NM1-62

Permit Application

Volume 4 Part 2 of 11

APPLICATION FOR PERMIT SUNDANCE WEST

VOLUME IV: SITING AND HYDROGEOLOGY SECTION 2: HYDROGEOLOGY

ATTACHMENT IV.2.A

COMPLETION REPORT – DRILLING, SAMPLING, AND MONITORING WELL INSTALLATION – SUNDANCE SERVICES, INC., LEA COUNTY, NEW MEXICO – JUNE 2009

COMPLETION REPORT DRILLING, SAMPLING, AND MONITORING WELL INSTALLATION

SUNDANCE SERVICES, INC. LEA COUNTY, NEW MEXICO

JUNE 2009

SUBMITTED TO:

New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division 1220 S. St. Francis Drive Santa Fe, New Mexico 87505 Phone: (505) 476-3440

PREPARED FOR:

Sundance Services, Inc. P.O. Box 1737 Eunice, NM 88231

PREPARED BY:

Gordon Environmental, Inc. 213 South Camino del Pueblo Bernalillo, New Mexico 87004 Phone: (505) 867-6990



COMPLETION REPORT DRILLING, SAMPLING, AND MONITORING WELL INSTALLATION

SUNDANCE SERVICES, INC. LEA COUNTY, NEW MEXICO

TABLE OF CONTENTS

| 1.0 | INTRODUCTION | . 1 |
|-----|-------------------------------------------|-----|
| 2.0 | SITE LOCATION | . 1 |
| 3.0 | BACKGROUND | . 3 |
| 3.1 | LOCAL HYDORGEOLOGICAL STUDIES | . 3 |
| 4.0 | DRILLING, SAMPLING, AND WELL INSTALLATION | . 5 |
| 4.1 | BORINGS MP-1 THROUGH MP-5 | . 5 |
| 4.2 | PERCHED MONITORING WELLS MP-2P AND MP-4P | . 6 |

LIST OF FIGURES

| Figure No. | Title | Page No. |
|------------|---------------------------------------|----------|
| 1 | SITE LOCATION MAP | 2 |
| 2 | BORINGS AND MONITORING WELL LOCATIONS | 4 |
| 3 | MP-2P WELL COMPLETION SCHEMATIC | 8 |
| 4 | MP-4P WELL COMPLETION SCHEMATIC | 9 |

LIST OF TABLES

| Table No. | Title | Page No. |
|-----------|------------------------------------------------|----------|
| 1 | SUMMARY OF SURVEYED COORDINATES FOR BORINGS | AND |
| | MONITORING WELLS | 5 |
| 2 | AS-BUILT CONSTRUCTION SPECIFICATIONS FOR MONIT | ORING |
| | WELLS | 7 |

LIST OF ATTACHMENTS

| Attachment No. | Title |
|----------------|----------------------------------------------------|
| А | PROJECT PHOTOGRAPHS |
| В | OFFICE OF THE STATE ENGINEER WELL RECORDS AND LOGS |
| С | BORING LOGS FOR BORINGS MP-1 THROUGH MP-5 |
| D | BORING LOGS FOR BORINGS MP-2P AND MP-4P |

COMPLETION REPORT DRILLING, SAMPLING, AND MONITORING WELL INSTALLATION

SUNDANCE SERVICES, INC. LEA COUNTY, NEW MEXICO

1.0 INTRODUCTION

Gordon Environmental, Inc. (GEI), on behalf of Sundance Services, Inc. (SSI), has overseen the drilling of seven borings; and installation of two groundwater monitoring wells at the proposed SSI West Site near Eunice in southeastern New Mexico. Rodgers Environmental Services, Inc. (Rodgers) of Albuquerque, New Mexico was contracted by GEI to complete the following services for this project:

- Drill five borings using a combination of hollow stem auger (HSA) and air rotary drilling methods (borings MP-1 through MP-5).
- Drill two additional borings using HSA drilling methods, and install groundwater monitoring wells at those locations (MP-2P and MP-4P).

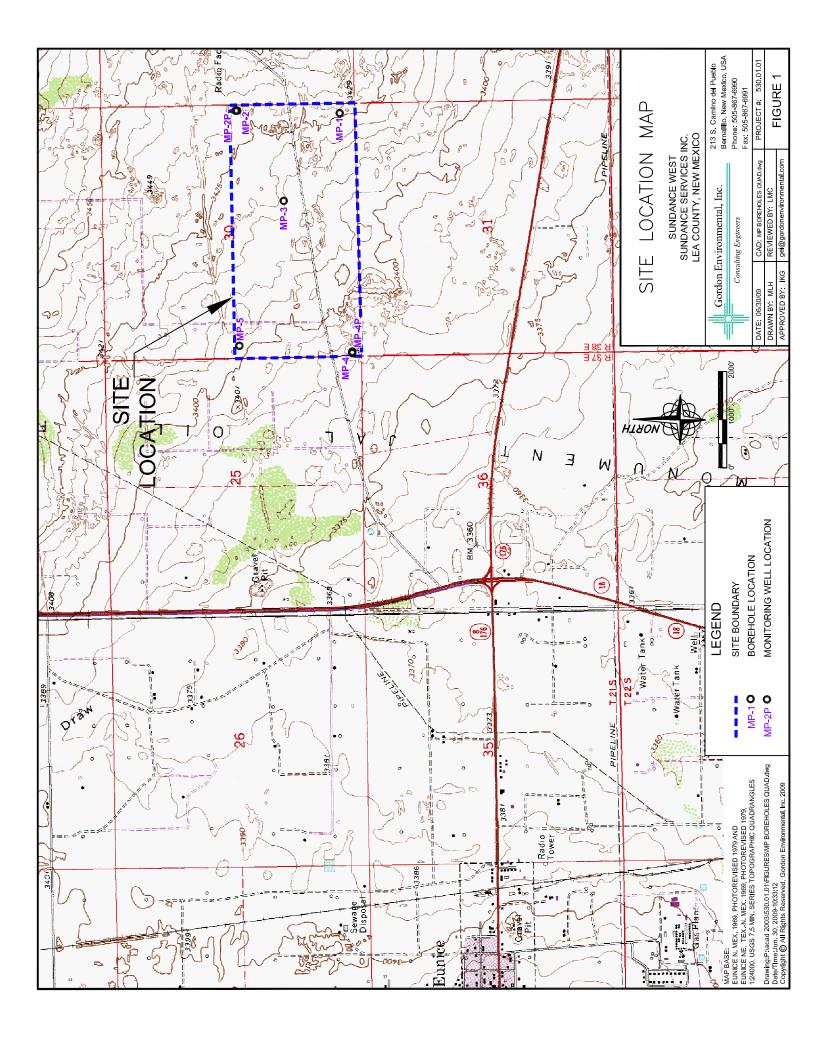
This Completion Report (Report) provides documentation of the project and as-built conditions. The Report includes:

- a description and location of the site
- background information regarding the need and purpose for the work
- drilling, sampling, and well construction

Selected photographs of the work are included in **Attachment A**. Also included are the permits granted from the Office of the State Engineer, approving the drilling program (**Attachment B**).

2.0 SITE LOCATION

The proposed SSI West facility is located one mile north of Highway N.M. 234; approximately four miles east of Eunice in Lea County, southeastern New Mexico (**Figure** 1). The site area is approximately 320 acres and comprises the S ¹/₂, Sec 30, T21S, R38E, NMPM. The site is owned by Wallach et al., and is leased by SSI.



3.0 BACKGROUND

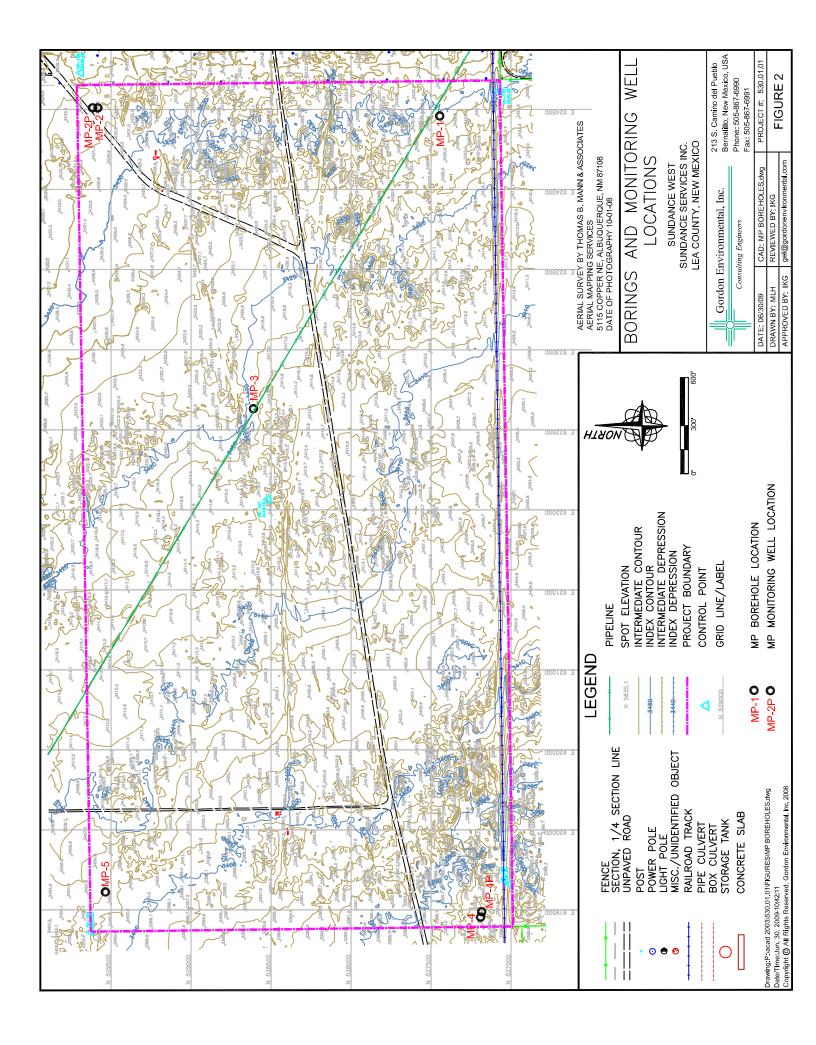
In accordance with the requirements set forth in 19.15.36.8.C(15) NMAC; this Report documents the field program to collect site-specific geological and hydrological data for the proposed facility. The primary purpose of the investigation was to confirm the depth-to-groundwater was suitable to meet the 100' vertical setback for an OCD Part 36 Landfill.

Five soil borings (MP-1 through MP-5) were drilled at the locations shown on **Figure 2.** Two additional soil borings were drilled adjacent to MP-2 and MP-4 (MP-2P and MP-4P, respectively) in order to install shallow groundwater monitoring wells near these locations (**Figure 2**). Borings MP-1 through MP-5 were drilled at locations within the site area to characterize the shallow geology and hydrogeology to depths up to 150 feet below existing site grade. Wells MP-2P and MP-4P were completed subsequent to drilling and sampling borings MP-1 through MP-5 to monitor thin, isolated zone(s) of free water perched on top of, and/or within, the upper Chinle Formation (Chinle) as described herein. **Section 4** presents a detailed description of the drilling, sampling, and well installation.

3.1 Local Hydorgeological Studies

The local hydrogeology and geotechnical conditions have been studied more intensively than any other locale that we are familiar with. There are four projects within 1.5 miles that have each implemented subsurface investigations in response to regulatory siting requirements:

- 1. Waste Control Specialists, Inc. (TCEQ, NRC, USEPA)
- 2. Lea County Landfill (NMED)
- 3. LES Nuclear Enrichment Facility (NRC)
- 4. Sundance Services, Inc. (OCD)



4.0 DRILLING, SAMPLING, AND WELL INSTALLATION

This section provides a summary of the work performed and details of the as-built conditions. **Attachment B** includes the *Well Record & Log* submitted by Rodgers to the New Mexico Office of the State Engineer (OSE) for each of the borings and wells. **Table 1** provides surveyed coordinates for the borings and wells.

| Boring | MP-1 | MP-2 | MP-3 | MP-4 | MP-5 | MP-2P | MP-4P |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Northing ¹ | 527446.10 | 529582.26 | 528611.24 | 527183.88 | 529535.82 | 529615.38 | 527183.88 |
| Easting ¹ | 924459.82 | 924510.78 | 922630.93 | 919459.02 | 919611.93 | 924510.99 | 919489.02 |
| Elevation ¹ | | | | | | | |
| Ground Surface ² | 3428.30 | 3432.2 | 3417.99 | 3384 | 3402.93 | 3433.58 | 3384.62 |
| Concrete Pad ² | NA | NA | NA | NA | NA | 3433.58 | 3384.62 |
| Top of Steel Casing | NA | NA | NA | NA | NA | 3436.51 | 3387.56 |
| Top of PVC Casing ³ | NA | NA | NA | NA | NA | 3435.90 | 3387.09 |

 Table 1

 Summary of Surveyed Coordinates for Borings and Monitoring Wells

Notes:

Survey by Pettigrew & Associates, Hobbs, New Mexico

N/A - Not applicable; borings MP-1 through MP-5 were plugged and abaondoned $^{1}NAVD88$

²Ground surface elevation approximately equal to elevation of concrete pad

³Measuring point for groundwater static water levels

4.1 Borings MP-1 through MP-5

Borings MP-1 through MP-5 were drilled using a single, portable CME 75 drill rig capable of using both hollow-stem auger (HSA) and air rotary methods. HSA was used in the upper 25 to 50 feet of the borings until claystone/siltstone of the Chinle was encountered. The Chinle was drilled to a total depth of 150 feet in each boring using air rotary.

Drilling began on April 16, 2009; and concluded on April 23, 2009. Samples of drill cuttings were collected at five-foot intervals for visual and physical classification of the subsurface materials (**Attachment A**). During HSA drilling, split spoon samples were also collected at selected intervals for visual classification and laboratory analysis for geotechnical properties. **Attachment C** includes the boring logs for borings MP-1 through MP-5.

As illustrated in the boring logs in **Attachment C**, the shallow stratigraphy consists of very fine to medium-textured sand from the surface to the top of the Chinle. This layer is referred to as the Ogalalla/Antlers/Gatuña (OAG) formation in other local studies (Section 3.1). The sand may contain variable silt. Variable thickness of caliche and/or caliche-cemented sand is typical at depths of approximately 10 feet below the surface. The Chinle redbeds below the unconsolidated sand are typically claystone to siltstone, with very isolated thin zones of very fine-to fine textured sand/sandstone. All materials encountered in borings MP-1 through MP-5 were dry to slightly moist with the exception of moist to wet sand at a depth of 21 to 26 feet below the surface in boring MP-2 (see boring log in **Attachment C**); and moist fine sand intervals at 47 to 48 feet, and 56 to 58 feet below the surface in boring MP-4 (see boring log in **Attachment C**). The following section describes installation of wells MP-2P and MP-4P in response to the isolated wet zones encountered in borings MP-2 and MP-4P in response to the isolated wet zones encountered in borings MP-2 and MP-4P in response to the isolated met **Zones** encountered in borings MP-2 and MP-4, respectively. Borings MP-1 through MP-5 were plugged and abandoned using cement-bentonite grout slurry (see well records in **Attachment B**).

