in Expanded Hydrogeology Study for the El Paso Natural Gas Company Jal 4 Facility, dated August 1990, prepared by K. W. Brown & Associates, Inc.

1.4 GENERAL SITE CHARACTERISTICS

The remediation goals outlined in Guidelines for Remediation of Leaks, Spills and Releases (Guidelines) dated August 13, 1993 and published by NMOCD do not apply to the constituent of concern (chloride) addressed by this Remedial Action Plan (RAP). However, this RAP will consider the criteria presented in these Guidelines to evaluate the potential risk to surface water and groundwater.

The Guidelines provide guidance for evaluating hydrocarbon impacts to determine remediation goals for benzene; benzene, toluene, ethylbenzene and xylenes (commonly referred to as BTEX) and total petroleum hydrocarbon (TPH). These Guidelines evaluate the potential threat to water sources such as depth to groundwater, wellhead protection area and distance to surface water bodies.

Each factor is provided with a ranking score based on the distance from the source to the potentially threatened water. With these ranking scores, a remediation standard is established. The ranking scores and established remediation standards resulting from these factors are on Table 2. While these Guidelines are not applicable to this constituent of concern, an evaluation of the criteria will demonstrate the potential level of threat to these water sources.

1.4.1 Depth to Groundwater

ACW-9 has routinely been monitored for depth to groundwater since 1997. Historical depth to groundwater measurements taken by EPC within monitor well ACW-9 show that the depth to groundwater has ranged from 110.24 feet top of casing (TOC) in February 1997 to 112.41 feet TOC in February 2001 with an average depth to groundwater of 110.90 feet TOC.

A summary of the depth to groundwater measurements for ACW-9 is shown Table 3.

In accordance with the Guidelines, Section IV.A.2.a, the depth to groundwater component receives a ranking score of zero because the depth to groundwater is greater than one-hundred (100) feet.

1.4.2 Wellhead Protection Area

Wellhead protection area is defined in the Guidelines as "...the horizontal distance from all water sources including private and domestic water sources. Water sources are defined as wells, springs, or other sources of fresh water extraction." The closest water source is the production well located near Oxy USA's, Myers Langlie Mattix Unit Water Injection Station. This production well is located approximately 1,820 feet southeast (downgradient) the affected area.

In accordance with the Guidelines, Section IV.A.2.a, the wellhead protection area component receives a ranking score of zero because the distance to the nearest downgradient well is greater than one-thousand (1,000) feet to the nearest water source or greater than two-hundred (200) feet from the nearest downgradient domestic water source.

1.4.3 Distance to Nearest Surface water Body

Surface water bodies are defined in the Guidelines as "...perennial rivers, streams, creeks irrigation canals and ditches, lakes, ponds and playas." There are no surface water bodies within one-thousand (1,000) feet of the affected area.

In accordance with the Guidelines, Section IV.A.2.a, the distance to nearest surface water body component receives a ranking score of zero

because the nearest surface water body is greater than one-thousand (1,000) feet downgradient.

1.5 REMEDIATION OBJECTIVE

The objective of this remedial action is to excavate and remove the soils from the affected area exhibiting EC values of 4 mmhos/cm or more. This soil will be excavated and disposed at an approved disposal site. The area will be backfilled with clean material and revegetated with an appropriate seed mixture to minimize the potential for erosion.

A common standard used by numerous states when evaluating chloride impacts to soil is published by the United States Department of Agriculture as Agriculture Handbook No. 60, Diagnosis and Improvement of Saline and Alkali Soils, (USDA Handbook 60) issued in February 1954. USDA Handbook 60 describes soil having electrical conductivity of 4 mmhos/cm to 8 mmhos/cm as an EC range where "yields of many crops restricted". A pertinent section of the USDA Handbook 60 is provided in Appendix C.

ABI recommends to remediate the chloride impacted soils in the Affected Area to laboratory EC levels of 4 mmhos/cm.

2.0 SCOPE OF WORK

The following sections outline the scope of work that is planned for this remedial action. All field activities will be conducted under the supervision of an ABI hydrogeologist or engineer and in accordance with the Site-specific Health and Safety Plan (HSP) previously prepared for the Plant. A copy of the HSP will be kept on-site by the ABI Site Safety Officer at all times. Field activities will be documented in detail within a dedicated field log book.

2.1 ESTABLISHING THE LIMITS OF EXCAVATION

To accurately locate the limits of excavation, the affected area will be over laid with a grid system. The grid system will consist of 10-foot by 10-foot grid pattern with grid crossing points having a unique letter/number identification as shown on Figure 6.

After establishing the grid, the limits of excavation as shown on Figure 6 will be marked. These limits of excavation will be marked with different colored marking flags or wooden stakes to indicate the various proposed depths of excavation. It is estimated that approximately one-hundred and sixty (160) cubic yards of material will require excavation.

2.2 EXCAVATION AND DISPOSAL OF CHLORIDE IMPACTED SOIL

Prior to the start of excavation activities, the limits of the excavation will be surveyed using a transit to determine the existing elevations at the corners, approximate center of the excavation and at other control points as necessary. Upon completion of excavation activities the elevations of the excavated surface at the previously surveyed points will be established to verify that the proposed excavation depths have been achieved.

Two (2) permanent structures exist within the area to be excavated. These structures include monitor well ACW-9 and recovery well RW-2. To

prevent the potential for comprising the structural integrity of monitor well ACW-9 and recovery well RW-2, potentially impacted soils located immediately surrounding these structures will not be excavated. Excavation equipment will not excavate closer than two (2) feet from the wellhead protective structure. Excavations in close proximity to these permanent structures will be adequately stabilized throughout the excavation, testing and backfilling operations to protect the structural integrity of these structures.

Chloride impacted soil will be excavated with a rubber-tired backhoe or hydraulic excavator to the proposed excavation depths indicated on Figure 6. After the proposed excavation depth in each area is obtained, soil samples shall be collected for field EC testing. Field EC tests will be conducted to ensure sufficient material as been removed prior to collection of confirmation samples for submittal to the analytical laboratory. Field EC samples will be collected at the locations shown on Figure 7. Comparison of the field and laboratory EC values from the March 27, 2002 sampling event indicates that samples exhibiting a field EC value greater than 1 mmhos/cm, in general, exhibited laboratory EC values greater than 4 mmhos/cm. The field EC tests will be performed as described in Section 1.3.

If a field EC greater than 1 mmhos/cm is observed in a soil sample, then soil will be over-excavated from the area immediately surrounding the location from which the sample exhibiting an elevated field EC was collected. The approximate lateral extent of the over-excavation will be a five (5) feet square with the sample location exhibiting the elevated field EC value in the center of the square. The over-excavation vertical depth will be approximately 0.5 foot. The over-excavation will not extend into previously unexcavated areas or into areas that were initially excavated to a depth other than the depth of the area being over-excavated. Following

these additional excavation activities, an additional soil sample for field EC analysis will be collected from the newly excavated surface at a location beneath the location previously exhibiting an elevated field EC value.

Excavated material will be manifested and transported to the Commercial Waste Management Facility operated by Sundance Services, Inc. (Sundance) (permit number NM-01-0003) located in Eunice, New Mexico.

Based on a conversation between ABI and NMOCD on April 11, 2002, this soil is considered a RCRA exempt waste, because the chloride impacted soil resulted from the release of RCRA exempt groundwater onto the ground. Since the waste is considered RCRA exempt, Sundance has indicated that no profile testing is required.

After field EC values indicating that the soils exhibiting field ECs greater than 1 mmhos/cm have been removed, confirmatory soil samples will be collected for submittal to the analytical laboratory. The locations for these samples are shown on Figure 7. These samples will be placed in zip-lock plastic bags, properly labeled and shipped under chain-of-custody control to IML and analyzed for EC using Method 10-3.3.

2.3 BACKFILL AND REVEGETATION

Upon receipt of laboratory analytical data confirming the affected soil has been removed, the excavated area will be backfilled and revegetated. Backfill material will be obtained from Wallach Concrete located in Eunice, New Mexico and transported to the excavation site by either the excavation contractor or Wallach Concrete. Prior to the purchase of any backfill material, one (1) sample of the backfill material will be collected and submitted to IML for analysis to ensure the backfill material is not impacted. The analyses will include EC; TCLP metals; benzene, toluene, ethylbenzene and xylenes (collectively referred to as BTEX) and total

petroleum hydrocarbon (TPH) (Diesel Range Organics and Gasoline Range Organics). The standards for the testing of the backfill are as follows:

- EC less than 4 mmhos/cm.
- TCLP metals less than 40 CFR 261.24, Table 1-Maximum Concentration of Contaminants for Toxicity Characteristic.
- BTEX – less than laboratory practical quantification limit.
- TPH - less than laboratory quantification limit.

During backfilling operations, the area will be sloped to minimize erosion but encourage surface runoff.

Upon completion of backfilling operations, the area will be revegetated with a seed mixture developed by the United States Bureau of Land Management for sandy soil sites in the southeast New Mexico area. This mix and application rate is summarized on Table 4.

3.0 PROJECT SCHEDULE

It is anticipated that the excavation, backfilling and revegetation of the area will be completed in two (2) phases. The first phase will include the excavation, removal and disposal of the chloride impacted material as well as collection of laboratory confirmation samples to demonstrate that the excavation is below remediation objective of 4 mmhos/cm. The second phase will be for backfilling and revegetation of the excavation.

The first phase is expected to take approximately two (2) days. The first day will be used to establish the limits of excavation and gather the survey information. The second day will to excavate, remove and dispose of the chloride impacted material, conduct field EC screening and collect laboratory confirmation samples. The second phase, backfilling and site restoration, will take approximately two (2) days. There will be a delay of three (3) days while the laboratory analyzes the soil confirmation samples and provides preliminary results.

4.0 REPORTING

After completion of the remedial action, a Closure Report will be prepared and submitted to NMOCD for review and approval. This report will describe the activities conducted during implementation of this remedial action plan. The report will also include figures showing the final limits of excavation, locations of laboratory confirmatory samples and laboratory analytical results.

Upon receipt of approval of the Closure Report, a final report Form C-141 will be submitted to the NMOCD.

TABLES

TABLES

Table 1: Summary of
Field and Laboratory Electrical Conductivity Results
Jal No. 4 Gas Plant
El Paso Corporation
Lea County, New Mexico

Sample Location	Sample Depth feet bgl	Date Sampled	Field EC mmhos/cm	Laboratory EC mmhos/cm
M01-0534	0.0-0.5	18-Dec-01	NS	0.05
M01-0535	0.0-0.5	18-Dec-01	NS	2.08
M01-0536	0.0-0.5	18-Dec-01	NS	0.42
M01-0537	0.0-0.5	18-Dec-01	NS	7.52
M01-0538	0.0-0.5	18-Dec-01	NS	10.7
M01-0539	0.0-0.5	18-Dec-01	NS	10.6
M01-0539D	0.0-0.5	18-Dec-01	NS	10.4
M01-0540	0.0-0.5	18-Dec-01	NS	16.1
M01-0541	0.0-0.5	18-Dec-01	NS	63.2
M01-0542	0.0-0.5	18-Dec-01	NS	65.2
M01-0543	0.0-0.5	18-Dec-01	NS	68
M01-0544	0.0-0.5	18-Dec-01	NS	59.2
M01-0545	0.0-0.5	18-Dec-01	NS	65.8
M01-0546	0.0-0.5	18-Dec-01	NS	50.9
M01-0547	0.0-0.5	18-Dec-01	NS	53
M01-0548	0.0-0.5	18-Dec-01	NS	46.4
HA-1	0.0-0.5	27-Mar-02	0.130	0.46
HA-2	0.0-0.5	27-Mar-02	0.274	1.2
HA-2	0.5-1.0	27-Mar-02	0.195	1.1
HA-2	1.0-1.5	27-Mar-02	0.367	1.45
HA-3	0.0-0.5	27-Mar-02	3.200	13.5
HA-3	0.5-1.0	27-Mar-02	3.010	13
HA-3	1.0-1.5	27-Mar-02	2.502	10
HA-4	0.0-0.5	27-Mar-02	0.620	2.49
HA-4	0.5-1.0	27-Mar-02	0.151	2.48
HA-4	1.0-1.5	27-Mar-02	0.178	0.82
HA-4 (DUPLICATE)	1.0-1.5	27-Mar-02	0.178	0.81
HA-5	0.0-0.5	27-Mar-02	0.471	3.29
HA-5	0.5-1.0	27-Mar-02	2.325	3.09
HA-5	1.0-1.5	27-Mar-02	2.263	2.57
HA-6	0.0-0.5	27-Mar-02	5.690	17.2
HA-6	0.5-1.0	27-Mar-02	1.760	13
HA-6	1.0-1.5	27-Mar-02	1.782	7.32
HA-7	0.0-0.5	27-Mar-02	2.870	3.85
HA-7	0.5-1.0	27-Mar-02	1.245	2.62
HA-7	1.0-1.5	27-Mar-02	1.225	2.36
HA-8	0.0-0.5	27-Mar-02	4.990	19.2
HA-8 (DUPLICATE)	0.0-0.5	27-Mar-02	4.990	19
HA-8	0.5-1.0	27-Mar-02	3.163	12.1
HA-8	1.0-1.5	27-Mar-02	2.520	14.5
HA-9	0.0-0.5	27-Mar-02	2.279	2.79
HA-9	0.5-1.0	27-Mar-02	0.439	2.31
HA-9	1.0-1.5	27-Mar-02	0.454	2.27
HA-10	0.0-0.5	27-Mar-02	2.147	4.29
HA-11	0.0-0.5	27-Mar-02	0.230	1.21
HA-12	0.0-0.5	27-Mar-02	1.241	5.99

Table 1: Summary of
Field and Laboratory Electrical Conductivity Results
Jal No. 4 Gas Plant
El Paso Corporation
Lea County, New Mexico

Sample Location	Sample Depth feet bgl	Date Sampled	Field EC mmhos/cm	Laboratory EC mmhos/cm
HA-13	0.0-0.5	27-Mar-02	1.628	2.46
HA-14	0.0-0.5	27-Mar-02	0.577	2.41
HA-14(DUPLICATE)	0.0-0.5	27-Mar-02	0.577	2.43

NOTES:

1. mmhos/cm - denotes millimhos per centimeter.
2. bgl - denotes below ground level.
3. NS - denotes Not Sampled.

