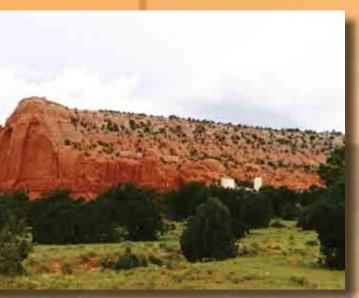
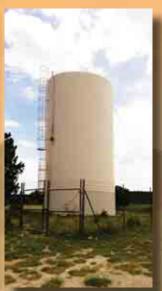


# Baca / Thoreau Water System Well Project

Navajo Nation, McKinley County, NM

November 2017









# Hydrogeologic Investigation Report

Prepared for:

Navajo Nation Water Management Branch PO Box 678 Fort Defiance, AZ 86504





November 17, 2017 #6922883

Mr. Jason John Navajo Nation Water Management Branch PO Box 678 Fort Defiance, AZ 86504

Subject: Hydrogeologic Investigation Report, Baca-Prewitt & Thoreau Navajo Chapter, McKinley

**County, New Mexico** 

Dear Mr. John:

Souder, Miller, & Associates (SMA) is pleased to submit this Hydrogeologic Investigation Report for the Baca-Thoreau Water System Well Project. The report summarizes the hydrology in the project area and provides recommendations for the location of a future water supply well.

SMA appreciates the opportunity to provide Engineering Services to the Navajo Nation. If you have any questions or comments concerning the report, please feel free to call me at 505.299.0942 or to email me at matthew.earthman@soudermiller.com.

Sincerely,

**SOUDER, MILLER & ASSOCIATES** 

Matthew A. Earthman, P.G.

**Project Geoscientist** 

Enclosure: Hydrogeologic Investigation Report

Cc w/ Enclosures:

Ms. Helena Shannon, District Engineer, Indian Health Services, Gallup, NM

Mr. David Shoultz, Principal Engineer, Navajo Tribal Utility Authority

Ms. Sharon Francisco, Baca/Prewitt Navajo Chapter

Mr. Lester Emerson, Thoreau Navajo Chapter

#### **TABLE OF CONTENTS**

1.0	INTRO	DUCTION AND BACKGROUND	1
1.1	Bac	a-Thoreau Water System Overview	1
1.2	Stat	ement of Problem	1
2.0	PROJE	CT APPROACH	2
3.0	GEOL	DGY AND SITE SETTING	2
3.1	Reg	ional Geology	2
3.2	Site	Setting	3
3.3	Loca	al Geology	3
3	.3.1	Cenozoic Units	4
3	.3.2	Mesozoic Units	4
3	.3.3 Pa	aleozoic Units	5
3.4	Geo	logical Structure	6
4.0	HYDRO	DLOGY	6
4.1	Upp	er Chinle Formation Aquifer	7
4.2	Son	sela Sandstone Member Aquifer	7
4	.2.1	Aquifer Characteristics	7
4	.2.2	Existing Wells & Infrastructure	7
4	.2.3	Water Quality	7
4.3	San	Andres & Glorieta Formation Aquifer	8
4	.3.1	Aquifer Characteristics	8
4	.3.2	Existing Wells & Infrastructure	8
4	.3.3	Water Quality	9
5.0	NEW \	WELL LOCATION EVALUATION	9
5.1	Wel	I Interference Assessment	0
5.2	Pote	ential Contaminant Source Inventory 1	1
6.0	CONC	LUSIONS & RECOMMENDATIONS	2
7.0	DEEED	ENCEC 1	2



#### LIST OF FIGURES

Figure 1. Vicinity Map of Baca-Thoreau Project Area

**Figure 2.** Aerial Photo of Thoreau Area with Existing Water Supply Wells

Figure 3. Geologic Map of Project Area

Figure 3a. Geologic Unit Descriptions & A-A' Geologic Cross Section of Project Area

**Figure 4.** Stratigraphic Section of Bedrock Units near Thoreau

**Figure 5.** Structural Contour Map of Sonsela Sandstone Formation

**Figure 6.** Structural Contour Map of San Andres/Glorieta Formation

**Figure 7.** Proposed Well Installation Areas near Thoreau

**Figure 8.** Proposed Well Site No. 3 Contaminant Inventory Map

#### **LIST OF TABLES**

**Table 1.** Summary of Municipal Supply Wells near Thoreau

**Table 2.** Summary of Well Data from NMOSE & USGS Database

**Table 3.** Summary of Water Quality Data from USGS Database

**Table 4.** Summary of Potential Contaminant Sources near Proposed Well Site 1

#### **APPENDICES**

**Appendix A.** Conceptual Well Design Diagram

**Appendix B.** Theis Equation Calculations

**Appendix C.** Tribal Well Information & As-Built Diagrams

**Appendix D.** NMOSE Well Logs & Information



#### HYDROGEOLOGIC INVESTIGATION REPORT

Baca-Thoreau Water System Well Project Navajo Nation, McKinley County, New Mexico

#### November, 2017

#### 1.0 INTRODUCTION AND BACKGROUND

Souder, Miller & Associates (SMA) has prepared this hydrogeologic investigation for the Water Management Branch and Baca-Prewitt Chapter of the Navajo Nation in order to address the findings of the Baca-Thoreau Preliminary Engineering Report (PER) prepared by SMA in April, 2016. This report was prepared to determine potential groundwater sources for the water system supplying the Thoreau and Baca-Prewitt Navajo Chapters (herein referred to as the Baca-Thoreau Water System) located approximately 35 miles southeast of Gallup within McKinley County, New Mexico. This system serves approximately 1,700 people (470 homes), and the community is projected to grow to a population of 2,500 people (700 homes) by 2035 (SMA, 2016). The project location map is illustrated on the vicinity map and aerial photo maps included as Figures 1 and 2, respectively. The 2015 water demand for the Baca-Thoreau system was approximately 103,000 gallons per day, and is expected to increase to 153,000 gallons per day by 2035.

#### 1.1 Baca-Thoreau Water System Overview

The Baca-Thoreau water distribution system is approximately 40-years old and utilizes two supply wells within the Thoreau Chapter which were built in the 1970's and 1980's. Currently, the wells are pumped for extended periods of time (more than the IHS maximum pumping standard of 12 hours/day) to meet the demands of the Baca-Thoreau Water System.

Water from the two wells is pumped through 4-inch and 6-inch diameter Polyvinyl Chloride (PVC) distribution lines and supplied to seven storage tanks within the service area. Six of the storage tanks are located proximal to the Thoreau Chapter, with a total storage capacity of approximately 237,000 gallons. One storage tank is located near the Baca Chapter with a storage capacity of 100,000 gallons.

#### 1.2 Statement of Problem

The main concern of the Baca/Prewitt Chapter, Thoreau Chapter, the Navajo Tribal Utility Authority (NTUA), and the Navajo Nation is the lack of an adequate water supply in the community. The Baca/Prewitt Chapter is currently being supplied through a regional interconnection with the adjacent Chapter of Thoreau water system. However, the regional



water system currently does not have adequate water supply from the two active wells in the Thoreau Chapter to supply the current demand of the combined Baca-Prewitt and Thoreau service areas. If one or both wells were to fail, it would result in an emergency shortage of water in the service area, and would pose a threat to the health, sanitation, and security of the residents of the service area. This would be particularly dangerous if the West Thoreau well, which supplies most of the water in the service area, failed.

A new water supply in the service area would reduce the risk of a water shortage emergency in the communities if either current well fails, and would provide a much-needed redundant source for the system.

#### 2.0 PROJECT APPROACH

SMA initiated the project by reviewing available literature and documents from existing wells and hydrologic investigations near the project area. Information that was compiled and reviewed included geologic maps and data, NTUA as-builts and well records, New Mexico Office of the State Engineer (NMOSE) well records data, personnel interviews, and New Mexico Bureau of Geology and United States Geological Survey (USGS) publications. Local water well drillers were also contacted to gain first-hand information on aquifer characteristics, water well production, depth, and locations. This information is summarized below with recommendations for the location and design of the proposed supply well.

#### 3.0 GEOLOGY AND SITE SETTING

#### 3.1 Regional Geology

The Baca-Thoreau Water System project area is located approximately 35 miles southeast of Gallup, New Mexico near the Interstate 40 corridor. The location of the project area is indicated on the topographic vicinity map included as Figure 1.

The project area is located within the southeast portion of the Colorado Plateau, a large geologic feature spanning portions of Arizona, Utah, New Mexico, and Colorado characterized by relatively continuous sedimentary rocks of Mesozoic age. These sedimentary rocks, composing the exposed, high cliffs in the areas around Gallup are typically continuous over large areas and in many cases, act as regional aquifers.

Although the project is in an area of relative stability, a major structural feature is located southwest of the project area. The Baca/Prewitt Chapter is located on the northwest boundary of the Zuni Uplift, a geologic feature resulting from the indention of a dense portion of crust



approximately 10 miles in diameter into the Colorado Plateau cratonic block (Chamberlin and Anderson, 1989). The collision of the denser material resulted in the deformation and uplift of the area spanning from just east of Gallup to south of Grants, known as the Zuni Uplift. The Zuni Uplift was thought to have occurred during the Eocene Epoch (55 to 35 million years ago), resulting in the deformation of Paleozoic and Mesozoic rock units. Several large-scale fold structures, with a general easterly dip, have resulted in a locally irregular geology.

#### 3.2 Site Setting

The Baca/Prewitt and Thoreau Chapters are located within the Semiarid Tablelands of the Arizona/New Mexico Plateau Ecoregion (Griffith et al., 2006) at an elevation ranging from 7,100 to 7,400 feet above sea level. This ecoregion is characterized by the presence of mesas, plateaus, and canyons formed from gently dipping, often exposed, sedimentary rock units. Vegetation in this ecoregion generally consists of Dropseed and Grama grasses, saltbush, and Piñon and Juniper woodlands (Griffith et al., 2006).

Data from the Western Regional Climate Center (WRCC, 2017) indicates that during the period from 1929 to 1992, the Thoreau, New Mexico Co-Op station received an average of 10.7 inches of precipitation per year, with the wettest months occurring during the southwest monsoon season from July to October. Evaporation from the region, as indicated by the National Oceanic and Atmospheric Administration Evaporation Atlas (NOAA, 1982) for surface water (shallow lakes) is approximately 47 inches per year. The average daily high temperature in the area is 65°F, and the average daily low temperature is 36°F (WRCC, 2017).

#### 3.3 Local Geology

In the Thoreau and Baca/Prewitt area, geology is dominated by Mesozoic and Paleozoic-aged units. The local surface geology of the area was mapped at a 1:24,000 scale by Jacques F. Robertson in 1990 (USGS publication GQ-1675). A portion of the Thoreau, New Mexico quadrangle geologic map as prepared by Robertson, as well as portions of the Thoreau NE Geologic Map (Green & Pierson, 1971), and the Continental Divide Geologic Map (Green, 1976) are included as Figure 3. Geologic unit descriptions and a north-south geologic cross section of the area adapted from Robertson (1990) are included as Figure 3A.

A summary of the predominant geological formations found near the project area is included below. The descriptions are organized by the age of the units (youngest to oldest), and are summarized graphically by the stratigraphic column included as Figure 4. The thickness indicated in the section is estimated and reflects approximate depths of each unit as indicated in several borings advanced in the area.



#### 3.3.1 Cenozoic Units

The Thoreau and Baca/Prewitt area is locally underlain by relatively young Quaternary alluvium, colluvium, and eolian sediments. The Quaternary alluvium and colluvium consist of unconsolidated clay, silt, and sand that was derived from bedrock in surrounding topographic highs and transported to the lower elevation predominately by surface water flow. The Quaternary eolian deposits, located primarily east of Thoreau, consist of well sorted sand transported by wind processes. The Quaternary sediments in the area are usually less than 100 feet thick.

#### 3.3.2 Mesozoic Units

Mesozoic Units dominate the project area, and are present as outcrop exposures to the north of the Thoreau Chapter extending to depths in excess of 1,000 feet.

#### Mancos Shale

The youngest Mesozoic-aged formation near the project area is the Cretaceous Mancos Shale, which is composed of three primary members, including the Pescado Tongue, consisting of dark-gray shale and limestone, the Rio Salado Tongue, consisting of gray shale and lighter siltstones, and the Whitewater Arroyo Tongue, a yellowish-gray silty shale. The Mancos Shale is not present in the project area, and only occurs as outcrop at high elevations above 8,200 feet above mean sea level (amsl) approximately one mile north of Thoreau, as indicated on the geologic map included as Figure 3. The formation has a thickness of approximately 300 feet north of the project area.

#### **Dakota Sandstone**

The Mancos Shale is underlain by the Dakota Sandstone, a middle Cretaceous unit with an age of approximately 145-100 Ma. The Dakota Formation forms the "cap" of the bluffs to the north of Thoreau, present only at elevations above 8,000 feet amsl in the project area. The Dakota was emplaced as part of a marine transgression, and represents shallow marine and fluvial depositional environments (Anderson, 1983). The Dakota Sandstone consists of two members: the Twowells Tongue, consisting of light gray to yellow-gray cross-bedded sandstone; and the Main Body, consisting of brown to light gray sandstone. The Main Body Member also includes interbedded conglomerate and shale facies deposited by fluvial systems. The Dakota Sandstone has a total thickness of approximately 150 feet north of Thoreau.

#### **Morrison Formation**

The Dakota Formation is underlain by the Jurassic Morrison Formation, which is divided into the Brushy Basin, Westwater Canyon, and Recapture Members (Robertson, 1990), and composed primarily of fluvial sandstones, siltstone, and shale. The Brushy Basin Member is characterized by a distinct green-gray color, is composed primarily of a kaolinite-rich siltstone, and has a



thickness of approximately 100 feet north of Thoreau. The Westwater Canyon is composed of pink-orange-red arkosic, coarse-grained sandstone and gravel, and has a thickness of approximately 200 feet north of Thoreau. The Westwater Canyon is considered a good, regional aquifer north of the project area near Crownpoint, and was commonly mined for uranium ore in the region. The Recapture Member is a red-brown fine-grained sandstone with a thickness of approximately 300 feet north of Thoreau.

#### <u>Cowsprings & Summerville Formations (Zuni Sandstone)</u>

Underlying the Morrison Formation is the Jurassic Cow Springs and Summerville Formations, formerly referred to as the Zuni Sandstone (Anderson, 1993). These formations are red-gray-brown, fine-grained sandstone and siltstones, and are often difficult to distinguish from each other when utilizing drilling cuttings. The Summerville and Cow Springs Formations have a combined thickness of approximately 550 feet in the project area.

#### Todilto Limestone

The Summerville is underlain by the Todilto Limestone, which acts as a common subsurface marker bed in the region. The Todilto is a gray-white, competent limestone with abundant gypsum, and forms an abrupt contact with the overlying Summerville formation. The Todilto Limestone has a thickness of approximately 40 feet in the area.

#### Entrada Sandstone

The Jurassic Entrada Sandstone is present below the Todilto Limestone, and consists of a tanbrown-red fine-grained eolian sandstone. The Entrada has a thickness of approximately 200 feet in the region, and acts as an aquifer in areas to the north of Thoreau near Smith Lake.

#### Chinle Formation

The Entrada Sandstone is underlain by the Triassic Chinle Formation, which consists of a red-brown-purple shale that is present through much of western New Mexico and Arizona. The Chinle is present near the surface to a depth of approximately 1,100 feet in the Thoreau area, and is divided into three generalized members— the Upper Chinle, the Sonsela Sandstone, and the Lower Chinle. The upper and lower Chinle Members consist of shale with minor siltstone interbeds, and each have thicknesses of approximately 400-600 feet. The Sonsela Sandstone Member is a relatively thin (50-100 feet) unit which is present between the upper and lower members, and consists of a coarse-grained sandstone and basal conglomerate. The Sonsela acts as an aquifer in the area, and is utilized by many livestock and domestic wells in the area; additional information on the aquifer characteristics are detailed in Section 4.2.

#### 3.3.3 Paleozoic Units

Underlying the Triassic-aged Chinle Formation are the Permian San Andres Limestone and Glorieta Sandstone. The San Andres consists of a gray to light gray limestone with significant



fracturing and karstification, and has a thickness of approximately 100 feet in the region. The Glorieta Sandstone underlies the San Andres and is composed of well-sorted pink fluvial sandstones, and has a local thickness of approximately 150 feet. These two formations were deposited during a period of ocean transgression, and form a single aquifer in the area. The San Andres/Glorieta Formations are located at depths ranging from 1,000 feet below ground surface in the southern portion of the project area to approximately 2,700 feet north of Thoreau near Smith Lake.

#### 3.4 Geological Structure

As discussed in Section 3.1, the project area is located within a relatively stable section of the Colorado Plateau, with most of the sedimentary formations being relatively continuous with a slight dip (2-4°) to the north. However, a very large structural feature, the Bluewater Fault Zone, is present approximately four miles east of Thoreau. The fault zone generally runs north-south, and trends along New Mexico State Highway 371, as indicated on Figure 3. The Bluewater Fault Zone displaces geologic units by up to 400 feet and can affect regional groundwater flow. Units on the east side of the fault are generally down-dropped (deeper) relative to the western side of the fault (Robertson, 1990).

#### 4.0 HYDROLOGY

SMA conducted an extensive review of published literature for the Baca/Prewitt-Thoreau area, and obtained information on existing water well construction, location, and water quality from the Navajo Tribal Utility Authority (see Appendix C), New Mexico Office of the State Engineer (NMOSE) WATERS online database (NMOSE, 2017, see Appendix D) and the United States Geological Survey (USGS) well database (USGS, 2017, see Table 3). As described previously, drillers in the Grants-Milan area were interviewed as well. Aerial photos showing the project site location and surrounding wells on file with the NMOSE, USGS, and NTUA (labeled with index number & keyed to Tables 2 and 3) are included on Figure 2.

The project area (outside of the Navajo Nation) is located within the NMOSE Bluewater Underground Management Basin. Several areas near the project, including the Tri-State Power Station approximately seven miles east of Thoreau and the Transwestern Pipeline Facility located approximately 1.5 miles northwest of Thoreau, have been pump tested and documented in hydrogeologic studies (Shomaker, 1981).

The NMOSE Waters and USGS databases were utilized to obtain information on existing wells and potential aquifers in and near the project area. Information from nearby wells, including depth to water, total depth, and each well's target aquifers is summarized in Table 3. Potential

\_\_\_^*SMA* 

and primary aquifers near the project area are described below.

#### 4.1 Upper Chinle Formation Aquifer

Several shallow wells (typically less than 300 feet) near the Thoreau area are completed within the shallow alluvial sediment or the Upper Chinle Formation. These shallower wells are almost exclusively used for livestock and do not appear to yield significant water. NMOSE records indicated one livestock well in the area east of Thoreau (NMOSE File Number B-0900-X, Index No. 17, Figure 2) is completed within isolated sand lenses and fractures within the upper Chinle at a depth of 300 feet below ground surface and produces upwards of 15 gpm. Water quality information was not available for review in literature. The magenta well markers in Figure 2 illustrate the location of wells completed in the upper portions of the aquifer.

#### 4.2 Sonsela Sandstone Member Aquifer

#### 4.2.1 Aguifer Characteristics

The Sonsela Sandstone is present at depths ranging from as shallow as 150 feet south of Interstate-40 to over 700 feet north of Thoreau. The formation acts as a primary aquifer for several domestic wells and older municipal wells in the Thoreau and Baca/Prewitt area. Figure 5 is a structural contour map illustrating the elevation of the top of the Sonsela formation as documented in well logs available for the area.

The aquifer acts as a semi-confined unit in the Thoreau area, with water typically pressurized to 300-400 feet above the top of the formation. Groundwater flow in the Sonsela near Thoreau and Baca/Prewitt is generally to the southeast (Cooper & John, 1968). Limited information is available regarding regional draw-down in the aquifer.

#### 4.2.2 Existing Wells & Infrastructure

The Sonsela Sandstone is utilized by many wells within the Thoreau area. As mentioned in Section 4.2.1., many domestic wells within Thoreau proper, the Transwestern Pipeline well (Index No. 18, Figure 2), and several tribal wells, including 16T-349 and 16T-676, are completed within the Sonsela Sandstone. Wells within the Sonsela report production up to 30 gallons per minute (NMOSE well logs), although most wells yield between 5-20 gpm (Cooper & John, 1968). The blue well markers in Figure 2 illustrate the location of wells completed in the Sonsela Sandstone aquifer.

#### 4.2.3 Water Quality

Water quality from the Sonsela is generally good. Water quality results from the former Thoreau well (16T-349) collected in 1966 indicated very good water quality, with low total dissolved solids (TDS), metals, and sulfate content. This agrees with measurements compiled from several other wells in the area by Cooper & John (1968), who report generally good



quality, with TDS concentrations typically less than 1,000 mg/L. However, as few wells completed within the aquifer are currently utilized for municipal supply, limited information is available regarding the majority of EPA Primary Water quality standards; as such, there is potential that water within the Sonsela may have elevated radiogenic or metal concentrations that have not been reported in literature.

#### 4.3 San Andres & Glorieta Formation Aquifer

#### 4.3.1 Aquifer Characteristics

The San Andres Limestone and Glorieta Sandstone act as a reliable aquifer throughout much of New Mexico. In the Thoreau area, these units are located at depths of approximately 1,100 to 1,500 feet below surface. Figure 6 is a structural contour map with the approximate elevation of the top of the San Andres/Glorieta aquifer in the project area.

Groundwater flow in the San Andres/Glorieta aquifer is typically transmitted through fractures, dissolution channels, and karst structures (Baldwin & Anderholm, 1992). The aquifer is confined, with water typically pressurized to 800-900 feet above the top of the formation. In the Thoreau area, depth to water is reported as shallow as 170 feet to 350 feet below ground surface. The groundwater flow direction within the San Andres Limestone in the Thoreau area is thought to be to the northeast (Baldwin & Anderholm, 1992).

#### 4.3.2 Existing Wells & Infrastructure

The San Andres/Glorieta aquifer is currently utilized by the West Thoreau (16T-614), JW Camp (16T-594), Town of Thoreau (NMOSE File No. B-0386) and Thoreau High School Well (Index No. 31, Figure 2) supply wells. The inactive Navajo tribal well 16K-334 also utilizes this aquifer. As summarized in Tables 1 and 3, these wells have a range of production from 30 gpm upwards of 100 gpm. The regional aquifer transmissivity near the Thoreau area is estimated to be approximately 140 ft<sup>2</sup>/day (Baldwin & Anderholm, 1992); this agrees with pump test information from the 16T-614 Navajo tribal well and the Transwestern Pipeline supply well (Index No. 18, Figure 2), which indicated transmissivities of 118 ft<sup>2</sup>/day and 100 ft<sup>2</sup>/day, respectively (Well Records & Shomaker, 1981). These values are significantly greater than the 64 ft²/day transmissivity calculated from pump testing conducted in Tribal well 16T-529, suggesting a significant amount of variability within the San Andres/Glorieta aquifer. Specific capacities of wells completed in the formation are also variable; the 16T-529 well reports a specific capacity of approximately 0.14 gallons per minute per foot (gpm/ft) at a pumping rate of 21 gpm (NTUA/HIS 16T-529 Well Records, Appendix C). However, the specific capacity in 16T-614 was calculated to be much higher at 0.2 gpm/ft at a pumping rate of 100 gpm (NTUA/IHS 16T-614 Well Records (1982), Appendix C). The Thoreau High School well reports a specific capacity of 0.3 gpm/ft, which is similar the 16T-614 West Thoreau well (NMED Drinking



Water Watch, 2017). The red well markers in Figure 2 illustrate the location of wells completed in the San Andres/Glorieta.

Several Navajo Chapters in addition to the Baca/Prewitt-Thoreau system utilize the San Andres/Glorieta Aquifer for their water supply. The Ramah Chapter, located approximately 30 miles south of Thoreau, utilizes the San Andres Formation for their Jacobs Supply Well, which produces up to 150 gpm (Yazzi, 2013). Information obtained from pump tests south of Zuni Pueblo (Crouch, 1991) indicates production upwards of 200 to 300 gpm, suggesting production from the unit increases south of the Thoreau-Baca/Prewitt area.

#### 4.3.3 Water Quality

Groundwater quality from the San Andres/Glorieta Aquifer is highly variable, and can range from very good to highly mineralized (White & Kelly, 1989). The Thoreau Tribal wells have relatively good water quality, with no frequent exceedances of Primary or Secondary Safe Drinking Water Act maximum contaminant levels (MCLs). However, the JW Camp well (15T-529) has documented one sampling event in which a concentration of total radium (sum of radium-226 + radium-228) was detected in excess of the Primary MCL (Table 3). The Town of Thoreau well also reports occasional exceedances of total radium from their water treatment plant (NMED Drinking Water Watch, 2017), and are reported to contain elevated secondary contaminants. It is unclear if these exceedances are occurring predominantly from one well or are resulting from both active wells. Measurements from Thoreau-area wells report TDS concentrations between 250-600 mg/L, which is low or comparable to other carbonate-hosted aquifers in New Mexico.

#### 5.0 NEW WELL LOCATION EVALUATION

After reviewing the information summarized above regarding the local hydrogeology and water quality in the area, SMA has delineated an area for installation of a supply well. The area is located primarily to the north and west of the Town of Thoreau, as illustrated in Figure 7. This area was delineated based upon the land surface elevation, depth to target aquifers (San Andres/Glorieta Aquifer, with potential to also screen Sonsela Aquifer) and existing infrastructure. Following delineation of the area for installation of a supply well, SMA selected three proposed well installation locations based upon land status, the availability of electrical power, and the proximity of existing water transmission infrastructure. The three proposed well installation locations are illustrated on Figure 7.

Anthropogenic factors have the potential to influence the efficient operation and water quality of wells. SMA assessed the proposed Well Location 3 for well interference from nearby existing



wells, and also evaluated potential sources of contamination in the surrounding area.

#### 5.1 Well Interference Assessment

Two tribal wells (16T-529 and 16T-614), two Town of Thoreau municipal supply wells, and several domestic and livestock wells utilizing the San Andres/Glorieta aquifer are operating within two miles of the proposed well locations. To evaluate potential interference from the pumping wells on the proposed well locations, SMA completed Theis calculations for all three proposed well installation sites utilizing the location of tribal and NMOSE-registered wells in the area. As aquifer characteristics for the Sonsela Aquifer are not available, SMA only evaluated effects in the San Andres/Glorieta Aquifer.

For the calculation, SMA assumed an aquifer transmissivity of 140 ft²/day (Baldwin & Anderholm, 1992), and an aquifer storativity of 4x10<sup>-4</sup> (Frenzel, 1992) for the San Andres/Glorieta Aquifer. The calculation was performed for a 20-year pumping period, and assumes that the newly installed well will be pumped at a rate of 120 gpm for 12 hours per day, resulting in an annual diversion of 100 acre-feet. The Theis calculation was completed for each proposed well location, assuming a single well will be installed (not a well at each proposed location).

The results of the Theis calculation, included in Appendix B, shows potential drawdown induced by a new supply well for each proposed location over a 20-year pumping period. The effects of pumping from each proposed well location on 16T-529, 16T-614, and the nearby Thoreau High School well are summarized below:

Drawdown Potential in Existing Wells over a 20 Year Pumping Period (feet)

Proposed Well Site	16T-529	16T-614	Thoreau H.S. Well
Well Site No. 1	84	73	58
Well Site No. 2	74	59	44
Well Site No. 3	56	64	98

The calculations indicate the most favorable location, resulting in the least interference in existing wells, would be Well Location 2, which would only induce a maximum of 74 feet of drawdown in the nearest existing well. However, this location is distal from existing three-phase electrical service, and would require approximately two miles of three-phase power lines to be installed to provide service the well. Well Location 1 is closer to existing power infrastructure (0.9 miles away), but its proximity to the 16T-529 & 16T-614 wells will induce slightly more drawdown (up to 84 feet). Well Location 3 falls in the middle, with a maximum



drawdown potential of 64 feet in existing, active Tribal supply wells, but the potential to greatly influence a nearby supply well for Thoreau High School. Electrical service is also much closer to this location, being present only 1,600 feet away. However, the siting of Well Location 3 may negatively affect the existing NTUA water system hydraulics. Preliminary hydraulic evaluation revealed that construction of the well and tie-in to the existing system at Location 3 would increase maximum pressures in the existing water distribution line to near the rated pipe pressure rating, which could potentially damage the pipeline.

Although the potential for interference from Well Location 1 is greater than the other locations, the difference is relatively minor, with predicted drawdowns only 15% greater than what was calculated for Well Location 2. Well Location 1 will allow for the best balance of cost savings to connect with existing tribal infrastructure while still being in a hydrogeologically favorable location. This location requires less than half the distance of power lines to be constructed/upgraded than Well Location 2, and the elevation of the well site and proximity to the water storage tank will require less hydraulic pressure to pump water to the storage tank than Well Location 3, which will reduce electrical consumption and O&M costs over the long-term. As such, SMA recommends the installation of a well at this location.

#### **5.2** Potential Contaminant Source Inventory

After determining that the proposed Well Location 1 will not result in significant pumping interference with existing wells, SMA conducted a potential contaminant source inventory around the proposed well site. As outlined by the Navajo Nation Environmental Protection Agency (NNEPA) Source Water Assessment & Protection (SWAP), SMA investigated potential contamination sources within a 1/2-mile radius of the proposed well installation site. Potential risks were evaluated using several online database sources including the EPA Enviromapper database, NMED eGIS Mapper, NMOSE Water Rights Reporting System, aerial photos, FEMA flood maps, and observations made during site visits by SMA personnel. The findings of the assessment were compared to the potential contaminant sources listed in the NNEPA SWAP Susceptibility Assessment "Update" Form, and utilized to prepare a contaminant source inventory diagram, included as Figure 8 and summarized in Table 4.

The results of the assessment indicate that several relatively minor potential contamination sources are present in proximity to the proposed well location, consisting of a gas transmission pipeline, animal range land, and several single-family residential septic systems. The animal rangeland is located throughout the well installation area; horses and cattle can graze and roam freely through much of the Thoreau area. The transmission pipeline is located approximately 1,000 feet to the north, and the single-residence septic systems are located over 750 feet from the proposed well site. SMA believes the risk from the animal rangeland, gas pipeline, and residential septic systems is relatively minor, and can be further minimized by constructing the

\_\_\_^*SMA*\_

well with proper well seals which will prevent any shallow, contaminated water from entering the well casing.

#### 6.0 CONCLUSIONS & RECOMMENDATIONS

SMA recommends the installation of a groundwater supply well utilizing the San Andres/Glorieta Aquifer and potentially the Sonsela Aquifer as the primary production aquifers. The San Andres/Glorieta Aquifer is documented to be capable of producing upwards of 80 gallons per minute in existing tribal wells in the area, and water quality within the area is relatively good, with only occasional exceedances of total radium reported in area supply wells. The Sonsela Aquifer is capable of production between 20-30 gallons per minute with good water quality; a well utilizing both aquifers may be capable of sustained production of over 100 gallons per minute.

SMA recommends the installation of a pilot exploratory well at the proposed Well Location 1 (Figures 7 & 8) to collect discreet interval water samples from both the Sonsela and San Andres/Glorieta Aquifers. A pilot well installed to a depth of 1,500 feet below ground surface should fully penetrate the Sonsela Aquifer (anticipated to be located from 750 to 850 feet bgs) and the San Andres/Glorieta Aquifer (anticipated to be located from 1,300 to 1,500 feet bgs). Following an analysis of water quality samples and water production estimates, a production well can then be designed and completed to intercept one or both aquifers. A conceptual well design diagram, assuming both the Sonsela and San Andres Aquifer will be screened, is included as Appendix A.

The primary well installation location is adequately distal from existing NTUA and NMOSE-managed supply wells, and should not result in excessive pumping interference or cause detrimental effects to well production. The location is also adequately distal from any significant sources of contamination, and is located proximal to existing water distribution infrastructure and three-phase electrical power, which will minimize costs to bring the well into operation.



#### 7.0 REFERENCES

- Anderson, O.J. (1993). *Zuni Sandstone and Acoma Tongue Defined*. New Mexico Geology, v. 15, no. 2. May, 1993. pp. 38-39
- Anderson, O.J. (1983). *Geology and Coal Resources of the Atarque Lake Quadrangle, Cibola County, New mexico*. New Mexico Bureau of Mines and Mineral Resources Open File Report 167 (June, 1982, revised 1983)
- Baldwin, J.A. & Anderholm, S.K. (1992). Hydrogeology and groundwater chemistry of the San Andres-Glorieta Aquifer in the Acoma Embayment and Eastern Zuni Uplift, West-Central New Mexico. USGS Water Resources Investigations Report 91-4033.
- Chamberlin, R.M. and Anderson, O.J. (1989). *The Laramide Zuni uplift, Southeastern Colorado Plateau: a microcosm of Eurasian-style indentation-extrusion tectonics?*. New Mexico Geological Society Guidebook, Fortieth Field Conference Guidebook Southeastern Colorado Plateau. pp. 81-90
- Cooper, J.B. & John, E.C. (1968). Geology and Ground-Water Occurrence in Southeastern McKinley County, New Mexico. New Mexico Office of the State Engineer Technical Report 35: Santa Fe, NM.
- Crouch, T.M. (1991). Evaluation of the Bidahochi and San Andres-Glorieta aquifers on parts of the Zuni Indian Reservation, McKinley and Cibola Counties, New Mexico. United States Geological Survey Water-Resources Investigations Report 89-4192.
- Federal Emergency Management Administration. (2017). FEMA Flood Map Service Center Interactive Map and Database. webpage: < https://msc.fema.gov/portal/search> Accessed October 2, 2017.
- Freeze, Allan R. and Cherry, John A. (1979). Groundwater. Prentice-Hall: Englewood Cliffs.
- Frenzel, P.F. (1992). Simulation of Groundwater Flow in the San Andres-Glorieta Aquifer in the Acoma Embayment and Eastern Zuni Uplift, West-Central New Mexico. USGS Water Resources Investigations Report 91-4099.
- Google, Inc. (2016). Aerial photo of Thoreau High School Area, Google Earth Pro. Accessed September 25, 2017.
- Google, Inc. (2016). Aerial photo of Thoreau & Baca Area, Google Earth Pro. Accessed August 2, 2017.
- Green, M.W. (1976). *Geologic Map of the Continental Divide USGS Quadrangle, McKinley County, New Mexico.* USGS Publication GQ-1338.