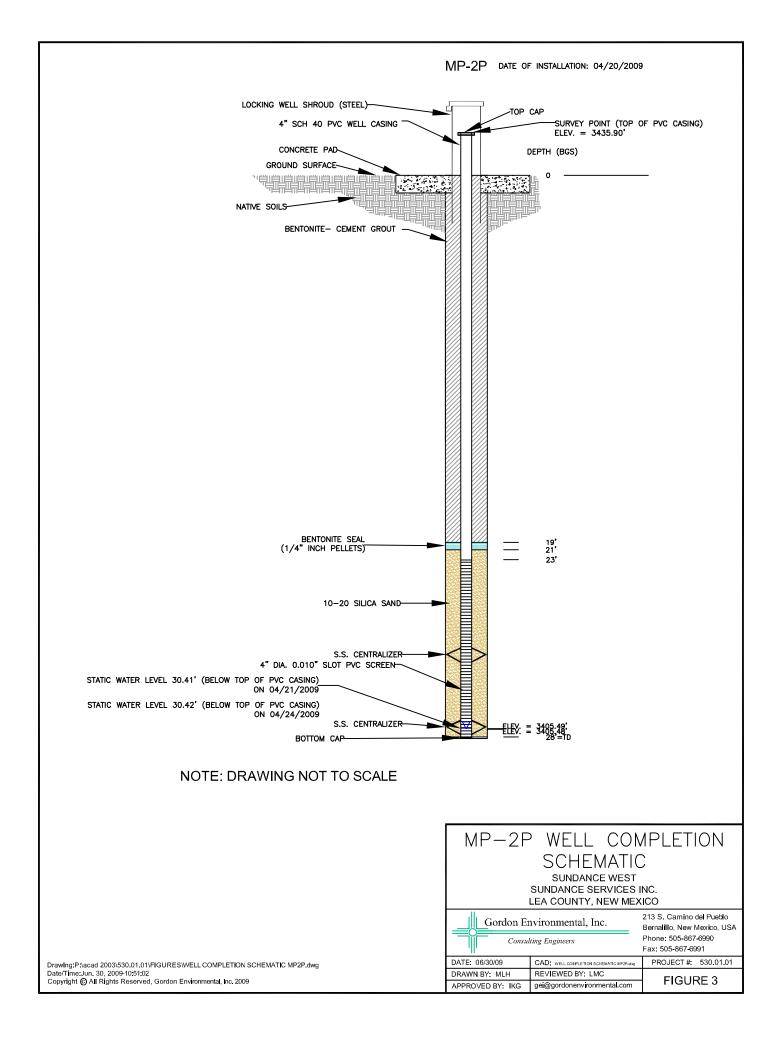
4.2 Perched Monitoring Wells MP-2P and MP-4P

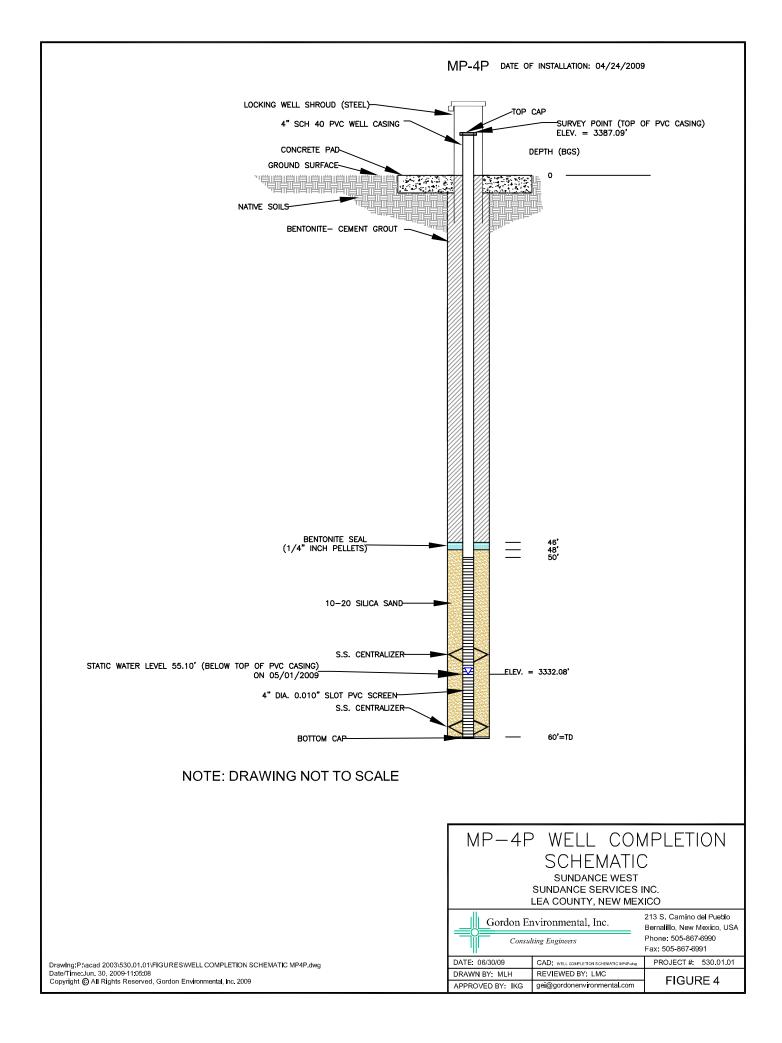
Following drilling of the MP borings (see Section 4.1), shallow monitoring wells MP-2P and MP-4P were constructed at the locations shown on Figure 2 to monitor any isolated zone(s) of saturation on top of and/or within the upper Chinle at those locations. The wells were constructed in response to moist/wet zones encountered in borings MP-2 and MP-4, respectively, as described in Section 4.1 and illustrated on the boring logs (see Attachment C).

Each well was constructed with an adequate length of screen and annular sand pack to capture any free water within the zones where moist/wet materials were encountered. Attachment D includes the boring logs for borings MP-2P and MP-4P. Figures 3 and 4 are the as-built construction schematics for monitoring wells MP-2P and MP-4P, respectively. Table 2 summarizes the as-built construction specifications for MP-2P and MP-4P. Table 2 also summarizes depth to groundwater measurements after the wells were installed.

| Monitoring Well | Monitoring Well MP-2P | | MP- | 4P | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------|---------------------|------------------------------------------|--|
| Specifications | Elevation (fmsl) | Depth (fbgs) | Elevation (fmsl) | Depth (fbgs) | |
| Ground Surface ¹ | 3433.58 | - | 3384.62 | - | |
| Groundwater | 3405.49 3405.48 3404.92 | 30.41 ^a 30.42 ^b 30.98 ^c | 3331.99 3332.24 | 55.10 ^d 54.85 ^c | |
| Top of PVC Casing | 3435.90 | +2.32 | 3387.09 | +2.47 | |
| Total Well Depth | 3405.58 | 28 | 3324.62 | 60 | |
| Well Screen Top | 3410.58 | 23 | 3334.62 | 50 | |
| Well Screen Bottom | 3405.58 | 28 | 3324.62 | 60 | |
| Filter Pack Top | 3412.58 | 21 | 3336.62 | 48 | |
| Filter Pack Bottom | 3405.58 | 28 | 3324.62 | 60 | |
| Annular Bentonite Seal Top | 3414.58 | 19 | 3338.62 | 46 | |
| Annular Bentonite Seal Bottom | 3412.58 | 21 | 3336.62 | 48 | |
| Annular Grout Seal Top | 3433.58 | 0 | 3384.62 | 0 | |
| Annular Grout Seal Bottom | 3414.58 | 19 | 3338.62 | 46 | |
| Borehole Diameter | 7.25 inches (| minimum) | | | |
| Length of Well Screen | | eet; MP-4P = | | | |
| Well Screen | 4-inch ID Sc machined slo | | C pipe, with 0 | .010 inch | |
| Well Casing | | | C pipe, flush-t | hreaded | |
| Filter Pack Material | | do silica sanc | | | |
| Annular Bentonite Seal | | ated bentonit | 1 | | |
| Annular Grout Seal | Cement-bent bentonite | onite grout co | ontaining 2% to | o 5% | |
| NOTES: ¹ equals approximate elevation of concrete pad ^a depth to groundwater measured below top of PVC casing on April 21, 2009 ^b depth to groundwater measured below top of PVC casing on April 22, 2009 ^c depth to groundwater measured below top of PVC casing on June 24, 2009 ^d depth to groundwater measured below top of PVC casing on May 1, 2009 fmsl = feet above mean sea level fbgs = feet below ground surface ("+" indicates feet above ground surface) | | | | | |

Table 2As-built Construction Specifications for Monitoring Wells





COMPLETION REPORT DRILLING, SAMPLING, AND MONITORING WELL INSTALLATION

SUNDANCE SERVICES, INC. LEA COUNTY, NEW MEXICO

ATTACHMENT A

PROJECT PHOTOGRAPHS



Photograph 1. Rodgers set up on MP-1 with CME-75 combination HSA and air rotary drill rig and related equipment.



Photograph 2. HSA drilling MP-1.



Photograph 3. Split spoon sample; top of Chinle Formation at 27'.



Photograph 5. Converting from HSA drilling to air rotary at MP-1 (also typical of other boring locations).



Photograph 6. Converting to air rotary drilling at MP-1 (also typical of other boring locations).

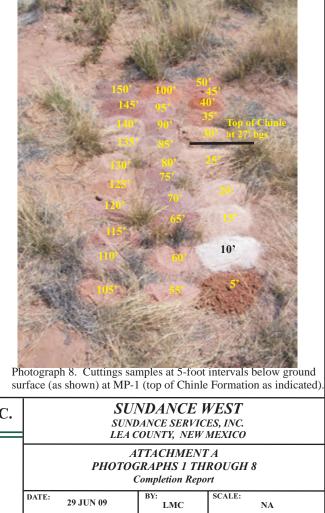


Photograph 7. Air rotary drilling Chinle Formation at MP-1.





Photograph 4. HSA drilling top of Chinle Forma



FILE: E:\GEI\Sundance\West Area\Photos1.cdr



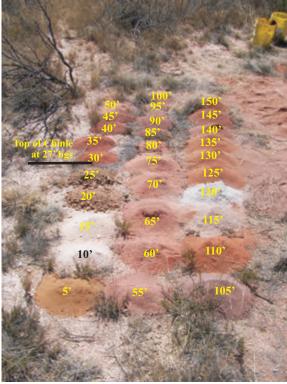
Photograph 9. Rodgers set up on MP-2 with CME-75 combination HSA and air rotary drill rig and related equipment.



Photograph 10. HSA drilling caliche in boring MP-2.



Photograph 11. Split spoon sample; top of Chinle Formation at 27'.



Photograph 13. Cuttings samples at 5-foot intervals below ground surface (as shown) at MP-2 (top of Chinle Formation as indicated).



Photograph14. Air rotary drilling dry Chinle Formation at MP-3.



Photograph 15. Rodgers set up on MP-3 with CME-75 combination HSA and air rotary drill rig and related equipment.



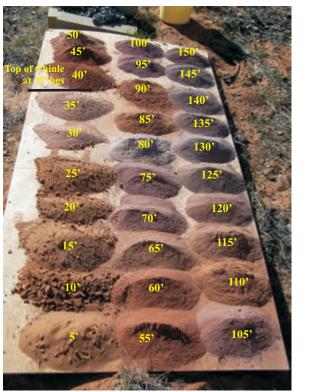


Bernalillo, New Mexico 87004

(505) 867-6991



Photograph 12. Air rotary drilling dry Chinle Formation at MP-2.

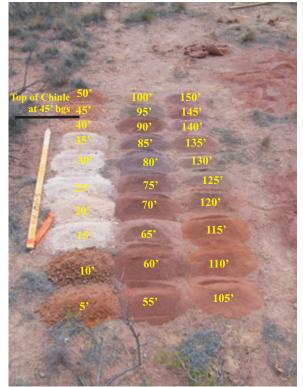


Photograph 16. Cuttings samples at 5-foot intervals below ground surface (as shown) at MP-3 (top of Chinle Formation as indicated).

| , INC. | | SUN | I NDANCE Idance servi County, new | CES, INC. | |
|--------|---------------------------------------------------------------|--------------------|------------------------------------------------|--------------|--|
| | ATTACHMENT A PHOTOGRAPHS 9 THROUGH 16 Completion Report | | | | |
| 990 | DATE: | 29 JUN 09 | BY: LMC | SCALE: NA | |
| 91 Fax | FILE: | E:\GEI\Sundance\Wo | est Area\Photos2.cdr | | |



Photograph 17. Rodgers drilling dry Chinle Formation at MP-4 using air rotary.



Photograph 21. Cuttings samples at 5-foot intervals below ground surface (as shown) at MP-5 (top of Chinle Formation as indicated). Photograph 22. Boring MP-5 plugged using cement-bentonite grout slurry (also typical of other borings).



Photograph 18. Cuttings samples at 5-foot intervals below ground surface (as shown) at MP-4 (top of Chinle Formation as indicated).



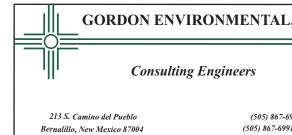


Photograph 19. Rodgers set up on MP-4 with CME-75 combination HSA and air rotary drill rig and related equipment.





Photograph 23. Well MP-2P (plugged boring MP-2 in background).



(505) 867-69 (505) 867-6991



Photograph 20. Rodgers set up on MP-5 with CME-75 combination HSA and air rotary drill rig and related equipment.



| , INC. | | SUND | NDANCE V DANCE SERVIC OUNTY, NEW D | ES, INC. |
|--------|-------|----------------------|---------------------------------------------|--------------|
| | | PHOTOG | TTACHMENT RAPHS 17 TH Completion Repo | ROUGH 24 |
| 990 | DATE: | 29 JUN 09 | BY: LMC | SCALE: NA |
|)1 Fax | FILE: | E:\GEI\Sundance\West | Area\Photos3.cdr | |

COMPLETION REPORT DRILLING, SAMPLING, AND MONITORING WELL INSTALLATION

SUNDANCE SERVICES, INC. LEA COUNTY, NEW MEXICO

ATTACHMENT B

OFFICE OF THE STATE ENGINEER WELL RECORDS AND LOGS



STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ROSWELL

John R. D'Antonio, Jr., P.E. State Engineer 1900 West Second Street Roswell, NM 88201 Phone: (575) 622-6521 Fax: (575) 623-8559

April 10, 2009

Sundance Services, Inc. % Larry M. Coons, P.E. Gordon Environmental, Inc. 213 S. Camino del Pueblo Bernalillo, NM 87004

RE: Monitoring Wells - CP-1014; CP-1015; CP-1016; CP-1017; CP-1018; CP-1019

Greetings:

Enclosed is your copy of the Monitoring Well permits, which have been approved subject to the conditions set forth on the approval page thereof.

In accordance with Condition C, a well record shall be filed in this office twenty days after completion of drilling. The well record is proof of completion of well. IT IS YOUR RESPONSIBILITY TO ASSURE THAT THE WELL LOG IS FILED WITHIN 20 DAYS OF DRILLING OF THE WELL.

These permits will expire on or before 04/30/2010, unless the wells have been drilled and the well logs filed in this office.

Sincerely,

Andy Morley, Staff Manager

(575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

NEW MEXICO STATE ENGINEER PERMIT TO MONITOR

SPECIFIC CONDITIONS OF APPROVAL

- 4 No water shall be appropriated and beneficially used under this permit.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.
- C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.

No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days unless a permit to use water from this well is acquired from the Office of the State Engineer.

Should the permittee change the purpose of use to other than monitoring purposes, an application shall be acquired from the Office of the State Engineer.

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

The well shall be constructed, maintained, and operated that each water shall be confined to the aquifer in which it is encountered.

LOG The Point of Diversion CP-1019 must be completed and the Well Log filed on or before 04/30/2010.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Formal Application Rcvd: 04/01/2009 Date Returned – Correction: Date Revd. Corrected: Pub. Of Notice Ordered: Affidavit of Pub. Filed:

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

Witness my hand and seal this ______ day of April A.D., 2009.

John R. D'Apronio, Jr., P.E., State Engineer

By: Kenneth M. Fresquez, District II Manager

File Number: (For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

| 1. APPLICAN | Г: | |
|--------------|-------------------------------------------------------------------------|------------------------------------------------------|
| Name: | Sundance Services, Inc. | Work Phone: <u>575-394-2511</u> |
| Contact: | Mr. Joe Carrillo, Plant Manager | Home Phone: |
| Address: | 1001 6th Street | |
| City: | Eunice | State: <u>NM</u> Zip: <u>88231</u> |
| 2. LOCATION | I OF WELL (A, B, C, or D required, E or F if known):MF | P-5 |
| | 1/4 <u>SW</u> 1/4 <u>NW</u> 1/4 Section: <u>30</u> Townsh: ea County | ip: <u>21S</u> Range: <u>38E</u> N.M.P.M. County. |
| B. X = | feet, Y = Zone in the G.S. Quad Map | feet, N.M. Coordinate System Grant. |
| | ude: <u>32 d 26 m 59,7</u> s Longitude | |
| D. East | 677928 (m), North.3591884 (m), UTN | M Zone 13, NAD $(27 \text{ or } 83)$ |
| E. Tract | c No, Map No of the | Hydrographic Survey |
| F. Lot M | No, Block No of Unit/Tract Subdivision recorded in | of the Of the County. |
| G. Other | r: | |
| H. Give | State Engineer File Number of existing we | ell: |
| I. On la | and owned by (required): <u>Sundance Services, Inc. (t</u> | hrough lease authorization) |
| 3. WELL INFO | ORMATION: | |

Approximate depth <u>125</u> feet; Outside diameter of casing <u>2</u> inches. Name of well driller and driller license number <u>Rodgers-NMWD 225</u>

| | -9a. |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADDITIONAL STATEMENT OR EXPLANATIONS: | 22 € 23 € 23 € 23 € 23 € 23 € 23 € 23 € |
| | |
| | |
| To evaluate subsurface groundwater. | \geq \leq m |
| | |
| | |
| | |
| | |
| | |
| | and the second se |
| | <u> </u> |
| | |
| | |

Do Not Write Below This Line Trn Number: 428023

File Number: <u>CP-1019</u> Form: wr-07

page 1 of 2

File Number:

(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

ACKNOWLEDGEMENT

| (I, We) | Joe Carrillo for Sundance Services, Inc. | affirm that the |
|----------|------------------------------------------|---------------------|
| | (Please Print) | |
| foregoin | g statements are true to the best | Jac Part |
| App | licant Signature | Applicant Signature |

ACTION OF STATE ENGINEER

| | o the conservation of wa fare, and further subjec | | | |
|------------|------------------------------------------------------|-------------------|-----------|----------------|
| | see attached cond | itions of approv | al | |
| Witness my | hand and seal this | 9 day of | April | , 20 <u>09</u> |
| | <u>Intonio, Jr., P.E.</u> , State | e Engineer | | 8° 28 |
| | Fresquez, District II M | anager | | OSWEED |
| | | | | |
| | | | | NOFFIC |
| | | | | |
| | | | | |
| | Do Not Wr | ite Below This Li | ne | |
| le Number: | CP-1019 | | n Number: | 428023 |

page 2 of 2

Form: wr-07

MP.5

Locator Tool Report

General Information:

| Application ID: 28 | Date: | 04-02-2009 | Time: | 10:49:12 |
|------------------------------------------------------------------------------------------|---------------------------|------------|-------|----------|
| WR File Number: Purpose: | CP POINT OF DIV | ERSION | | |
| Applicant First Name: Applicant Last Name: | | | | |
| GW Basin: County: | | | | |
| Critical Management Area Name(s): Special Condition Area Name(s): Land Grant Name: | NONE NONE NON GRANT | | | |

PLSS Description (New Mexico Principal Meridian):

SW 1/4 of SW 1/4 of SW 1/4 of NW 1/4 of Section 30, Township 21S, Range 38E.

