

# FOX & ASSOCIATES OF NEW MEXICO, INC.

## CONSULTING ENGINEERS AND GEOLOGISTS

ALBUQUERQUE OFFICE

3412 BRYN MAWR DRIVE, NE ALBUQUERQUE, NEW MEXICO 87107 (505) 884-0900

HYDROGEOLOGIC INVESTIGATION AND PROPOSED SOIL AND GROUNDWATER RESTORATION PROGRAM BELL STATION #213

ALBUQUERQUE, NEW MEXICO

Prepared for: Atex Gas, Inc.

August 14, 1985

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GROUND WATER/HAZARDOUS WASTE

COVER LETTER



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August 14, 1985

Atex Gas, Inc. 7324 Fourth Street, NW Albuquerque, New Mexico 87107

Attention: Mr. Glenn Salsman

AUG 1 5 1985

GROUND WATER/HAZARDOUS WASTE BUREAU

Subject:

Hydrogeologic Report and Proposed Groundwater Restoration Program at Bell Station No. 213

in Albuquerque, New Mexico

Reference:

"Settlement Agreement" New Mexico Water Quality Control Commission and Environmental Improvement Division of the New Mexico Health and Environment Department and Atex Gas. Inc.

"Proposal to Perform a Hydrogeologic Investigation in the Vicinity of Bell Oil Station No. 213 to Evaluate Hydrocarbon Contamination of the Soil and Groundwater and Design a Remedial Action Program"

#### Gentlemen:

Fox & Associates of New Mexico, Inc., acting as Atex Gas, Inc.'s consultant, is pleased to submit the attached hydrogeologic report and reclamation proposal pertaining to spilled petroleum product at Bell Station No. 213. As proposed and required in the referenced documents, the soil hydrocarbon vapor concentrations and groundwater contaminant plume have the appropriate aquifer been defined. characteristics determined, and groundwater reclamation plan a developed. The attached report is intended to satisfy the

requirements stipulated in paragraph 5i of the referenced Settlement Agreement.

We are available at your convenience to discuss the attached reclamation plan. Should you have any questions or require additional information, please contact us.

RESERVED PROFESSIONAL

Sincerely,

Fox & Associates of NM, Inc.

Steven Brewer

Project Geologist

Martin D. Vinyard, P. E.

Geotechnical Division Manager

cc: Water Pollution Control Bureau

State of New Mexico EID

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#### INTRODUCTION

This report presents the results of a hydrogeologic investigation conducted at Bell Station No. 213 in Albuquerque, New Mexico. This investigation was performed to evaluate the subsurface conditions at the site and to provide data for design of a soil and groundwater reclamation system. Four primary tasks were undertaken during this investigation:

- o Evaluate petroleum product vapor concentrations in the vadose zone:
- o Define the petroleum product contaminate plume in the groundwater;
- o Determine local aquifer characteristics; and
- o Design a soil and groundwater restoration system.

The following paragraphs present a brief introduction to each of the above tasks. A detailed description of each phase of the investigation is presented in the remainder of this report.

Petroleum product vapors in the vadose zone were measured in the vicinity of the station and in the subsurface structures near the station. Locations where vapor readings were taken and interpolated contours of vapor concentrations are presented on Figure 2 and Plate

1. Information on petroleum product vapor concentrations in utility manholes monitored in conjunction with this project is presented on Table 1.

The petroleum product contaminant plume was defined by installing a total of nineteen (19) groundwater monitor wells. The well head elevations were surveyed M, water levels were measured, and water samples were collected and tested for various chemical compounds. A water table contour map and contaminate plume map are presented on Plates 2 and 3, respectively.

The water table in the vicinity of the station has a general gradient to the south. The contaminant plume is situated within the station area with a surface area of approximately 152,000 square feet. The limits of the plume were plotted based upon New Mexico State Environmental Improvement Division (NMEID) standards for benzene. Benzene was generally found to be the compound most prevalent and of highest concentration at the site.

To evaluate local aquifer characteristics, a pump test well and four observation wells were installed near the southwest corner of the site (Plate 2). A short duration, low discharge pump test was conducted and the pump test data was analyzed. The raw field data from the test is included in Appendix B. The test duration and pumping rate were dictated by arrangements with the City of

Albuquerque for disposal of the contaminated discharge water at the wastewater treatment plant. The pumping rate and duration were not adequate to completely stress the aquifer. However, the test was adequate to develop design parameters for use in design of the proposed recovery system.

Based upon the information obtained in the previous phases of the project, a groundwater restoration system was designed. The proposed restoration system consists of an adjustable barrier type well point system. The system will consist of four wells having relatively small discharges and creating minimal yet effective drawdown. Details of the proposed recovery system are presented in the final section of this report.

### PROJECT BACKGROUND

Atex Gas, Inc. owns and operates Bell Station No. 213 which is located at 3501 Isleta Boulevard, SW in Albuquerque, New Mexico. In 1981, inventory records for the station indicated that approximately 43,000 gallons of unleaded fuel was lost over a four month period. In July 1981, a 10,000 gallon capacity underground steel storage tank suspected of leaking was unearthed. A small hole was found in the bottom of the tank, therefore the tank was replaced.

In October of 1981 gasoline vapors were reported in an adjacent

residence to the west of the gasoline station. Subsequent investigation by Atex under the direction of the Bernalillo County Fire Marshall's Office determined that fuel which leaked from the underground steel fuel storage tank was floating on the surface of the shallow aquifer. A trench was excavated between the station and the residence, and a large diameter access well was installed. An undeterminable amount of product and comingle was removed and disposed of. Product was removed by Atex, a contracted pumping service, and by individuals skimming off gasoline for use in personal vehicles.

Fox & Associates was contacted by Atex Gas, Inc. to provide technical consultation in June 1982. To begin evaluating the problem, four groundwater monitoring wells were installed at the station and a limited amount of field work was performed. Work was suspended in January 1983 until the Environmental Improvement Division (NMEID) and Atex Gas, Inc., reached a legal settlement agreement.

While negotiations on the settlement agreement proceeded no further field work was performed until March 1983 when the Bernalillo County Fire Marshall was notified of a potential explosion hazard in several Mountain Bell manholes in the vicinity of the Station. Action was taken for Atex Gas, Inc. by Fox & Associates of New Mexico, Inc., to minimize the potential explosion hazard. This action involved inspection, monitoring, and cleaning of six manholes and installation of a continuous passive ventilation system in the manhole nearest the

Station to reduce the hydrocarbon vapor concentrations. The remaining five manholes were frequently monitored using a MSA Model 62 combustible gas indicator and were externally force ventilated when hydrocarbon vapor levels approached 30 percent of the lower explosive limit. The results of this ongoing monitoring have been tabulated and distributed to all involved parties. The work performed on the project after 1983 is detailed in this report.

### SITE DESCRIPTION AND LOCATION

Bell Station No. 213 is located in the southwest valley of Albuquerque at 3501 Isleta Boulevard, SW. General location of the site is indicated on Figure 1. The location is approximately 0.8 miles west of and within the inner valley of the Rio Grande. The site is occupied by a self service gasoline station. Both residential and commercial developments surround the site.

Isleta Boulevard (State Highway 47) is one of the major north-south thoroughfares in the south valley area. Numerous service stations and businesses occupy or have occupied sites along Isleta Boulevard. The residences in the vicinity of the station are generally more than twenty years old. The residences typically have individual wells and septic tanks. Most of the residences have recently been connected to City water and sewer service. The shallow wells are still used by some individuals to provide water for

irrigation.

The station is bounded to the north and east by Sausalito Drive and Isleta Boulevard, respectively. A single family residence lies to the west of the station and a PNM Substation is located to the south.

#### REGIONAL HYDROGEOLOGY

The Atex site lies in the central portion of the Albuquerque Basin. The Albuquerque Basin is one of a interconnected series of north-south aligned grabens and structural basins which have subsided between mountain uplifts comprising the Rio Grande rift (Reeder, et al.) 1967). The Rio Grande only in a minor sense eroded the depression it \$\frac{1}{2}\cappa^2\$ follows.

In conjunction with subsidence of the rift, a considerable thickness of valley fill shed from the surrounding highlands has accumulated in the basin. The valley fill has been estimated by deep oil well drilling to be as much as 10,000 feet thick. The valley fill is comprised of the Miocene-Pliocene Santa Fe Group with overlying recent alluvium. Therefore, the sediments immediately underlying the site are recent alluvium, primarily deposited by the Rio Grande and its tributaries. These deposits are unconsolidated and commonly consist of erratic lenses and layers of sand, clay, and gravel.

Groundwater within the valley fill is the principal aquifer in the Albuquerque area. The Santa Fe group and recent alluvium are generally hydraulically interconnected with occurances of partially separated shallow "perched water". The valley fill aquifer is generally unconfined with localized reports of artesian pressures (Reeder, 1967). The water table slopes at a low angle down gradient diagonally away from the river. This phenomena and recorded water level fluctuations measured in wells, indicate that the Rio Grande generally loses water and recharges the aquifer.

### FIELD INVESTIGATION

#### General

An extensive field investigation has been performed to provide information on the following:

- o The site soil profile;
- o The limits of hydrocarbon soil vapors in the vadose zone;
- o The lateral and vertical extent of groundwater contamination; and
- o The soil and aquifer characteristics controlling contaminate migration.

A detailed description of each phase of the field investigation performed is presented in the following sections.

### Soil Profile

During drilling and installation of various groundwater monitoring wells, detailed logs of the subsurface conditions were recorded. As shown on the Logs of Test Holes, Figures 4 through 7, subsurface conditions at the site include variable alluvial deposits. The test holes primarily encountered slightly silty to silty sand, sandy clay, clayey sand, and man-made fill above the water table. Below the water table the aquifer is comprised of medium to fine-grained and some The deepest test hole, DW1 (Figure 5), coarse grained sand. encountered a four foot "perching clay" layer from 37 to 41 feet. This was the only hole which was completed to a depth below 25 feet. Location of this hole is indicated on Plate 2. Following drilling, It is not this hole was filled with bentonite-cement grout. definitely known, but we anticipate that this clay layer at least partially separates the shallow aquifer from a deeper aquifer at the site.

## Limits and Concentrations of Hydrocarbon Vapors

The presence of potentially explosive hydrocarbon vapors and their effects is a primary concern due to the potential hazard to property

and public safety. Early in the project, hydrocrabon vapors were monitored in six (6) utility manholes. The locations of the manholes is indicated on Figure 2, and described on Table 1.

Monitoring of the manholes was performed by measuring hydrocarbon vapor concentrations with a MSA Model 62 combustible gas indicator. When hydrocarbon vapor levels nearing 30% of the Lower Explosive Limit (LEL) were measured, the manholes were externally forced air ventilated. Monitoring and ventilation of the manholes was performed to maintain hydrocarbon vapor levels below potentially explosive concentrations.

The utility manhole adjacent to the station (#4), generally indicated high levels of hydrocarbon vapors. To reduce the vapor levels, a continuous, passive ventilation system was installed in May of 1983. Since installation, no potentially explosive hydrocarbon vapor concentrations have been measured at that location.

Manholes #1 and #2 have exhibited the highest hydrocarbon vapor levels and frequently required ventilation. The remaining manholes no longer require ventilation.

To evaluate residual hydrocarbon vapor concentrations in the vadose zone at the site, soil vapor surveys were conducted on two separate dates utilizing two different methods. In October of 1983 a

survey was conducted with a MSA Model 62 combustible gas indicator. To implement this procedure, a probe was driven approximately 2.5 to 3.0 feet below existing grade and soil vapor measurements were collected in percent of the lower explosive limit, (% LEL). The measurements and their locations are presented on Plate 1.

Additional measurements of soil vapors were conducted in October and November of 1984. Tracer Research Corporation was contracted to measure concentrations (in mg/l) of total hydrocarbons and benzene within and surrounding the station. Soil gas measurements were vacuum pumped from a depth of approximately 7.5 to 8.0 feet below grade. The gas samples were analyzed utilizing a gas chromatograph with a flame ionization detector. The measurements collected by Tracer Research are also presented on Plate 1, and Table 2.

The areas of high hydrocarbon vapor concentrations found by the two methods roughly correlated. The field investigations indicate that potentially explosive levels of hydrocarbon vapors are present within the station area and beyond its boundaries to the east and north. Based upon the field data obtained, contours of hydrocarbon vapor levels were determined. Results are presented on Plate 1.

Based upon the limits of the soil vapors presented on Plate 1, the contaminate plume presented on Plate 3 and upon the results of the utility manhole monitoring, we believe that the hydrocarbon vapors in

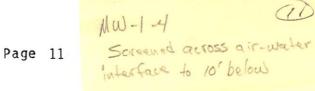
manholes #1 and #2 are not due to the spilled product at the study site. We therefore, request a release of responsibility for continued monitoring of these manholes.

### Evaluation of Contaminant Plume

The field investigation to evaluate the nature and limits of the groundwater contamination began in June of 1982 with the installation of four groundwater monitor wells in the station area. These wells are labelled MW #1 through MW#4. Location of the wells is indicated on the accompanying plates. Monitor well MW#5 was installed by the NMEID. To further define the contaminate plume limits, fifteen (15) additional wells (W-1 through W-15) were installed in October and November of 1984.

The MW wells (MW#1 through MW#4) were installed with a CME 55 Schedule 40, flush threaded, two inch truck mounted drill rig. diameter PVC screen and casing was installed with a steel locking cap on all the wells. All these wells were screened across the air-water interface, the screen extended approximately 10 feet below the water surface.

(W1 through W15) are The remaining fifteen monitor wells constructed of two (2) inch diameter wire wrapped well points and These wells were installed with a galvanized steel riser pipe.



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pneumatic post driver. The wells are screened across the water table and extend approximately four feet into the groundwater. Monitor Well W-14, was screened at a greater depth interval to allow determination of contaminant concentrations at greater depths. The well is screened from eight to twelve feet below the water surface. Some details of the installed wells are presented on Table 2.

The monitor wells were sampled and tested in the field after installation. The chemical analysis of samples collected from the wells was performed by Tracer Research Corporation. Tracer Research Corporation utilizes a portable laboratory in a mobile van which is set up to analyze samples with a gas chromatograph. The State of New Mexico analytical laboratory also performed chemical analysis on selected samples. The results of the analyses of NMEID samples were utilized for comparison with Tracer Research's results and provided a more complete analysis. NMEID results were weighed heavier and primarily used for determination of the configuration and location of the contaminant plume as identified on Plate 3.

Following well installation, the monitor well elevations were surveyed and depths to groundwater were measured. The resulting well elevations and groundwater contour map is presented on Table 2, and Plate 2.

#### Pump Test

A pump test was performed to evaluate the aquifer characteristics necessary for design of a groundwater restoration system. This phase of the investigation included:

- o Installation of a pump test well;
- o Installation of four observation wells;
- o Development of the above mentioned wells; and
- o Pump testing the test well.

The pump test well was installed with a CME 55 truck mounted drill rig. Using 10-inch diameter, hollowstem auger, a hole was drilled to a depth of 24.5 feet. Five inch diameter galvanized steel pipe and wire wrapped well screen were then installed through the hollowstem auger. The well was screened from a depth of 9 feet to 19 feet.

Construction details of the pump test well and the observation wells are presented in Appendix B. The locations of these wells are shown on Plate 2.

Following installation of the pump test well and observation wells, the wells were developed. The wells were developed by airlifting until no significant sediment was obtained.

A low yield, short duration pump test was conducted in March of 1985. Arrangements were made with the City of Albuquerque to dispose of a limited quantity of water at the wastewater treatment plant. The plant was open from 8 am to 4 pm only. Therefore, the duration of the pump test was limited to a maximum of eight (8) hours.

The pump test was conducted on the upper shallow aquifer. The well partially penetrated the 27 foot thick aquifer. Seven observation wells were monitored during the test, as well as, the pumping well. Water levels were measured with a well sounder in the pumped well and with a steel tape and chalk in the observation wells. Readings taken with the well sounder in the pumped well are somewhat suspect due to ambiguous readings collected prior to the test and during the recovery period.

Pumped water was subjected to limited treatment in an aeration tank constructed by Fox and Associates of New Mexico, Inc., before being hauled to the City of Albuquerque Wastewater Treatment Plant. Based upon testing performed by the NMEID, the aeration tank removed roughly 50% to 60% of the volatile contaminants. This indicates that air stripping should be an effective treatment for cleanup of the dissolved phases in the groundwater, provided the appropriate air/water ratio is established.

#### ANALYSIS AND RECOMMENDATIONS

#### General

The contaminant plume is confined to the immediate vicinity of the station. The spilled product is present at the site in three phases: as free product floating on the surface of the water table; suspended product within the vadose and capillary zones; and dissolved product within the groundwater.

Based upon the results of this investigation, it appears that the soil and groundwater can be restored with a conventional dewatering and soil vapor collection system. The proposed dewatering system will consist of four dewatering wells along the south boundary of the gasoline station. The wells will lower the water table and collect any product floating on the surface of the water table and the contaminated water. To reduce soil hydrocarbon vapors, a network of vacuum lines will be installed in the station area. Specific details regarding our findings and the proposed recovery system are presented in the following sections of the report.

#### Groundwater Contaminant Plume

Based upon the field and laboratory data, the limits of the groundwater contamination plume have been determined. The product

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plume, indicated on Plate 3, is based upon measured concentrations of benzene. Benzene concentrations measured are as high as 23 mg/l (MW#3). The state standard for benzene is .01 mg/l. The results plotted on Plate 3 were collected on October 31 and November 1, 1984. The plume is somewhat elongated due to the groundwater gradient. The plume extends approximately 300 feet upgradient from the initial source. We feel this is due to initial product mounding. The plume covers an area of approximately 152,000 square feet.



As previously mentioned, the product is present within the identified plume in three phases: as free product floating on the surface of the water table; suspended in the capillary and vadose zone; and dissolved in the groundwater. The monitor wells have consistently indicated approximately 0.10 inch of product floating on the water table. Based upon the surface area of the plume and the thickness of free product, approximately 9474 gallons of fuel are floating on the surface of the water table.

