Highlander Environmental Corp.

Midland, Texas

February 10, 2006

Mr. Paul Sheeley
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division- District I
1625 N. French Drive
Hobbs, New Mexico 88240

Re: Work Plan for the Southwest Royalties, Inc., Cities Federal #2 SWD Facility, Located in Unit Letter M, Section 20, Township 22 South, Range 36 East, Lea County, New Mexico.

Dear Mr. Sheeley:

Highlander Environmental Corp. (Highlander) was contacted by Southwest Royalties, Inc. to investigate a brine water spill from the Cities Federal #2 saltwater disposal (SWD) facility located (Site) located in Unit Letter M, Section 20, Township 22 South, Range 36 East, Lea County, New Mexico. The spill occurred on January 25, 2006, when the centrifugal pump failed, casing the produced water tank to overflow. Approximately 50 barrels of produced water was spilled inside the facility firewall and 48 barrels was recovered with a vacuum truck. The spill was reportedly contained within the facility firewall. A copy of the C-141 (Initial) is included in Appendix A. The Site is shown on Figure 1.

Groundwater and Regulatory

Neither the New Mexico State Engineer Office database, nor the USGS databases showed any water wells in Section 20. The closest water well, with a similar elevation, was located in Section 16, T-22-S, R-36-E. The reported depth to water in Section 16 is 170' below ground surface (bgs). A number of wells in the vicinity of this site reported depth to water in excess of 100' with the lone exception of a well in Section 22 with a reported depth to water of 22'. This would appear to be an anomalous data point considering, the additional data available. From the reported depths and relative elevations, it appears that the average depth to water in the vicinity of the Cities Federal #2 SWD site is greater than 100' bgs. Copies of the Well Reports are included in Appendix B.

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene

Southwest Royalties - 21355

1910 N. Big Spring • Midland, Texas 79705 • (432) 682-4559 • Fax (432) 682-3946

Incident - nPAC0605327189 application - pPAC0605327454

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

February 20, 2006

Southwest Royalties, Inc.
Attn: Marty Bloodworth
P.O. Box 11390
Midland, TX 79702

Re: Cities Federal #2 SWD Facility, UL-M, Sec. 20-T22S-R36E

The New Mexico Oil Conservation Division, (NMOCD), environmental personnel have reviewed the closure plan submitted by Highlander Environmental for Southwest Royalties and referenced above. The plan is **hereby approved** according to the information provided including the following:

1. Southwest Royalties shall restore the pasture to a productive condition.

Please be advised that OCD approval of this plan does not relieve Southwest Royalties of liability should their operations fail to adequately investigate and remediate contaminants that that threaten ground water, surface water, human health or the environment. In addition, OCD approval does not relieve Southwest Royalties of responsibility for compliance with any other federal, state, or local laws and/or regulations.

If you have any questions or need assistance please contact:: mailto:psheeeley@state.nm.us

Sincerely,

Paul Sheeley-Environmental Engineer
Cc: Chris Williams - District I Supervisor
Larry Johnson - Environmental Engineer
Timothy Reed, P. G.- Highlander
Trish Bad Bear - BLM

(collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 mg/kg and 50 mg/kg for total BTEX (sum of benzene, toluene, ethylbenzene and xylene). Based upon the apparent regional depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Work Plan/Assessment

Highlander personnel will inspect the spill area and collect soil samples using a stainless steel, bucket type hand auger to evaluate the extent of subsurface impact at this site. Soil samples will be collected and field screened for chloride. Collected soil samples will be placed into laboratory supplied containers and delivered to a laboratory under chain-of-custody control for TPH analysis by EPA method 8015 modified, BTEX by EPA method 8021B and chloride by EPA method 300.0.

Once completed, the results of the assessment, along with recommendations for further investigation or remediation, if any, will be submitted to the NMOCD. If you have any question or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.

Respectfully submitted,
Highlander Environmental Corp.