Coordinate System Details:

Geographic Coordinates:

| Latitude: | 32 Degrees | 26 Minutes | 59.7 Seconds | Ν |
|------------|-------------|------------|--------------|---|
| Longitude: | 103 Degrees | 6 Minutes | 25.6 Seconds | W |

Universal Transverse Mercator Zone: 13N

| NAD 1983(92) (Meters) | N: 3,591,884 | E: 677,928 |
|----------------------------|---------------|--------------|
| NAD 1983(92) (Survey Feet) | N: 11,784,374 | E: 2,224,170 |
| NAD 1927 (Meters) | N: 3,591,709 | E: 677,888 |
| NAD 1927 (Survey Feet) | N: 11,783,798 | E: 2,224,037 |

State Plane Coordinate System Zone: New Mexico East

| NAD 1983(92) (Meters) | N: 161,417 | E: 280,293 |
|----------------------------|------------|------------|
| NAD 1983(92) (Survey Feet) | N: 529,582 | E: 919,595 |
| NAD 1927 (Meters) | N: 161,425 | E: 267,652 |
| NAD 1927 (Survey Feet) | N: 529,610 | E: 878,121 |

NEW MEXICO OFFICE OF STATE ENGINEER

\bigcirc Ð Ô, ે X -1 Radio Fa Ū, 30 ... \mathbb{C} :...> Ó 400³ ≺ ~D*

Locator Tool Report



WR File Number: CPScale: 1:17,314Northing/Easting: UTM83(92) (Meter):N: 3,591,884E: 677,928Northing/Easting: SPCS83(92) (Feet):N: 529,582E: 919,595GW Basin: CapitanSector Sector S

Print Date: 04/02/2009



STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ROSWELL

John R. D'Antonio, Jr., P.E. State Engineer 1900 West Second Street Roswell, NM 88201 Phone: (575) 622-6521 Fax: (575) 623-8559

April 10, 2009

Sundance Services, Inc. % Larry M. Coons, P.E. Gordon Environmental, Inc. 213 S. Camino del Pueblo Bernalillo, NM 87004

RE: Monitoring Wells - CP-1014; CP-1015; CP-1016; CP-1017; CP-1018; CP-1019

Greetings:

Enclosed is your copy of the Monitoring Well permits, which have been approved subject to the conditions set forth on the approval page thereof.

In accordance with Condition C, a well record shall be filed in this office twenty days after completion of drilling. The well record is proof of completion of well. IT IS YOUR RESPONSIBILITY TO ASSURE THAT THE WELL LOG IS FILED WITHIN 20 DAYS OF DRILLING OF THE WELL.

These permits will expire on or before 04/30/2010, unless the wells have been drilled and the well logs filed in this office.

Sincerely,

No

Andy Morley, Staff Manager (575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

NEW MEXICO STATE ENGINEER PERMIT TO MONITOR

SPECIFIC CONDITIONS OF APPROVAL

- 4 No water shall be appropriated and beneficially used under this permit.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.
- C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.

No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days unless a permit to use water from this well is acquired from the Office of the State Engineer.

Should the permittee change the purpose of use to other than monitoring purposes, an application shall be acquired from the Office of the State Engineer.

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

The well shall be constructed, maintained, and operated that each water shall be confined to the aquifer in which it is encountered.

LOG The Point of Diversion CP-1018 must be completed and the Well Log filed on or before 04/30/2010.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Formal Application Rcvd: 04/01/2009 Date Returned – Correction: Date Rcvd. Corrected: Pub. Of Notice Ordered: Affidavit of Pub. Filed:

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

Witness my hand and seal this _____ day of April A.D., 2009.

John R. D'Antonio, Jr., P.E., State Engineer

File Number:

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

| 1. APPLICANT | ': | |
|---------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------|
| | Sundance Services, Inc. | |
| | Mr. Joe Carrillo, Plant Manager | Home Phone: |
| Address: | 1001 6th Street | |
| City: | Eunice | State: <u>NM</u> Zip: <u>88231</u> |
| 2. LOCATION | OF WELL (A, B, C, or D required, E or F if known): | MP-4 |
| | /4 <u>SW 1/4 <i>SW</i> 1/4</u> Section: <u>30</u> Town a County | ship: <u>21S</u> Range: <u>38E</u> N.M.P.M. County. |
| B. X = | feet, Y = Zone in the | feet, N.M. Coordinate System Grant. |
| | .S. Quad Map | |
| | ude: <u>32</u> d <u>26</u> m <u>37,4</u> s Longit | |
| D. East | 677925 (m), North 3591197 (m), | UTM Zone 13, NAD (27 or (83) |
| E. Tract | No, Map No of the | Hydrographic Survey |
| F. Lot N | o, Block No of Unit/Trac Subdivision recorded i | of the of the County. |
| G. Other | : | |
| H. Give | State Engineer File Number of existing | y well: |
| T. On la | nd owned by (required): Sundance Services, Ir | nc. (through lease authorization) |
| 3. WELL INFO | | · (***** |
| Approxim Name of | ate depth <u>125</u> feet; Outside diameter well driller and driller license numbe | |
| To evaluate su | ubsurface groundwater. | |
| | | |
| | | |
| | | |
| · | | <u> </u> |
| | | |
| | | |
| | | |
| | Do Not Write Below Thi | is Line |
| File Number | D. D. 10.54 | Trn Number: 428022 |
| rOL | m. with the page 1 Of 2 | - |

File Number:

(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

ACKNOWLEDGEMENT

| (I, We) Joe Carrillo for Sundance Services, Inc. | affirm that the |
|--------------------------------------------------|-------------------------------|
| (Please Print) | |
| foregoing statements are true to the best | t of my knowledge and belief. |
| Applicant Signature | Applicant Signature |

ACTION OF STATE ENGINEER

This application is approved ************************** provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare, and further subject to the following conditions:

| see attached cor | nditions of a | pproval | | |
|-------------------------------------------------|----------------|---------|---------------|-----------------------|
| Witness my hand and seal this | | of | April | _, 20 _ 09 |
| John R. D'Antonio, Jr., P.E. Stat By: | e Engineer | | | |
| Kenneth M. Fresquez, Øistrict II | Manager | | | 2009 APA - 1 A 10: 58 |
| Do Not Wr | tite Below Thi | ls Line | | |
| le Number: <u><i>CP-1018</i></u> Form: wr-07 | page 2 of 2 | Trn Num | ber: <u>4</u> | 128022 |

MP-4

Locator Tool Report

General Information:

| Application ID: 28 | Date: | 04-02-2009 | Time: | 10:47:21 |
|------------------------------------------------------------------------------------------|---------------------------|------------|-------|----------|
| WR File Number: Purpose: | CP POINT OF DIV | ERSION | | |
| Applicant First Name: Applicant Last Name: | | | | |
| GW Basin: County: | | | | |
| Critical Management Area Name(s): Special Condition Area Name(s): Land Grant Name: | NONE NONE NON GRANT | | | |

PLSS Description (New Mexico Principal Meridian):

NW 1/4 of SW 1/4 of SW 1/4 of SW 1/4 of Section 30, Township 21S, Range 38E.

Coordinate System Details:

Geographic Coordinates:

| Latitude: | 32 Degrees | 26 Minutes | 37.4 Seconds | Ν |
|------------|-------------|------------|--------------|---|
| Longitude: | 103 Degrees | 6 Minutes | 26.2 Seconds | W |

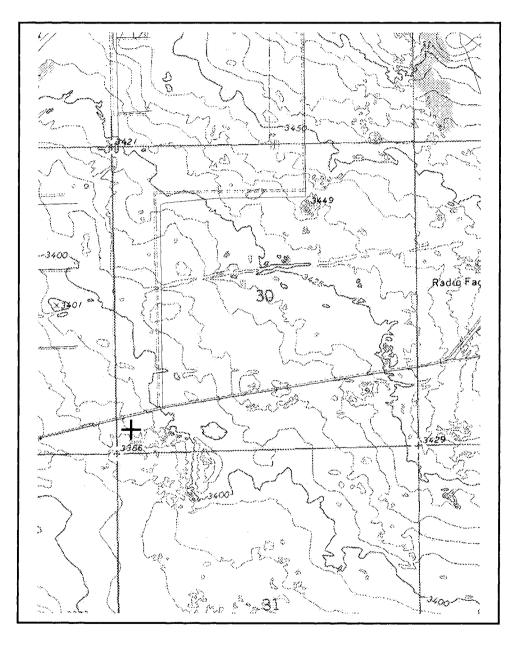
Universal Transverse Mercator Zone: 13N

| NAD 1983(92) (Meters) | N: 3,591,197 | E: 677,925 |
|----------------------------|---------------|--------------|
| NAD 1983(92) (Survey Feet) | N: 11,782,118 | E: 2,224,160 |
| NAD 1927 (Meters) | N: 3,591,021 | E: 677,885 |
| NAD 1927 (Survey Feet) | N: 11,781,542 | E: 2,224,027 |

State Plane Coordinate System Zone: New Mexico East

| NAD 1983(92) (Meters) | N: 160,729 | E: 280,286 |
|----------------------------|------------|------------|
| NAD 1983(92) (Survey Feet) | N: 527,326 | E: 919,571 |
| NAD 1927 (Meters) | N: 160,738 | E: 267,644 |
| NAD 1927 (Survey Feet) | N: 527,354 | E: 878,097 |

NEW MEXICO OFFICE OF STATE ENGINEER



Locator Tool Report



WR File Number: CPScale: 1:20,224Northing/Easting: UTM83(92) (Meter):N: 3,591,197E: 677,925Northing/Easting: SPCS83(92) (Feet):N: 527,326E: 919,571GW Basin: CapitanSection 1000Section 1000

Page 2 of 2

Print Date: 04/02/2009



STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ROSWELL

John R. D'Antonio, Jr., P.E. State Engineer 1900 West Second Street Roswell, NM 88201 Phone: (575) 622-6521 Fax: (575) 623-8559

April 10, 2009

Sundance Services, Inc. % Larry M. Coons, P.E. Gordon Environmental, Inc. 213 S. Camino del Pueblo Bernalillo, NM 87004

RE: Monitoring Wells - CP-1014; CP-1015; CP-1016; CP-1017; CP-1018; CP-1019

Greetings:

Enclosed is your copy of the Monitoring Well permits, which have been approved subject to the conditions set forth on the approval page thereof.

In accordance with Condition C, a well record shall be filed in this office twenty days after completion of drilling. The well record is proof of completion of well. IT IS YOUR RESPONSIBILITY TO ASSURE THAT THE WELL LOG IS FILED WITHIN 20 DAYS OF DRILLING OF THE WELL.

These permits will expire on or before 04/30/2010, unless the wells have been drilled and the well logs filed in this office.

Sincerely,

Mo

Andy Morley, Staff Manager (575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

NEW MEXICO STATE ENGINEER PERMIT TO MONITOR

SPECIFIC CONDITIONS OF APPROVAL

- 4 No water shall be appropriated and beneficially used under this permit.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.
- C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.

No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days unless a permit to use water from this well is acquired from the Office of the State Engineer.

Should the permittee change the purpose of use to other than monitoring purposes, an application shall be acquired from the Office of the State Engineer.

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

The well shall be constructed, maintained, and operated that each water shall be confined to the aquifer in which it is encountered.

LOG The Point of Diversion CP-1017 must be completed and the Well Log filed on or before 04/30/2010.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Formal Application Rcvd: 04/01/2009 Date Returned – Correction: Date Rcvd. Corrected: Pub. Of Notice Ordered: Affidavit of Pub. Filed:

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

Witness my hand and seal this $\underline{2}$ day of April A.D., 2009.

John R. D'Antonio, Jr., P.E., State Engineer

By: Kenneth M. Fresquez, District II Manager

File Number: (For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

| 1. APPLICANT | : | |
|------------------------|------------------------------------------------------------------------------------------------------|---------------------------------------|
| Name: | | Work Phone: <u>575-394-2511</u> |
| | Mr. Joe Carrillo, Plant Manager | Home Phone: |
| Address: | 1001 6th Street | - |
| City: | Eunice | State: NM Zip: 88231 |
| 2. LOCATION | OF WELL (A, B, C, or D required, E or F if known): MP-3 | 3 |
| | /4 <u>NW</u> 1/4 <u>SE</u> 1/4 Section: <u>30</u> Township a County | |
| B. X = | feet, Y = fe Zone in the .S. Quad Map | eet, N.M. Coordinate System Grant. |
| | ude: <u>32</u> d <u>26 m 49.8</u> s Longitude: | 103 d 5 m 51.7 s |
| D. East 🦨 | 678820 (m), North <u>359/594</u> (m), UTM | Zone 13, NAD (27 of 83) |
| E. Tract | No, Map No of the | Hydrographic Survey |
| F. Lot No | o, Block No of Unit/Tract Subdivision recorded in | of the County. |
| G. Other | : | |
| H. Give S | State Engineer File Number of existing wel | Ll: |
| I. On lar | nd owned by (required): <u>Sundance Services, Inc. (thr</u> | ough lease authorization) |
| 3. WELL INFO | RMATION: | STATI NOS |
| Approxima Name of w | ate depth <u>125</u> feet; Outside diameter of c well driller and driller license number <u>R</u> | casing 2inches |
| 4. ADDITIONA | L STATEMENT OR EXPLANATIONS: | |
| To evaluate su | ubsurface groundwater. | A DE S |
| | | |
| | | |
| | | |
| <u> </u> | Do Not Write Below This Li | |
| File Number Form | : <u>CP-1017</u> m: wr-07 page 1 of 2 | rn Number: <u>428019</u> |
| | | |

File Number: (For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER **APPLICATION FOR PERMIT** TO DRILL AN EXPLORATORY WELL

ACKNOWLEDGEMENT

| (I, We) Joe Carrillo for Sundan | ce Services, Inc. | affirm that the |
|---------------------------------|------------------------------------|-----------------|
| | (Please Print) | |
| foregoing statements are | true to the best of my knowledge a | and belief. |
| | And a | |
| Applicant Signature | | ture |

ACTION OF STATE ENGINEER

This application is approved **xiaxiaxiaxiaxiaxiaxiaxiaxiaxiaxia** provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare, and further subject to the following conditions:

| | ched conditions | | | |
|-----------------------------------------|-----------------|-------------|------------|---------------------------------------|
| Witness my hand and seal t | this 9 | day of | April | , 20 09 |
| John R. D'Antonio, Jr., P | | eer | | |
| By: And My | ./ | | | · · · · · · · · · · · · · · · · · · · |
| | | | | APR - / A 10:58 |
| De | o Not Write Bel | ow This L | ine | |
| e Number: <u>01-1017</u> Form: wr-07 | bade | T 2 of 2 | rn Number: | 428019 |

page 2 of 2

Locator Tool Report

MP-3

General Information:

| Application ID: 28 | Date: | 04-02-2009 | Time: | 10:44:33 |
|------------------------------------------------------------------------------------------|--------------------|------------|-------|----------|
| WR File Number: Purpose: | CP POINT OF DIV | ERSION | | |
| Applicant First Name: Applicant Last Name: | | | | |
| GW Basin: County: | | | | |
| Critical Management Area Name(s): Special Condition Area Name(s): Land Grant Name: | | | , | |

PLSS Description (New Mexico Principal Meridian):

NE 1/4 of SW 1/4 of NW 1/4 of SE 1/4 of Section 30, Township 21S, Range 38E.