As the water table fluctuates over its 1.2 foot seasonal interval within the 152,000 square foot plume, an undetermined amount of product adheres to the soil in this zone. As an example, if we assume that 1% (by weight) of this 182,400 cubic feet of effected soil is suspended product, a volume of product of approximately 31,833 gallons is derived. Although the 1% figure used above is not an actual measured value, and is for illustrative purposes only, we anticipate

that the bulk of the product remaining at the site is suspended in the vadose and capillary zones. The product suspended in the capillary zone may be released into the groundwater as the water table rises. Also within the vadose zone residual product is present as vapors. The vapors were measured and contoured (Plate 1) and found to roughly correlate with the groundwater plume (Plate 3).

The volume of product dissolved in the groundwater is difficult to determine. However, the laboratory testing indicates that dissolved product extends slightly deeper than 12 feet below the water table (see W-14, Appendix A).

The exact amount of product held in the soil, capillary zone, and dissolved in the groundwater could not be accurately determined. The difficulty arises as a result of the unknown amount of product removed during 1982, the difficulty in evaluating the water table fluctuation and the product mounding characteristics when leaked, and the dissolution of product compounds over the time period involved.

# Local Hydrology

Based upon records of water levels measured in monitor wells MW#1 through MW#4 (see accompanying Plates) since 1982, the water table has a yearly fluctuation of approximately 1.2 feet (Figure 3.) This fluctuation appears to be in direct response to the base level in the

Rio Grande, and indicates that the river generally loses water or recharges the shallow aquifer.

As indicated on Plate 2, the flow beneath the site is toward the south-southeast with a gradient of 0.0012. This flow direction and water table contour configuration represents conditions measured on November 5, 1984. Alteration of conditions at the site are expected to occur from March to November when the Pajarito Lateral, south of the site, is active and is expected to create a hydraulic barrier which locally effects and recharges the aquifer. This condition has probably aided in preventing the plume from migrating further down gradient.

The groundwater flow velocity at the site is estimated to be approximately 234 ft/yr. This velocity and gradient are, however, altered by the Pajarito Lateral south of the site and area wells which have affected down gradient movement and caused the plume to spread out laterally.

## Pump Test Analysis

Determination of aquifer characteristics from pumping test data was performed to design a recovery well(s) at the site. The test results indicated as expected, that the test was not of sufficient length and the pumping rate was not of a capacity required for the

effects of delayed gravity yield to dissipate and to completely stress and test the aquifer. Difficulty deriving the aquifer characteristics was encountered due to several conditions:

- o Steady State conditions were not reached (time restraints);
- o The discharge rate was not sufficent to adequately stress the aquifer; and
- o The pump test well efficiency could not be determined.

Due to the above uncertainties, a range of aquifer parameters were calculated. The pump test data (Appendix B) was analyzed utilizing methods developed by Theis and further modified by Jacob, Boulton, and Prickett. Graphic methods of N.S. Boulton (1963) and C. E. Jacob (1940) are presented in Figures 8 through 16. The pump test well and observation wells obs 1 through obs 4 test data were evaluated.

The procedure developed by Boulton allows for delayed yield from storage. Analysis considering delayed yield was considered based upon the S-shaped curve resulting when drawdowns were plotted versus time on logarithmetic paper. However, the curve is flattened which caused difficulty in interpretation. The transmissivity determined from the log-log plot for the pumped well is 15,901 gpd/ft (Figure 8). The efficiency of the pumped well could not be determined as the actual

drawdown was less than predicted drawdown based upon (Figure 11).

Drawdown correction for partial penetration (S /2b) for the pump test data ranges from .0017 feet to .011 feet. Therefore, correction of the drawdowns measured was not considered necessary.

Figure 10 graphically illustrates Boulton's method for observation well #1 (obs 1) which was located five feet from the pumped well. The transmissivity for this curve was calculated to be 25,107 gpd/ft. The storage or specific yield is .298 which is at the high end of values for an unconfined aquifer.

Plotting distance drawdown data (Figure 11) for the four observation wells yields a transmissivity of 25,482 gpd/ft and a similar specific yield of .298. Prickett (1965) stresses that the effects of delayed gravity drainage must dissipate in all observation wells before using distance-drawdown data to compute the hydraulic properties of the aquifer. For the tested period, the effects of delayed gravity drainage have not dissipated in all of the observation wells by the end of the test. This is indicated by the flatted "s" curve of the log-log plots.

The average transmissivity and specific yield values for obs 1 and from the distance drawdown data is 25,295 and .298, respectively. The values from the pump test well are not considered because of the

uncertainties of well efficiency and the extremely low values derived.

The remaining analysis of the pump test data utilizes C.E. Jacob's Modified Nonequilibrium Method. This method is a simplified straight line semilog procedure. The pumped well and the four observation wells were evaluated with this method.

The value derived for the pumped well (13442 gpd/ft), Figure 9, is approximately the same as that using the log-log method, Figure 8. This value was not utilized based upon the previously mentioned criteria.

The analyses with the semilog method for obs 1 through 4, and including the recovery data for obs 1 (Figures 12 through 16), yields a much higher transmissivity than previously presented (average value of 71,399 gpd/ft). A specific yield value could not be determined from these analyses due to the short test duration.

Solution of the pump test data therefore, yielded a range of values. The low and high range of transmissivity was 25,295 gpd/ft and 71,399 gpd/ft, respectively, and a storage value of .298 were utilized for design of a recovery system.

### Proposed Recovery System

Several groundwater restoration systems were evaluated. However,

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we feel that the most efficient and cost effective system will be a down gradient barrier system designed much like a dewatering system. small diameter wells, a single The system will utilize four ground holding tank (with optional centrifugal pump, an above scavenger pump should product accumulation indicate the efficient use of one), and an air stripping tower for removing the contaminants before discharge. This type of system will create minimal drawdown begin to remove the most over a large area and immediately contaminated water. Permission will initially be sought for release of water into an irrigation canal with future plans for infiltration galleries upgradient. Further details of the system are presented in the following paragraphs.

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The proposed well locations and recovery system layout are presented on Plate 4. The four wells will be two inches in diameter and be placed intercepting the air-water interface and extend approximately fifteen feet below the water table. The wells will be spaced approximately 55 feet apart and be pumped (at least initially) at 10 gpm.

To demonstrate the effectiveness of the proposed system at selected distances and pump rates, the following tables are presented:

Low Range Values: T = 25,295 gpd/ft S = .298

# Expected Drawdown at Pumped Wells with Time

Distance		Drawdown in Feet						
(feet)	(gpm)	1 week	1 month	6 months	1 year	2 years		
.08	5	.39	.42	.46	.48	.49		
.08	10	.77	.84	.92	.95	.98		
.08	20	1.5	1.7	1.8	1.9	2.0		

# Expected Drawdown Midway Between Wells with Time

Distance	Pump Rate	Drawdown in Feet					
(feet)	(gpm)	1 week	1 month	6 months	1 year	2 years	
27.5	5	.12	.16	.20	.21	.23	
27.5	10	.25	.31	.39	.43	.46	
27.5	20	.49	.63	.79	.85	.92	

# Expected Interference Drawdown at Each Well

Distance	Pump Rate	Drawdown in Feet						te Drawdown in F			
(feet)	(gpm)	1 week	1 month	6 months	1 year	2 years					
55	5	.09	.13	.17	.18	.20					
55	10	.19	.25	.33	.36	.40					
55	20	.37	.50	.66	.73	.79					

High Range Values: T = 71,399 gpd/ftS = .298

# Expected Drawdown at Pumped Wells with Time

Distance	Pump Rate	Drawdown in Feet				
(feet)	(gpm)	1 week	1 month	6 month	1 year	2 years
.08	5	.15	.16	.17	.18	.18
.08	10	.29	.31	.34	.35	.37
.08	20	.58	.63	.69	.71	.73

# Expected Drawdown Midway Between Wells with Time

Distance	Pump Rate	Drawdown in Feet						
(feet)	(gpm)	1 week	1 month	6 months	1 year	2 years		
27.5	5	.05	.06	.078	.08	.09		
27.5	10	.10	.13	.16	.17	.18		
27.5	20	.21	.25	.31	.34	.36		

#### Expected Interference Drawdown at Each Well

Distance	Pump Rate	Drawdown in Feet					
(feet)	(gpm)	1 week	1 month	6 months	1 year	2 years	
55	5	.04	.05	.07	.07	.08	
55	10	.08	.11	.13	.15	.16	
55	20	.16	.21	.27	.29	.31	

Due to interference drawdown, the actual drawdown at each well and the midway point between wells would be the sum of all the influences. As indicated by the previous tables, a pump rate of 5 gpm per well would produce sufficient drawdown under either set of aquifer values. However, the proposed pump rate for the system is 10 gpm per well. The system has adjustability up to 20 gpm which should provide more than sufficient capacity.

The maximum distance the plume extends from a proposed recovery well is 200 feet (Plate 3). The following table presents calculated drawdowns at that distance, pumping at 10 gpm. As indicated by the table, the system will be able to remove the upgradient portion of the plume using the natural gradient and well drawdown and the furthest down gradient contamination with well drawdown for complete recovery.

#### Drawdown at 200 Feet From Closest Well

rans-								
missivity	Distance	Pump Rate	Drawdown in Feet					
(gpd/ft)	(feet)	(gpm)	1 week 1	month	6 months	1 year	2 years	
25,295	200	10	.07	.14	.22	.25	.28	
71,399	200	10	.04	.06	.09	.10	.12	

The proposed recovery system will utilize four (4), small diameter Each well head will recovery wells connected to a manifold system. have a gate valve and flow rate meter to regulate flow and record quantities pumped. The manifold will connect to a single centrifugal pump. The pump will be powered by a 0.75 horsepower motor capable of a total of 110 gpm against the predicted head (allowing 5 to 20 gpm/well). The pump controls will be explosion proof and connected by a licensed electrician. The combined discharge will be pumped into an above ground holding tank where any free product will be allowed to accumulate. Should sufficient quantities of product accumulate, a "skimmer" pump would be installed in the tank. The discharge water will be treated by air stripping. It is believed, based upon results of aeration during the pumping test, that air stripping will adequately restore the contaminated groundwater to required levels. Should chemical concentrations not be reduced to acceptable standards, additional treatment would be performed.

Permission to discharge water, as well as, the appropriate discharge pemits will be sought for release of the treated water initially into the Pajarito Lateral drain with later stages of pumping discharging into infiltration galleries upgradient. Infiltration galleries would not be utilized until the plume has moved down gradient of their proposed locations (Plate 4). These artificial recharge points will aid in raising the water table and assist in flushing the suspended product out of the capillary zone. The annual fluctuation in the water table leaves product suspended in the capillary and vadose zones. We will attempt to adjust the pumping rate to maintain a constant water table.

A dedicated up gradient stainless steel monitor well will also be installed and sampled prior to recovery activity. The location of the well is pending permission to locate the well on private property. Once recovery commences, all of the previously installed monitor wells will be measured for response due to pumping and sampled as required. Where appropriate, the existing wells will be equipped with a locking cap or removed.

#### Soil Vapors

In order to address the elevated soil vapors at the site, a soil vapor ventilation system will be installed. Based upon the readings contoured on Plate 1, a series of gravel filled trenches fitted with

perforated PVC will be constructed. These will probably partially coincide with infiltration gallery locations. The PVC will connect to manifolds and vacuum pump(s) which will safely exhaust the vapors to the atmosphere. A schematic of the proposed vapor system is presented on Plate 4. Additional lateral manifolds not shown on Plate 4 will be installed during construction of the system extending into areas of high vapor concentrations.

At this time bioreclamation is not being considered, however, would be, as a final phase should vapor levels remain high after the majority of the product is removed.

#### **RECOVERY OPERATIONS**

The proposed system will be continuously monitored during operation. Pumping levels in the production wells and surrounding monitor wells will be closely monitored. Water sampling, chemical analysis, and well monitoring will be as stipulated in the Settlement Agreement. Records will be kept of quantities of water and any product pumped or scavenged.

Due to uncertainties involved with the interaction and heterogeneity of site subsurface conditions, the aquifer chemistry and parameters, and the quantity and composition of the product spilled; the recovery well efficiencies and the recovery time required for

clean up cannot accurately be determined. We feel that the system proposed utilizes the best available technology with all variables considered. Additionally, the adjustbility of the system will bring a satisfactory and cost effective project end.

Correspondence will be maintained both verbally and by progress reports to Atex Gas, Inc., and NMEID as required.

MARTIN D. VINVARD

Fox & Associates of NM, Inc.

Reviewed by:

Steven Brewer

Project Geologist

PROFESSIONAL Martin D. Vinyard, P. E.

Geotechnical Section Head

### REFERENCES

- Boulton, N.S., 1963, Analysis of Data From non-equilibrium

  Pumping Tests Allowing for Delayed Yield From

  Storage: Proceedings Institution of Civil Engineers

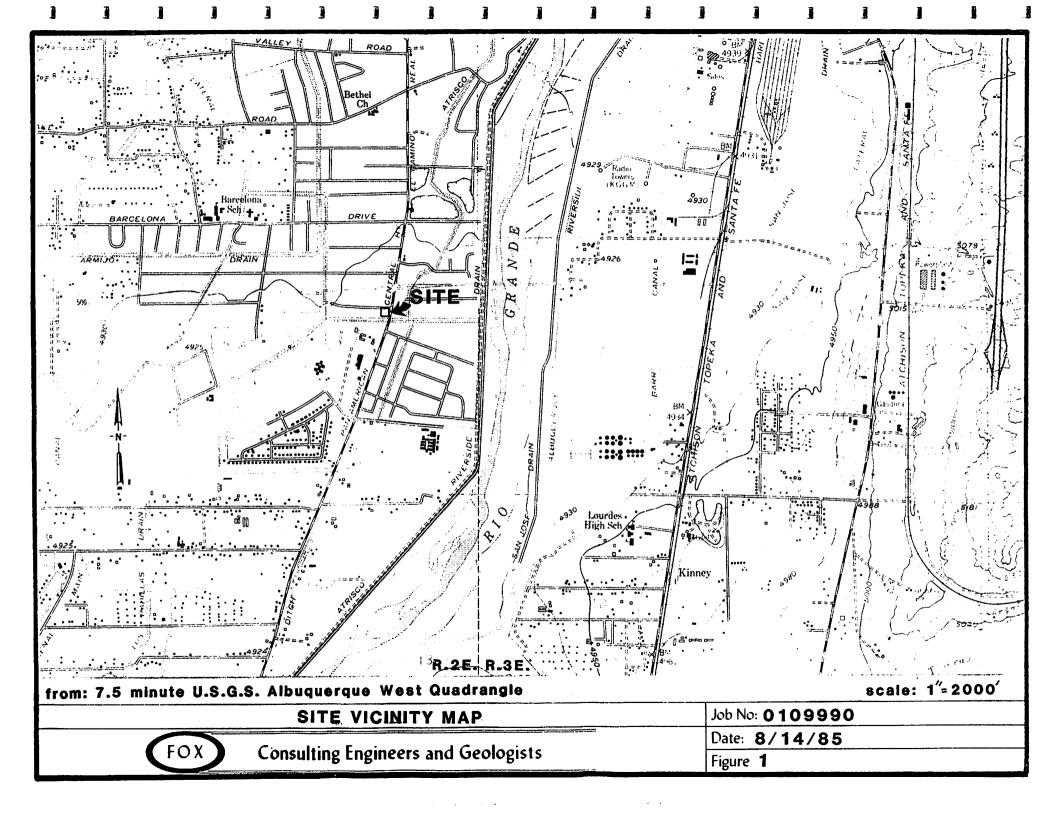
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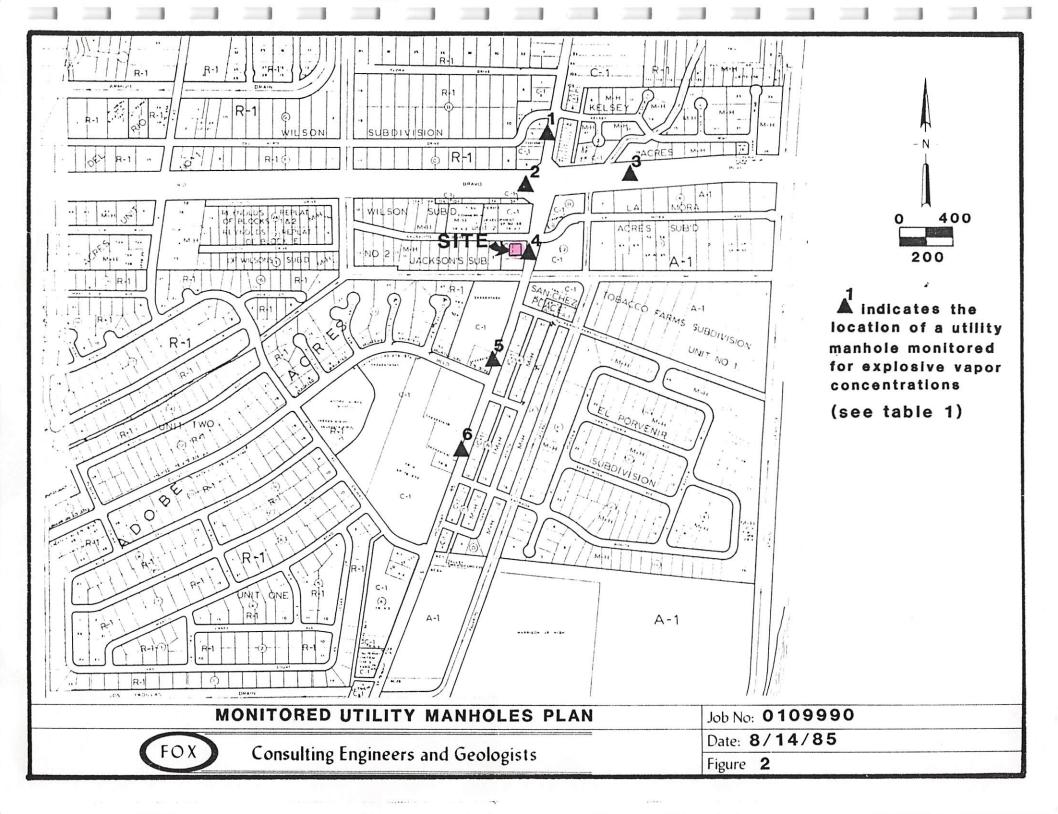
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- Prickett, T. A., 1965, Type-curve Solution of Aquifer Tests Under
  Water-table Conditions: Ground Water, Vol. 3, No. 2, pp.
  5 14
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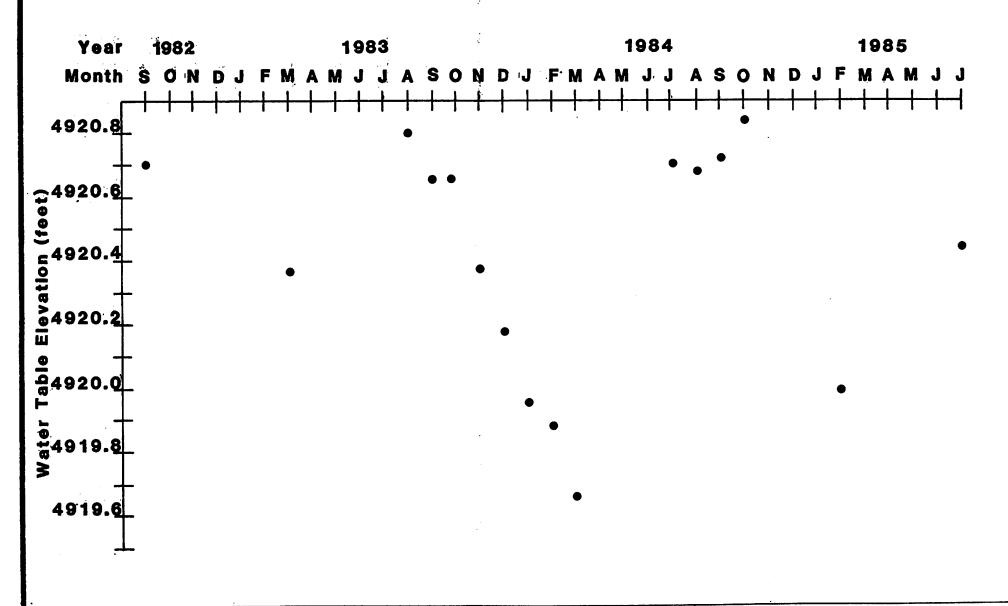
  Quantitative Analysis of Water Resources in the Albuquerque Area, New Mexico: New Mexico State Engineer