TABLE 2: NEW MEXICO OIL CONSERVATION DIVISION REMEDIATION STANDARD RANKING CRITERIA
JAL NO. 4 GAS PLANT
EL PASO CORPORATION
LEA COUNTY, NEW MEXICO

Ranking Criteria per the Guidelines			
Depth to Groundwater			
Criteria	**Ranking**		
<50 feet	20		
50 – 99 feet	10		
>100 feet	0		
Wellhead Protection Area			
Criteria	**Ranking**		
<1000 feet from a source or <200 feet from a private domestic source			
Yes	20		
No	0		
Distance to Surface Water Body			
Criteria	**Ranking**		
<200 horizontal feet	20		
200 – 1,000 horizontal feet	10		
>1,000 horizontal feet	0		
Recommended Remediation Levels			
	>19	**10 – 19**	**0 – 9**
Benzene (ppm)	10	10	10
BTEX (ppm)	50	50	50
TPH (ppm)	100	1,000	5,000

TABLE 3: SUMMARY OF MONITOR WELL ACW-9 HISTORICAL DEPTH TO GROUNDWATER MEASUREMENTS
JAL NO. 4 GAS PLANT
EL PASO CORPORATION
LEA COUNTY, NEW MEXICO

Depth to Groundwater Monitor Well ACW-9	
Date	**Depth to Groundwater (Ft-TOC)**
02/19/97	110.24
05/08/97	110.25
08/19/97	110.26
10/23/97	110.28
02/24/98	110.29
05/13/98	110.30
08/11/98	110.32
10/21/98	110.40
02/23/99	110.54
05/13/99	110.45
08/11/99	110.45
10/22/99	110.50
02/22/00	111.18
05/12/00	111.89
08/07/00	111.22
10/26/00	112.20
02/20/01	112.41
05/04/01	110.85
08/01/01	110.70
10/25/01	112.17
02/20/02	111.98

TABLE 4: BUREAU OF LAND MANAGEMENT SEED MIXTURE #2
JAL NO. 4 GAS PLANT
EL PASO CORPORATION
LEA COUNTY, NEW MEXICO

Bureau of Land Management Seed Mixture #2 (Sandy Sites)		
Seed Common Name	Seed Scientific Name	Application rate in pounds Pure Live Seed per acre
Sand Dropseed	Sporobolus cryptandrus	1
Sand Lovegrass	Eragrostis trichodes	1
Plains Bristlegrass	Setaria macrostachya	2

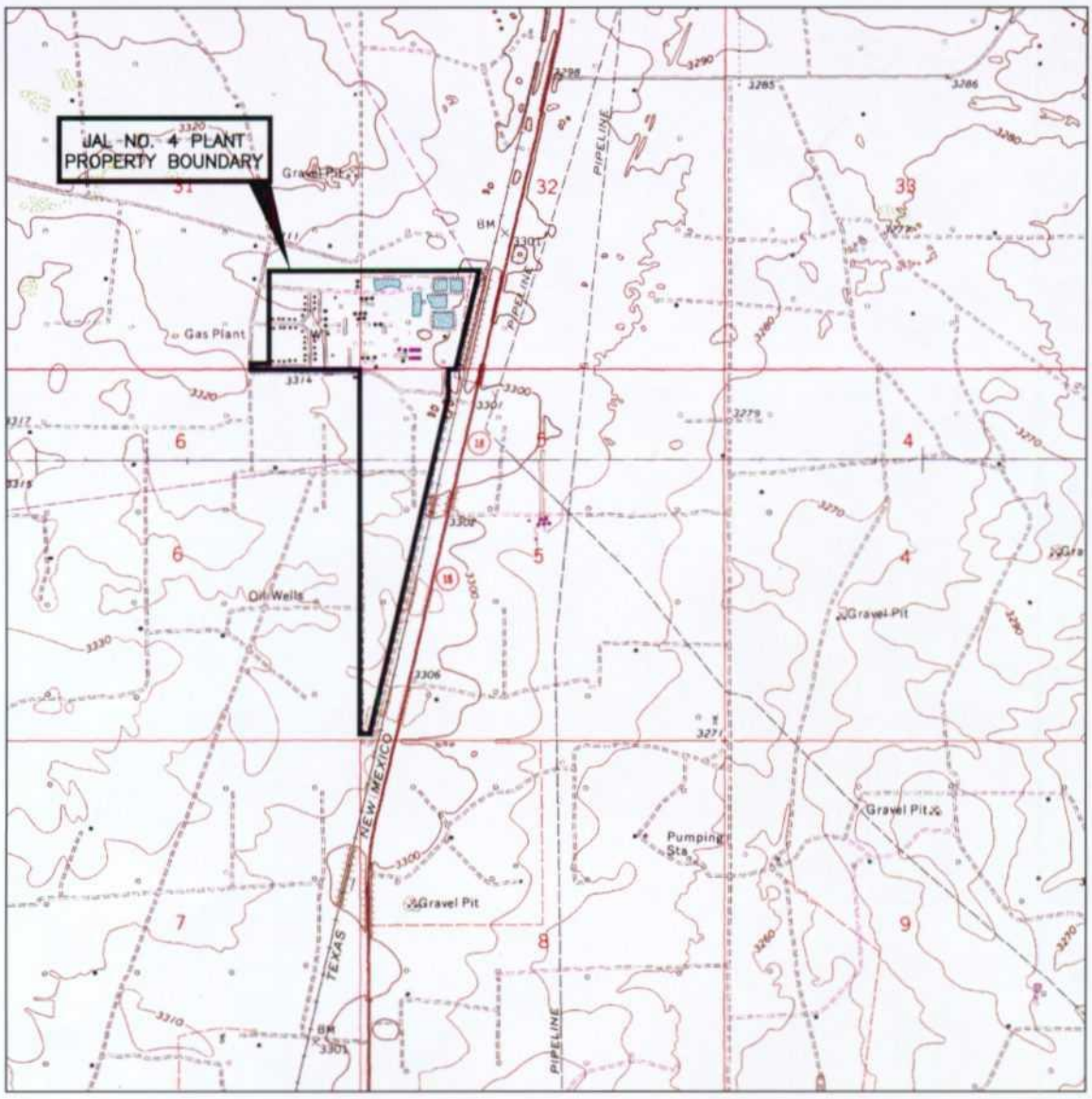
FIGURES

FIGURES

R 37 E

T 23 S

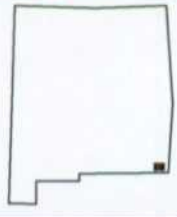
T 24 S



AFTER U.S.G.S. 7.5 MIN. TOPO. QUAD., RATTLESNAKE CANYON, N.M., 1979, AND JAL NW, N.M., 1979

SCALE
0 1/2 1 MILE

NEW MEXICO



N

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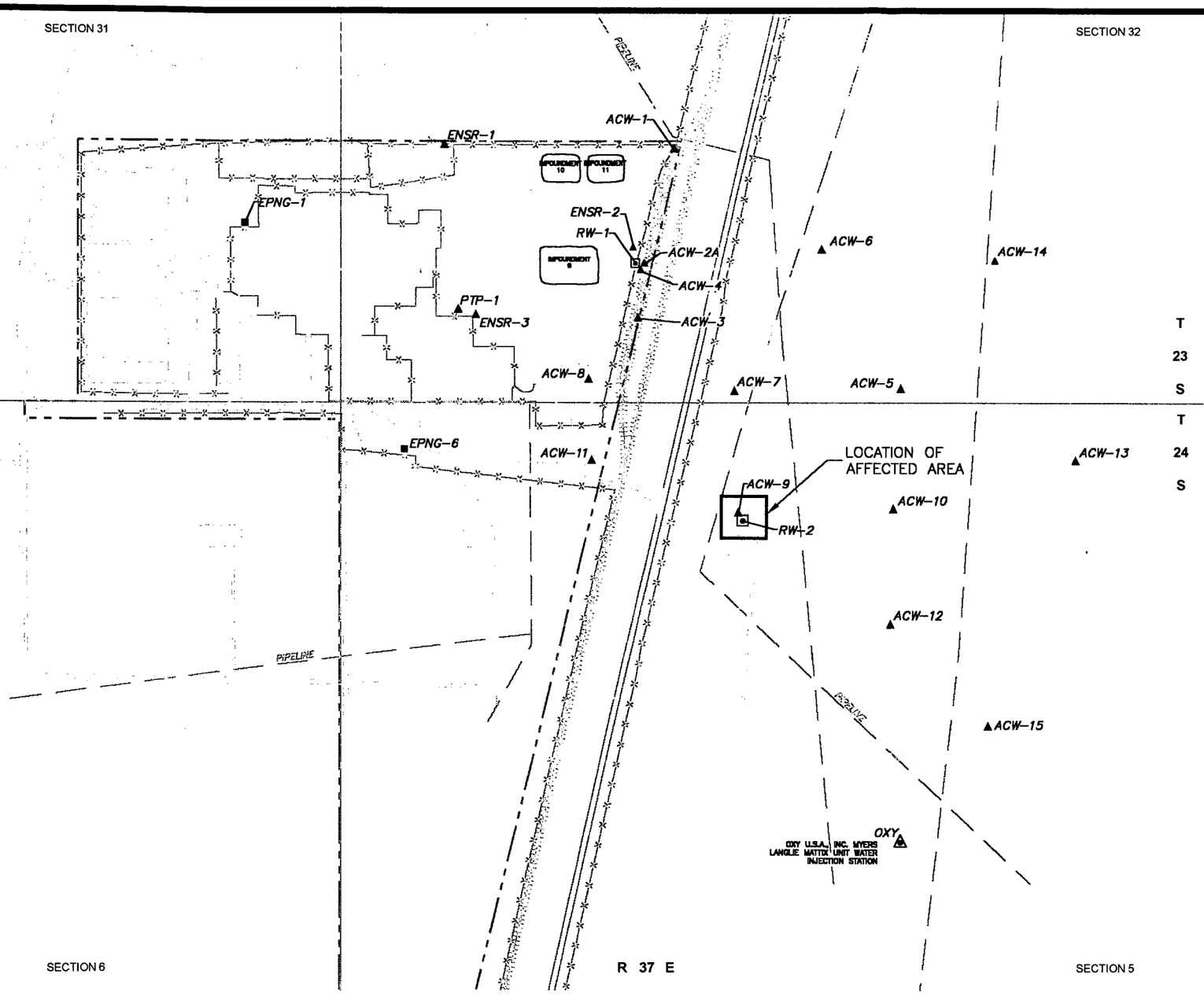
FIGURE TITLE	PLANT LOCATION AND TOPOGRAPHIC FEATURES
DOCUMENT TITLE	REMEDIAL ACTION PLAN FOR REMEDIATION OF CHLORIDE IMPACTED SOIL
CLIENT	EL PASO CORPORATION
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

DATE	4/22/02
SCALE	AS NOTED
DESIGNED BY	PPS
APPROVED BY	GHR
DRAWN BY	SKG
PROJECT NUMBER	9717104 T2
FIGURE NUMBER	1

P:\USTAH\Env\1997\97171\CAD\9717104T2\FIG 1 - TOPO.DWG on Jun 07, 2002-3:10pm



LEGEND

- ACW-5 — GROUNDWATER MONITOR WELL
- EPNG-1 — WATER SUPPLY WELL
- RW-2 — GROUNDWATER RECOVERY WELL
- OXY — INJECTION WELL
- PROPERTY BOUNDARY
- FENCE
- SECONDARY ROAD
- RAILROAD TRACK
- PIPELINE
- IMPOUNDMENT

NOTES:
1) JAL #4 PLANT PROPERTY IS LOCATED WITHIN SECTIONS 31 AND 32 OF TOWNSHIP 23 SOUTH, RANGE 37 EAST, AND SECTIONS 5 AND 6 OF TOWNSHIP 24 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO.
2) SITE BASE AREA DIGITIZED FROM 11/04/76 AERIAL PHOTOGRAPH WITH PROPERTY BOUNDARY AND WELLS INSERTED FROM VARIOUS OTHER SOURCES.