- Green, M.W. & Pierson, C.T. (1971). *Geologic Map of the Thoreau NE USGS Quadrangle, McKinley County, New Mexico.* USGS Publication GQ-954.
- Griffith, G.E., Omernik, J.M., McGraw, M.M., Jacobi, G.Z., Canavan, C.M., Schrader, T.S., Mercer, D., Hill, R., and Moran, B.C. (2006). Ecoregions of New Mexico (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,400,000).
- New Mexico Environment Department (NMED). (2017). Online Environmental GIS (eGIS)

  Mapper Tool. webpage: < https://gis.web.env.nm.gov/EGIS/> Accessed October 2, 2017
- New Mexico Office of the State Engineer (NMOSE). (2017). Online Water Rights Reporting System (NMWRRS) Database. <webpage: <a href="http://www.ose.state.nm.us/WRAB/index.php">http://www.ose.state.nm.us/WRAB/index.php</a>>
- Pine, Robert (2017). Personal Communication between Mr. Robert Pine, NMOSE Hydrology Bureau and Matthew Earthman, SMA on July 31, 2017.
- Robertson, J.F. (1990). *Geologic Map of the Thoreau USGS Quadrangle, McKinley County, New Mexico*. USGS Publication GQ-1675. (map scale: 1:24,000)
- Shomaker, J.W. (1981). Report on Aquifer Test, Transwestern Pipeline Company, Thoreau, NM.. Dated June, 1981.
- Smith, C.T. (1959). *Jurassic Rocks of the Zuni Mountains*. New Mexico Geological Society Guidebook, Tenth Field Conference Guidebook.
- Souder, Miller & Associates (SMA). (2016). Baca/Thoreau Water System Improvements Project Preliminary Engineering Report. Dated April, 2016
- Stewart Brothers Drilling Co. (2017). Personal Communication between Mr. Randy Stewart, Stewart Brothers Drilling, and Matthew Earthman, SMA on March 15, 2017.
- United States Environmental Protection Agency (EPA). (2017). Online EPA Enviromapper Database and Interactive Map. webpage: < https://www.epa.gov/emefdata/em4ef.home> Accessed October 2, 2017.
- United States Geological Survey (USGS) (2017). USGS New Mexico Water Science Center Interactive Well Map & Database.
  - <a href="https://maps.waterdata.usgs.gov/mapper/index.html?state=nm">https://maps.waterdata.usgs.gov/mapper/index.html?state=nm</a>. Accessed August 3, 2017
- USGS (1995). Continental Divide 7.5 Minute Quadrangle. (map scale: 1:24,000)
- USGS (1995). Cottonwood Canyon 7.5 Minute Quadrangle. (map scale: 1:24,000)
- USGS (1995). Pine Canyon 7.5 Minute Quadrangle. (map scale: 1:24,000)



USGS (1995). Prewitt 7.5 Minute Quadrangle. (map scale: 1:24,000)

USGS (1980). Bluewater 7.5 Minute Quadrangle. (map scale: 1:24,000)

USGS (1980). Goat Mountain 7.5 Minute Quadrangle. (map scale: 1:24,000)

USGS (1963). Casamero Lake 7.5 Minute Quadrangle. (map scale: 1:24,000)

USGS (1963). Hosta Butte 7.5 Minute Quadrangle. (map scale: 1:24,000)

USGS (1963). Thoreau 7.5 Minute Quadrangle. (map scale: 1:24,000)

USGS (1963). Thoreau NE 7.5 Minute Quadrangle. (map scale: 1:24,000)

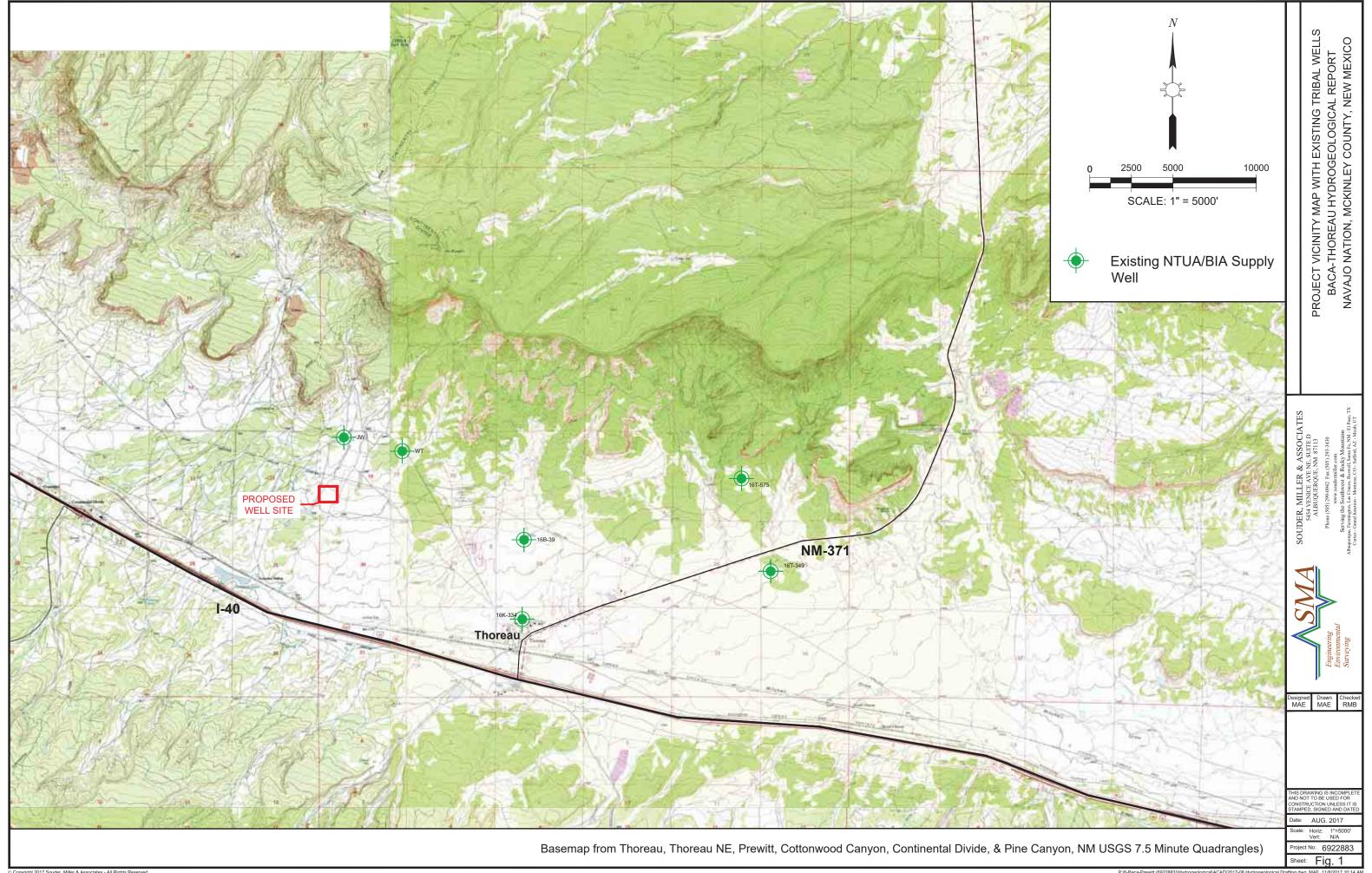
Western Regional Climate Center (2017). Thoreau, NM Station Historical weather information, webpage: <a href="http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm2785">http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm2785</a>

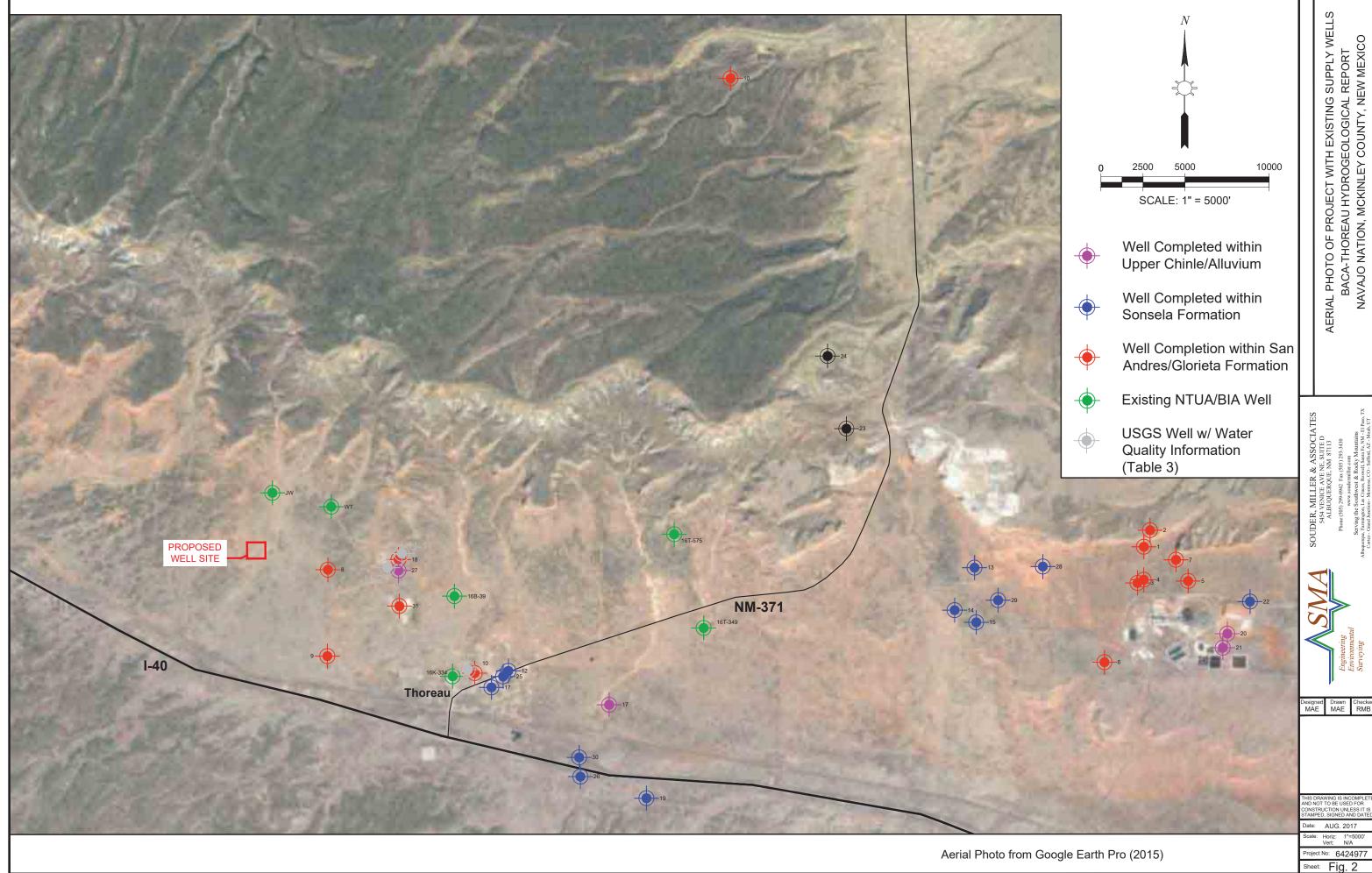
White, W.D. and Kelly, T.E. (1989). *The San Andres-Glorieta Aquifer in West-Central New Mexico*. New Mexico Geological Society Guidebook, Fortieth Field Conference Guidebook – Southeastern Colorado Plateau. pp. 331-335

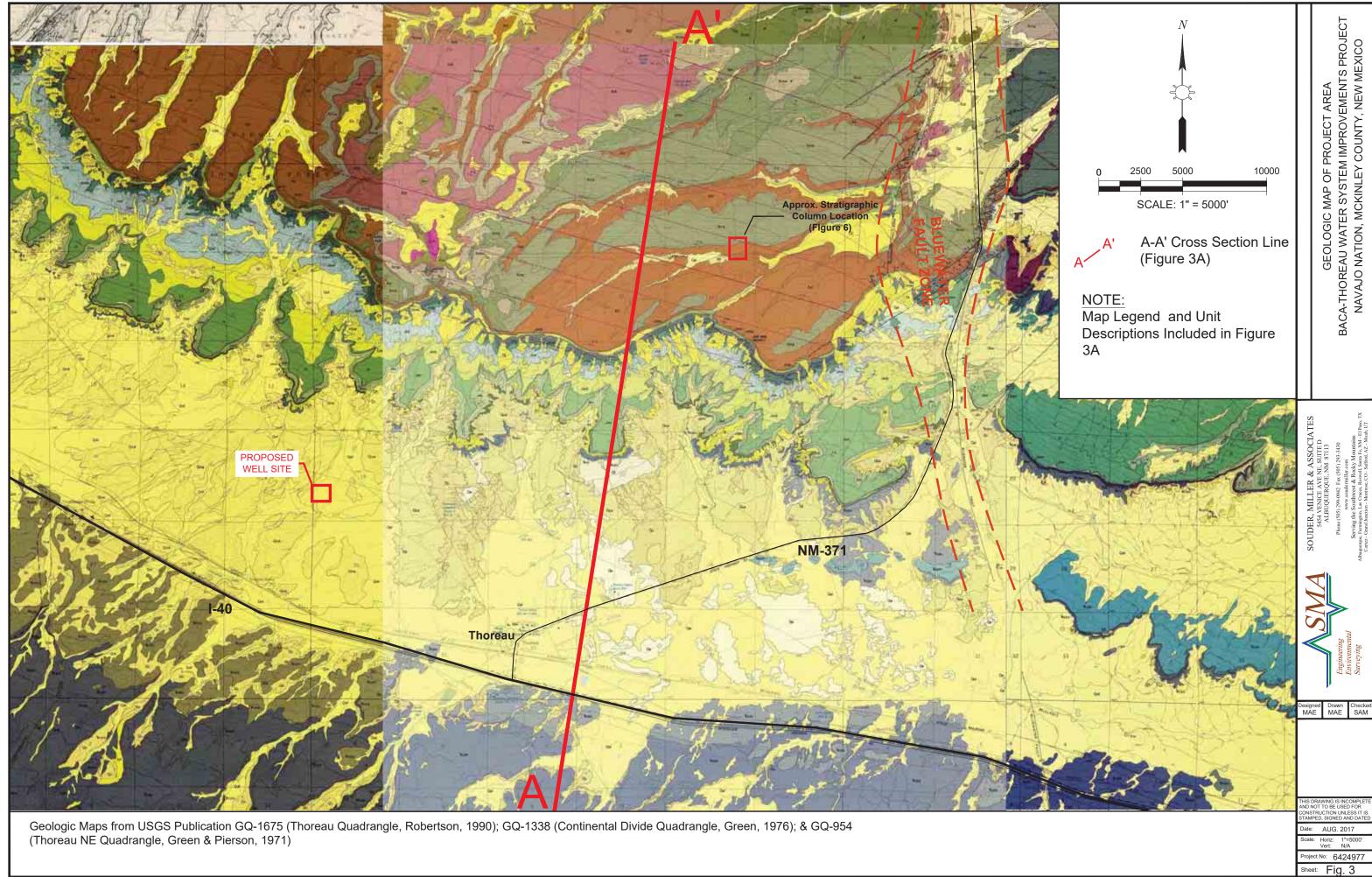


#### **FIGURES**









#### DESCRIPTION OF MAP UNITS

nuterial deposits

Vinager affection (Helecons) - Uncommittated, recidentists, well to provide socied deposits of all, sand, and ground in aggraded valley bottoms, arrivers, and fixed glass. Includes some evident sent, resembled by Economical and interesting and all deposited in sentgeness pands and searches. Grades suggisted by the specific pands and searches. Grades springe bottombarten (Ed.)—Thickness Ord at

temptomp points and basenoists Cauda spalings from coolselant (California). This care of a milestocensor - Complete owning to synthesis (e.g., pourly to partly consolidated aids send, and ginest in desepted peathment allowed points, leans, and peathments; in least certained by subthe. Desputing presently were times than 5-n above the level of medient values plants of partle of peathments; in least certained by subthe. Desputing presently were times than 5-n above the level of medient values plants of peathments; in least certained by subthe about the peathful to boudder size, as substangiate to submanded, and is upseased to moderately well acted by the peathful to boudder size, as substangiate to submanded, and is upseased to moderately well acted by the peathful to moderately well acted to the feet and the peathful designed to the submanded period. Cycline are secretared by our domain of miles and activities of the peathful peathful to the peathful pe

the copies offerine and colour and, grades beingly into abusta-tion deposits (Hodocese and Philadocese). Fine to very fine passad, modernate and and make all recommissed as dense and flood plane and far authors. Most repent deposits are sense subdated and over pale sample in visits. Most leaker material, partly received by wind and states a to colored undifferentiated in all state deposits. Dollar deposits are sensewhet triany, receivers yields there (IDVIIIA) is to dusty veloce (VVI). minimal, sense (IDVIIIA) is not any velocity and and state and statistics the vegetation and sol, and have some called abusine, residue or consider the colored and sol, and have some called abuse, residue or considerated. All states from the committee of the com

aggrazioni server les les loud et antitus sociament les conpetitions et les frimage en temperal 8. Clarace lainesig vitte collecture (Eu). Tales depunts (Hobounes und Platimeters!)—Falles unit, fragment mé Socie noncomband en como et unit in terroit del from exerg-untable depunt de la como et la como et unit in terroit del from exerg-mentale depunt de la como et la c

and Fooks assumination in traces of this streets that how stopping and the slegues below in till force brindines some strangeographic instable or classic-flow materials.

Brailland block deposits if Below for materials into the season of frequents of classes and contact treatment deposits tooks and frequents of classes and contact treatment/some transitions are much as 5 m in resembles of interest assessment to the same transitions as many treatment of the same transitions are much as 5 m in the same of classes and sensential season to the broken transitions are much as a first and a street lead took their formerly season at situation above the sensent lead units to the formerly season as the first season of the subpropriety Massess Stude. Disclasses 6.6 in the season of the subpropriety flowers Stude. Disclasses 6.6 in the season of the subpropriety flowers Stude. Disclasses 6.6 in the season of the subpropriety flowers Stude. Disclasses 6.6 in the season of the subpropriety flowers of the subprocess of the substance of the substance substances of the substance of the substance of the substances of the substance of

and destroat variations include multiple interacts investions, found, adulted manners much and use of the instrume, contributing constitutional. Memore Elevan augment remeates of a sill according with freezink manner of distance. KeV age too allow believe technique technique technique extraction and the sill according to the silline sill according to the silling to the silling to the silling t

Whitewater Arrayo Tongue - Medium: in deringraph-green, fund-Observator Arrayor Tompure—Medium is destriganati-primit, residence, skip skipdi, esselbers van y pele pediumen, prag. Includes film skress of laminated, yadiomethysme, Dwy, sandy attention, and white temporatic lings also consistent is mattered pediaryeller with occurage (IOVRS/W) limitation mounteetime on filed as 1 or bestig residence mounteetimes of filed as 2 or bestig residence mounteetimes. Or containing and the complete temporate Tompure of the Debatta Sandarione, but has sharp contain at those Thickness 75-00.

25-12 to Unit B\*—Velovish gazy to grapish review, him heided, heidliferous attotors, chick, very fine grazinal sandators, and mechanic gazy to during ferous, himsiferous thrommes, Continued posts of breaters, as much as 1,2 or fitch, and exercil meatin they, contain solution details chest, quarte, and overtebrane lossel remains. Extensive destable closed, quarte, and overrebone bated presents. Extensive Energy-order, paper but having obliveness selected, as it is a to be in upper part. Too is generally fine genined, efficacion and the conglements because Constant at least each top in generally better to produce the constant of beautiful produces politic conglements because Constant at least each top in generally, sheep, to weather part of qualitative, and have each top in generally, there is no support to the constant of the constant of the constant of the part of the constant of the constant of the constant of the part of the constant of the constant of the constant of the part of the constant of the constant of the part of the constant of the constant of the part of the constant of the constant of the part of the part of the constant of the part of part

pellow, opening freeditions administ, conjustes, and throp bedshirt, girthy valuaments serulations in linear part. As top, two is mont back of very time gratical, used control speciations; each 5.2–2.4 or trick, size Sided with shale, and acressin scattered dark-house. Insulifern investorie lenses. Sendstone bads, its part biorusbated, suggest Invacione lemans. Sensitione back, in part brevalcient, suggests researcied or measures signosphire, until public sheetily the tabular considerable investible of hearth per tabular considerable investibles back of hearth or has religit. Both how set of the processors are grantelly strengt and with defined. Extrinsed lemans of their public confinements, 9-60 (on timb, parameter transit his base in the seation part of quantiting in transactor beach his greater the public of the parameter of the seation part of public processors of a widespread discretizating. Withholds Security intelligible on the character, and becomes difficult to separate from, the main body of Delana Emiliary (Feb.) appears to push, but it this stating of 80. Pheast. Transactor (F-12) in

and becomes difficult to separate born, the mean body of Deletic Sensitives (Ed.), appears to prochamic to the election of Sc. Pascall. Transmiss (4-15) in (Ed.), appears to prochamic in the election of Sc. Pascall. Transmiss (4-15) in (Ed.), prochamic sensitives (Esparate Computer in the speciment control of the electron (Ed.)). The electron (Ed.) is the electron (Ed.) and the electron control of the electron (Ed.) and the electron control of the electron (Ed.) and the electron of the electron (Ed.) and the electron of processing of 1-2 and electron (Ed.) a

tentral interatumns inclines a fundarchiment origin. Tentrans 6-18 m. Westwater Campus Members-Moderne-real 1986/41 to principal (1986/41, http://doi.org/10.1001/10.1

data establishmens (1893/b) cingmens, pain-like (1974/b) undglet quession per (1977/11 (days) ultimons, meser-colored in overlader gang (1905 and quessiolt-gang (1905)), thus to very four gaines-mediates and other plant, introduce, married of interaction and sala-noight. Livew just of intending particles relatively loss sussitions in-cases general mediates leaves of flood engile. Correct of per-paramagnetis mediates in section in the layer in engigible between loss approach dies ledigene in an interruppediates of schools and the characters of overlang Westmens Correct Member (1994). The days and difference of a New America Device general the Live floods (1994) and content of the game (developed authority of local anatogy and content for game (developed) white mediates units. Disky real units of dispenses in only dispensely in contents and the succession relative parameters of parameter (1994) and of the succession of the parameter (1994). The contents of the succession of the parameter (1994) and of the succession of the contents of the succession of the parameter (1994) and of the succession of the parameter (1994). The succession of the succession of the parameter (1994) and of the succession of the parameter (1994) and of the succession of the parameter (1994) and of the succession of the parameter (1994). The succession of the succession of the parameter (1994) and of the succession of t

Satesbassen<sup>2</sup> — Complete pallow of possion (16077/2) and highe generating group (SACAT) to prine-priliments group (SACAT) to prine-priliments group (SACAT) to prine-priliments group (SACAT) to prine-priliments group (SACAT), seep that an fine-granted need needed to print group of fine-bedded, accurates and the seed of the printing of fine-bedded, accurates and the seed of the printing of fine-bedded, accurates and the seed of the principal of fine-bedded, accurates and the seed of the principal color death, and the principal color death and the seed of the principal color death and the seed of the principal color death and the Sacatom of the Sacatom (Arm), as part of the seed of the seed of the Sacatom and Francisco (Arm), as part of the seed of the Sacatom and Francisco (Arm), as part of the seed of the Sacatom and Francisco (Arm), as part of the seed of the Sacatom and Francisco (Arm), as part of the seed of the Sacatom and Francisco (Arm), and principal seed of the Sacatom and Francisco (Arm), and the seed of the Sacatom and Francisco (Arm), and the Sacatom and Sacatom (Arm), and colors, 1940. Thadden and California and Francisco (Arm), and the seed of the Sacatom and Sacatom (Arm), and the seed of the Sacatom (Arm), and the Sacatom (Arm), and the Sacatom (Arm), and the seed of the Sacatom (Arm), and t

percentily the badded, repairing parallel and typic between the service of the property between the percentage of the pe

Iganhite Messhart – Mexicotte in pale-recordin-resings (1986) to 1000/16, early fine in medium-games, self-contral and self-exceled, estima proceedings of the medium games, self-contral and self-exceled, estima proceedings and anomalium. Weathern to cool-sensition along many laminature. Weathern to cool-sensition proposance. The expect 1.6–3 at it is locally resemble, reveals introduced, and first bradded, Angolies wither them end quertity games as large as public reso expect to the head 13–30 are. Desposited on an assistant dates and toleral intendings achieves encomment. This chart is sensition to the processing of the contral and the sensition of the processing of the contral and the sensition of the processing of the contral and the con

entitled Ferrest Member

haute. Top is semantial secondarming. Therema 7.6-12 m. Pertitud Forest Member.

Upper partie. Secondary separate, dank transpressionals in propriet-group.

Upper partie. Secondary separate, dank transpressionals in propriet-group.

Secondary is a single selected objective reconnecting unincommunities. Secondary selected in secondary selected from exhibited periods. Bedfring a block, reservoir objects or excellent from exhibited periods. Bedfring a block, reservoir objects are partied selected from exhibited periods. Bedfring a block, reservoir objects are partied selected from exhibited periods. Bedfring a block, reservoir objects are partied selected from exhibited periods. Bedfring a block, reservoir objects are partied selected from the with current breation and some medition, to avoid expla places and trough coreflecting. Current direction was mostly north to northwest. wrong transleading, Counted disaction was thesity with to institute, Canneal limbelagic immunotis, poor entring, and deciding similaries characteristics of legit-mengy from regimes immunotis opposition to a flushy" pape of handed assess an excitomance. Providence for the inapper part of Poerthal Ferrar Mamber is emople, \$10 in strictges/could provide the second formation of the County, This in the earth is east so the second of the counterpart of the county of the earth of the second panels and the second of the second of the counterpart of the counterpart of the panels and the counterpart of the counterpart of the counterpart of the counterpart of the panels and the counterpart of the counterpart of the counterpart of the counterpart of the panels and the counterpart of the counterpart of

quadrangle at two positionisms ladigue planing the noish solic of Michael Disse. This better Diss. This better Disse. This better Disse. The plane of the plane passed on the plane passed plane to passed plane to passed plane to passed plane to position the plane passed plane to passed plane to position and plane considerable and of their metal, passed builded not trought and planes considerable and of their metal, passed builded not trought and planes and planes presents, minimized planes, and the planes of the planes of the passed planes and planes are planes. The planes are planes are planes are planes are planes are planes are planes and planes are planes. The planes are planes are planes are planes are planes are planes are planes. The planes are planes.

time, interemptating in Sear of the Solventa new deposite in min-qualitating. The favore 27-48 in Linear part—Shows to cross section only. Compared mainly of difficulties the factorized partners, a line basis of which we obtained to smallest spaced after certainers, a line basis of which we conglisioners. Beds have mainly integer states, a ranging from grain-porties, legist generally page, and white in the apper part the favore of complisioners to pake redded to page to the lower part, flexit wasy 0-4 in in thickness, and invalue from the lower part flexit wasy 0-4 in in the lower page of the complex of the Colob Formation is grainment. Characters of sects inclines of the Colob Formation is grainment. Characters of sects inclines deposition on food planes, in shellow takes, and it to look from the color of the color of the color of sects in these sects and the color of the section of the section of the color of the of the color of the co to place in inverse relation to the thickness of the interiorgaling and scoring Screeks Sandstone Bed above. Appears thinned in seen to southwest of Thousau. Trickness sarges from TA to ETS as

#### GEOLOGIC QUADRANGLE MAP THOREAU QUADRANGLE, NEW MEXICO

Contact - Dadied where approximately located, distind whose convoled Fault - Showing day, deabed where approximately located, dotted where opposite an accuracy in doubt Apparent displacement displacement displacement in shown in stellar other placement. - Individual approximated displacement. U. updrawn stellar is disministrated applications. U. updrawn stellar is disministrated with a stellar or the stellar of the stellar or the s

a Symptone - Showing hasting and plunge of paig distact where make Mesocinal Resource-Stroning upper fold aris only. Armore entirate distribute of dip. Images service indicates failed dip.
 Strike and dip of inclined hole. Strike and dip of begoring in introsine diabase

Series of vertical boxes Bearing and plungs of channel in sandatus

 Structure senior: - Drown on how of Deletts Seniorine. Deshed when
 properted above ground softees. Commer teternal SES on National
 Geodetic Vertical Delete of 1929 Adt

Water well-For additional information, ton Cooper and John (1968).

STRUCTURE:

The Thermon question plan is board a few intersectors northward of the East quilitar the much merger of the Charo Steps in the recoffmen pert of the fact force State Steps in the recoffmen pert of the fact force State Except along the east safe and in the merchant content of the quadrangle, the secondary state of the produces and produces and the secondary states of 10° W, and the latest 2 1/2" FINE. The east sign of the parademiqle is interested by the merchanting Blacowite 100° fine parademic secondary states 10° W, and the latest 2 1/2" FINE. The east sign of the guardenight is interested by the merchanting Blacowite 10° fine parademic secondary states and the secondary of the se

sometancy from send tools. The are architect factor occur on the form it form of a passified to the same of, the reprocedure, they consequent the respective factor of the passified to the architecture of the send of the send of the passified the send facility of the grather. Therefore the fact frequent there is made corth- both they lamb at an oblique single, both is a montheast and multi-sound changes not displayed within 1-2 are, but its own of the passified and and multi-sound changes not facilities over displayed within 1-2 are, but its own of the passified and the passified an

mantengie.

All of the busin is the quantizingle axis control hadro and all have steep to certificity. They did now the 40s, bottos dishe-file, mountains, and appear to have occurred together with the mountains flexaming. The patient of hiding, faulting, and timing of heids appears in two lever its improves in mountain all times, providing of the Land Mountains. Deformation probably most place to latent Cartesians and sediest Territory time, during the passed of Lanundia sompony (Kelley and Climin, 1960, p. 22 and 47).

STRUCTURE

Drawn MAE

DESCRIPTIONS

NTS PROJECT NEW MEXICO

S SECTION A-A' & UNIT DESC J WATER IMPROVEMENTS P N, MCKINLEY COUNTY, NEW

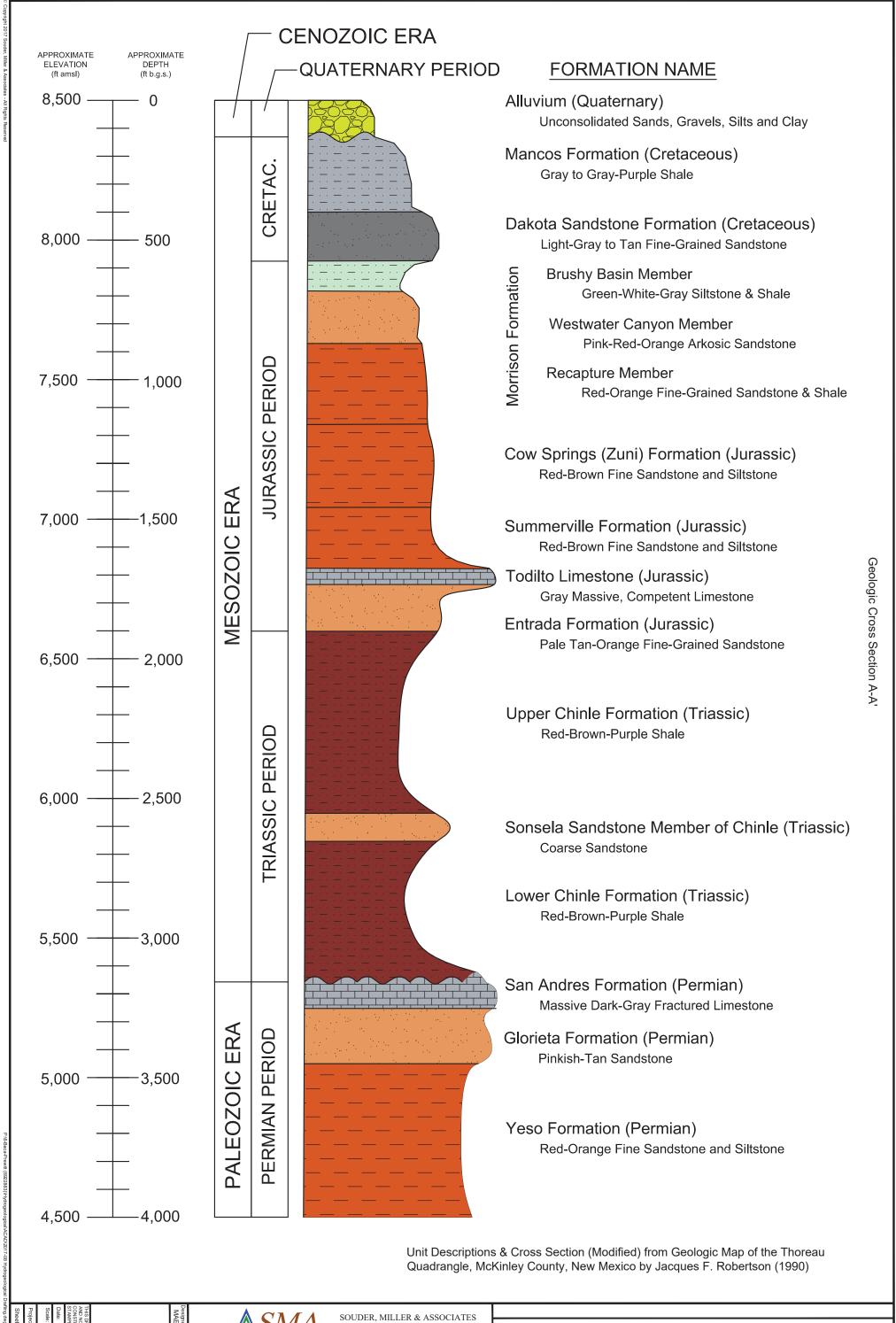
SEOLOGIC CROSS S BACA-THOREAU W NAVAJO NATION, N

GEOLOGIC

ate: AUG. 2017 Scale: Horiz: N/A Vert: N/A

> pject No: 6424977 Sheet: Fig. 3A

Unit Descriptions & Cross Section (Modified) from Geologic Map of the Thoreau Quadrangle, McKinley County, New Mexico by Jacques F. Robertson (1990)



5454 VENICE AVE NE, SUITE D ALBUQUERQUE, NM 87113

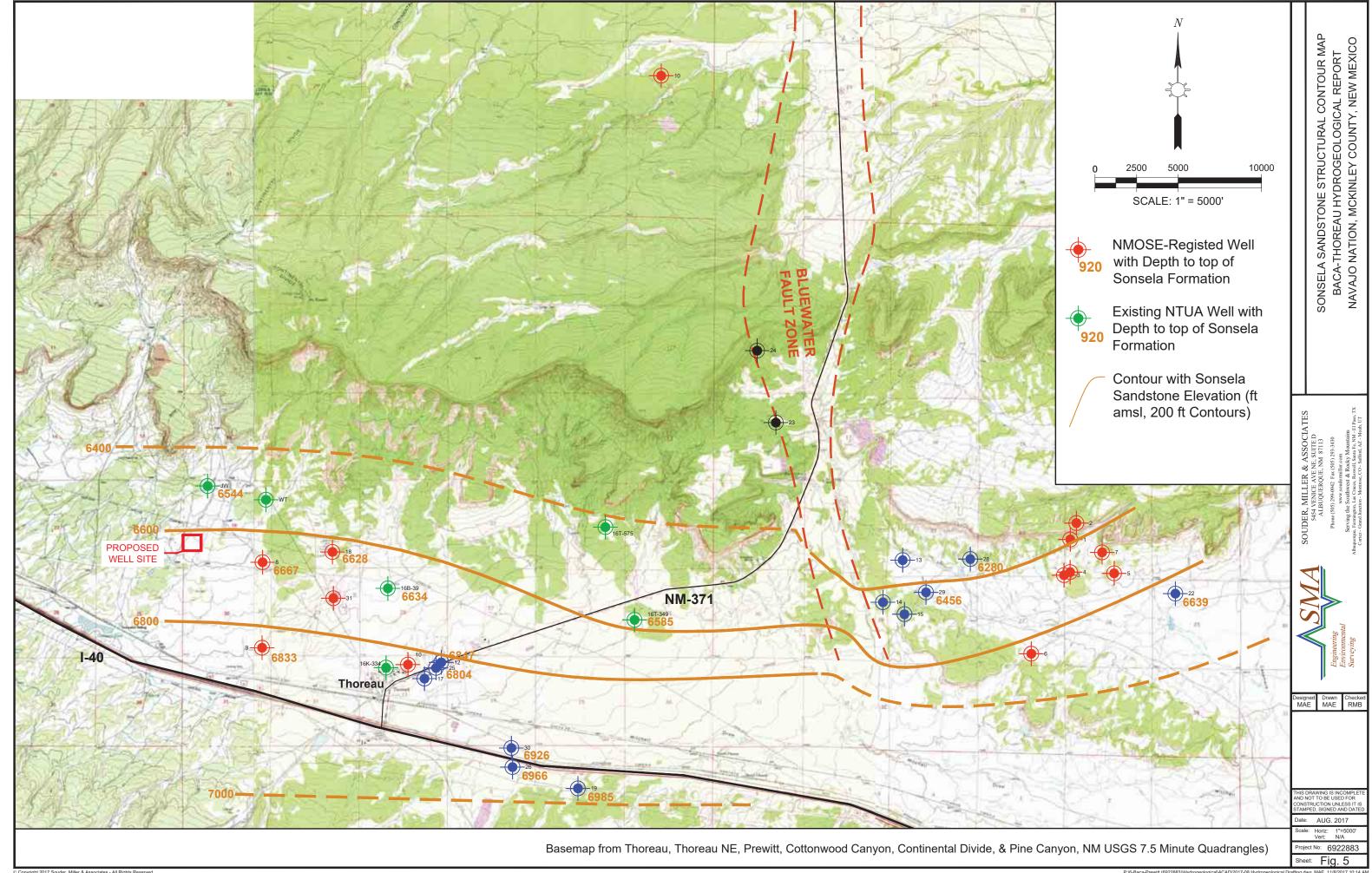
Phone (505) 299-0942 Fax (505) 293-3430

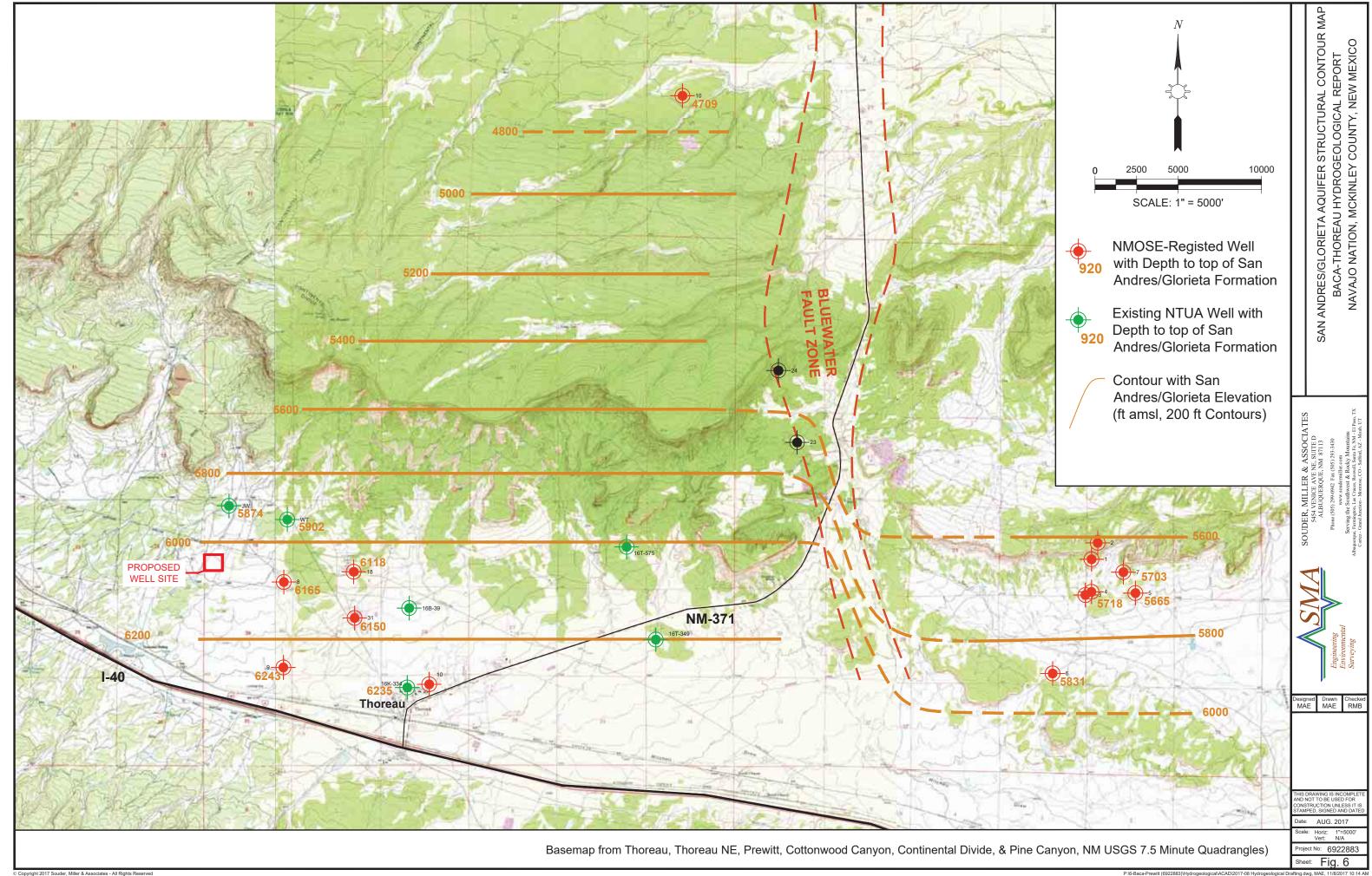
www.soudermiller.com
Serving the Southwest & Rocky Mountains
Albuquerque, Farmington, Las Cruces, Roswell, Santa Fe, NM - El Paso, TX
Cortez - Grand Junction - Montrose, CO - Safford, AZ - Moab, UT