Tim Reed

Timothy M. Reed, P.G.
Vice President

cc: Dawn Howard – Southwest Royalties, Inc.

FIGURES

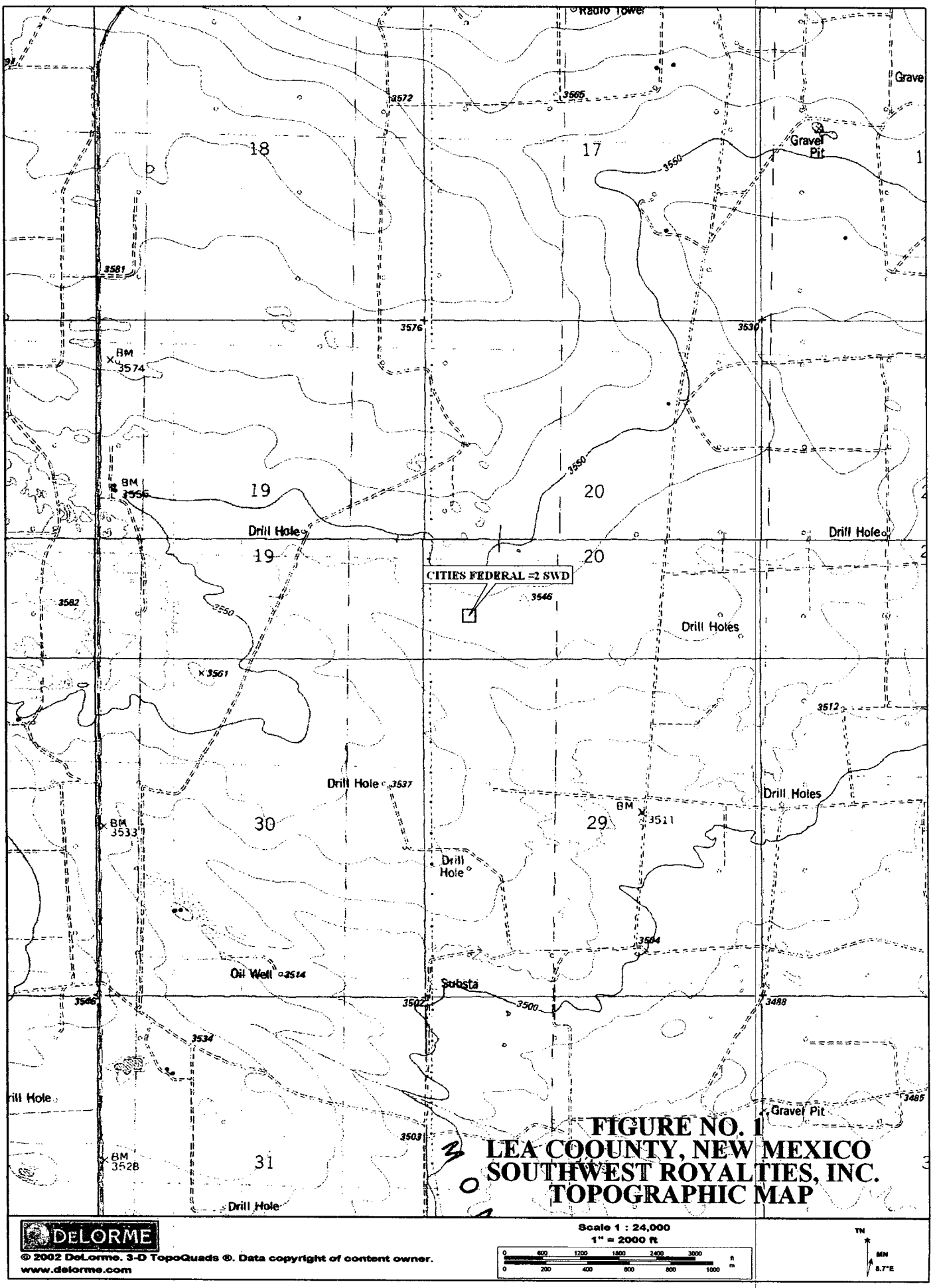


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
SOUTHWEST ROYALTIES, INC.
TOPOGRAPHIC MAP