-N-

300' 0 300' 600'
SCALE FEET

FIGURE TITLE: *LOCATION OF AREA AFFECTED BY IMPACTED GROUNDWATER RELEASE*

DOCUMENT TITLE: REMEDIAL ACTION PLAN FOR REMEDICATION OF CHLORIDE IMPACTED SOIL

CLIENT: EL PASO CORPORATION

LOCATION: JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

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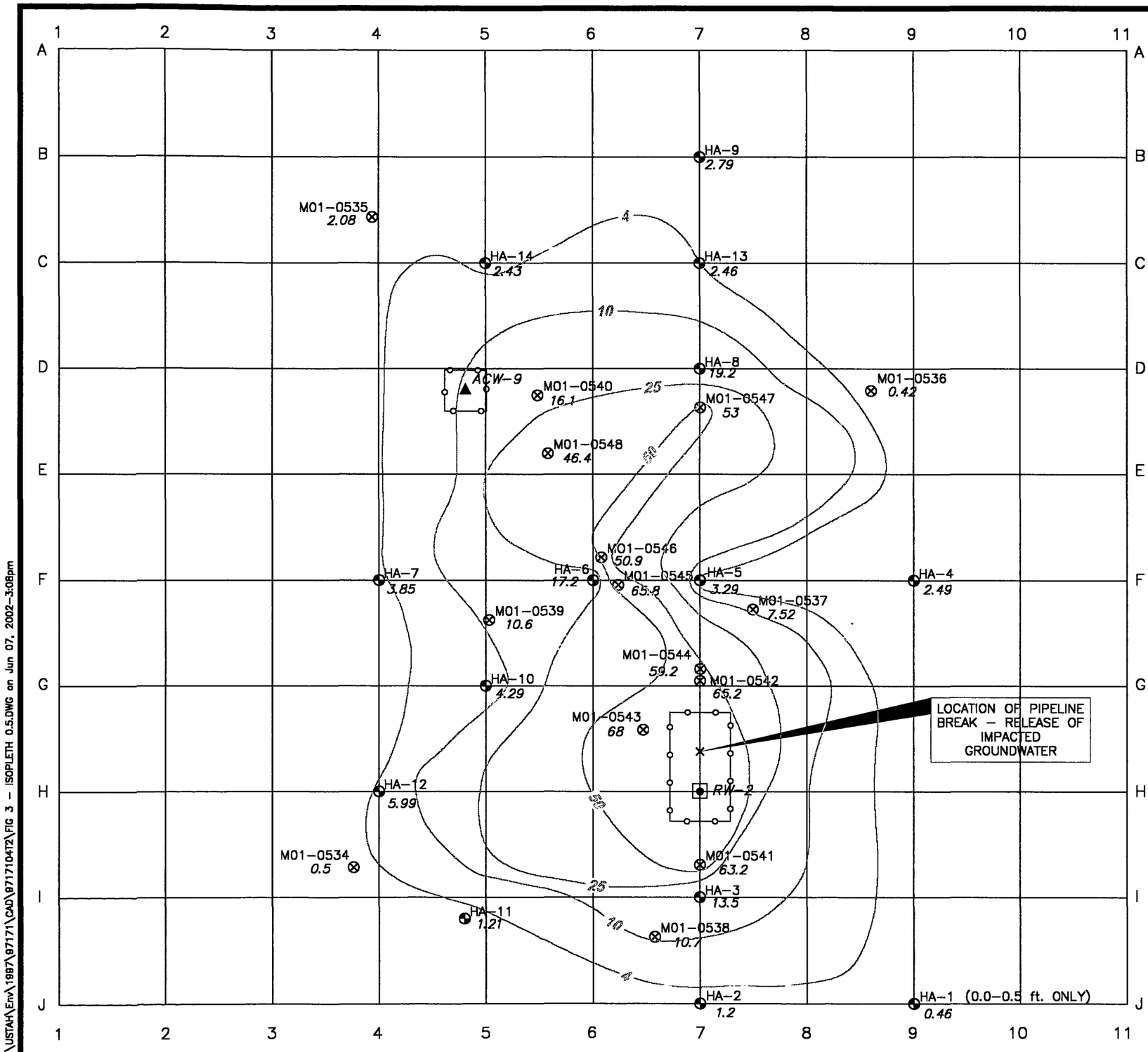
DATE	5/1/02
SCALE	1"= 600'
DESIGNED BY	PPS
APPROVED BY	GHR
DRAWN BY	SKG

PROJECT NUMBER
9717104 T2

FIGURE NUMBER
2

P:\USTAH\Env\1997\97171\CAD\9717104T2\FIG 2 - WELL LOC.DWG on Jun 07, 2002-3:08pm



LEGEND

- ACW–9 — GROUNDWATER MONITORING WELL AND IDENTIFICATION
- RW–2 — GROUNDWATER RECOVERY WELL AND IDENTIFICATION
- M01–0535 2.08 — SOIL SAMPLE LOCATION WITH IDENTIFICATION AND SOIL EC, mmhos/cm (SAMPLES COLLECTED 12/18/01)
- 10 — CONTOUR OF SOIL EC LEVELS, mmhos/cm
- HA–1 0.46 — SOIL SAMPLE LOCATION WITH IDENTIFICATION AND SOIL EC, mmhos/cm (SAMPLES COLLECTED ON 3/27/02)
- WELL HEAD PROTECTION RAILS AND POSTS

NOTES:
1) SAMPLE GRID ESTABLISHED ON 10' x 10' INTERSECTS.
2) SAMPLES M01–0534 THRU M01–0548 COLLECTED ON 12/18/01.
3) SAMPLES HA–1 THRU HA–14 COLLECTED ON 3/27/02.
4) LOCATION FOR SAMPLES M01–0537 AND M01–0539 ARE APPROXIMATE.
5) EACH SAMPLE TO BE A COMPOSITE OF RESPECTIVE 6" INTERVAL.
6) COMPASS DIRECTION APPROXIMATE.

10' 0 10'
SCALE IN FEET

FIGURE TITLE	ISOPLETH OF LABORATORY EC RESULTS, DEPTH INTERVAL 0.0 TO 0.5 FOOT bgl
DOCUMENT TITLE	REMEDIAL ACTION PLAN FOR REMEDIATION OF CHLORIDE IMPACTED SOIL
CLIENT	EL PASO CORPORATION
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

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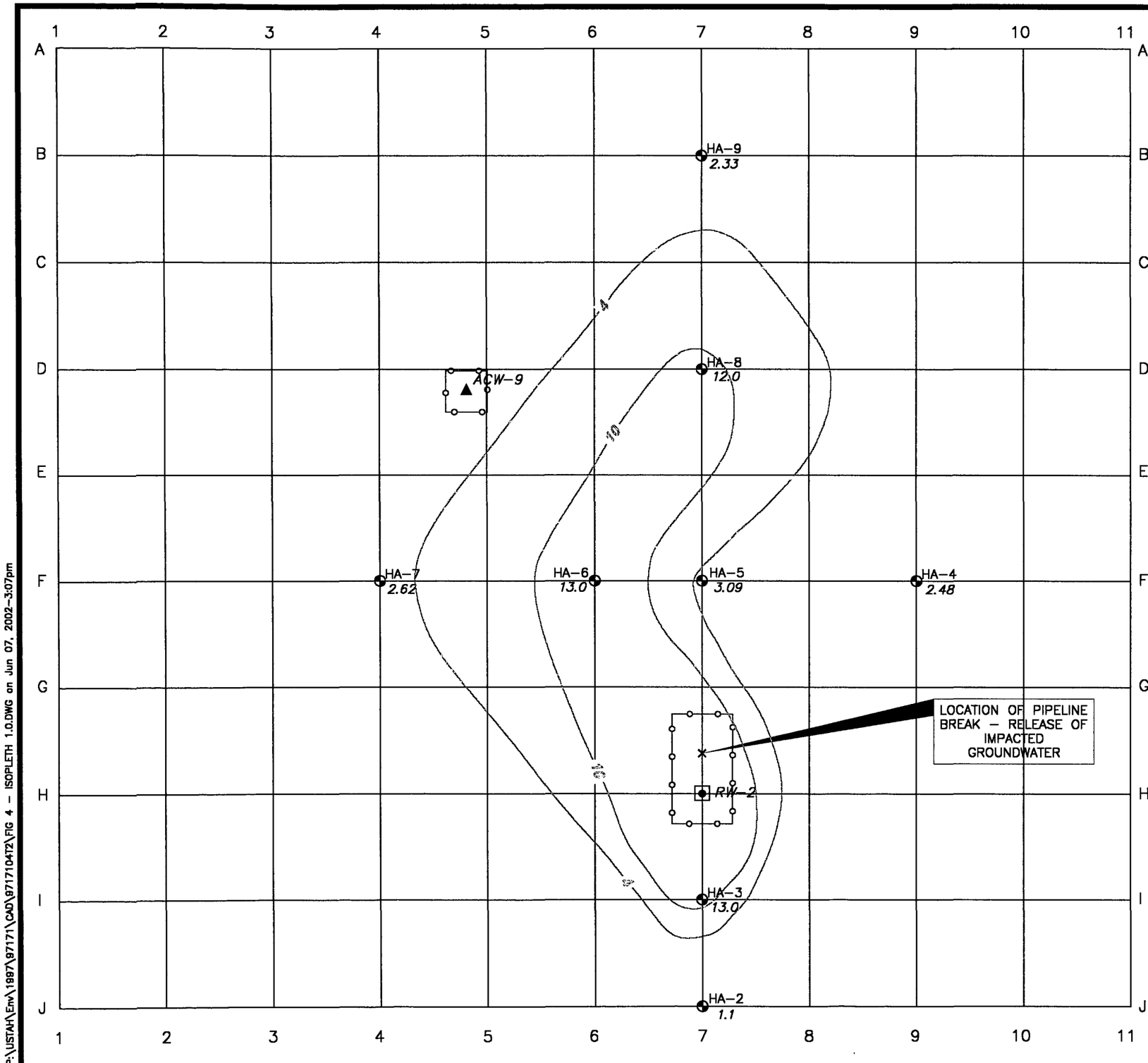
SCALE	1"=10'
DESIGNED BY	PPS
APPROVED BY	GHR
DRAWN BY	SKG

PROJECT NUMBER
9717104 T2
FIGURE NUMBER
3

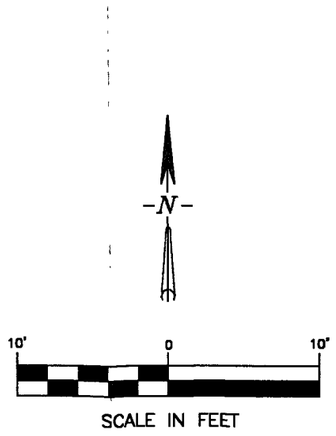
P:\USTAH\Env\1997\97171\CAD\97171047T2\FIG 3 - ISOPLETH 0.5.DWG on Jun 07, 2002-3:08pm



LEGEND

- ACW–9 — GROUNDWATER MONITORING WELL AND IDENTIFICATION
- RW–2 — GROUNDWATER RECOVERY WELL AND IDENTIFICATION
- HA–2 / 1.1 — SOIL SAMPLE LOCATION IDENTIFICATION AND SOIL EC, mmhos/cm (SAMPLES COLLECTED 3/27/02)
- 10 — CONTOUR OF SOIL EC LEVELS, mmhos/cm
- WELL HEAD PROTECTION RAILS AND POSTS

NOTES:
1) SAMPLE GRID ESTABLISHED ON 10' x 10' INTERSECTS.
2) EACH SAMPLE TO BE A COMPOSITE OF RESPECTIVE 6" INTERVAL.
3) SAMPLE HA–2 THRU HA–9 COLLECTED ON 3/27/02.
4) COMPASS DIRECTION APPROXIMATE



SCALE IN FEET

FIGURE TITLE	ISOPLETH OF LABORATORY EC RESULTS, DEPTH INTERVAL 0.5 TO 1.0 FOOT bgl
DOCUMENT TITLE	REMEDIAL ACTION PLAN FOR REMEDIATION OF CHLORIDE IMPACTED SOIL
CLIENT	EL PASO CORPORATION
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