  Technical Report 33

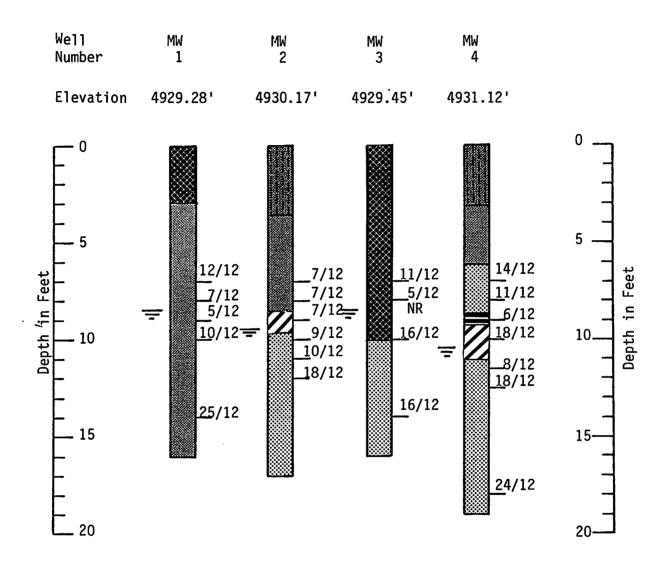




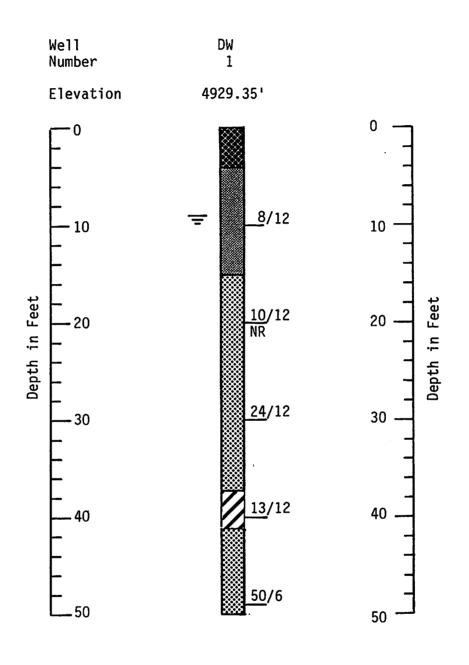
## WATER TABLE ELEVATIONS



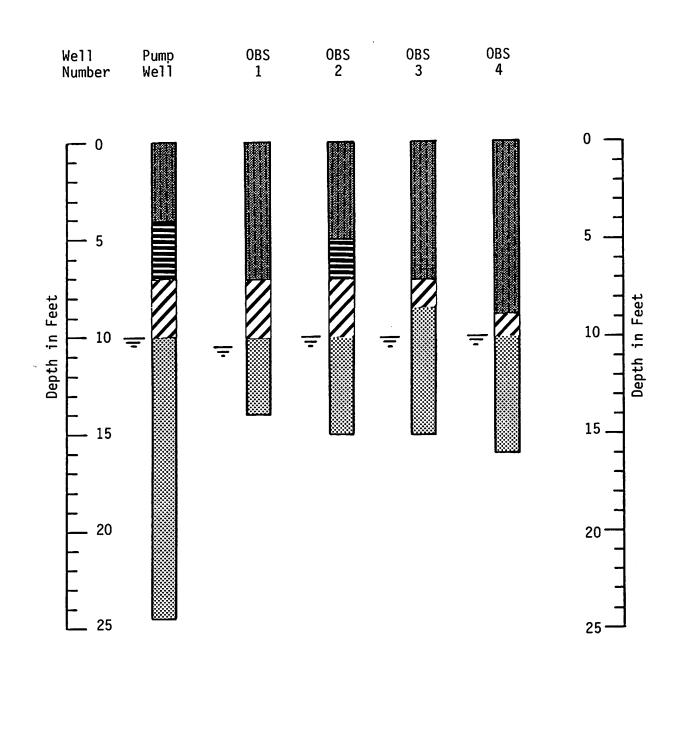
	WATER TABLE ELEVATIONS	Job No: <b>`0109990</b>	
(50)		Date: 8/14/85	
FOX	Consulting Engineers and Geologists	Figure 3	



	LOGS OF TEST HOLES	Job No:	0109990
Cox		Date:	8/14/85
FOX	Consulting Engineers and Geologists	Figure	4



	LOGS OF TEST HOLES.	Job No:0109990
Cox		Date: 8/14/85
FOX	Consulting Engineers and Geologists	Figure 5



	LOGS OF TEST HOLES	<b>Job No:</b> 0109990
(FOX)		Date: 8/14/85
FOX	Consulting Engineers and Geologists	Figure 6

# MAN-MADE FILL, SAND, fine-grained, slightly silty to silty, occasional clean layers, loose to medium dense, slightly moist, light brown SAND, fine-grained, slightly silty to silty, medium dense, slightly to medium moist, contained gasoline odor in places, brown (SP-SM) SAND, mostly fine-grained, occasional medium to coarse grains, slightly silty to clean, medium dense, slightly moist to saturated, strong gasoline odor,

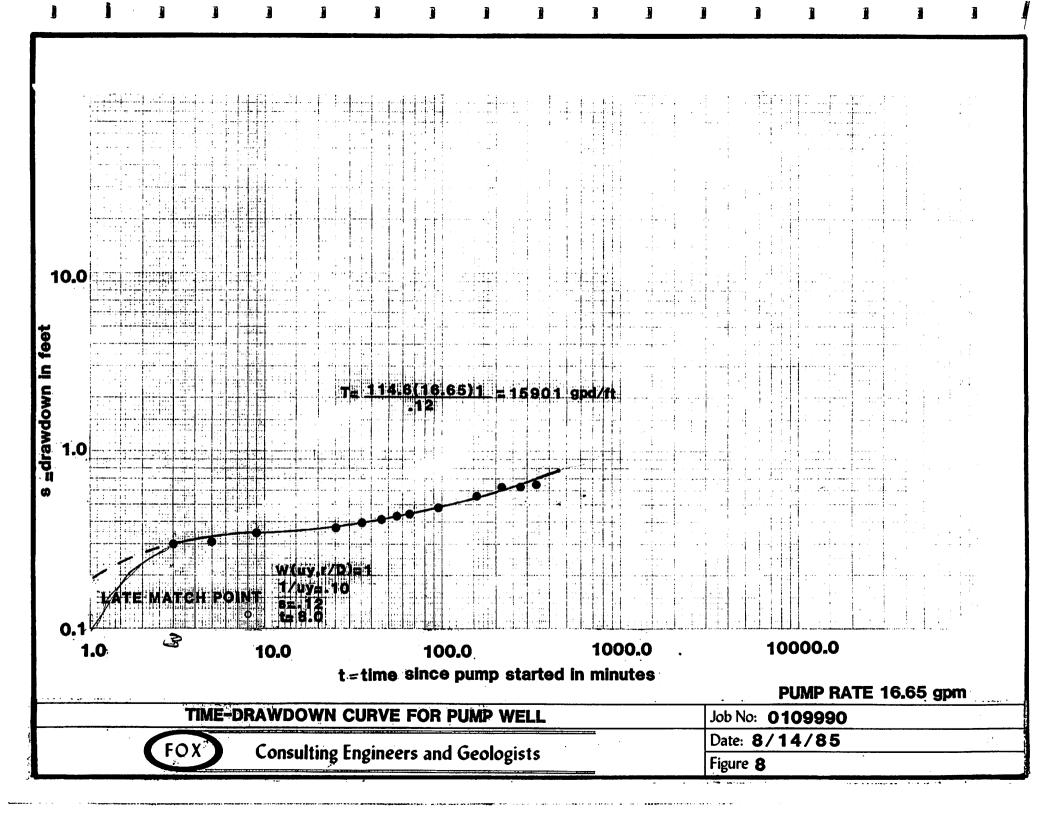
- SAND, fine-grained, silty, loose, slightly to medium moist, some gasoline odor, dark brown to brown (SM)
- CLAY, silty, trace sand, fine-grained, soft to medium stiff, medium moist, dark brown, gray at depth (CL)
- $\frac{\text{SAND}}{(\text{SC})}$ , fine-grained, clayey to very clayey, loose, slightly to medium moist, brown
- SAND, coarse to fine-grained, gravelly, clean, saturated, light brown to gray (SP-SW)
- indicates water table

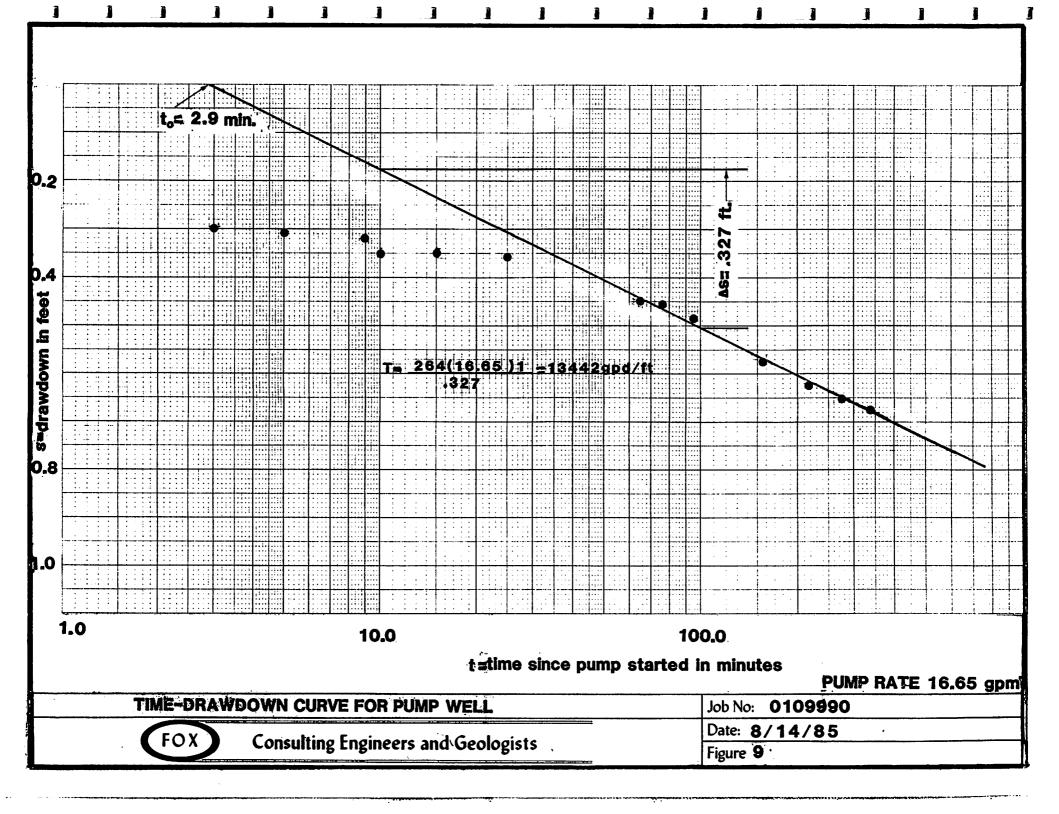
brown, gray (SP)

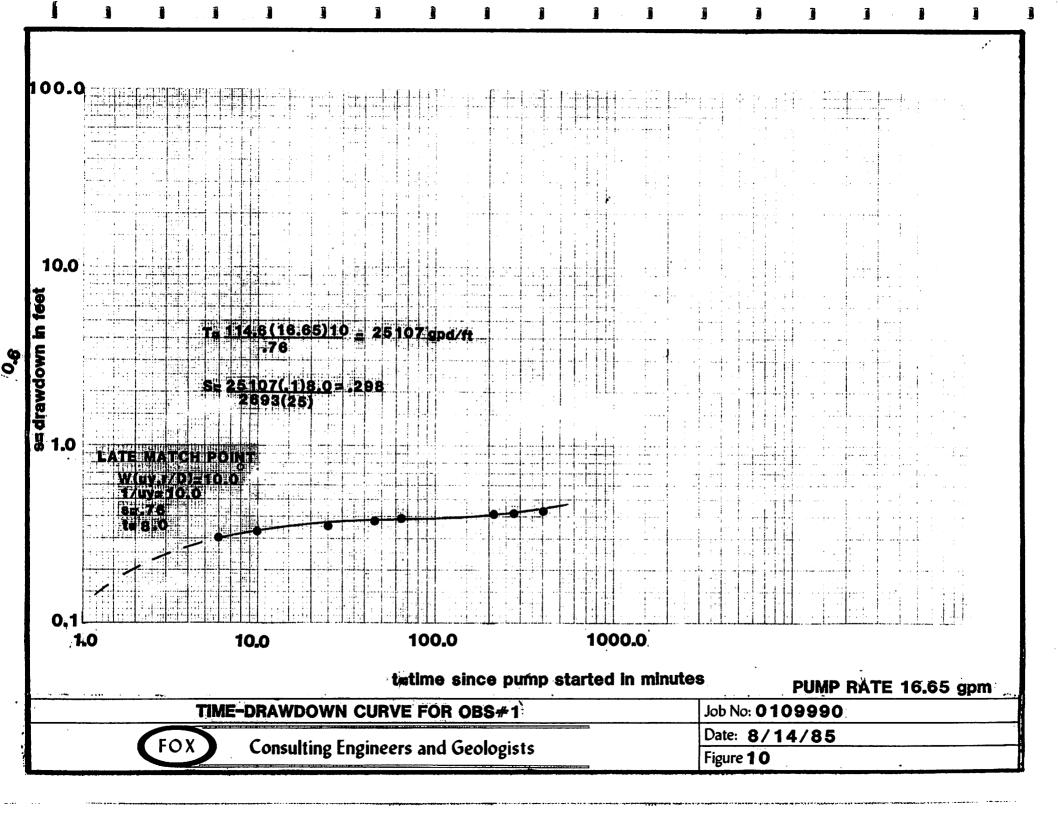
### **NOTES**

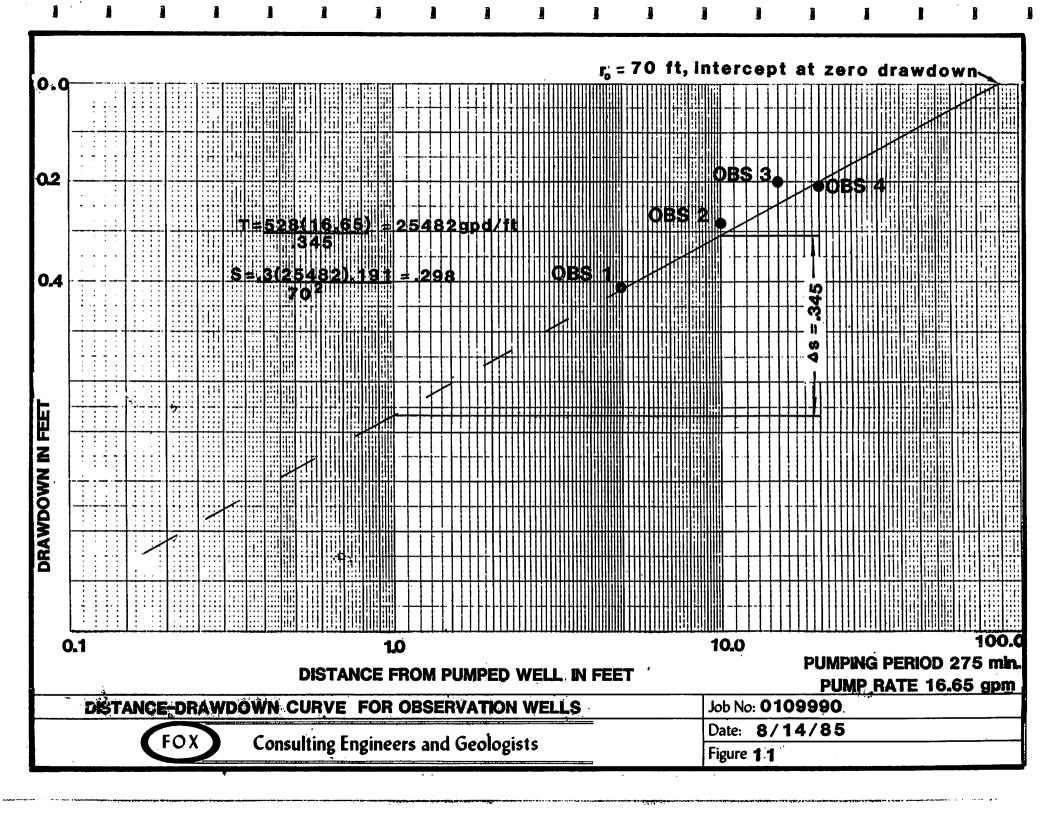
- 1. Test holes were drilled on August 27, 1982, November 11, 1982, February 13, and February 27, 1985 with a 6 inch diameter hollowstem continuous flight power auger.
- 2. (12/12) location of Standard Penetration Test; indicates that 12 blows with a 140 pound hammer, falling 30 inches, were required to drive a 2 inch diameter sampler 12 inches.
- 3. The location of borings were approximately determined by tape and compass measurement from existing structures. Elevations of borings are determined by a level survey. The location and elevation of the borings should be considered accurate only to the degree implied by the method used.
- 4. The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