Coordinate System Details:

Geographic Coordinates:

| Latitude: | 32 Degrees | 26 Minutes | 49.8 Seconds | Ν |
|------------|-------------|------------|--------------|---|
| Longitude: | 103 Degrees | 5 Minutes | 51.7 Seconds | W |

Universal Transverse Mercator Zone: 13N

| NAD 1983(92) (Meters) | N: 3,591,594 | E: 678,820 |
|----------------------------|---------------|--------------|
| NAD 1983(92) (Survey Feet) | N: 11,783,423 | E: 2,227,094 |
| NAD 1927 (Meters) | N: 3,591,419 | E: 678,779 |
| NAD 1927 (Survey Feet) | N: 11,782,846 | E: 2,226,961 |

State Plane Coordinate System Zone: New Mexico East

| NAD 1983(92) (Meters) | N: 161,121 | E: 281,183 |
|----------------------------|------------|------------|
| NAD 1983(92) (Survey Feet) | N: 528,612 | E: 922,513 |
| NAD 1927 (Meters) | N: 161,130 | E: 268,541 |
| NAD 1927 (Survey Feet) | N: 528,640 | E: 881,039 |

NEW MEXICO OFFICE OF STATE ENGINEER

٩ õ -5 3 Fa Radio 101 20 ["} e Zee Ð ർ

Locator Tool Report



WR File Number: CPScale: 1:18,520Northing/Easting: UTM83(92) (Meter):N: 3,591,594E: 678,820Northing/Easting: SPCS83(92) (Feet):N: 528,612E: 922,513GW Basin: CapitanE: 922,513E: 922,513

Page 2 of 2

Print Date: 04/02/2009



STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ROSWELL

John R. D'Antonio, Jr., P.E. State Engineer 1900 West Second Street Roswell, NM 88201 Phone: (575) 622-6521 Fax: (575) 623-8559

April 10, 2009

Sundance Services, Inc. % Larry M. Coons, P.E. Gordon Environmental, Inc. 213 S. Camino del Pueblo Bernalillo, NM 87004

RE: Monitoring Wells - CP-1014; CP-1015; CP-1016; CP-1017; CP-1018; CP-1019

Greetings:

Enclosed is your copy of the Monitoring Well permits, which have been approved subject to the conditions set forth on the approval page thereof.

In accordance with Condition C, a well record shall be filed in this office twenty days after completion of drilling. The well record is proof of completion of well. IT IS YOUR RESPONSIBILITY TO ASSURE THAT THE WELL LOG IS FILED WITHIN 20 DAYS OF DRILLING OF THE WELL.

These permits will expire on or before 04/30/2010, unless the wells have been drilled and the well logs filed in this office.

Sincerely,

Andy Morley, Staff Manager (575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

NEW MEXICO STATE ENGINEER PERMIT TO MONITOR

SPECIFIC CONDITIONS OF APPROVAL

- 4 No water shall be appropriated and beneficially used under this permit.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.
- C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.

No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days unless a permit to use water from this well is acquired from the Office of the State Engineer.

Should the permittee change the purpose of use to other than monitoring purposes, an application shall be acquired from the Office of the State Engineer.

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

The well shall be constructed, maintained, and operated that each water shall be confined to the aquifer in which it is encountered.

LOG The Point of Diversion CP-1016 must be completed and the Well Log filed on or before 04/30/2010.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Formal Application Rcvd: 04/01/2009 Date Returned – Correction: Date Rcvd. Corrected: Pub. Of Notice Ordered: Affidavit of Pub. Filed:

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

Witness my hand and seal this <u>9</u> day of April A.D., 2009.

John R. D'Antonio, Jr., P.E., State Engineer

By: _______ Kenneth M. Fresquez, District J Manager

File Number:

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

| 1. APPLICANT | Г: | |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| | Sundance Services, Inc. | |
| | Mr. Joe Carrillo, Plant Manager | Home Phone: |
| Aaaress: | 1001 6th Street | - |
| City: | Eunice | State: <u>NM</u> Zip: <u>88231</u> |
| 2. LOCATION | OF WELL (A, B, C, or D required, E or F if known): MP- | 2 |
| | /4 <u>NE</u> 1/4 <u>SE</u> 1/4 Section: <u>30</u> Township ma County | p: <u>21S</u> Range: <u>38E</u> N.M.P.M. County. |
| B. X = | feet, Y =feet | |
| U.S.G | G.S. Quad Map | |
| C. Latit | ude: <u>32</u> d <u>26 m 59.5</u> s Longitude | : <u>103 d 5 m 28,6 s</u> |
| D. East | (m), North (m), UTM | Zone 13, NAD (27 or 83) |
| E. Tract | No, Map No of the | Hydrographic Survey |
| F. Lot No | No, Block No of Unit/Tract Subdivision recorded in | of the County. |
| G. Other | : | |
| H. Give | State Engineer File Number of existing we. | 11: |
| I. On la | and owned by (required): <u>Sundance Services, Inc. (th</u> | rough lease authorization) |
| 3. WELL INFO | DRMATION: | |
| Name of | nate depth <u>125</u> feet; Outside diameter of well driller and driller license number <u>R</u> AL STATEMENT OR EXPLANATIONS: | casing 2 inches. |
| To evaluate su | ubsurface groundwater. | |
| | | |
| | | |
| | | |
| | | <u> </u> |
| | | ***a |
| | | |
| | | |
| | Do Not Write Below This L | ine |
| | с:т | rn Number: <u>428017</u> |
| FOL | cm: wr-07 page 1 of 2 | |

File Number: (For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

ACKNOWLEDGEMENT

| (I, We) Joe Carrillo for Sundance Service | es, Inc. | affirm that th | ıe |
|-------------------------------------------|--------------------|----------------|----|
| (Please | Print) | | |
| foregoing statements are true to | Char Creek | \sim | |
| Applicant Signature | Applicant Signatur | îe | |

ACTION OF STATE ENGINEER

| Witness my hand and seal this | ? day of | April | , 20 <u>0</u> | 19 |
|-----------------------------------------------------------------------------------------------|------------------|-------|-----------------------|----------------------------------------------|
| John R. D'Antonio, Jr., P.E. State F By: And Monty Kenneth M: Fresquez, District II Mar | | | 2009 APR - / A 10: 57 | STATE ENGINEER OFFICE ROSWELL, NEW MEXICO |
| Do Not Write | e Below This Lir | le | | |

MP-2-

Locator Tool Report

General Information:

| Application ID: 28 | Date: | 04-02-2009 | Tim | e: 10:42:31 |
|------------------------------------------------------------------------------------------|---------------------------|------------|-----|-------------|
| WR File Number: Purpose: | CP POINT OF DIV | ERSION | | |
| Applicant First Name: Applicant Last Name: | | | | |
| GW Basin: County: | | | | |
| Critical Management Area Name(s): Special Condition Area Name(s): Land Grant Name: | NONE NONE NON GRANT | | | |

PLSS Description (New Mexico Principal Meridian):

NE 1/4 of NE 1/4 of NE 1/4 of SE 1/4 of Section 30, Township 21S, Range 38E.

Coordinate System Details:

Geographic Coordinates:

| Latitude: | 32 Degrees | 26 Minutes | 59.5 Seconds | Ν |
|------------|-------------|------------|--------------|---|
| Longitude: | 103 Degrees | 5 Minutes | 28.6 Seconds | W |

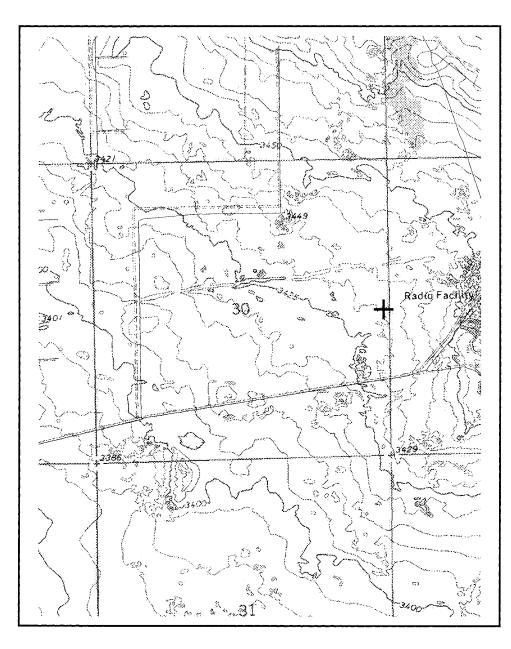
Universal Transverse Mercator Zone: 13N

| NAD 1983(92) (Meters) | N: 3,591,905 | E: 679,418 |
|----------------------------|---------------|--------------|
| NAD 1983(92) (Survey Feet) | N: 11,784,441 | E: 2,229,057 |
| NAD 1927 (Meters) | N: 3,591,729 | E: 679,378 |
| NAD 1927 (Survey Feet) | N: 11,783,865 | E: 2,228,925 |

State Plane Coordinate System Zone: New Mexico East

| NAD 1983(92) (Meters) | N: 161,428 | E: 281,783 |
|----------------------------|------------|------------|
| NAD 1983(92) (Survey Feet) | N: 529,618 | E: 924,483 |
| NAD 1927 (Meters) | N: 161,436 | E: 269,142 |
| NAD 1927 (Survey Feet) | N: 529,646 | E: 883,009 |

NEW MEXICO OFFICE OF STATE ENGINEER



Locator Tool Report



WR File Number: CPScale: 1:20,678Northing/Easting: UTM83(92) (Meter):N: 3,591,905E: 679,418Northing/Easting: SPCS83(92) (Feet):N: 529,618E: 924,483GW Basin: CapitanSecond Second S

Page 2 of 2

Print Date: 04/02/2009



STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ROSWELL

John R. D'Antonio, Jr., P.E. State Engineer 1900 West Second Street Roswell, NM 88201 Phone: (575) 622-6521 Fax: (575) 623-8559

April 10, 2009

Sundance Services, Inc. % Larry M. Coons, P.E. Gordon Environmental, Inc. 213 S. Camino del Pueblo Bernalillo, NM 87004

RE: Monitoring Wells -- CP-1014; CP-1015; CP-1016; CP-1017; CP-1018; CP-1019

Greetings:

Enclosed is your copy of the Monitoring Well permits, which have been approved subject to the conditions set forth on the approval page thereof.

In accordance with Condition C, a well record shall be filed in this office twenty days after completion of drilling. The well record is proof of completion of well. IT IS YOUR RESPONSIBILITY TO ASSURE THAT THE WELL LOG IS FILED WITHIN 20 DAYS OF DRILLING OF THE WELL.

These permits will expire on or before 04/30/2010, unless the wells have been drilled and the well logs filed in this office.

Sincerely,

Andy Morley, Staff Manager (575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

NEW MEXICO STATE ENGINEER PERMIT TO MONITOR

SPECIFIC CONDITIONS OF APPROVAL

- 4 No water shall be appropriated and beneficially used under this permit.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.
- C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.

No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days unless a permit to use water from this well is acquired from the Office of the State Engineer.

Should the permittee change the purpose of use to other than monitoring purposes, an application shall be acquired from the Office of the State Engineer.

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

The well shall be constructed, maintained, and operated that each water shall be confined to the aquifer in which it is encountered.

LOG The Point of Diversion CP-1015 must be completed and the Well Log filed on or before 04/30/2010.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Formal Application Rcvd: 04/01/2009 Date Returned – Correction: Date Rcvd. Corrected: Pub. Of Notice Ordered: Affidavit of Pub. Filed:

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

Witness my hand and seal this _____ day of April A.D., 2009.

John R. D'Antonio, Jr., P.E., State Engineer

File Number:

(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER **APPLICATION FOR PERMIT** TO DRILL AN EXPLORATORY WELL

| 1. APPL | LICANT: | |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| | Name: Sundance Services, Inc. | Work Phone: <u>575-394-2511</u> |
| Cor | ntact: Mr. Joe Carrillo, Plant Manager | Home Phone: |
| Ado | dress: 1001 6th Street | _ |
| | City: Eunice | State: <u>NM</u> Zip: <u>88231</u> |
| 2. LOC | CATION OF WELL (A, B, C, or D required, E or F if known): MP- | 1 |
| Α. | SE 1/4 SE 1/4 SE 1/4 Section: 30 Township | p: <u>21S</u> Range: <u>38E</u> N.M.P.M. County. |
| В. | X = feet, Y = | eet, N.M. Coordinate System Grant. |
| С. | Latitude: <u>32</u> d <u>26</u> m <u>38.0</u> s Longitude | : <u>103 d 5 m 29,1 s</u> |
| D. | East <u>6794/6</u> (m), North <u>359/242</u> (m), UTM | Zone 13, NAD _ (27 of 83) |
| E. | Tract No, Map No of the | Hydrographic Survey |
| F. | Lot No, Block No of Unit/Tract Subdivision recorded in | of the County. |
| G. | Other: | |
| Н. | Give State Engineer File Number of existing we | 11: |
| I. | On land owned by (required): Sundance Services, Inc. (the | rough lease authorization) |
| | | |

3. WELL INFORMATION:

Approximate depth <u>125</u> feet; Outside diameter of casing <u>2</u> inches. Name of well driller and driller license number <u>Rodgers-NMWD 225</u>

4. ADDITIONAL STATEMENT OR EXPLANATIONS:

| To evaluate subsurface groundwater. | | | SE 32 |
|----------------------------------------|-------------------------|---------------------------------------|------------------------------------------|
| | | | <u> </u> |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| ······································ | -,, | · · · · · · · · · · · · · · · · · · · | |
| <u> </u> | | | |
| | | | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1 |
| | | | |
| | Do Not Write Below This | | |
| e Number: CP-1015 | | Trn Number: | 428013 |
| Form: wr-07 | page 1 of 2 | | |

File Number: (For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

ACKNOWLEDGEMENT

| (I, We) Joe Carrillo for Sundance Services, Inc. | affirm that the |
|-----------------------------------------------------------|-----------------|
| (Please Print) | |
| foregoing statements are true to the best of my knowledge | · · · · |
| Applicant Signature Applicant Signa | ature |

ACTION OF STATE ENGINEER

| see attac | ched conditions | of appr | oval | |
|-----------------------------------------|-----------------|---------|-------------|------------------------------------------|
| Witness my hand and seal t | chis 🥖 | day of | April | , 20 _09 |
| John R. D'Antonio, Jr., P. | | eer | | an a |
| By: Kenneth M. Fresquez, Distr | | _ | | 2009 APR - / A 10: 57 |
| Dc | o Not Write Bel | ow This | Line | |
| e Number: <u>CP-1015</u> Form: wr-07 | page | 2 of 2 | Trn Number: | 428013 |

MP-1

Locator Tool Report

General Information:

Application ID:32

Date: 04-02-2009

Time: 09:39:32

WR File Number: CP Purpose: POINT OF DIVERSION

Applicant First Name: SUNDANCE Applicant Last Name: SERVICES

> GW Basin: CAPITAN County: LEA

Critical Management Area Name(s): NONE Special Condition Area Name(s): NONE Land Grant Name: NON GRANT

PLSS Description (New Mexico Principal Meridian):

NE 1/4 of SE 1/4 of SE 1/4 of SE 1/4 of Section 30, Township 21S, Range 38E.