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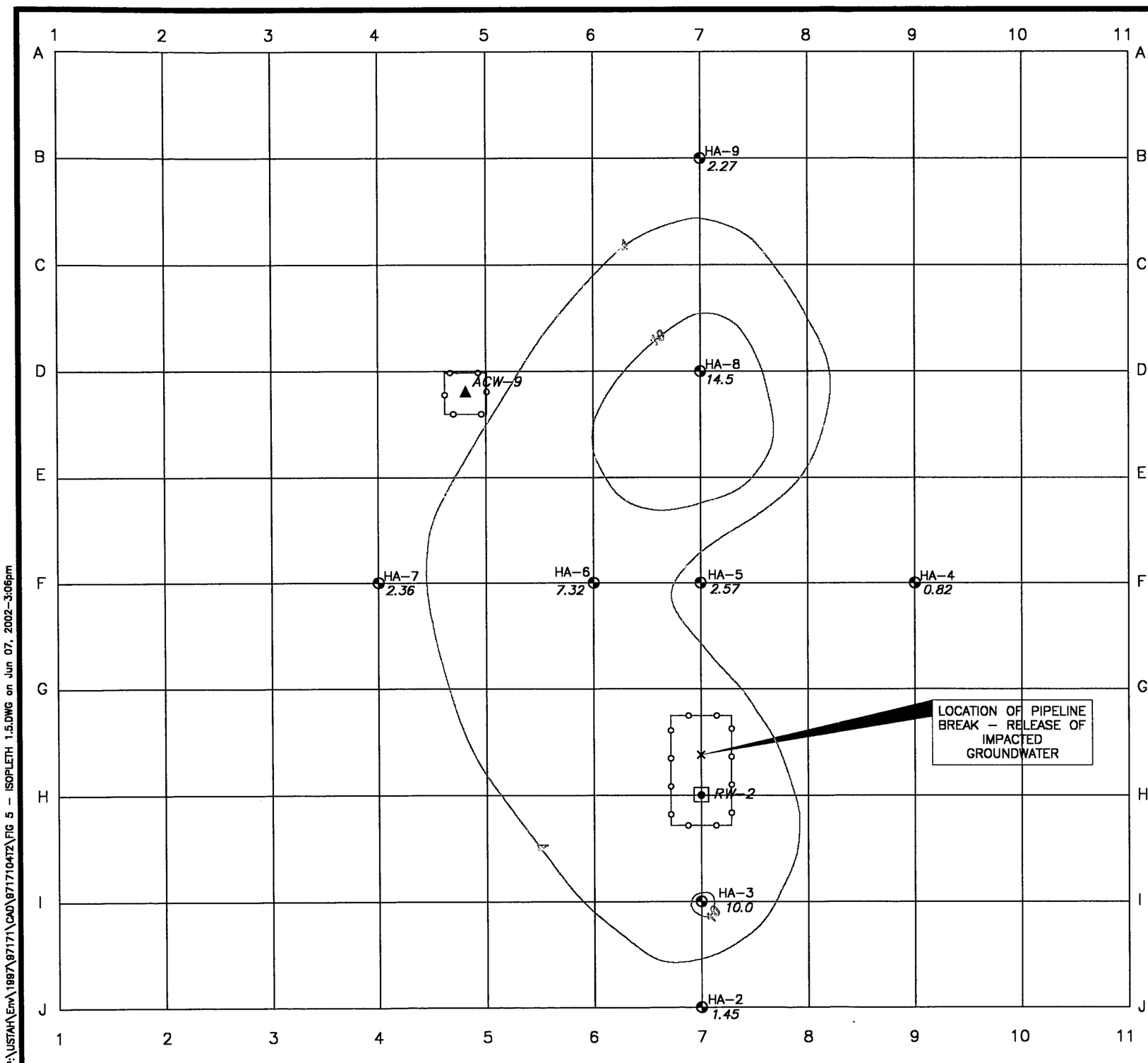
PROJECT NUMBER
9717104 T2
FIGURE NUMBER
4

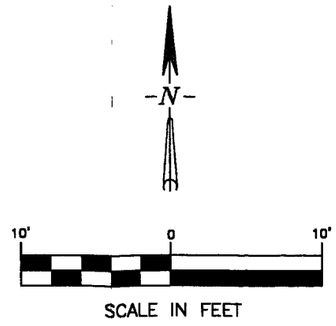
P:\USTAH\Env\1997\97171\CAD\9717104T2\FIG 4 – ISOPLETH 1.0.DWG on Jun 07, 2002–3:07pm



LEGEND

- ACW–9 — GROUNDWATER MONITORING WELL AND IDENTIFICATION
- RW–2 — GROUNDWATER RECOVERY WELL AND IDENTIFICATION
- HA–2 1.45 — SOIL SAMPLE LOCATION IDENTIFICATION AND SOIL EC, mmhos/cm (SAMPLES COLLECTED 3/27/02)
- 10 — CONTOUR OF SOIL EC LEVELS, mmhos/cm
- WELL HEAD PROTECTION RAILS AND POSTS

NOTES:
1) SAMPLE GRID ESTABLISHED ON 10' x 10' INTERSECTS.
2) EACH SAMPLE TO BE A COMPOSITE OF RESPECTIVE 6" INTERVAL.
3) SAMPLES HA–2 THRU HA–9 COLLECTED 3/27/02.
4) COMPASS DIRECTION APPROXIMATE



SCALE IN FEET

FIGURE TITLE	ISOPLETH OF LABORATORY EC RESULTS, DEPTH INTERVAL 1.0 TO 1.5 FOOT bgl
DOCUMENT TITLE	REMEDIAL ACTION PLAN FOR REMEDIATION OF CHLORIDE IMPACTED SOIL
CLIENT	EL PASO CORPORATION
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

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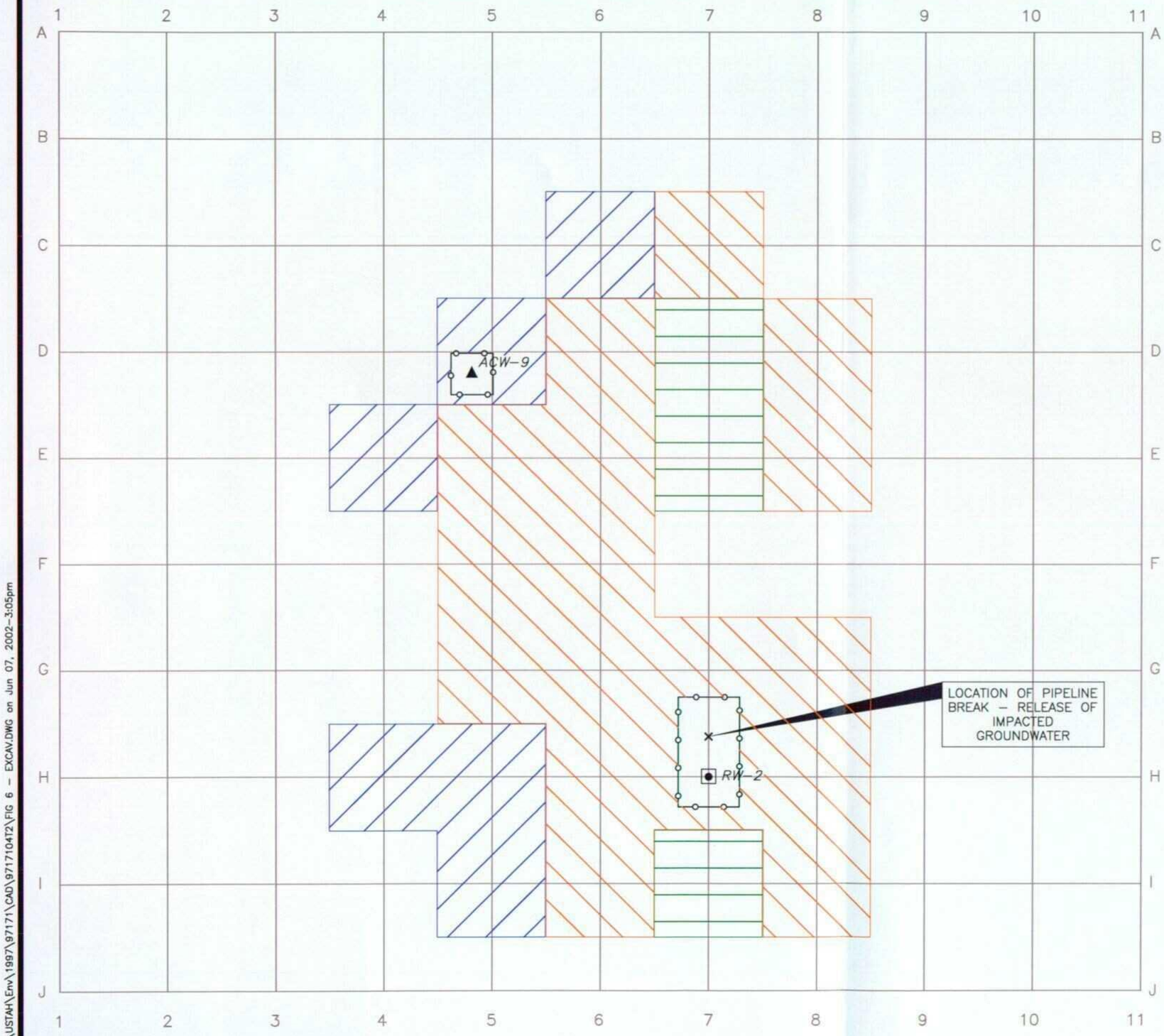
PROJECT NUMBER
9717104 T2
FIGURE NUMBER
5

P:\USTAH\Env\1997\97171\CAD\97171047 2\FIG 5 – ISOPLETH 1.5.DWG on Jun 07, 2002–3:06pm

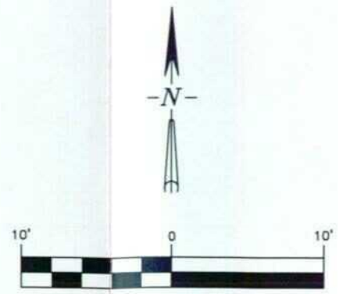


LEGEND

- ▲ ACW–9 — GROUNDWATER MONITORING WELL AND IDENTIFICATION
- ⊡ RW–2 — GROUNDWATER RECOVERY WELL AND IDENTIFICATION
- WELL HEAD PROTECTION RAILS AND POSTS
- PROPOSED LIMITS OF EXCAVATION TO 1 FOOT DEPTH
- PROPOSED LIMITS OF EXCAVATION TO 2 FEET DEPTH
- PROPOSED LIMITS OF EXCAVATION TO 2.5 FEET DEPTH

NOTES: 1) SAMPLE GRID ESTABLISHED ON 10' x 10' INTERSECTS.

2) COMPASS DIRECTION APPROXIMATE



SCALE IN FEET

FIGURE TITLE	*PROPOSED AREA FOR EXCAVATION OF IMPACTED SOILS WITH EC VALUES GREATER THAN 4 mmhos/cm*
DOCUMENT TITLE	REMEDIAL ACTION PLAN FOR REMEDIATION OF CHLORIDE IMPACTED SOIL
CLIENT	EL PASO CORPORATION
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

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SCALE	1"=10'
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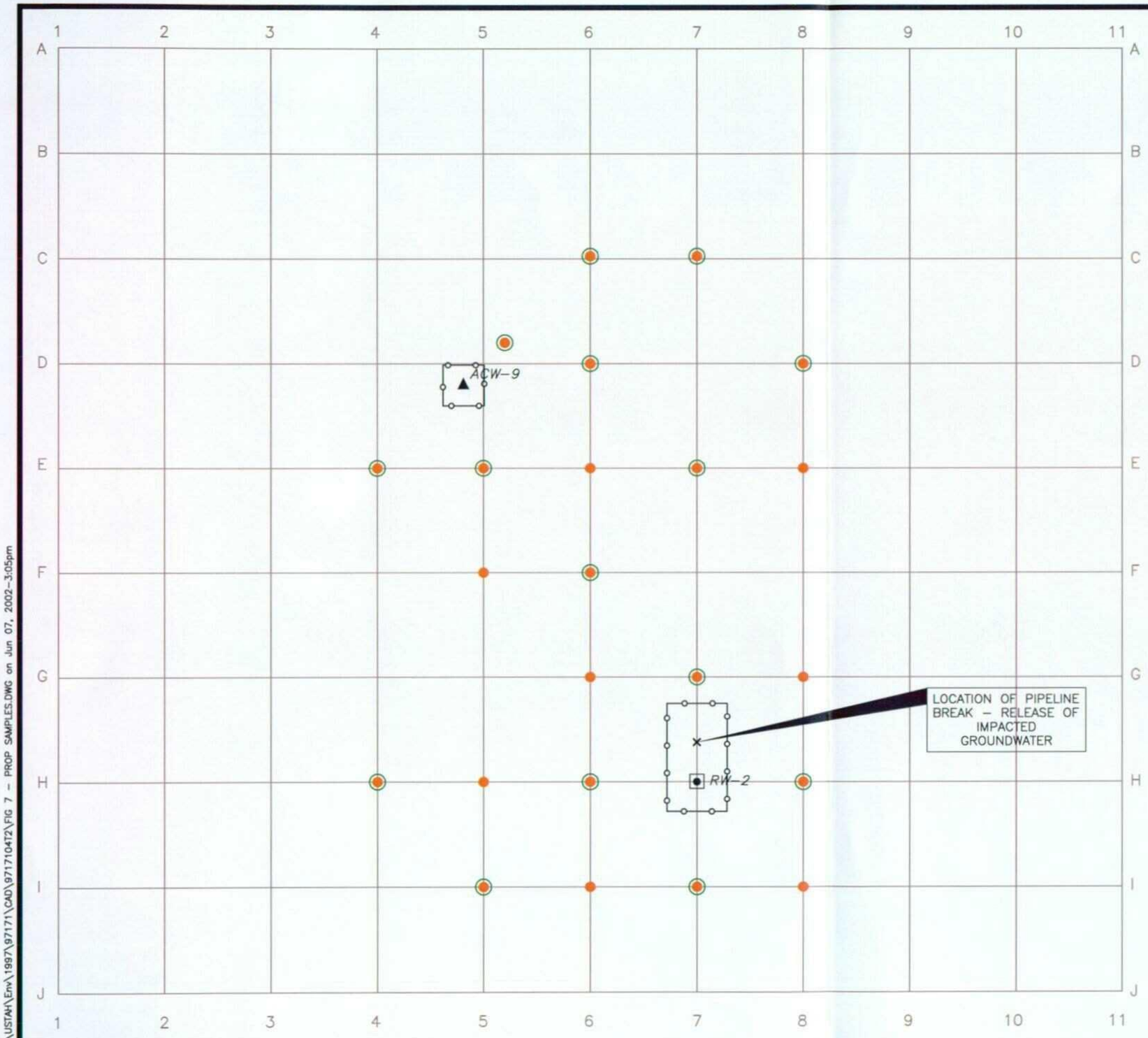
PROJECT NUMBER
9717104 T2
FIGURE NUMBER
6

P:\USTAH\Env\1997\97171\CAD\97171041T2\FIG 6 – EXCAV.DWG on Jun 07, 2002–3:05pm

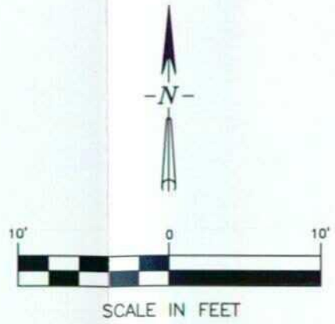


LEGEND

- ACW–9 — GROUNDWATER MONITORING WELL AND IDENTIFICATION
- RW–2 — GROUNDWATER RECOVERY WELL AND IDENTIFICATION
- WELL HEAD PROTECTION RAILS AND POSTS
- PROPOSED FIELD EC CONFIRMATION SAMPLE LOCATION
- PROPOSED LABORATORY EC CONFIRMATION SAMPLE LOCATION

NOTES: 1) SAMPLE GRID ESTABLISHED ON 10' x 10' INTERSECTS.