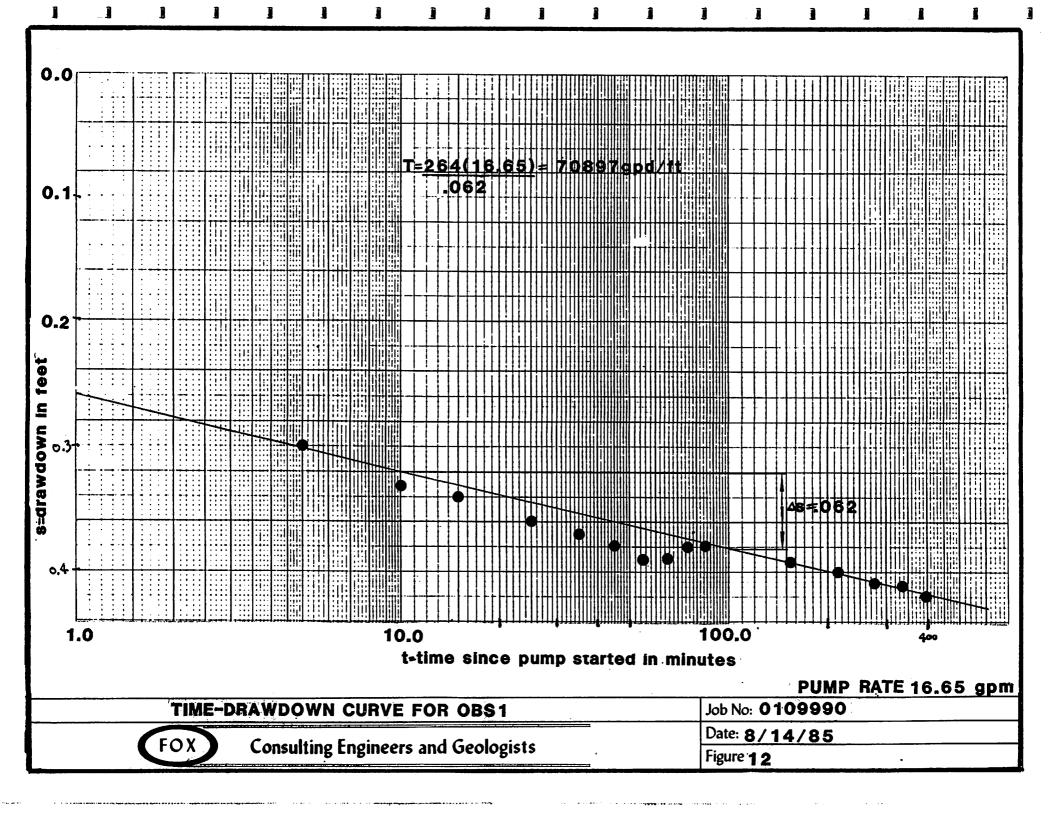
	LOGS OF TEST HOLES	Job No	≈ 0109990
		Date:	8/14/85
FOX	Consulting Engineers and Geologists	Figure	7

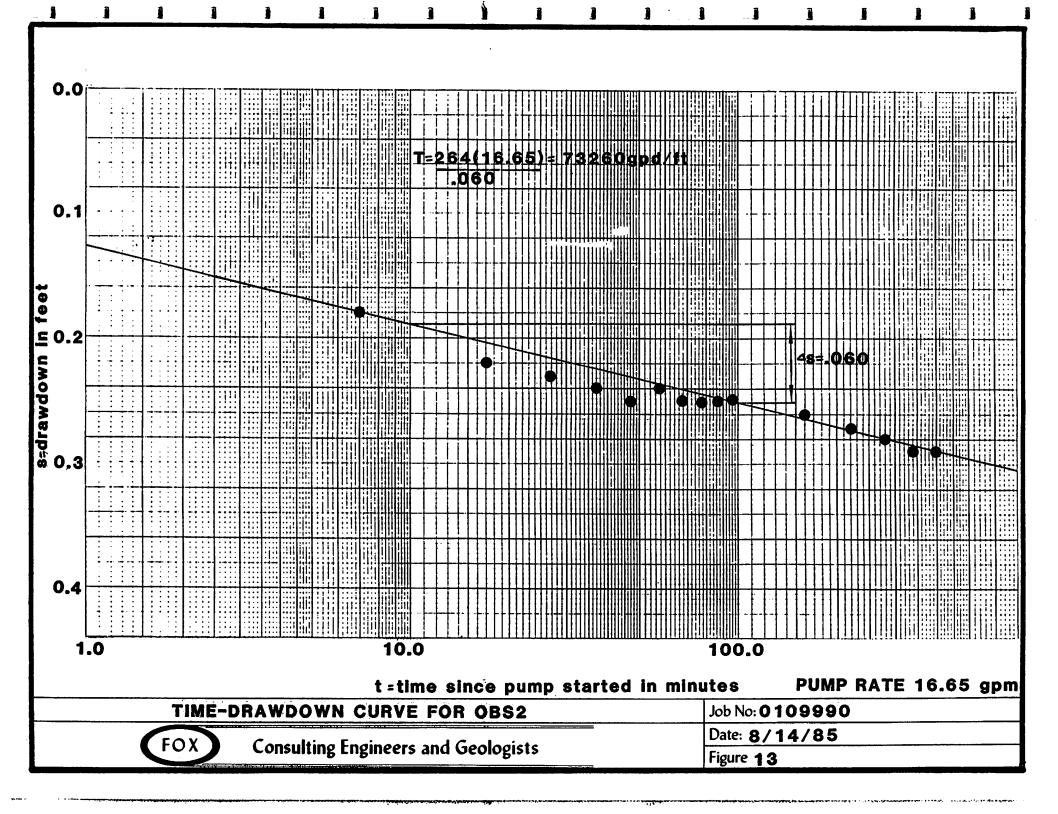


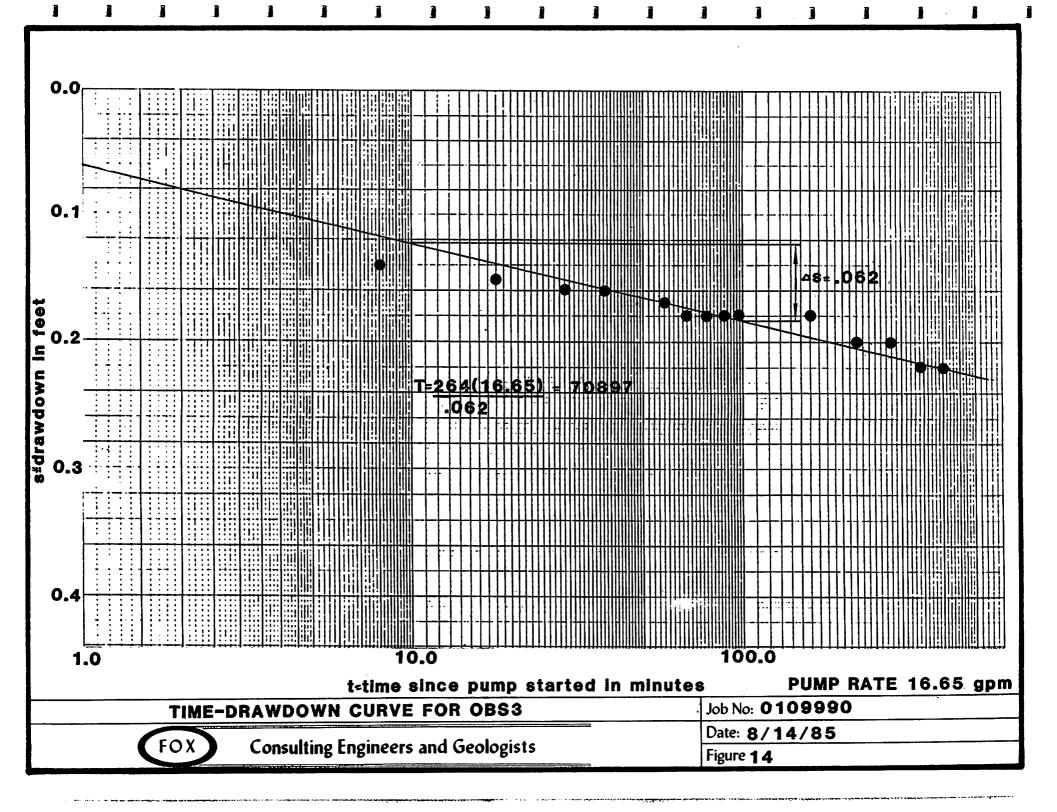


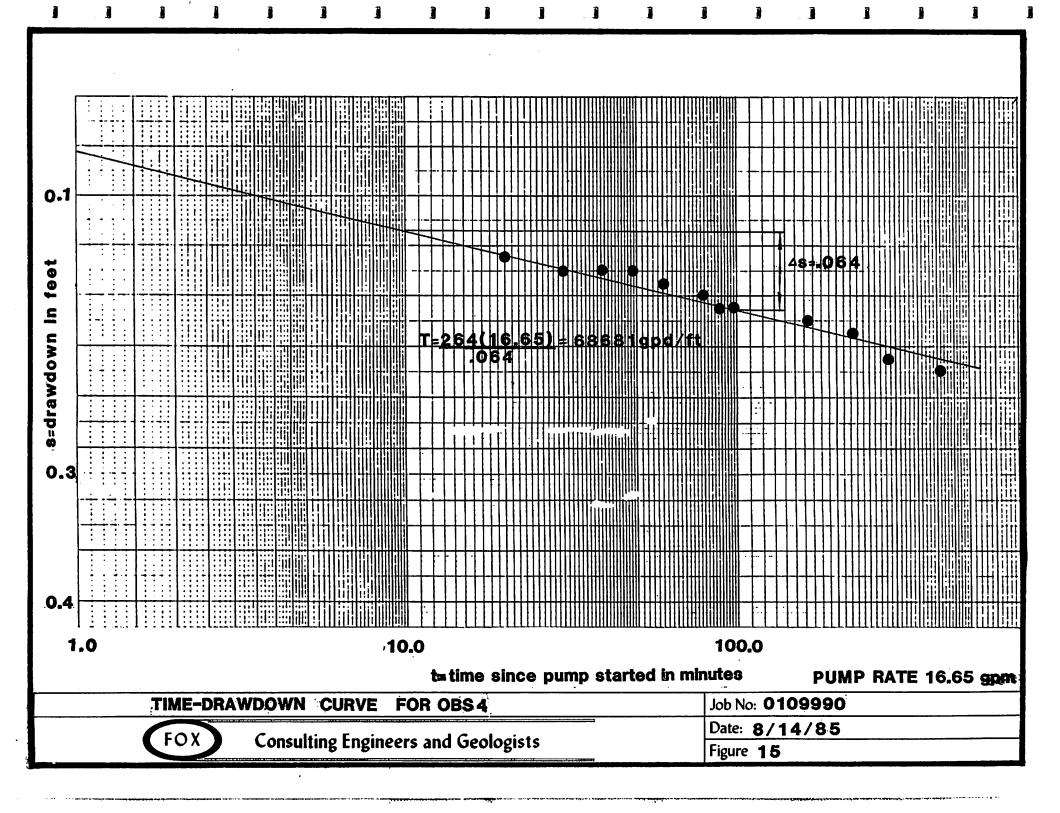


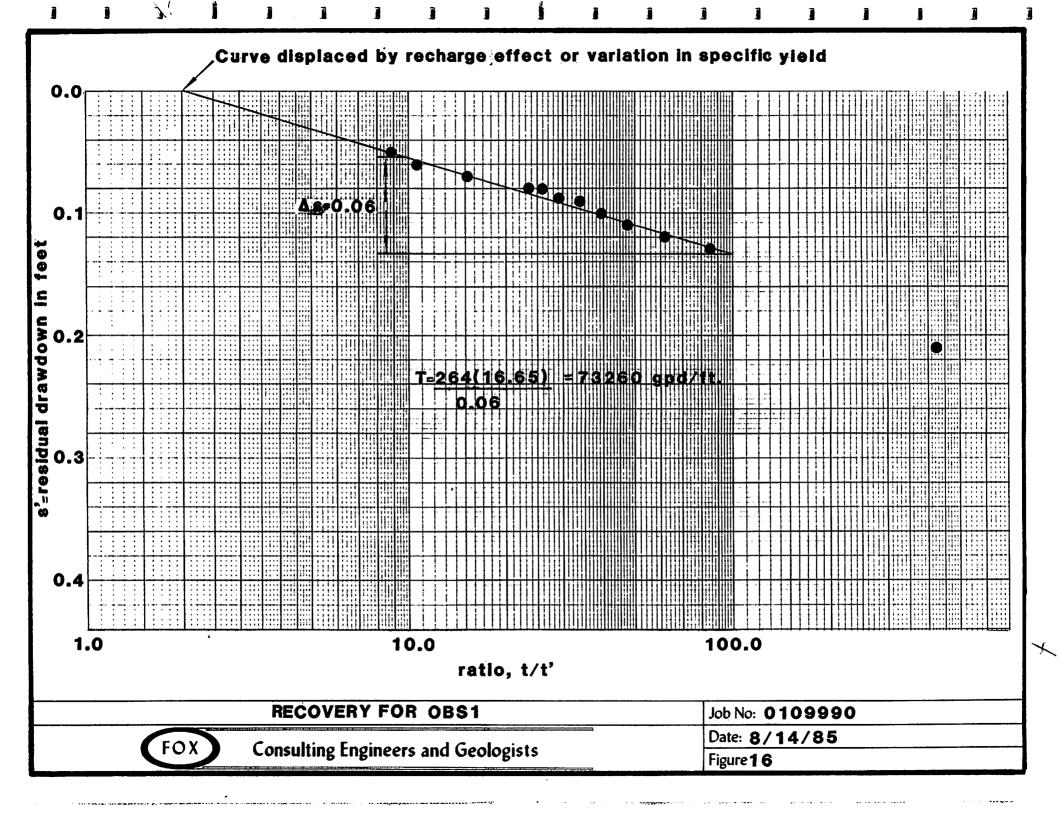












# SUMMARY OF DATA FOR MONITORED UTILITY MANHOLES

Manhole No.	Location	Comments
1	Isleta in front of Sunwest Bank	consistently contains 2 to 3 feet of water and exhibits the highest vapor readings
2	Isleta and Rio Bravo on west island	small quantity of water commonly present, exhibits second highest vapor levels
3	Rio Bravo east of Isleta on island	consistently no vapor reading
4	In front of station on Isleta	readings usually at 0%, always below 5% passive ventilation system installed
5	On Isleta (west side) just north of Clinton	consistently no vapor readings
6	On Isleta (west side) in front of First National Bank	consistently no vapor readings
* See Figure 2		

Job No: 0109990 Date: 7/19/85

Date:

TABLE 2
RESULTS OF LABORATORY CHEMICAL ANALYSIS
OF GROUNDWATER SAMPLES COLLECTED IN THE
VICINITY OF BELL OIL STATION NO. 213

Well No.	Sample/Testing Date	Testing Laboratory	Concentration of Benzene mg/l	Elevation of Top of Pipe*	Water Table Elevation*
MW-1	11/02/84	SLD	8.0	4931.07	4920.65
MW-2 ~	11/02/84	SLD	1.2	4931.91	4920.70
MW-3 ✓	11/02/84	SLD	24.0	4931.24	4920.62
MW-4~	11/02/84 10/31/84	SLD/TR	ND/.4	4932.48	4920.60
MW-5~	11/02/84 10/31/84	SLD/TR	1.25/3.0	4931.93	locked
W-1	11/01/84	TR	.02	4930.66	4920.47
W-2	10/31/84	TR	.02	4928.36	4920.90
W-3	11/02/84	SLD/TR	.007/ .02	4928.72	4921.01
W-4	11/02/84	SLD	8.5	4928.35	4920.72
W-5	10/31/84	TR	.02	4928.84	4920.72
W-6	11/02/84 11/01/84	SLD/TR	ND/ .02	4928.21	4920.75
W-7 /	11/02/84 10/31/84	SLD/TR	.33/.3	4930.03	4920.43
W-8	10/31/84	TR	.01	4929.12	4920.55
W-9	11/02/84 10/31/84	SLD/TR	.003/ .01	4929.24	4920.83
W-10 V	10/31/84	TR	.01	4928.91	4920.89
W-11	10/31/84	TR	.01	4929.26	4920.23
W-12 ✓	10/31/84	TR	.01	4930.74	4920.93
W-13	10/31/84	TR	.1	4929.11	4920.64
W-14	11/02/84	SLD	.029	4928.39	4920.73
W-15	11/02/84			4928.77	4920.33

NOTE: The "MW" wells are constructed of PVC and are screened 2 feet above the water table to 8 feet below the water table. The "W" wells are constructed of galvanized steel and are screened from just above the water table to four feet below the water table except W-14 which is screened from 8 to 12 feet below the water table.

<sup>\*</sup> The elevations and water levels were determined on 11/05/84.