Coordinate System Details:

Geographic Coordinates:

Latitude: 32 Degrees 26 Minutes 38.0 Seconds N Longitude: 103 Degrees 5 Minutes 29.1 Seconds W

Universal Transverse Mercator Zone: 13N

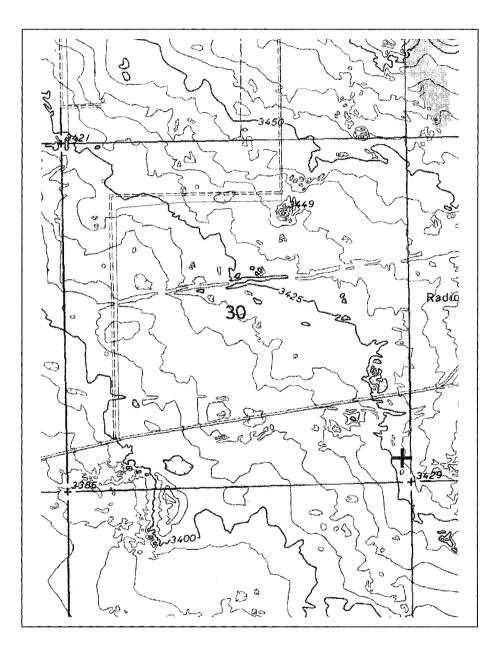
| NAD 1983(92) (Meters) | N: 3,591,242 | E: 679,416 |
|----------------------------|---------------|--------------|
| NAD 1983(92) (Survey Feet) | N: 11,782,267 | E: 2,229,052 |
| NAD 1927 (Meters) | N: 3,591,067 | E: 679,376 |
| NAD 1927 (Survey Feet) | N: 11,781,691 | E: 2,228,919 |

State Plane Coordinate System Zone: New Mexico East

| NAD 1983(92) (Meters) | N: 160,765 | E: 281,777 |
|----------------------------|------------|---------------------|
| NAD 1983(92) (Survey Feet) | N: 527,444 | E: 924,464 |
| NAD 1927 (Meters) | N: 160,774 | E: 269, 1 36 |
| NAD 1927 (Survey Feet) | N: 527,472 | E: 882,990 |

NEW MEXICO OFFICE OF STATE ENGINEER

Locator Tool Report





 WR File Number: CP
 Scale: 1:17,702

 Northing/Easting: UTM83(92) (Meter):
 N: 3,591,242
 E: 679,416

 Northing/Easting: SPCS83(92) (Feet):
 N: 527,444
 E: 924,464

 GW Basin: Capitan
 E: 924,464
 E: 924,464

Page 2 of 2

Print Date: 04/02/2009



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

| POD NUMBER (WE WELL OWNER NA | | ct: Mr. Joe Ca | arrillo. Plant Mana | ager | OSE FILE NUN CP 1015 PHONE (OPTIC 575-394-2 | DNAL) | | | <u> </u> |
|-------------------------------------------------------|----------------------------------------------------|----------------------|------------------------------------|----------------------------------------|------------------------------------------------------|------------------------------------------------------------------|-------------|--------------------------|-----------------------|
| WELL OWNER MA | ILING ADDRESS | ot. mi. 50e Ce | | iger | CITY Eunice | | state NM | 88 | ^{ZIP} 231 |
| WELL LOCATION (FROM GPS) | LATITUDE LONGITUDE LATING WELL LOCATION | degrees 32 103 | 5 2 | 8.00 _N 9.10 ^W | | REQUIRED: ONE TEN QUIRED: WGS 84 | ITH OF A SE | COND | · · · · · · · |
| | | | | | | | <u></u> | | |
| (2.5 ACRE) NE 1/4 SUBDIVISION NAM in Lea Co | ounty | (40 ACRE) SE 1/4 | (160 ACRE) SE ¼ | SECTION | 30 | TOWNSHIP 21 BLOCK NUMBER | NORTH | RANGE 38 UNIT/TRAG | |
| LICENSE NUMBER WD225 DRILLING STARTE 4/16/09 | NAME OF LICENS John Aguirre D Drilling ended | | PLETED WELL (FT) | | LE DEPTH (FT) | MAP NUMBER NAME OF WELL DF Rodgers & Co DEPTH WATER FIR | o., Inc. | | MBER |
| COMPLETED WEL | AIR | | ADDITIVES – SPI | ONFINED) ECIFY: | 150 | STATIC WATER LE | | | |
| DRILLING METHO DEPTH (FT) FROM TO | BORE HOLE | | CABLE TOOL | CONI | er – specify: NECTION (CASING) | Hollow stem au INSIDE DIA. CASING (IN) | CASIN | G WALL VESS (IN) | SLOT SIZE (IN) |
| DEPTH (FT) FROM TO | (FT) | F | DRMATION DESCRIF (INCLUDE WATER | | | | | | YIELD (GPM) |
| | | | | | | | | | |
| METHOD USED TO | D ESTIMATE YIELD OF WA | TER-BEARING STRA | TA | <u></u> | | TOTAL ESTIMATEI | D WELL YIE | LD (GPM) | |
| FOR OSE INTE FILE NUMBER LOCATION | | | POD NUMBI | ER | | WELL RECO TRN NUMBE | | G (Version 6) | |

| JUP | TYPE OI | F PUMP: | U SUBMER | | ☐ JET ☐ CYLINDER | □ NO PUMP – WELL NOT EQUIPPED □ OTHER – SPECIFY: | | | |
|-------------------------|-------------------------|--------------|---------------|--------------|------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| SEAL AND PUMP | ANNU | JLAR | DEPTH FROM | H (FT) TO | BORE HOLE DIA. (IN) | MATERIAL TYPE AND SIZE | AMOUNT (CUBIC FT) | METHO | |
| 5. SEAI | SEAL AND GRAVEL PACK | | | | | | | | |
| | | · | | | | | | | |
| | DEPTI FROM | H (FT) TO | THICK (F7 | | | COLOR AND TYPE OF MATERIAL ENCOUNT JDE WATER-BEARING CAVITIES OR FRACT | | WA BEAR | |
| | 0 | 4 | 4 | <u> </u> | | Sand; fine; med. to reddish tan; d | ~V | ☐ YES | □ NO |
| | 4 | 6 | 2 | 2 | | Sand; silty fine; reddish tan; s. mo | - | T YES | □ NO |
| | 6 | 11 | 5 | ; | Calich | e w/small gravel; white to pinkish crea | | I YES | 🗆 NO |
| | 11 | 25 | 14 | 4 | | Sand; silty fine; lt. reddish tan; s. m | oist | The second secon | □ NO |
| 8 | 25 | 150 | 12 | :5 | | Claystone to siltstone; dry | | T YES | 🗆 NO |
| WEI | | | | | | | | 🗖 YES | □ NO |
| 6. GEOLOGIC LOG OF WELL | | | | | | | | T YES | 🗆 NO |
| 106 | | | | | | | | T YES | □ NO |
| CC C | | | | | | | | ☐ YES | 🗆 NO |
| OIO | | | | | | | | T YES | 🗖 NO |
| GE | | | | | | | | The Yes | 🗖 NO |
| e | | · | | | | | | ☐ YES | □ NO |
| | | | | | | | | T YES | □ NO |
| | | | | | | | | ☐ YES | □ NO |
| | | | | | | | | ☐ YES | □ NO |
| | | | | | | | | ☐ YES | |
| | | | | | | | | ☐ YES | □ NO |
| | | · | | | | EDED TO FULLY DESCRIBE THE GEOLOGIC | LOG OF THE WELL | | |
| 5 | WELL | TECT | METHOD: | BAILE | | AIR LIFT OTHER – SPECIFY: | | | |
| 7. TEST & ADDITIONAL IN | WEEL | . 12.51 | | | | OATA COLLECTED DURING WELL TESTING, AND DRAWDOWN OVER THE TESTING PERI | | IME, END TI | ME, |
| NOL | | | MENTS OR EXPL | | <u> </u> | | | | · |
| EIGC | MP-1. | Well gro | uted back f | to total de | epth. No wate | r encountered. | | | |
| & AJ | | | | | | | | | |
| EST | | | | | | | | | |
| 7. TJ | | | | | | | | | |
| | | <u> </u> | | | | | | | |
| 8. SIGNATURE | CORREC | CT RECOR | D OF THE AB | BOVE DESC | RIBED HOLE ANI | EST OF HIS OR HER KNOWLEDGE AND BELI D THAT HE OR SHE WILL FILE THIS WELL R ON OF WELL DRILLING: | EF, THE FOREGOING I ECORD WITH THE STA | S A TRUE A ATE ENGINI | ND EER AND |
| IGNA | | | | | | 05/20/09 | | | |
| % S.S | | | SIGNATUR | E OF DRIL | LER | DATE | | | · · · · · · · · · · · · · · · · · · · |

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

| FILE NUMBER | POD NUMBER | TRN NUMBER | |
|-------------|------------|------------|-------------|
| LOCATION | | | PAGE 2 OF 2 |



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

| GENERAL AND WELL LOCATION | POD NUMBER (WELL OWNER Sundance | NAME(S | 3) | ntact Mr. Joe Ca | arrillo, Plan | t Manag | ger | OSE FILE NUM CP 1016 PHONE (OPTIC 545-394-2 | DNAL) | | | |
|---------------------------|---------------------------------------------------------------|--------------|-------------------------------------------------------|---------------------------------------|------------------------|---------|----------------------------------------|------------------------------------------------------|----------------------------------------------------|--------------------|--------------------------------------|-------------------|
| WELLI | well owner 1001 6th S | | G ADDRESS | · · · · · · · · · · · · · · · · · · · | | | | CITY Eunice | | state NM | 88 | ZIP 231 |
| ERAL AND | WELL LOCATION (FROM GPS) | | NTITUDE | DEGREES 32 103 | MINUTES 26 5 | | 0.50 N | | REQUIRED: ONE TEN QUIRED: WGS 84 | ITH OF A SEC | COND | |
| 1. GEN | DESCRIPTION | RELATI | NG WELL LOCATIO | ON TO STREET ADDRE | SS AND COMMC | N LANDM | ARKS | | | | | |
| 2. OPTIONAL | (2.5 ACRE) NE 1/4 SUBDIVISION N in Lea HYDROGRAPH | NAME Cour | - | (40 ACRE) NE 1/4 | (160 ACF SE 1 | RE) //4 | SECTION | 30 | TOWNSHIP 21 BLOCK NUMBER MAP NUMBER | NORTH | RANGE 38 UNIT/TRAI TRACT NU | |
| NO | LICENSE NUM WD22 DRILLING STA 4/19/0 | 5 RTED | NAME OF LICE John Aguir DRILLING END 4/19/09 | re | PLETED WELL (| FT) | BORE HO | LE DEPTH (FT) 28 | NAME OF WELL DF Rodgers & Co DEPTH WATER FIR | o., Inc. | ITERED (FT) | |
| DRILLING INFORMATION | COMPLETED W | | ARTESIAN | DRY HOLE | E SHALLOW (UNCONFINED) | | | vel in com N/A | | LL (FT) | | |
| I I | DRILLING MET | | | HAMMER | | | | ER – SPECIFY: | Hollow stem au | iger | | |
| DRILLD | DEPTH (I FROM | FT) TO | BORE HOL DIA. (IN) | | CASING ATERIAL | | | NECTION (CASING) | INSIDE DIA. CASING (IN) | 1 | G WALL NESS (IN) | SLOT SIZE (IN) |
| F | 0 23 | 23 28 | 7.25 | | /C casing /C screen | | | hread joint hread joint | 2 2 | | 0 PVC 0 PVC | 0.010 |
| TA | DEPTH (I FROM | FT) TO | THICKNES (FT) | S F | | | | | ATER-BEARING S R FRACTURE ZON | | - | YIELD (GPM) |
| ARING STRA | 13 27 | 27 28 | 14 | · · · · · · · · · · · · · · · · · · · | | | | ne to fine; lt. to siltstone; | | | | |
| 4. WATER BEARING STRATA | METHOD USEI |) TO EST | TIMATE YIELD OF Y | WATER-BEARING STR | ATA | ······ | ······································ | | TOTAL ESTIMATEI | d well yie) N/A | · , | |
| | FOR OSE IN FILE NUMB LOCATION | | AL USE | | POD | NUMBE | R | | WELL RECO TRN NUMBE | | F (Version 6 | |

| Ð | TYPE OF | F PUMP: | U SUBMER | | ☐ JET ☐ CYLINDER | ☑ NO PUMP – WELL NOT EQUIPPED ☑ OTHER – SPECIFY: | | | | |
|------------------------|---------------|--------------|---------------------------------------|--------------|------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------|---------------|--------|--|
| SEAL AND PUMP | ANNU | ITAD | DEPTH FROM | í (FT) TO | BORE HOLE DIA. (IN) | MATERIAL TYPE AND SIZE | AMOUNT (CUBIC FT) | METH PLACE | | |
| AL | SEAL | AND | 0 | 19 | 7.25 | Cement/bentointe | 4.9 | Trei | mie | |
| 5. SE | GRAVE | L PACK | 19 | 21 | 7.25 | Bentonite pellets | .5 | Trei | Tremie | |
| | | | 21 | 28 | 7.25 | 10/20 silica sand | 1.8 | Trei | mie | |
| | DEPTI FROM | H (FT) TO | THICK (FT | | | COLOR AND TYPE OF MATERIAL ENCOUNTE JDE WATER-BEARING CAVITIES OR FRACTU | | WA BEAR | | |
| | 0 | 8 | 8 | | | d; v. fine to fine; med. rust/tan; dry to | | ☐ YES | □ NO | |
| | 8 | 13 | 5 | | Jai | Caliche; white to light tan | 5. 110151 | T YES | | |
| | 13 | 27 | 14 | 1 | | Sand; v. fine to fine; It. tan | | ☐ YES | 🗖 NO | |
| | 27 | 28 | 1 | | | Claystone to siltstone; dry | | ☐ YES | 🗖 NO | |
| 2 | | | | | | | | 🗖 YES | □ NO | |
| WE | | | | | | | | T YES | 🗆 NO | |
| - OF | | | | | | | | T YES | D NO | |
| FOC | | | | | | | | T YES | 🗖 NO | |
| GEOLOGIC LOG OF WELL | | | | | | | | The Yes | 🗖 NO | |
| OILO | | | | | | | | T YES | 🗖 NO | |
| GE | | | | | | | | ☐ YES | 🗖 NO | |
| 9 | | | | | | | | 🗖 YES | 🗖 NO | |
| | | | | | | | | ☐ YES | D NO | |
| | | | | | | | | ☐ YES | □ NO | |
| | | | | | | | | T YES | 🗖 NO | |
| | | | | | | | | ☐ YES | □ NO | |
| | | | | | | | | T YES | 🗖 NO | |
| | | | ATTACH | ADDITION | AL PAGES AS NE | EDED TO FULLY DESCRIBE THE GEOLOGIC | LOG OF THE WELL | | | |
| FO | 12/2017 1 | mpam | METHOD: | 🗌 BAILE | R DPUMP | AIR LIFT OTHER – SPECIFY: | | | | |
| | WELL | TEST | | | | ATA COLLECTED DURING WELL TESTING, II AND DRAWDOWN OVER THE TESTING PERIC | | ME, END TI | ME, | |
| 7. TEST & ADDITIONAL D | ADDITION | IAL STATEN | MENTS OR EXPL | ANATIONS: | | | | | | |
| SIGNATURE | CORREC | T RECOR | D OF THE AB | OVE DESCI | RIBED HOLE ANI | ST OF HIS OR HER KNOWLEDGE AND BELIED D THAT HE OR SHE WILL FILE THIS WELL RE ON OF WELL DRILLING: 05/20/09 | | | | |
| 8. SI | | | SIGNATUR | E OF DRILI | LER | DATE | | | | |
| | · · · · | ana a | · · · · · · · · · · · · · · · · · · · | | | - | | | | |

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

| FILE NUMBER | POD NUMBER | TRN NUMBER | |
|-------------|------------|------------|-------------|
| LOCATION | | | PAGE 2 OF 2 |