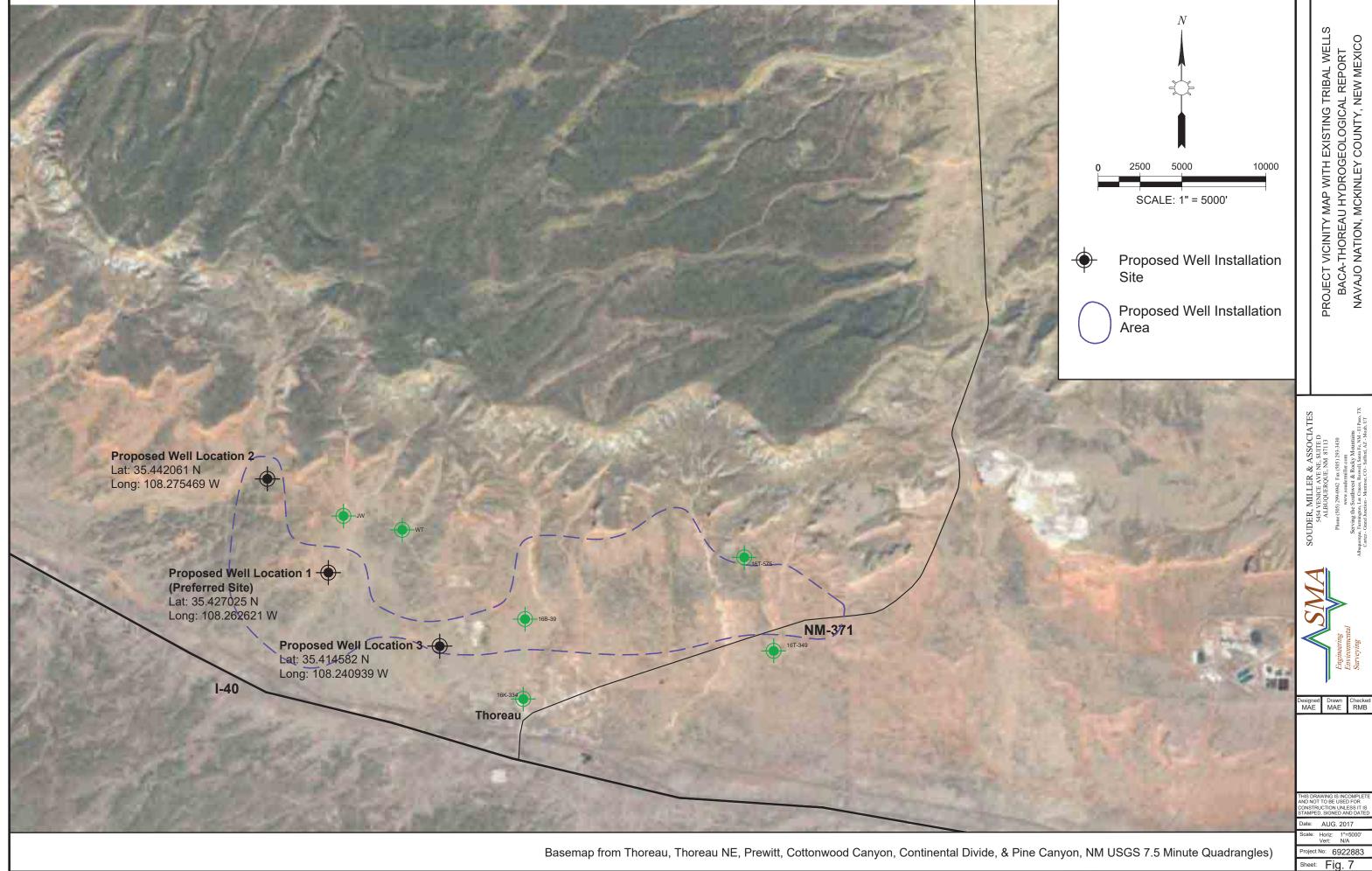
Engineering

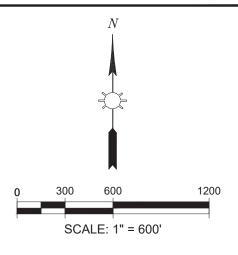
Surveying

STRATIGRAPHIC COLUMN
BACA-THOREAU WATER IMPROVEMENTS PROJECT
NAVAJO NATION, MCKINLEY COUNTY, NEW MEXICO









### **LEGEND**



Proposed Well 1 Location (Approximate)



Potential Contaminant Source W/ NNEPA Code (Appendix F, NNEPA-PWSSP Susceptibility Update Form)

### Map Codes:

RMS - Unsewered Single Family Residence

ARL - Animal Range Land

IOG - Oil/Gas Transmission Pipeline

WELL LOC. 1 - POTENTIAL CONTAMINANTS WITHIN 1/2 MILE BACA-THOREAU HYDROGEOLOGIC REPORT NAVAJO NATION, MCKINLEY COUNTY, NEW MEXICO

Jack VENICE AND ENGLISH STILL D
ALBUQUER(QUE, NM 87113
Phone (819 299-1942 Fax (816) 293-3430
www.soudermiller.com
Serving the Southwest & Rocky Mountains
Albuqueque, Farmingon, Le Croces, Roweld, Enning Fay, Le Corres, Roweld, Enning Control of Control Andropout Control of Control Andropout Control of Control Andropout Control of Control Andropout Control and Andropout C



signed Drawn Checked MAE MAE RMB

THIS DRAWING IS INCOMPLET AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATE

Date: SEPT. 2017

Scale: Horiz: 1" = 300"

Project No: 64250

#### **TABLES**



## Table 1. Summary of Existing Supply Wells near Baca-Thoreau System Baca-Thoreau Water Systems Improvements Project

Navajo Nation, McKinley County, New Mexico

	Loca	tion	Well	Well Depth	Static W	ater Level	Casing	Screened Production		<b>Test Specific</b>	Aquifer								
Well Name	Latitude	Longitude	Elevation (ft amsl)	(ft bgs)	Depth (ft bgs)	Elevation (ft amsl)	Diameter (inches)	Interval (ft bgs)	Rate (gpm)	Capacity (gpm/ft)	Name								
JW Camp Well (16T-	35.436038	-108.2602	7404	1708	228 (1964)	7176 (1964)	6"	1522-1708	25	0.14	San Andres /								
529)	35.430038	-106.2002	7404		260 (1979)	7144 (1979)	0	1322-1708	23	0.14	Glorieta								
West Thoreau Well	35.433814 -108	-108.2484	7377	1760	286 (1982)	7091 (1982)	8"	1510-1640	80	0.2	San Andres / Glorieta								
(16T-614)					292 (1984)	7085 (1984)		1660-1690											
Tribal Well 16T-349	240 25 412595	25 /12505 100	5 -108 1734	-109 173 <i>1</i>	100 1724	100 1724	25 -109 1724	35.413585 -108.1734	-108 173 <i>/</i> l	-108.1734	7120	677	180	6940	8"	525-600	20	0.36	Sonsela
Tribal Well 101-349	33.413363 -106.1734		7120	077	100	180	0940	0	600-677	20	0.30	Sandstone							
Thoreau High School	35.41737	-108.2343	7250	1242	123 (1966)	7127 (1966)	8"	980-1040	75 (pump	0.2 (Approx.)	San Andres /								
Well	35.41/3/	55.41/5/	33.41/3/ -10	55.41/5/ -108.2343	06.2343 7230		263 (2010s)	6987 (2010s)	_	1080-1142	limited to 47)	0.3 (Approx.)	Glorieta						

Well Locations & Construction Information from Well Records provided by NTUA, HIS, and Gallup-McKinley County Schools District Specific Capacity calcuated from drawdown and test pumping rate records



#### Table 2. Wells Registered with NMOSE Near Thoreau, New Mexico

Baca-Thoreau Water Supply Project, Navajo Nation, New Mexico

Index	Name/NMOSE	NMOSE POD		Diversion	_	Easting	Northing	Elevation	Depth of	Depth to	Production
Number*	No.	No.	Use	(afy)	Owner	(NM-SP W)	(NM-SP W)	(ft amsl)	Well (ft)	Water (ft)	(gpm)
1	B 00087	B 00087 B-S-6	IND	15.03	TRI STATE GENERATION	2647706	1611088	7033	990	451	130
2	B 00087	B 00087 B-S-2	IND	15.03	TRI STATE GENERATION	2648074	1612073	7311	1555	182	120
3	B 00087	B 00087 POD10	IND	15.03	TRI STATE GENERATION	2647334	1608942	6938	1550	272	175
4	B 00087	B 00087 B-S-5	IND	15.03	TRI STATE GENERATION	2647699	1609130	6961	1445	189	100
5	B 00087	B 00087 B-S-4	IND	15.03	TRI STATE GENERATION	2650339	1609058	6930	1724	233	120
6	B 00087 B	B 00087 B-S-7	MON	577.5	TRI-STATE ASSOC., INC.	2645367	1604228	6953	1376	216	20
7	B 00087 B	B 00087 POD9	MON	577.5	TRI-STATE ASSOC., INC.	2649614	1610313	6983	1500	324	125
8	B 00386	В 00386 Ехр	MUN	200.5	THOREAU WATER & SANITATION	2599229	1609722	7292	1380		50
9	B 00386	B 00386-5	MUN	200.5	THOREAU WATER & SANITATION	2608649	1603723	7163	1120	150	85
10	B 00386	B 00386 S	MUN	200.5	THOREAU WATER & SANITATION	2607951	1603581	7150	1150	75	80
11	B 00417	B 00417	SAN	3	THE NAVAJO TRIBE, DWR	2623152	1638919	7492	3102	550	25
12	B 00826	B 00826	MUL	3	R. P. WALDIE	2609971	1603715	7147	343	120	30
13	B 00853	B 00853 0-1	MON	0	CONOCO, INC.	2637665	1609849	7045	946		
14	B 00853	B 00853 0-2	MON	0	CONOCO, INC.	2636481	1607319	7024	897		
15	B 00853	B 00853 EXPL. 4	MON	0	CONOCO, INC.	2637771	1606601	7026	740	187	
16	B 00899	В 00899	DOM	3	JIM M. RENEAU	2608966	1602735	7140	220	95	
17	B 00900	B 00900 X	DOM	3	TIETJEN RANCH	2615959	1601699	7075	401	160	
18	B 00954	B 00954	IND	66	TRANSWESTERN PIPELINE CO.	2603422	1610335	7308	1350	320	40
19	B 00986	В 00986	STK	3	CARVER LAND & CATTLE CO.	2618175	1596150	7100	170	90	15
20	B 01019	B 01019 POD13	MON	0	PLAINS ELECTRIC GENERATION	2652688	1605927	6848	37		
21	B 01019	B 01019 POD11	MON	0	PLAINS ELECTRIC GENERATION	2652414	1605089	6854	106	6	
22	B 01019	B 01019 POD14	MON	0	TRI STATE GENERATION	2654031	1607835	6859	270	31	
23	B 01034	B 01034	DOM	3	B. A. MARSH	2630054	1618106	7284	485	150	30
24	B 01102	B 01102	DOM	3	MARY ANN O'NEAL	2628933	1622423	7559	510	180	15
25	B 01173	B 01173	DOM	3	REX EBY	2609656	1603381	7144	375	127	
26	B 01178	B 01178	STK	3	ERLINE L BEGAY	2614248	1597432	7100	350	113	10
27	B 01244	B 01244	MON	0	DANIEL B. STEPHENS & ASSOC.	2603441	1609680	7290	72	25	2
28	B 01301	B 01301	EXP	0	NW NM REG. SOLID WASTE	2641727	1609913	7000	946	190	20
29	B 01302	B 01302	EXP	0	NW NM REG. SOLID WASTE	2639069	1607911	6996	740	190	20
30	B 01620	B 01620	DOM	3	DAVID C. MILLER	2614179	1598571	7086	305	90	10
31	Thoreau H.S.	Well No. 1	MUN		THOREAU HIGH SCHOOL	2603453	1607561	7250	1242	178	75
31	16T-614 (WT)	West Thoreau	MUN		NTUA	2599433	1613468	7377	1760	396	80
32	16T-529 (JW)	JW Camp	MUN		NTUA	2595933	1614293	7404	1708	300	20
33	16T-575		STK		NTUA	2619803	1611828	7280	1150	320	15
34	16T-349		MUN		NTUA	1606263	2621554	7120	677	180	20
35	16B-39		MUN		NTUA	2606748	1608152	7234	730	280	9
36	16K-334	Thoreau S.C.	MUN		BIA	2606638	1603393	7160	1201	131	38
	Well Water Hse					•				•	

STK - Livestock Well

EXP - Exploratory Well

Well Water Use Codes

MUN - Municipal SAN - Sanitary
DOM - Domestic MUL - Multiple Household

\* Index Number Correlates to Figure 2 which Indicates the Location of Wells

Index No. Color Key: Red San Andres/Glorieta Well

Blue Sonsela Well
Green Existing Tribal Well
Black Alluvial/Unknown



IND - Industrial Well

MON - Monitoring Well

#### Table 3. Water Quality Data from Select Wells Near Thoreau, New Mexico

Baca-Thoreau Water Supply Project, Navajo Nation, New Mexico

Map Index No.	U-1	U-2	U-3	16K-334	16T-349	16T-529	16T-614
USGS Well No.	352532108140001	352532108140601	352418108131501	352418108131502			
Well Name	Transwestern Pipeline	Transwestern Pipeline	BIA School Well (Old)	BIA School Well	16T-349	JW Camp Well	West Thoreau Well
Depth Well			505	1201	677	1708	1760
Aguifor	San	San	Sonsela	San	Sonsela	San	San
Aquifer	Andres/Glorieta	Andres/Glorieta	Sandstone	Andres/Glorieta	Sandstone	Andres/Glorieta	Andres/Glorieta
Sample Date	March, 1975	March, 1975	September, 1964	June, 1952	September, 1971	Various	Various
Specific Conductance	480	661	879	836	580	687	401
Acid Neutralizing Capacity	218	267	221	213			
Bicarbonate	266	326	270	260	240	217	244
Nitrate Plus Nitrite	0.02	0.41	0.02	0	0.12	1.4	<0.3
Orthophosphate	0.03	0.18			0.04		
Hardness	130	4	400	460	5	180	171
Noncarbonate Hardness	0	0	180	240	147		
Calcium	44	1.6	120	140	2	94.8	33
Magnesium	5.1	0.1	22	29	<0.01	85	22
Sodium	43	150	39	10	138	20.8	18.7
Sodium Adsorption Ratio (SAR)	1.6	31	0.8		26.8		
Sodium Fraction Of Cations	41	98	13		6.11		
Potassium	2.5	2	2		<0.1		
Chloride	3.8	15	28	5	19.5	44	
Sulfate	40	58	220	240	30.3	72	31
Fluoride	0.3	0.2	0.2	0.4	0.54	1.4	0.24
Silica	9.5	9	12	11			
Iron	0.01	0.05	0.01		0.15	0.46	0.57
Manganese	0.02					0.005	<0.05
Total Dissolved Solids	279	399	574	568	337	286	
Ph (ph Units)			7.3		9	7.1	7.8
Uranium						0.0034	0.004
Adjusted Gross Alpha						7.4 +/- 1.3	5.4 +/- 1.2
Total Radium (226/228)						5.82	3.5 +/- 0.4

Note: All results in mg/L unless otherwise noted

Results in **Red** indicate EPA Drinking Water Primary Standard Exceedance

Results in **Blue** indicate EPA Drinking Water Secondary Standard Exceedance

Tribal Well Analytical Data from NTUA and IHS Well Records & Documents

USGS-Registed Well Analytical Data from USGS Water Quality Database (accessed October, 2017)



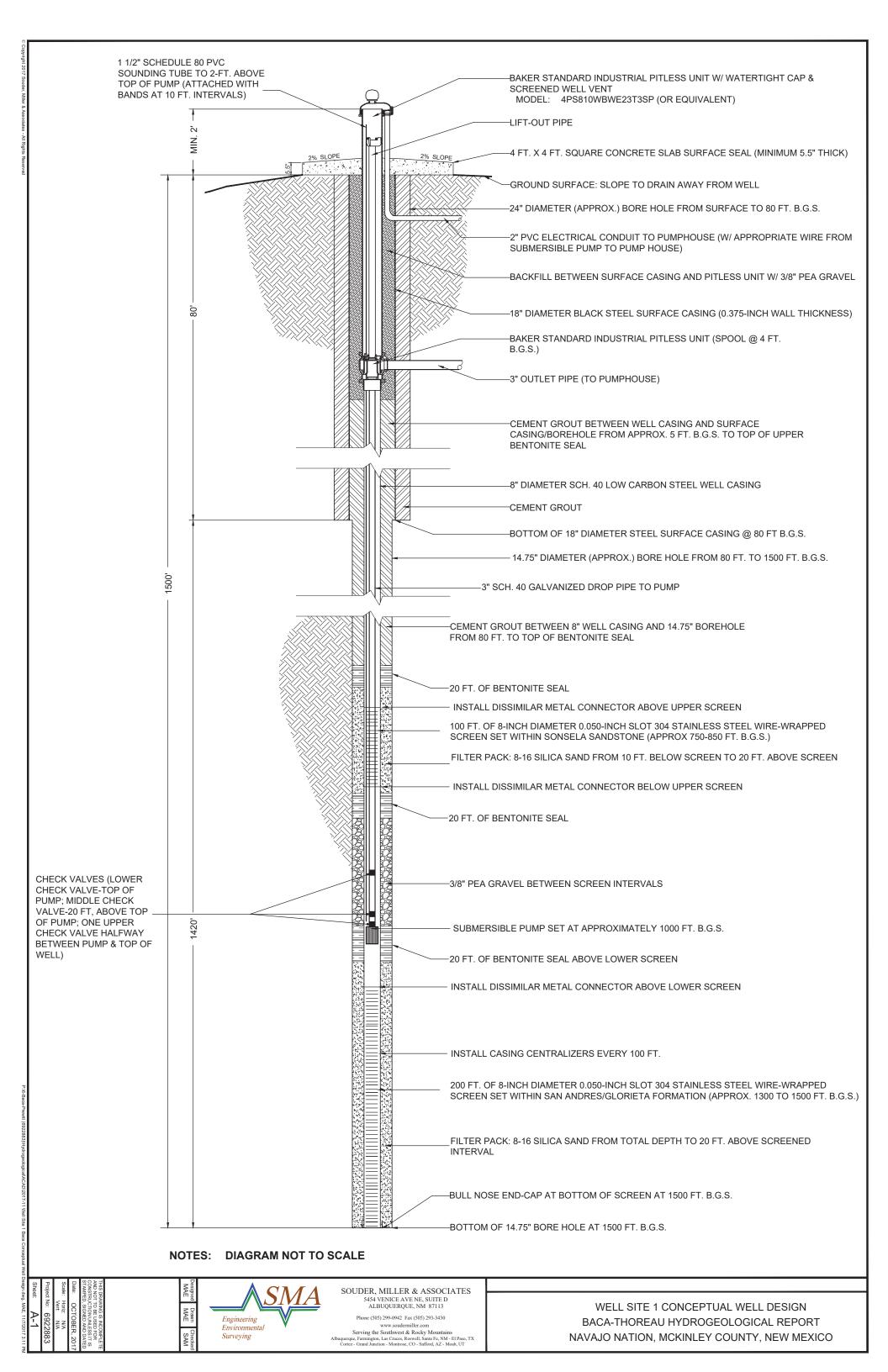
Table 4. Potential Contaminant Sources within 1/2 Mile of Proposed Well Location Baca-Thoreau Water System Improvements Project, Navajo Nation, McKinley County, New Mexico

Contaminant Source Number	NNEPA Contaminant Source Code	Contaminant Source Type	Actual or Potential Contaminant?	Contaminants of Concern	Distance from Proposed Well (ft)
1	ARL	Animal Range Land	Potential	Nitrate, Phosphate, Chloride, Pesticides, Pathogens	0-2640
2	IOG	Transwestern Pipeline Oil/Gas Transmission Line	Potential	Oils, Gasoline, Volatile Organic Compounds, Natural Gas, Propane	1000
3	RMS	Unsewered Single Family Residences - Three Potential Septic Tanks/Leachfields	Potential	Septage, Septic Effluent, Pathogens, Nitrate, Ammonia, Chloride, Household Chemicals	450-2640



# APPENDIX A Conceptual Well Design Diagram





## **APPENDIX B**

**Theis Equation Calculation Spreadsheet** 



## Appendix B, Exhibit 1 - Theis Equation Drawdown Calculations for Proposed Thoreau Well Location 1 - Anticpated Use of 100 afy

Baca-Thoreau Hydrogeologic Investigation

## **User Inputs - Proposed Wells**

Proposed Pump Time (% of Day)	50%	
Assumed Transmissivity (gpd/ft)	1048	(140 ft2/day)
Assumed Aquifer Storativity (unitless)	0.0004	
Well Specific Capacity (gpm/ft)	0.1	
Pumping Time (years)	20	

#### **Proposed Well List**

Name (NMOSE File Record #)			Diversion Amount (ac-ft/y)	Average Calcuated Proposed Pump Rate (gpm) from Annual Diversion
Well Site 1	1610948	2595059	100	124

#### **User Inputs - Existing Wells**

Assumed Pump Time (% of day)	100%
Assumed Well Efficiency (%)	80%

#### **Cell Color Coding Legend**

 <del></del>
Input Value from User
Calculated Value
Drawdown Result
Expected Drawdown at Radial Distance from Well (Radius of Influence)

Total Proposed Diversion 100 acre-ft/year

## **Existing Well & Distances List**

Name (NMOSE File Record #)	Diversion Amount (ac-ft/y)	Northing (State Plane)	Easting (State Plane)	Total Well Depth (ft bgs)	Depth to Water (ft)	Distance from Proposed Well (miles)	Water Column Thickness (ft)	Assumed Pump Rate (gpm)	Predicted Pump Drawdown (ft)	Predicted Drawdown from Proposed Wells (ft)	Well Loss due to Inefficiency (ft)		Percent of Water Column Drawdown due to Proposed Wells
Thoreau H.S.	50	1607561	2603453	1242	178	1.7	1064	31	310.0	58	77	445	5%
16T-614 (WT)	80	1613468	2599433	1760	396	1.0	1364	50	496.0	73	124	693	5%
16T-529 (JW)	30	1614293	2595933	1708	300	0.7	1408	19	186.0	84	46	316	6%
16T-575	15	1611828	2619803	1150	320	4.7	830	9	93.0	31	23	147	4%
16T-349	20	1606263	2621554	677	180	5.1	497	12	124.0	29	31	184	6%
16B-39	9	1608152	2606748	730	280	2.28	450	6	55.8	50	14	120	11%
16K-334	25	1603393	2606638	1201	131	2.6	1070	15	155.0	46	39	240	4%
B 00386	201	1609722	2599229	1380	200	0.8	1180	124	1243.0	78	311	1631	7%
B 00386	201	1603723	2608649	1120	150	2.9	970	124	1243.0	44	311	1597	4%
B 00386	201	1603581	2607951	1150	75	2.8	1075	124	1243.0	44	311	1598	4%
B 00417	3	1638919	2623152	3102	550	7.5	2552	2	18.6	20	5	43	1%
B 00087	15	1611088	2647706	990	451	10.0	539	9	93.2	13	23	130	2%
B 00087	15	1612073	2648074	1555	182	10.0	1373	9	93.2	13	23	130	1%
B 00087	15	1608942	2647334	1550	272	9.9	1278	9	93.2	13	23	130	1%
B 00087	15	1609130	2647699	1445	189	10.0	1256	9	93.2	13	23	130	1%
B 00087	15	1609058	2650339	1724	233	10.5	1491	9	93.2	12	23	129	1%
B 00087 B	578	1604228	2645367	1376	216	9.6	1160	358	3580.3	14	895	4489	1%
B 00087 B	578	1610313	2649614	1500	324	10.3	1176	358	3580.3	13	895	4488	1%
Quarter Mile	0	1610948	2596379							109.8			
Half Mile	0	1610948	2597699							91.0			
3/4 Mile	0	1610948	2599019						80.1				
One Mile	0	1610948	2600339							72.3			
Two Miles	0	1610948	2605619							53.6			



## Appendix B, Exhibit 2 - Theis Equation Drawdown Calculations for Proposed Thoreau Well Location 2 - Anticpated Use of 100 afy

Baca-Thoreau Hydrogeologic Investigation

## **User Inputs - Proposed Wells**

Proposed Pump Time (% of Day)	50%	
Assumed Transmissivity (gpd/ft)	1048	(140 ft2/day)
Assumed Aquifer Storativity (unitless)	0.0004	
Well Specific Capacity (gpm/ft)	0.1	
Pumping Time (years)	20	

#### **Proposed Well List**

Name (NMOSE File Record #)	Northing (State Plane)	Easting (State Plane)	Diversion Amount (ac-ft/y)	Average Calcuated Proposed Pump Rate (gpm) from Annual Diversion	
Well Site 2	1616505	2591398	100	124	

#### **User Inputs - Existing Wells**

Assumed Pump Time (% of day)	100%
Assumed Well Efficiency (%)	80%

#### **Cell Color Coding Legend**

ı,	
I	Input Value from User
I	Calculated Value
I	Drawdown Result
I	Expected Drawdown at Radial Distance from Well (Radius of Influence)

Total Proposed Diversion 100 acre-ft/year

## **Existing Well & Distances List**

Name (NMOSE File Record #)	Diversion Amount (ac-ft/y)	Northing (State Plane)	Easting (State Plane)	Total Well Depth (ft bgs)	Depth to Water (ft)	Distance from Proposed Well (miles)	Water Column Thickness (ft)	Assumed Pump Rate (gpm)	Predicted Pump Drawdown (ft)	Predicted Drawdown from Proposed Wells (ft)	Well Loss due to Inefficiency (ft)		Percent of Water Column Drawdown due to Proposed Wells
Thoreau H.S.	50	1607561	2603453	1242	178	2.8	1064	31	310.0	44	77	432	4%
16T-614 (WT)	80	1613468	2599433	1760	396	1.6	1364	50	496.0	59	124	679	4%
16T-529 (JW)	30	1614293	2595933	1708	300	1.0	1408	19	186.0	74	46	306	5%
16T-575	15	1611828	2619803	1150	320	5.5	830	9	93.0	27	23	144	3%
16T-349	20	1606263	2621554	677	180	6.0	497	12	124.0	25	31	180	5%
16B-39	9	1608152	2606748	730	280	3.31	450	6	55.8	40	14	110	9%
16K-334	25	1603393	2606638	1201	131	3.8	1070	15	155.0	37	39	230	3%
B 00386	201	1609722	2599229	1380	200	2.0	1180	124	1243.0	54	311	1608	5%
B 00386	201	1603723	2608649	1120	150	4.1	970	124	1243.0	35	311	1589	4%
B 00386	201	1603581	2607951	1150	75	4.0	1075	124	1243.0	35	311	1589	3%
B 00417	3	1638919	2623152	3102	550	7.4	2552	2	18.6	20	5	43	1%
B 00087	15	1611088	2647706	990	451	10.7	539	9	93.2	12	23	128	2%
B 00087	15	1612073	2648074	1555	182	10.8	1373	9	93.2	12	23	128	1%
B 00087	15	1608942	2647334	1550	272	10.7	1278	9	93.2	12	23	128	1%
В 00087	15	1609130	2647699	1445	189	10.8	1256	9	93.2	12	23	128	1%
B 00087	15	1609058	2650339	1724	233	11.3	1491	9	93.2	11	23	127	1%
B 00087 B	578	1604228	2645367	1376	216	10.5	1160	358	3580.3	12	895	4488	1%
B 00087 B	578	1610313	2649614	1500	324	11.1	1176	358	3580.3	11	895	4487	1%
Quarter Mile	0	1616505	2592718							109.8			
Half Mile	0	1616505	2594038							91.0			
3/4 Mile	0	1616505	2595358						80.1				
One Mile	0	1616505	2596678							72.3			
Two Miles	0	1616505	2601958							53.6			



## Appendix B, Exhibit 3 - Theis Equation Drawdown Calculations for Proposed Thoreau Well Location 3 - Anticpated Use of 100 afy

Baca-Thoreau Hydrogeologic Investigation

## **User Inputs - Proposed Wells**

Proposed Pump Time (% of Day)	50%	
Assumed Transmissivity (gpd/ft)	1048	(140 ft2/day)
Assumed Aquifer Storativity (unitless)	0.0004	
Well Specific Capacity (gpm/ft)	0.1	
Pumping Time (years)	20	

#### **Proposed Well List**

Name (NMOSE File Record #)	File Northing Easting (State Plane)		Diversion Amount (ac-ft/y)	Average Calcuated Proposed Pump Rate (gpm) from Annual Diversion	
Well Site 3	1606542	2601665	100	124	

#### **User Inputs - Existing Wells**

Assumed Pump Time (% of day)	100%
Assumed Well Efficiency (%)	80%

#### **Cell Color Coding Legend**

Input Value from User
Calculated Value
Drawdown Result
Expected Drawdown at Radial Distance from Well (Radius of Influence)

Total Proposed Diversion 100 acre-ft/year

## **Existing Well & Distances List**

Name (NMOSE File Record #)	Diversion Amount (ac-ft/y)	Northing (State Plane)	Easting (State Plane)	Total Well Depth (ft bgs)	Depth to Water (ft)	Distance from Proposed Well (miles)	Water Column Thickness (ft)	Assumed Pump Rate (gpm)	Predicted Pump Drawdown (ft)	Predicted Drawdown from Proposed Wells (ft)	Well Loss due to Inefficiency (ft)		Percent of Water Column Drawdown due to Proposed Wells
Thoreau H.S.	50	1607561	2603453	1242	178	0.4	1064	31	310.0	98	77	485	9%
16T-614 (WT)	80	1613468	2599433	1760	396	1.4	1364	50	496.0	64	124	684	5%
16T-529 (JW)	30	1614293	2595933	1708	300	1.8	1408	19	186.0	56	46	289	4%
16T-575	15	1611828	2619803	1150	320	3.6	830	9	93.0	38	23	154	5%
16T-349	20	1606263	2621554	677	180	3.8	497	12	124.0	37	31	192	7%
16B-39	9	1608152	2606748	730	280	1.01	450	6	55.8	72	14	142	16%
16K-334	25	1603393	2606638	1201	131	1.1	1070	15	155.0	69	39	263	6%
B 00386	201	1609722	2599229	1380	200	0.8	1180	124	1243.0	80	311	1634	7%
B 00386	201	1603723	2608649	1120	150	1.4	970	124	1243.0	63	311	1616	6%
B 00386	201	1603581	2607951	1150	75	1.3	1075	124	1243.0	65	311	1619	6%
B 00417	3	1638919	2623152	3102	550	7.4	2552	2	18.6	20	5	43	1%
B 00087	15	1611088	2647706	990	451	8.8	539	9	93.2	16	23	133	3%
B 00087	15	1612073	2648074	1555	182	8.9	1373	9	93.2	16	23	132	1%
B 00087	15	1608942	2647334	1550	272	8.7	1278	9	93.2	16	23	133	1%
B 00087	15	1609130	2647699	1445	189	8.7	1256	9	93.2	16	23	133	1%
B 00087	15	1609058	2650339	1724	233	9.2	1491	9	93.2	15	23	131	1%
B 00087 B	578	1604228	2645367	1376	216	8.3	1160	358	3580.3	17	895	4493	1%
B 00087 B	578	1610313	2649614	1500	324	9.1	1176	358	3580.3	15	895	4491	1%
Quarter Mile	0	1606542	2602985							109.8			
Half Mile	0	1606542	2604305							91.0			
3/4 Mile	0	1606542	2605625							80.1			
One Mile	0	1606542	2606945							72.3			
Two Miles	0	1606542	2612225							53.6			

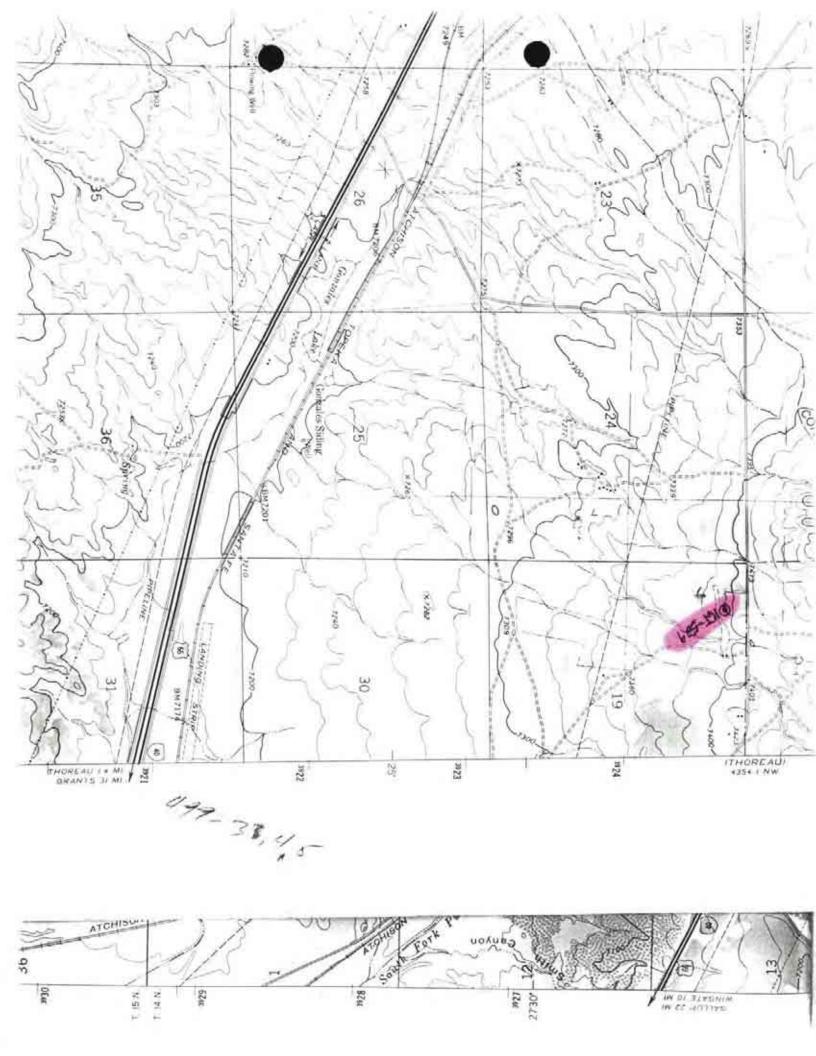


## **APPENDIX C**

## **Tribal Well As-Builts & Well Information**

(Wells 16T-529, 16T-614, 16T-349, 16K-334, 16B-39, & 16T-575)





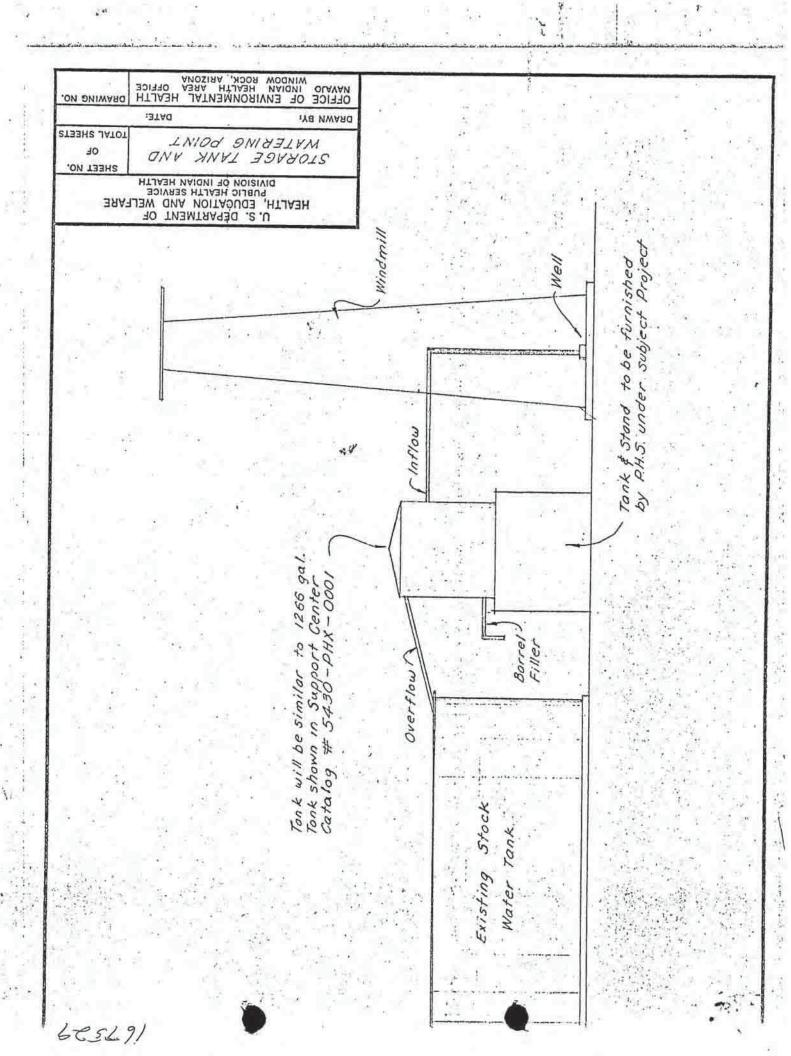


NTUA WELL - J. W. CAMP TRIBAL # 16T-529 6/8/93

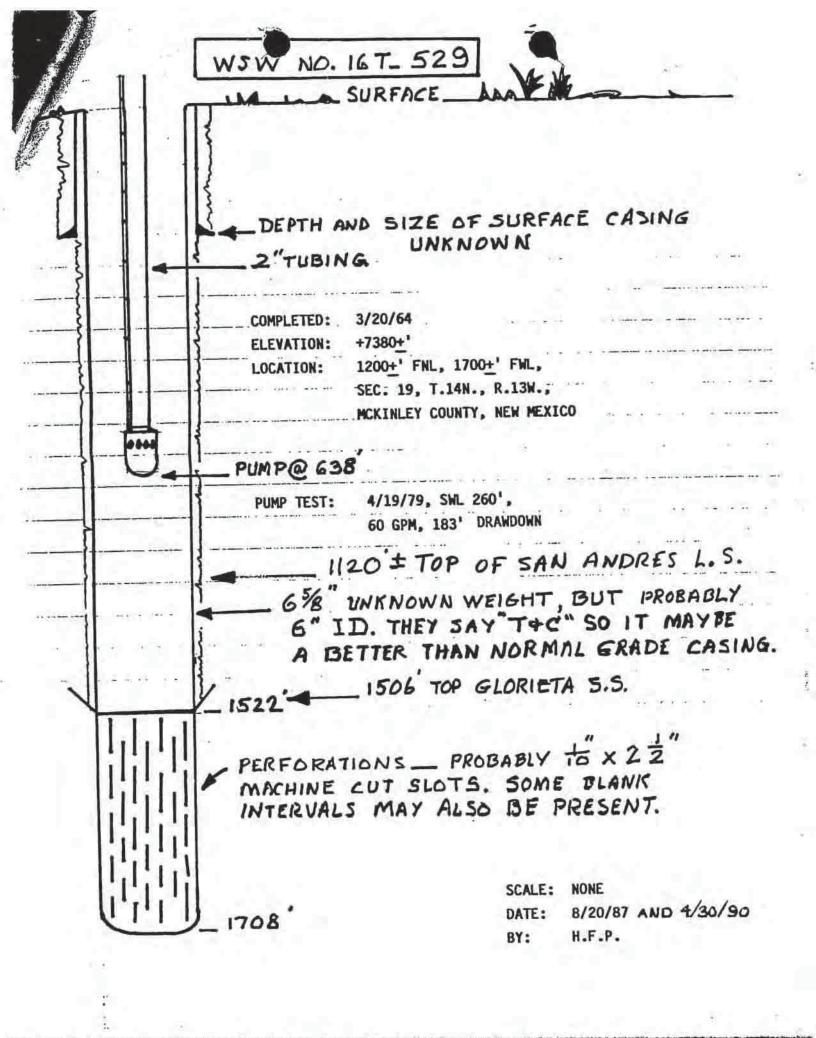


J.W. CAMP 167-529

6/8/93



# Well Logs /Diagrams



WELL No. 16T-529

DATE REPAIRED	WORK DONE AND MATERIALS USED
9/16/69	Pulled 19 joints of sucker rods and replaced leather cups.
1/12/70	Repaired pump rods, standpipe, stop & waste valve and valve handle.
7/23/73	Pulled rods, releathered plunger and foot valve.
10-29-74	Repaired 1%" stop and waste valve.  Made earthpit and refilled around the tank and trough
11/25/74	
2/12/75	Changed oil, okay Replaced valve - 1½ valve.
12-01-25	Welded storage Tank
16T-	529 Well equipped with 16' Aermotor windmill, 27,900 gallon storage tank, two (2) steel trough, 27,900 gallon tank needs a tank cover put on.
Va	
	\(\text{\colored}\)
economic distribution of the second	
ж е "	
* 4. 4.	
¥• E <b>4</b> √.	
v	