SLD - New Mexico State Laboratory

TR - Tracer Research

# APPENDIX A CHEMICAL ANALYSIS DATA

Page 1 of 3

TRACE

DATE: Oct. 31 - Nov. 1, 1984

JOB: FOX - Albuquerque, NM

ER RESEARCH CORPORATION				
	i. J	l	l I	1

				Total Hyd	rocarbons	Benzen	9							
SAMPLE	DATE	TIME	AMT INJ	mg/l	ug/l	mg/l	ug/l	AREA	ug/l	AREA	ug/l	AREA	ug/l	
MW4	10/31	11:20	10 u1	.9		.4								
W-1	10/31	10:55	10 ul	<.08		<.02								
W-2	10/31	11:50	10 ul	<.08		<.02								
W-3	10/31	12:09	10 u1	<.08		<.02								
W-4	10/31	12:24	5 ul	40		6								
W-5	10/31	12:46	25 u1	<.02		<.02								
W-6	10/31	13:12	25 u1	<.02		<.01								
MW-3	10/31	13:26	5 ul	70		30								
W-7	10/31	14:06	25 u1	2		.3								
W-8	10/31	14:53	25 u1	.04		<.01		,						
W-9	10/31	15:15	25 u1	.04		<.01			·					
MW-5	10/31	15:40	10 ul	9		3								
W-10	10/31	16:06	25 u1	<.02		<.01								
SG7-5	10/31	17:26	2 cc	.002		<.001								

I = interference

Page 2 of 3

TRACER RESEARCH CORPORATION

DATE: Oct. 31 - Nov. 1, 1984

JOB: FOX - Albuquerque, NM

				Total Hyd	rocarbon	Benzer	ie							
SAMPLE	DATE	TIME	AMT INJ	mg/l	ug/l	mg/l	ug/l	AREA	ug/l	AREA	ug/l	AREA	ug/l	
SG7-6	10/31	17:40	.5 cc	.04		<.001								
SG7-8	10/31	17:50	25 ul	.7		.3		· -						
W-11	10/31	16:41	25 u1	.1		<.01								
Before W-13 Dev.		18:28	25 ul	.6		.1								
W-12	10/31	18:04	25 u1	.04		<.01								
After W-13 Dev.	10/31	18:52	25 ul	.1		.02								
SG13-7.5	11/1	9:01	5 ul	35		I								
SG5-7.5	11/1	9:50	1 cc	.02		I								
SG14-7.5	11/1	10:15	5 u1	40		I								
SG15-7.5	11/1	10:29	5 u1	6		I								
W-6 #1	11/1	10:48	5 u1	<.02		<.02								
W-6 #2	11/1	10:51	5 ul	<.02		<.02								
SG15-8.5	11/1	10:56	10 ul	9		I								
SG16-4	11/1	11:08	10 u1	20		I								

I = interference

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Page 3 of 3

TRACER RESEARCH CORPORATION

DATE: Oct. 31 - Nov. 1, 1984

JOB: FOx - Albuquerque, NM

MATTION

		·		Total Hyd	rocarbons	Benze	ne							
SAMPLE	DATE	TIME	AMT INJ	mg/l	ug/l	mg/l	ug/l	AREA	ug/l	AREA	ug/l	AREA	ug/l	
SG17-7.5	11/1	11:25	7 u1	200		I								
SG18-7.5	11/1	11:43	2 u1	150		I								
SG19-7.5	11/1	12:05	5 ul	300		I								
SG20-7.5	11/1	12:22	4 ul	400		I								
SG21-7.5	11/1	12:32	4 u1	400		I								
SG22-7.5	11/1	14:43	5 u1	20		I								
W-1 #1	11/1	11:51	10 ul	<.02		<.02								
W-1 #2	11/1	13:03	25 ul	<.02		<.02								
W6 #1	11/1	13:14	25 u1	<.02		<.02								
W6 #2	11/1	13:20	25 ul	<.02		<.02								
W7	11/1	14:20	25 u1	5		I								
SG22-7.5	11/1	14:43	5 ul	17		I			·					
SG27-8.0	11/1	15:28	1 cc	<.005		<.005								
SG28-7.5	11/1	16:13	5 ul	100		I								

I = interference

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84-1006 -C	
PEPOPT TO 1	_
LAB NUMBER/RG-1006. A.B.  Employment Secretary Company	
SLD Users Code 110.59600	_
ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".	
CERTIFICATE OF FIELD PERSONNEL Sample Type: Water Soil Other	
Water Supply and/or Code No. ATEX	
City & County Alburage Bandillo	ᅵ
Collected (date & time) SANON 1500 By (name) Sciciconic	ヿ
pH=; Conductivity=umho/cm at°C; Chlorine Residual=	$\neg$
Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate= Sampling Location, Methods & Remarks (i.e. odors etc.)	
Cascillus octor	Ì
analyses, observations and activities. Signed  I certify that I witnessed these field analyses, observations and activities and condwith the statements in this block. Signed  Method of Shipment to Laboratory  THIS FORM ACCOMPANIES  Septum vials with teflon-lined discs identified as:  specimen   amber glass jug(s) with teflon-lined cap(s) identified as  and other container(s) (describe) identified as  Containers are marked as follows to indicate preservation (circle):  NP: No preservation; sample stored at room temperature (~20°C).  P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> : Sample preserved with 3 mg Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> /40 ml and stored at room temperature.	_ ' _ ' _ '
CERTIFICATE(S) OF SAMPLE RECEIPT	$\overline{}$
	:0
at (location) o	n
(date & time) and that the statements in this block are correct.	1
Disposition of Sample Seal(s) Intact: Yes \( \Bar{\cup} \) No \( \Bar{\cup} \) .	
Signature(s)	
I (we) certify that this sample was transferred fromt	:0
<u>.</u>	n
(date & time) and that the statements in RHE Dre correct.	
Disposition of Sample Seal(s) Intact: Yes 🗆 No 🗖 .	
Signature(s)	_

<u> </u>					_A	B. NO. /	006	
	PLEASE CHECK THE APPROPRIATE BOXES BELOW TO IN			NDIC	ATE	THE TYPE OF ANALYTI	CAL SCREENS REQUIR	ED.
WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.								
	ZE VE		-	E E	王	EVIDOCI	בסטו בכ	
	QUALITATIVE QUANTATIVE	URGEAE		QUALITATIVE	QUANTATIVE	EXTRACT	IHBLES	
ı	TI ATI	DIZGELIT	<b>)</b>	II	TTA			
	L'AI	SCREEN		UAI	UAN	J SCRE	EN	
		HYDROCARBON SCRE	EN .	O,	0	ALIPHATIC HYDROCAR		
		HYDROCARBON SCREET				CHLORINATED HYDROC		
		TED HYDROCARBON SCI			_	CHLOROPHENOXY ACID	HERBICIDES	
1	GAS CHRON	ATOGRAPH/MASS SPE	CTROMETER			HYDROCARBON FUEL S	CREEN	
						ORGANOPHOSPHATE PE		
						POLYCHLORINATED BI		
					_	POLYNUCLEAR AROMAT	IC HYDROCARBONS	
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	SPECIFI	C COMPOUNDS	•	Ц		SPECIFIC COMPOU	בתער	
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Ì								
		ANALYTIC	CAL RE	SI		_TS		
	001470111		CONC-				CONC-	
	COMPOUN	עו	ENTRATION	<u>   C</u>	COMPOUND EN			<u>N</u>
	Benzene		8600 mg/1	H				
	Toluene		8000 ug/l					
Ì	. / /		1500 ng/2	H				
•	Ethyl benzo	<u> </u>	7/	${\mathsf H}-$				
ļ	p- Xylene		1700 ug/s	<b>  </b>				
	m-xylene		3200 ug/l	Ц				
١	0- Xerlene		2600 ug/l	Н			·	
ı	J.				*	DETECTION LIMIT		
	REMARKS: ろー	e substitute of	benersin	Ha:		<del></del>	+ 1000-200c 19/L	
ļ		ZINIED I - W. U	0			7		
	·							
	CETRIFICATE OF ANALYTICAL PERSONNEL							
	Seal(s) Intact: Yes No . Seal(s) Broken by date I certify that I followed standard laboratory procedures on handling and analysis of this							
						in this block and t		
-	on this page acc	urately reflect th	ne analytical	res	ılt	s for this sample.		
						nature / Meyer		
	Icertify that I have réviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers Signature:							

84- 100 <b>3</b> -C
REPORT TO: SOCCIOSIC LINURATORY
CASTRATORY  LAB NUMBER ORG - 1003 - AB  LAB NUMBER ORG - 1003 - AB  LAB NUMBER ORG - 1003 - AB
FIN, P.D. OUX 96E
SLD Users Code No. 59600
ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".
CERTIFICATE OF FIELD PERSONNEL
Sample Type: Water Soil Other
Water Supply and/or Code No. ATEX MWZ
City & County Albuquere, Bernalillo
Collected (date & time) SAINOI 14A7 By (name) Deccinosic
pH=; Conductivity=umho/cm at°C; Chlorine Residual=
Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate= Sampling Location, Methods & Remarks (i.e. odors etc.)
Sampling Location, Methods & Remarks (i.e. odors etc.)
I certify that the statements in this block accurately reflect the results of my field
analyses, observations and activities. Signed Signed Survations and activities and concur I certify that I witnessed these field analyses, observations and activities and concur
with the statements in this block. Signed
Method of Shipment to Laboratory <u>rend-laboratory</u> .  THIS FORM ACCOMPANIES septum vials with teflon-lined discs identified as:
Ispecimen かいつ : duplicate かいつ : triplicate : blank(s)
<pre>fand amber glass jug(s) with teflon-lined cap(s) identified as</pre>
and other container(s) (describe) identified as Containers are marked as follows to indicate preservation (circle):
NP: No preservation; sample stored at room temperature (~20°C). P- <del>1CE: Sample stored in an ice bath.</del>
P-Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> : Sample preserved with 3 mg Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> /40 ml and stored at room temperature.
CERTIFICATE(S) OF SAMPLE RECEIPT I (we) certify that this sample was transferred from to
at (location) on
(date & time) and that the statements in this block are correct.
Disposition of Sample Seal(s) Intact: Yes \( \Bar{\cup} \) No \( \Bar{\cup} \) .
Signature(s)
I (we) certify that this sample was transferred fromto
at (location) on
(date & time) and that the statements in the statement in the st
Disposition of Sample Seal(s) Intact: Yes \( \Boxed{1} \) No \( \Data \).
Signature(s) NOV 16 1984

	ANALYSES REQUESTED LAB. NO. 103						
Q	PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.						
	PURGEABLE  SCREEN  ALIPHATIC HYDROCARBON SCREEN  AROMATIC HYDROCARBON SCREEN			QUANTATIVE	EXTRACT  SCRE  ALIPHATIC HYDROCARI  CHLORINATED HYDROCA  CHLOROPHENOXY ACID	EN BONS ARBON PESTICIDES	
( <del></del>	HALOGENATED HYDROCARBON SCHOOL GAS CHROMATOGRAPH/MASS SPEC				HYDROCARBON FUEL SO ORGANOPHOSPHATE PES	CREEN	
<del>(20</del> )					POLYCHLORINATED BII POLYNUCLEAR AROMAT		
<del></del>							
( <del>20</del> )	SPECIFIC COMPOUNDS	•	-		SPECIFIC COMPOU	INDS'`	
=							
(200)	REMARKS:						
<del>(==</del> )	ANALYTI(	CAL RE			_TS MPOUND	CONC- ENTRATION	
<b>(26</b> )	Benzere # Toiluene	1200 ug/l					
<b>~</b>	p-Xylene m-Xylene	70 mg/l 22 mg/l 14 mg/l					
(200)	0- Xylame	32,49/2					
<del>-</del>	REMARKS: # Sangle had a strong septic smell and there were numerous early electing						
( <del></del> )	repenting the analysis were not successful because of the instrument problems.						
1	CETRIFICATE OF ANALYTICAL PERSONNEL  Seal(s) Intact: Yes No . Seal(s) Broken by date  I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.						
-	Date(s) of analysis ////// . Analysts signature <u>Meyer len</u> Icertify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Povious Signature:						

84- 1007 -C							
REPORT TO: Down Secunder - ORATORY							
LAB NUMBER/ RG-1007-17,B							
EMPHONMENT CONTRACTOR A - OGIOS							
ALL CONTAINERS WHICH THIS FORM ACCOMPANIES FOR COLLECTIVELY REFERRED TO AS "SAMPLE".							
CERTIFICATE OF FIELD PERSONNEL Sample Type: Water Soil Other							
Water Supply and/or Code No. ATEX - MW3							
City & County Albuquerque, Bornalillo							
Collected (date & time) SANOI 1515 By (name) Secure 1							
pH=; Conductivity=umho/cm at°C; Chlorine Residual=							
Dissolved Oxygen= mg/1; Alkalinity= ; Flow Rate= Sampling Location, Methods & Remarks (i.e. odors etc.)							
This Gholine dur (wist simple t)							
I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed  I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed							
Method of Shipment to Laboratory hand ! Idivand							
THIS FORM ACCOMPANIES z septum vials with teflon-lined discs identified as:							
specimen ; duplicate ; triplicate ; blank(s) , and amber glass jug(s) with teflon-lined cap(s) identified as ,							
and other container(s) (describe) identified as .  Containers are marked as follows to indicate preservation (circle):							
INP: No preservation: sample stored at room temperature (~20°C).							
P-ICE: Sample stored in an ice bath. P-Na $_2$ 0 $_3$ S $_2$ : Sample preserved with 3 mg Na $_2$ 0 $_3$ S $_2$ /40 ml and stored at room temperature.							
CERTIFICATE(S) OF SAMPLE RECEIPT I (we) certify that this sample was transferred fromto							
at (location)on							
(date & time) and that the statements in this block are correct.							
Disposition of Sample Seal(s) Intact: Yes 🗆 No 🗆 .							
Signature(s)							
I (we) certify that this sample was transferred fromto							
at (location)on							
(date & time) and that the statements in RHEC ENDYNE Dre correct.							
Disposition of Sample Seal(s) Intact: Yes 🗆 No 🗆 .							
Signature(s)NOV 16 1984							

<u></u>	HNALYSES REQUESTED LAB. NO. 1007						
	PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.						
QUALITATIVE	ANTATIVE	PURGEAE	BLE	QUALITATIVE	QUANTATIVE	EXTRACTAL	BLES
LY CAL	QUAN	SCREEN		UAL	UAN	SCREEN	1.,
	U	ALIPHATIC HYDROCARBON SCRE	EN		-	ALIPHATIC HYDROCARBONS	
	メ	AROMATIC HYDROCARBON SCREEN	1			CHLORINATED HYDROCARBON	
<u></u>	大	HALOGENATED HYDROCARBON SCI				CHLOROPHENOXY ACID HERB	ICIDES
-	-	GAS CHROMATOGRAPH/MASS SPEC	CTROMETER	-	_	HYDROCARBON FUEL SCREEN	200
-				<del>  </del>	_	ORGANOPHOSPHATE PESTICI	
-				${}^{+-}$	-	POLYCHLORINATED BIPHENY POLYNUCLEAR AROMATIC HY	
$\vdash$	-			H-	-	Tobinoobban moralio	
		1		_	1		
		SPECIFIC COMPOUNDS	•			SPECIFIC COMPOUNDS	
_	Ш			Щ_			
-	$\vdash$			<del>  </del>	<u> </u>		
$\vdash$	$\vdash$			-	<del> </del>		
R	EΜΛ	RKS:		Ш		<u> </u>	<del></del>
			· · · · · · · · · · · · · · · · · · ·				
	•	ANALYTI	CAL RE	Sl	JL	_TS	
	CC	MPOUND	CONC- ENTRATION		COMPOUND		
1	$\mathcal{R}_{e}$	n z Enl	24000 m/8				·
i		ulne	25 to 00 ug /				
	e d	( )	110	-			
-	- 7p	yl benzel	3400 Mg/L				
$\vdash \!$	<u>r -</u>	Xylae	3900 24 /2	<b> </b>			
	2 - \	Lylene	4400 mg/2				
6	<u> </u>	ylene	5600 ug/l				
					*	DETECTION LIMIT	
REMARKS:							
<u> </u>							
Sea	al (s	s) Intact: Yes No . Seal(	CETRIFICATE (	OF A	NAL:	YTICAL PERSONNEL	
I	cert	ify that I followed standard	laboratory p	roce	edu	date_ res on handling and analys	is of this
รลเ	np1e	unless otherwise noted and	that the stat	emer	ıts	in this block and the ana	lytical data
Dat	tni te(s	s page accurately reflect the of analysis $1/7/84$				s for this sample.	)
Ice	erti	fy that I have reviewed and	concur with t	he a	na]	lytical results for this s	ample and
wit	with the statements in this block. Reviewers Signature:						

84- 1008 -C					
REPORT TO: Desin LABORATORY_					
LAB NUMBER / RG-1668.	.5.15' 11-62-89				
SLD Users Code No. 594					
ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAME	PLE".				
CERTIFICATE OF FIELD PERSONNEL Sample Type: Water Soil Other					
Water Supply and/or Code No. ATTY - must					
City & County Allowance Barraillo					
Collected (date & time) SANO 1 1830 By (name) Service					
pH=; Conductivity=umho/cm at°C; Chlorine Residual=					
Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=; Flow Rate=;					
Sampling Location, Methods & Remarks (i.e. odors etc.)					
GASOTIVE Odor (Slight)					
I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed  I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed  Method of Shipment to Laboratory  THIS FORM ACCOMPANIES  septum vials with teflon-lined discs identified as:  specimen   amber glass jug(s) with teflon-lined cap(s) identified as  and other container(s) (describe) identified as  containers are marked as follows to indicate preservation (circle):  NP: No preservation; sample stored at room temperature (~20°C).  P-ICE:  Sample stored in an ice bath.  P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> : Sample preserved with 3 mg Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> /40 ml and stored at room temperature.					
CERTIFICATE(S) OF SAMPLE RECEIPT I (we) certify that this sample was transferred from	to				
at (location)	to on				
(date & time) and that the statements in this block-are con					
<u>.                                    </u>					
Signature(s)					
I (we) certify that this sample was transferred from	+				
at (location)					
(date & time) and that the statements in this block are corr					
Disposition of Sample . Seal(s) Inta EtG E teks ID No					
Signature(s)					
NOV 1 6 1984					