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

| - | POD NUMI | BER (WEL | LL NU | IMBER) | | ····· | ····· | <u></u> | | OSE FILE NUM | MBER(S) | <u> </u> | · | |
|---------------------------|-----------|---------------|---------------|------------------------------------------|--------|----------------|-----------------|-----------|-------------------|---------------------------------------|--------------------------------|---------------|---------------------------------------|-------------------|
| 0 | | | | | | | | | | CP 1017 | | | | |
| CAT | WELL OW | | | | | | | | | PHONE (OPTI | | | | |
| ΤŎ | | | | | ontac | t: Mr. Joe C | Carrillo, Plan | t Man | ager | 545-394-2 | 2511 | | | |
| II | WELL OW | | | ADDRESS | | | | | | CITY | | STATE | 0.0 | ZIP |
| M | 1001 6t | n Stre | ei. | | | | | | | Eunice | | NM | 88 | 231 |
| | WELI | , [| | · · · · | DI | EGREES | MINUTES | SECO | NDS | | | | | |
| F | LOCATI | ON | LAT | ITUDE | | 32 | 26 | 4 | 9.80 N | * ACCURACY | REQUIRED: ONE TH | ENTH OF A SEC | COND | |
| GENERAL AND WELL LOCATION | (FROM C | PS) | LON | IGITUDE | | 103 | 5 | 5 | 1.70 ^W | * DATUM REG | QUIRED: WGS 84 | | | |
| N N | DESCRIPT | ION REL | ATIN | G WELL LOCAT | ION TO |) STREET ADDRE | ESS AND COMMO | N LANDM | IARKS | · · · · · · · · · · · · · | | <u></u> | | |
| - | | | | | | | | | | | | | | |
| | <u></u> | | | | | | | | | | | | · · · · · · · · · · · · · · · · · · · | |
| | (2.5 ACI | RE) | | (10 ACRE) | | (40 ACRE) | (160 ACR | E) | SECTION | | TOWNSHIP | NORTH | RANGE | EAST |
| AL | | /4 | SI | N 1/4 | N | JW 1/4 | SE 1 | 4 | | 30 | 21 | south | 38 | west |
| OPTIONAL | SUBDIVISI | | | | | | | | LOT NUM | IBER | BLOCK NUMBER | | UNIT/TRA | CT |
| T | | .ea Co | | - | | | | | | | | | | |
| 5 | HYDROGR | APHIC SU | URVE | ĊΥ | | | | | | | MAP NUMBER | | TRACT NU | MBER |
| | | | | | | | | | | | | | | |
| | LICENSE N | UMBER | | NAME OF LIC | ENSED | DRILLER | | | | · · · · · · · · · · · · · · · · · · · | NAME OF WELL I | DRILLING CON | MPANY | <u> </u> |
| | WE |)225 | | John Agui | rre | | | | | | Rodgers & C | Co., Inc. | | |
| | DRILLING | | D | DRILLING EN | | DEPTH OF COM | IPLETED WELL (F | T) | | LE DEPTH (FT) | DEPTH WATER F | IRST ENCOUN | TERED (FT) | |
| Z | 4/2 | 0/09 | | 4/21/09 |) | | | | | 150 | | | | |
| VIIC | | | | | | | | | ., | | STATIC WATER 1 | EVEL IN COM | IPLETED WEI | L (FT) |
| SMA | COMPLET | ED WELL | JIS: | ARTESIA | N | DRY HOLE | E SHALLO | W (UNCO | ONFINED) | | | | | |
| FOI | DRILLING | FLUID: | | AIR | | MUD | ADDITI | √ES – SPE | ECIFY: | | | | | |
| 3. DRILLING INFORMATION | DRILLING | METHO | D: | ROTARY | | HAMMER | CABLE | rool | OTHE | ER – SPECIFY: | | | | |
| ĊIŇ | רקדת | 'H (FT) | 1 <u>1</u> 21 | BORE HOI | | | CASING | <u></u> | T | | | C. CDI | OWLIL | |
| RILI | FROM | TO | , | DIA. (IN | | | IATERIAL | | 1 | NECTION (CASING) | INSIDE DIA. CASING (IN) | | G WALL NESS (IN) | SLOT SIZE (IN) |
| 3. DI | | 10 | | | , | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | ···· | | | | |
| | DDDG | | | L | | | | | | | | | | |
| ¥ | FROM | TH (FT) TO | | THICKNES (FT) | SS | F | | | | | 'ATER-BEARING R FRACTURE ZO | | | YIELD (GPM) |
| LAT | FROM | 10 | | (17) | | | | | | | | ///LO) | | (0111) |
| STI | | | | | | | | | | | | | | |
| BC | | | | | | | | | | | | | | |
| AR | | | | | | | | | | | | | | |
| 4. WATER BEARING STRATA | | | | | | | | | | | | | | |
| TER | | | | | | | | | | ···· · · · · · · | 1 | | | |
| WA | METHOD | JSED TO | ESTL | MATE YIELD OF | WATE | ER-BEARING STR | ATA | | | | TOTAL ESTIMAT | ED WELL YIE | LD (GPM) | |
| 4 | | | | | | | | | | <u></u> | | | | |
| | <u></u> | | | an a | | | ······ | | | | * 2 2 2 | | | |
| | FOR OS | | NA | L USE | | | | | | | | ORD & LOO | G (Version 6 | /9/08) |
| | FILE NU | | | | | | POD | NUMBI | ER. | | TRN NUME | BER | | |
| | LOCATI | ON | | | | | | | | | | | PAGE 1 | OF 2 |

| JMP | TYPE OI | F PUMP: | U SUBMER | | ☐ JET ☐ CYLINDER | ☐ NO PUMP – WELL NOT EQUIPPED ☐ OTHER – SPECIFY: | | | |
|--------------------------|-----------------------|----------|---------------|--------------|------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------|--------------|
| SEAL AND PUMP | ANNU SEAL GRAVE | AND | DEPTH FROM | I (FT) TO | BORE HOLE DIA. (IN) | MATERIAL TYPE AND SIZE | AMOUNT (CUBIC FT) | METHO PLACE | |
| vi | | | | | | | | | |
| | DEPTI | H (FT) | THICK | NESS | | COLOR AND TYPE OF MATERIAL ENCOUNT | FRED | WAT | |
| | FROM | ТО | (FT | | | UDE WATER-BEARING CAVITIES OR FRACT | | BEAR | |
| | 0 | 6 | 6 | | | Sand; fine; reddish tan; s. moist | | T YES | 🗌 NO |
| | 6 | 11 | 5 | 5 | | Sand; silty fine; reddish tan; s. moist t | o dry | T YES | 🗆 NO |
| | 11 | 14 | 3 | | | Caliche; white to pinkish tan | | □ YES | 🗖 NO |
| | 14 | 39 | 25 | | Sand; sil | ty v. fine to fine; reddish tan w/grey le | nses; s. moist | □ YES | D NO |
| ELL | 39 | 150 | 11 | 1 | | Claystone to siltstone; dry | | □ YES | □ NO |
| F W] | | | | | | | | T YES | |
| 0 0 | | | | | | | | VES | |
| CLC | | | | | | | | YES | □ NO □ NO |
| 6. GEOLOGIC LOG OF WELL | | | | | | | | T YES | |
| EOI | | | | | | | | | □ NO |
| .9 | | | | | | | | VES | □ NO |
| | | | | | | | | T YES | 🗖 NO |
| | | | | | | | | T YES | 🗆 NO |
| | | | | | | | | TYES | 🗆 NO |
| | | | | | | | | T YES | NO. |
| | | | | | | | | T YES | NO 🗌 NO |
| | tani dalahiri | | ATTACH | ADDITION | AL PAGES AS NE | EEDED TO FULLY DESCRIBE THE GEOLOGIC | LOG OF THE WELL | | |
| FO | | mpom | METHOD: | BAILE | R 🗌 PUMP | AIR LIFT OTHER – SPECIFY: | | | |
| 7. TEST & ADDITIONAL INI | WELL | TEST | | | | DATA COLLECTED DURING WELL TESTING, AND DRAWDOWN OVER THE TESTING PERI | | ME, END TI | ME, |
| NOL | | | IENTS OR EXPL | | | | in the second | | |
| LIQQ | MP-3. | Well gro | uted back f | to total de | pth; no water | encountered. | | | |
| & A | | | | | | | | | |
| EST | | | | | | | | | |
| 7. I | | | | | | | | | |
| | THEIN | DERSIGN | ED HEREBY (| CERTIFIES 7 | ΓΗΑΤ ΤΟ ΤΗΕ ΒΕ | ST OF HIS OR HER KNOWLEDGE AND BELII | F THE FOREGOING I | S A TRUE A | |
| SIGNATURE | CORREC | CT RECOR | D OF THE AB | OVE DESC | RIBED HOLE ANI | O THAT HE OR SHE WILL FILE THIS WELL RI ON OF WELL DRILLING: | | | |
| IGNA | | | | | | 05/20/09 | | | |
| s. S | | | SIGNATUR | E OF DRILI | LER | DATE | | | |

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

| FILE NUMBER | POD NUMBER | TRN NUMBER | |
|-------------|------------|------------|-------------|
| LOCATION | | | PAGE 2 OF 2 |



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

| GENERAL AND WELL LOCATION | POD NUMBER WELL OWNER Sundance WELL OWNER 1001 6th 3 | R NAME(S) e Servic |) ces, Inc.; Co | ntact: Mr. Joe C | arrillo, Plant Mar | nager | OSE FILE NUM CP 1018 PHONE (OPTIC 575-394-2 CITY Eunice | DNAL) | state NM | 88 | zip 231 |
|---------------------------|------------------------------------------------------------------|-----------------------|-------------------------------------------------------|----------------------|-----------------------------------|----------------------------|------------------------------------------------------------------------|----------------------------------------------------|--------------------|----------------------------------------------|-------------------|
| VERAL AND | WELL LOCATION (FROM GPS | | TITUDE | degrees 32 103 | 26 3 | onds 37.40 N 26.20 W | | REQUIRED: ONE TEN QUIRED: WG S 8 4 | TH OF A SEC | COND | |
| 1. GEI | DESCRIPTION | N RELATII | NG WELL LOCATIO | ON TO STREET ADDRES | SS AND COMMON LAND | MARKS | | | | <u> . </u> | |
| 2. OPTIONAL | (2.5 ACRE) NW ¼ SUBDIVISION in Lea HYDROGRAP | NAME a Coun | - | (40 ACRE) SW 1/4 | (160 ACRE) SW 1/4 | SECTION | 30 ^{MBER} | TOWNSHIP 21 BLOCK NUMBER MAP NUMBER | □ NORTH ✓ SOUTH | RANGE 38 UNIT/TRAG | |
| | LICENSE NUN WD2 DRILLING ST. 4/24/ | 25 TARTED | NAME OF LICE John Aguir DRILLING ENE 4/24/09 | DED DEPTH OF COM | PLETED WELL (FT) | BORE HO | LE DEPTH (FT) 60 | NAME OF WELL DR Rodgers & Co DEPTH WATER FIR | o., Inc. | TERED (FT) | |
| DRILLING INFORMATION | COMPLETED DRILLING FL | | ARTESIAN | DRY HOLE | ADDITIVES – SF | | | STATIC WATER LE | vel in com N/A | | L (FT) |
| NI ĐN | DRILLING ME | | ROTARY | HAMMER | CABLE TOOL | ОТНЕ | ER – SPECIFY: | Hollow stem au | ıger | | |
| RUL | DEPTH FROM | (FT) TO | BORE HOL DIA. (IN) | | CASING ATERIAL | | NECTION (CASING) | INSIDE DIA. CASING (IN) | | G WALL IESS (IN) | SLOT SIZE (IN) |
| 3. D | 0 50 | 50 60 | 10.75 10.75 | | /C casing /C screen | | hread joint hread joint | 2 | | 0 PVC 0 PVC | 0.010 |
| | | | | | | | | | | | |
| (ATA | DEPTH FROM | ТО | THICKNES (FT) | S FC | ORMATION DESCRI (INCLUDE WATEI | R-BEARING | CAVITIES O | R FRACTURE ZON | | | YIELD (GPM) |
| 4. WATER BEARING STRATA | 45 | 60 | 15 | | | | to siltstone; | ary | | | |
| 4. WATER J | METHOD USF N/A | ED TO EST | IMATE YIELD OF | WATER-BEARING STRA | ATA | | | TOTAL ESTIMATEI | d well yiei N/A | | |
| | FOR OSE I | | AL USE | | POD NUME | 2FR | | WELL RECO | | (Version 6) | /9/08) |
| | LOCATION | | | | | | | | | PAGE 1 | OF 2 |

| 45 60 15 Claystone to siltstone; dry [] | METHOI PLACEM | DOF |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------|
| V 40 40 10.75 Definition points 1.2 V 48 60 10.75 silica sand 7.2 DEPTH (FT) THICKNESS COLOR AND TYPE OF MATERIAL ENCOUNTERED 7.2 FROM TO (FT) COLOR AND TYPE OF MATERIAL ENCOUNTERED 7.2 0 45 45 Sand; silty v. fine to fine; it. buff to pinkish tan; dry I 45 60 15 Claystone to siltstone; dry I 45 60 15 Claystone to siltstone; dry I 10 45 45 Sand; silty v. fine to fine; it. buff to pinkish tan; dry I 45 60 15 Claystone to siltstone; dry I 45 60 15 Claystone to siltstone; dry I 10 45 45 Sand; silty v. fine to fine; t. I I 45 60 15 Claystone to siltstone; dry I I 10 45 45 5 10 10 10 1 | | DOF |
| V 40 40 10.75 Definition points 1.2 V 48 60 10.75 silica sand 7.2 DEPTH (FT) THICKNESS COLOR AND TYPE OF MATERIAL ENCOUNTERED 7.2 FROM TO (FT) COLOR AND TYPE OF MATERIAL ENCOUNTERED 7.2 0 45 45 Sand; silty v. fine to fine; it. buff to pinkish tan; dry I 45 60 15 Claystone to siltstone; dry I 45 60 15 Claystone to siltstone; dry I 10 45 45 Sand; silty v. fine to fine; it. buff to pinkish tan; dry I 45 60 15 Claystone to siltstone; dry I 45 60 15 Claystone to siltstone; dry I 10 45 45 Sand; silty v. fine to fine; t. I I 45 60 15 Claystone to siltstone; dry I I 10 45 45 5 10 10 10 1 | FLACEIVI | |
| V 40 40 10.75 Definition points 1.2 V 48 60 10.75 silica sand 7.2 DEPTH (FT) THICKNESS COLOR AND TYPE OF MATERIAL ENCOUNTERED 7.2 FROM TO (FT) COLOR AND TYPE OF MATERIAL ENCOUNTERED 7.2 0 45 45 Sand; silty v. fine to fine; it. buff to pinkish tan; dry I 45 60 15 Claystone to siltstone; dry I 45 60 15 Claystone to siltstone; dry I 10 45 45 Sand; silty v. fine to fine; it. buff to pinkish tan; dry I 45 60 15 Claystone to siltstone; dry I 45 60 15 Claystone to siltstone; dry I 10 45 45 Sand; silty v. fine to fine; t. I I 45 60 15 Claystone to siltstone; dry I I 10 45 45 5 10 10 10 1 | Trem | nie |
| DEPTH (FT) THICKNESS COLOR AND TYPE OF MATERIAL ENCOUNTERED FROM TO (FT) (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES) 0 45 45 Sand; silty v. fine to fine; It. buff to pinkish tan; dry [] 45 60 15 Claystone to siltstone; dry [] 45 60 15 Claystone to siltstone; dry [] 1 | Tremie | |
| FROM TO (FT) (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES) 0 45 45 Sand; silty v. fine to fine; It. buff to pinkish tan; dry [] 45 60 15 Claystone to siltstone; dry [] 45 60 15 Claystone to siltstone; dry [] 1 | Trem | nie |
| O 45 45 Sand; silty v. fine to fine; lt. buff to pinkish tan; dry I 45 60 15 Claystone to siltstone; dry I 1 1 1 I I 1 1 1 I I 1 1 1 I I 1 1 1 I I I 1 1 1 I I I I 1 1 1 1 I I I I 1 1 1 1 I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I <t< th=""><th>WATE BEARIN</th><th></th></t<> | WATE BEARIN | |
| 45 60 15 Claystone to siltstone; dry 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | ☐ YES | □ NO |
| Image: Second | | |
| Image: Second | | |
| Image: Second | | |
| Image: Second state of the second s | YES | □ NO |
| Image: Second state of the second s | T YES | 🗆 NO |
| Image: Second state of the second s | T YES | □ NO |
| Image: Second state of the second s | T YES | 🗆 NO |
| Image: Second state of the second s | 🔲 YES | 🗆 NO |
| Image: Second state of the second s | 🗖 YES | □ NO |
| Image: Second state of the second s | 🔲 YES | □ NO |
| Image: Second state of the second s | ☐ YES | □ NO |
| Image: Second state of the second s | □ YES | □ NO |
| ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL METHOD: BAILER PUMP AIR LIFT OTHER - SPECIFY: | T YES | 🗌 NO |
| ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL METHOD: METHOD: PUMP AIR LIFT OTHER - SPECIFY: | ☐ YES | □ NO |
| ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL METHOD: BAILER PUMP AIR LIFT OTHER - SPECIFY: | ☐ YES | 🗌 NO |
| METHOD: BAILER PUMP AIR LIFT OTHER - SPECIFY: WELL TEST BAILER PUMP AIR LIFT OTHER - SPECIFY: | ☐ YES | D NO |
| Se well test | | |
| | | |
| ADDITIONAL STATEMENTS OR EXPLANATIONS: MP-4. | ME, END TIM | ИE, |
| | | |
| | | |
| 1 × 1 × 0 × 0 × 1 × 0 × 0 × 0 × 0 × 0 × | | |
| | | |
| | | |
| | | |
| THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING: | | |
| 05/20/09 | | |
| SIGNATURE OF DRILLER DATE | | |

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

| FILE NUMBER | POD NUMBER | TRN NUMBER | |
|-------------|------------|------------|-------------|
| LOCATION | | | PAGE 2 OF 2 |