Wel	1 #Data	Project #6591
1.	Source of Power 16! Aermotor Windmil	11
A STATE OF THE STA	A. Date of Contruction -2/12/64	
	C. Contractor: Navajo Tribe	D. Surface Elevation
	A. Depth 17081	B. Size of Bore Hole 8-3/4"
The same of the sa	Casing: A: Size A.66-5/8" //	
	C. Location 186' Perforated	d on Bottom
5.	Screen: A. Length	B. Location
	C. Type	D. Slot Size
6.	Gradation of Gravel Pack	
	Depth of Grout Envelope	
	A. Static Water Level 302 Drawdown	= 365'
٥,		
	B. Date of Measurement 9/28, 29/77	
9.	Pump: A. Make	
	C. Horsepower	D. Voltage
		F. Full Load Amperage
	G. Rated Capacity	H. Depth of Setting
		J. Pumping Depth
10.	Water Level Indicator: A. Depth of	Setting
	B. Type	
11.	A. Size of Drop Pipe 1-1/4"	
	B. Size of Submersible Cable	
12.	Location of Check Valves	
	TO CONTRACT OF CHICAGO CONTRACTOR	

# Well Records / Schedules

RIBAL WELL NO 167-529	PWSID NM 3500303
TELL NAME/OTHER NO JOHN WILLIE CAMP	
WELL STATUS  (MARK ONLY ONE)  WELL STATUS  (MARK ONLY ONE)  WA ARTESIAN WELL  WAS SPRING  NS NATURAL SPRING  UNK UNKNOWN  OW OBSERVATION WELL	WELL USE  (MARK ONLY ONE)  DOM DOMESTIC  AGR AGRICULTURE  LIV LIVESTOCK  IND INDUSTRIAL MINING  REC RECREATION
GS GAS WELL OP OIL PRODUCTION MW MINERAL WELL XX UNKNOWN	MUN MUNICIPAL  OTH OTHER  UNK UNKNOWN
QUAD NO 5463 MILES WEST  NE SE SW NW / NE SE SW NW / NE SE SW NW SECT.  10 ACRE 40 ACRE 160 ACRE SECT.	MILES SOUTH RANGE
STATE: AZ ARIZONA NA NEW MENTES  COUNTY: AP APACHE MK MCKINLEY SJ S	ZY630 ZONE ZZ  ZONE Z
CHAPTER NAME: THOREAU	CHAPTER CODE THOR
LOCATION DATA SOURCE: FIELD CHECKED	DATE 91_193
FIELD CHECKED BY: UMOTAH	DATE 6/ 1/93 /dbase/welle/cbc/loc-Form.wp

## STRUCTURE FILE

uplate

		3 1251 1061
TRIBAL WELL NO 167-529		21/964 COMPLETED 31201/964
ELEVATION 7404	FT DEPTH 1708	DEPTH MEASURED 3/20/1964
		WELL DIA. 8 .75 IN
DEPTH IS MEASURED	ESTIMATED REPORTED	WELL DIA. [  8   .1/15] IN
CASTNG DIA 6 .62	FROM   TO	1708 FT MATL STL
1 CAULTIN TILL	FROM TO	FT MATL
2 CASING DIA	FROM TO TO	FT MATL
3 CASING DIA	TITLE TO THE	FT MATL
4 CASING DIA     .     CASING MATL CODES: brs=bras	s cop=copper evd=everdur	irn=iron mon=monel
pls=plas	tic stl=steel sst=stainle	
		OB FT OPENING TYPE P
1 CASING PERFORATED FROM	1/5/2/ FT TO 1/1/	
2 CASING PERFORATED FROM	TO TO	
3 CASING PERFORATED FROM	FT TO	FT OPENING TYPE
4 CASING PERFORATED FROM	FT TO	FT OPENING TYPE
S STANG PERFORATED FROM	FT TO	PT OPENING TYPE
OPENING CODES: f=fractured	d/porous/slotted casing 1-	wire-wound screen
s=screen/ty  z=other	pe unknown t=sand point	w=walled/shored x=open hole
	107. / /	
DATE WELL TURNED OVER TO TR		
FUNDED BY:	CONTRACT	POR: WAVAJO TRIBE
	THE TAXABLE PROPERTY.	ENERGY SOURCE
SITE IMPROVEMENTS	TYPE OF LIFT	EM ELECTRIC MOTOR
WM WINDMILL	AL AIRLIFT	
WP WATERING POINT	PS PISTON	
X TA TANK	TU TURBINE	HA HAND
X WL WATER LINE	MT MULTIPLE TURBINE	GS GAS ENGINE
TR TROUGH	CN CENTRIFUGAL	LP LP GAS ENGINE
CS CISTERN	MC MULTIPLE CENTRIF	UGAL NG NATURAL GAS ENGINE
HP HAND PUMP	BU BUCKET	WM WINDMILL
<b>=</b>	X SU SUBMERSIBLE	SO SOLAR
PUMP HP 5	SITE STORAGE CILITATE	Old O GAL
STRUCTURE DATA SOURCE: WI	ELLA FIZE/NITUAL F	1/16/16/16/19/H
STRUCTURE FILE COMPLETED F	BY: L. NOTAH	DATE 9 / /93 /dbase/wells/doc/Str-Form-V
revised 08 April 93		

TRIBAL WELL NO //6/7-5/29	USGS AQUIFER CODE	310GLRT
PUMP TEST 8 / S GPM FOR	TION WELL DATA AVAILABLE	PATE 3 1 201 1964  YES X NO
HORIZ CONDUCTIVITY FT/DAY  VERT. CONDUCTIVITY FT/DAY  COEF OF TRANSMISSIVITY FT2/DAY	SPECIFIC CAPACIT	
INDICATE ADDITIONAL PUMPING TEST DATA AVAILABLE  YES NO MULTIPLE RATE DRAWDOWN PUMPING TE  YES NO MULTIPLE RATE DRAWDOWN/RECOVERY  YES NO RECOVERY TEST	TEST	
HYDROLOGY DATA SOURCE: WELL FILE MT HYDROLOGY PILE COMPLETED BY: L. NOTAH  STATIC WATER	ENTERED JAI	DATE 9 / 193
DEPTH TO SWL 302 FT DATE 1912811977	DEPTH TO SWLFT	DATE//
DEPTH TO SWL 260 FT DATE 4/19/1979	DEPTH TO SWLFT	DATE//
DEPTH TO SWL 302 FT DATE 9/36/1981	DEPTH TO SWLFT	
DEPTH TO SWL 59 ZFT DATE 61 22/1992	DEPTH TO SWLFT	DATE//
DEPTH TO SWL 435 FT DATE 816 11992	DEPTH TO SWLFT	DATE//
DEPTH TO SWLFT DATE//	DEPTH TO SWLF	r DATE//
DEPTH TO SWLFT DATE//	DEPTH TO SWLF	T DATE//
DEPTH TO SWLFT DATE//	DEPTH TO SWLF	r DATE//
DEPTH TO SWLFT DATE//	DEPTH TO SWLF	r date//
DEPTH TO SWLFT DATE/	DEPTH TO SWLF	T DATE//
DEPTH TO SWLFT DATE//	DEPTH TO SWLF	T DATE / / / / / / / / / / / / / / / / / / /

ENTERED. JAN 1 3 1994

newenter

IBAL WELL NO 167-	5 2 9		
SEQ-NO O O / DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
LITHO	LOGIC MODIFIER		
CONTRIBUTING UNIT COD	E M		
SEQ-NO 0 0 2 DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	DHLE
LITHO	LOGIC MODIFIER		
RED WITH M.	INOR ISNOIS, I LIMS	swillems	
CONTRIBUTING UNIT COL	DE [/]	=49000000000000000000000000000000000000	
SEQ-NO 003 DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
	DLOGIC MODIFIER		
CONTRIBUTING UNIT CO	DE WI		
SEQ-NO 6 0 9 DEPTH TO TOP	DEPTH TO BOTTOM -	GEOHYDRO-UNIT	LITH.
LITH	OLOGIC MODIFIER	TITIO	
CONTRIBUTING UNIT CO	DE M		
SEQ-NO DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
LITE	HOLOGIC MODIFIER		
CONTRIBUTING UNIT CO	008		
INTERVAL FILE COMPLET		ERED JAN 1 3 1994 /dbase	E 89 / 08 / 9. /wells/doc/Int-Porm

DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
1 1 19/10	11430	12311CHWL	SDSL
LITHO	LOGIC MODIFIER		
WES. L. PET	FOR & MON BU	TTE	
	e M *	***************	
EQ-NO 005		No. of the state o	
DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	SWDS
11/4/30	1111/14/19/24	Z S T S K M F	13/1/12/3
	DLOGIC MODIFIER		
4 4 R D			
CONTRIBUTING UNIT COL	DE <u>[N]</u>		**********
SEQ-NO 006	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
DEPTH TO TOP	1/5/3/2	12/3/0/MWKP	SHLE
1 1 442	1	1 1010 10 1010 10 10	
	OLOGIC MODIFIER	типп	
SIOME CONGL			
CONTRIBUTING UNIT CO	HERESKERESERESERESERESERESER DE [V]		
SEQ-NO DOZ	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
DEPTH TO TOP	11111570	31354DR	LMSM
111110	TOTAL MODIFIER		
[0] [0] = [0]//0//6	HOLOGIC MODIFIER	TITTO	
CONTRIBUTING UNIT CO	ODE W		
CONTRIBUTING DATE OF			
SEQ-NO 008 DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
DEPTR 10 102	11/1/018	3110GLRT	SIMIDIS
LIT	HOLOGIC MODIFIER		
HARD, RED	GRAY/WHITE!		



	1 1
usgs well	IC DATA SOURCE: WELL FILE (DRILLER'S LOG), SCHEDULE). GEOHYDROLOGIC UNIT BOUNDARIES
	ARE APPROXIMATE.
The well man also Plan	UCE FROM THE SAN ANDRES LIMESTONE (3135
ns were may ness press	The same was the same of the s
مرتاب الماليات	
LOCATION COORDINATES MEA	ASURED WITH GPS DEVICE 6 SATELLITES VISIBLE
	CKED OFF TOPO MAP -SCALE=
1 Hockiton Con	
PRINCED ON MOT	O MAR -SCALE-
ELEVATION PRINTED ON TOP	
ELEVATION MEASURED WITH	GPS UNIT -4 SATELLITES VISIBLE
ELEVATION MEASURED WITH	FROM 1:24000 TOPO
ELEVATION MEASURED WITH  ELEVATION INTERPOLATED INTERPOLA	FROM 1:24000 TOPO
ELEVATION MEASURED WITH ELEVATION INTERPOLATED F HE IMPROVEMENTS AT THIS SI IN GOOD CONDITION	FROM 1:24000 TOPO  ITE ARE:  NEED SOME MAINTENANCE
ELEVATION MEASURED WITH ELEVATION INTERPOLATED IN HE IMPROVEMENTS AT THIS ST IN GOOD CONDITION IN FAIR CONDITION	FROM 1:24000 TOPO ITE ARE:
ELEVATION MEASURED WITH ELEVATION INTERPOLATED F HE IMPROVEMENTS AT THIS SI IN GOOD CONDITION	FROM 1:24000 TOPO  ITE ARE:  NEED SOME MAINTENANCE  NEED MAJOR MAINTENANCE

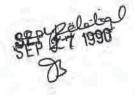
UPDATED JAN 13 QQ

-SEP 27 1990 Beggs

## TRIBAL WELL RECORD LOCATION FILE

1.1.1

TRIBAL WELL NO [1]6]7	7-15129111111	PWSID W	MUDUUJAJ
WELL NAME/OTHER NO	I IWILLINE ICA	HMPI INTIHI	41 IMBUH 1 1 1
WELL TYPE (MARK ONE ONLY)	WELLST (MARK ONE O		MELLUSE (MARK ONE ONLY)
( ) WW WATER WELL ( ) WA ARTESIAN WELL ( ) WS SPRING ( ) OW OBSERVATION WE ( ) GS GAS WELL ( ) OP OIL PRODUCTION ( ) MW MINERAL WELL ( ) XX UNKNOWN	( ) ABA ABANI ELL ( ) UI!K DI)KA	TIVE DONED XXV	() DOWN DOMESTIC () AGR AGRICULT. () AGR AGRICULT. () AGR AGRICULT. () IND INVESTOCK () IND INVESTOCK () IND INVESTOCK MINING () REC RECREATION () MUN MUNICIPAL () OTH OTHER () UNK
	ILES WEST [ ] 1.1515		OUTH [ 14]. 1515]
NE SE SW NW/NE SE SWA 10 acre 40 acre	WNE SE SW NW [1]9	TOWNSHIP	[R] []3]. [W] ] RANGE
APPROXIMATE LOCATION	IGM II INE IOA	THURIELAL	911111111
1111111111	LATITUDE[ ] ] ]	longitu	
UTM COORDINATES: X(eas	st) [74]8]7] QQ Y(1	north) [3]9 2 4	H613101 ZONE[112]
OPERATOR NITIHIA 1 1			12020171010101
STATE: ( )AZ ARIZONA	(YNM NEW MEXICO		( )CO COLORADO
COUNTY: ( ) AP APACHE ( ) NA NAVAJO ( ) CO COCNINO	( )BL BERNALLILLO ( )SD SANDOVAL ( )SO SOCORRO	( )SJ SAN JUA ( )KA KANE GRAZING D	N ( )MT MONTEZUMA ( )LP LA PLATA
	( )RA RIO ARRIBA ( )SA SAN JUAN		
CHAPTER NAME THOR	2	CHAPT	ER CODE [ ] ] ]
LOCATION DATA SOURCE:	MALLI FILLE	S1/18 ISHTO	WEI 1277-161 I
LOCATION FILE COMPLETE	D BY: JB		DATE 5 291 87
FIELD CHECKED BY: [J].	]B]E]K][]S] ]5]/]8]7	1111	DATE 5 1281 87
rev:840425			m:well record loc



## TRIBAL WELL RECORD STRUCTURE FILE

MELL NO []]]]]	] ] ] ] STARTED _	_//_ COMPLETED//_
ELEVATION [73810]	PT DEPTH []]]]	FT DEPTH MEASURED _/_/
DEPTH IS ( )MEASURED (	)ESTIMATED ( )REPORTED	WELL DIA. []] IN
1 CASING DIA []].]]	] FROM[]]]]FT T	O[]]]FT MATL[]]
2 CASING DIA []].]]	] FROM[]]]]FT 1	O[]]]FT MATL[]]
3 CASING DIA [ ] ].] ]	FROM[]]]FT T	O[]]]]FT MATL[]]]
4 CASING DIA [ ] ].]] casing matl codes brs=		redur irn=iron mon=monel
		] ] ] FT OPENING TYPE []
		] ] ] FT OPENING TYPE []
		] ] ] PT OPENING TYPE []
		The state of the s
		] ] ]PT OPENING TYPE []
m=mesh screen, p=perfo	ured rock, l=louvered o rated,porous,slotted ca t=sand point, w=walled	] ] ] FT OPENING TYPE [ ] r shutter-type screen, sing, r=wire-wound screen or shored, x=open hole
FUNDED BY: [ ] ] ]	] ] ] CONTRACTOR: [	
SITE IMPROVEMENTS	TYPE OF LIFT	ENERGY SOURCE
(4)WM WINDMILL	( )AL AIRLIFT	(L)EM ELECTRIC MOTOR
(4) WP WATERING POINT	( )PS PISTON	( )DE DIESEL ENGINE
(4)TA TANK	( )TU TURBINE	( ) HA HAND
( L) WL WATER LINE	( )MT MULTIPLE	( )GS GAS ENGINE
( )TR TROUGH	TURBINE	( )LP LP GAS ENGINE
( )CS CISTERN	( )CN CENTRIFUGAL	( )NG NATURAL GAS ENGINE
( ) HP HAND PUMP	( )MC MULTIPLE	( )WM WINDMILL
( )NO NONE	CENTRIFUGAL	( )SO SOLAR
	( ) BU BUCKET	
	(L) SUBMERSIBLE	
PUMP HP []]] ON	SITE STORAGE CAPACITY ]	[ ]5]5]8]0]0] GAL
STRUCTURE DATA SOURCE:		111111111111
STRUCTURE FILE COMPLETE	D BY:	DATE / /
rev:840426		form: well record str

# TRIBAL WELL RECORD HYDROLOGY FILE

WELL NO [ ] ]	11111111	USGS AQUIFER CO	DE [ ] ] ] ] ]
THICKNESS []]	FT NOMINAL YIELI	[]] GPM YIE	ELD MEASURED / /
THICKNESS [] ] FT NOMINAL YIELD [] ] ] GPM FOR[] ] ] ] ] IDD COMMONN [] ] ] ] FT OBSERVATION WELL DATA AVAILABLE CONDUCTIVITY [] ] ] ] ] FT/DAY SPECIFIC CAPAILABLE COOPER OF TRANSMISSIVITY [] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] ] ] ] ] FT/DAY STORAGE COOPER OF TRANSMISSIVITY [] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ]			
			1.1111111
( )Y ( )N MULTI ( )Y ( )N SINGL ( )Y ( )N MULTI ( )Y ( )N RECOV	PLE RATE DRAWDOWN P E RATE DRAWDOWN PUM PLE RATE DRAWDOWN/R ERY TEST	UMPING TEST PING TEST ECOVERY TEST	
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE / /
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE / /
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE_/_/
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL_	FT DATE / /
			FT DATE / /
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	
			FT DATE / /
DEPTH TO SWL	FT DATE_/_/	DEPTH TO SWL	FT DATE / /
			FT DATE / /
rev:840427			rm: well record hyd
		10	rm. Merr record usd

# TRIBAL WELL RECORD

TRIBAL WELLNO [ ] ] ] ] ]

```
seq-no[ ] ] ]
  depth to top
         depth to bottom
                 geohydro-unit
 נונוו נונונונונו
     lithologic modifier
 contributing unit code [ ]
seq-no[]]]
 depth to top
         depth to bottom
                 geohydro-unit
 נונו נונונון נונונון מונונון וונונון
     lithologic modifier
 contributing unit code [ ]
s.eq-no[ ] ] ]
 depth to top depth to bottom
                 geohydro-unit
 lithologic modifier
 contributing unit code [ ]
seq-not 1 1 1
 depth to top depth to bottom
                 geohydro-unit lith.
 נונונונוו וונונונווו וונונווו
     lithologic modifier
 contributing unit code [ ]
seq-no[]]
 depth to top
        depth to bottom
                geohydro-unit
 נונון נננננניו בננונניו נונניון נוניון
     lithologic modifier
contributing unit code [ ]
rev: 871123
                   form: well record int
```

## TRIBAL WELL RECORD COMMENTS FILE

TRIBAL WELL NO [ ] ] ] ] ] ] ] ]

PERTINENT COMMENTS:	3					
						_
						-
				_		-
			_	_		
						Т
						-
				-		
				-		
		_		-		
	9					
			-			
						15
ev:840430						
EV.040430			form:	well	record	com

### 



TRIBAL WELL NO [/]6]7]-]5	[2]9] ] ] ] ] ]	PWSID [	NM 0000303
WELL NAME/OTHER NO [5]0]#		] ]C]A]m]p]	IMTIUIAI IWIEILILI
WELL TYPE (MARK ONE ONLY)	WELL ST (MARK ONE O	ATUS NLY)	WELL USE (MARK ONE ONLY)
( )WW WATER WELL ( )WA ARTESIAN WELL ( )WS SPRING ( )OW OBSERVATION WELL ( )GS GAS WELL ( )OP OIL PRODUCTION ( )MW MINERAL WELL	( ) INA INAC ( ) ABA ABAN	TIVE	( )DOM DOMESTIC ( )AGR AGRICULT. ( )AV LIVESTOCK ( )IND INDUSTRIAL MINING ( )REC RECREATION ( )MUN MUNICIPAL ( )OTH OTHER
QUAD NO [/']Z]/] MILES	WEST [ ]0]. ]5]5	MILES	SOUTH [ ]4].]5]5]
NE SE SW NW/NE SE SW (NW/N) 10 acre 40 acre	E SE SW NW [/]9 160 acre SECT		0]N] [R]1]3].]0]W] P RANGE
UTM COORDINATES: X(east)	LATITUDE[ ] ] ]	] ] ] LONGI	TUDE[]]]]]]
STATE: ( ) AZ ARIZONA (	YNM NEW MEXICO	( )UT UTAH	( )CO COLORADO
( )NA NAVAJO ( ( )CO COCNINO (	MK MCKINLEY ( ) VL VALENCIA ) BL BERNALLILLO ) SD SANDOVAL		UAN ( )MT MONTEZUMA ( )LP LA PLATA
(	)SO SOCORRO )RA RIO ARRIBA' )SA SAN JUAN	GRAZING	DISTRICT [/]6]
CHAPTER NAME THOREAU		CHA	PTER CODE [T]H]O]R]
LOCATION DATA SOURCE: [7	R]1  8 E]  8]. ]S	]T]O]N]E] ]R	[7]. [6] [1]#]5] ]
LOCATION FILE COMPLETED B	Y: Masud u.	Toman	DATE 11/06/1986
FIELD CHECKED BY: [ ] ]	11111111	1111	DATE//
rev:840425		f	orm:well record loc

TRIBAL WELL RECORD ENTER IN 12/86
STRUCTURE FILE

WELL NO [/]6]7]-]5]2]9] ]	] ] ] ] STARTED 2/12/1964 COMPLETED 3/20/1964
ELEVATION [ ]7]3]8]0] FT	DEPTH [ ]/]7]0]8] FT DEPTH MEASURED 3/20/1964
DEPTH IS (MEASURED ( )E	STIMATED () REPORTED WELL DIA. []8].]7]5] IN
1 CASING DIA [ ]6].]6]2]	FROM[ ] ] ]0]0]FT TO[ ]/]7]0]8]FT MATL[S]7]L] 74e C
2 CASING DIA []].]]	FROM[]]]]FT TO[]]]FT MATL[]]
3 CASING DIA []].]]	FROM[]]]]FT TO[]]]FT MATL[]]
casing matl codes brs=bra	FROM[]]]]FT TO[]]]]FT MATL[]] ass cop=copper evd=everdur irn=iron mon=monel astic stl=steel sst=stainless steel
1 CASING PERFORATED FROM	[ ]/]5]2]2]FT TO[ ]/]7]0]8]FT OPENING TYPE [P]
2 CASING PERFORATED FROM	[]]]FT TO[]]]FT OPENING TYPE []
3 CASING PERFORATED FROM	[ ] ] ] FT TO[ ] ] ] FT OPENING TYPE [ ]
4 CASING PERFORATED FROM	[ ] ] ] ]FT TO[ ] ] ] ]FT OPENING TYPE [ ]
opening codes: f=fracture m=mesh screen, p=perforat s=screen,type unknown, t= z=other	[ ] ] ] ]FT TO[ ] ] ] FT OPENING TYPE [ ] ed rock, l=louvered or shutter-type screen, ed,porous,slotted casing, r=wire-wound screen esand point, w=walled or shored, x=open hole
DATE WELL TURNED OVER TO	TRIBE://_
FUNDED BY: [ ] ] ] ] ]	] CONTRACTOR: [ ] ] ] ] ] ] ] ] ]
SITE IMPROVEMENTS  (WM WINDMILL (WP WATERING POINT (TA TANK (WL WATER LINE (TR TROUGH ()CS CISTERN ()HP HAND PUMP ()NO NONE  PUMP HP []]]] ON SI	TYPE OF LIFT  ( ) AL AIRLIFT ( ) PS PISTON ( ) TU TURBINE ( ) MT MULTIPLE TURBINE ( ) CN CENTRIFUGAL ( ) MC MULTIPLE CENTRIFUGAL ( ) BU BUCKET ( ) SU SUBMERSIBLE  ENERCY SOURCE ( ) EM ELECTRIC MOTOR ( ) DE DIESEL ENGINE ( ) HA HAND ( ) GS GAS ENGINE ( ) LP LP GAS ENGINE ( ) WM WINDMILL ( ) WM WINDMILL ( ) SO SOLAR
STRUCTURE DATA SOURCE:	[7]R]( B]E] [1]H]S] ] ] ] ] ] ] ] ] ] ] ] ]
STRUCTURE FILE COMPLETED	BY: M.2. DATE // /06/86

TRIBAL WELL RECORD
HYDROLOGY FILE

entered 4/12/86 sex

WELL NO [/]6]7]-	35]2]9]]]]]]	USGS AQUIFER COD	3 10 SADR E [3]/  0   G L R T
THICKNESS [/]8]6	FT NOMINAL YIELD	[ ] ] · ] · ] GPM YIEL	D MEASURED//_
(SEAILER O)PUM	P TEST @ [ ] ]/]5]0	GPM FOR[]]8].]0]H	OURS DATE 3/20/196
DRAWDOWN [ ] ]3]	6]5]FT OBSERVAT	rion well data avai	LABLE ()YES ()NO
HORIZ CONDUCTIVI	TY[]]]]]]	r/DAY SPECIFIC CAPA	CITY[].]]GPM/FT
VERT. CONDUCTIVI	TY[]]]]]]	FT/DAY STORAGE C	OEF [.] ] ] ] ] ]
COEF OF TRANSMIS	SIVITY []]]]	1 1 FT2/DAY	
( )Y ( )N MULTIP ( )Y ( )N SINGLE ( )Y ( )N MULTIP ( )Y ( )N RECOVE	NAL PUMPING TEST DA LE RATE DRAWDOWN PU RATE DRAWDOWN PUMB LE RATE DRAWDOWN/RI RY TEST  (V)DL DRILLER'S LOG	UMPING TEST PING TEST ECOVERY TEST	
HYDROLOGY DATA S	OURCE: [7]R]1]8]6		1111111111
	OMPLETED BY:		. <u>2</u> . DATE <u>// /06/1986</u> L E FT DATE//
DENTH TO SWL 22	8 FT DATE 3/20/19	64DEPTH TO SWL	FT DATE//
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE//
DEPTH TO SWL	FT DATE_/_/	DEPTH TO SWL	FT DATE//_
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE//
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE//
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE//
DEPTH TO SWL	FT DATE_/_/_	DEPTH TO SWL	FT DATE//
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE//
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE//
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE//
DEPTH TO SWL_	FT DATE_/_/_	_ DEPTH TO SWL	FT DATE//
rev:840427		fo	rm: well record hyd

## TRIBAL WELL RECORD COMMENTS FILE

TRIBAL WELL NO [/]6]7]-]5]2]9] ]

rev:840430

COMMENTS: Prisimally From 1964 to 1977 well was equiped with
windmill, stack tank, troughs at and was used maily
stock watering and partially for domestic water use,
In Actaher, 1977 well was requested by 145 to be used as
a water source for John Willie Camp water System. Corrently
this system because a part of regional Thoreau System be
Consepleted by IHS.
Water quality analyses on file entired ALL. 11/12/8
rev:840430 form: well record con

TRIBAL WELL NO >16T-529

>NM 0000303 PWSID STATE NUMBER

WELL NAME/OTHER NO >J. WILLIE CAMP NTUA WELL

WELL TYPE >WW

WELL STATUS ACT

WELL USE >MUN

QUAD NO >121 MILES WEST > 0.55 MILES SOUTH > 4.55

10 ACRE >NE 40 ACRE >NW 160 ACRE >NW SECT >19 TWNSHP >T14.0N RANGE >R13.0W

>6 M W OF THOREAU CHPTR. HSE. APPROXIMATE LOCATION

748780

UTM COORD: X(EAST) >748700 Y(NORTH) >3924630 ZONE >12 OPERATOR >NTUA

WATERSHED CODE > 13,020,207 STATE >NM COUNTY >MK CHAPTER CODE >THOR

GRAZING DISTRICT >16

LOCATION DATA SOURCE >WELL FILES/B.STONE RT-6

FIELD CHECKED BY >J.BEKIS 05/87

WELLNO 16T-529

STARTED 2/12/1964

COMPLETED 3/20/1964

7,404.0 ELEVATION 7,380.0 FT

DEPTH 1,708.0 FT DEPTH MEASURED 3/20/1964

DEPTH IS M

WELL DIA 8.75 IN

1 CASING DIA 6.62 IN FROM

FROM

0.0 FT TO 1,708.0 FT MATL STL

FROM 2 CASING DIA 0.00 IN

0.0 FT TO 0.0 FT

MATL

3 CASING DIA 0.00 IN 0.0 FT TO

0.0 FT MATL

4 CASING DIA 0.00 IN FROM 0.0 FT TO 0.0 FT

MATL

WELL NO= 16T-529

1 CASING PERFORATED FROM 1,522.0 FT TO 1,708.0 FT OPENING TYPE P 0.0 FT OPENING TYPE 2 CASING PERFORATED FROM 0.0 FT TO OPENING TYPE 3 CASING PERFORATED FROM 0.0 FT TO 0.0 FT OPENING TYPE 4 CASING PERFORATED FROM 0.0 FT TO 0.0 FT OPENING TYPE 0.0 FT 5 CASING PERFORATED FROM 0.0 FT TO DATE WELL TURNED OVER TO TRIBE 0/0/0

SITE IMPROVEMENTS WM-TA-WL-WP

TYPE OF LIFT SU

ENERGY SOURCE EM

PUMP HP 5 0 ON SITE STORAGE CAPACITY 55,800 STRUCTURE DATA SOURCE WELL FILES/IHS

TRIBAL WELL NO >16T-529 < USGS AQUIFER CODE >310GLRT < 6/22/9977

THICKNESS >186.0< NOMINAL YIELD >25-0.0< DATE YIELD MEASURED > 0/0/0

ENTER BT OR PT >BT< GPM > 15.0< HOURS > 8.0< TEST DATE > 3/20/1964

DRAWDOWN > 365.0< OBSERVATION WELL DATA AVAILABLE (ENTER Y OR N) >N

HORIZONTAL CONDUCTIVITY > 0.000< SPECIFIC CAPACITY >0.00

VERTICAL CONDUCTIVITY > 0.000
STORAGE COEFFICIENT >.0000000

COEFFICIENT OF TRANSMISSIVITY > 0.0<

\* AVAILABILITY OF TEST DATA \*
>N< MULTIPLE RATE DRAWDOWN TEST
>>N< SINGLE RATE DRAWDOWN TEST
>N< MULTIPLE RATE/RECOVERY TEST
>>N< RECOVERY TEST

\* LOGS AVAILABLE \* (ENTER DL OR EL)

>DL< DRILLERS LOG > < ELECTRIC LOG

DATA SOURCE >

\$RECNO WELLNO SWL DATE 15087 16T-529 228.0 3/20/1964 ... no geologic interval data available ... no field water quality data available ORIGINALLY FROM 1964 TO 1967 WELL WAS EQUIPPED WITH A WINDMILL/STOCK TANK/TROUGHS/ETC AND WAS USED MAINLY FOR STOCK WATERING AND PARTIALLY FOR DOMESTIC USE/ IN OCT 1977 WELL WAS REQUESTED BY IHS TO BE USED AS A WATER SOURCE FOR J. WILLIE CAMP WATER SYSTEM. CURRENTLY THIS SYSTEM BECAME A PART OF REGIONAL THOREAU SYSTEM BEING COMPLETED BY IHS/ WELL WAS TEST PUMPED BY IHS/DATA ON IHS FILE WATER QUALITY ANALYSES ON FILE ....MZ UTMS COORDS PICKED ACCORDING TO RTS DATA....JCR RIO SAN JOSE HSR ID NW-015--LAND STATUS=TNT WELL CONFIRMED-UPDATED PER \* O&M SURVEY OF FALL 91 \*

updated 9-7-93 C. NOTAH

```
50
WELLNO
                  =16T-529
                 =740735748700
EAST
NORTH
                  =3724660 392463¢
ZONE
                  =12
                  =NE
ACRE/10
                  =NW
ACRE/40
ACRE/160
                  =NW
                  =19
SECTION
TOWNSHIP -
                  =T14. ON
RANGE
                  =R13. OW
QUADNO
                  =121
                  =00.55
MILESW
MILESS
                  =04.55
                  =6 MILE NE OF THOREAU
APPROX-LOCAT
WATERSHED
                      13020207
COUNTY
                  HMK
GD
                  =16
CHAPTER
                  =THOR
                  =B
CHECKED-BY
                  = 5/28/87
CHECKED-DATE
OPERATOR
                  =NTUA
DRILLED-BY
                  =NECA
COMPLETED
                  = 3/20/64
                  = 7380.0
ELEVATION
DEPTH
                    1708.0
                  =310GLRT
AQUIFER
SWL
                     228.0
DATE
                    3/20/64
CASING-DIA-1
                    6.62
YIELD
                      0.0
YIELD-DATE
                   1/ 1/1801
                  =WM-TA-WL-WP
IMPROVEMENTS
LIFT
                  =SU
ENERGY
                  =EM
PUMP-HP
                  =0000
                  =000000 27900 W 2
STORAGE
PWSID
                  E0E0000M/=
                  = 85
NO-HOMES
POP
                      465
CATTLE
                  =000
HORSES
                  =000
SHEEP/GOATS
                  =000
                  =000
CORN
ALFALFA
                  =000
GRAIN
                  =000
GARDEN
                  =000
ORCHARD
                  =000
WELLTYPE
                  =WW
                  =MUN DOM
WELLUSE
WELLSTATUS
                  =ACT
                  =J. WILLIE CAMP NTUA WELL
WELLNAME
                  =WELL FILES/B. STONE RT-6/FIELD CHECKED
DATA-SOURCE
ANNUAL-USE
                  = 255.0
STATUS
                  =TNT
USGSQ
                  =5463
QUADNAME
                  =CONTINENTAL DIVIDE
```

entel SEP 2 8 1990 HSR ID and LAND STAT.

## Well Schedule

20		well poledate
1.	Wate	er Inventory I.D. or R.G. Number 16 7 529 Date Inspected 5-28-8
2.	Owne	ers Name NAVAJO TRIBE
3.	Addr	ress NAVAJO NATION, WINDOW ROCK
	Α.	Priority Date
	В.	Location /vc 4 /vm 4 /vm (Section; /7 Township /4 North, Range /3 West
		Projected, Being within the Grant.
		U.S.G.S. Quad Name CONTINENTAL DIVIDE S.E.O. Quad I.D. #
		Being within MC/CINCEY County, New Mexico
	C.	Source of water; Shallow Ground VV Artesian
		Triburary to Rio Grande Stream System.
	D.	Driller NECA Topography Flat Elev. 7360
		Well used for; Domestic
		Casing Size 5 5/8 Equipment: Pump Subne Dunup
		Power ELECTRIC Discharge Measurement 7 G.P.M.
		Comments: ACTIVE Emerg Chee
		2 11= 12 Table Con Domestic
2709+	STOR	PAGE Location Map  Well Photo
	12	
	20	
		36 1V 36 10 16 10 11
	20	25 20 25 25 25 25 25 25 25 25 25 25 25 25 25
	10	10
110	-14	sw
	2.00	
	14.	N 14 16 10 16 10 16 10 18
		Fare a sel-l
		- 12 / 2 / 2 / 8 / 1   1   1   1   1   1   1   1   1   1

## **UNITED STATES**

## DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Q. 121

## WATER RESOURCES DIVISION

WELL SCHEDULE		0.5 X 4.55
Date July 16	, 1964	Riold No 167-52
Paged by VALREY	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Office No.
Record by WIREY Source of data Obs & Da	illep	Office Ivo.
Source of data		
1: Location: State NEW N Map 3 NW of To	MEXICO County M	s Kinley
2. Owner: NAVASO TR	ibE Address	D W
Tenant		
Driller TRIBE	Address	
2 Tomography GENTLE S	IDDE.	
4. Elevationft. abo	ow	
5. Type: Dug, drilled driven, b	ored, jetted 3 1964	
6. Depth: Rept. 1708 f	t. Meas ft.	
7. Casing: Diam. 65/8 in., to		
Depth 1708 ft., Finish 1	ERT-1522-1708	
8. Chief Aquifer 6 ORIE	<u> </u>	ft. toft.
Others		
9. Water level ZZ8 ft.	rept. 3/20 19	64 above L.S.
	which is	ft. above surface
10. Pump: Type		
Power: Kind		
11. Yield: Flow	,PumpG.M.,I	Meas., Rept. Est.
Drawdownft. after	hours pumpin	g /5 G. M.
12. Use: Dom (Stock) PS., RR.	, Ind., Irr., Obs	
Adequacy, permanence		1 -7
13. Quality Good 5.		and the second s
Taste, odor, color		Sample (Yes)
Unfit for	7 1 1	1. 1. 1. 1.
14. Remarks: (Log, Analyses, e	tc.) Fartal Contag	15 Oh Dack
Too much can	ung for good	iog

# Partial contacts - Ethers 6

0-90 Alluvium

90-860 Chinle (U. Pet. Forest)?