L		ANALYSES REQUESTE				B. NO. 1008		
'	PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.							
	QUANTATIVE	PURGEAI SCREEN	3LE	QUALITATIVE	QUANTATIVE	EXTRACTAE SCREEN		
+	2 0	ALIPHATIC HYDROCARBON SCRI	ren	He	o	ALIPHATIC HYDROCARBONS	<u> </u>	
"  -	17	AROMATIC HYDROCARBON SCREE		H	-	CHLORINATED HYDROCARBON	PESTICIDES	
$\vdash$	一式	HALOGENATED HYDROCARBON SO		<del>                                     </del>	一	CHLOROPHENOXY ACID HERBI		
. H	++	GAS CHROMATOGRAPH/MASS SPI		<del>                                     </del>	<b>-</b>	HYDROCARBON FUEL SCREEN		
` ├				#	<u> </u>	ORGANOPHOSPHATE PESTICIO	ES	
一	_			H—	_	POLYCHLORINATED BIPHENYL		
,	-			<del>                                     </del>	<del>                                     </del>	POLYNUCLEAR AROMATIC HYD		
-				11—	一			
$\vdash$	+-	1		H-				
·  -	+-			<del>                                     </del>	<del>                                     </del>			
		SPECIFIC COMPOUNDS				SPECIFIC COMPOUNDS		
' [				Щ				
L	_			<del>  </del>				
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'				Щ		<u> </u>		
L	REMA	RKS:	. •			<u> </u>	·	
, L			· · · · · · · · · · · · · · · · · · ·			·		
		ANALYTI	CAL RE	SI	JL	_TS		
<b>'</b>	C	OMPOUND	CONC- ENTRATION			MPOUND	CONC- ENTRATION	
		imatic Pungeables	ND X					
'	. <i>t</i>	1 45 0 1 1		<del>  </del>		<u> </u>		
L	Hal	ozer ted Purgeables	NDX	Ш_				
		U Ø	<u>.</u>	11				
<b> </b>				П				
$\vdash$				-				
· L			<u> </u>	Н_				
				11				
			-		*	DETECTION LIMIT	1 10	
' <b> </b> -							Ing IX	
H	REMARKS: Repeated with Diplicate Little.							
$\Box$								
'   <del>-</del>	CETRIFICATE OF ANALYTICAL PERSONNEL							
	Seal(s) Intact: Yes No . Seal(s) Broken by date .							
. ] ]	cer	tify that I followed standar	d laboratory	proc	edu	res on handling and analys	is of this	
٤	ampl	e unless otherwise noted and	that the sta	teme	nts	in this block and the ana	lytical data	
		is page accurately reflect t s) of analysis <u>(1/7/8/</u>						
'   I	cert	ify that I have reviewed and	concur with	the a	ana:	lytical results for this s	ample and	
W	Icertify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers Signature:							

REPORT TO:	Deur Jaserric	LABORATORY
حبللت	Guard with Herarches with	LAB NUMBER (RC-1612-AB)
ام السنجسير الم	5/1 20.80x 900	11-02-87
" EMMOHHENT	Sitter Te. Nim 3754-CIG	
ALL CONTAIN	NERS WHICH THIS FORM ACCOMPANIES ARE CO	DLLECTIVELY REFERRED TO AS "SAMPLE".
	CERTIFICATE OF FIELD	
Sample Type	e: Water Soil 0ther	T ENJOHNEE
Water Suppl	y and/or Code No. RIEX M	MC
City & Coun	ety Allreymens, Benelillo	:
Collected (	date & time) 84 1031 E	By (name) <u>Recinosic</u>
pH=;	Conductivity=umho/cm at	°C; Chlorine Residual=
Dissolved O	oxygen= mg/l; Alkalinity= ocation, Methods & Remarks (i.e. odors	; Flow Rate=
Sampling Lo	cation, Methods & Remarks (1.e. odors	etc.)
analyses, o I certify t	that the statements in this block accur observations and activities. Signed that I witnessed these field analyses, tatements in this block. Signed	observations and activities and concur
Method of S	Shipment to Laboratory was dali	· · · · · · · · · · · · · · · · · · ·
INIS FORM A	ACCOMPANIES 2 septum vials with teflo	icate ; blank(s) ,
and am	nber glass jug(s) with teflon-lined cap	o(s) identified as,
Containers	ther container(s) (describe) are marked as follows to indicate pres	servation (circle):
NP:	No preservation; sample stored at ro Sample stored in an ice bath.	oom temperature (~20°C).
P-Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> :	Sample preserved with 3 mg Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> /4	40 ml and stored at room temperature.
I (we) cert	CERTIFICATE(S) OF SAME tify that this sample was transferred t	MPLE RECEIPT from to
	at (location)	
(date & tim	ne) and that the si	<del></del>
		Seal(s) Intact: Yes□ No□ .
	5)	
	tify that this sample was transferred t	
	at (location)	
(date & tim	ne) and that the sta	atements in this RoEc@ E & WeEc@rrect.
В	n of Sample	
	5)	

<u>;</u>	ANALYSES REQUESTED LAB. NO.  PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED						
		NEVER POSSIBLE LIST SPECIFIC					CREENS REQUIRED
QUALITATIVE	QUANTATIVE	PURGEAE	3LE	QUALITATIVE	OUANTATIVE	EXTRACTA	BLES
UALI	L'ANT	SCREEN		UALI	UANI	SCREE	<b>V</b> .
	۲	ALIPHATIC HYDROCARBON SCRE	EN	1	-	ALIPHATIC HYDROCARBONS	
1	X	AROMATIC HYDROCARBON SCREE			<del>                                     </del>	CHLORINATED HYDROCARBON	PESTICIDES
	字	HALOGENATED HYDROCARBON SC		1		CHLOROPHENOXY ACID HERB	ICIDES
	/	GAS CHROMATOGRAPH/MASS SPE	CTROMETER			HYDROCARBON FUEL SCREEN	
						ORGANOPHOSPHATE PESTICI	DES
						POLYCHLORINATED BIPHENY	
	<u> </u>		:	Ц		POLYNUCLEAR AROMATIC HY	DROCARBONS
_	<u> </u>						
_	├—	,		-	<b> </b> -		
-	┞			+-	┢	CONTRACTOR CAMPAINING	
_	<u> </u>	SPECIFIC COMPOUNDS	•	<del> </del>	_	SPECIFIC COMPOUNDS	
-	<del> </del>			-			•
	┢	, · · · · · · · · · · · · · · · · · · ·		+	<del> </del>		
H	一			-	1		
R	EMA	RKS:		L	<b></b>		
		ANALYTI	CAL RE		11	TS	
		111111111111111111111111111111111111111	CONC-		<u> </u>	_   0	CONC-
	C	DMPOUND	ENTRATION	C	O	MPOUND	ENTRATION
	K.	long Emy	1250 Ng/Q			· · · · · · · · · · · · · · · · · · ·	·
		luenc	760 mg/2				
	£+	hy/benzení	130 Mg/8				
	ç ·	Xu lens	210,16/8				
		Xy/eno	54049 18				
	0- /y/2me 240 mg/l						
				*	DETECTION LIMIT		
R	REMARKS:						
-							
Se	al(	s) Intact: Yes (No) . Seal	/ <b>\</b> - • •			YTICAL PERSONNEL date	-
I	cer	s) Intact: Yes (No) . Seal tify that I followed standard	laboratory p	roc	edu	res on handling and analy	sis of this

sample unless otherwise noted and that the statements in this block and the analytical data

Date(s) of analysis ////39 . Analysts signature K Messerical Icertify that I have reviewed and concur with the analytical results/for this sample and

on this page accurately reflect the analytical results for this sample.

with the statements in this block. Reviewers Signature:

ſ	84- 1002 -C	
REPORT TO:	Diesen Jaconson ABORATORY	<u></u>
	Cramic W. tal Moznic - 1002-14. LAB NUMBER ORG - 1002-14. L	5
ENCHONNENT	Sunta Te, im 67504 966 SLD Users Code No. 59600	
ALL CONTAIN	ERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".	
	CERTIFICATE OF FIELD PERSONNEL	
	: Water 🛱 Soil 🗆 Other	
Water Suppl	y and/or Code No. ATTX - W3	
City & Coun	tr Albuquers, Berralillo.	
	date & time) Ex 1101 1343 By (name) Securio	-
	Conductivity=umho/cm at°C; Chlorine Residual=	
Dissolved O	xygen= mg/l; Alkalinity= ; Flow Rate= cation, Methods & Remarks (i.e. odors etc.)	
Sampling Lo	cation, Methods & Remarks (i.e. odors etc.)	
	hat the statements in this block accurately reflect the results of my fie	eld
I certify t	bservations and activities. Signed hat I witnessed these field analyses, observations and activities and con	ncur
with the st	atements in this block. Signed	
Method of S	hipment to Laboratory \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	•
specimen \	(companies blank(s)); triplicate; blank(s)	,
and am	j duplicate vib ; triplicate ; blank(s) ber glass jug(s) with teflon-lined cap(s) identified as her container(s) (describe) identified as are marked as follows to indicate preservation (circle):	,
Containers	are marked as follows to indicate preservation (circle):	—·
NP:	No preservation; sample stored at room temperature (~20°C).	
P-Na20252:	No preservation; sample stored at room temperature (~20°C). Sample stored in an ice bath. Sample preserved with 3 mg Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> /40 ml and stored at room temperature	e. '
232	- 232	
I (we) cert	CERTIFICATE(S) OF SAMPLE RECEIPT	+-
1 (WE) CEIC	ify that this sample was transferred from	
(dato & time		on
	e) and that the statements in this block are correct.	
Signaturo(s	of Sample Seal(s) Intact: Yes \( \bigcap \) No \( \bigcap \)	•
	) <u> </u>	_
I (we) cert	ify that this sample was transferred from	to
	at (location) RECEIVED	
(date & time	e) and that the statements in this block are correct.	
Disposition	of Sample Seal(s) IntNOV: 1 fe1981 No [	•
Signature(s	) LIQUID WASTE/GROUND WATER	
	SURVEILLANCE	

	PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.						
	QUALITATIVE	PURGEAE	GEABLE		ANTATIVE	EXTRACTAE	BLES
	C'AL	SCREEN		QUALITATIVE	OU.AN	SCREEN	1
Ī	<u> </u>	ALIPHATIC HYDROCARBON SCRE	EN	<u> </u>	Ť	ALIPHATIC HYDROCARBONS	
	7	AROMATIC HYDROCARBON SCREE	N			CHLORINATED HYDROCARBON	
	7	HALOGENATED HYDROCARBON SC				CHLOROPHENOXY ACID HERB	ICIDES
.		GAS CHROMATOGRAPH/MASS SPE	CTROMETER	Ш_	<u> </u>	HYDROCARBON FUEL SCREEN	
-				<del>   _</del>	<u> </u>	ORGANOPHOSPHATE PESTICII	
ŀ					-	POLYCHLORINATED BIPHENY	
<b>`</b>					-	FOLINOCLEAR AROUNTE III	DROOMRDOND
ŀ				<del>                                     </del>	-		
,	_			<del>                                     </del>		·	
		SPECIFIC COMPOUNDS	•			SPECIFIC COMPOUNDS	
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ł	REMA	ARKS:		<u> </u>	<u> </u>	<u> </u>	
I	IVE: II	auto.					
, <u>L</u>							
		ANALYTI	CAL RE	SI		_TS	
	С	OMPOUND	CONC- ENTRATION	c	10	MPOUND	CONC- ENTRATION
	Be	n Z Ruf	7ug/l	П			
		lu Ene	5 usll				
T	5 H	The sale	NO X				
<b>'</b>		Yulas	5 49/l	$\Pi^-$		***************************************	
t	///-	- Agreen	1 10	11-		***************************************	
·	PO	* xy/ent	5/19/1	<del>                                     </del>			
L				<b>  </b>			
	÷					DETECTION LIMIT	
-	REM/	ARKS: Numerous other subs	tituted ben	ze_c	2 4	- the (9-10 ct about 5-	20,000
ŀ	<del></del>	<del></del>		<del></del>			
'			CETDIETCATE	OF A	NT A T	VTICAL DEDCOMMEN	
	CETRIFICATE OF ANALYTICAL PERSONNEL  Seal(s) Intact: Yes No . Seal(s) Broken by date  I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.  Date(s) of analysis // 6/94 Analysts signature / Meyer Analysis						
'	Icert	ify that I have reviewed and	concur with	the a	ana:	lytical results for this s	sample and
- 1	with the statements in this block. Reviewers Signature:						

LAB. NO.

HNALYSES REQUESTED

1002

,	84- 1(	)0 <b>5</b> -C
REPORT TO:		LABORATORY
بسللس	(xound winter Hazurdines wish	LAB NUMBER RC-1005-A.B
ا المائية المائية المائية	FID for Bx 912t	11/02/84
ENVINONMENT	Sintate, NM 07564- USE	
ALL CONTAIN		SLD Users Code No. 59600 COLLECTIVELY REFERRED TO AS "SAMPLE".
Sample Type	CERTIFICATE OF FIEL  : Water  Soil  Other	
	y and/or Code No. ATEX - 1	
	ty Alburungue, It # Francis	
B	date & time) (Allo) 1420	
li .	Conductivity=umho/cm at	
	xygen= mg/l; Alkalinity= cation, Methods & Remarks (i.e. odor	•
Sampling Lo	cation, Methods & Remarks (i.e. odor	s etc.)
I certify t	hat the statements in this block acc	urately reflect the results of my field
analyses, o	bservations and activities. Signed hat I witnessed these field analyses	, observations and activities and concur
	atements in this block. Signed	
Method of S	hipment to Laboratory was - lab	uerel .
Specimen	CCOMPANIES septum vials with tef	lon-lined discs identified as: licate : blank(s) .
and am	trip ber glass jug(s) with teflon-lined cher container(s) (describe) are marked as follows to indicate pr	ap(s) identified as,
Containers	her container(s) (describe) are marked as follows to indicate pr	identified as  reservation (circle):
INP:	No preservation: sample stored at	room temperature (~20°C).
P-ICE: VEC (	Sample stored in an ice bath.	//O ml and stored at room temperature
20332.	Sample preserved with 5 mg Ma <sub>2</sub> 0 <sub>3</sub> 5 <sub>2</sub>	/40 ml and stored at room temperature.
	CERTIFICATE(S) OF S	AMPLE RECEIPT
(We) cert	ify that this sample was transferred	
411		n) on
1		statements in this block are correct.
		Seal(s) Intact: Yes \bigcup No \bigcup .
o ignature(s	)	
I (we) cert		fromto
		) RECEIVED on
	e) and that the s	
4	of Sample	Seal(s) Intact:NOMes14 1984 .
Signaturals	1	

LIQUID WASTE'S GUND WATER SURTALIANSE

ANALYSES REQUESTED					_A	B. NO. 1005		
PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.								
QUALITATIVE	QUANTATIVE	PURGEAE SCREEN	3LE	QUALITATIVE	QUANTATIVE	EXTRACTAE		
Fē	ō	ALIPHATIC HYDROCARBON SCREEN			ō	ALIPHATIC HYDROCARBONS		
-	7	AROMATIC HYDROCARBON SCREEN				CHLORINATED HYDROCARBON PESTICIDES		
-	*	HALOGENATED HYDROCARBON SCREEN				CHLOROPHENOXY ACID HERBICIDES		
-	1	GAS CHROMATOGRAPH/MASS SPECTROMETER			<b> </b>	HYDROCARBON FUEL SCREEN		
-		one dimensional system by Editional Edition				ORGANOPHOSPHATE PESTICIDES		
						POLYCHLORINATED BIPHENYLS (PCB's)		
					<u> </u>	POLYNUCLEAR AROMATIC HYDROCARBONS		
		1						
		SPECIFIC COMPOUNDS				SPECIFIC COMPOUNDS		
_				Щ	<u> </u>		•	
				₩_	<u> </u>			
-				-	<u> </u>			
REMARKS:								
NEI UINNO .								
ANALYTICAL RESULTS								
COMPOUND			CONC- ENTRATION	COMPOUND			CONC- ENTRATION	
B	en	z enl	8500 ug/l	H				
1		ulne	26000 ug/l					
Ethyl benzel 3000 ug/l								
7,								
<del>  f</del>	f- xylane 2800 mg/l							
m	m- /4/en 5500 ug/2							
٥	0- Xy lene 4700 ug/l							
	, and the second				* DETECTION LIMIT			
REMARKS: Some substituted Congress in the C9-10 rangest lawer concentrations								
(about 10 of other)								
· ·								
CETRIFICATE OF ANALYTICAL PERSONNEL								
Seal(s) Intact: Yes No . Seal(s) Broken by date								
Sai	sample unless otherwise noted and that the statements in this block and the analytical data							
on	on this page accurately reflect the analytical results for this sample.  Date(s) of analysis ///7/144 . Analysts signature / Maylahum							
Ice	Icertify that I have reviewed and concur with the analytical results for this sample and							
with the statements in this block. Reviewers Signature:								

\_\_\_\_\_ 84- 1001 -C DEVICE JERCHENIC LAB NUMBER WE - 1001 - A.B.

11/02/84 REPORT TO: Sanda To Non CASCALABLE SLD Users Code No. 59600 ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE". CERTIFICATE OF FIELD PERSONNEL Sample Type: Water Soil Other\_\_\_\_ Water Supply and/or Code No. FITEX - WIG City & County Albuqueque . Decololle Collected (date & time) SA 1101 (1331 By (name) Jecinous pH= ; Conductivity= \_\_\_umho/cm at\_\_\_\_°C; Chlorine Residual=\_\_\_\_ Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate= Sampling Location, Methods & Remarks (i.e. odors etc.) Coffeener was I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Method of Shipment to Laboratory And harmonical THIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as: specimen<u>w</u>; duplicate<u>w</u>; triplicate\_\_\_\_; blank(s)\_\_\_\_ and amber glass jug(s) with teflon-lined cap(s) identified as and other container(s) (describe) identified as Containers are marked as follows to indicate preservation (circle): NP: No preservation; sample stored at room temperature (~20°C).

P-ICE: Sample stored in an ice bath.