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

| GENERAL AND WELL LOCATION | well owner NA Sundance S well owner M | ervio | ces, Inc.; Co | ntact: Mr. Joe C | arrillo, | , Plant M | lanag | er | CP 1019 PHONE (OPTI 545-394-2 CITY | | STATE | | ZIP | |
|---------------------------|------------------------------------------------------------------|------------------|------------------------------------------|------------------------------------------------------------------------|------------------|-----------------------------------------|--------------|----------------------------------------------|---------------------------------------------|-------------------------------------|----------------|---------------------|-------------------|--|
| WEL | 1001 6th Str | reet | | | | | | | Eunice | | NM | 88 | 231 | |
| ERAL AND | WELL LOCATION (FROM GPS) | | TITUDE | DEGREES 32 103 | MINUT | | | | | REQUIRED: ONE TEN QUIRED: WGS 84 | TH OF A SEC | COND | | |
| 1. GEN | DESCRIPTION RI | ELATI | NG WELL LOCATIO | ON TO STREET ADDRE | SS AND C | COMMON LA | ANDMAI | RKS | | | | <u></u> | | |
| OPTIONAL | (2.5 ACRE) SW ½ SUBDIVISION NA in Lea C HYDROGRAPHIC | \$ | () N\ | 160 ACRE) № 1/4 | | SECTION | 30 IBER | TOWNSHIP 21 BLOCK NUMBER MAP NUMBER | NORTH | RANGE 38 UNIT/TRA | | | | |
| 2. | LICENSE NUMBE | | NAME OF LICE | NSED DRILLER | | | <u> </u> | | lan ang gara | NAME OF WELL DE | ULLING CON | TRACT NUMBER | | |
| N | WD225 DRILLING START 4/23/09 | PLETED | ED WELL (FT) BORE HOLE DEPTH (FT) 150 | | | | Rodgers & Co | | ITERED (FT) | | | | | |
| DRILLING INFORMATION | COMPLETED WE | | | DRY HOLE | | ADDITIVES – SPECIFY: | | | | STATIC WATER LE | VEL IN COM | PLETED WEI | LL (FT) | |
| G INF | DRILLING FLUID DRILLING METH | | AIR ROTARY | HAMMER | | CABLE TOO | | | ER – SPECIFY: | Hollow stem au | ıger | | | |
| . DRILLIN | DEPTH (FT FROM T | ") 'O | BORE HOL DIA. (IN) | | CASING ATERIA | SING CONNECTION TERIAL TYPE (CASING) | | | | INSIDE DIA. CASING (IN) | | G WALL NESS (IN) | SLOT SIZE (IN) | |
| 3. | | | | | | | | | | | | | | |
| RATA | DEPTH (FT FROM T | THICKNES (FT) | | MATION DESCRIPTION OF PRINCIPAL V (INCLUDE WATER-BEARING CAVITIES (| | | | | | <u> </u> | YIELD (GPM) | | | |
| 4. WATER BEARING STRATA | | | | | | | | | | | · · · | | | |
| ER BE | | | | | | | | <u></u> | | | | | | |
| 4. WAT | METHOD USED 1 | OEST | IMATE YIELD OF | WATER-BEARING STRA | ATA | | | | · · · · · · · · · · · · · · · · · · · | TOTAL ESTIMATE | O WELL YIE | LD (GPM) | | |
| | FOR OSE INTI | | AL USE | | | | MDEP | | | WELL RECO | | G (Version 6 | /9/08) | |
| | FILE NUMBER POD NUMBER TRN NUMBER | | | | | | | | | PAGE 1 | OF 2 | | | |

| JMP | TYPE O | F PUMP: | U SUBMER | | ☐ JET ☐ CYLINDER | ☐ NO PUMP WELL NOT EQUIPPED ☐ OTHER SPECIFY: | | ÷ | | | | |
|-------------------------|--------|-----------------------|-------------------|---------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------|-------------|--------------|--|--|--|
| . SEAL AND PUMP | SEAL | ULAR AND L PACK | DEPTF FROM | H (FT) TO | BORE HOLE DIA. (IN) | | | | | | | |
| ŝ | | | | | | | | | · | | | |
| | DEPT | H (FT) | THICK | NESS | С | OLOR AND TYPE OF MATERIAL ENCOUNT | ERED | WA | TER | | | |
| | FROM | ТО | (F) | Г) | (INCLU | DE WATER-BEARING CAVITIES OR FRACT | JRE ZONES) | BEAR | | | | |
| | 0 | 11 | 1. | 1 | | Sand; fine; reddish tan; s. moist | | | | | | |
| | 11 | 45 | 3 | 4 | Sand; silty v | /. fine to fine; It. pinkish cream to tan | ; dry to s. moist | ☐ YES | □ NO | | | |
| | 45 | 150 | 10 | 5 | | Claystone to siltstone; dry | | □ YES | □ NO | | | |
| | | | | | | | | T YES | □ NO | | | |
| SLLL . | | | | | | | | ☐ YES | □ NO | | | |
| F WH | | | | | | | | | □ NO | | | |
| 0 9 | | | | | | | | □ YES | | | | |
| 3 | | | | | | | | T YES | | | | |
| 6. GEOLOGIC LOG OF WELL | | | 1 | | | | | ☐ YES | □ NO □ NO | | | |
| EOL | | | | | | | | TES VES | | | | |
| 6.6 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | · | □ YES | □ NO | | | |
| | | | | | | | | ☐ YES | 🗌 NO | | | |
| | | | | | | | | ☐ YES | D NO | | | |
| | | | ATTACH | ADDITION | IAL PAGES AS NEE | EDED TO FULLY DESCRIBE THE GEOLOGIC | LOG OF THE WELL | | | | | |
| | | <u> </u> | METHOD: | BAILE | R 🗌 PUMP | AIR LIFT OTHER – SPECIFY: | <u>, , , , , , , , , , , , , , , , , , , </u> | | | | | |
| AL INFO | WELL | L TEST | | | | ATA COLLECTED DURING WELL TESTING, ND DRAWDOWN OVER THE TESTING PERI | | IME, END TI | ME, | | | |
| 7. TEST & ADDITIONAL IN | | | MENTS OR EXPL | | epth; no water e | ncountered. | | | | | | |
| SIGNATURE | CORREC | CT RECOR | D OF THE AB | OVE DESC | RIBED HOLE AND | T OF HIS OR HER KNOWLEDGE AND BELIF THAT HE OR SHE WILL FILE THIS WELL RI N OF WELL DRILLING: | | | | | | |
| NDE. | | | | | | 05/20/09 | | | | | | |
| 8 S | | | SIGNATUR | E OF DRIL | LER | DATE | | | | | | |
| | · | | The second second | · · · · · · · · · · · · · · · · · · · | | | | | | | | |

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

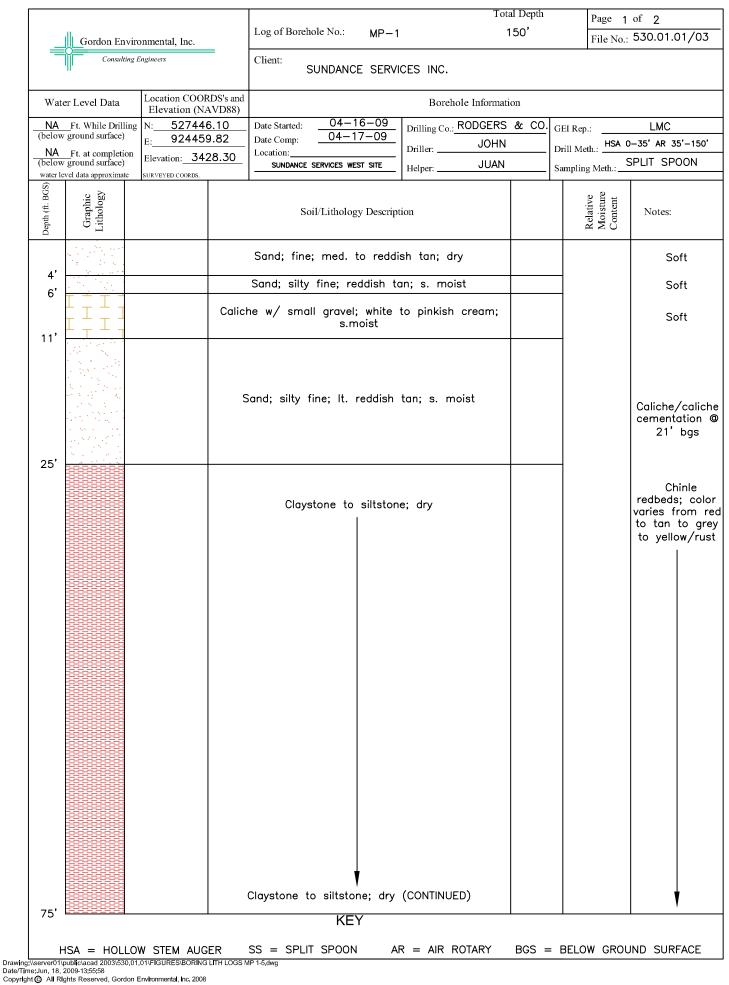
| FILE NUMBER | POD NUMBER | TRN | I NUMBER | |
|-------------|------------|-----|----------|-------------|
| LOCATION | | | | PAGE 2 OF 2 |

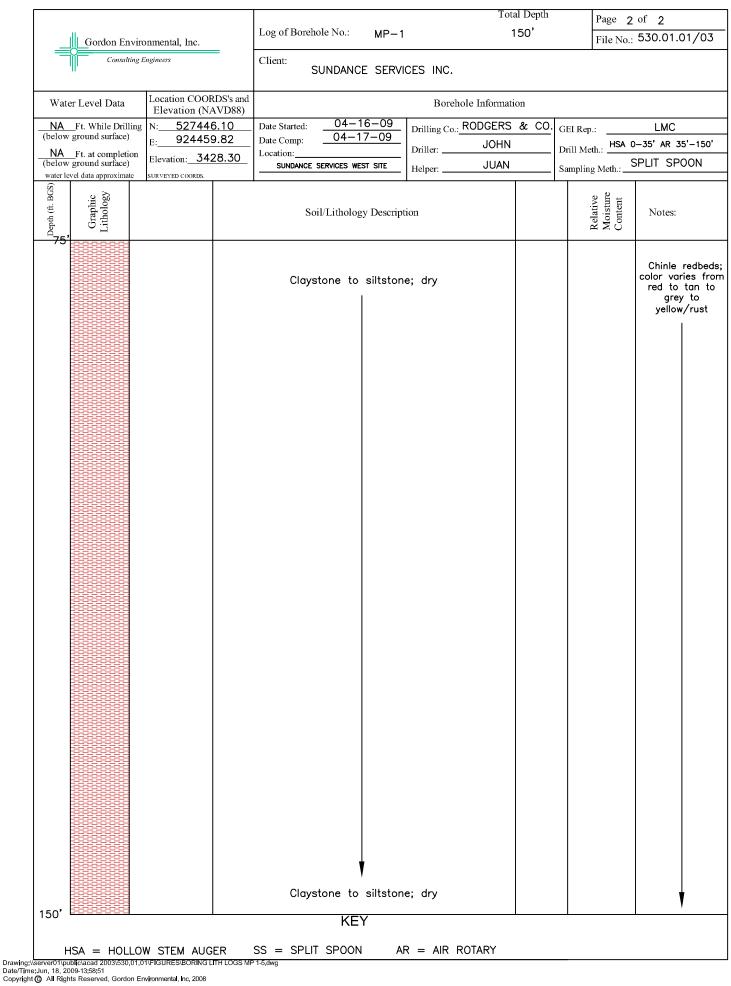
COMPLETION REPORT DRILLING, SAMPLING, AND MONITORING WELL INSTALLATION

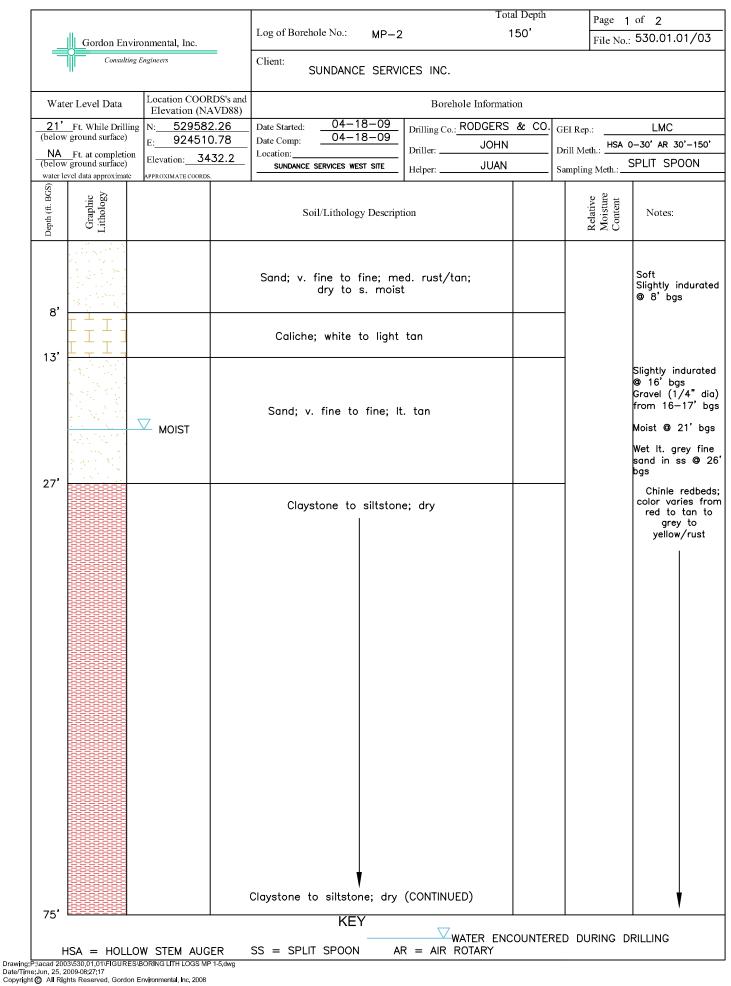
SUNDANCE SERVICES, INC. LEA COUNTY, NEW MEXICO

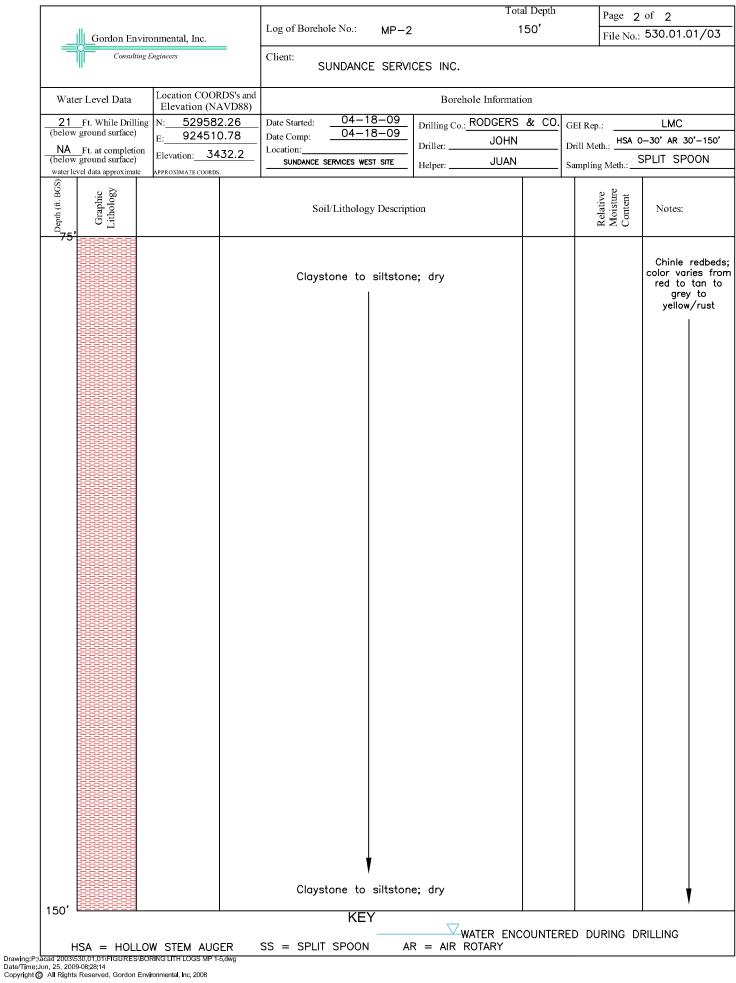
ATTACHMENT C

BORING LOGS FOR BORINGS MP-1 THROUGH MP-5









| 1 | Gordon Enviro | onmental, Inc. | Log of Borehole No.: MP- | | l Depth 50' | Page 1 File No. | of 2 : 530.01.01/03 | | | | |
|-----------------|--------------------------------------|---------------------------------------------|----------------------------------------------------------------------|---------------------------------------------|-----------------------------|---------------------------------|-------------------------------------------------------------|--|--|--|--|
| | Consulting E | Engineers | Client: SUNDANCE SERV | /ICES INC. | | | | | | | |
| Wate | r Level Data | Location COORDS's and Elevation (NAVD88) | | Borehole Information | | | | | | | |
| NA | _Ft. While Drilling | N: 528611.24 | Date Started: 04-21-09 | & CO. _G | GEI Rep.: LMC | | | | | | |
| | ground surface) Ft. at completion | E: 922630.93 | Date Comp: 04-21-09 | Driller: JOHN | D | rill Meth.: HSA | 0-40' AR 40'-150' | | | | |
| (below | ground surface) | Elevation: 3417.99 surveyed coords. | SUNDANCE SERVICES WEST SITE | | Sampling Meth.: SPLIT SPOON | | | | | | |
| Depth (ft. BGS) | Graphic Lithology | | Soil/Lithology Descrip | otion | I | Relative Moisture Content | Notes: | | | | |
| 6' | | | Sand; fine; reddish tar | ; s. moist | | | Soft dune sand well sorted | | | | |
| | | Sa | and; silty fine; reddish tan; | l; silty fine; reddish tan; s. moist to dry | | | | | | | |
| 11' 14' | | | Caliche; white to pin | kish tan | | | Variable hard a soft | | | | |
| 39' | | San | Sand; silty v. fine to fine; reddish tan w/ grey lenses; s. moist | | | | Variable minor gravel Chinle redbeda | | | | |
| | | | Claystone to siltstone; dry | | | | color varies fro red to tan to grey to yellow/rust | | | | |
| 75' | | | KEY | ······ | | | | | | | |
| | | | | | | | | | | | |