APPENDIX A

APPENDIX B

Water Well - Average Depth to Groundwater

Southwest Royalties, Inc. - Cities Federal #2 SWD Facility

South East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

South East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

South East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

South East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South 36 East

6 195 **179**	5 212	4	3	2	1 137
7	8	9	10	11	12 **123**
18	17	16 170 **174**	15	14	13
19	20 **SITE**	21	22 22	23	24
30	29	28	27 160	26	25 **118**
31	32	33 **450**	34	35 **181**	36

South East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

South East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

South East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

South East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

150 Average depth to groundwater (ft) - New Mexico State Engineer Well Reports

56 Groundwater Depth (ft) - Geology and Groundwater Conditions in Southern Lea County, New Mexico (Report 6)

89 USGS

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 22S Range: 36E Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

POD / Surface Data Report | Avg Depth to Water Report | Water Column Report

Clear Form | iWATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 02/10/2006

							(Depth Water in Feet)		
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
CP	22S	36E	01				1	137	137	137
CP	22S	36E	05				1	212	212	212
CP	22S	36E	06				1	195	195	195
CP	22S	36E	16				1	170	170	170
CP	22S	36E	22				1	22	22	22
CP	22S	36E	27				1	160	160	160

Record Count: 6

Water Resources

Data Category: Ground Water | Geographic Area: New Mexico | go

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 322409103133501

Save file of selected sites to local disk for future upload

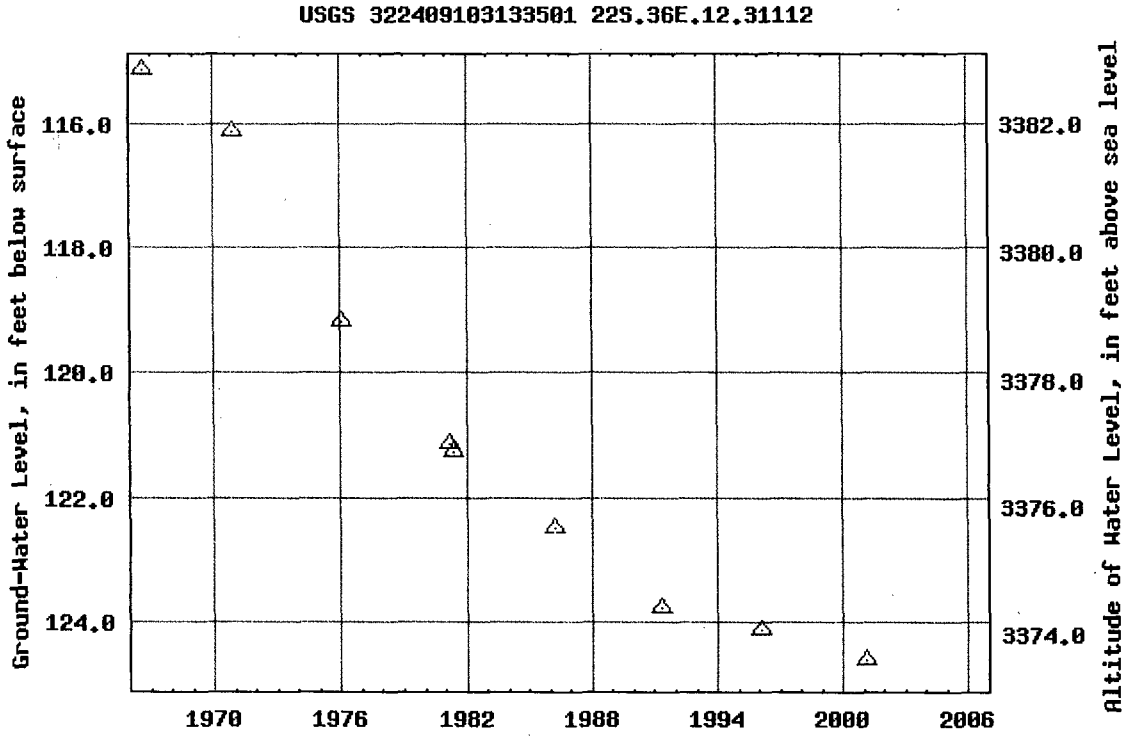
USGS 322409103133501 22S.36E.12.31112

Available data for this site Ground-water: Levels GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°24'09", Longitude 103°13'35" NAD27
Land-surface elevation 3,498.10 feet above sea level NGVD29
The depth of the well is 212 feet below land surface.
This well is completed in the ALLUVIUM,BOLSON DEPOSITS AND OTHER SURFACE DEPOSITS (110AVMB) local aquifer.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period



Breaks in the plot represent a gap of at least one calendar year between two consecutive points.

Water Resources

Data Category: Ground Water | Geographic Area: New Mexico | go

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 322502103182401

Save file of selected sites to local disk for future upload

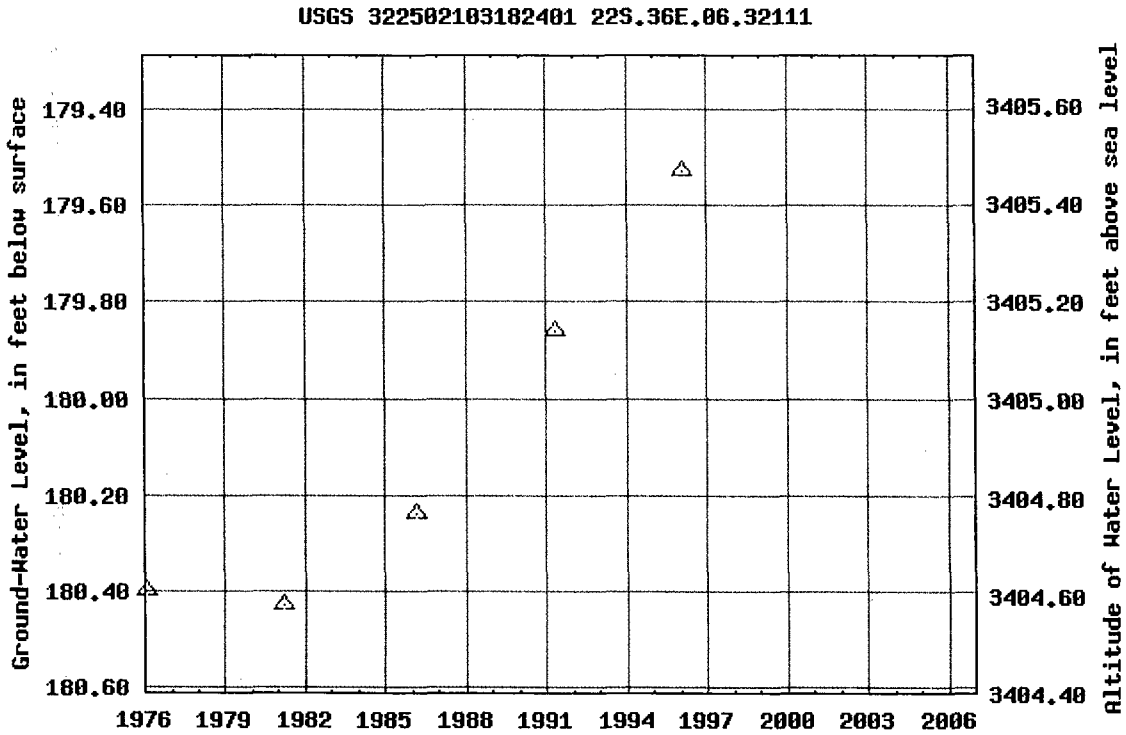
USGS 322502103182401 22S.36E.06.32111

Available data for this site | Ground-water: Levels | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°25'02", Longitude 103°18'24" NAD27
Land-surface elevation 3,585.00 feet above sea level NGVD29
The depth of the well is 220 feet below land surface.
This well is completed in the OGALLALA FORMATION (121OGLL) local aquifer.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period



Breaks in the plot represent a gap of at least one calendar year between two consecutive points.