P-Na<sub>2</sub>O<sub>3</sub>S<sub>2</sub>: Sample preserved with 3 mg Na<sub>2</sub>O<sub>3</sub>S<sub>2</sub>/40 ml and stored at room temperature. CERTIFICATE(S) OF SAMPLE RECEIPT I (we) certify that this sample was transferred from \_\_\_\_\_\_ to \_\_\_\_\_at (location)\_\_\_\_\_on (date & time) \_\_\_\_ and that the statements in this block are correct. Disposition of Sample\_\_\_\_\_\_. Seal(s) Intact: Yes 🗆

SURVEILLANCE

	[-	MALYSES REQUESTE	ED		LF	7B. NO. 100(	
		SE CHECK THE APPROPRIATE BOX EVER POSSIBLE LIST SPECIFIC					REENS REQUIRED
"	misi	EVER 1022THEE F121 SECTIFIC	CORE CONDS SUS	or EC1	עםו	OK REQUIRED.	
QUALITATIVE	OUANTA; IVE	PURGERI SCREEN ALIPHATIC HYDROCARBON SCREE AROMATIC HYDROCARBON SCREE HALOGENATED HYDROCARBON SC GAS CHROMATOGRAPH/MASS SPE	EN N REEN	QUALITATIVE	ONIANTATIVE	EXTRACTAB  SCREEN  ALIPHATIC HYDROCARBONS CHLORINATED HYDROCARBON CHLOROPHENOXY ACID HERBIC HYDROCARBON FUEL SCREEN ORGANOPHOSPHATE PESTICIDE POLYCHLORINATED BIPHENYLS POLYNUCLEAR AROMATIC HYDE  SPECIFIC COMPOUNDS	PESTICIDES CIDES ES S (PCB's)
					L		
-	-		<del></del>		<u> </u>		
R	EMA	RKS:		1,1	<u> </u>	<del></del>	
		ANALYTI	CAL RE	ESI	IJ	_TS	
	C	MPOUND	CONC-		· 🔿	MPOUND	CONC-
-	<u>~</u>	/ /.	ENTRATION	<del>∥</del> ∽	.01	ווויסטואם	ENTRATION
m	<u> </u>	14 lene	6,49/2	₩			
0		Yy lene	4119/1				
			<u> </u>	Ш_			
				Ш			
				$\Pi$	*	DETECTION LIMIT	
RI	EMAF	KKS: Numerous other subs	tituted bonz	<u>e</u> _e_			12 nut 5-1000/2
-							
I on on Dat	ert ple thi e(s	Intact: Yes No . Seal of that I followed standard unless otherwise noted and s page accurately reflect the of analysis ///////////////////////////////////	(s) Broken by it laboratory is that the stance analytical . Analys	proce temer	edu nts ult	in this block and the anals for this sample.	ytical data
wit	h t	he statements in this block.	Reviewers	Signa	atu	ire:	mhre aud

## APPENDIX B PUMP TEST DATA

	84-1000-c 10cewed 429/04
REPORT TO: Down Secinaria	LABORATORY SINGE - FA, ES  LAB NUMBER/RG - II. CC - FA, ES  11/02/84
Friend Wister / Huzurdus 1	NEW MORE ARE
EIN CU BX 90°	LAB NUMBER! A G 1/2
EMPROHILET SUNTE NON 67501-	7912
	SLU Users Lode 110. 59600
ALL CONTAINERS WHICH THIS FORM ACCOMPANIES	ARE COLLECTIVELY REFERRED TO AS "SAMPLE".
CERTIFICATE OF Sample Type: Water Soil Other_	FIELD PERSONNEL
Water Supply and/or Code No. ATEX	FW
City & County Albuquerque, Farm	allila
Collected (date & time) EANO 1405	By (name) Serving
pH=; Conductivity=umho/cm	at°C; Chlorine Residual=
Dissolved Oxygen=mg/l; Alkalinity=	; Flow Rate=
Sampling Location, Methods & Remarks (i.e.	odors etc.)
Method of Shipment to Laboratory THIS FORM ACCOMPANIES septum vials wit specimen amber glass jug(s) with teflon-liand other container(s) (describe) Containers are marked as follows to indicate the septiments of	th teflon-lined discs identified as: triplicate ; blank(s) , ned cap(s) identified as ; identified as .  ite preservation (circle):
CERTIFICATE(S)	OF SAMPLE RECEIPT
I (we) certify that this sample was transf	
i e	ocation) on
	the statements in this block are correct.
Disposition of Sample	
Signature(s)	
I (we) certify that this sample was transf	erred from to
1 ut 1100	011
(date & time) and that	the statements in this block and correct.
Disposition of Sample	Seal(s) Intact: Yes \( \bigcap \) No \( \bigcap \).
Signature(s)	LIQUID WASTE/CROUND WATER
	SURVEILLANIUE

L	HARLYSES REQUESTE				IB. NO. 1000	
PI,	EASE CHECK THE APPROPRIATE BOX ENEVER POSSIBLE LIST SPECIFIC	COMPOUNDS SUS	NDIC	ATE	THE TYPE OF ANALYTICAL SC	REENS REQUIRED
""	DATA DE LOSSIBLE LIST SPECIFIC	COMPOUNDS SUS	PECI	ED	OK REGUIRED.	
QUALITATIVE	PURGENI SCREEN ALIPHATIC HYDROCARBON SCREEN AROMATIC HYDROCARBON SCREEN HALOGENATED HYDROCARBON SCREEN GAS CHROMATOGRAPH/MASS SPE	EN IN IREEN	QUALITATIVE	OUANTATIVE	EXTRACTAE  SCREEN  ALIPHATIC HYDROCARBONS  CHLORINATED HYDROCARBON  CHLOROPHENOXY ACID HERBI  HYDROCARBON FUEL SCREEN  ORGANOPHOSPHATE PESTICID  POLYCHLORINATED BIPHENYL	PESTICIDES CIDES ES
					POLYNUCLEAR AROMATIC HYD	
$\vdash$	<del></del>		-			
	SPECIFIC COMPOUNDS	·			SPECIFIC COMPOUNDS	
+			-			
REM	IARKS:		لــــــا			
	ANALYTI	CAL RE	Sl	 JL	.TS	
С	OMPOUND	CONC- ENTRATION			1POUND	CONC- ENTRATION
Be	n 1678	3 30 mg/l	No	ımı	crows other substituted	
1	uens	200 49/8	1 , 1		es in the lg-10 Range	
ì	y/benzene	500 m/l		7	bout 500-1000/4/1	
G-	Xylei	700 ug/l				
m -	Xylen	1400 119/1				
0-)	(yle:	950119/2				
<u></u>				*	DETECTION LIMIT	
REN	ARKS:					
	· · · · · · · · · · · · · · · · · · ·					
I cersamp: on the Date Icers	(s) Intact: Yes (No . Seal of the standard of the unless otherwise noted and his page accurately reflect the standard of the statements in this block.	(s) Broken by laboratory pethat the state analytical . Analys concur with the	roce emen resu ts s	dur ts lts ign	in this block and the anals for this sample.  ature Mey wiln  vtical results for this sample.	ytical data
1		WEATEMETS 9	*Rug	Luí	<b>C.</b>	

REPURI IU:	Down Terrinont	LABORATORY	
مللب	Count water Hazarian waste	LAB NUMBER ORG - 1010 - MS	3
ENTHONNENT	EM アン・マックロン	11-2-84	
ALL CONTAIN	Sandra Tr. NOM STISCA-CILE	SLD Users Code No. 5%	
ALL CUNTAIN	ERS WHICH THIS FORM ACCOMPANIES ARE CO		<u>.                                    </u>
Sample Type	CERTIFICATE OF FIELD: Water ☑ Soil ☐ Other	PERSONNEL	
	y and/or Code No. BTEX W	9 TUBION SUMPLE	
City & Coun	ty Allougueupa, Berralillo		
Collected (	date & time) <u>841031</u> E	sy (name) Jecurouic	
	Conductivity=umho/cm at		
Dissolved O	xygen= mg/l; Alkalinity= cation, Methods & Remarks (i.e. odors	; Flow Rate=	
Sampling Lo	cation, Methods & Remarks (i.e. odors	etc.)	
with the st	hat I witnessed these field analyses, atements in this block. Signed	observations and activities and co	no
Method of S THIS FORM A specimen w and am and ot Containers P-ICE:	hat I witnessed these field analyses, atements in this block. Signed  hipment to Laboratory  CCOMPANIES Z septum vials with teflor  Company: duplicate with teflor ined cap ther glass jug(s) with teflor ined cap ther container(s) (describe)  are marked as follows to indicate preson preservation; sample stored at rosample stored in an ice bath.  Sample preserved with 3 mg Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> /4	on-lined discs identified as: cate ; blank(s) (s) identified as identified as ervation (circle): om temperature (~20°C).	
Method of S THIS FORM A specimen w and am and ot Containers NP: P-ICE: P-Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> :	hipment to Laboratory  CCOMPANIES 2 septum vials with teflor  ber glass jug(s) with teflor-lined cap her container(s) (describe)  are marked as follows to indicate pres  No preservation; sample stored at ro  Sample stored in an ice bath.  Sample preserved with 3 mg Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> /4	on-lined discs identified as: cate ; blank(s) (s) identified as identified as ervation (circle): om temperature (~20°C).  O ml and stored at room temperature	e.
Method of S THIS FORM A specimen w and am and ot Containers NP: P-ICE: P-Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> :	hipment to Laboratory  CCOMPANIES 2 septum vials with teflor  ber glass jug(s) with teflor-lined cap her container(s) (describe) are marked as follows to indicate pres  No preservation; sample stored at ro  Sample stored in an ice bath.  Sample preserved with 3 mg Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> /4   CERTIFICATE(S) OF SAM  ify that this sample was transferred for	on-lined discs identified as: cate ; blank(s) (s) identified as identified as ervation (circle): om temperature (~20°C).  O ml and stored at room temperature  PLE RECEIPT from	e.
Method of S THIS FORM A specimen w and ot Containers P-ICE: P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> :  I (we) cert	hipment to Laboratory  CCOMPANIES 7 septum vials with teflor  Company duplicate with teflor triplicate preserved as follows to indicate preserved in an ice bath.  Sample preserved with 3 mg Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> /4  CERTIFICATE(S) OF SAM at (location)	on-lined discs identified as: cate ; blank(s) (s) identified as identified as ervation (circle): om temperature (~20°C).  O ml and stored at room temperature  PLE RECEIPT from	e.
Method of S THIS FORM A specimen w and ot Containers P-ICE: P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> :  I (we) cert  (date & time Disposition	hipment to Laboratory  CCOMPANIES 7 septum vials with teflor duplicate with teflor triplicate ber glass jug(s) with teflor triplicate her container(s) (describe)  are marked as follows to indicate presono preservation; sample stored at rosample stored in an ice bath.  Sample preserved with 3 mg Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> /4   CERTIFICATE(S) OF SAM ify that this sample was transferred for at (location)  e) and that the stored Sample	on-lined discs identified as: cate ; blank(s) identified as identified as ervation (circle): om temperature (~20°C).  O ml and stored at room temperature  PLE RECEIPT from atements in this block are correct . Seal(s) Intact: Yes \ No \	e. t
Method of S THIS FORM A specimen w and ot Containers P-ICE: P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> :  I (we) cert  (date & time Disposition	hipment to Laboratory  CCOMPANIES 7 septum vials with teflor duplicate with teflor triplicate ber glass jug(s) with teflor triplicate her container(s) (describe)  are marked as follows to indicate presono preservation; sample stored at rosample stored in an ice bath.  Sample preserved with 3 mg Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> /4   CERTIFICATE(S) OF SAM ify that this sample was transferred for at (location)  e) and that the stored Sample	on-lined discs identified as: cate ; blank(s) identified as identified as ervation (circle): om temperature (~20°C).  O ml and stored at room temperature  PLE RECEIPT from atements in this block are correct . Seal(s) Intact: Yes \ No \	e. t
Method of S THIS FORM A specimen wand ot Containers P-ICE: P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> :  I (we) cert  (date & time Disposition Signature(s	hipment to Laboratory  CCOMPANIES 7 septum vials with teflor  Company: duplicate with teflor triplicate glass jug(s) with teflor applied capper container(s) (describe)  are marked as follows to indicate preson preservation; sample stored at rose sample stored in an ice bath.  Sample preserved with 3 mg Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> /4   CERTIFICATE(S) OF SAM at (location)  e) and that the stored sample container.	on-lined discs identified as: cate ; blank(s) (s) identified as identified as ervation (circle): om temperature (~20°C).  O ml and stored at room temperature  PLE RECEIPT from  atements in this block are correct . Seal(s) Intact: Yes \( \simeq \) No \( \simeq \)	e. t
Method of S THIS FORM A specimen wand ot Containers P-ICE: P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> :  I (we) cert  (date & time Disposition Signature(s I (we) cert	hipment to Laboratory  CCOMPANIES 7 septum vials with teflor duplicate with teflor triplicate ber glass jug(s) with teflor triplicate her container(s) (describe)  are marked as follows to indicate presono preservation; sample stored at rosample stored in an ice bath.  Sample preserved with 3 mg Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> /4   CERTIFICATE(S) OF SAM ify that this sample was transferred for at (location)  e) and that the stored Sample	on-lined discs identified as: cate	e. t
Method of S THIS FORM A specimen w and am and ot Containers NP: P-ICE: P-Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> :  I (we) cert  (date & time Disposition Signature(s I (we) cert	hipment to Laboratory  CCOMPANIES 7 septum vials with teflor  Company duplicate with teflor triplicate specified ber glass jug(s) with teflor appears for the container (s) (describe)  are marked as follows to indicate preson preservation; sample stored at rosumple stored in an ice bath.  Sample preserved with 3 mg Na203S2/4  CERTIFICATE(S) OF SAM at (location)  e) and that the st of Sample  ify that this sample was transferred for the company of the com	on-lined discs identified as: cate; blank(s) (s) identified as identified as ervation (circle): om temperature (~20°C).  O ml and stored at room temperature  PLE RECEIPT from atements in this block are correct . Seal(s) Intact: Yes No	e. t o
Method of S THIS FORM A specimen wand am and ot Containers MP. ICE: P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> :  I (we) cert  (date & time Disposition Signature(s I (we) cert	hipment to Laboratory  CCOMPANIES 2 septum vials with teflor  Do (Twom): duplicate with teflor triplicate ber glass jug(s) with teflor ined cape her container(s) (describe)  are marked as follows to indicate preson preservation; sample stored at reson sample stored in an ice bath.  Sample preserved with 3 mg Na203S2/4  CERTIFICATE(S) OF SAM ify that this sample was transferred for at (location)  e) and that the stored for the sample was transferred for t	on-lined discs identified as:  cate	e. t o

84-1010 -c

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LAB. NO.

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

PURGENE SCREEN  ALIPHATIC HYDROCARBON SCREEN  AROMATIC HYDROCARBON SCREEN  HALOGENATED HYDROCARBON SCREEN  GAS CHROMATOGRAPH/MASS SPE	CHLORINATED HYDROCARBON PESTICIDES CREEN CHLOROPHENOXY ACID HERBICIDES CTROMETER HYDROCARBON FUEL SCREEN ORGANOPHOSPHATE PESTICIDES
AROMATIC HYDROCARBON SCREE  HALOGENATED HYDROCARBON SC	CHLORINATED HYDROCARBON PESTICIDES CREEN CHLOROPHENOXY ACID HERBICIDES CTROMETER HYDROCARBON FUEL SCREEN ORGANOPHOSPHATE PESTICIDES
HALOGENATED HYDROCARBON SO	CREEN CHLOROPHENOXY ACID HERBICIDES CCTROMETER HYDROCARBON FUEL SCREEN ORGANOPHOSPHATE PESTICIDES
	CCTROMETER HYDROCARBON FUEL SCREEN ORGANOPHOSPHATE PESTICIDES
GAS CHROMATOGRAPH/MASS SPE	ORGANOPHOSPHATE PESTICIDES
	DOLLARY OF THE MED PERSONS A COURT OF
	POLYCHLORINATED BIPHENYLS (PCB's)
	POLYNUCLEAR AROMATIC HYDROCARBONS
1	
SPECIFIC COMPOUNDS	SPECIFIC COMPOUNDS

ANALYTICAL RESULTS

	<del> </del>	<u> </u>	
COMPOUND	CONC- ENTRATION	COMPOUND	CONC- ENTRATION
Renzer	2.0,15/8	Trisubstituted Benzenes	Presc_f
Toluëne	5,3,15/8	Tetrasubstituted Banzenes	Princet
Ethy/benzené	20,15/l	Naph Hzy/ene	Preset
0. X4/Enq	1. Yeight		
m- X4/ene	4 us/+		
0-Xulene	3/11/1		
,		* DETECTION LIMIT	
50 505 6 4 50 50 50 50 50 50 50 50 50 50 50 50 50			

REMARKS:

CETRIFICATE	OF	ANALYTICAL	PERSONNE
CEIKIFICHIE	Or	ANALITICAL	PERSUNNI

Seal(s) Intact: Yes (No) . Seal(s) Broken by\_ I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample. Date(s) of analysis \_\_\_\_\_\_. Analysts signature & Mayluhlin.