2) COMPASS DIRECTION APPROXIMATE



SCALE IN FEET

FIGURE TITLE	*PROPOSED FIELD AND LABORATORY EC CONFIRMATION SAMPLE LOCATIONS*
DOCUMENT TITLE	REMEDIAL ACTION PLAN FOR REMEDIATION OF CHLORIDE IMPACTED SOIL
CLIENT	EL PASO CORPORATION
LOCATION	JAL #4 GAS PLANT LEA COUNTY, NEW MEXICO

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DATE	5/1/02
SCALE	1"=10'
DESIGNED BY	PPS
APPROVED BY	GHR
DRAWN BY	SKG

PROJECT NUMBER
9717104 T2
FIGURE NUMBER
7

P:\USTAH\Env\1997\97171\CAD\9717104T2\FIG 7 – PROP SAMPLES.DWG on Jun 07, 2002–3:05pm

APPENDICES

APPENDICES

APPENDIX A

APPENDIX A

District I - (505) 393-6161
P. O. Box 1940
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

State of New Mexico

Energy Minerals and Natural Resources Departments
Oil Conservation Division

2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Form C-141
Originated 2/13/97

Submit 2 Copies to Appropriate District Office in accordance with Rule 116

Release Notification and Corrective Action

OPERATOR

X Initial Report ☐ Final Report

Name	Contact
El Paso Natural Gas	Scott Pope
Address	Telephone No.
614 Reilly Ave, Farmington, NM 87401	(505) 599-2124
Facility Name	Facility Type
Jal 4 Remediation Project	Pump and Treat Remediation system

Surface Owner	Mineral Owner	Lease No.
Jimmy and Becky Dooms	N/A	N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	5	24 S	37 E		600 FNL		1980 FWL	Lea

NATURE OF RELEASE

Type of Release	Volume released	Volume Recovered
Frozen valve on discharge line ruptured spilling, water high in chlorides.	approximately 71 barrels	None
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Groundwater remediation pumping well discharge line form ENSR-2. ENSR-2 line ties to line from RW-2, which goes from RW-2 under Highway to disposal well.	11/28/01 Approx. 12:00 midnight	11/28/01, 12:00 noon
Was Immediate Notice Given? X Yes ☐ No ☐ Not Required	If YES, To Whom? Bill Olson	
By Whom? Scott Pope	Date and Hour 11/28/01 approximately 3:00 pm	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Valve on discharge line froze and ruptured at RW-2. Water being removed from ENSR-2 escaped at the ruptured valve on RW-2. Valve and line have been repaired. We are getting costs for the installation of electrical supply to provide a heat source to keep lines from freezing in the future. We are also looking into installing back flow preventers in discharge lines.

Describe Area Affected and Cleanup Action Taken.*
Area affected by spill was approximately 8-10 feet wide by 30 – 40 feet long. See attached pictures of affected area. Soil samples were collected for TPH and chlorides. Remedial action will depend on results of soil samples. Sample results are expected within the next week.

Describe General Conditions Prevailing (Temperature, Precipitation, etc.)*
Freezing temperatures, snowy and windy.

I hereby certify that the information given is true and correct to the best of my knowledge and belief:

Signature: Scott T. Pope

Printed Name: Scott T. Pope

Title: Senior Environmental Scientist

Date: 12/7/01 Phone: (505) 599-2124

OIL CONSERVATION DIVISION

Approved by District Supervisor:

Approval Date: Expiration Date:

Conditions of Approval: Attached: ☐

*Attach Additional Sheets If Necessary

APPENDIX B

APPENDIX B

SAMPLE KEY

SAMPLE NUMBER: M01-0528 LOCATION: Jal #4
MATRIX: Soil
SAMPLE DESCRIPTION: South side of ACW #14 surface sample
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 13:00 SAMPLE DATE: 11/29/2001
BY: Brisbin

SAMPLE KEY

SAMPLE NUMBER: M01 0529 LOCATION: Jal #4
MATRIX: Soil
SAMPLE DESCRIPTION: Between ACW #16 and ACW #9
S D CONTINUED: surface sample
S D CONTINUED:
SAMPLE TIME: 13:05 SAMPLE DATE: 11/29/2001
BY: Brisbin

SAMPLE KEY

SAMPLE NUMBER: M01-0530 LOCATION: Jal #4
MATRIX: Soil
SAMPLE DESCRIPTION: East side of ACW #9
S D CONTINUED: surface sample
S D CONTINUED:
SAMPLE TIME: 13:10 SAMPLE DATE: 11/29/2001
BY: Brisbin

SAMPLE KEY

SAMPLE NUMBER: M01-0531 LOCATION: Jal #4
MATRIX: Soil
SAMPLE DESCRIPTION: Back Ground sample
S D CONTINUED: surface sample
S D CONTINUED:
SAMPLE TIME: 13:15 SAMPLE DATE: 11/29/2001
BY: Brisbin

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702-657-1010 • Fax 702-657-1577
1 888 368-3282

CLIENT: El Paso Natural Gas Company
8645 Railroad Drive
El Paso, TX 79904
ATTN: Darrell Campbell

PROJECT NAME: JAL #4
PROJECT NUMBER: NA

NEL ORDER ID: P011050

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 11/30/01.

Should you have any questions or comments, please feel free to contact our Client Services department at (602) 437-0099.

Stan Van Wagenen
Laboratory Manager

12/7/01
Date

CERTIFICATIONS

	Reno	Las Vegas	S. California
Arizona	AZ0520	AZ0518	AZ0605
California	1707	2002	2264
US Army Corps of Engineers	Certified	Certified	

	Reno	Las Vegas	S. California
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
L.A.C.S.D.			10228

NEL LABORATORIES

CLIENT	El Paso Natural Gas Company	CLIENT ID.	M01-0528
PROJECT ID	JAL #4	DATE SAMPLED	11/28/01
PROJECT #	NA	NEL SAMPLE ID	P011050-01
TEST	**Inorganic Non-Metals**		
MATRIX	Solid		

PARAMETER	RESULT	R.L.	D.F.	METHOD	UNITS	ANALYZED
Chloride	1900	200	2000	EPA 300.0	mg/kg	12/7/01

R.L. - Reporting Limit
D.F. - Dilution Factor
ND - Not Detected

NEL LABORATORIES

CLIENT:	El Paso Natural Gas Company	CLIENT ID	M01-0529
PROJECT ID	IAL #4	DATE SAMPLED:	11/28/01
PROJECT #:	NA	NEL SAMPLE ID	P011050-02

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	R.L.	D.F.	METHOD	UNITS	ANALYZED
Chloride	2500	200	2000	EPA 300.0	mg/kg	12/7/01

R.L. - Reporting Limit
D.F. - Dilution Factor
ND - Not Detected

NEL LABORATORIES

CLIENT	El Paso Natural Gas Company	CLIENT ID	M01-0530
PROJECT ID	JAI #4	DATE SAMPLED	11/28/01
PROJECT #	NA	NEL SAMPLE ID	P011050 03

TEST **Inorganic Non-Metals**
MATRIX Solid

PARAMETER	RESULT	R.L.	D.F.	METHOD	UNITS	ANALYZED
Chloride	3200	200	2000	EPA 300.0	mg/kg	12/7/01

R.L. - Reporting Limit
D.F. - Dilution Factor
ND - Not Detected

NEL LABORATORIES

CLIENT	El Paso Natural Gas Company	CLIENT ID	M01-0531
PROJECT ID.	JAL #4	DATE SAMPLED	11/28/01
PROJECT #	NA	NEL SAMPLE ID	P011050-04

TEST: **Inorganic Non-Metals**
MATRIX: Solid

PARAMETER	RESULT	R.L.	D.F.	METHOD	UNITS	ANALYZED
Chloride	ND	1	10	EPA 300.0	mg/kg	12/6/01

R.L. - Reporting Limit
D.F. - Dilution Factor
ND - Not Detected

NEL LABORATORIES

CLIENT:	El Paso Natural Gas Company	CLIENT ID:	Method Blank
PROJECT ID:	JAL #4	DATE SAMPLED:	NA
PROJECT #:	NA	NEL SAMPLE ID:	011206CLS-BLK

TEST: **Non-Metals**

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
Chloride	ND	0.1	1	EPA 300.0	mg/kg	12/6/01

D.F. - Dilution Factor

ND - Not Detected

NEL LABORATORIES -

CLIENT	El Paso Natural Gas Company	CLIENT ID	Method Blank
PROJECT ID	JAL #4	DATE SAMPLED	NA
PROJECT #	NA	NEL SAMPLE ID	011207CI S-BLK

TEST **Non-Metals**

PARAMETER	RESULT	REPORTING LIMIT	D. F.	METHOD	UNITS	ANALYZED
Chloride	ND	0.1	1	EPA 300.0	mg/kg	12/7/01

D F - Dilution Factor

ND - Not Detected

NEL LABORATORIES

CLIENT: El Paso Natural Gas Company
PROJECT ID: JAL #4
PROJECT #: NA

TEST: Total Extractable Petroleum Hydrocarbons by EPA Method 8015M, December 1996
METHOD: EPA 8015M
ORDER ID: P0111050
MATRIX: Solid ANALYST: PXC - Division

CLIENT SAMPLE ID	SAMPLE DATE	NEL SAMPLE ID	RESULT mg/kg	C.R.	Reporting Limit	Surrogate Recovery*	EXTRACTED	ANALYZED
M01-0528	11/28/01	P0111050-01	ND	ND	20. mg/kg	66 %	11/30/01	12/3/01
M01-0529	11/28/01	P0111050-02	ND	ND	20. mg/kg	61 %	11/30/01	12/3/01
M01-0530	11/28/01	P0111050-03	ND	ND	20 mg/kg	64 %	11/30/01	12/3/01
M01-0531	11/28/01	P0111050-04	58	DO	20. mg/kg	99 %	11/30/01	12/3/01

C.R.. Carbon Range
DO Diesel Range Organics (C10 to C28) and Oil Range Organics (C18 to C34).

QUALITY CONTROL DATA (Total for Diesel Range)

Sample ID	Result	Acceptable Range	Surrogate Recovery*	Sample Number
Blank, 011130TP -BLK	ND	< 20 mg/kg	93 %	NA
LCS, 011130TPHS-LCS	72 %	54 - 91 %	79 %	NA
LCSD, 011130TPHS-LCSD	57 %	54 - 93 %	68 %	NA

*** Surrogate used was Octacosane, acceptance limits 55-130%.**

ND - Not Detected

EL PASO NATURAL GAS

Due 12/7

CHAIN OF CUSTODY RECORD

P0111050

PROJECT NUMBER:
PROJECT NAME: Jal #4
SAMPLERS (Signature):
DATE: 11/28/01
CONTRACT LABORATORY:

LAB ID	DATE	TIME	MATRIX	SAMPLE NUMBER	TOTAL NUMBER OF CONTAINERS	COMPOSITE OR GRAB	REQUESTED ANALYSIS: Cl	TPH 8015 mod					REMARKS
01	11/28/01	1300	Soil	M01-0528	2	G	X	X					Received 1 container Broken 11/30
02	11/28/01	1305	Soil	M01-0529	1	G	X	X					
03	11/28/01	1310	Soil	M01-0530	1	G	X	X					
04	11/28/01	1315	Soil	M01-0531	1	G	X	X					

4°C

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
[signature]	11/28/01 1500	Via Fed-X		11/30 1000	
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY LABORATORY (Signature)
					[signature]

REQUESTED TURNAROUND TIME: ☐ ROUTINE ☐ RUSH
CARRIER CO
BILL NO
SAMPLE RECEIPT REMARKS
CHARGE CODE
RESULTS & INVOICES TO

LABORATORY SERVICES
EL PASO NATURAL GAS COMPANY
8645 RAILROAD DRIVE
EL PASO TEXAS 79904
915-557 3725 FAX 915-557 3935

White: Testing Laboratory Canary: EPNG Lab Pink: Field Sampler

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

CASE NARRATIVE

Client:	El Paso Corporation
Project:	JA1 #4
Set number:	0301S05184-5198
Date received:	12/19/01
Date reported:	12/21/01
Chain of Custody:	

Inter-Mountain Laboratories, Inc., Farmington, NM received the samples listed above for analysis on December 19, 2001. Enclosed are the results of the sample analyses.