860-910 & Chinle (Sonsela)?

910-1570 Chinle - Moencopi - San Andres

1570-1708 Glorieta?

#### WELL RECORD

Water Well Development Navajo Tribe Window Rock, Arizona

Project No. 6591 WELL NO. 16T-529

Quad. No	121	Mi	les west	2.6	Mile	s south 2.35		
	iles NW T	noreau, Ner	Mexico	0			_	-
Location				20				
Began wel	2/12/6	54		Finish	ned well	3/20/64		
Diameter (	of well	8-3/4"		Depth	of well	1708 ft.		F-462 TO42
Static wat	er level	228 ft.		Drawdown 🗀	365 £t.	Recovery	+	6
Quantity o	f water on	test run: bai	ler: pump:	15	G. P. M. 7	Cested for	8	hours
71	6-5	78"T&C S	iger and le	noth 6-5/8	'x1708' . 18	o' Perforate	d on bo	ttom.
creen kin	.d	, I	ength		N	Tesh	1	
	The Nava	jo Tribe			es Pailing	Rio: D. RVan	R. Va	zzie & Penthe
		,		Addre				na
T	EPTH	-	-/4	LOG	STATE OF THE PARTY			200
From	To	F	ormation		Acquifer		Remarks	
0	37		4/1			Surface		F 7
37	112				3	Red Stone		
112	197					Red Brown	Sandst	one ·
197	380	- 4				Rediah Sh	ale	
380	400					Red, Brow		
400	440	6 20						ittle Limesto
440	. 623					Red Shale		9
623	645	-	-47			Red Shale	*	
645	665					Red Shale		
665	840					Red Shale	W/Stream	aks Blue Shal
840	850 ,					Red Black	Shale I	J/Gray Lime S
8150	865					Sand & Sh		
865	880		Nati			Sand	A	
880	905					Shale & S		
905	952					Red, Brow	n.Blue	White Shale
952	1020	7 15	Y			Hard Clea		
1020	1090					Glomerate	Shale Y	/ariable
1090	1172					Glomerate	Shale I	Variable
Remarks:							201 3 31	24
S.P.	1100	2°				A		
Teta Salts	Calcium Ca.	Magnesium Mg.	Sodium Na.	Chlorides Cl.	Sulfates SO 4	Carbonates HCO 3	P.H.	CO 3
			7					
Excellent	Good	Fair	Poor	Doubtful	Not su	itable for dome	estic, live	stock use

`	1 1	*			
8.4		0	Cylinder size:		8
- in	2.				
	.+				
			Tubing, cylinder and su	ection	
			pipe length in feet:		
		- 1		791	
	1	- 40	Kind of pump rod:		
		i			
	3.63		Size of box and pin:		
·			, N		
		¥   "			
		y Vars x = 3401	Liner, if any:		
		.q			
	. ۾ اور ۽ ا	Total Depth	Windmill: (make)	2.00	
	3	Ξ.	Size:	£ #	7.
, ist. 3 .	* .0 %	lota		4 24	- 3
	4. 3 -4.			A3	
	1 . 1 . 11 . 12				
diseated education	1. 11 0 <u>4.</u> 1. 11 30		Storage: (kind)	647	2.4
	1 2	Y 1	Capacity:		
- 253	A 41 . W			CALL!	i., ,
F = 2 7 Table - 12	1 1		Troughs: (kind) No	7.	i.
	t li e	1.1		- in the	\$
	1-1:00		7.	2.7	77
	2. 10.	31 A	Comments:		
	10 A 94 1			20%	9
	17 . 1 Part . 11			*	, C
					-
			· -		
		11			
- }-					
J.					
÷					