USGS

Water Resources

Data Category: Ground Water | Geographic Area: New Mexico | go

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 322341103160501

Save file of selected sites to local disk for future upload

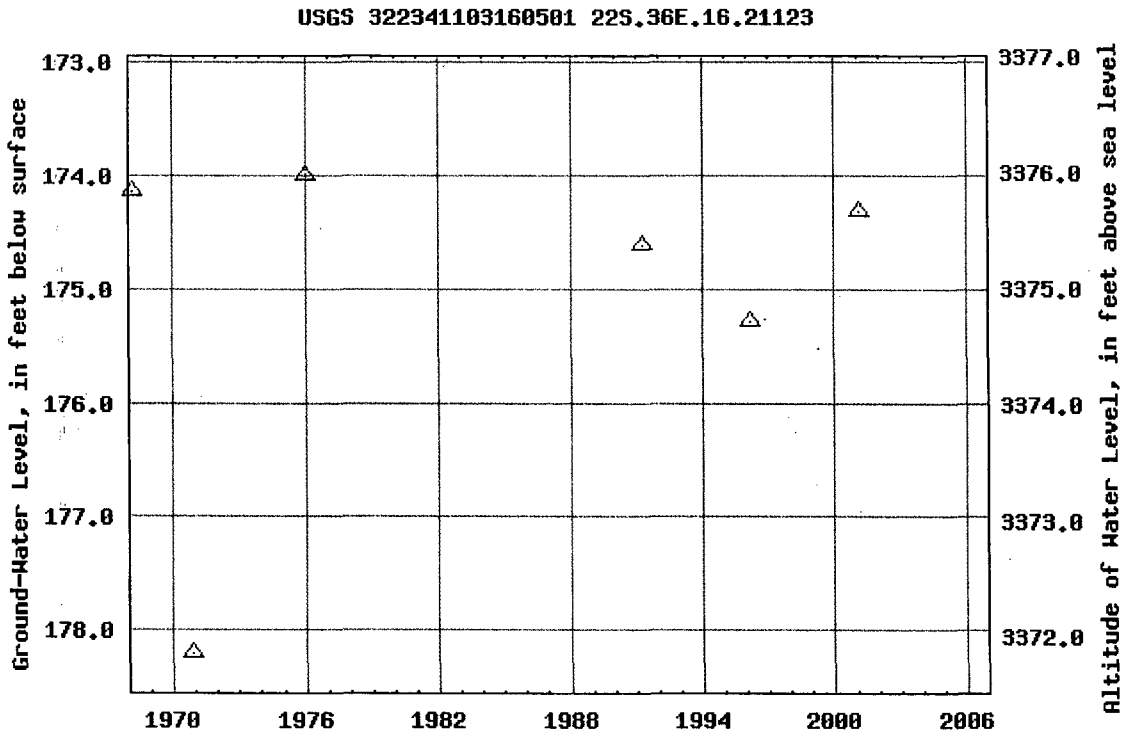
USGS 322341103160501 22S.36E.16.21123

Available data for this site | Ground-water: Levels | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°23'41", Longitude 103°16'05" NAD27
Land-surface elevation 3,550.00 feet above sea level NGVD29
The depth of the well is 240 feet below land surface.
This well is completed in the OGALLALA FORMATION (121OGLL) local aquifer.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period



Breaks in the plot represent a gap of at least one calendar year between two consecutive points.