Comment:

The electrical conductivity of the saturated paste extract was determined for each sample. The saturated paste was prepared according to the method in the United States Department of Agriculture *Diagnosis and Improvement of Saline and Alkali Soils: Agricultural Handbook No.60* (1954). The electrical conductivity was determined using the method in the American Society of Agronomy *Methods of Soil Analysis: Chemical and Microbiological Properties, 2nd Ed.* 10-3.3 (1982).

If you have any question concerning the data, please call the laboratory at 505.326.4737 or 800.828.1409. Thank you for choosing Inter-Mountain Laboratories.

Reviewed By:

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, NM 87401

Client: El Paso Field Services
Project: JA1 #4
IML Set: 0301S05184

Date Received: 12/19/01
Date Reported: 12/21/01

Lab Id	Sample Id	Date Sampled	Electrical Conductivity mmhos/cm
0301S05184	MOI-0534	12/18/01	0.50
0301S05185	MOI-0535	12/18/01	2.08
0301S05186	MOI-0536	12/18/01	0.42
0301S05187	MOI-0537	12/18/01	7.52
0301S05188	MOI-0538	12/18/01	10.7
0301S05189	MOI-0539	12/18/01	10.6
0301S05190	MOI-0540	12/18/01	16.1
0301S05191	MOI-0541	12/18/01	63.2
0301S05192	MOI-0542	12/18/01	65.2
0301S05193	MOI-0543	12/18/01	68.0
0301S05194	MOI-0544	12/18/01	59.2
0301S05195	MOI-0545	12/18/01	65.8
0301S05196	MOI-0546	12/18/01	50.9
0301S05197	MOI-0547	12/18/01	53.0
0301S05198	MOI-0548	12/18/01	46.4

Reviewed By:

2506 West Main Street
Farmington, NM 87401

Client: El Paso Field Services

Project: JA1 #4

Date Received: 12/19/01

IML Set: 0301S05184

Date Reported: 12/21/01

Lab Id	Sample Id	Date Sampled	Electrical Conductivity mmhos/cm
0301S05189	MOI-0539	12/18/01	10.6
0301S05189D	MOI-0539	12/18/01	10.4

Reviewed By:

elpaso

CHAIN OF CUSTODY RECORD

Page 2 of 2

PROJECT NUMBER | PROJECT NAME: JAL #4

SAMPLERS: (Signature) | DATE: 12/19/01

LAB ID	DATE	TIME	MATRIX	SAMPLE NUMBER	TOTAL NUMBER OF CONTAINERS	COMPOSITE OR GRAB	REQUESTED ANALYSIS: EC						REMARKS
	12/19/01	0800	Soil	MD1-0546	1	C	X						96
	12/19/01	0805	Soil	MD1-0547	1	C	X						97
	12/19/01	0810	Soil	MD1-0548	1	C	X						98

CONTRACT LABORATORY

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
	12/19/01 1600	12/19/01 0913			
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED OF LABORATORY BY: (Signature)

REQUESTED TURNAROUND TIME:
☐ ROUTINE ☐ RUSH _____

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

LABORATORY SERVICES
EL PASO CORPORATION
8645 RAILROAD DRIVE
EL PASO, TEXAS 79904

915-587-3729 FAX: 915-587-3835

White - Testing Laboratory Canary - EP Corp. Lab Pink - Field Sampler

FM-08-0566 (Rev. 3/01)

elpaso

CHAIN OF CUSTODY RECORD

Page 1 of 2

PROJECT NUMBER:
PROJECT NAME: Jal #4
SAMPLERS: (Signature) [signature]
DATE: 12/18/01
CONTRACT LABORATORY:

LAB ID	DATE	TIME	MATRIX	SAMPLE NUMBER	TOTAL NUMBER OF CONTAINERS	COMPOSITE OR GRAB	REQUESTED ANALYSIS: EC						REMARKS
	12/18/01	0700	Soil	M01-0534	1	C	X						5184
	12/18/01	0705	Soil	M01-0535	1	C	X						85
	12/18/01	0710	Soil	M01-0536	1	C	X						86
	12/18/01	0715	Soil	M01-0537	1	C	X						87
	12/18/01	0720	Soil	M01-0538	1	C	X						88
	12/18/01	0725	Soil	M01-0539	1	C	X						89
	12/18/01	0730	Soil	M01-0540	1	C	X						90
	12/18/01	0735	Soil	M01-0541	1	C	X						91
	12/18/01	0740	Soil	M01-0542	1	C	X						92
	12/18/01	0745	Soil	M01-0543	1	C	X						93
	12/18/01	0750	Soil	M01-0544	1	C	X						94
	12/18/01	0755	Soil	M01-0545	1	C	X						95

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	12/18/01 1600	[signature] 12/19/01 0913			
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED OF LABORATORY BY: (Signature)

REQUESTED TURNAROUND TIME:
☐ ROUTINE ☐ RUSH

CARRIER CO.

BILL NO.:

SAMPLE RECEIPT REMARKS

CHARGE CODE

RESULTS & INVOICES TO:

LABORATORY SERVICES
EL PASO CORPORATION
8645 RAILROAD DRIVE
EL PASO, TEXAS 79904
915-587-3729 FAX: 915-587-3835

cc Scott Pope
614 Reilly Ave
Farmington N. Mex.
87401

White - Testing Laboratory Canary - EP Corp. Lab Pink - Field Sampler

FM-08-0566 (Rev. 3/01)

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

CASE NARRATIVE

Client:	Atkins Benham, Inc.
Project:	El Paso Corp. – Jal
Set number:	0302S01300-1329
Date received:	4/1/02
Date reported:	4/11/02
Chain of Custody:	

Inter-Mountain Laboratories, Inc., Farmington, NM received the samples listed above for analysis on April 1, 2002. Enclosed are the results of the sample analyses.

Comment:

The Electrical Conductivity of saturated paste extract was determined for each sample using American Society of Agronomy Monograph 9, 2nd Edition (1982), Method 10-3.3. The units are in milli mhos per cm (mmhos/cm) which is equivalent to deci Seimens per meter at 25°C (dS/m @ 25°C).

If you have any question concerning the data, please feel free to call the laboratory,
(505) 326-4737.

Reviewed by:

iml
Phone (505) 326-4737 Fax (505) 325-4182

Inter-Mountain Laboratories, Inc.
2506 West Main Street, Farmington, NM 87401

Atkins Benham, Inc.
Tulsa, OK

Client Project ID: El Paso Corp. - Jal
Date Received: 04/01/02

IML Project #0302S01300
Report Date: 04/11/02

Lab Id	Sample Id	Depths Feet	Electrical Conductivity mmhos/cm
0302S01300	HA-1	0.0 - 0.5	0.46
0302S01301	HA-2	0.0 - 0.5	1.20
0302S01302	HA-2	0.5 - 1.0	1.10
0302S01303	HA-2	1.0 - 1.5	1.45
0302S01304	HA-3	0.0 - 0.5	13.5
0302S01305	HA-3	0.5 - 1.0	13.0
0302S01306	HA-3	1.0 - 1.5	10.0
0302S01307	HA-4	0.0 - 0.5	2.49
0302S01308	HA-4	0.5 - 1.0	2.48
0302S01309	HA-4	1.0 - 1.5	0.82
0302S01310	HA-5	0.0 - 0.5	3.29
0302S01311	HA-5	0.5 - 1.0	3.09
0302S01312	HA-5	1.0 - 1.5	2.57
0302S01313	HA-6	0.0 - 0.5	17.2
0302S01314	HA-6	0.5 - 1.0	13.0
0302S01315	HA-6	1.0 - 1.5	7.32
0302S01316	HA-7	0.0 - 0.5	3.85
0302S01317	HA-7	0.5 - 1.0	2.62
0302S01318	HA-7	1.0 - 1.5	2.36
0302S01319	HA-8	0.0 - 0.5	19.2
0302S01320	HA-8	0.5 - 1.0	12.1
0302S01321	HA-8	1.0 - 1.5	14.5
0302S01322	HA-9	0.0 - 0.5	2.79
0302S01323	HA-9	0.5 - 1.0	2.31
0302S01324	HA-9	1.0 - 1.5	2.27

iml
Phone (505) 326-4737 Fax (505) 325-4182

Inter-Mountain Laboratories, Inc.
2506 West Main Street, Farmington, NM 87401

Atkins Benham, Inc.
Tulsa, OK

Client Project ID: El Paso Corp. - Jal
Date Received: 04/01/02

IML Project #0302S01300
Report Date: 04/11/02

Lab Id	Sample Id	Depths Feet	Electrical Conductivity mmhos/cm
0302S01325	HA-10	0.0 - 0.5	4.29
0302S01326	HA-11	0.0 - 0.5	1.21
0302S01327	HA-12	0.0 - 0.5	5.99
0302S01328	HA-13	0.0 - 0.5	2.46
0302S01329	HA-14	0.0 - 0.5	2.41

iml
Phone (505) 326-4737 Fax (505) 325-4182

Inter-Mountain Laboratories, Inc.
2506 West Main Street, Farmington, NM 87401

Atkins Benham, Inc.
Tulsa, OK

Client Project ID: El Paso Corp. - Jal
Date Received: 04/01/02

IML Project #0302S01300
Report Date: 04/11/02

Lab Id	Sample Id	Depths Feet	Electrical Conductivity mmhos/cm
0302S01309	HA-4	1.0 - 1.5	0.82
0302S01309D	HA-4	1.0 - 1.5	0.81
0302S01319	HA-8	0.0 - 0.5	19.2
0302S01319D	HA-8	0.0 - 0.5	19.0
0302S01329	HA-14	0.0 - 0.5	2.41
0302S01329D	HA-14	0.0 - 0.5	2.43

3042

CLIENT NAME: ELPASO CORP	SITE MANAGER: BUDDY RICHARDSON	NUMBER OF CONTAINERS	PARAMETERS/METHOD NUMBER: SPECIFIC CONDUCTANCE	CHAIN-OF-CUSTODY RECORD
PROJECT NO.: 9717104	PROJECT NAME: JAL			Atkins Benham ENVIRONMENTAL DIVISION • Norman, OK 405/321-3895 • Tulsa, OK 918/496-0059 • Arlington, TX 817/640-6407 • Houston, TX 281/496-1073 (Complete Addresses on reverse side of form)
PAGE: 1 OF 3	LAB.: PO#			

DATE	TIME	MATRIX	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	SPECIFIC CONDUCTANCE	LAB I.D. NUMBER (LAB USE ONLY)	REMARKS (I.E., FILTERED, UNFILTERED, PRESERVED, UNPRESERVED, GRAB COMPOSITE
3/27/02	0830	Soil	HA-1 (0.0-0.5)	1	X	501300	SW846 METH 9050
3/27/02	0837	Soil	HA-2 (0.0-0.5)	1	X	01	
3/27/02	0840	Soil	HA-2 (0.5-1.0)	1	X	02	
3/27/02	0843	Soil	HA-2 (1.0-1.5)	1	X	03	
3/27/02	0854	Soil	HA-3 (0.0-0.5)	1	X	04	
3/27/02	0857	Soil	HA-3 (0.5-1.0)	1	X	05	
3/27/02	0900	Soil	HA-3 (1.0-1.5)	1	X	06	
3/27/02	0920	Soil	HA-4 (0.0-0.5)	1	X	07	
3/27/02	0923	Soil	HA-4 (0.5-1.0)	1	X	08	
3/27/02	0926	Soil	HA-4 (1.0-1.5)	1	X	09	
3/27/02	0941	Soil	HA-5 (0.0-0.5)	1	X	10	
3/27/02	0944	Soil	HA-5 (0.5-1.0)	1	X	11	
3/27/02	0946	Soil	HA-5 (1.0-1.5)	1	X	12	
3/27/02	1117	Soil	HA-6 (0.0-0.5)	1	X	13	

SAMPLED BY: (Signature) TERRY FISHER	DATE: SAME AS TIME: ABOVE	RELINQUISHED BY: (Signature) [signature] DATE: 3-29-02 TIME: 1500
RECEIVED BY: (Signature)	DATE: TIME:	RELINQUISHED BY: (Signature) DATE: TIME:
RECEIVED BY: (Signature)	DATE: TIME:	SAMPLE SHIPPED BY: (Circle) AIRBILL #: FEDEX PONY XPS VEL XPS HAND DELIVERED UPS OTHER

COMMENTS:

TURN AROUND TIME NEEDED: STANDARD

RECEIVING LABORATORY: INTERMOUNTAIN LABORATORIES
ADDRESS: 2506 WEST MAIN ST
CITY: FARMINGTON STATE: NM ZIP: 87401
CONTACT: JEFF GOATS
PHONE: (505) 326-4737

RECEIVED BY LABORATORY: [signature]
(Signature)
DATE: 4-1-02 TIME: 12:30

SAMPLE CONDITION UPON RECEIPT: (Lab Use Only)
Temperature _____ Wet Ice Present: Y N
VOA's Free of Headspace Y N
Comments: _____

ABI CONTACT PERSON(S): DEBBY McELREATH
PHONE #: 405-321-3895 / 405-579-0203

POINT OF ORIGIN: ☐ ABI - NORMAN ☒ ABI - TULSA ☐ ABI - ARLINGTON ☐ OTHER: _____

PAGE #1 - RECEIVING LAB PAGE #2 - RETURN TO ABI PAGE #3 - PROJECT MANAGER PAGE #4 - QA/QC COORDINATOR

3093

CLIENT NAME: EL PASO CORP	SITE MANAGER: BUDDY RICHARDSON
PROJECT NO.: 9717104	PROJECT NAME: JAL
PAGE: 2 OF 3	LAB.: PO#

CHAIN-OF-CUSTODY RECORD

Atkins Benham ENVIRONMENTAL DIVISION
- Norman, OK 405/321-3895
- Tulsa, OK 918/496-0059
- Arlington, TX 817/640-6407
- Houston, TX 281/496-1073