#### WELL RECORD

Water Well Development Navajo Tribe Window Rock, Arizona

#### PAGE 2 Continuation.

Project No. 6591

WELL NO. 16T-529

ellvel	38.5 (a.e.)			_ Finishe					1 4 ;
ellvel	38.5 (a.e.)			_ Finishe					1 4 4
vel		16	7	Finish	1 11	100		4 4	
vel		16	, A		ed well _		7"		
ter on test	* y = 32			Depth	of well _	-			
ter on test		, E	rawd	own			Recovery _	100	
	run: bail	er: pump:_	i.C		G. P. 1	M. Test	ed for		hours
1.1.*	Si	izes and le	ngth_	9 20	ı.	3.3			1 0
	L	ength .			1	Mesh		, sala	
		~~~8				43 (	1 - 35		1 2 g2+0
		, ,		Addres	SS				
ı			L	OG				8	- 1
To	, Fo	ormation			Acquifer	-1.	1	Remarks	
1190									
1200			1.				Redish &	Gray Sha	ale
1250							Red, Blue	& Gray	Sha1e_
1280							Red, Blue	Shale &	White Cl
1330							Red Blue	Shale &	Limestrea
1394			y M	•					The second secon
1430							Blue, Gray	Lime W	/Shale
1442.									
1448									
1532							Conglomer	ate Col	ored Shale
1560									
1570		7				2.1	Broken Li	me W/Sha	ale
1637			-				The second secon		
1654						V.	Brown Sha	le W/11	ttle Sands
1697									
1708							White San	dstone 1	Hard
						-			
cium Ma	agnesium Mg.	Sodium Na.			Sulfates SO		HCO	P.H.	CO 3
					4		2		
Good	Fair	Poor	ח	oubtful	Not	suitab	le for dome	stic. lives	tock use
	To 1190 1200 1250 1280 1330 1394 1430 1442 1448 1532 1560 1570 1637 1654 1697 1708	To For 1190 1200 1250 1280 1330 1394 1430 1442 1448 1532 1560 1570 1637 1654 1697 1708	Sizes and length   Length	Sizes and length   Length   Length	Sizes and length   Length	Length   Log	Length   Mesh     Length   Address     LOG     To   Formation   Acquifer     1190       1200       1250       1280       1330       1394       1430       1442       1448       1532       1560       1570       1637       1654       1697       1708       Clium   Magnesium   Sodium   Chlorides   Sulfates   SO     A       Clium   Magnesium   Sodium   Chlorides   Sodium     a.   Magnesium   Sodium   Chlorides   Sodium     Address   Mesh   Mesh     Clium   Magnesium   Sodium   Chlorides   Sodium     Address   Acquifer     Address   Acquifer     Acquifer   Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquifer     Acquif	Length   Mesh	To   Formation   Acquifer   Remarks

Well 16T-529 Folder
Mr. Holmes-Engineer
Chrono
Gen. Foreman

	Cylinder size:
9 N * N	2 3
	The between and the data and a second
1 1	Tubing, cylinder and suction
	pipe length in feet:
*	
	Kind of pump rod:
	Size of box and pin:
	99 9.0 December 2011 # \$2000
The last 11"	
	Liner, if any:
1 1	
tt.	Windmill: (make)
Total Depth	Size:
e e	
	e, †
11 - 1 - 2	Storage: (kind)
A	
	Capacity:
0 20 1 D	Troughs: (kind) No.
3) 30 (4) (5)	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	* * * * * * * * * * * * * * * * * * *
1 01 L	Comments:
	, , , , , , , , , , , , , , , , , , ,
h 70 5 0 5 b	

\*d\* \* 1 1 1.

3!

1 7

### DISTRICT: CROWNPOINT

		BEFORE	I AFTER
LOCATION: J. W. Camp	INTUA WELL NO. 1	100000000000000000000000000000000000000	1
Tribal Well No.	167-529	1	1
Well Elevation	17404 ft.	     	1
Motor	RedJacket 5hp 230v 1phase  Serial EB640		
Pump Cable Size	14/3 740 ft.		10/3 810 ft.
Pump	RedJacket N28GC		
Total Depth	.  1708 ft.		11500 ft.
Casing	16 5/8in. 0-1708 ft.		16 in.
Pump Setting	1638 ft.		1803 ft.
Pumping Level	1569 ft.		
Drop Pipe Size	12in. x 21ft. 630ft. 30jts.		  2in. x 21ft. 38jts. 798ft.
Probe Pipe Size	Inone	11/2in.x 21ft. 504ft. 24jts.	Inone
Lower Probes (RED)	1620 ft.		Transducer 1 ft. above pump
Higher Probes (BLACK)	1620 ft.		1850 ft.
Static Water Level	1302 ft,		
Gallons Per Minute	21 gpm		125 gpm
Total Dynamic Head-TDH	719 ft. or 330psi		
DATE INSTALLED:	September 30,1981	January 17, 1990	June 22, 1992
NOTE: Probe (	pipe installed January 17, 1990.		
Storage Tank - Gallons	114,000	Starter: Size 1 Delta	
	Diameter-14ft.x Height 12ft.	Fuse: NON 60	
Base Elevation	17540 ft.		4
Overflow Elevation	17554 ft.		

# Test / Production Information

WILE PODUCTION SANANT 1964 TO 1995 WILE PODUCTION SANANT

PESTATOTE CROMPOUNT

2

2041.0 16117.2 16117.2 450.0 6450.0 111507.1 1,794.1 44105.0 0.0 61374.8 43912.2 7063.7 28376,4 203537.8 310370.4 TOTAL 0 0 9 0:0 3 ë 3 9:0 00 .0 3 6'0 1 9 9 0.0 0:0 00 0.0 3 3 00 0.0 0.0 000 Ē 6.0 : 0.0 0:0 0.0 2 0.0 0.0 0 0.0 9 0 0.0 0.0 £ ? 9 0.0 00 3 0.0 3 9 3 000 9,0 0:0 0.0 00 145 0.0 0.0 0.0 0 0.0 0.0 9 0.0 0:0 3 0.0 0,0 0.0 0.0 0.0 0.0 0.0 E 0.0 2 3 0.0 00 0.0 3 0.0 0.0 0.0 0.0 9 0 0 Ē 2370.6 3173.7 1453.7 4705.1 7540.3 1423.4 0 3173.7 1451.9 12265.4 3 000 00 97 11419.4 0.0 11471.1 47344.4 14581.4 Ē 3E.7 12G.2 2152.0 2614.6 1243.2 2152.0 2416.4 2521.9 3379.7 3299.7 9.0 1226.5 1869.0 0 0,0 9:0 0:0 17874.8 17721.7 0,0 1375A.4 18788.2 4727.5 9144.0 3F38.7 9441.9 11763.0 22231.7 38591.5 5725.8 62646.7 5263.0 4184.0 11046.0 3 M34.7 7221.9 52.7 0.0 9 0:0 11334.5 0: 3 1987 112.3 2381.7 412.3 3 0.0 2307.7 7.54.7 2234.4 P57.2 4053.6 7245.4 9034.2 0,0 4.1547 3 00 18717.7 9 31599.7 41147.4 Ž 0.0 0.0 617.0 3760.7 2657.0 ö 21175.8 2452.9 0.0 2452.9 \$17.0 43137.2 2345.2 2253.9 0,0 0.0 27429.0 7278.1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 15708.2 10111.2 11044.1 185 340.4 0,0 2000.4 19102.4 2179.3 340.7 1470.7 0.0 9000.4 9 0 34417.1 5062.1 0 10130.3 -0.484.0 1994 CHRISTIN ACCUSATION AND ACCUSATION AND ACCUSATION ACCUS 141-463 / CHOKCH ROCK SOUTH 167-902 L-COMPOST 1 COMPOST 1 159-1 ( 159-2 ( 171-159-17) HOURT SHINGS I CASANCHO CUP 1 SYSTEM LOCATION HICA 1 LIST AND 7 NICK 2 LIST ALON 17

77

0

0

0.0

3760.7

1440.7

0

0

0

LOCATION: THOREAU CHAPTER (WATER SOURCE FOR JOHN WILLIE CAMP)

FIND DRAWDOWN AT SOGPM FOR 1200 MW.

TEST PUMP Q = 21 gpm

t-s curve has 3 slopes, A, , Az , AND A3.

A, = 36 psi/Log cycle

Az = 12 psi/Log cycle

A3 = 5 psi/Log Cycle

FROM THE tos CHIVE, the SLOPES CHANGE AT t,, t2, t3, t4

WHERE t,=1, t2=22, t3= 150, t4= 1200

A' = QZ A, , A' = QZ Az , A' = QZ A3

S = THEORETICAL DRAWDOW

 $S = (\log t_2 - \log t,) \Delta_1' + (\log t_3 - \log t_2) \Delta_2' + (\log t_4 - \log t_3) \Delta_3'$   $= (\log 22 - \log 1) \Delta_1' + (\log 150 - \log 22) \Delta_2' + (\log 1200 - \log 150) \Delta_3'$ 

= 1.342 A, + 0.834 A2 + 0.903 A3

NOW AT Q2 = 50 GPM , A1 = 90 , A2 = 30 , A3 = 12.5

S= 157 psi ..

PUMPING LOSSES WILL BE TAKEN AS 10%

SACTUAL = 157+ 15.7 = 173 psi

PUMPING LEVEL = STATIC WATER LEVEL + S

= 260 FT + 173 (2.32)

TRANSMISSIVITY WILL BE CALCULATED FOR EACH SLOPE.

T1, T2, T3 WHERE T = 264Q

Ti = 264(21) = 66.4 gpd/ft

 $T_2 = \frac{264(21)}{12(232)} = 199.19Pd/ft$ 

 $T_3 = \frac{264(21)}{5(2.32)} = 478 \cdot grdyft$ 

---

a sample is assumed

WELL 16-T-529

THOREAU CHAPTER - WATER SOURCE FOR JOHN WILLIE CAMP.

$$W(u)_1 = \frac{66.4 \times 36(2.32)}{114.6 \times 21} = 2.3044, u = 5.9 \times 10^{-2}$$

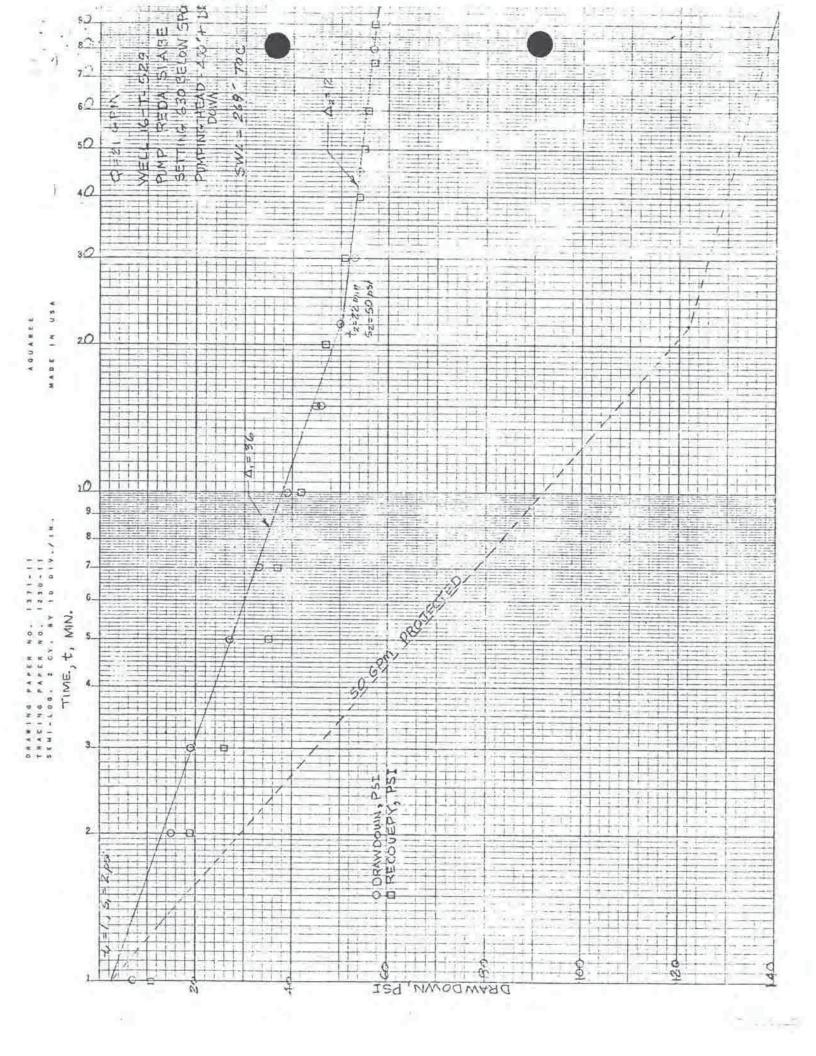
$$W/W_{L} = \frac{199.1 \times 12(2.32)}{114.6 \times 21} = 2.3032, \mu = 5.9 \times 10^{-2}$$

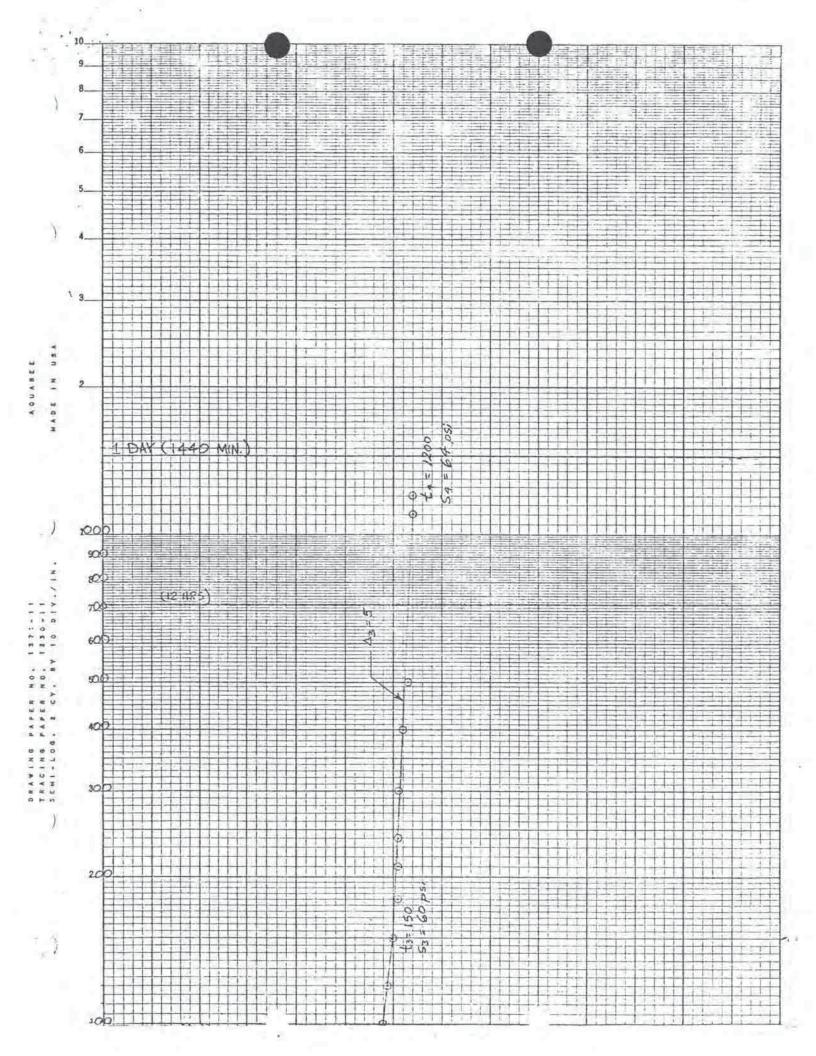
$$w(u)_3 = \frac{478 \times 5(2.32)}{114.6 \times 21} = 2.3040, u = 5.9 \times 10^{-2}$$

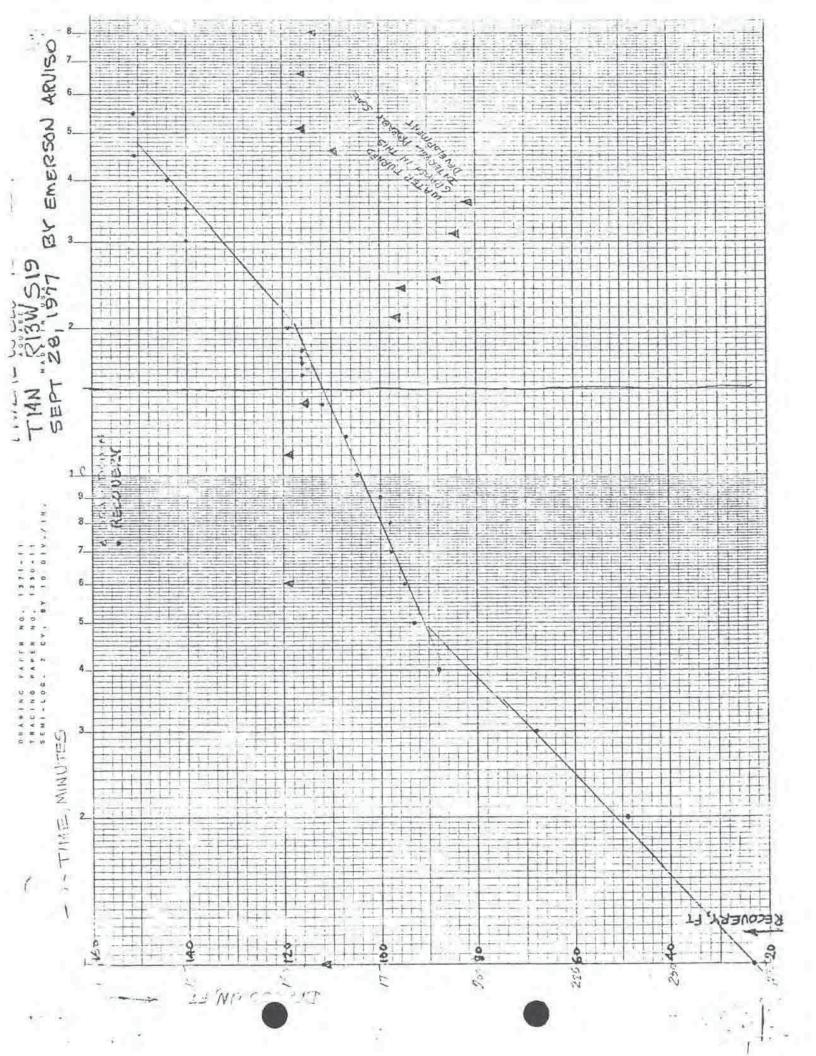
S = COEFFICIENT OF STORAGE

$$u = 5.9 \times 10^{-2}$$
,  $T = 478$ ,  $t = 6.9 \times 10^{-4} = 0.83$ ,  $t = 0.25$ 

$$S = \frac{5.9 \times 10^{-2} \times 478 \times 6.9 \times 10^{-4}}{1.87 \times 0.25^{2}} = 1.66 \times 10^{-1}$$







- -10\_ N MERS URED BY AIRUNE ADUABEE Pumping Riving Pumping 9\_ 3.

7x-919 th John Willie Camp 0:167-529) Sept 28, 1977 es west of 36 JOINIS = 756 feet down well:1,708ft. raindown: 365 fr can wilbailer: 15 gpm Tosted + casing:6% extorated on the me of day Aicline reading Meter reading GPM 195 4:00 PM 0 water-black 162 c . 4:02 Stor Water moter bal 0 water meter disconnecter 10 4:25 15 160 126 151 4:30 130 10 151 130 iP 4:35 15 156 4:38 128 4:43 fliw = 20 1:3 179 20 200 water light brin 181 24 117 1.49 191 20 26 4:50 113 195 20grn 4:55 31 111 water turbil 193 20gim 5:00 36 110 - 5galin / 15. sec 163 20 gra -46 125 5:10 155 Water to and really bown 31 128 5:15 Syllogs in Issec. 70 155 perted generalles to co cycles 5:30 63 128

or megaline

ST MILLIP	1-11/21	110	167-529	CONTI	WHES_
of char 1	fir line y	proling	Me for reading		comment
	127 Wa	to. 158 jo	2 bossin (chicilitie Mille)	20	
S:: 3 126			learny still furbid		gallons in 14.5 seconds
7:15 171	133		is slightly furbil	Zu 5ga	lens in 14.4 seconds
7:45 0,20	133 PSi		is very light Lower	20 50	alin 15 secons
8:45 p. p. 36	130 151	57	Still very light brow	20 5	doin 14.5 seconds
2:E15- P.M.32	124PS	1425	15 the same as	bure 303,	polin 15.15200ds
2 - 5 r. n. 381	13.0PSI	154	" " " " "	ALC: ALC: ALC: ALC: ALC: ALC: ALC: ALC:	gal colt 5 seconds
1:45 1:N. 441	20	29720	is clooning up alifa		521, 14,3 Seconds
2:25-4M.501		-1-7	is Cheringup -	100	sal, 14.3 Seconds
145 AM. 561		201/2	5 Same 15 above	1	1. 14.5 Seconds
:45 A.N. 621			filled diesel tous		il. 14.5 Seconds
:45:0.11. 631		76/1/2	o almost 411 Clean		System 14.4 Seconds
ist 10.14. 741	80 PSI	2.61_			galie 14.6 seconds
24 = -1.21. 801	80131			A Committee of the Comm	din 15 seconds _
2 . v.n. 301					12 de con14. 75 econs
: er a . n . 921		367	Had Clear inp.		3. 1. in 14.5. Seconds -
14. 7. 14.931	80PSI		120 is real Clear	1	gel in 14, 8 Seconds
the second	8000	167	120 = 3/200 .	70.8	Edita. 14.8 Seconds
0:00 4 4.12	Haded	5 701/00		77	
Z: 15/.ni.	809Si	H20 C	characont 70		sel. in 15.0 seconds
2:45 P.M.	80951		is clear		Jaf. in 14,75eans
3:45 P.M.134	80 PSI			.ZOS	gal in 14.6 seconds
_					
				-	

59 14 128 48 112  50 116  50 116  50 116  50 116  50 116  50 116  50 116  50 116  50 116  50 116  50 116  50 116  50 116  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 100  50 1	57 6 121 41 52 7 122 42 53 8 122 42 54 9 123 43 55 10 125 45 57 1.11. 12 126 46 59 14 128 48 501 121. 16 130 50 03 18 130 50	95 98 100 105
54 9 123 43 100  55 10 125 45 105  55 10 125 46 107  57 14 12 12 6 46 107  57 14 128 48 112  501 151 16  03 18 130 50 116  05 20 \$21 51 119  15 30 140 60 140  25 40 147 62 144  30 45 145 65 151	54 9 123 43 55 10 125 45 57 1.11. 12 126 46 59 14 128 48 (201 1.11. 16 130 50 03 18 130 50	100 105 107
53 10 12 126 46 107  59 14 128 48 112  50 116  03 18 130 50 116  05 20 \$21 51 119  15 30 140 60 140  25 40 142 62 144  30 45 145 65 151	55 10 12 12 46 59 14 128 48 501 1111. 16 130 50 03 18 130 50	107
03 18 130 50 116  05 20 \$31 51 119  15 30 140 60 140  25 40 142 62 144  30 45 145 45 45 151	03 18 130 50	
20 1.11. 35 140 60 140 25 40 147 62 144 30 45 145 45 151		. 119
56 - 151 - 151 - 151 - 151	20 11 11 35 140 60	144
	4:40 P.M. 55 145 65	

83

167-529

RECEIVED MAY 0 5 1978

April 17, 1978

Field Engineer

Crownpoint Service Unit

Pump Testing Results for Navajo Tribal Wells

Jerry Butler, Chief, SFCB, NAIHS

The results of test pumping three Tribal wells and one PHS well are summarized below.

1. Tribal well 16-T-539 is located in 53, Rl2W, T15N approximately 25 miles northeast of Smith Lake Chapter House, McKinley County, New Mexico.

Depth of well 1,470 TOC

Pump Setting

6721 TOC

6721 Air Line Setting =

SWL

533' (from airline)

Pumping Rate

40 gom

Drawdown

86

Duration

24 hours

Date: September 26 27, 1977

Comments: Plot of data is scattered. Probable reason is that operator stopped the pump once during test for twenty mimutes

The raw data from the test is enclosed.

Tribal well 16-T-529 is located about 5 miles NW of Thoreau, McKinley County, New Mexico in S12, R13W, T14N, NMPM.

Depth of well

1,7081

TOC

Pump Setting

7561

TOG

3021 (measured w/airline)

Airline Setting

7561

SVL

Pumping rate

21 gpm

Drawdown

267

Duration

23 hours

Date: September 28-29, 1977

Comments: Plot of data is scattered, and may be the result of development during test pumping. The well stabilized for the pumping rate indicated at 267' of drawdown after seven hours of pumping. Recovery reading were taken and the raw data is enclosed.

 Tribal well A-5 is located on the Alamo Reservation in S32, R6W, T2N, NMPM and is currently being used as a water source on PL 86-121 project NA-75-129.

Depth of well = 100' TOC

Pump setting = 87' TOC

Airline setting = 87'

SWL = 58.5'

Pumping Rate = 44 gpm

Drawdown = 21.5'

Duration = 20 hours

Date: July 7-8, 1977

Comment: Plot of data is uniform. The raw and plotted data are enclosed.

4. PHS well Mansell #3 is located on the Alamo Reservation in S5, R6W, T2N and currently being used as a water source for PL 86-121 project NA-75-129.

Depth of well = 205' TOC

Pump Setting = 189' TOC

Airline Setting = 189'

SWL = 155' (measured w/airline)

Pumping rate = 67 gpm

Drawdown = 3.0 feet

Date: July 6-7, 1977

Duration

Comments: The sensitivity of the airline gauge was not great enough to make a plot of the drawdown meaningful. The raw data is enclosed.

 PHS well Mansell #4 is located on the Alamo Reservation in S5, R6W, T2N and currently being used as a water source for PL 86-121 project NA-75-129.

21 hours

EPV.	Depth of well	= * .	162'	TOC
	Pump setting	=	1471	TOC
÷	Airline setting	3=	1471	
S	SWL	=	112'	1
14	Pumping rate		19.4 gpm	ety i
njiga. Žagov	drawdown	=	351	
	Duration		56 mim	tes
Market			P. Charles St. Co., Land St.	Acres de Start

Date: March 16, 1978

Comment: Plotted data is enclosed.

Dale Cartmel Field Engineer

DC:ejb

cc: File

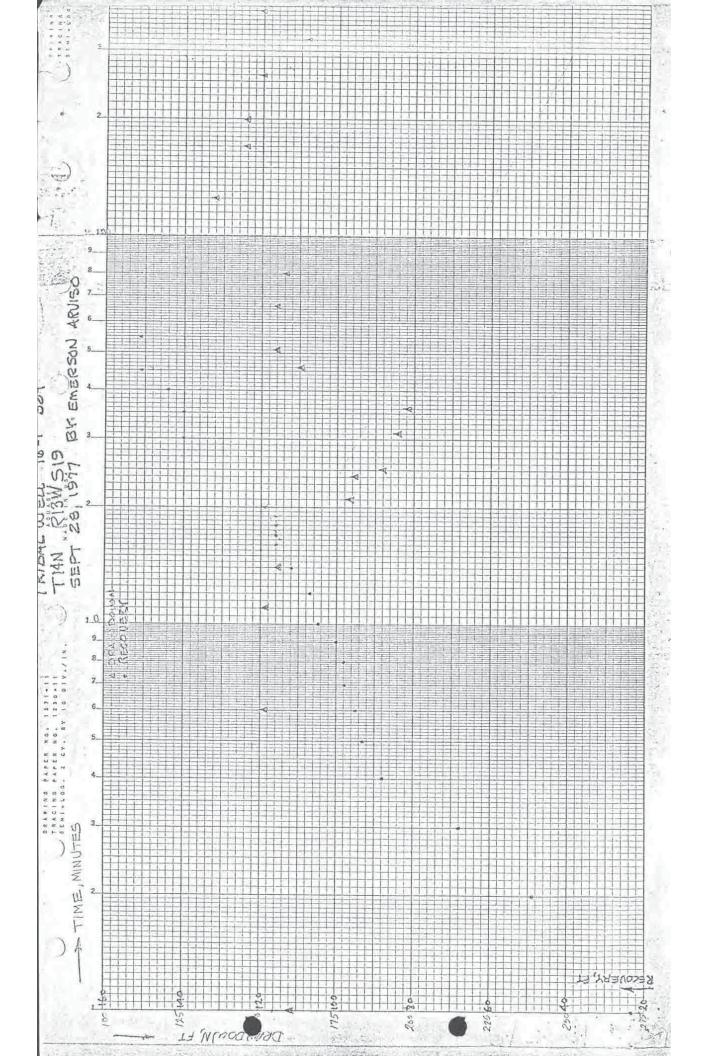
Navajo Tribe Division of Sanitation

Enclosure: Pump Test data

DATE:	7-8-77	BY: DAL	E CART	MEL			-AGE:	
VELS	A-5	mo CHA	DTEO	-		-		
<u> </u>	201			DRAV	VDCWN_	PECO	VERY Z	
CIEMBIA TIME	TIME STARY	PRESSURE		SAME	Recovery DEAW DOWN		PUMP	COM-
60:00:30	00:00:00		કૃંગ	. 80	0			, -ei
: 35	50 .00 135		72	72	8			
3. 30	00101100	757×2.	70.5	-70.5	9.5			
	001011:30		70.25	70.25	9.75			
333	00102:05		70	70	-10			
0:01:00	1031.00		7/	71	9			17.4
100	:04:00		71	71.	9	4. 0 4		
1:00	:05:00	1 21	71	7/	9			
1:00	:06:00		70	70	10		district.	夢湯
00:20:00	00:80; cc		70	70	01		1.00	40.00 40.00
02:00	110 100	******	70	70	10			
0 : 04: 00	au : 14:00		69	69	11			
00.00	00:18:00	1932	68.5	68.5	11.5	1		
04:00	00.22:00	- , 2	68:5	. 68.5	115			
04:00	20:26:00		68.5	68.5	11.5			
04:00	00:30:00	4 4 A 4	68.5	68.5	: 11.5			
00:10:00		3 T SA	68.0	63.0	12.0			
10:00	50:00	1000 m	67.5	675	12.5°	,	* * *	
(0:00	01:00:00	x - 2 *	67.0	67.0	13.0		##X.	
00.90.00	01:20:00	. No.	66.0	66.0	14.0	*		, ¥;;;;
0:20:00	01:40:00	18	66.0	66.0	14.0			
0:20:00	02:00:00							14
		4 7 3	9					, te
	STATE OF THE RESIDENCE OF THE PARTY OF THE P	the second secon					-	

	5 X	,		,,	, .			A 41	
Reco	very	test	Wel	PST REC	0.167- DUERY	50	29 OF 18	RECOÜEN	7
3:45	P. Mr. EL	SPED 80/	0511	0			. 0		
46	300	90		10	*		23		
47	. 2	101		21	14 ×	17.	49		4
48	3	110		30	Mag 1	7.4	68		
40	- 4	118		38		17.5	88		
50	5	120		40			93		
51	6	121		41	A37		95		
52	· 166-7	122		.42			98.		
53	8	17.2	<b>*</b> *******	42			98	KANA.	
54	9	123		43		**	100		
55	510	125		45		,	105		
3:571		126	ne satistica	46		3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -	107		7
59	. 4.14	128	30	. 48			112		
4:01 F.	W. + 16	130		50	,		116		
03	18	130		50			116		
05	20	131		51		Y 3. 1	119		
15	30	140		60	• • •		140		
11:20 F.	11. 35	140	i i kaisi s	60			140	h is	du ), d
25	40	147		62			144	7××*	
30	45	115	4.5	65			151		
CHILD F	PM. 55	145	vy Maria.	.65			151		
4:50		147 1		1017	, f	-K "	**		
	. 4.		- g	炒.		*	1.		· La constant
09-31	リーフフ	Took.	air line	press	ure for	-5t	tio	Hz0/6	sel
F	450	rimote		le air	di	0.00	55-11.		1.
1011	144	PSI	jerna u	250617	- The		- J. W. Y.		0
2000	2.00		* Certiforni						जिल्ला

. - - -



# Water Quality

Today is: 05/17/94

### PWS NAVAJO INDIAN COMPLIANCE TRACKING SYSTEM --- Inventory Information ---

PWS Name: J.WILLIE CAMP/W THOREAU

PWS ID

: 3500303

Street: BOX 170 City : FT DEFIANCE

: Community

State: AZ Zip: 86504

Owner

: NTUA

County : APACHE

Phone

Source : Ground Water Population: 500

Phone

Connections:

189

Contact : FRIEDA WHITE Phone : (602)729-5721

Consecutive: No Storage : 219000

Phone

: EXT. 269 1

Owner Char .: NTUA Serv. Area : Residential

Bact Samp Req: Comp. Cycle : Monthly Laboratory : NTUA

Adm. Region: NAVAJO AREA OFFICE

Adm. Dist. : CROWNPOINT S.U.

Reservation : Navajo Last Survey : 05/27/92

Activity : Active

Surveyor

: HILL, ONDELACY/IHS

Reg. Agent : Federal

Name of Source : WELL #16T-529

Type

Type : Ground Water Capacity, gpm: 21

Availability: Permanent Depth of Well: 1708

No. of wells: 1 Treatment

: Disinfection

Other

Process

: Gas Chlorination

Fluoridation

Name of Source : WELL #16T-614

: Ground Water

Capacity, gpm: 56

Availability : Permanent Depth of Well: 1690

No. of wells: 1

Treatment : Disinfection

Other

Process

: Gas Chlorination

Fluoridation

Name of Source : WELL #16T-350

: Ground Water

Capacity, gpm: 56

Availability: Permanent Depth of Well: 1500

No. of wells :

Treatment

: Disinfection

Other

Process

: Gas Chlorination

Fluoridation

CHEMICAL



# NAVAJO TRIBAL UTILITY AUTHORITY

File Thorean

SAMPLE NUMBER 184 PWSID NUMBER NM 0303 \*\*

SAMPLE LOCATION J. Lamp DATE COLLECTED 9-25-90

DATE RECEIVED 9-25-90 COLLECTED BY & Sandoval

DATE OUT 1-7-91 ADDRESS TOUR

TECHNICIAN MILEN

TEST	PARAMETER	METHOD	RESULTS	MCL
1	ARSENIC	ATOMIC ABSORPTION	4.001	0.05
1	BARIUM	ATOMIC ABSORPTION	.287	1.0
17	CADMIUM	ATOMIC ABSORPTION	4.001	0.01
V	CHROMIUM	ATOMIC ABSORPTION	4.001	0.05
V	IRON	ATOMIC ABSORPTION	461	N/A
V	LEAD	ATOMIC ABSORPTION	1001	0.05
V	MANGANESE	ATOMIC ABSORPTION	.005	N/A
10	MERCURY	FLAMELESS ATOMIC ABSORPTION	K.001	0.002
V	SELENIUM	ATOMIC ASSORPTION	5,001	0.01
V	SILVER	ATOMIC ABSORPTION	5.001	0.05
V	NITRATE IASNIC PE	CADMUM REDUCTION A.A.	,000	100 1.3
K I N	FLUORIDE	ELECTRODE		1.4
ORM NO.	5460 (P M			REV 8-83

WATER CHEMICAL ANALYSI

SAMPLE LOCATION JW CAMP
DATE RECEIVED 25 SEP 90

SAMPLE NO. 184

NAVAJO TRIBAL UTILITY AUT

25 SED90

COLLECTED BY SANDOVAL

DATE RECEIVED 25 SEP 90 COLLECTED BY ADDRESS TIME

TEST	PARAMETER	METHOD	RESULTS	mg/l
	ALKALINITY	TITRAMETRIC OS COLOZ	175.7mg/L	d Britis
	CALCIUM	TITRAMETRICION AA 11 11	94.8 11	75-200
	CHLORIDE	THERAMETRIC IC	10.911	250
	TOTAL HARDNESS	TITRAMETRIC as Calo	180.011	500
	MAGNESIUM	CALCULATED OR AA 11	85,0"	
	MANGANEGE NITEATE-NIT	TO ERPECTROPHOTOMETRIC OF AA IC	ND - NONE DETECTED	0.05-
	BON- NITTE-NITE	OGENSPECTROPHOTOMETRIC OR AA- IC	ND	0.3-
	рН	ELECTRODE	7.10236	6.5-8.5
	PHOSPHATE	SPECIROPHOTOMETRIC- IC	ND	2
	POTASSIUM	FLAME PHOTOMETER .	11857	1000-2000
	SODIUM	FLAME PHOTOMETER- CALC. ,	15.0mg/L	
	SULFATE	THRAMETRIC IC	20.81	250
	TOTAL DISSOLVED SOLIDS	ELECTRODE GRAVITAETIZIC	285.6"	500
	TURBIDITY	NEPHELOMETER	O.Z NTU	1657 A
	FLUORIDE	ELECTRODE IC	1. Z7 mg/L	1.4

FORM NO. 5459

ATER CHEMICAL ANALYSIS

Bugau of Indian Affairs
Soil, Water & Materials Testing Laboratory
P. O. Box 1060, Gallup, New Mexico 87301

16T-520

th. No. 76-PHS-CP-109 Field No. CP-75-35  tte Received by Lab. 6-24-75  tto Collected 6-20-75  cation Thoreau  purce of Water Well #16-T-528-529  clicotor's Name Sammie S. Charlie	Checked By Date Analy Reported	y (indicated by Complete By	med,	=======================================
Ithorized By B. Chelikowsky END REPORT TO: Bruce Chelikowsky Environmental Health & Sanitation Crownpoint Indian Hospital Crownpoint, New Mexico 87313	ADDRESS:	Department: Agency: Branch:	USPHS Crownpoint OEH	

(W) Wash Business	- ad			Meq/1	Mg/1	Recommended Standards
(X) Test Requested					0.54	1.0
oron (B)				Track	Trans	0.3
ron (Fa)			_	2,00	40.08	75 - 200
alcium (Ca)				1.30	15:31	50 - 150
egnesium (Mg)					64.37	115 **
odium (Na)				2.80		1000 to 21
otassium (K)				0.03	1.17	1000 00 20
		CATIONS		613		<u> </u>
			190	¥<	Trace	50.0 ***
hosphorus (P)				3,26	199,93	150
icarbonate (HCC	13)			0.52	15.61	
arbonate (CO3)				1.90	43.23	250
ulfate (904)					58.36	250
hloride (C1)		THE RESERVE TO THE RE		1,66	23.363	500to 58.30 1.1
Chloride (C1) Fluoride (F)				0.01	0.26	58.7°to70.6°1.
				0.002	0:12	45
Nitrate (NO3)				0.000	Circ	
		ANIONS		6.35		
	-0	•	. 4		321	500
Total Solids		Mg/1	-	-	10	300
		Mg/1			308	
Dissolved Solid	8	Tons Per Acre Foot	0.42	-		-
		Calcium, Magnesium		1	165	500
Hardness as Mg/1 Ca CO3	Non Carbonata					
	Non Carbonaca			1		
		Phenolphthalein			26	N. A.
Alkalinity as M Ca CO3	g/1	Total Alkalinity (Methyl Orange)			163	
	D	centage (SSP)	48			
Soluble Sodium	Per	centage (SM)	2.18			
Sodium Absorpt:	non	Ratio (SAR)	570			
Specific Conduc	can	ce (Microshos at 25°C)		0,48		
	n Ca	rbonate (RSC)	8.4			4 to 10
Pil	-		C2 51			
Class for Irri	gati	on Water				
Armenic (As)						0.05 *
						1.0 *
Berium (Ba)	_					0.01 *
Çadmium (Cd)						1.0
Copper (Cu)						0.2
Cyanide (Cn)					0.05 *	
Cirronium (Cr.)						
Iron (Fe)			1			0.05 *
Lčad (Pb)			1			0.05
Manganese (Mn)			1			0.005 ***
Mercury			1		14	0.01 *
Sclenium (Se)			-	-		
Silica (SiO )				-		0.05
Silver (Ag)				-	_	5.0
Zinc (Zn)			1	-	-	0.5
Alkyl Schzene	Sul	fonates (ABS)		-		0.001
GILLAT DELISERE	A. C. A.			The same		UFUCT

#### WATER CHEMICAL ANALYSIS

Bureau of Indian Affairs

Soil, Water & Materials Testing Laboratory P. O. Box 1060, Gallup, New Mexico 87301

		- 1
	Analyzed By Account	1
	Transcribed By Wesketaller	7
	Checked By	
Н	Date Analysis Completed /	
	Reported By Sandy of White	
	Date Reported DEC 2 8 1973	

Lab. No. 74-PHS-FD-319 Field No. Date Received by Lab. 12-17-73 Date Collected 12-17-73 Location 3 mi, W of Thoreau Chapter Source of Water\_ WM-16F529 Collector's Name A. Smiley Authorized By\_ W. Conway ADDRESS: Department: SEND REPORT TO: Ward Conway USPHS P. O. Box 1337 Agency: Gallup Branch: \_OEh Gallup, NM

(X) Test Requested			Meq/1	Mg/1	Recommended Standards.
Boron (B)	7 7 4 4			17.20	1.0
Iron (Fc)	-		0.003		0.3
Calcium (Ca)			2.60	52.10	.75 - 200:-
Magnesium (Mg)			1.60	19.46	50 - 150
Sodium (Na)			21,60	494.58	115 ***
Potassium (K)			0.64	2,35	1000 to 2000
20.000		0.15	The second second		
Ġ.	CATIONS		25.86		
Phosphorus (P)				Inale.	50.0 ***
Bicarbonate (HCO3)		The same of	3.14	191.82.	150 24
Carbonate (CO3)			0.21	6,31	4.
Sulfate (SOA)			4,35	208.93	250
Chloride (C1)			17.28	612.75	250
Ontolide (Ol)			1.1	172773	-50°to-5873°-1
Fluoride (F)			0.03	0.62	58.7°to70.6°1 -70.7°to90.5°1
Nitrate (NO3)			0,07	4.34	45
NICIAGE (NO3)				1:37	43
	ANIONS		25.10		
Total Solids	*Mg/1			1515	500
	Mg/1			1464	
Dissolved Solids	Tons Per Acre Foot	1.99			
and the same of the same	L			210	
Hardness as Mg/1	Calcium, Magnesium_			210	500
Cai CO2	Non Carbonate			5%-	74
	Phenolphthalein			11	N. A.
Alkalinity as Mg/1		-		10-53	Ne As
Ca CO3	Total Alkalinity (Methyl Orange)			158	41
- 7	· · · · · · · · · · · · · · · · · · ·	.84		-	
Soluble Sodium Perc		14.91		-	
Sodium Absorption R	e (Micromhos at 25°C)	2730			
Residual Sodium Car		2136	100mm et 3 100m		
PH W	bonace (k3c)	8.4	1000000	-	4 to 10
Class for Irrigatio	n Water	6454			4 10 10
Grade for Ittigatio	n water	c y 27			-9
Arsenic (As)		1000			0.01 *
Bariam (Ba)					1.0 *
Cadmijum (Cd)			-	0.01 *	
Copper (Cu)				1.0	
Cyanide (Cn)				0.2	
Hexavalent Chromium				0.05 *	
Lead (Pb)				1	0.05 *
Manganese (Mn)				0.05	
Mercury (Hg)				0.005 **	
Selenium (Se)	-				0.01 *
Zinc (Zn)					5.0
Alkyl Benzene Sulfo	onates (ABS)			1	0.5

Cause for Rejection of the Supply --\*Unofficial Standard

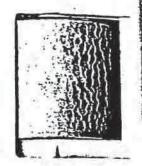
DISTURBATION OF OF ENVIRONMENT

#### BUREAU OF INDIAN AFFAIRS SOILS LABORATORY GALLUP, NEW MEXICO

LABORATORY DATA SHEET FOR WATER SAMPLES

LAB NO. 71-PHS-76	FIELD NO	TRANSCRIBED BY	AND T		
COLLECTOR Phillip E. 1	Pollard	CHECKED BY	1/2.	1	
LOCATION Thoreau Char DATE RECEIVED BY LABOR	ATORY 8-3-70	REPORTED BY	715 CO	00-125	
DATE ANALYSIS COMPLETE	S-28-70	AUTHORIZED BY			rd
DATE COLLECTED 7-14	-70	SOURCE OF WATER	U.S.PHS	9	
DEPARTMENT H.E.W.	AGENCY OF CHAIR				
.00				Meq/1	Mg/1
Temperature (°F)					
Silica (SiO <sub>2</sub> )			-3-		. 54
Boron (B)			5		0.30
Iron (Pe)					trace
Calcium (Ca)					30.06
Magnesium (Mg)				100 THE 100	13.98
Sodium (Na)			-		167.37
Potassium (K)					trace
* * */	E	Cations		9.93	
Phosphorus (P)		E.			0.07
Bicarbonate (HCO3)		102		3.55	216.62
Carbonate (CO3)				0.25	7.50
Sulphate (SO <sub>4</sub> )				1.49	71.56
Chloride (C1)			* (*)	4.33	153.54
Fluoride (F)				0.02	0.29
Nitrate (NO3)				0.02	1.24
4.70		Anions		9.66	
Total Solids	Mg/1				577
	Mg/1				467
Dissolved Solids	Tons Per Acre Foot		0.64		
					133
Rardness as Mg/1 Ca CO3	Non Carbonate				751
- A A A	Phenolphthalein		4		13
Alkalinity as Mg/l Ca CO3	Total Alkalinity (	detnyl Orange)	-		178
Soluble Sodium Percen	tage (SSP)		73		
Sodium Absorption Rati	o_(\$AR)		6.32	1	
Specific Conductance (	A A STATE OF THE S	7 /	1000		_ t
Residual Sodium Carbon	ate (RSC)	i i		1.15	A STATE OF
РН	81 2		8.5		
Class for Irrigation W	ater	H 1 2	C3-52		

RECEIVED



16T. }	Ariz. 6,16	964	4189	121
ocation 3 NW of Thoreau	Ignition LossColor Directed Selids:	SIO <sub>2</sub>	epm	7.1
Navajo Tribe	Estitute et 180°C 419  Calculated (Sum) 419  Tons per Acra Foot 0.57	Fe _	0,50	10
hete drid Mar. 1964 cased toft.  Depth 1708 *ft.  Glorieta	Berdaese as Caco <sub>3</sub> 35 Ron-carbonate Rerdaese 0 2 Na 90 sas 11 pm 8 2	Mg No K	0.20	2.4
tater level 228 ft	(microshos at 25°C) 687	Na+K	6.37	147_
teldGTN (mas or est)  t of collWell		нсо <sub>3</sub> .	3.87	236
ep (7) 62 Don., Stock		504	1.92	92 44 0.8
here completed Nay 14, 1964		NO <sub>3</sub>	0.00 7.07	0.00



NAVAJO NATION - DIVISION OF NATURAL RESOURCES WATER RESOURCE MANAGEMENT P.O. Drawer 140, Ft. Defiance, AZ 86504 (602) 729-5282, 5283 NUP NO. 94-1-3

VALID FROM MAN 0 1 1994 to DEC 31 1994

#### WATER USE PERMIT

this form.		e reau	water	use Per	MIL	111	Of macton site	er bei	ore completing
APPLICANT:		NAVA	JO TRIE	BAL UTIL	ITY	AU	THORITY		
							or/Company Na	ıme	
MAILING ADDRES	SS:		Р.	O. Box	170			-M	
ITY:	Fort Defia	ance		= (,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	STAT	E:	Arizona	ZIP CC	DE: 86504
ELEPHONE NUME	BER: (6	02) 72	9-5721	in in invitre	CC	ТИС	ACT PERSON: _	14	in Craig
* * * * *	* * * * * *	* * *	* * *	* * * *	k * *	* *	* * * * *	* * *	* * * * * *
ate Received	MA	Y 12	1994	Date	e Cor	mpl	eted	F60	2.9 100=
25.00 Filing	Fee Received	7,1	AIN CT	1954			Init	ial	1477.
					and the same				
			WE	ATER SOL	JRCE				
				and the same of the same of	West Committee of				
) Spring No				_ ()	Stea	am	Name		
( ) Stockpond	Name/No.	يعمموا	-	_ ()	Lake	e/R	eservoir Name		
( ) Stockpond	Name/No.	يعمموا	-	_ ()	Lake	e/R	eservoir Name		
( ) Stockpond (X) Well No.	Name/No. # \	167-6		_()	Lake	e/R ect	eservoir Name		
( ) Stockpond X) Well No. ( ) Other Des	Name/No. 167-350 cript./Name	16T-6	est Tho	( ) ( ) reau #2	Lake	e/R ect	eservoir Name ion Well No. Grazing Distr		16
( ) Stockpond X) Well No. ( ) Other Des	Name/No. 167-350 cript./Name	16T-6	est Tho	( ) ( ) reau #2	Lake	e/R ect	eservoir Name ion Well No. Grazing Distr		16
) Stockpond X) Well No. ) Other Description	Name/No. 161 350 cript./Name	16T-6	est Tho	( ) ( ) reau #2	Inje Char	e/R ect	eservoir Name ion Well No. Grazing Distr r Code:	rict: _	16
) Stockpond  X) Well No.  ) Other Description:  CHAPTER:  State: ( )	Name/No	16T-6 We preau (X)	NM/New	( ) ( ) reau #2 Mexico	Lake Inje	e/Rect	eservoir Name ion Well No. Grazing Distr r Code: UT/Utah		76 √oÆ CO/Colorado
) Stockpond  X) Well No.  ) Other Description:  CHAPTER:  State: ( )	Name/No	16T-6 We reau  (X)  (X)	NM/New	()() reau #2 Mexico	Lake Inje	e/Rect	eservoir Name ion Well No. Grazing Distr r Code: UT/Utah SJ/San Juan	rict:	/6  →∞  CO/Colorado  MT/Montezuma
) Stockpond  X) Well No.  ) Other Description: CHAPTER:  State: ()  COUNTY: ()	Name/No	(X)	NM/New  MK/McK: VL/Vale BL/Beri	( ) ( ) reau #2 Mexico inley encia nalillo	Lake Inje Char	e/Rect	eservoir Name ion Well No. Grazing Distr r Code: UT/Utah SJ/San Juan	rict:	76 √oÆ CO/Colorado
) Stockpond  X) Well No.  ) Other Description: CHAPTER: Ctate: ( )  COUNTY: ( )	Name/No	(X) (X) (X) (X) (X)	NM/New MK/McK: VL/Vale BL/Bern SD/Sand	()() reau \$2  Mexico inley encia nalillo doval	Lake Inje Char	e/Rect	eservoir Name ion Well No. Grazing Distr r Code: UT/Utah SJ/San Juan	rict:	76 →0/2 CO/Colorado MT/Montezuma
X) Well No. ( ) Other Description ( ) Other	Name/No	(X)	NM/New  MK/McK: VL/Vale BL/Bern SD/Sand	( ) ( ) reau \$2  Mexico inley encia nalillo doval orro	Lake Inje Char (	e/Rect	eservoir Name ion Well No. Grazing Distr r Code: UT/Utah SJ/San Juan	rict:	/6  →∞  CO/Colorado  MT/Montezuma
(X) Well No. () Other Description () Other Descript	Name/No	(X) (X) (X) (X) (X)	NM/New  MK/McK: VL/Vale BL/Bern SD/Sand	( ) ( ) reau \$2  Mexico inley encia nalillo doval orro Arriba	Lake Inje Char (	e/Rect	eservoir Name ion Well No. Grazing Distr r Code: UT/Utah SJ/San Juan	rict:	76 →0/2 CO/Colorado MT/Montezuma

10 Acre

40 Acre

NE SE SW NM / NE SE SW NM / NE SE SW NW

UTM COORDINATES: X(East) 749900

160 Acre

ZONE \_

TOWNSHIP

Y(North) 3924380

SECTION

RANGE

12

## LAND STATUS

(X)TRUST () FEE () LEASE (	1			
WATERSHED NAME: Little	Colorado	USGS WATERSHE	D CODE NO. 13	1020207
	WATER USE			
Primary: ( ) Domestic (X) Municipal ( ) Livestock ( ) Irrigation Agric ( ) Wildlife & Fish	ulture	( ) Recreation ( ) Industria ( ) Mining ( ) Commercia ( ) Other	il il	
Number of People:	Number of Home:	193	Commercial:	0
TYPE OF LIVESTOCK: ( ) Horses			( ) Goats No ( ) Sheep No	
( ) Small G	Hay-Pasture	its & vegetab	Acres	
TYPE OF WILDLIFE: ( ) Fish	No	= ()	Small Game No Birds No	o
IF WATER IS USED FOR INDUSTR DESCRIBING SOURCE AND METHODS O	IAL OR MINING OF DIVERSION, CO	PURPOSES, ATT	ACHED WATER S	UPPLY PLAN
SEASON OF MAXIMUM USE: ( )	SPRING (X	) SUMMER	( ) FALL	( ) WINTER
MAXIMUM RATE OF USE: 5			/MIN or (	) CU-FT/SEC
EXPECTED DATE WATER USAGE TO BE	GIN: SAN O	1 1994 <sub>—IN</sub>	USE-	Milana
EXPECTED VOLUME OF WATER TO BE	USED: 42.19	AC/FT	(_3 <del>0,274,56</del>	GALLONS)
METHOD OF WATER DIVERSION:			( ) Gate or G	
METHOD OF WATER CONVEYANCE:	( ) Ditch ( ( ) Other: _	) Canal (	X) Pipeline	( ) Truck
ATTACH AN 8-1/2" X 11" MAP SHOW! OF WHERE WATER IS TO BE USED.	NG EXACT LOCATIO	ON OF WATER SOL	JRCE AND SCENAR	IO/LOCATION
RETURN FLOW OR DISCHARGE				
AMOUNT OF WATER: ( ) GAL/MIN	( ) CU/FT/SEC	( ) GPO	METHOD: ( )	Director Indirect Injection
IS DISCHARGE TREATED? ( ) YES IS QUALITY AFFECTED? ( ) YES		TEMPERATURE AF	FECTED? ( ) Y	ES ( ) NO
FEDERAL/UIC PERMIT:	nla NF	DES PERMIT NU	IMBER:	1/4

#### CONDITIONS

- The Navajo Tribal Utility Authority, hereinafter the Permittee, agrees to comply with the terms and conditions of this Water Use Permit, the Navajo Nation Water Code, and all applicable tribal and federal laws. Permittee understands and agrees that failure to comply may result in revocation of this permit, pursuant to 22 N.T.C. §1404 (1984).
- This permit is valid only for the term specified and shall expire at the end of that term.
- 3. If the purpose for water withdrawal authorized by this permit requires more than 30.214 566/3,746,9211ons, the Permittee shall be authorized to exceed the specified amount by five percent, or 14,433,800 gallons, provided that any exceedance of the permitted amount must be reported to the Department. If actual use exceeds or is projected to exceed the specified amount plus five percent, the Permittee shall apply to the Director for a modification of this permit. Such request shall be reviewed by the Director, and the Permittee shall be notified of the Director's decision no later than 10 business days following receipt of the request for modification.
- 4. The Navajo Tribal Utility Authority shall make its best efforts to work with the Department of Water Resources Management to develop an economical method of billing Navajo Tribal Utility Authority customers covered by the Navajo Nation Water Code.
- 5. Permittee agrees to submit to the Water Code Section quarterly reports indicating the quantity of water withdrawn pursuant to this permit. Such reports shall consist of meter readings or other evidence showing the amount of water withdrawn monthly pursuant to the permit. Other evidence may include estimates or calculations of withdrawals during unmetered periods, provided such estimates or calculations are clearly indicated as such and explained on the quarterly reports.
- Nation against any and all losses, costs, damages, claims, expenses or other liability, arising from or connected with Permittee's acts or omissions undertaken pursuant to this permit, including but not limited to, any accident or injury to person or property.
- 7. The courts of the Navajo Nation shall have exclusive jurisdiction over any and all disputes arising under this permit, following the exhaustion of administrative remedies. Nothing herein shall be construed as a waiver of the sovereign immunity of the Navajo Nation, pursuant to 1 N.T.C. §351 et

seq.

- 8. Permittee agrees to maintain its facilities for water withdrawal and diversion under this permit in a safe and sanitary manner, free of unnecessary debris, pursuant to applicable tribal and federal law.
- This permit applies only to the stated use of water from the specified point of withdrawal or diversion. (Ref. page 2 of use permit)
- 10. This permit constitutes nothing more than tribal permission to use water under specific conditions pursuant to the Water Code. Permittee is required to comply with all other applicable tribal and federal laws prior to beginning the proposed project where the water will be used.
- Permittee must notify the Department of Water Resources Management, Water Code Section, in writing if sub-contractors are hired to haul water covered by this permit.
- 12. This permit may be revoked or modified by the Director pursuant to 22 N.T.C. §1404 (1984) for failure to comply with the permit terms, for noncompliance with applicable tribal or federal law, to protect water or other tribal resources, or for any other just cause. The Director shall notify the Permittee in writing not less than 15 business days prior to the effective date of revocation or modification. The notice shall state the ground(s) for revocation or modification. If the Permittee negates the ground(s) prior to the effective date, the permit will remain unaffected. Decisions of the Director shall be considered final actions within the meaning of 22 N.T.C. §2102 (1984).
- 13. Permittee agrees to allow reasonable entry upon their premises by employees of the Navajo Nation engaged in the administration of this permit. The Permittee shall be notified by the Department of the identity of those personnel who will require access to the Permittee's facilities, and when practicable of the date and time that access to a particular facility will be required; provided that the Permittee understands that in times of emergency such prior notification by the Department may not be possible. It shall be the responsibility of the Permittee to insure that those Navajo Nation personnel specified by the Department as requiring access are adequately trained to safely enter the Permittee's premises, so as to conduct activities necessary in the administration of this permit.