Identify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers Signature:

i	DEVEN JOSE INVIC	LABORATORY	
EMMONMENT	Crowned with Huzurdan Wingle	LABORATORYLAB NUMBER() A=1-1011-17-15	
ALL CONTAIN	ERS WHICH THIS FORM ACCOMPANIES ARE CO	SLD Users Code No. 59600 DLLECTIVELY REFERRED TO AS "SAMPLE"	•
Sample Type	CERTIFICATE OF FIELD: Water ☑ Soil ☐ Other	PERSONNEL	
	y and/or Code No. ATEX WG	Bailed Sande	
	es Alamana Deralilo		
	date & time) 8A 1031 B		
	Conductivity=umho/cm at		
Dissolved 0	xygen= mg/l; Alkalinity=	; Flow Rate=	
Sampling Lo	cation, Methods & Remarks (i.e. odors	etc.)	
analyses, old certify the state of SI THIS FORM ACT SPECIMEN and and other state of the specimen and containers are state of the specimen and containers are state of the specimen are state of the spec	hat the statements in this block accurbs ervations and activities. Signed hat I witnessed these field analyses, atements in this block. Signed hipment to Laboratory (SCOMPANIES septum vials with teflock duplicate (Score) tripliber glass jug(s) with teflon-lined capher container(s) (describe) are marked as follows to indicate present the stored in an ice bath.	observations and activities and con- on-lined discs identified as: icate ; blank(s) o(s) identified as identified as servation (circle):	
P-ICE: P-Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> :	Sample preserved with 3 mg Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> /4	10 ml and stored at room temperatur	e.
P-Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> :	Sample preserved with 3 mg Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> /4  CERTIFICATE(S) OF SAM	10 ml and stored at room temperatur  1PLE RECEIPT	
P-Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> : I (we) cert	Sample preserved with 3 mg $Na_2O_3S_2/4$ CERTIFICATE(S) OF SAM ify that this sample was transferred for the sample was tr	10 ml and stored at room temperatur  MPLE RECEIPT  from	to
P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> : I (we) cert	Sample preserved with 3 mg Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> /4  CERTIFICATE(S) OF SAM  ify that this sample was transferred f  at (location)	10 ml and stored at room temperatur  MPLE RECEIPT  from	to on
I (we) cert  (date & time	CERTIFICATE(S) OF SAM  ify that this sample was transferred f  at (location)  e)  of Sample	APLE RECEIPT from tatements in this block are correct . Seal(s) Intact: Yes  No	to on
P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> :  I (we) cert  (date & time	CERTIFICATE(S) OF SAM  ify that this sample was transferred f  at (location)  e)  of Sample	APLE RECEIPT from tatements in this block are correct . Seal(s) Intact: Yes  No	to on
P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> :  I (we) cert  (date & time Disposition Signature(s)	CERTIFICATE(S) OF SAM ify that this sample was transferred for at (location) and that the stop of Sample	APLE RECEIPT from tatements in this block are correct Seal(s) Intact: Yes \( \sigma \) No \( \sigma \)	to
P-Na <sub>2</sub> O <sub>3</sub> S <sub>2</sub> :  I (we) cert  (date & time Disposition Signature(s) I (we) cert	CERTIFICATE(S) OF SAM  ify that this sample was transferred f  at (location)  and that the st  of Sample  ify that this sample was transferred f  at (location)	APLE RECEIPT from tatements in this block are correct Seal(s) Intact: Yes \( \simeq \) No \( \simeq \)	to
I (we) cert  (date & time Disposition Signature(s) I (we) cert	CERTIFICATE(S) OF SAMINATION O	APLE RECEIPT from tatements in this block are correct Seal(s) Intact: Yes \( \simeq \) No \( \simeq \)	to
I (we) cert  (date & time Disposition Signature(s)  I (we) cert  (date & time	CERTIFICATE(S) OF SAM  ify that this sample was transferred f  at (location)  and that the st  of Sample  ify that this sample was transferred f  at (location)	APLE RECEIPT  from  tatements in this block are correct  Seal(s) Intact: Yes No   tements in tRie Geock Ere correct.  Seal(s) Intact: Yes No   No   The seal (s) Intact: Yes No   No   The seal (s) Intact: Yes No   No   No   No   The seal (s) Intact: Yes   No   The seal (s) Intact: Yes   No   The seal (s) Intact: Yes   The seal (s) Intact: Ye	to on to on

84-1011 -C

LAB. NO.

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREEN'S REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	PURGEABLE SCREEN		QUALITATIVE	OUANTATIVE	EXTRACTABLES  SCREEN
	ALIPHATIC HYDROCARBON SCREEN	$\coprod$			ALIPHATIC HYDROCARBONS
X	AROMATIC HYDROCARBON SCREEN	$\coprod$			CHLORINATED HYDROCARBON PESTICIDES
X	HALOGENATED HYDROCARBON SCREEN	Ш			CHLOROPHENOXY ACID HERBICIDES
ľ	GAS CHROMATOGRAPH/MASS SPECTROMETER	Ш			HYDROCARBON FUEL SCREEN
		$\coprod$			ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
		$\coprod$			POLYNUCLEAR AROMATIC HYDROCARBONS
		$\coprod$			
	1	$\coprod$			
	SPECIFIC COMPOUNDS				SPECIFIC COMPOUNDS"
		╫	-		
		$\prod$			

ANALYTICAL RESULTS

COMPOUND	CONC- ENTRATION	COMPOUND	CONC- ENTRATION
Benzen	3.0451£	Trimethy/benzenes	onese_t
Toluene	7.4/2518	Tetramethyl benzenes	present
Ethylbenzeme	2.5,1318	Naphthulene	preset
ي- ۲٪ اورز	2.6 ug/á		7
in-Xulens	7.3 rig 18		
c-Xylene	6.1215 Kl		
A 7		* DETECTION LIMIT	1eig/l

REMARKS:

ODINAL TONID OF WANDILLOUD I DESCRIP	CETRIFICATE	OF	ANALYTICAL	PERSONNE
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Seal(s) Intact: Yes No . Seal(s) Broken by	date
I certify that I followed standard laboratory procedures	on handling and analysis of this
sample unless otherwise noted and that the statements in	this block and the analytical data
on this page accurately reflect the analytical results fo	or this sample. /
Date(s) of analysis $////99$ . Analysts signatu	ire & meycilei-
Icertify that I have reviewed and concur with the analyti	ical results/for this sample and

with the statements in this block. Reviewers Signature:

REPORT TO:	- Deven Dercinovic LAB	URATURY
اللاس	Fity P.C. Box 9606	NUMBER ORG - 11:04 - 12.18 11/02/84
EMINONWENT	SLD SLD	Users Code No. 59600
ALL CUNTAIN	NERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVEL	Y REFERRED TO AS SAMPLE .
	CERTIFICATE OF FIELD PERSONNEL e: Water 🗗 Soil 🗌 Other	
Water Supply	ly and/or Code No. ATEX, WA	
City & Count	olling & Benefillo	
Collected (	(date & time) Chicol 1851 By (name)	Jurcinevic
1	Conductivity= umho/cm at °C; Ch	
	Oxygen= mg/l; Alkalinity= ocation, Methods & Remarks (i.e. odors etc.)	
analyses, of I certify the structure with the structure Method of SI THIS FORM AND SPECIMEN and and other structure was and other structure with the structure of the structure	that the statements in this block accurately reformer to be servations and activities. Signed that I witnessed these field analyses, observations to the block. Signed Shipment to Laboratory September to Laboratory Septembe	iscs identified as: ; blank(s) ified as identified as (circle):
P-16E: 628116.	Sample stored in an ice bath.  Sample preserved with 3 mg Na <sub>2</sub> 0 <sub>3</sub> S <sub>2</sub> /40 ml and	
	CERTIFICATE(S) OF SAMPLE RECEI	ОТ
I (we) cert	tify that this sample was transferred from	to
1	at (location)	
(date & time	me) and that the statements	· · · · · · · · · · · · · · · · · · ·
1	n of Sample Seal(s)	
Signature(s	s)	
I (we) cert	tify that this sample was transferred from	to
	at (location)	
(date & time	ne) and that the statements i	n thisRtf &ck lave Dorrect.
	n of Sample Seal(s)	
· ·	5)	NOV 1 6 1984
		·-·

		SE CHECK THE APPROPRIATE BOX EVER POSSIBLE LIST SPECIFIC					ENS REQUIRED
QUALITATIVE	QUANTATIVE	PURGEAE SCREEN	BLE	QUALITATIVE	QUANTATIVE	EXTRACTABL SCREEN	
	۲	ALIPHATIC HYDROCARBON SCREE	EN			ALIPHATIC HYDROCARBONS	<del></del>
	K	AROMATIC HYDROCARBON SCREEN	N			CHLORINATED HYDROCARBON PE	ESTICIDES
	X	HALOGENATED HYDROCARBON SCI				CHLOROPHENOXY ACID HERBICI	DES
	$\square$	GAS CHROMATOGRAPH/MASS SPEC	CTROMETER	L_		HYDROCARBON FUEL SCREEN	
<u> </u>	$\sqcup$	***		4		ORGANOPHOSPHATE PESTICIDES	
-	$\vdash \vdash$			<b> </b>		POLYCHLORINATED BIPHENYLS POLYNUCLEAR AROMATIC HYDRO	
-	H			<b>-</b>		POLINOCLEAR AROPMITC HIDRO	CARBONS
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		SPECIFIC COMPOUNDS				SPECIFIC COMPOUNDS	
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		ANALYTIC	CAL RE	<u>:Sl</u>	JL	TS	<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>
	CC	MPOUND	CONC- ENTRATION	c	10	1POUND	CONC- ENTRATION
	Ben	nzenl	29 ug/1				
		ulnl	9 B sig/l				
	Eth.	1 benzene	37 ug/l				
	- X	lere	40 mg/2			·	
m	- X.	,/2	103 ug/l				
0	ن <u>- X بـ</u>	1 lene	57 ug/l				
. L						DETECTION LIMIT	1
R	EMAR	KS: also other aromatic	Substitute	16	en,	ines in the C9-10 range	
<u> </u>	t al	ent 10-50 ppb range					
' <b> </b>							
I sa on Da	cert mple thi te(s	i) Intact: Yes (No . Seal() ify that I followed standard unless otherwise noted and s page accurately reflect the of analysis ///2/8/f	s) Broken by   l laboratory p that the stat e analytical . Analys	resu	edur nts ilts	in this block and the analys for this sample.	tical data
Ic	erti	fy that I have reviewed and he statements in this block.	concur with t	he a	ina]	lytical results for this sam	ple and

ANALYSES REQUESTED

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LAB.

NO.

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Drolact N	Name <u>A</u>	Hex Fi	Jel.	Soill	1.0	SI DAI		Date	3	161	85		
riojeci r		505	<u> </u>	4-111				Date -		S B	(D. 1)	_	
Project N	No. 010							Engr.	/Geo. S	J. 101			
		Pumped V Data		Observa Well			M	ethod c	of Measu	irement			
Depth		25		15'		Drawe	lowns	F	ecovers		Discha	rge	
Diameter		.42	<b>'</b>	-17'		PIN	т б м-я	Scope	lX P	iv h	Z Orific	e	
Screen Se	<del></del>	10'-2	0'	10'-1	5 ′	PW D	Stee	l Tape	E O	651 E	Weir		
	Sand Pack	10.5					) Ai	r Line		Ì	Guage	(GPM	
Static Wa Aquifer T		10.2		77	<u></u>	Length o	s Air L	ine	ft	[	Other (explain)		
		Distance	from	51		Remarks					(CAPIC		
na pro	g case 1	Pumped 6						06			•		
	ř	•		Pumpin				bserva	tion We		Pumping Well	Observ Well	
Date	Time (minutes)	Flow Rate (GPM)	t	vdown	t'	covery 6	t	down	t'	overy 5	t/t'	t/t°	
	(minutes)	(0.1.1)	(minutes)	(feet)	(minut	es (feet)	[minutes]	(feet)	(minutes	(feet)			
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			55	•43		<del>                                     </del>	55	.39	1	-			
			65	A5		-	65	.39	<del> </del>				
			75	.46	-		1/5	.38					
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			95	.48			95		-				
		 					152	•39	3				
			155	.57									
	-						212	~ <del>1</del> 0					
			215	-62									
	·		275	.65									
	Pi	UMP TE	ST I	<u> </u>	<b>.</b>		!	<u> </u>	lob No:	010	9990		
									Date:	<u> </u>	111		
FOX	<b>)</b> Co	nsulting l	Engine	ers and	l Ge	ologists		1-	Figure				

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roject	Name	09990	)	·		ST DAT		Engr.	/Geo	<u>ට, ර</u>	reci.	
		Pumped V		Observa Well	tion				f Measu			
Depth		Z51		15!		Drawd	owns	R	ecover y		Discha	rge
Diameter		.42		.17		PU IZ	<b>√</b> м-я	Scope	P P	w B	Onne	:e
Screen S		101-2	0'	10-1	<u>5'  </u>	000   E	Stee	l Tape	<b>函</b> α	] اکد	Weir	
	r Sand Pack ater Level	1000			,—			r Line			<b>₹Guag</b>	: (GP
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		ташреа						651				
_		Flow Rate	Draw	Pumpin down				down	tion We	very	Pumping Well	Obse We
Date	Time (minutes)	(GPM)	t	5		every 6	t	6	t' (minutes)	6'	t/t'	<b>t/</b> 1
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r toject r	10			Observa									
		Pumped Date		Well			-			f Measu			
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Screen Se		10'-2	0'	1-10/	5/	Obs	IZ	Stee	i Tape	MO(	51 [	] Weir	
Static Wa	Sand Pack			10.2	1				r Line			<b>Guag</b>	e (GPA
Aquifer T		10.21		10.2			4 <b>h</b> 4	S Alv I	ine	ft		Other	. ( -)
, iquiti i		Distance		<u> </u>		H				n at tim		(EXPI	1111/
		Pumped	Well	51					205			•	
				Pumpi				C	bserva	tion We		Pumping	
Date	Time	Flow Rate	Dr.	awdown s	Re	COVETY	,	Draw	down	Reco	very s'	Well	l
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									- [	Date:			
<b>₹</b> FOX	Co	ensulting	tngin	ieers an	d Ge	ologi	sts		T	igure			

Prolect 1	Name A	tex Fu	015	PUM 	PTE	ST DAT	<u> </u>	Date	3/	6/8	35	
Prolect 1	No. 010	9990						Engr	./Geo	5.13	Bleu	18/
		Observat	ion	Observa	tion				of Meass			
Depth		Well Date		Well		Draw	downs		Recovery		Discha	rge
Diameter		17.		151					<u> </u>		<del></del>	
Screen S	ections	10-15	·	10-1		L	_	Scope	_		AOrific → Welr	;E
Gravel or	Sand Pack			,			Stee	r Line	· K		Guage	e (GP)
	ter Level	10,4	9	10.4	2		_		_	ſ	Other	•
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				151	25	Remarke	: Write	On 101	065			
				Observat	ion W	eli			ation We	11	Observ.	
Date	Time	Flow Rate	Drav	nwobw a	Red	covery 5	Draw	down	Reco	very   s'	Well t/t'	Well t/t
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			339	1021			341	-27	2			-
			7.00	20			175	"	1			<u> </u>
			399	1.29			401	"22	-			
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			437	) 	10	<del></del>	<del>                                     </del>	-	12	.09	36.4	<del> </del>
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	P	UMP TE	<u> </u>	DATA	<u> </u>		<b></b>		Job No:	0109	<u>,                                     </u>	
FOX	5	nsulting	Fnaine	PPC 3D	d Go	ologiete		-	Date:			
		Jeannag I	riigiile	CID GII		RISIS		_	Figure			

Project l	No. 01	74746				EST DA		Engr.	./Geo. s	۱۰ ، ال	i cu	
		Observat Well Pate		Observa Well	tion				of Measu			
Depth		151		15'		Draw	downs	1	Recovery	,	Disch	erge
Diameter		.17'		•17	_			Scope			20-141	
Screen Se	ections	10-13		10-1			m- ∑( Stee				Orlis Weir	
Gravel or	Sand Pack					,		r Line		_	Guag	
Static Wa	ter Level	10.40	1	10.4	2_		<b>-</b>			Ī	] Other	
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umpi	atc 10.	65 AFN	<u> </u>	<i>O(</i> Observat	65 7		1 6	<i>06</i>	<u>53</u> ition We	11	Observ.	Ob
Date	Time	Flow Rate		wdown	Re	covery 6		down	Reco	very	Well	Į ŭ
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21/10-		Sin	<del></del>	1	<del>1</del>	est treen	Immidtes		1	(ieet)	<del> </del>	丅
<u> 216185</u>		SWL		10,49			<del>-</del>	10,4	4			⊬
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Project 1	Name	-tex	TU(	4 <	Soil			Date .	<u> 31</u>	619	3	
Project 1	No. 01	09990	)		•			Engr.	/Gea. \	5.13	Cash	2/
		Observat	ion	Observa Well	tion				f Measu			
Depth		Well Date		151		Drawe	iowns	R	ecovery		Discha	irge
Diameter		17'		.17			) M-	Scope			Orino	
Screen S	ections	10-14		10-15		Ò	_	-	Z.	χ Γ	Welr	
	Sand Pack		-			Ē	-				Guage	e (GPM)
Static Wa	ter Level	10.4	19	10.4	2	Length o	- Male I	ine	ft	Ţ.	Other (expl	
Adailet 1	uickness	10	<del>,  </del>	15		Remarks					(czpi	""
				)bservat wdown				bserva	tion We	ll	Observ. Well	Observ. Well
Date	Time (minutes)	Flow Rate (GPM)	t	1 6		overy 6	t	5	t'	s'	t/t'	t/t'
21/10	1		T	(feet)	Lodoute	s (feet)	Iminutes	(ieet)	T 7		<u> </u>	11.1
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	Pl	UMP TE	EST I	ATA						010	9990	
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Project N	io	Hex.	)					Engr.	/Geo	i.	····(*) (j	<u>) ઈ. (</u>
		Observat Well Pate	ion	Observa Well					of Measu			
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Diameter		1.71		017		ſ		Scope		Ì	Xound	:e
Screen Se		10-15	,	5.5 - 1	5.5		Stee	l Tape		7	Welr	
	Sand Pack	10.64			,			r Line		Ĺ	Guage	e (GPI
Static Wa		10.99	4	11.45	20	Leagth	of Air L	ine	ft	[	Other (expla	in)
Adanet 1		20		25		i	s: write				(S.L.)	
	وا مردوع	2. 25 35	<u>_</u>		25	4		MW	#3		•	
	1 PC Care 1 3	(		Observat	on W	ell		bserva	tion We		Observ. Well	Obse
Date	Time (minutes)	Flow Rate (GPM)	l t	wdown S	t t		Draw t	8	t'	1 -	t/t'	t/t
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Project Name Date \_\_\_\_\_ Date \_\_\_\_ \_ Engr./Geo. Project No. VI 1970 Observation Observation Method of Measurement Well Well Data Discharge Recovery Drawdowns Depth •17 Diameter M-Scope Orifice Screen Sections 9-18' 5.2-15.2 ☐ Welr Steel Tape Gravel or Sand Pack Guage (GPM) Air Line 11.27 12.74 Static Water Level Other Length of Air Line \_\_\_\_\_ft. \_\_ (explain) Aquifer Thickness 100.08' Remarks: write on form at time t 113.25' マンキュ 70 UH1 Observation Well Observ. Observ. Observation Well Well Well Recovery t' | 5 Drawdown Recovery Drawdown Flow Rate Time Date t/t° t/t' (GPM) (minutes) (minutes) (feet) iminutes (feet) iminutes (feet) 000 .07 287 239 <u>,</u> .07 349 20 1 **.**08 a08 409

PUMP TEST DATA

Job No: 0109990

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Consulting Engineers and Geologists

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