| | | | | | | | Tota | l Depth | | Page 2 | of 2 | |
|--------------------------------------------------------------------|-------------------------------------------|------|----------------------------|-------------|------------------------|--------------|----------------|---------|---------|---------------------------------|---------------------------------------------------|--------------------------|
| Gordon Envira | onmental, Inc. | | Log of Bore | hole No.: | MP-3 | | 1 | 50' | | | 530.01.0 | 01/03 |
| Consulting | | = | Client: | SUNDANC | E SERVI | CES INC. | | | | I | | |
| Water Level Data | Location COORI Elevation (NA | | | | | Borel | hole Informati | on | | | | |
| NA Ft. While Drilling (below ground surface) | | | Date Started: | 04-2 | 21 <u>-09</u> 21-09 | Drilling Co. | : RODGERS | & CO. | GEI R | ep.: | LMC | |
| NA Ft. at completion | E: 922630 | | Date Comp: Location: | | 21-09 | Driller: | JOHN | | Drill M | 1eth.: HSA C | 0-40' AR 4 | 0'-150' |
| (below ground surface) water level data approximate | Elevation: <u>341</u> surveyed coords. | 7.99 | | SERVICES WE | est site | Helper: | JUAN | | | ing Meth.: | SPLIT SP | NOC |
| Craphic Craphic (fr. BGS) | BORVETED COORDS. | | Soil/Lithology Description | | | ion | | 1 | | Relative Moisture Content | Notes: | |
| | | | | stone to | | | | | | Rei. Moi | Chinle r color var red to grey yellow | ies from tan to to |
| | | | Clay | stone to | siltston | e; dry | | | | | , | I |
| 150' | | | | KE | Y | | | | | | | |
| HSA = HOLLO | W STEM AUGE | R | SS = SPLI | IT SPOON | N AF | r = AIR | ROTARY | | | | | |
| g \\server01\public\acad 2003\530.01 ime:Jun. 18, 2009-14:10:40 | | | | | | | | | | | | |

Drawing:\\server01\public\acad 2003;530.01.01\FIGURES\BORING Date/Time;Jun, 18, 2009-14;10:40 Copyright @ All Rights Reserved, Gordon Environmental, Inc, 2008

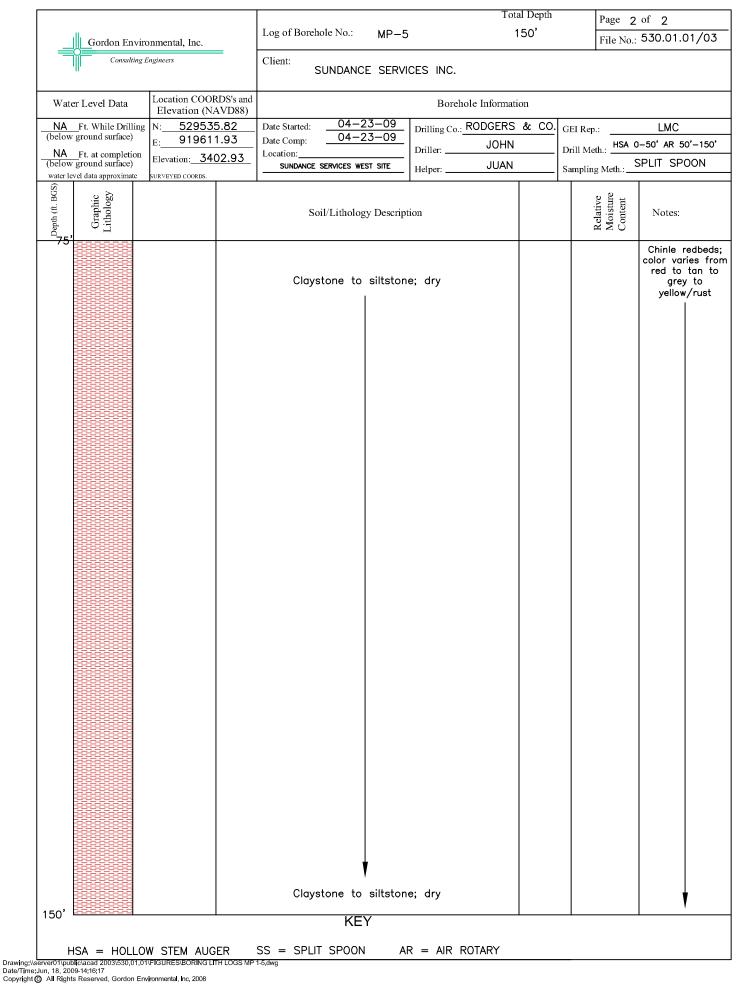
| Gordon Envir | onmental, Inc. | Log of Borehole No.: MP-4 | | al Depth 50' | | Page 1 File No.: | of 2 530.01.01/03 |
|--------------------------------------------------------|-----------------------------------------------|-------------------------------------------------|--------------------------------------|-----------------|-----------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Engineers | Client: SUNDANCE SERVI | CES INC. | | | | |
| Water Level Data | Location COORDS's and Elevation (NAVD88) | | Borehole Informati | on | | | |
| 47&56 Ft. While Drilling | N: 527183.88 | Date Started: 04-22-09 | Drilling Co.: RODGERS | & CO. | GEI Rep.: | | LMC |
| (below ground surface) NA Ft. at completion | E: 919459.02 | Date Comp: 04-22-09 Location: | Drill Meth.: HSA 0-35' AR 35'-150' | | | | |
| (below ground surface) water level data approximate | Elevation: <u>3384</u> | SUNDANCE SERVICES WEST SITE | Helper: JUAN | | Sampling | | SPLIT SPOON |
| | APPROXIMATE COORDS. | | | | | 6 | |
| Depth (ft. BGS) Graphic Lithology | | Soil/Lithology Descrip | tion | | Relative | Moisture Content | Notes: |
| 45' | | Sand; silty v. fine to buff to pinkish tan | fine; It. ; dry | | | | Variable caliche/caliche cementation from 0 – 15' bgs |
| | | Claystone to siltston | | | | | Chinle redbeds; color varies from red to tan to grey to yellow/rust Moist v. fine to fine sand zones from 47-48' and 56-58' bgs |
| 75' | I | KEY | | | | | , , |
| | W STEN ALLOED | | ∇ WATER ENC R = AIR ROTARY | OUNTER | ED DUF | ring d | RILLING |
| | W STEM AUGER FIGURES\BORING LITH LOGS MP 1 | | | | | | |

Drawing:\\server01\public\acad 2003;530.01.01\FIGURES\&ORING Date/Time;Jun, 18, 2009-14;11:26 Copyright ② All Rights Reserved, Gordon Environmental, Inc, 2008

| | | | | | | Total Depth | | Page 2 | of 2 | | |
|--------------------|--------------------------------------|---------------------|----------|-----------------------|------------|----------------|---------------|--------|---------------------------------------|-----------------------|---------------------|
| | .11. | | | Log of Borehole No.: | MP-4 | | 150' | | Page 2 of 2 File No.: 530.01.01/03 | | |
| | Gordon Enviro | onmental, Inc. | _ | | -4 -4 | | .00 | | File No.: | 530.01.0 | 51/03 |
| | Consulting E | ingineers | - | Client: | | | | | | | |
| | н | | | SUNDANCE | - SERVI | CES INC. | | | | | |
| | | Location COOR | DS's and | | | | | | | | |
| Wate | er Level Data | Elevation (NA | | | | Borehol | e Information | | | | |
| | Ft. While Drilling | N: 527183 | | Date Started: 04-2 | | Drilling Co. R | ODGERS & CO. | GEI Re | p.: | LMC | |
| | ground surface) | E: 919459 | | Date Comp: 04-2 | 2–09 | | | - K | , HSA C | –35' AR 3 | 5'-150' |
| NA | Ft. at completion ground surface) | | 84 | Location: | | Driller: | | | · · · · · · | SPLIT SP | |
| water lo | vel data annroximate | APPROXIMATE COORDIN | | SUNDANCE SERVICES WES | SITE | Helper: | JUAN | Sampli | ng Meth.: | л LII 31 ⁴ | |
| Depth (ft. BGS) | | · | | | | • | | | <u>د</u> ه . | | |
| ft. B | Graphic Lithology | | | 0 1/1 4 1 | р · , | | | | Relative Moisture Content | | |
| pth (| Grag | | | Soil/Litholog | y Descript | 1011 | | | tela Aois Cont | Notes: | |
| - ⁶ 75' | | | | | | | | | 2 Z U | | |
| /3 | | | | | | | | | | Chinle i | edbeds; |
| | | | | | | | | | | color vai | ries from tan to |
| | | | | Claystone to | siltston | e; dry | | | | grey | /to |
| | | | | 1 | | | | | | yellow | /rust |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | 1 | | | | | | |
| | | | | | | | | | | | |
| | | | | Claystone to | siltston | e; dry | | | | 1 | |
| 150' | | | | | , | | | | | | |
| | | | | KEY | ſ | ∇ | | | | | |
| | 104 | N OTEN | -0 | | | WA WA | TER ENCOUNTER | ED D | URING D | RILLING | |
| | HSA = HOLLOV | | | SS = SPLIT SPOON | Al | R = AIR RC | TART | | | | |

Drawing:\\server01\public\acad 2003;530.01.01\FIGURES\BORING Date/Time;Jun, 18, 2009-14;12:10 Copyright @ All Rights Reserved, Gordon Environmental, Inc, 2008

| | Gordon Enviro | onmental, Inc. | Log of Borel | hole No.: MP-5 | | 150' | | | of 2 530.01.01/03 | | | |
|-----------------|---------------------------------------|-----------------------------------------|-------------------------|------------------------------------------------------------------------|---------------|-----------|-----------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| _ | Consulting E | ingineers | Client: | SUNDANCE SERVI | CES INC. | | | | | | | |
| Wate | er Level Data | Location COORDS's a Elevation (NAVD8 | and 8) | | Borehole In | formation | | | | | | |
| NA | Ft. While Drilling ground surface) | N: 529535.82 | Date Started: | Date Started: 04-23-09 Drilling Co.: RODGERS & CO. | | | | | GEI Rep.: LMC | | | |
| NA | Ft. at completion | E: 919611.93 Elevation: 3402.93 | Date Comp: Location: | 04-23-09 | Driller: | IOHN | Drill Meth.: HSA 0-50' AR 50'-150 | | | | | |
| (below | ground surface) | SURVEYED COORDS. | SUNDANCE | SERVICES WEST SITE | Helper: | JUAN | Sampling Meth.:SPLIT_SPOON | | | | | |
| Depth (ft. BGS) | Graphic Lithology | | Se | Soil/Lithology Description | | | | | Notes: | | | |
| 11' | | | Sand; fi | ine; reddish tan; | s. moist | | | | Soft dune sand well sorted Dry and s. indurated @ 8' bgs | | | |
| 45' | | S | and; silty v. t ta | l; silty v. fine to fine; It. pinkish cream to tan; dry to s. moist | | | | | Variable caliche/caliche cementation Gravel to 1" di @ 35' bgs | | | |
| | | | | stone to siltston | | | | | Chinle redbed color varies fr red to tan to grey to yellow/rust S. moist v. fi to fine sand zone from 55–60' bgs | | | |
| 75' | | | | | | | | | | | | |
| | | | | KEY | | | | | | | | |
| н | | N STEM AUGER | SS = SPLI | T SPOON A | R = AIR ROTAF | YY | | | | | | |



COMPLETION REPORT DRILLING, SAMPLING, AND MONITORING WELL INSTALLATION

SUNDANCE SERVICES, INC. LEA COUNTY, NEW MEXICO

ATTACHMENT D

BORING LOGS FOR BORINGS MP-2P AND MP-4P

| | Gordon Enviro | nmental, Inc. | | Log of Borehole N | io.: MP-2 | Р | | 28' | | 1 of 1 _{io.:} 530.01.01 | |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------------|---------------------------------------------------------------|---------------------------------------|-------------------------------------|-------------------------|-----|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--|
| | Consulting E | ngineers | = | Client: SUNE | DANCE SERV | CES INC. | | | | | |
| Water | Level Data | Location COOR Elevation (NA | | Borehole Information | | | | | | | |
| (below g 27.48 (below g | round surface) Ft. at completion round surface) | N: <u>529615</u> E: 924510 Elevation: <u>343</u> | 5. <u>38</u>).99 | | 04-19-09 04-19-09 xes west site | Drilling Co. Driller: Helper: | RODGERS JOHN JUAN | | O. GEI Rep.: LMC Drill Meth.: HSA 0-2 Sampling Meth.: SPLIT | | |
| water leve Depth (ft. BGS) | Graphic Graphic Lithology Lithology | SURVEYED COORDS. | I | Soil/Li | hology Descrip | | | | Relative Moisture Content | | |
| 8' | | | | Sand; v. fine dry | to fine; me to s. mois | ed. rust/t t | an; | | | Soft Slightly indu @ 8' bgs | |
| | | | | Caliche; white to light tan Sand; v. fine to fine; It. tan | | | | | | | |
| 13' | 500000 | Z MOIST | | | | | | | | Slightly indu @ 16' bgs Gravel (1/4' from 16–17 Moist @ 21' Wet It. grey sand in ss bgs | |
| | | | | | | | | | | red to ta grey ta yellow/ru | |
| В | SURVEYED COORDINATES (5-2009) BOREHOLE NORTHING EASTIN MP-2P RIM 529615.38 924510. CASING 529615.26 924510. CONCRETE 529615.60 924511. | | | 9 3436.51 8 3435.90 | | | | | | | |
| | ∇ | WATER LEVE | EL AFTE | R COMPLETION | KEY | \bigtriangledown | | | ED DURING | | |

| | Gordon Enviro | nmental Inc | Log of Borehole No.: | MP-4 | P | Total Depth 60' | | Page 1 of 1 File No.: 530.01.01/03 | | |
|------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------|----------|-----------------------------------------|-----------------------------|-----------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|
| = | Consulting E | | Client: SUNDANCE | SERVI | CES INC. | | | | | |
| Wate | r Level Data | Location COORDS's and | | | Borehole | Information | | | | |
| (below NA (below | _Ft. While Drilling ground surface) _Ft. at completion ground surface) | Elevation (NAVD88) N: 527183.88 E: 919489.02 Elevation: 3384.62 SURVEYED COORDS. | Date Started: 04-24 Date Comp: 04-24 Location: | -09 | Drilling Co.: RC Driller: Helper: | DGERS & CO. JOHN JUAN | GEI Re Drill M Sampli | leth.: | LMC HSA 0-60' SPLIT SPOON | |
| Depth (ft. BGS) | Graphic Lithology | SURVEYED COORDS. | Soil/Lithology | Descript | ion | | | Relative Moisture Content | Notes: | |
| | | | Sand; silty v. fi buff to pinkis | | | | | | Variable caliche/caliche cementation fror 0 – 15' bgs | |
| 45' 2.63' | | Z Z_5−01−09 Z | Claystone to s | siltston | e; dry | | | | Chinle redbeds color varies fro red to tan to grey to yellow/rust Moist v. fine to fine sand zone from 47-48' ar 56-58' bgs | |
| 60' | BOREHOLE MP-4P RIM CASING | OORDINATES (5-2009) NORTHING EAST 529615.38 9245 5 529615.26 9245 VETE 529615.60 9245 | 10.99 3387.56 10.78 3387.09 | | | | | | | |
| acad 2003 | SA = HOLLOV | 7 | KEY TR COMPLETION SS = SPLIT SPOON | | ∇ WAT | ER ENCOUNTE ARY | RED D | URING [| PRILLING | |