USGS

Water Resources

Data Category: Ground Water | Geographic Area: New Mexico | go

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 322032103143101

Save file of selected sites to local disk for future upload

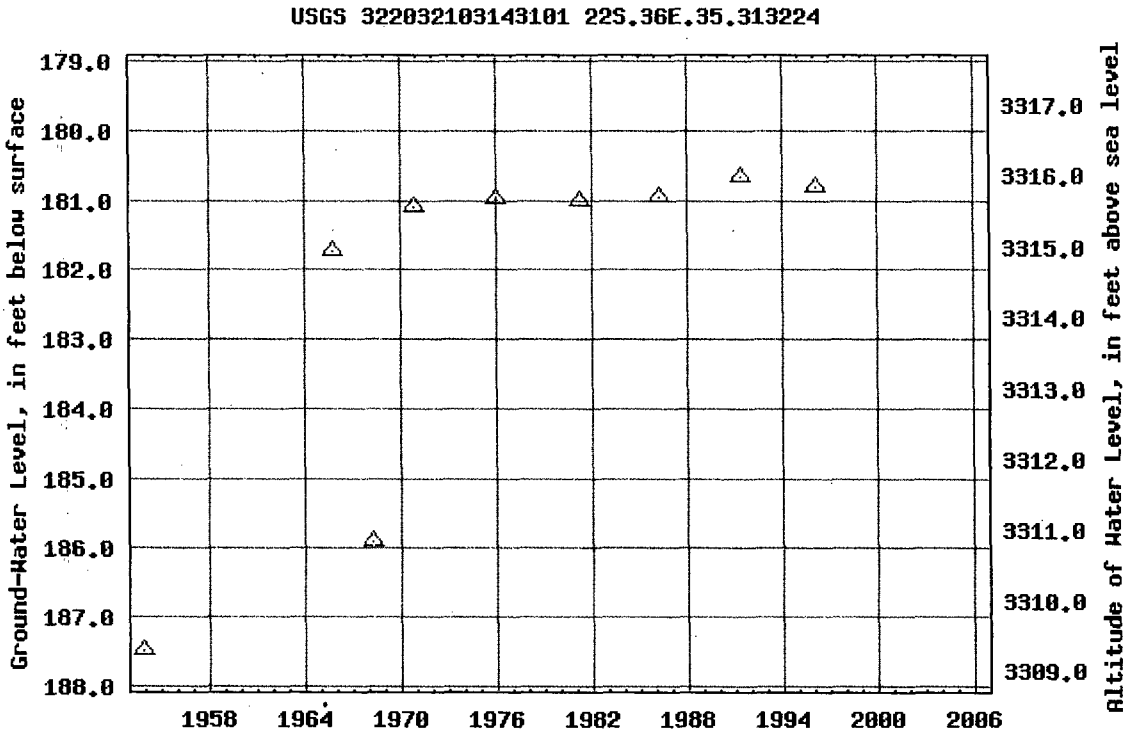
USGS 322032103143101 22S.36E.35.313224

Available data for this site Ground-water: Levels | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°20'32", Longitude 103°14'31" NAD27
Land-surface elevation 3,496.70 feet above sea level NGVD29
The depth of the well is 197 feet below land surface.
This well is completed in the OGALLALA FORMATION (121OGLL) local aquifer.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period



Breaks in the plot represent a gap of at least one calendar year between two consecutive points.