(Complete Addresses on reverse side of form)

DATE	TIME	MATRIX	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	PARAMETERS/METHOD NUMBER: Special Condition Code	LAB I.D. NUMBER (LAB USE ONLY)	REMARKS (I.E., FILTERED, UNFILTERED, PRESERVED, UNPRESERVED, GRAB COMPOSITE
3/27/02	1118	SOIL	HA-6 (0.5 - 1.0)	1	X	13/4	SW846 METH 9050
3/27/02	1119	SOIL	HA-6 (1.0 - 1.5)	1	X	15	
3/27/02	1130	SOIL	HA-7 (0.0 - 0.5)	1	X	16	
3/27/02	1132	SOIL	HA-7 (0.5 - 1.0)	1	X	17	
3/27/02	1134	SOIL	HA-7 (1.0 - 1.5)	1	X	18	
3/27/02	1147	SOIL	HA-8 (0.0 - 0.5)	1	X	19	
3/27/02	1149	SOIL	HA-8 (0.5 - 1.0)	1	X	20	
3/27/02	1151	SOIL	HA-8 (1.0 - 1.5)	1	X	21	
3/27/02	1201	SOIL	HA-9 (0.0 - 0.5)	1	X	22	
3/27/02	1203	SOIL	HA-9 (0.5 - 1.0)	1	X	23	
3/27/02	1205	SOIL	HA-9 (1.0 - 1.5)	1	X	24	
3/27/02	1428	SOIL	HA-10 (0.0 - 0.5)	1	X	25	
3/27/02	1431	SOIL	HA-11 (0.0 - 0.5)	1	X	26	
3/27/02	1435	SOIL	HA-12 (0.0 - 0.5)	1	X	27	

SAMPLED BY: (Signature) TERRY FISHER — DATE: Same as above — TIME:

RELINQUISHED BY: (Signature) — DATE: 3-29-02 — TIME: 1500

RECEIVED BY: (Signature) — DATE: — TIME:

RELINQUISHED BY: (Signature) — DATE: — TIME:

RECEIVED BY: (Signature) — DATE: — TIME:

SAMPLE SHIPPED BY: (Circle) AIRBILL #: FEDEX PONY XPS VEL XPS HAND DELIVERED UPS OTHER

COMMENTS:

TURN AROUND TIME NEEDED: STANDARD

RECEIVING LABORATORY: INTERMOUNTAIN LABORATORIES
ADDRESS: 2506 WEST MAIN ST
CITY: FARMINGTON STATE: NM ZIP: 87401
CONTACT: (505) 326-4737
PHONE: JEFF GOATS

RECEIVED BY LABORATORY: (Signature)
DATE: 4-1-02 TIME: 12:30

SAMPLE CONDITION UPON RECEIPT: (Lab Use Only)
Temperature: Wet Ice Present: Y N
VOA's Free of Headspace Y N
Comments:

ABI CONTACT PERSON(S): DEBBY McELREATH/ PHONE #: 405-321-3895 / 405-579-0203

POINT OF ORIGIN: ☐ ABI - NORMAN ☒ ABI - TULSA ☐ ABI - ARLINGTON ☐ OTHER:

PAGE #1 - RECEIVING LAB PAGE #2 - RETURN TO ABI PAGE #3 - PROJECT MANAGER PAGE #4 - QA/QC COORDINATOR

3094

CHAIN-OF-CUSTODY RECORD

Atkins Benham — Environmental Division
- Norman, OK 405/321-3895
- Tulsa, OK 918/496-0059
- Arlington, TX 817/640-6407
- Houston, TX 281/496-1073

(Complete Addresses on reverse side of form)

CLIENT NAME: EL PASO CORP
SITE MANAGER: BUDDY RICHARDSON
PROJECT NO.: 97107.04
PROJECT NAME: JAL
PAGE: 3 OF 3
LAB.: PO#

DATE	TIME	MATRIX	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	PARAMETERS/METHOD NUMBER: SPECIFIC CONDUCTANCE	LAB I.D. NUMBER (LAB USE ONLY)	REMARKS (IE., FILTERED, UNFILTERED, PRESERVED, UNPRESERVED, GRAB COMPOSITE
3/27/02	1438	Soil	HA-13 (0.0-0.5)	1	X	1328	SW846 METH 9050
3/27/02	1444	Soil	HA-14 (0.0-0.5)	1	X	29	

SAMPLED BY: (Signature) TERRY FISHER
DATE: SAME AS
TIME: ABOVE

RELINQUISHED BY: (Signature)
DATE: 3-29-02
TIME: 1500

RECEIVED BY: (Signature)
DATE:
TIME:

RELINQUISHED BY: (Signature)
DATE:
TIME:

RECEIVED BY: (Signature)
DATE:
TIME:

SAMPLE SHIPPED BY: (Circle) AIRBILL #
FEDEX PONY XPS VEL XPS
HAND DELIVERED UPS OTHER

COMMENTS:

TURN AROUND TIME NEEDED: STANDARD

RECEIVING LABORATORY: INTERMOUNTAIN LABORATORIES
ADDRESS: 2506 WEST MAIN ST
CITY: FARMINGTON STATE: NM ZIP: 87401
CONTACT: JEFF GOATS
PHONE: (505) 326 4737

RECEIVED BY LABORATORY:
(Signature)
DATE: 4-2-02 TIME: 12:30

SAMPLE CONDITION UPON RECEIPT: (Lab Use Only)
Temperature Wet Ice Present: Y N
VOA's Free of Headspace Y N
Comments:

ABI CONTACT PERSON(S): DEBBY McELREATH/
PHONE #: 405-321-3895 / 405-579-0203

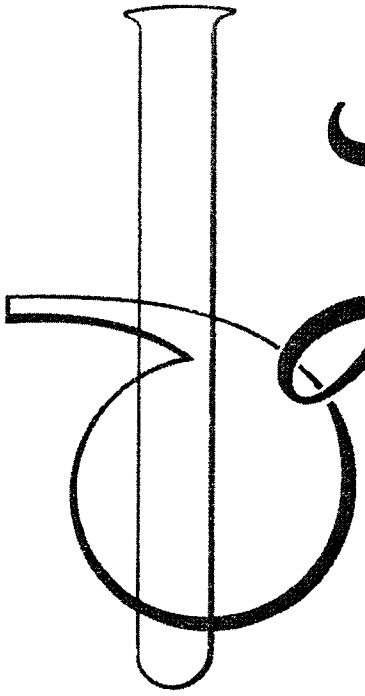
POINT OF ORIGIN: ☐ ABI - NORMAN ☒ ABI - TULSA ☐ ABI - ARLINGTON ☐ OTHER:

PAGE #1 - RECEIVING LAB | PAGE #2 - RETURN TO ABI | PAGE #3 - PROJECT MANAGER | PAGE #4 - QA/QC COORDINATOR

APPENDIX C

APPENDIX C

Diagnosis and Improvement of



Saline and Alkali Soils

United States Salinity Laboratory Staff

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Soil and Water Conservation Research Branch
Agricultural Research Service

Agriculture Handbook No. 60 Issued February 1954

UNITED STATES DEPARTMENT OF AGRICULTURE

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textures which may be puddled and underlain with hardpan. Usually found on moist seep lands with high water tables but may occur on better drained land. Moisture-holding capacity is intermediate to high (*SP* 30 to 60). The soils are saline or saline-alkali, with high concentrations of salt in the first foot (0.6 to 3.2 percent) and decreasing amounts with depth, but the average salinity for a 4-foot profile may exceed 1 percent where the growth is luxuriant. The soils may contain exchangeable sodium. Indications: Where virgin growth is vigorous, seepweed is a good indicator of highly saline or saline-alkali soil. Drainage and leaching are essential, and amendments may be required.

ALKALI SACATON, or TUSSOCKGRASS (*Sporobolus airoides*).—Range: South Dakota to Washington, south to Texas, Arizona, and southern California. In low, wet areas, and river valleys. Occurs on loamy and clayey soils that have an intermediate to high moisture-holding capacity (*SP* 45 to 75). The soil surface is moist a great part of the year, and the water table is usually high. The salinity of the soil may vary within wide limits (0.3 to >3.0 percent), the higher values being in the first foot; but the plant grows best in the lower range (0.3 to 0.5 percent). Exchangeable sodium may be present, and this grass is very tolerant to it. Indications: In pure, vigorous stands, this plant is a good indicator of wet, very saline or saline-alkali soils, with a high water table. It may occur on soils without a high moisture content in the subsoil on sites receiving runoff water. The land requires drainage and leaching, and soil amendments may be needed unless gypsum is present.

SAMPHIRE, or GLASSWORT (*Salicornia* spp.).—Range: Saskatchewan to British Columbia, south through Colorado and Nevada. On salt flats and along shores of saline ponds and lakes. Occurs on fine-textured clayey soils that are very wet throughout the profile, with high water tables. The salinity is very high, and this plant grows well where salt may average 1 to 4 percent in the 4-foot profile. Exchangeable sodium may be present in varying amounts. Indications: Soils are usually very wet, with excessive salinity. Useless for agriculture without drainage and prolonged leaching.

PICKLEWEED, or IODINEBUSH (*Allenrolfea occidentalis*).—Range: Oregon to Baja California, Mexico, east through Arizona and New Mexico to western Texas. On saline flats. Occurs on a wide range of soil textures (loamy and clayey soils), but usually on fine-textured soils. The soils are moist or wet throughout the year, with high water tables that may be close to the surface. The soils are excessively saline in the first foot (1.0 to >2.5 percent) and are very saline throughout the 4-foot profile (average 1.0 to 1.5 percent), but the salinity decreases somewhat with depth. Exchangeable sodium may be present in varying amounts. Indications: Soils are usually fine-textured, very wet, and excessively saline. If the stand is good, the land is not suited for agriculture without drainage and prolonged leaching.

Crop Response on Saline Soils

A field of crop plants growing on saline soil usually has barren spots, stunted growth of the plants with considerable variability in size, and a deep blue-green foliage; but these features are not invariable indications of salinity. For example, barren spots may occur in nonsaline fields because of faulty leveling and the resultant inadequacy of irrigation; and retarded growth and abnormal color may result from nutrient deficiencies.

The extent and frequency of bare spots in many areas may be taken as an index of the concentration of salt in the soil. Inasmuch as most plants are more sensitive to salinity during germination than in later stages of growth, barren spots are more indicative of salinity around the seed during germination than they are of the general salinity status of the soil profile. Frequently, cultural practices contribute to an accumulation of salt around the germinating seed with resultant failure in germination. The vigor of the plants adjacent to barren spots may indicate the distribution of salt in the soil. Full-sized vigorous plants immediately adjacent to a bare spot suggest a local concentration of salt, while stunted plants in this position indicate a more general distribution of salinity in the area. If the level of salinity is not sufficiently high to result in barren spots, the major characteristic in the appearance of the crop may be a marked irregularity in vegetative vigor.

Caution should be exercised to avoid confusion between effects of low soil fertility and those caused by salinity. Plants that are stunted because of low fertility are usually yellowish green, whereas those stunted owing to salinity are characteristically blue green. The bluish appearance is the result of an unusually heavy waxy coating on the surface of the leaves, and the darker color to an increase in the chlorophyll content on a surface-area or fresh-weight basis. Sugar beets, crucifers (cabbage, mustards, and related species), alfalfa, some clovers, grasses, and other crops generally develop a noticeable blue-green coloration when grown on saline soils.

There are many regions where plants may develop an intense chlorosis because of certain soil conditions. The causes of chlorosis are not fully understood, but this condition is frequently associated with calcareous soils or, in some cases, with the use of irrigation waters of high bicarbonate content (Harley and Lindner, 1945). Although calcium carbonate is relatively insoluble, much crop injury is associated with its presence. Since this soil condition frequently occurs in the absence of an accumulation of soluble salts, chlorosis cannot be regarded as a definite symptom of salinity.

Some species of plants develop characteristic necrotic areas, tipburn, and firing of the margins of the leaves when grown on saline soil. Many stone fruits, avocado, grapefruit, and some of the less salt-tolerant varieties of cotton belong in this category.

The cupping or rolling of leaves is a common manifestation of moisture deficiency in plants, but these

symptoms may be indicative of salinity when they occur in the presence of apparently adequate soil moisture; however, other factors that cause malfunction of the root system, such as root diseases and high water tables, may produce similar leaf symptoms. While the appearance of the crop may, therefore, be indicative of saline conditions, a reliable diagnosis of salinity usually requires additional evidence derived from appropriate soil and plant tests.

Salinity and Water Availability

Numerous laboratory experiments with sand and water cultures have demonstrated the close relationship between plant growth and the osmotic pressure of the culture solution. On a weight or equivalent basis, chloride salts are generally more inhibitory to the growth of plants than sulfate salts, but this difference tends to disappear when concentrations are expressed on an osmotic basis. These relationships indicate that it is the total concentration of solute particles in the solution rather than their chemical nature which is mainly responsible for the inhibitory effects of saline solutions on the growth of crop plants. Direct experimental evidence of the influence of osmotic concentration on water uptake by plant roots has been reported by Hayward and Spurr (1944). In addition to the osmotic pressure of the solution, the nature of the salts present may exert an important influence on plant growth. Such specific ion effects are discussed in a subsequent section.