PERMITTEE'S SIGNATURE ZULENDE

DATE MAY 1 0 1984

RECOMMENDATION:	VES(X) NO( )	Some worker Classer MAY 2 4 1994
RECOMMENDATION:	IES (V) NO ( )	WATER CODE ADMINISTRATOR 1-146164
	YES(X) NO()	DIRECTOR/WATER RESOURCES MGMT.
	YES ( NO ( )	Per Porce DATE 2-16-85 DEPARTMENT OF JUSTICE
APPROVED/DISAPP	ROVED: EXEC DI	RECTOR/DIV. OF NATURAL RESOURCES

Revised: 4/94

(



PETER MACDONALD

FRANK E. PAUL VICE CHAIRMAN, NAVAJO TRIBAL COUNCIL

03 August 1982

Mr. Masud Zaman, Hydrogeologist, SFCB Office of Environmental Health & Engineering Navajo Area Indian Health Service Post Office Box "G" Window Rock, Arizona 86515

> RE: Permission to drill a replacement well at John Willie Camp, West Thoreau, New Mexico

Dear Mr. Zaman,

Your application and permit to drill a deep well at John Willie Camp, West Thoreau, New Mexico, and attached letter have been reviewed by our department. Drilling permit is issued with the following conditions:

- Complete well record, such as drilling log, electric logs, pump test data, etc. will be furnished to | .
- All information related to the well record will be made available to the Navajo Water Commission through us.
- In case that the water sources are depleted in any of the wells in the area due to pumping of the new well, Indian Health Service will replace these sources for domestic and livestock use.

If you have any questions, please do not hesitate to contact us.

Sincerely yours,

THE NAVAJO TRIBE

Anson C. Damon Jr., Director Water & Sanitation Department

CONCURRENCE:

Glenn C. George, Director Nayajo Water Commission

ATTACHMENT:



# DEPARTMENT OF HELTH & HUMAN SERVICES

Public Health Service
Health Services Administration

Office of Environmental Health

and Engineering

July 23, 1982

Navajo Area Indian Health Service P. O. Box G Window Rock, Arizona 86515

Our Ref: NA-79-225

Mr. Anson Damon, Jr., Manger Water and Sanitation Department P.O. Box #678 Pt. Defiance, Arizona 86504

> RE: Permission to drill a replacement well at John Willie Camp, West Thoreau, New Mexico

Dear Mr. Damon:

The failure to remove an unknown solid obstruction at 950 feet depth and the presence of high radionuclide concentration in the water of existing West Thoreau Well #16T-350, the Indian Health Service, Office of Environmental Health and Engineering, Window Rock, Arizona has decided to drill a replacement well in the area.

Since, the long range plans are that the existing John Willie Camp System (NTUA), the Thoreau Chapter "Iron" System (Water and Sanitation) and the newly constructed West Thoreau System should eventually be consolidated into one large system, it was decided to drill the proposed replacement well in the area where access to three-phase power and main water line is easily available. The John Willie Camp area has been chosen as the most suitable location for the new well.

The replacement well will be located on a Tribal Trust land in the SE/4, NE/4, NE/4 of Section 19, T14N, R13W about 2.75 miles northwest of Thoreau. The new well will be approximately 1,750 feet deep, penetrating the total thickness of the San Andres-Glorieta aquifer (see attached well feasibility report for full detail).

The additional information on the the request are as follows:

1. Availability - Source Location: There are two existing wells in the close vicinity of proposed well site. The nearest well #16T-529, located about 0.6 mile west of the proposed well site, is 1,708 feet deep, static water level 260 feet (1979) and produces about 20 gallons per minute of good quality water from the San Andres-Glorieta aquifer. This well, presently, provide water to a small, existing John Willie Camp system, which is maintained and operated by the NTUA. This system will finally be merged into planned larger West Thoreau system and the Well #16T-529 then be used as a standby water source.

The second existing Well #(14.13.20432), known as Transwestern Pumping Station well, is located about one mile south-southeast of proposed well site. This well is approximately 1,300 feet deep, static water level 200 feet and produces also from the San Andres-Glorieta aquifer. The yield and the chemical quality of the water is unknown. This well is located up the dip from the proposed well (see attached location map).

- There are several other existing deep wells in the area which are owned and operated by different parties. The parties are, the McKinley County School District, the BIA School District, the City of Thoreau, the El Paso pumping station, the Navajo Tribe and others. All these wells are located up the dip towards the recharge area in the south, farther away and out of the influence zone of the proposed well (for locations, see attached map).
- 2. Quantity of Water Requested: Approximately 150 gallons per minute production will needed from the proposed replacement well.
- Point of Use and Purpose: The new well will be the major water source for the consolidated West Thoreau System.
- 4. Prior Use and Rights Protection: As discussed in point one, all existing wells, except John Willie Camp Well #16T-529, in the area are at a safe distance and their production will not be influenced by the operation of the new well. The Well #16T-529, being located at a short distance (0.6 mile) from the proposed well, may have some effect, but the effect will be tolerable due to the standby status of this well. Moreover, both wells will be maintained and operated by the same utility agency (NTUA).

The Well #16T-529 will also be used as an observation well during the pump test of the new well and later as a water level monitoring well in the area.

5. Three copies of the drilling application duely signed by the area councilman, the members of the grazing committee, a copy of USGS location map, and a copy of the well drilling feasibility report is attached for your information and record, we shall appreciate the processing this application in the earlies convenience.

If you have any question regarding this request, please do not hesitate to call me.

Sincere yours,

Masud Laman, Hydrogeologist

Enclosures

xc: Steve Weaver, Field Engineer, OEH, Crownpoint Service Unit Gerald Babigian, District Engineer, OEH, Gallup Service Unit Project File, NA-79-225

### NAVAJO TRIBAL COUNCIL. WATER DEVELOPMENT DEPARTMENT

APPLICATION AND PERMIT TO DRILL XX, REDRILL

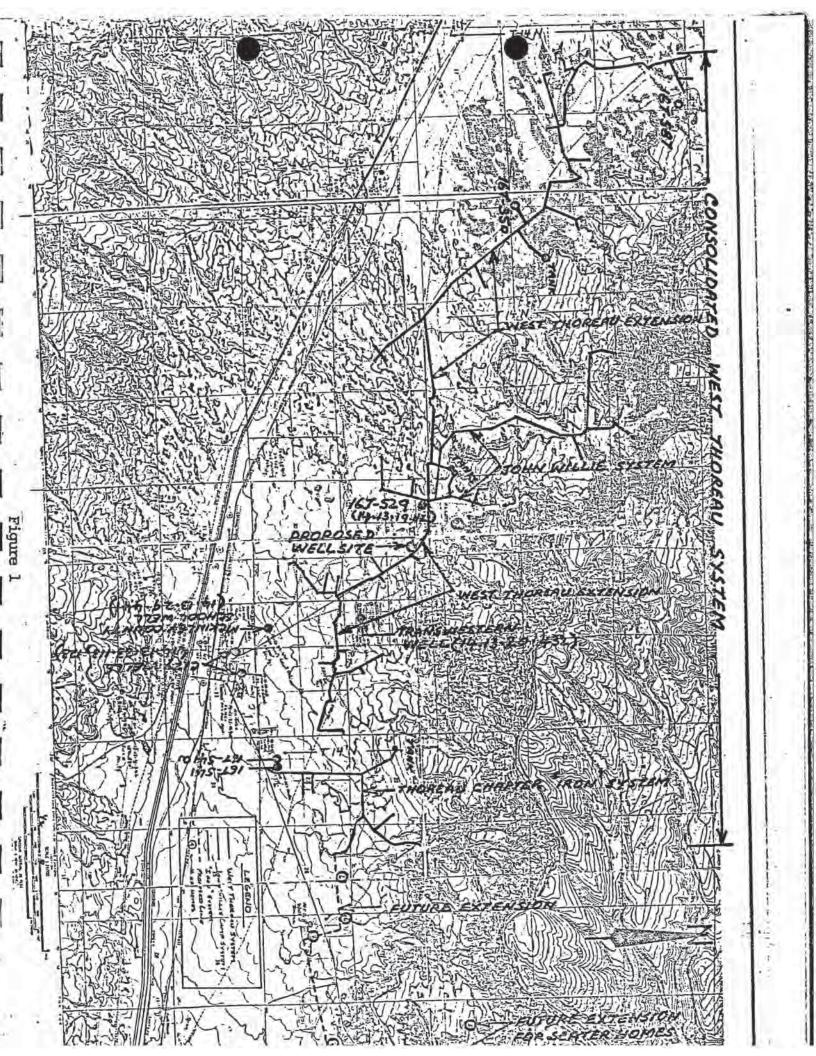
RECASE	, OR DEEPEN , A WATER WELL
THIS WELL WILL TRIBAL COUNCIL	BECOME THE PROPERTY OF THE NAVAJO AT THE END OF PERMITTEE'S TENURE
District 16 Name	ne/Number of Well
Name of Driller NECA	Phone No. (505) 368-5151
Address P.O. Box 969, Shiprock, N	I.M. 87420
Well Driller's License No.	Date start of work July,1982
During Dublic Heal	th Service, Division of Indian Health
	1 4 127
Estimated Depth of Well 1750	
Diameter of well12%	
Diameter of Casing 8 5/8	
Weight of Casing 24 lbs.	./ft. Please mark well location to nearest 40 acre (small square) below
Type of Well: Domestic	М
Irrigation	
Municipal	
Stock	W E
Other	
	arv
Method to be used in drillingrota	If above location is unknow, complete
	the following:
Estimated Depth of Bottom & Top of S	Shutoff County
	State
Type of Shutoff	O Buglande
- ittes Signature on lack	Permittee's Signature
Grazing Committee Signature om back.	M.T. Water Development
Copies: Permittee Driller	and in active
Water Development Dept.	District Councilman's Signature

### FEASIBILITY REPORT

Well Drilling West Thoreau Water System McKinley County, New Mexico

> Masud Zaman Hydrogeologist Indian Health Service Window Rock, Arizona

> > Open File Report July 1982



### FEASIBILITY REPORT

Well Drilling for West Thoreau Water System

### INTRODUCTION

The existing West Thoreau Well #16T-350, located approximately 6.5 miles west of Thoreau, New Mexico, was drilled in May 1958. The Navajo Tribe's record indicates that the well was completed in Glorieta Sandstone at 1,730 feet depth, the first 1,500 feet was lined with 8 5/8-inch casing and 230 feet of open hole was left at the bottom. The record does not show any other construction details or hydrologic information about the well.

Between May 1958 through May 1979, the Navajo people in the area used the well for stock watering and seldom hauled water for domestic use. In 1979, when the construction of the West Thoreau water system (NA-79-225) was planned, as an extension of the John Willie Camp System, Crownpoint OEH was authorized to use Well #16T-350 as a domestic water source to feed the proposed system. At that time, Dale Cartmel of Crownpoint OEH, checked the well depth and found a blockage at 950 feet. A 6.5 hour, 50 gallon per minute pump test was also conducted. The pump was set at 729 feet, the static water level was 19 feet and the level stablized at 450 feet below the ground surface after pumping.

In July 1981, Steve Weaver of Crownpoint OEH ran a second pump test at the rate of 55 GPM for 24 hours. The pump was set at 760 feet, static water level 22 feet, and the total drawdown after 24 hours pumping at a constant rate of 55 GPM, was 320 feet. The radionuclide results showed that the water contained Gross Alpha 29 pCi/L, Uranium 7.6 pCi/L, Radium 226 of 3 pCi/L.

In January 1982, plans were made to rehabilitate the well by redrilling to the total depth and sealing off the radioactive zones in the well. The NTUA cable tool rig was hired for the job. The attempt to clean the well proved unsuccessful because of a solid obstruction at 950 feet depth. And the operation was called off after seven days.

After analysing all the options and to avoid other unforeseen problems in rehabilitating the West Thoreau Well #16T-350, the decision was made to drill a replacement well either near the existing Well #16T-350 or at a suitable location along the water system. After discussion, the John Willie Camp area was chosen as the proposed replacement well site.

Current long range plans are that the existing John Willie Camp System, Thoreau Chapter ("Iron") System and the newly constructed West Thoreau System will eventually be consolidated into one large system. Besides providing water to the John Willie Camp and West Thoreau systems, the new well will also replace the poor quality water of the Thoreau Chapter ("Iron") System. Plans are also being made to extend Thoreau Chapter System further east and northeast to provide domestic water to several existing Navajo homes located in that area. proposed well will be the major water source for the entire system and the existing Well #16T-529, now serving the John Wille Camp System, will be used as a standby source. LOCATION The proposed replacement well will be located on Tribal Trust Land (14.13.19.224) in the John Willie Camp area, which lies approximately 2.75 miles northwest of the junction of I-40 and NM #56 and about four miles east southeast of the existing West Thoreau Well #16T-350. The proposed well site will be approximately 0.6 mile east of the existing John Willie Camp Well #16T-529 (see attached location map, Figure 1). PHYSICAL FEATURES The study area that lies on the north flank of the Zuni uplift is a broad valley. This valley is approximately three miles wide and delineated on the south by rocks that dip 30 - 50 off the Zuni uplift and disappear beneath the alluvium in the valley at an altitude of between 6,800 and 7,200 ft. The shear walls of orange-red sandstone, more than 200 feet in height, rise abruptly from the northern edge of the valley. These sandstone cliffs are capped by the younger sedimentary rocks which form slopes and escarpments at an altitude of over 8,200 feet. The Continental Divide crosses just west of the study area. The drainage is predominately to the east, away from the Continential Divide. The land surface slopes so gently to the east that the stream gradients are too low to accomplish any downcutting. The Interstate I-40 and the Santa Fe Railway traverse the valley longitudinally. CLIMATE The area has a semi-arid climate with abundant sunshine and low relative humidity. The average annual temperature is about 50°F. The maximum summer temperatures seldom exceeds 100°F and the winter low temperatures may be lower than OoF. The average annual precipitation in the higher altitudes is about 20-inches (New Mexico State Engineer Office, 1956). The precipitation ranges from 12-16 inches along the Continential Divide, and 10-12 inches at lower elevation areas. The heaviest rainfall occurs during July, August and September (about 50 percent of the total annual precipitation). The precipitation occurs in the form of brief, intense thunderstorms. Some snow accumulates at higher elevations during winter. EXISTING WATER SUPPLY There are several existing water supply systems in the Thoreau area. The systems are as follows: 1. The City of Thoreau This system obtains its water from 2 or 3 deep wells, which produce (as reported) from the San Andres-Glorieta aquifer and supply water to the City for domestic and commercial use.

2. The BIA School District

The school has its own water supply system and obtains water from

The school has its own water supply system and obtains water from several wells. The Well #16K-302A is 1,250 feet deep and produces from the San Andres-Glorieta aquifer. Other wells on the system produce from the sandstone beds of the Chinle Formation. The school system is operated and maintained by the BIA.

### 3. McKinley County School District

This school is located about 0.5 miles northwest of Thoreau, maintains its own water system and obtains water from a 1,284 feet deep well which produces (as reported) from the San Andres-Glorieta aquifer.

### 4. Transwestern Pumping Station

Located about 1.75 miles northwest of Thoreau, this system obtains its water from four wells. Three wells (735, 743, 750 feet deep) produce from the sandstone beds of the Chinle Formation and the fourth well, which is 1,300 feet deep (as reported), produces from the San Andres-Glorieta aquifer.

### 5. El Paso Pumping Station

Located south of the City, this system has several wells and all of these produce from the San Andres-Glorieta aquifer.

### 6. Thoreau Chapter "Iron" System

This system, located about one mile east of Thoreau, was constructed by IHS under Public Law 86-121 in 1966 to provide water to 20 PHA homes and about 30 existing Navajo homes located in the area (see Figure 1 for well locations and distribution system). The system was originally planned to obtain water from the existing chapter house Well #16T-541, which was about 435 feet deep and produced approximately 10 gallons per minute of good quality water from the sandstone beds of the Chinle Formation. But, because of it's low yield, a new 1,220 feet deep well( #16T-541a,) was drilled adjacent to the Chapter House well. The record shows that the new well partially penetrated the San Andres-Glorieta aquifer and produced about 50 gallons per minute of marginal quality water. To improve the quality, the water from two wells is mixed before injection into the system. The consumers still complain about the quality of the water.

The system is operated and maintained by the Navajo Tribe Water and Sanitation Department field office in Crownpoint.

### 7. John Willie Camp System

This system, located 3.5 miles northwest of Thoreau, was completed under Public Law 86-121 in May 1978, and was transferred to the Navajo Tribal Utility Authority (NTUA) in August 1979. This system serves about 40 homes in the John Willie Camp area. The system

obtains its water from existing Tribal Well #16T-529 (14.13.19.112). This well is 1,708 feet deep, and was drilled by the Tribe in 1964. The static water level in 1979 was 260 feet below the ground surface. The well produces 21 GPM with a total drawdown of 267 feet (pump set at 620 feet). The production of this well could be increased by setting a high capacity pump at a lower depth, but the 6-inch I.D. casing may hinder the use of a high capacity pump.

The well location and distribution system is shown on the attached map. (Figure 1).

### FIELD WORK

After the decision was made to drill a replacement well, a reconnaissance trip was made on June 29, 1982 to the study area. The author was accompanied by Gerald Babigian, District Engineer, Gallup OEH and Steve Weaver, Field Engineer, Crownpoint OEH. During the trip the team surveyed the West Thoreau, John Willie Camp and Iron System project areas, selected a proposed well site, collected information on existing wells in the Thoreau area, and studied the geology of the area.

### ACKNOWLEDGMENTS

The author appreciates the help provided by Gerald Babigian and Steve Weaver during the field trip and later providing records on existing wells in the area to complete this feasibility study.

The author also greatly appreciates the assitance of Mr. James Crum, P.E., Chief, SFCB, and Mr. Charles Dowell, P.E., Deputy Chief, SFCB, who reviewed the draft and helped finalize this report.

#### GEOLOGIC CONDITIONS

The study area is located in a broad, flat valley on the north flank of the Zumi uplift and, lies within the southern limit of the San Juan structural basin. This roughly circular basin is about 25,000 square miles in area that lies mostly in the northwestern part of New Mexico but extends slightly into Colorado, Utah and Arizona. The Zuni uplift, an element of the San Juan basin, is an elongated dome whose axis strikes roughly northwest. The upwarping of the Zuni Mountain resulted in the exposure of Precambrian complex rocks which are flanked northward, toward the study area, by the younger strata. rocks on the northeastern flank of the Zuni uplift dip uniformly to the north and northeast at an angle ranging from 30 to 50, but the dips are much steeper on the southwestern flank. The north limb of the upwarp was subjected to severe erosion to form a series of northwest trending cuestas. The areas between cuestas are occupied by valleys, cut into the soft Triassic, Jurassic and Cretaceous shales lying between more resistant sandstones and limestones.

The area went through severe disturbances and contains several minor and major faults. The most prominent one is the Bluewater fault, which is located only a few miles east of the study area and extends

northward from near Bluewater Lake to Smith Lake. The fault is obscured by alluvium in the valley north of I-40 but is well exposed on both north and south ends. The maximum throw along the Bluewater fault zone ranges from 200 to 400 feet (Smith, 1954, page 22).

The broad, flat valley in which the study area is situated is underlain by the Triassic and Permian strata. The lowest geologic unit, which is known to be a reliable aquifer in the area, is the Glorieta Sandstone of middle Permian age, of the San Andres-Glorieta Formation. The rocks of lower Permian age (Yeso and Abo Formations) underlying the Glorieta Sandstone are known to contain poor quality water and will not be considered in this report. Overlying the San Andres-Glorieta Formations is a thick sequence of Chinle Formation of Triassic age. The geologic relationship of these units is shown in Figure 2. The approximate geologic column, estimated from Figure 2 will be as follows:

AGE	FORMATION	MEMBER	THICKNESS	FT.
		Upper Shale Member	800	
Triassic	Chinle Formation	Mid. Sandstone Member	200	
		Lower Shale Member	360	
		Shinarump (?) S.St. Mem.	. 40	
Permian	San Andres Formation	San Andres Limestone	150	
		Glorieta Sandstone	200	
	5.02.03.	San Yasidro Member		
	Yeso Formation	Meseta Blanca Member		
	Abo Formation			

NOTE: Actual thickness must be confirmed from E-log of the proposed well.

The Glorieta Sandstone is grayish-orange-pink-light brown or pale-red very fine to fine-grained, hard, massive and cross bedded quartz sandstone. The lower contact of the Glorieta Sandstone is gradational with the underlying San Yasidro member of the Yeso Formation and is very difficult to establish. The driller's log of Plains Escalante Well #1 (14.12.23.333) near Prewitt shows an abundance of gypsum at the base of the unit. The unit is about 220 feet thick.

The San Andres Limestone, that comformably overlies the Glorieta Sandstone, is grayish-pink of light brownish-gray, massive, crystalline, sandy limestone. The regional thickness of the limestone is about 150 feet but varies locally. The log of the John Willie Camp Well #12T-529 14.13.19.112) within the study area shows the presence of two limestone beds separated by a thin lens of sandstone. The Plains Escalante Well #1 on the other hand does not have any limestone at all and the Chinle Formation is lying directly over the Glorieta Sandstone. The Glorieta Sandstone and San Andre Limestone forms a single hydrologic unit and is exposed south of the study area in the Zumi Mountains.

The Chinle Formation of late Triassic Age, unconfirmably overlies the San Andres Limestone or at places directly over the Glorieta Sandstone. To simplify the nomenclature, Smith (1954) divided the formation into three parts. The lower part consists of the Shinarump member, Monitor Butte member and part of the Petrified Forest member. The middle part consists of the Sonsela Sandstone beds and the upper part consists of upper Petrified Forest member (including the intertonguiny Correo (?) Sandstone member) and the Owl Rock member. The Chinle Formation crops out south of the study area in the Zuni Mountains.

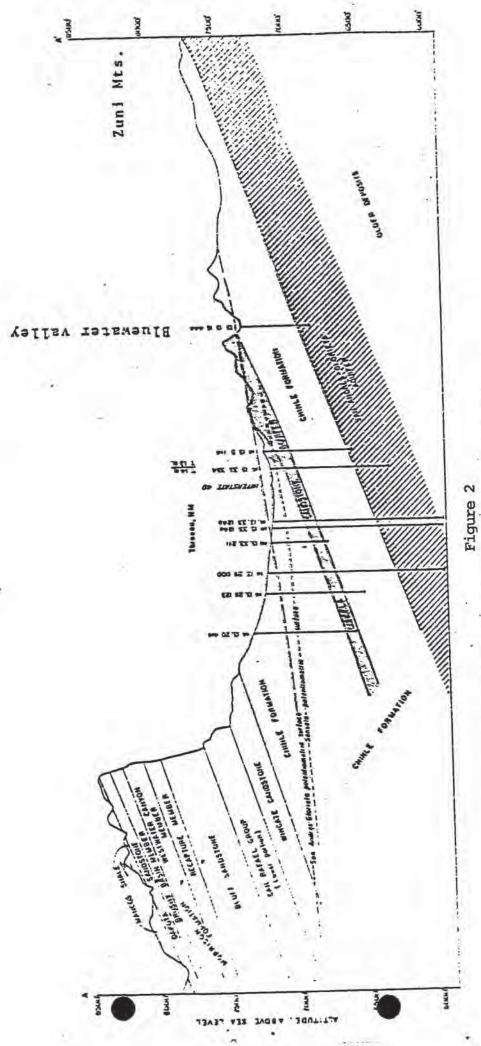
### HYDROLOGIC CONDITIONS

The San Andres-Glorieta Formations are hydrologically connected and act as a single aquifer. Regionally the average aquifer thickness is about 300 feet, but the thickness varies from place to place. The aquifer crops out at higher elevations on the north flank of the Zuni uplift where it receives its recharge from spring snow melts and summer thunderstorms that infiltrate the formation. The water moves north and northeastward from the recharge area. The high altitude of the recharge area and the confining effects of the overlying Chinle Formation create the artesian pressure in the San Andres-Glorieta aquifer in the direction of the flow. The water quality is good near the recharge area and deteriorates as water moves through the formation farther north and northeastward.

The depth to the top of the San Andres-Glorieta aquifer varies from about 550 feet in the south, near Bluewater Valley, in Well #13.13.16.444 to about 1,000 feet at McKinley County School Well #14.13.29.441 (Figure 2). The depth to the top of the aquifer at the proposed well location (14.13.19.224) should be approximately 1,400 feet below the ground surface.

Several existing wells, at Thoreau and its vicinity, that penetrate the San Andres-Glorieta aquifer yield from a minimum of 10 gpm to a maximum of 50 gpm. In the author's opinion the aquifer in the area is capable of producing a much higher yield than the yields in the existing wells. For instance, the Plains Escalante State well field, located a few miles west of the study area, will produce much higher yields from each of their wells than any of the existing wells in the area.

In the Grants-Bluewater area, a few miles southeast of Thoreau, the wells penetrating the aquifer yield large quantities of water for irrigation, industrial and municipal supplies. But in this area, San Andres Limestone produces more water than the underlying Glorieta Sandstone. The high production from the San Andres Limestone is because of increased secondary porosity caused by the interconnected Cavernous Zone and solution channels that result in the high transmissibilies in the aquifer. Such geologic conditions do not seem to be encountered in the study area, but it is possible that by using proper drilling methods and a careful well design the yield would increase appreciably.



GEOLOGIC CROSS SECTION AT THOREAU, NEW MEXICO

(Source: Hydrologic evaluation of north flank of Zuni uplift and plan of replacement for Plains Electric Generation and Transmission, Inc., Albuquerque, New Mexico, by Tim E. Kelly, 1981.)

On a regional basis the hydraulic conductivity of the aquifer ranges between 0.05 - 150 ft./day, and the transmissivity from less than 5 to 3,740 ft.2/day. The variations may be the result of the degree of cementation in the Glorieta Sandstone. The storage coefficient ranges from  $7.6 \times 10^{-5}$  to  $1.3\times 10^{-4}$  (source - Jobin, 1962, Cooly and others, 1969, Shomaker, 1971). Chinle Formation: This formation unconfirmably overlies the San Andres Limestone or at places directly over the Glorieta Sandstone. The formation is composed of shale, siltstone, mudstone and sandstone sequence and acts as a confining layer. The Sonsela Sandstone in the middle part of the Chinle Formation is a persistent aquifer and yields water to several existing wells at Thoreau and in the vicinity of the study area. The water in this sandstone is under artesian pressure due to its exposure (recharge area) in the higher altitude on the north flank of the Zuni uplift. The water, under artesian pressure, does not flow to the surface but rises some distance above the top of the aquifer. A yield of up to 30 GPM is reported but 5-20 GPM is normally obtained from this aquifer. The chemical quality of water is good to fair but deteriorates away from the recharge area. CONCLUSION 1. Approximately 150 gallons per minute production is required to maintain an adequate supply of water to serve the consolidated West Thoreau, John Willie Camp and Thoreau Chapter "Iron" systems and the future east-northeastward extension of the Thoreau Chapter "Iron" System to connect several Navajo homes in the area. 2. Because of an unknown solid obstruction at the 950 feet depth and radionuclide contamination in the water, the existing West Thoreau Well #16T-350 is not to be used for domestic water. The well will be replaced by drilling a new well approximately 1,750 feet deep at the proposed location near John Willie Camp. 3. The existing John Willie Camp Well #16T-529, that produces about 20 GPM and presently supplies water to NTUA John Willie Camp System would be used as a standby water source after the new well is drilled and hooked up to the consolidated system. The static water level in Well #16T-529 may be effected by the high production rate of the proposed well and due to short distance (0.6 mile) between the two wells (Figure 1) but the effect will be tolerable due to standby status of 16T-529. Moreover both wells will be maintained and operated by the same agency. 4. The nearest existing well that produces from the San Andres-Glorieta aquifer is the Transwestern Pumping Station Well #(14.13.20.432). This well is about 1,300 feet deep and is located approximately one mile southeast of the proposed well. The Transwestern well, being located up the dip, will not be influenced from the production of the proposed well. The other existing wells (McKinley County School, BIA School, City of Thoreau and El Paso Pumping Station wells) in the area are located farther south and southeast (1.75 - over 2 miles) of the proposed well location and would be completely out of the influence zone.

5. The Plains Escalante State well field is located a few miles west of Thoreau and their second well field is located southeast of Thoreau near Prewitt. These fields penetrate the San Andres-Glorieta aquifer, from which Plains wants to withdraw approximately 7,000 acre-feet of water per year. The water will be used for the power generating station now under construction near Prewitt, and Plains has applied to the New Mexico State Engineer for the allocation of said amount. Along with the application, Plains also submitted a plan of replacement for about 50 existing wells (including Well #16T-350) expected to be effected by the withdrawal of 7,000 acre-feet of water from the Gallup basin. In the author's opinion, since Well #16T-350, due to unavoidable circumstances, is being replaced by drilling a new well in the general area, the new well, if effected by Plain's activities, must be included in their plan of replacement because this well will be the major source of ground water to maintain the aforementioned water system in the area. RECOMMENDATIONS Drill a 12.25 inch diameter hole from the surface to 1,400 feet ±50 ft., to the bottom of the Chinle Formation, run E-logs (sp., resistivity, gamma-ray and Caliper) for the record, encase the hole with 8 5/8-inch O.D. casing and seal off the entire Chinle Formation by cement grouting the outside of the casing. 2. Drill a 7 7/8-inch diameter hole from 1,400 feet to total depth (approximately 1,750 feet) or until the total thickness of the San Andres-Glorieta aquifer is penetrated. Drilling should be suspended as soon as soft, white, gypsum fragments become abundant. 3. Rum sp, resistivity, gamma-ray and neutron porosity logs for well design. 4. Case bottom portion with 6 5/8-inch O.D., perforated casing if necessary; otherwise leave the hole open. 5. Develop the well by using water jetting tools until the well is cleared from mud and drill cuttings. 6. Pump test the well and collect water samples for complete chemical and radionuclide analyses. 7. Chlorinate the well. SELECTED REFERENCES 1. Cooper, J.B., 1968, Technical Report 35, Geology and Ground Water Occurance in Southeastern McKinley County, New Mexico. 2. Cooley, M.E., 1959, Triassic Stratigraphy in the State-line Region of West Central New Mexico and East Central Arizona, in New Mexico Geol. Soc. Guidebook, 10th field conference.

- Gordon E.D., 1961, Geology and Ground Water Resources of the Grants-Bluewater Area, Valancia County, New Mexico: New Mexico State Engineer Tech. Report.
- 4. Helpenmy, L.C., and Whitcomb, H.A., 1949, Water Supply Investigation at Baca School near Prewitt, McKinley County, New Mexico: open file report: And Water Supply Investigation at Thoreau, McKinley County, New Mexico, open file report.
- Harohbargar, M.W., Repenning, C.A., and Irwin, J.H., 1957, Stratigraphy of Uppermost Triassie and Jurassie Rocks of the Navajo County: U.S.G.S. Prof. Paper 291.
- Hunt, C.B., 1936, Geology and Fuel Resources of the Southern Part of the San Juan Basin, New Mexico, pt. 2, The Mount Taylor Coal Field: U.S.G.S. Geol. Survey Bull. 860-B.
- 7. Humt, C.B., and Dane, C.H., 1954, Map Showing Geologic Structure of the Southern Part of the San Juan Basin, including parts of San Juan, McKinley, Sandoval, Valancia, and Bernalillo Counties, New Mexico: U.S. Geol. Survey Oil and Gas investigation map OM-158.
- Kelly, T.E., 1981, Hydrologic Evaluation of the North Flank of the Zuni Uplift, West Central New Mexico, and Plan of Replacement for Plains Electric Generation and Transmission Cooperative, Inc., Albuquerque, New Mexico.
- Kelley, V.C., 1950, Regional Structure of the San Juan Basin, San Juan Basin, New Mexico and Colorado: New Mexico Geol. Soc. Guidebook, 1st Field Conference.
- Smith, C.T., 1954, Geology of Thoreau Quadrangle, McKinley and Valancia Counties, New Mexico: New Mexico Inst. Min. Tech., State Bur. Mines and Mineral Resources Bull. 31.
- Shomaker, J.W., 1971., Water Resources of Fort Wingate Army Depot and Adjacent Areas, McKinley County, New Mexico: U.S.G.S., open field report.
- 12. West, S.W., 1957, Interim Report on Water Wells, Gallup, New Mexico: U.S.G.S.

# Maps / Photographs



NTUA WELL - WEST THOREAU TRIBAL # 16 T- 614

6/8/93

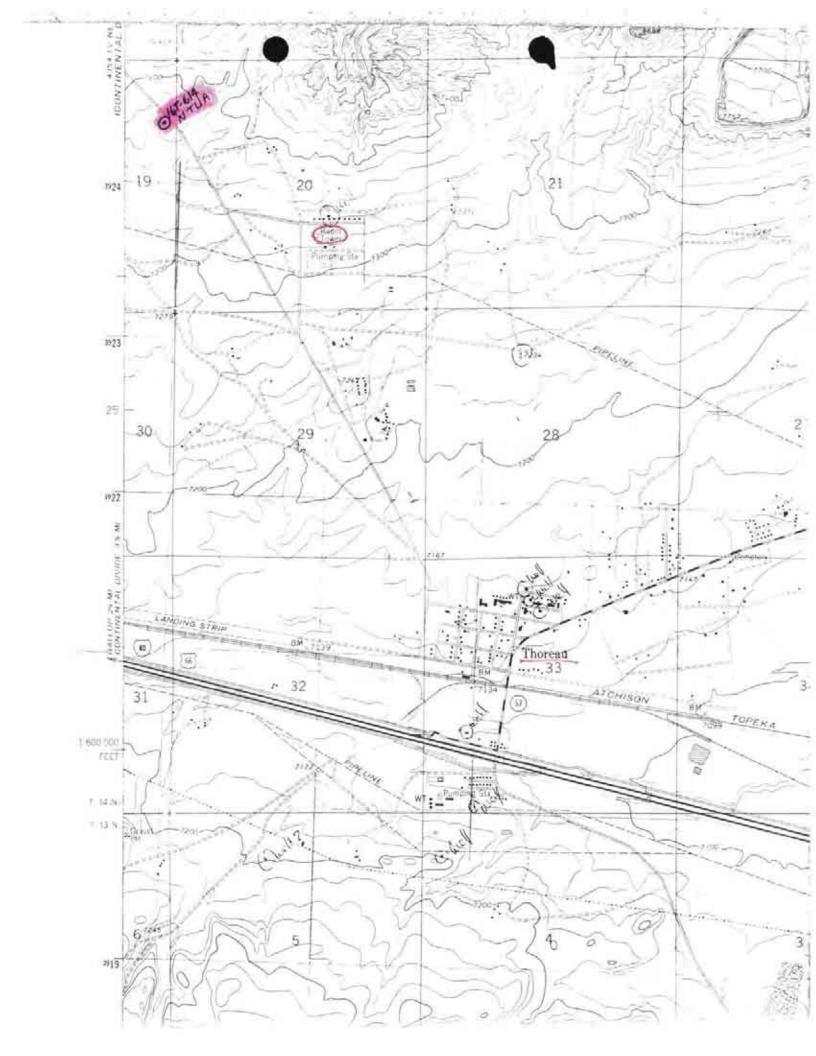


NTUA - WEST THOREAU
16T-614

6/8/93



Date Photo was Taken UNIA.



# Well Logs /Diagrams

### WELL 167-614

WEST THOREAU, N.M. LOCATION 14.13.19.224

— — — II	
المُنْفَقِمُ السَّاسِ	SROUND LEVEL
المُنْهُمُ الْمُنْهُمُ اللَّهُ مُنْهُمُ اللَّامِ اللَّهُ مُنْهُمُ اللَّهُ مُنْهُمُ اللَّهُ مُنْهُمُ اللَّهُ مِنْ اللَّهُ مُنْهُمُ اللَّهُ مُنْهُمُ اللَّهُ مُنْهُمُ اللَّهُ مِنْ اللَّهُ مُنْهُمُ اللَّهُ مُنْهُمُ اللَّهُ مُنْهُمُ اللَّهُ مِنْ اللَّهُ مُنْهُمُ اللَّهُ مُنْ اللَّهُ مُنْ اللَّهُ مُنْ اللّمُ مُنْهُمُ اللَّهُ مُنْهُمُ اللَّهُ مُنْ اللَّهُ مُنْ اللَّهُ مِنْ اللَّهُ مُنْ اللّّمُ مِنْ اللَّهُ مُنْ اللَّامِ مُنْ اللَّهُ مُنْ اللَّالِمُ مُنْ اللَّ الْمُنْ اللَّالِمُ مُنْ اللَّهُ مُنْ الْمُنْ اللَّهُ مُنْ اللَّهُ مُنْ اللَّا مُنْ اللَّالِمُ لِللَّا مُنْ اللَّالِمُ مُلْمُ مُنْ اللَّالِمُ مُلْمُ مُلْمُ مُلَّا مُلْمِ	17 14 INCH DIAMETER HOLE
NOTE : BECAUSE OF	14 14 INCH O.D. CASING.
MEAVY SHALE CAVING A	340 FT. BOTTOM 143/4 INCH O.D CASING
10 3/4 INCH D.D LINER WAS	A CHENTAL CONTROL OF CHENTAL
PLACED FROM 742 FEET TO	
SURFACE . THE LINER'S VERTICAL	
SEAM PARTED UNDER PRESSURE	12 14 INCH DIAMETER HOLE
DURING GROUTING OPERATION,	10 3/4 INCH O.D CASING.
HENCE DECIDED TO LINE	742 FT. BOTTOM 10 14 INCH O.D. CASING.
THE ENTIRE HOLE WITH	- 97/8 INCH DIAMETER HOLE.
8 18 INCH O.D CASING AND	8 18 INCH O.D. STEEL CASING.
RECEMENT FROM ISIO FEET	
TO SURFACE.	ISIO FT. 2 CEMENT BASKETS.
STATIC WATER LEVEL: 286 FT.	1540 FT.
AQUIFER: GLORIETA 5:57.	1560 FT. 2 SHALE CATCHERS.
	8 18 INCH O.D. MACHINE SLOTTED CASING SLOT SIZE VIOX 2.5 INCH.
	1640 FT.
	1660 FT. 2 SHALE CATCHERS.
	1690 FT.
	CEMENTED BACK TO 1690 FT. DUE TO GYPSU. LENSES.
MASUD ZAMAN	T. D. 1760 FT.

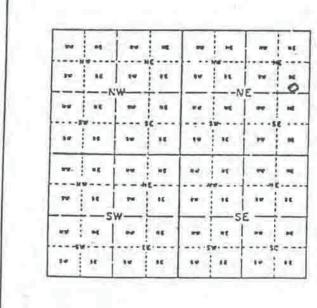
# Well Records / Schedules

DISTRICT: CROWNPOINT

	1	BEFORE	I AFTER
LOCATION: West Thoreau	INTUA WELL NO.	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	×
Tribal Hell No.	116T-614	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	
Well Elevation	17377 ft.	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	100000000000000000000000000000000000000
Motor	Franklin 15hp 46Uv 3phase		Franklin 40hp 460v 3phase
Pump Cable Size	16/3 JAC		
Pump	INN65-14		Crown S6-100 15A Stage  Serial 1260
Total Depth	11690 ft.	<b></b>	11690 ft.
Casing	18 5/8 in.		18 5/8 in.
Pump Setting	1798 ft.		798 ft.
Pumping Level			1480 ft. at 28 gpm
Drop Pipe Size	3in. x 21ft. 798 ft.		3in. x 21ft. 798 ft.
Probe Pipe Size	13/41n. x 21ft. 693 ft.	To the state of th	13/41n. x 21ft. 588 ft.
Lower Probes (RED)	1788 ft.		1788 ft. (red-high probes)
Higher Probes (BLACK)	688 ft.		1688 ft. (black)
Static Water Level	1292 ft. (2-84)		1,000
Gallons Per Minute	156 gpm		130 gpm
Total Dynamic Head-TDH	1722 ft.		
DATE INSTALLED:	October 1982		June 22, 1992
COMMENTS:			
Storage Tank - Gallons	ļ	IVolts: AB-235	Hour Meter:  Water Meter:
Base Elevation	Diameter-	N.T.	Counter Meter:  Volts:  Amps:
Overflow Elevation	i	i -	