Water Resources

Data Category: Ground Water | Geographic Area: New Mexico | go

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 322049103155901

Save file of selected sites to local disk for future upload

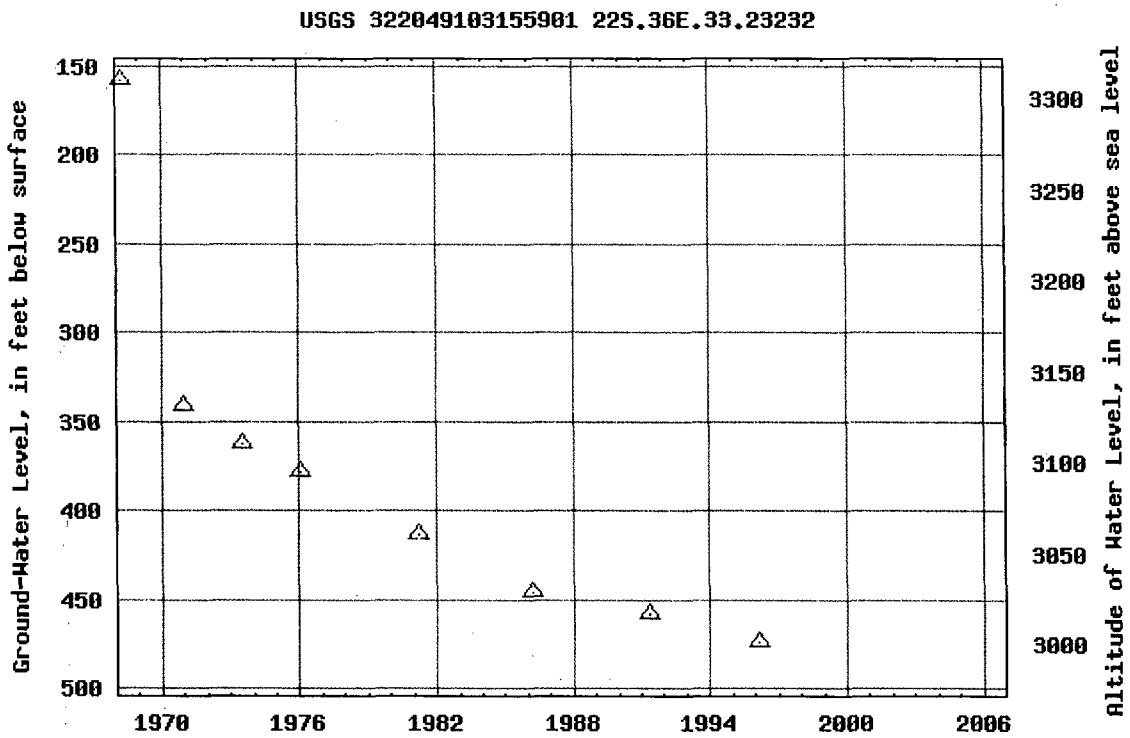
USGS 322049103155901 22S.36E.33.23232

Available data for this site | Ground-water: Levels | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°20'49", Longitude 103°15'59" NAD27
Land-surface elevation 3,472.00 feet above sea level NGVD29
The depth of the well is 1,050 feet below land surface.
This well is completed in the SANTA ROSA SANDSTONE (231SNRS) local aquifer.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period



Breaks in the plot represent a gap of at least one calendar year between two consecutive points.