There is much evidence to indicate that an increase in the osmotic pressure of the soil solution may result in a decrease in the water uptake by plant roots, but an additional factor must be taken into account in dealing with the soil system; that is, soil-moisture tension, or the molecular attraction of the surface of the soil particles for water. Soil-moisture tension increases as the soil becomes drier and the water films around the soil particles become thinner. This equivalent negative pressure is apparently additive to the osmotic pressure of the soil solution in limiting the availability of water to plant roots. The sum of soil-moisture tension and the osmotic pressure of the soil solution is termed "total soil-moisture stress." Studies on the effects on growth of several moisture treatments and

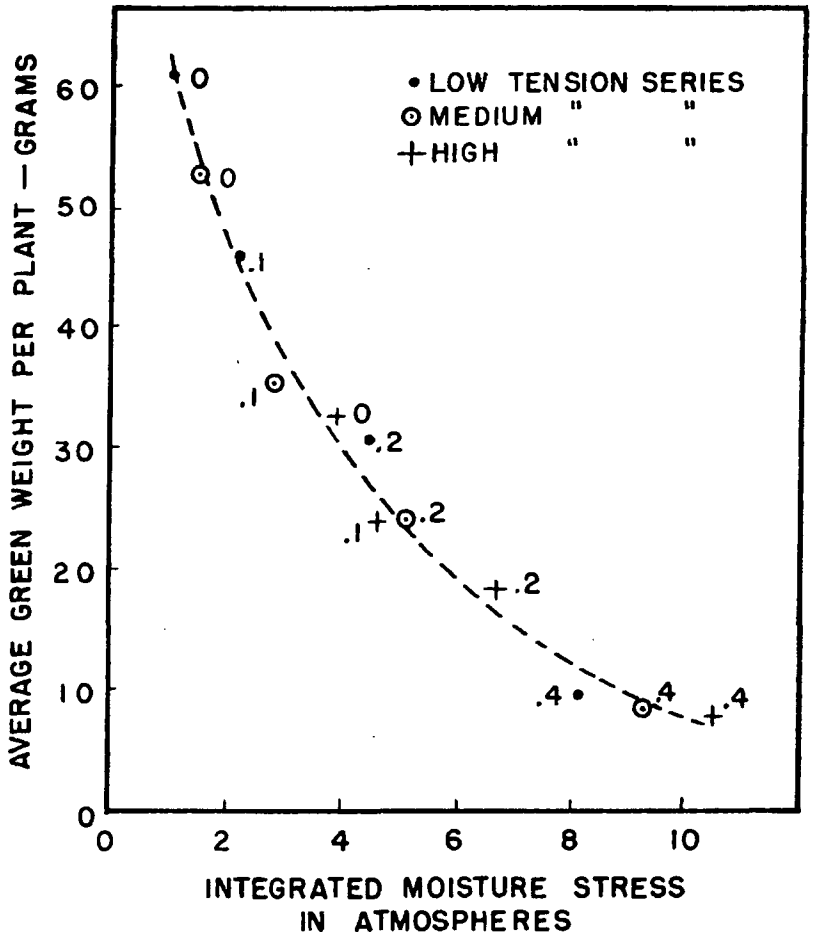

FIGURE 17.—Growth of bean plants as influenced by total soil-moisture stress. The salinity level for each treatment is indicated as percentage on a dry-soil basis (Wadleigh and Ayers, 1945).

salinity levels indicate that plant growth is a function of total soil-moisture stress, regardless of whether this stress arises primarily from salinity or moisture tension (fig. 17).

It is possible to extract the soil solution and determine its osmotic pressure, but this procedure is seldom used because it is simpler to estimate salt concentration by determining the electrical conductivity of the saturation extract (EC_e). Since saturation percentage is related to the field-moisture range, EC_e bears a close relationship to the EC of the soil solution. The relationship between EC and the osmotic pressure of saturation extracts is given in figure 6. The EC_e, therefore, provides information on the concentration of salt in the soil solution and its osmotic properties. The yield of orchardgrass when grown on soil to which various single salts had been added indicated that growth was simply related to salinity, expressed in terms of EC_e for various neutral salts (fig. 18). The response to sodium bicarbonate was, however, exceptional. In this case, calcium and magnesium ions from the soil exchange complex were precipitated as carbonates, thereby greatly increasing the exchangeable-sodium-percentage and producing an alkali soil.

The Scofield scale, in which crop response to salinity under average conditions is expressed in terms of the conductivity of the saturation extract, was discussed in chapter 2. This salinity scale has been widely used for a number of years and has been found to be satisfactory for salinity appraisal. To facilitate the discussion of plant response on saline soils, this salinity scale in its latest modified form is given again.

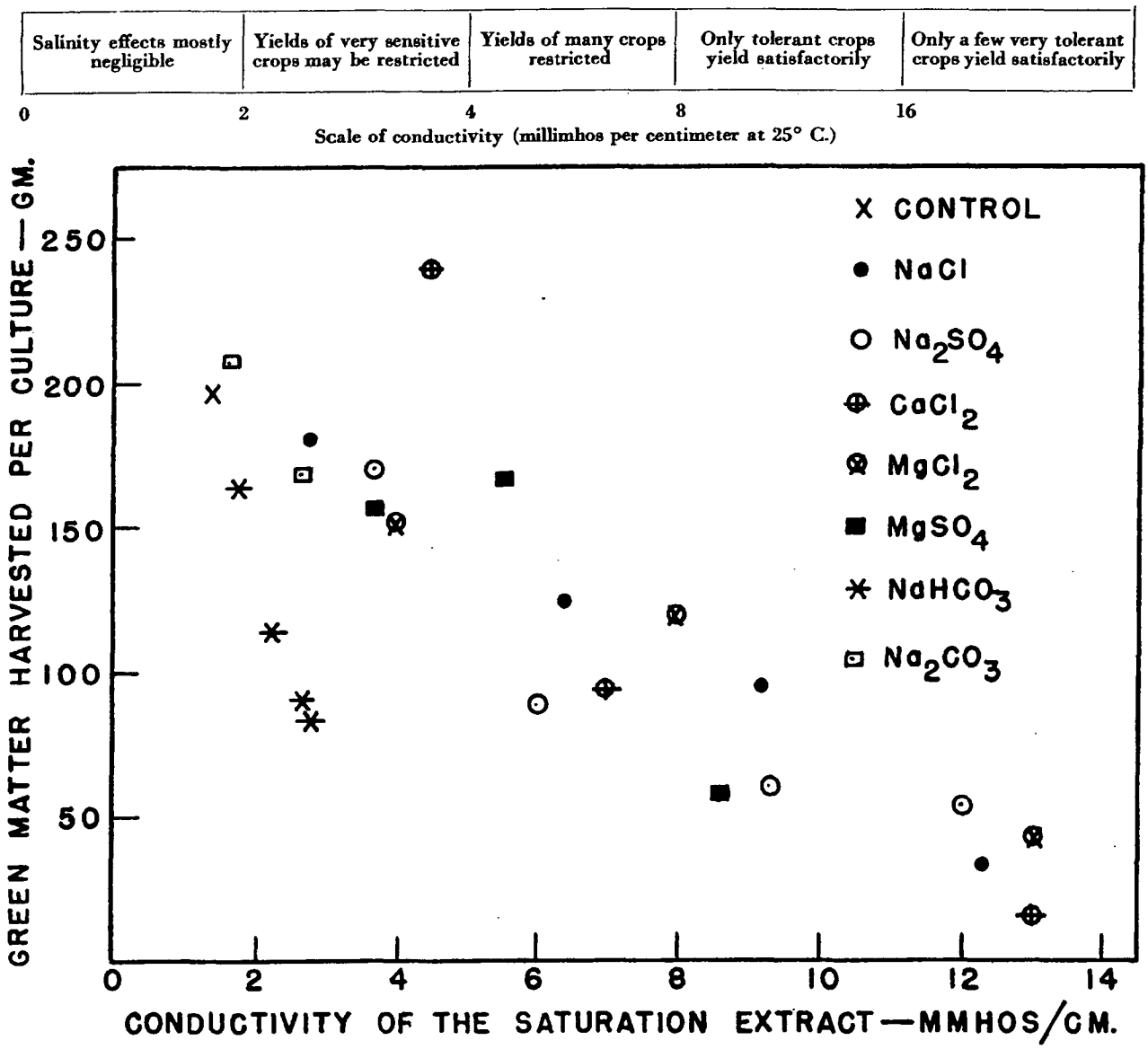

FIGURE 18.—Growth of orchardgrass, as influenced by various salts added to a sandy loam soil (Wadleigh and others, 1951).

It should be emphasized that this classification of plant growth in relation to various salinity levels refers to the salt status of the soil in the active root zone. It is possible to obtain samples from the surface soil around the base of row crops that may contain 5 percent salt or more with EC_e values of 50 mmhos/cm. or higher. This high concentration of salt represents an accumulation in the bed during the growth of the plants and not the salt concentration in the active root zone. Therefore, in correlating crop growth with salinity, care should be exercised to take soil samples from the active root zone that are uncontaminated by surface incrustations of salt. With row crops, the mass of soil making up the bed is frequently more saline than the soil below the furrow, and studies of root distribution and water uptake by plants indicate that under such conditions the major root activity occurs in the less saline parts of the soil, as shown in figure 14. These considerations should be borne in mind in determining the salt status of a soil with reference to plant response.

A technique for measuring the freezing point of soil moisture has been developed that provides a rapid, useful method for obtaining, by a single determination, the total moisture stress in a soil sample at field-moisture conditions (Method 6b). This eliminates errors caused by dilution of the soil solution and the resultant dissolving of moderately soluble salts, such as gypsum. Total soil-moisture-stress values obtained by freezing-point measurements are in good agreement with previously used methods involving determination of EC_e and moisture tension for the soil studied (Wadleigh, 1946, and Ayers and Campbell, 1951).

The experimental evidence cited above supports the concept that decreased growth on saline substrates is related to decreased water availability, but certain relationships between plant and substrate are still not fully understood. Despite marked decreases in growth with increasing concentration of the substrate, osmotic gradients between tops of plants and substrate are sometimes unaffected by increased osmotic pressure or total soil-moisture stress of the substrate. This is caused by increases in osmotic pressure of aerial parts of the plant that parallel increases in osmotic pressure of the substrate (Eaton, 1942). In addition, the osmotic pressure of expressed tissue fluids from the tops of plants does not appear to be correlated with the salt tolerance of some species. It is possible, however, that such measurements of osmotic gradient between plant tops and substrate may not represent the effective osmotic force which limits water absorption by the roots.

Specific Ion Effects

The previous discussion has dealt primarily with the effect of soluble salts in limiting the availability of moisture to plants. Other effects of salt may be equally important in restricting the growth of certain species. Injury or growth depression of plants, which cannot be accounted for on the basis of the osmotic pressure of the solution, will be referred to as a toxic effect of the salt in question. It should be recognized that toxicity so defined need not involve a direct effect of the salt or ions, either on surface membranes of plant roots or in the plant tissues. Frequently, toxicity may be caused, in part, at least, through effects on the uptake or metabolism of essential nutrients. As it is not always possible to distinguish clearly the mechanism underlying specific ion effects, it is convenient to refer to such phenomena as toxicities in contrast to the general osmotic effect of salt on plant growth.

The influence of excessive concentrations of specific salts on plant growth is an extremely complex subject involving many fundamental principles of plant nutrition. It is beyond the scope of this handbook to review the voluminous and diversified literature bearing on this subject. Much of the pertinent literature is cited in a review by Hayward and Wadleigh (1949). Literature citations in the following discussion are restricted mainly to papers of special significance in connection with certain topics not considered in the review cited above.

Ions that are frequently found in excess in saline soils include chloride, sulfate, bicarbonate, sodium, calcium, and magnesium. Less frequently encountered in excessive amounts are potassium and nitrate. The effects of all these ions on plant growth are being investigated by comparing plant response to isosmotic solutions of different salts. Species and even varietal differences among plants make it difficult to generalize regarding the toxicity of various salts or ions. It appears, however, that differences in plant tolerance to excessive concentrations of ions in the substrate are related, in some degree, to specific selectivity in ion absorption and nutrient requirements of the plants. In addition to these factors, there is also a marked difference among species in the amounts of such ions as sodium and chloride that can be accumulated without toxic effects.

Before considering specific toxic effects caused by excessive concentrations of soluble salts, other effects of certain ions deserve some mention. Although not considered essential plant nutrients, sodium and chloride, when present in relatively small concentrations, may stimulate the productivity of certain crops. Thus, Harmer and Benne (1941) have attributed increased yields of beets, celery, Swiss chard, and turnips to sodium. These authors consider sodium to be "nearly as much needed as a nutrient for these crops as is the potassium ion." Other investigators believe the effect of sodium to be more indirect, either substituting to some degree where potassium is deficient (Lehr, 1949; Dorph-Petersen and Steenbjerg, 1950) or limiting excessive accumulation of calcium, which with beets results in the development of a "calcium-type plant" characterized by a blue-green color and stunted growth (Lehr, 1942). Chloride, like sodium, has been observed to increase yields of some crops, notably beets, spinach, and tomato (Hayward and Wadleigh, 1949). On the other hand, chloride salts have long been known to affect adversely the quality of such crops as potatoes and tobacco. However, on saline soils, chloride and sodium ions occur in much higher concentrations than

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