Water Resources

Data Category: Ground Water | Geographic Area: New Mexico | go

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 322108103125901

Save file of selected sites to local disk for future upload

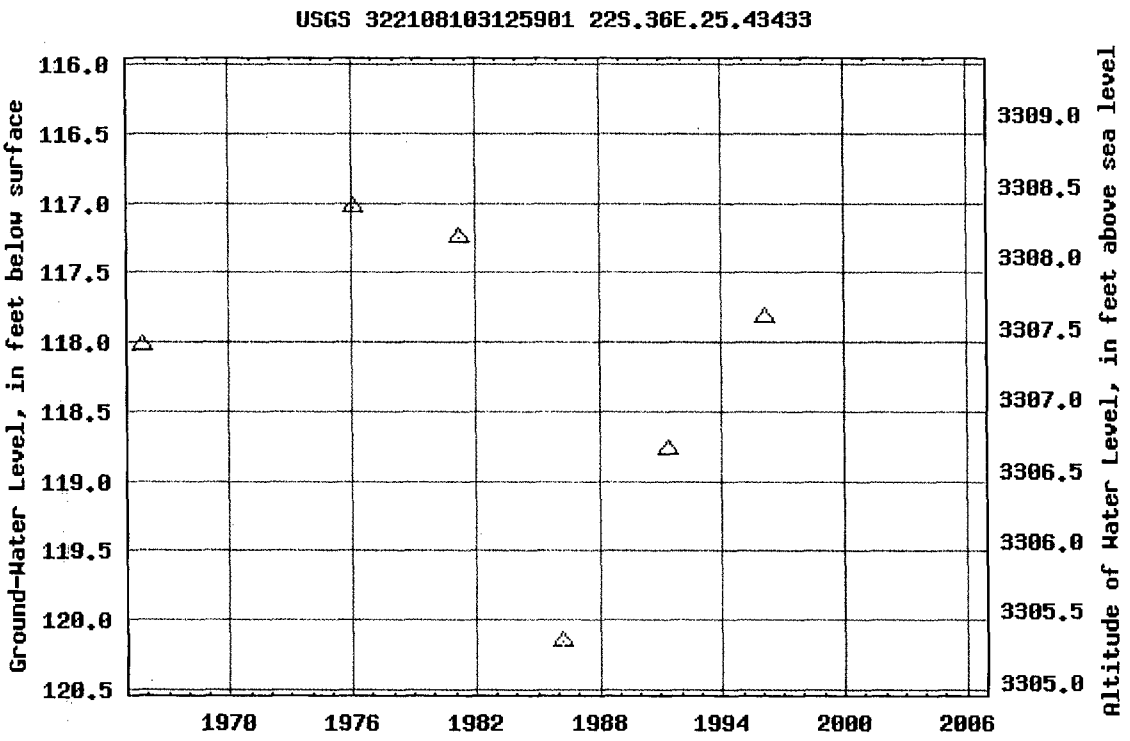
USGS 322108103125901 22S.36E.25.43433

Available data for this site Ground-water: Levels | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°21'08", Longitude 103°12'59" NAD27
Land-surface elevation 3,425.40 feet above sea level NGVD29
The depth of the well is 160 feet below land surface.
This well is completed in the OGALLALA FORMATION (121OGLL) local aquifer.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period



Breaks in the plot represent a gap of at least one calendar year between two consecutive points.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company SOUTHWEST ROYALTIES, INC.	Contact DAWN M. HOWARD
Address 6 DESTA DRIVE, STE 2100, MIDLAND, TX 79705	Telephone No. 432/688-3267
Facility Name CITIES FEDERAL #2 SWD	Facility Type SWD

Surface Owner BLM	Mineral Owner BLM	Lease No. NM LC 03-132 (b)

API #3002528474000

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	20	22S	36E	660	S	660	W	LEA

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release PRODUCED WATER	Volume of Release 50 BW	Volume Recovered 48 BW
Source of Release DISPOSAL WELL TANK OVERFLOW	Date and Hour of Occurrence 1/25/06 shortly before noon NM	Date and Hour of Discovery 1/25/06 noon NM
Was Immediate Notice Given? X Yes ☐ No ☐ Not Required	If YES, To Whom? NMOCD rep Buddy Hill on location and notified Southwest Royalties.	
By Whom? Foreman Harol Creech called NMOCD Sylvia Dickey	Date and Hour 4:10 p.m. NM 1/25/06	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Cause: Centrifical pump failure caused produced water to overflow tank.
Action: Water was vacuumed up and location drug and blended. Mechanics and all electrical circuits examined.

Describe Area Affected and Cleanup Action Taken.*

Spill contained on location. Vacuumed free fluid and contacted Highlander Environmental to evaluate and prepare site evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Dawn M. Howard	OIL CONSERVATION DIVISION	
Printed Name: Dawn M. Howard	Approved by District Supervisor:	
Title: Operations Assistant	Approval Date:	Expiration Date:
E-mail Address: Dhoward@claytonwilliams.com	Conditions of Approval:	Attached ☐
Date: 2/8/06 Phone: 432/688-3267		

* Attach Additional Sheets If Necessary