```
WELLNO
                 =16T-614
EAST
                 =749895 749900
                 =3724670 3924380
NORTH .
ZONE
                 =12
ACRE/10
                 =SE
ACRE/40
                 =NE
                 =NE
ACRE/160
SECTION
                 =19
TOWNSHIP
                 =T14. ON
RANGE
                 =R13. OW
GUADNO
                 =000
MILESW
                 =00.00
MILESS
                 =00.00
APPROX-LOCAT
                 =0.6 MI ESE OF 16T-529 JV CAMP WELL
WATERSHED
                     13020207
COUNTY
                 =MK
GD
                 =16
CHAPTER
                 =THOR
                 = B
CHECKED-BY
                 = 5/28/87
CHECKED-DATE
OPERATOR
                 =NTUA
DRILLED-BY
                 =NECA
COMPLETED
                 =10/20/82
ELEVATION
                 = 7375.0
DEPTH
                   1690.0
AQUIFER
                 =310GLRT
SWL
                    286.0
DATE
                 =10/20/82
CASING-DIA-1
                 =14.75 8"
YIELD
                     0.0
YIELD-DATE
                 = 1/ 1/1801
IMPROVEMENTS
                 =TA-WL
LIFT
                 =SU
ENERGY
                 =EM
PUMP-HP
                 =0040
STORAGE
                 =000000
PWSID
                 E0E0000M/=
NO-HOMES
POP
CATTLE
                 =000
HORSES
                 =000
SHEEP/GOATS
                 =000
CORN
                 =000
ALFALFA
                 =000
GRAIN
                 =000
GARDEN
                 =000
ORCHARD
                 =000
WELLTYPE
                 =WW
WELLUSE
                 -MUN DOM
WELLSTATUS
                 =ACT
                                                                 SEP 2 8 1990
WELLNAME
                 =14. 13. 19. 224 WEST THOREAU
                 =WELL FILES/7. 5 USGS QUAD PIECD CHECK
DATA-SOURCE
                                                               HSR 10
ANNUAL-USE
                     0.0
STATUS
                 =TNT
USGSQ
                 =5563
QUADNAME
                 =THOREAU
```

Α.	Priority Date
в.	Location SE4, NE4, NEX, Section; 19 Township 14 North, Range 13 We
	Projected, Being within the Gra
	U.S.G.S. Quad Name THOREAU S.E.O, Quad I.D. #
	Being within MCKINLEY County, New Mexico
c.	Source of water; Shallow Ground _ L Artesian
	Triburary to Rio Grande Stream System.
D.	Driller NECA Topography Hill Elev. 7375
	Well used for; Domestic
	Casing Size 8 " Equipment: Pump Sub
	Power Electric Discharge Measurement G.P.
	Comments: Active meny Class





\_ EMERY CHEG

TRIBAL WELL NO >16T-614

>NM PWSID 0000303

STATE NUMBER

WELL NAME/OTHER NO >14.13.19.224 WEST THOREAU

WELL TYPE >WW

WELL STATUS ACT

WELL USE >MUN

QUAD NO >000

MILES WEST > 0.00 MILES SOUTH > 0.00

10 ACRE >SE 40 ACRE >NE 160 ACRE >NE SECT >19 TWNSHP >T14.0N RANGE >R13.0W . Omi. N.W. of RADIO TOWER

APPROXIMATE LOCATION >6 MI ESE OF 16T 529 JV CAMP WELL

UTM COORD: X(EAST) >749900 Y(NORTH) >3924380 ZONE >12 OPERATOR >NTUA

WATERSHED CODE > 13//020/)207 STATE >NM COUNTY >MK CHAPTER CODE >THOR

GRAZING DISTRICT >16

LOCATION DATA SOURCE >WELL FILES/7.5 USGS QUAD

FIELD CHECKED BY >J.BEKIS 05/87

C. NOTAH 6/8/93

FROM

WELLNO 16T-614

STARTED 10/ 0/1982 COMPLETED 10/20/1982

7,377.0 ELEVATION 7,375.0 FT

DEPTH 1,690.0 FT DEPTH MEASURED 10/20/1982

DEPTH IS M

WELL DIA 9.87 IN

1 CASING DIA 14.75 IN FROM 0.0 FT TO 340.0 FT MATL STL

2 CASING DIA 10.75 IN

0.0 FT TO 742.0 FT MATL STL

3 CASING DIA 8.62 IN FROM 0.0 FT TO 1,690.0 FT MATL STL

4 CASING DIA 0.00 IN FROM 0.0 FT TO

0.0 FT MATL

WELL NO= 16T-614

1 CASING PERFORATED FROM 1,510.0 FT TO 1,540.0 FT OPENING TYPE P

2 CASING PERFORATED FROM 1,560.0 FT TO 1,640.0 FT OPENING TYPE P

3 CASING PERFORATED FROM 1,660.0 FT TO 1,690.0 FT OPENING TYPE P

TO 0.0 FT 4 CASING PERFORATED FROM 0.0 FT OPENING TYPE

5 CASING PERFORATED FROM 0.0 FT TO 0.0 FT OPENING TYPE

DATE WELL TURNED OVER TO TRIBE 0/0/0

SITE IMPROVEMENTS TA-WL

TYPE OF LIFT SU

ENERGY SOURCE EM

PUMP HP 40 ON SITE STORAGE CAPACITY 0
STRUCTURE DATA SOURCE WELL FILES

TRIBAL WELL NO >16T-614 
 USGS AQUIFER CODE >310GLRT <

THICKNESS > 0.0 < NOMINAL YIELD > 30.0 < DATE YIELD MEASURED > 0/0/0 

ENTER BT OR PT >PT < GPM > 100.0 < HOURS > 22.0 < TEST DATE >11/9/1982

DRAWDOWN > 488.0 < OBSERVATION WELL DATA AVAILABLE (ENTER Y OR N) >N <

HORIZONTAL CONDUCTIVITY > 0.000 < SPECIFIC CAPACITY >0.000

VERTICAL CONDUCTIVITY > 0.000 < STORAGE COEFFICIENT >.0000000

\* AVAILABILITY OF TEST DATA \*
>N< MULTIPLE RATE DRAWDOWN TEST
>Y< SINGLE RATE DRAWDOWN TEST
>N< MULTIPLE RATE/RECOVERY TEST
>Y< RECOVERY TEST

COEFFICIENT OF TRANSMISSIVITY > 118.0<

\* LOGS AVAILABLE \* (ENTER DL OR EL)

> < DRILLERS LOG >EL< ELECTRIC LOG

DATA SOURCE >

SWL DATE WELLNO \$RECNO 15191 16T-614 285.0 11/ 9/1982 15192 16T-614 286.0 10/20/1982 ... no geologic interval data available ... no field water quality data available TOTAL DEPTH OF THE WELL WAS 1760 FT/SEALED BACK TO 1690 FEET DUE TO GYPSUM LENSES/WELL DIAMETER 17.75" FROM 00 TO 340 FEET AND INSTALLED 14.75" OD SURFACE CASING AND CEMENTED/DRILLED 12.25" HOLE 340 FEET TO 742 FEET/INSTALLED 10.75" LINER AND CEMENTED TO AVOID SHALE CAVING.../DRILLED 9.87 DIA HOLE AND INSTALLED 8.62" O.D. PRODUCTION CASING/COMPLETE CHEMICAL/RADILOGICAL ANALYSIS OF WATER IS ON FILE.....M.Z. RIO SAN JOSE HSR ID NW-018--LAND STATUS=TNT

# TRIBAL WELL RECORD LOCATION FILE

UPDATED OCT 1 3 1986

	161/141 1 1 1 1 1	PURTO Cultiple le l
TRIBAL WELL NO [1]6]7]-	1617141 1 1 1 1	PWSID [N]M]0]0]0]0]3]0]3]
WELL NAME/OTHER NO [14]	]1]3]·]1]9]·]2]2]4] ]w	EST THOREAU ]
WELL TYPE (MARK ONE ONLY)	WELL STAT (MARK ONE ONLY)	
( ) WW WATER WELL ( ) WA ARTESIAN WELL ( ) WS SPRING ( ) OW OBSERVATION WEL ( ) GS GAS WELL ( ) OP OIL PRODUCTION ( ) MW MINERAL WELL	( )ABA ABANDONE	( )AGR AGRICULT.
QUAD NO []] MII	LES WEST []].]]]	MILES SOUTH [ ] ].] ]
NE (SE) SW NW/NE) SE SW NV 10 acre 40 acre	160 acre SECT.	T]/]4].]0]W] [R]/]3].]0]W] TOWNSHIP RANGE
APPROXIMATE LOCATION [6	0]·]6] ]M]·]E]S]E] ]0]F	] ]/]6]T]-[5]2]9] ]J]·]v].]
[C]A]M]P] ]W]E]L]L]]	LATITUDE[]]]]	LONGITUDE[]]]]]
UTM COORDINATES: X(east	:)[7]4]9]8]9]5] Y(nort	h) [3]9]2]4]6]7]0] ZONE[/]2]
OPERATOR [W]T]U]A] ] ]		
STATE: ( )AZ ARIZONA		
COUNTY: ( )AP APACHE	( )VL VALENCIA / ( )	SJ SAN JUAN ( )MT MONTEZUMA KA KANE ( )LP LA PLATA
Ke e		GRAZING DISTRICT [/]6]
CHAPTER NAME THOREA	v	CHAPTER CODE [7]H]O]R]
LOCATION DATA SOURCE:	[T]R]/]B]E] ] ] ] ] ]	11111111111111
LOCATION FILE COMPLETE	BY: Masud u. 9	mau DATE 9 125/1986
FIELD CHECKED BY: [ ]		] ] DATE _/_/_
rev:840425		form:well record loc

### TRIBAL WELL RECORD

ENTERED OCT 13 1986

WELL NO [/]6]7]-]6]/]4] ] ] ] ] STARTED 10/- //982 COMPLETED 10/20/1982
ELEVATION [ ]7]3]7]5] FT DEPTH [ ]/]6]9]0] FT DEPTH MEASURED /0/20/1982
DEPTH IS (MEASURED () ESTIMATED () REPORTED WELL DIA. []9].]8]7] IN
1 CASING DIA [/]4].]7]5] FROM[]] ]0]0]FT TO[] ]3]4]0]FT MATL[[5]T]L]
2 CASING DIA [/]0].]7]5] FROM[ ] ] ]0]0]FT TO[ ] ]7]4]2]FT MATL[5]T]4]
3 CASING DIA [ ]8].]6]2] FROM[ ] ] ]0]0]FT TO[ ]/]6]4]0]FT MATL[S]T]C]
4 CASING DIA [ ] ].] ] FROM[ ] ] ] ] FT TO[ ] ] ] ] FT MATL[ ] ] casing matl codes brs=brass cop=copper evd=everdur irn=iron mon=monel pls=plastic stl=steel sst=stainless steel
1 CASING PERFORATED FROM [ ]/]5]/]O]FT TO[ ]/]5]4]O]FT OPENING TYPE [P] Machine S
2 CASING PERFORATED FROM []/]5]6]0]FT TO[]/]6]4]0]FT OPENING TYPE [P] "
3 CASING PERFORATED FROM [ ]/]6]6]0]FT TO[ ]/]6]9]0]FT OPENING TYPE [/]
4 CASING PERFORATED FROM [ ] ] ] ] FT TO[ ] ] ] ] FT OPENING TYPE [ ]
5 CASING PERFORATED FROM []]]] FT TO[]]]] FT OPENING TYPE [] opening codes: f=fractured rock, l=louvered or shutter-type screen, m=mesh screen, p=perforated, porous, slotted casing, r=wire-wound screen s=screen, type unknown, t=sand point, w=walled or shored, x=open hole z=other DATE WELL TURNED OVER TO TRIBE: / /
FUNDED BY: [/]#]5] ] ] ] CONTRACTOR: [[/]E]C]4] ] ] ] ] ] ] ]
SITE IMPROVEMENTS  ()WM WINDMILL ()AL AIRLIFT ()EM ELECTRIC MOTOR ()BY PISTON ()DE DIESEL ENGINE ()TA TANK ()TU TURBINE ()HA HAND ()WL WATER LINE ()MT MULTIPLE ()GS GAS ENGINE ()CS CISTERN ()CN CENTRIFUGAL ()HP HAND PUMP ()MC MULTIPLE ()WM WINDMILL ()SO SOLAR ()BU BUCKET ()SU SUBMERSIBLE
PUMP HP [ ] ]4]0] ON SITE STORAGE CAPACITY [ ] ] ] ] GAL
STRUCTURE DATA SOURCE: $[T R]/[B]E$ ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ]
STRUCTURE FILE COMPLETED BY: m. 2. DATE 9 /25/1986 rev:840426 form: well record str

ing property of the second of the second WELL RECORD IBAL ENTERED OCT 1 3 1986 USGS AQUIFER CODE [3]/]0] WELL NO [/]6]7]-]6]/ ]4-] THICKNESS [ -] -] FT \_NOMINAL YIELD [ 1 1GPM YIELD MEASURED ( )BAILER (V)PUMP TEST @ [ ]/] O] C] GPM FOR [ ]2]2].] O] HOURS DATE 11 / 9 / 1/982 Pump set at low . 8 feet bg 6. OBSERVATION WELL DATA AVAILABLE ( ) YES ( ) NO DRAWDOWN [ ] ]4]8]8]FT ]FT/DAY SPECIFIC CAPACITY[ ].] HORIZ CONDUCTIVITY[ FT/DAY VERT. CONDUCTIVITY STORAGE COEF [.] COEF OF TRANSMISSIVITY [8] FT2/DAY 880 GPD/FT. INDICATE ADDITIONAL PUMPING TEST DATA AVAILABLE AS HARD COPY: ( )Y ( )N MULTIPLE RATE DRAWDOWN PUMPING TEST ( ) N SINGLE RATE DRAWDOWN PUMPING TEST ( )Y ( )N MULTIPLE RATE DRAWDOWN/RECOVERY TEST ( )Y ( )N RECOVERY TEST LOGS AVAILABLE: ( )DL DRILLER'S LOG ( )EL ELECTRIC LOG HYDROLOGY DATA SOURCE: TR118E HYDROLOGY FILE COMPLETED BY: DATE 9 /25/1986

### STATIC WATER LEVEL FILE

INTERI	DEPTH	TO	SWL 286	FT	DATE 10 /20 /198	2DEPTH	TO *SWL	FT	DATE_	_/_	_/_
in demi	DEPTH	TO	SWL 285	FT	DATE_11/9 /196	22 DEPTH	TO .SWL	FT	DATE_	_/_	_/_
	DEPTH	TO	SWL	FT	DATE_/_/_	DEPTH	TO SWL_	- FT	.DATE_	1	_/_
1	DEPTH	то	SWL	FT	DATE_/_/_	DEPTH	TO SWL	FT	DATE_	./_	
	DEPTH	то	SWL	_FT	DATE_/_/_	DEPTH	TO-SWL	FT	DATE_	_/_	
•	DEPTH	то	SWL	FT	DATE_/_/_'	DEPTH	TO SWL	FT	DATE	_/_	_/_
*	DEPTH	то	SWL	_FT	DATE_/_/_	DEPTH	TO SWL_	FT	DATE	<u>./_</u>	
	DEPTH	то	SWL	FT	DATE_/_/_	DEPTH	TO,SWL_	FT	DATE_	1	
	DEPTH	то	SWL	_FT	DATE_/_/_	DEPTH	TO SWL	FT	DATE_	_/_	
	DEPTH	TO	SWL	FT	DATE_/_/_	DEPTH	TO SWL	FT	DATE_	_/_	
h h	DEPTH	TO	SWL	FT	DATE_/_/_	-DEPTH	TO SWL	FT	.DATE_	_/_	_/_
				1 6					D		

form: well record hyd

rev:840427

## 8574

# TRIBAL WELL RECORD COMMENTS FILE

TRIBAL WELL NO VEVI-EVE 11111

to 1690 feet due to Gry	psum Comses.
	7.75 inel From 00 1: 340 feet and install
14.75 inch old	surface casing and commented.
and the second s	nel hala 346 feit & 742 feet installed
10.75 inch Sime	a and comented to avoid shale caveing .
	ch diameter hale and installed 8.62 wich -
and production	ensuia.
Complet chemical / ras	dislocical analyses of mention reaveable on fel
	ENTERED OCT 1 3 198
	0
	р.
	0
	0

# LOCATION FILE

WPDATED MAY 09 1994

	PWSID NM 3500303
TRIBAL WELL NO 167-614	PWSID DIFFERENCE
WELL NAME/OTHER NO WEST THOREAU	
WELL STATUS  (MARK ONLY ONE)  WELL STATUS  (MARK ONLY ONE)	WELL USE (MARK ONLY ONE)
ACT ACTIVE	DOM DOMESTIC
NW WATER TOTAL	AGR AGRICULTURE
WA ARTESIAN WELL INA INACTIVE	LIV LIVESTOCK
WS SPRING	IND INDUSTRIAL MINING
NS NATURAL SPRING	REC RECREATION
OW OBSERVATION WELL	MUN MUNICIPAL
GS GAS WELL	
OP OIL PRODUCTION	<b>=</b> 1
MW MINERAL WELL	UNK UNKNOWN
XX UNKNOWN	
MILES WEST	MILES SOUTH
QUAD NO 1012101-1	THE RELLEGIO
NE SE SW NW / NE SE SW NW / NE SE SW NW 100 ACRE	SECT. TOWNSHIP RANGE
	DIO TIOWER IIIIII
APPROXIMATE LOCATION 1710101 111111	TITI
LATITUDE LONGITUDE	DETH 3924380 ZONE 12
	SK14/ [-1: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
OPERATOR MTUA USGS WATER	
STATE: AZ ARIZONA X NM NEW MEXICO	UT UTAH CO COLORADO
COUNTY: AP APACHE X MK MCKINLEY	SJ SAN JUAN MT MONTEZUMA
NA NAVAJO UL VALENCIA	KA KANE LP LA PLATA
CO COCONINO BL BERNALLILLO	
SD SANDOVAL	
So socorro	GRAZING DISTRICT //6
RA RIO ARRIBA	
SA SAN JUAN	
	CHAPTER CODE THOR
CHAPTER NAME: THOREAU	111111111111111111111111111111111111111
LOCATION DATA SOURCE: FIELD CHECKED	111161/19131
	DATE 9//93
LOCATION FILE COMPLETED BY: L. NOTAH	DATE 6 / / 93
FIELD CHECKED BY: (2) MOTAH	/dhase/wells/doc/loc-Form.wp

STRUCTURE FILE CORD MAY 09 1994

TRIBAL WELL NO /67-614	STARTED 101	1 1982 COMPLETED 101 201 1982
ELEVATION 7377	FT DEPTH 1/6/9/0	DEPTH MEASURED 10/20/1982
DEPTH IS MEASURED	ESTIMATED REPORTED	WELL DIA. 9 .87 IN
1 CASING DIA 114 . 75	FROM TO FT TO	340 FT MATL STL
	FROM TO FT TO	742 FT MATL STL
2 CASING DIA / O . 7 S		1690 FT MATL 574
3 CASING DIA 8 .62	TION mo	TTT VAMY
4 CASING DIA   .	cop=copper evd=everdur	irn=iron mon=monel
1 CASING PERFORATED FROM	1/5/0 FT TO 1/1	SUO FT OPENING TYPE
TERROPAMEN FROM	1/560 FT TO 1/	6 40 FT OPENING TYPE P
	1660 FT TO 1	690 FT OPENING TYPE
4 CASING PERFORATED FROM	TO TO	FT OPENING TYPE
4 CASING PERFORATED FROM 5	TT TO	FT OPENING TYPE
DATE WELL TURNED OVER TO THE FUNDED BY:		w=walled/shored x=open hole
	TYPE OF LIFT	ENERGY SOURCE
SITE IMPROVEMENTS		X EM ELECTRIC MOTOR
WM WINDMILL	AL AIRLIFT	DE DIESEL ENGINE
WP WATERING POINT	PS PISTON	HA HAND
TA TANK	TU TURBINE	<u> </u>
WL WATER LINE	MT MULTIPLE TURBING	
TR TROUGH	CN CENTRIFUGAL	LP LP GAS ENGINE
CS CISTERN	MC MULTIPLE CENTRI	
HP HAND PUMP	BU BUCKET	WM WINDMILL
NO NONE	SU SUBMERSIBLE	SO SOLAR
PUMP HP 15	N SITE STORAGE CAPACITY	GAL
STRUCTURE DATA SOURCE: W	ELLI FILE/NTUAL	FILLE

STRUCTURE FILE COMPLETED BY: L. NOTAH
revised 08 April 93

DATE 9 / / 93 dbase/wells/doc/Str-Form.wp

поколост			
TRIBAL WELL NO //6/7-6/14	USGS AQUIFE	R CODE 3/06LRT	
THICKNESS FT NOMINAL YIELD BAILER PUMP TEST @ 100 GPM FOR DRAWDOWN 488 FT OBSERVAT	2 2 0 HOURS	DATE _/// 9 //98	2
HORIZ CONDUCTIVITY FT/DAY  VERT. CONDUCTIVITY FT/DAY  COEF OF TRANSMISSIVITY // 8 FT2/DAY	SPECIFIC C	PAPACITY . GPM/FT	
INDICATE ADDITIONAL PUMPING TEST DATA AVAILABLE  YES NO MULTIPLE RATE DRAWDOWN PUMPING TE  YES NO SINGLE RATE DRAWDOWN PUMPING TE  YES NO MULTIPLE RATE DRAWDOWN/RECOVERY  YES NO RECOVERY TEST	TEST ST		
LOG AVAILABLE: DL DRILLER'S DE EL HYDROLOGY DATA SOURCE: WELL FILE/L.	NOTAH		
HYDROLOGY FILE COMPLETED BY: C. NOTAH  STATIC WATER	E	DATE _ 9 / /=:9 NTERED MAY 0 9 1994	<u>2</u>
DEPTH TO SWL 286 FT DATE 16/20/1982	DEPTH TO SWL	FT DATE//	-
DEPTH TO SWL 285 FT DATE 11 9 1 1982	DEPTH TO SWL	/ /	-
DEPTH TO SWL 292 FT DATE 2/1/1984	DEPTH TO SWL	FT DATE//	_
DEPTH TO SWLFT DATE//	DEPTH TO SWL	FT DATE//	_
DEPTH TO SWLFT DATE//	DEPTH TO SWL	FT DATE//	
DEPTH TO SWLFT DATE//	DEPTH TO SWL	FT DATE//	_
DEPTH TO SWLFT DATE//	DEPTH TO SWL	FT DATE//_	3
DEPTH TO SWLFT DATE//	DEPTH TO SWL	FT DATE//_	
DEPTH TO SWLFT DATE/	DEPTH TO SWL	FT DATE//	
DEPTH TO SWLFT DATE/	DEPTH TO SWL	FT DATE//_	
DEPTH TO SWLFT DATE/		FT DATE//	

revised 08 April 93

IBAL WELL NO			
SEQ-NO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
	<u> </u>		
LITHOLOGI	C MODIFIER		
CONTRIBUTING UNIT CODE	=======================================		
SEQ-NO DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
	O MODIFIED		
LITHOLOGI	C MODIFIER		
	1		
CONTRIBUTING UNIT CODE	:=====================================		
SEQ-NO DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
LITHOLOG	IC MODIFIER		
пппппп			
CONTRIBUTING UNIT CODE			
CONTRIBUTING UNIT CODE	=======================================		
SEQ-NO DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
DEPTH TO TO!			
	TO WODTETED		
LITHOLOG	IC MODIFIER		
		111111	
CONTRIBUTING UNIT CODE			
DEPTH TO TOP	DEPTH TO BOTTOM	GEOHYDRO-UNIT	LITH.
LITHOLOX	GIC MODIFIER		
ПППППП	ППППППППППППППППППППППППППППППППППППППП		
CONTRIBUTING UNIT CODE			
INTERVAL FILE COMPLETED B'	Y:	DAT /dbase	E / / /wells/doc/Int-Form

		Т
		-
		-
		-
		-
	Ž.4.	
		T
		-
		_
		_
LOCATION COORDINATES MEASURED WITH GPS DEVICE		
LOCATION COORDINATES MEASURED WITH GPS DEVICE		
LOCATION COORDINATES PICKED OFF TOPO MAP -SCA	ALE~	
LOCATION COORDINATES PICKED OFF TOPO MAP -SCALE=  ELEVATION PRINTED ON TOPO MAP -SCALE=  ELEVATION MEASURED WITH GPS UNIT -4 SATELLITE	ALE~	
LOCATION COORDINATES PICKED OFF TOPO MAP -SCALE=  ELEVATION PRINTED ON TOPO MAP -SCALE=  ELEVATION MEASURED WITH GPS UNIT -4 SATELLITE  ELEVATION INTERPOLATED FROM 1:24000 TOPO	ALE~	
LOCATION COORDINATES PICKED OFF TOPO MAP -SCALE=  ELEVATION PRINTED ON TOPO MAP -SCALE=  ELEVATION MEASURED WITH GPS UNIT -4 SATELLITE  ELEVATION INTERPOLATED FROM 1:24000 TOPO  HE IMPROVEMENTS AT THIS SITE ARE:	ALE~	
LOCATION COORDINATES PICKED OFF TOPO MAP -SCALE =  ELEVATION PRINTED ON TOPO MAP -SCALE =  ELEVATION MEASURED WITH GPS UNIT -4 SATELLITE  ELEVATION INTERPOLATED FROM 1:24000 TOPO  HE IMPROVEMENTS AT THIS SITE ARE:  IN GOOD CONDITION NEED SOME	ALE≈	
LOCATION COORDINATES PICKED OFF TOPO MAP -SCALE ELEVATION PRINTED ON TOPO MAP -SCALE ELEVATION MEASURED WITH GPS UNIT -4 SATELLITE ELEVATION INTERPOLATED FROM 1:24000 TOPO HE IMPROVEMENTS AT THIS SITE ARE:  IN GOOD CONDITION NEED MAJORITHM NEED M	ES VISIBLE  E MAINTENANCE	
LOCATION COORDINATES PICKED OFF TOPO MAP -SCALE =  ELEVATION PRINTED ON TOPO MAP -SCALE =  ELEVATION MEASURED WITH GPS UNIT -4 SATELLITE  ELEVATION INTERPOLATED FROM 1:24000 TOPO  HE IMPROVEMENTS AT THIS SITE ARE:  IN GOOD CONDITION NEED SOME	ES VISIBLE  E MAINTENANCE  OR MAINTENANCE	

SEP 27 1990 grayy

# T R I B A L W E L L R E C O R D L O C A T I O N F I L E

111

TRIBAL WELL NO [/]6]	71-16/114 1 1 1 1 1 1 PWSI	NIMA OLDO BOOK
WELL NAME/OTHER NO I	141 11131 11101 1224 1W 1	THUMEALLIII
WELL TYPE (MARK ONE ONLY)	WELL STATUS (MARK ONE ONLY)	WELLUSE (MARK ONE ONLY)
(L)WW WATER WELL ( )WA ARTESIAN WELL ( )WS SPRING ( )OW OBSERVATION W ( )GS GAS WELL ( )OP OIL PRODUCTIO ( )MW MINERAL WELL ( )XX UNKNOWN	( ) ABA ABANDONED  VELL ( ) UNK UNKNOWN	( )AGR AGRICULT. ( )AGR AGRICULT. ( )LIV LIVESTOCK ( )IND INDUSTRIAL MINING ( )REC RECREATION ( L)MUN MUNICIPAL ( )OTH OTHER ( )UNK
		ES SOUTH [ ] ].] ]
NE SE SW NW/NE SE SW 10 acre 40 acre	NW (NE SE SW NW [1] [T] L] 4	SHIP RANGE
APPROXIMATE LOCATION	[6]M [1] 1838 10]A 11]GT	- LIZI PIN I I I I I
ICHMIPI IMEGUL I	LATITUDE[]]]] LO	NGITUDE[]]]]]]
UTM COORDINATES: X(ea	st) [74]9]9100 Y(north) [3]8	01214131810 ZONE[1]21
OPERATOR NITUAL 1 1	] ] ] USGS WATERSHED CODE[	
STATE: ( )AZ ARIZONA	( L)NM NEW MEXICO ( ) UT UTA	AH ()CO COLORADO
COUNTY: ( ) AP APACHE ( ) NA NAVAJO ( ) CO COCNINO	() WIK MCRINLEY () SJ SAM () VL VALENCIA () RA KAM () BL BERNALLILLO () SD SANDOVAL	JUAN ( )MT MONTEZUMA E ( )LP LA PLATA
		NG DISTRICT 146
CHAPTER NAME THO	R C	HAPTER CODE [ ] ] ]
LOCATION DATA SOURCE:	WELL HILLS/17,5	1415161S1 WILLWADI 1
LOCATION FILE COMPLETE		DATE 5 1281 87
FIELD CHECKED BY: [J].	]B]E]K] ]S]  S]/18]7] ] ]	DATE 5 1281 87
rev:840425	The state of the s	form:well record loc

SEP 27 1990

# TRIBAL WELL RECORD STRUCTURE FILE

] ] ] ] STARTED _/_/ COMPLETED _/_/
DEPTH []]]] FT DEPTH MEASURED _/_/
ESTIMATED () REPORTED WELL DIA. []].]] IN
FROM[]]]]FT TO[]]]FT MATL[]]
FROM[]]]]FT TO[]]]FT MATL[]]
FROM[]]]]FT TO[]]]FT MATL[]]
FROM[]]]]FT TO[]]]]FT MATL[]] ass cop=copper evd=everdur irn=iron mon=monel astic stl=steel sst=stainless steel
[] ] ] FT TO[] ] ] ] FT OPENING TYPE []
[ ] ] ] PT TO[ ] ] ] FT OPENING TYPE []
[]]]FT TO[]]]FT OPENING TYPE []
[]] FT TO[]] TT OPENING TYPE []
[ ] ] ] ] FT TO[ ] ] ] ] FT OPENING TYPE [ ] ed rock, l=louvered or shutter-type screen, ted,porous,slotted casing, r=wire-wound screen =sand point, w=walled or shored, x=open hole  TRIBE: _/ _/
]   CONTRACTOR: [ ] ] ] ] ] ] ] ] ] ] ] ] ] ] ]
TYPE OF LIFT  ( ) AL AIRLIFT ( ) PS PISTON ( ) DE DIESEL ENGINE ( ) TU TURBINE ( ) MT MULTIPLE TURBINE ( ) CN CENTRIFUGAL ( ) MC MULTIPLE CENTRIFUGAL ( ) BU BUCKET ( ) SU SUBMERSIBLE  ENERGY SOURCE ( ) ENERGY SOURCE ( ) DE DIESEL ENGINE ( ) HA HAND ( ) GS GAS ENGINE ( ) LP LP GAS ENGINE ( ) WM WINDMILL ( ) SO SOLAR ( ) SO SOLAR
TE STORAGE CAPACITY [ ] ] ] GAL
BY: DATE _/ _/ form: well record str

#### TRIBAL WELL RECORD HYDROLOGY FILE

WELL NO []]]	11111111	USGS AQUIFER CO	DE []]]]]]
THICKNESS []]	FT NOMINAL YIELD	1 1 1 GPM YIE	LD MEASURED//
			HOURS DATE _/_/_
			ILABLE ()YES ()NO
			ACITY[].]]GPM/FT
			COEF [.] ] ] ] ]
	SSIVITY []]]		COLF [:] ] ] ] ]
()Y ()N MULTIN	PLE RATE DRAWDOWN P E RATE DRAWDOWN PUM PLE RATE DRAWDOWN/R	PING TEST	ARD COPY:
LOGS AVAILABLE:	( )DL DRILLER'S LO	G ()EL ELECTRIC	LOG
HYDROLOGY DATA S	OURCE: [ ] ] ]	11111111	1111111111
HYDROLOGY FILE C	OMPLETED BY:		DATE _/_/_
<u>s</u>	TATIC WATE	R LEVEL FI	L E
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL_	FT DATE//_
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE_/_/_
DEPTH TO SWL	FT DATE//_	DEPTH TO SWL	FT DATE//_
			FT DATE_/_/_
DEPTH TO SWL	FT DATE//		FT DATE / /
DEPTH TO SWL_	FT DATE_/_/	DEPTH TO SWL	FT DATE / /
DEPTH TO SWL	FT DATE / /	DEPTH TO SWL	FT DATE / /
DEPTH TO SWL	FT DATE_/_/	DEPTH TO SWL	FT DATE / /
DEPTH TO SWL_	FT DATE_/_/_	DEPTH TO SWL	FT DATE / /
DEPTH TO SWL_	FT DATE//_	DEPTH TO SWL	PT DATE / /
DEPTH TO SWL_	FT DATE//	DEPTH TO SWL	FT DATE / /
rev:840427		fo	rm: well record hyd

#### TRIBAL WELL RECORD \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

geohydrologic units

TRIBAL WELLNO [ ] ] ] ] ] seq-no[ ] ] ] depth to top depth to bottom geohydro-unit נונו ננננננני ננננננניו נוננניו נונוניו lithologic modifier contributing unit code [ ] seq-no[]]] depth to top depth to bottom geohydro-unit lith. lithologic modifier contributing unit code [ ] s.eq-no[ ] ] ] depth to top depth to bottom geohydro-unit נונו נונונונון נונונונוו וונווו lithologic modifier נונונונונונונונונונונונונונונונונו contributing unit code [ ] 5.64-mo[ ] ] ] depth to top depth to bottom geohydro-unit נננו נונונוו ונננננו וננננוו lithologic modifier נוננננננננננננננננננננננננננננננננננ contributing unit code [ ] seq-no[]] depth to top depth to bottom geohydro-unit נונונונו נונונונונונווו lithologic modifier contributing unit code [ ] rev: 871123 form: well record int

#### TRIBAL WELL RECORD COMMENTS FILE

TRIBAL WELL NO []]]]]]]]

ERTINENT OMMENTS:							
OTHILLINIO .		_					
							-
			*				
		-			-		-
							-
					-		
							-
							-
	-				-		_
:840430		-		form:	wel1	record	COT

# Test / Production Information

MATER PRODUCTION SUMMANY 1764 TO 1795

PISTRICT: CHOMPOINT

0

0

0

0

0

43912.2 310370.5 49105.0 203537.8 7003.7 13704.9 31116.4 0 TOTAL :0 0:0 9.0 E 0.0 0.0 0.0 Ē 0.0 9 00 20 14 0.0 000 0 1997 9.0 0.0 0.0 183 0.0 0.0 9 0 8.0 199 1.502 7540.1 11417.4 9.0 14581.4 154.4 188 NOT HOWNER \$1000 SALLONS 3263.0 8777.5 TAKES 2,1728.7 38593.5 0 1224.5 1804.0 13704.4 18788.2 S7257.8 42644.7 Ē 99 11324.5 1882 \$27.2 4053.6 1287 31590.7 2234.4 6,0 41147.4 ž 2345.2 2457.0 15708.2 27429.0 43137.2 2755.9 0.0 2 2463.9 2678.2 30130.3 0.0 34417.1 0.0 8.9819 Ě 19-518 J. 19-518 SYSTEM (BCATTO)
COOPERDING
COOPERD
COOPERDING
COOPERDING
COOPERDING
COOPERDING
COOPERDING
COOPERD
COOPERD 3

12390.6 14117.2 4650.0 6.0534 14117.2 2041.0 111509.1 0 .0 00 9 00 000 0:0 9 00 0.0 0,0 0,0 0.0 00 0.0 6.0 0.0 0:0 00 0.0 : 6.0 0.0 8 0:0 2 0.0 3 00 0.0 0.0 0.0 9.0 00 0.0 0.0 0 0.0 0:0 9:0 0:0 0.0 0 0 0.0 0 6:0 0.0 2370.4 1453.7 17874.5 3173.7 0.0 1171.7 1453.9 00 0 222.4 3379.7 1399.7 1743.2 2152.0 2616.4 00 502.7 1243.2 2152.0 2614.4 0.0 2 00 1,12771 8,4971 52.7 100 0.0 0,0 0 0.0 0.0 412.3 9 7309.7 412.3 0.0 2389.7 7 00 19717.9 617.0 3760.7 617.0 3760.7 2452.9 2452.9 0.0 1490.7 3760.7 9.3 21175.8 2177.3 0.0 2179.3 340.4 340.9 2040.1 0.0 18107.4 0

MENT SPRINGS 1

CASAMEND CUP 1

MCA 1 161-604 7 161-6164 V

0

0

0

3

41374.8

00

000

:

48052-8 0.0

0.0

0.0

9.0

12265.4

4154.0 11049.0

725.4

7278.1

3062.1

2

4473.4

5434.9 5F38.7

1036.2 0.0 9481.4

10111.2

9088.4

0 11471.1

6,0

9

3

11743.0

9441.9

11064.1

7953.1

CHRON ROX 1-4
161-3344 /
161-3344 /
161-3344 /
161-334 /
161-334 /
161-334 /
161-334 /
161-334 /
161-431 /
161-431 /
161-431 /
161-431 /
161-431 /

0

0

0

3

0

# NAVAJO TRIBAL UTILITY AUTHORITY

# WATER PRODUCTION REPORT

DISTRICT:Ft. Defiance - Crownpoint Sub

cering FERIOD: January '92 - December '92

SYSTEM	SYSTEM GALLONS JAHUARY FEBRUARY M	JANUARY	JANUARY PEBRUARY		APRIL	KAY	JUNE	JULY	AUGUST	ARCH APRIL MAY JUNK JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
BACA NR 0331	PRODUCTION	470	589		301	202	487	1205	463	317	186	183	335	5032
BREAD SPRINGS NR 0292	PRODUCTION	563	563 943		1110	0	619	1009	1402	513 1110 0 618 1009 1402 939 749 605 896	749	509	968	9347
CASAMERO CUP	PRODUCTION	6	8 13		13		11	102	23	16 13 1 11 102 29 52 30 24 24	30	24	24	325
CASAMERO LAKE NR 0256	PRODUCTION	381	381 396		304	806	256	199	75	379 304 908 256 461 644 427 378 307 512	378	307	512	5353
CHURCHROCK NN 0260	PRODUCTION	1342	1342 1464		1911	1445	1455	1643	3254	1131 1911 1445 1455 1643 3254 1361 523 463 770	523	403	770	16702
CROMMPOINT NM 3039	PRODUCTION	5100	5100 5016		5330	9601	5913	6607	10465	6334 5330 9601 5913 6607 10465 6277 4426 6358 3636	4426	6358	3636	75063
LAKE VALLEY NH 0269	PRODUCTION	573	573 551		539	969	484	720	732	962 539 696 464 720 732 560 630 595 1139	930	\$95	1139	8601
RED ROCK NH 0335	PRODUCTION	290	290 720	402	677	\$	502	474	768	402 677 445 502 474 768 438 457 381 618	457	381	618	6172
SHITH LAKE NM 0211	PRODUCTION	1757	1757 1169		2180	1589	1545	1522	2624	1634 2180 1589 1545 1522 2624 1686 1697 1901 2972	1697	1901	2972	22476
TORREON NM 3042	PRODUCTION	2031	2031 3305		2033	2622	2360	3331	3956	3205 2033 2622 2360 3331 3956 3253 2670 2218 2413	2670	2218	2413	33397
WEST THOREAU NM 0303	PRODUCTION	1198	1198 1546	1751	1186	1096	1038	1506	1826	1751 1186 1098 1038 1506 1826 1019 1265 1064 1676	1265	1064	1676	16173
GRAND TOTAL	PRODUCTION	13713	13713 15712	16549	15584	19107	14669	18580	26163	16549 15584 19107 14669 18580 26163 16323 13211 14039 14991	13211	14039	14991	198641

TO MASUD Test Lump Pump Depth :500.8 ' .: Weather Cond. Sucks Location Thomas Airline Depth N/A Total Depth Well 16-T-285 Initials 9 NOV 1982 Static Water Level Casing Size (I.D.) 898 40 mg " Perforations Pump 167-614 d Feet of Water Level Below Top of Casing (ft) Increments Hour of Day Drawdown Elapsed Recovery ecovery ît 12:16 PM 0 235' 0 106 91 :30 300 :30 280 310 25.0 :30 1:00 110 :30 1:30 370 374 89.0 :30 2:00 120 :30 2:30 410 510 125-0 :30 3:00 120grm :30 3:30 440 630 155.0 4:00 :30 115 gpm 4:30 :30 745 12:21 5:00 457 182.0 :30 115 300 491 6:00 1:00 120 980 514 229.0 1:00 7:00 ラゴス 247.0 8:00 1:00 550 210. 265.00 9:00 1:00 12 26 320 565 280.0 10:00 1:00 10 550 590 305-0 2:00 12:00 875 ,10 325.0 14:00 14 2:00 000 626 341.0 2:00 16:00 230 639 354, 18:00 180 2:00 445 649 364.0 12:36 20:00 20 2:00 386.0 045 671. 25:00 25 5:00 400. 615 1246. 30:00 30 685 5:00

	.=			ANSONE			-	water sp.
16:51 35:00 35	5:00		1	694	Co !	4090	1	231
12:56 40:00 40	5:00		1.0	699		414.0	)	680
1:01 45:00 45	5:00			704	*	419.0	1	190
1:06 50:00 50	5:00			708		423.0	1	2290 708
1: 11 55:00 55	5:00			7/1		426.0	1	2291220
1:16 1:00:00 60	5:00	. 7 9	14-	714.		429.0		2291745 108
1:21 1:05:00 65	5:00			716.3		431.0	- A - C -	2292 260 103
1:4/ 1:25:00 85	20:00			723.2	3 %	438.0	1.	22.94 525
Z:0/1:45:00 los	20:00	,		727.9		443.0	1	2296390
2:2/2:05:00 125	20:00	No M-	Scope.		H20 still			2298450
2:41 2:25:00145	20:00							Z3 00 505
30/2:45:00165	20:00	161		-				23 02 5 50
3:2/ 3:05:00 185	20:00				Hzo Looks	clear to	me -	2304590
4:01 3:45:00 225	0:40:00		45)	743	21	458.0	1	23.08 660
4:41 4:25:00265			- 1/2	746		4610	1./	231 2725
5:2/ 5:05:00305				748		467.0		2316788
6:21 6:05:00365	^			75-1	the took		1 /	7772580
				755	140 5/1	1 1	4.3.	2328989
7:21 7:05:00 425	1			700	Li Call			2355088
8-21 8:05:00 485				759		A. 13.2".		101.72
9:21 9:05:00 545			+	75.	120 - 411	O COLUMN TO THE OWNER OF THE OWNER OWN	· ehir	2347302
10.21.10:05:00605	1			763	H20 15	47.800	de oces-	(42)
	- FERIL	FEL CLEW	warne!	764.71		480.0		2359 488
12-21 12:05:00 735				765.5	H20 still	1881:0	1	2365558
1: 113:05:00 785				766.7		482-	1/	2371 626
2:2114:05:00 845			1	767.2	H20 Still CI			2377678
3:2115:05:00905		٠.		76.8.3		483-0		23837/2
4:2116:05:00965			:		Hz D slightly		-	95.77 2389638
5:2117:35:00 1025	1:00:00			770.1	H20 the sa			2395.535

-	1			H2D Leve	. H20	487		METER - 9PM
7:21 19:05:00 145	1:00:00		٠	7717	LOOKS Clear			78.58 2401450
8: 2/20:05:00 120	.1:00:00	أنجمي		772.9		488		2407876
7:21 21:05:00 126	1:00:00			773.3		488		2413314
0:2/ 22:05:00 132	1:00:00							Sp. Cap. D.
//:2/ 23:05:00	1:00:00							Y 3
2:21 24:05:00	1:00:00				. *			
								1/4
			+					4
						(37)		
							*	
	i lo							
	19		7			79.7		
								1
						. E		
						4		
		ii ii	,					
					4		12 (F)	-
·						<b>149</b>		i, To
			-					
			L DE	777		7-73-5	- 1	
						1375 O		

#### Test fump

Location			Pump Dept	th	:= Wea	ther Com	d	V V
Well					Total			1
Date		جى . خ	Static Wa	ater Level			Initi	als
Casing Size	(I.D.)_	II .	Perforat	ions A		Pump		
			KEL					
Elapsed Time	Increments Time	Draw down H	Recovery J	Water Level Below Top of Casing (ft)	d Feet of Water Above Air-	Drawdown	Recovery	Pump Rate (gpm)
2:40 0	0			747.5			F4 (+:44)	2442835
:30	:30			726			19.6	
1:00	:30	4/2		713				b. 12 23
1:30	:30			688	* *			
2:00	:30	. /		675				
2:30	:30	7		670			*	
3:00	:30			659		v	(4)	17.3.
3:30	:30			644				A Barrier
4:00	:30			629	W 1		4.5	
4:30	:30			617		No.		
5:00	:30	2	7	602			-	
6:00	1:00	•		581				
7:00	1:00			562				
8:00	1:00	» (» - »»)	14.19×	544			1/8-19	
9:00	1:00	1.	and the same	528			. 1 48	15
10:00	1:00	2		514			*	3
12:00	2:00			493	ar.			×
14:00	2:00			478,	45			
16:00	2:00			464	_			
18:00	2:00			452				
20;00	2:00			443	*			<u> </u>
25:00	5:00			425				
30:00	5:00	~		401				

	1			2007			- 3	
35:00	5:00	-		393				
₽ <sub>40:00</sub>	5:00			388				
45:00	5:00							
50:00	5:00			379				
55:00	5:00		*					
1:00:00	5:00	1111		373	7 N 32		.,	
1:05:00	20 5000		60/4 C+3	367	*. *		Har.	
1:25:00	20:00	3					25018 1974	IEG IEG
1:45:00	20:00	•					· .	7.1
2:05:00	20:00				10 ·			
2:25:00	20:00					* 5		
2:45:00						30.		
3:05:00	20:00	- 12V	132	1	÷. '		* 5¥	
3:第5:00	0:40:00	, the second						
4:25:00	0:40:00			iya:	. 150	1		
5:05:00	0:40:00	,	1			## :		
6:05:00	1:00:00						1.0	
7:05:00	1:00:00		Cr.					
8:05:00	1:00:00		- 6					
9:05:00	1:00:00			- 1 -	9 3			
10:05:00	1:00:00		4	i day	i s			
11:05:00	1:00:00					100		
12:05:00	1:00:00					,		
13:05:00	1:00:00					• •	17.2 =	
14:05:00	1:00:00					43		12
	1:00:00				.4.2	, ·.		
15:05:00	1:00:00					-		LLIA.
16:05:00						33		
17:05:00	1:00:00							

HAE SEMI-LOGARITHMIC 46 5893

RELIFICE X 60 DIVISIONS MADE IN U.S.A.

REUFFEL & ESSER CO.

119-191

# Water Quality

Today is: 05/17/94

#### PWS NAVAJO INDIAN COMPLIANCE TRACKING SYSTEM --- Inventory Information---

PWS ID

Owner

Phone

Phone

Contact

Bact Samp Req: 1

Laboratory : NTUA

Reservation : Navajo

Comp. Cycle : Monthly

Last Survey : 05/27/92

Phone

Phone

: 3500303

: NTUA

: Community

: FRIEDA WHITE

: (602)729-5721

: EXT. 269

Surveyor : HILL, ONDELACY/IHS

PWS Name: J.WILLIE CAMP/W THOREAU

Street: BOX 170

City : FT DEFIANCE

State: AZ Zip: 86504

County : APACHE

Source : Ground Water

Population: 500 Connections: 189

Consecutive: No

Storage : 219000

Owner Char .: NTUA

Serv. Area : Residential

Adm. Region: NAVAJO AREA OFFICE Adm. Dist. : CROWNPOINT S.U.

Activity : Active Reg. Agent : Federal

Name of Source : WELL #16T-529

Type : Ground Water

Capacity, gpm: 21 Availability: Permanent

Depth of Well: 1708 No. of wells: 1

Treatment : Disinfection

Other

Process : Gas Chlorination

Fluoridation

Name of Source : WELL #16T-614

Type : Ground Water

Capacity, gpm: 56

Availability : Permanent

Depth of Well: 1690 No. of wells: 1

: Disinfection Treatment

Diler

Process : Gas Chlorination

Fluoridation

Name of Source : WELL #16T-350

Type : Ground Water

Capacity, gpm: 56 Availability: Permanent

Depth of Well: 1500 No. of wells :

Treatment : Disinfection

Other

Process : Gas Chlorination

Fluoridation

SCIENTIFIC
LABORATORY DIVISION

CHEMICAL and PHYSICAL ANALYSES
SCIENTIFIC 107 614 State of New Mexico HEALTH and ENVIRONMENT DEPARTMENT

SLD user code No Date received

CHEMICAL C	heck individu	CHEMICAL Check individual items for analysis INTERIM PRIMARY PAR	INTER	Sample(s). TYPE or PRINT with Ball Point Pe	T with Ball Point Pen		of Cuchain	The same of the same		,	
ANALYSES:	[Mark app:	[Mark appropriate box [es]]	160	X1. X2.	IME I EN GROOF		O Complete Secondary	Complete Secondary	Oreanic	anic	N Radiological
West Thoreau	Thore		1	Well # 16 The	City or Location	1	lorgan	Mr. U.	5	Check one:	1
i or 16, 1982	Collection Time	14	Collection Point	Head	Ī	remarks	1 1		Report to		27.
Vected By	Wenver		14.5. P.	Public Hallin	181.18	11.1	de: 11/2	Transce L	Address	6	TN 111
TYPE of SYSTEM (Check one)	M (Check one) PUBLIC:	c: Community	2	Non-community	SOURCE	E: Uspring	- Clake	Dwell-Depth	1000	LAT.	
					1	1	Largon	LJOther (specify)	***************************************	LONG	
CAMAS	1/6m	ANIONS	. 1/gm	PHYSICAL		HEAVY .	I/Bu	PARAMETER		OBGANIC	1/011
Sodium (as Ne)	+	Chioride (at Ct)	-	Total Filterable Residue	V/Siu	01060 Arsenic	-			39390 Endein	
Polassium (as K)	-	00950 Fluorida (as F)	•	38260 Foaming Agents (as Las)	-	01005 Barlum			İ	39732 Lindane	
Tot. Mardness		00620 Fiftrate (31 N)		2 5		01025 Cadmium				382/0	
G0915 Calclum (As Ca)		00430 Alkalinity (as CaCO <sub>3</sub> )		00400 pH	-	01030 Chromium	E	RADIOLOG 01501	0	39400 Tokay	1
Magnesium *** Mg]	•	00440 Bicarbonate (as HCO <sub>3</sub> )	Ė	01330 Odor		01049		3	I II N	1	
Am. Total		Carbonata (as CO <sub>3</sub> )	Ė	Color	₩ W	07180 Mercury		09501 Radlum-226			3
O1056 Manganese (as Mn)	-	90945 Sulfate (as 504)	•	00070 Turbidity		01145 Selenium		11501 Radium-228	pCI/I	h	
			Ė	·.		O1075 Silver	F	Gross of	96/4	8 40.8 04.	-
SORATORY RE	Gress o	a Dad Limit (Am-241-rof. 1621.96) = 110	137 ch	- 1 P	45%			1 1 1	Review	- 147 1	
1.7						Minarian Ligar	and the second		å	reported / F2	
J. 700.	vised 4.78			DISTRUBLITION: WINES - W	later Supply Regul	lation. SF . Certai	ry - WS System	Water Suppy Regulation. SF a Censry - WS System a Pitals - EIA Regional Office a Goldenrod - SLD Let	Office • God	denrod - SLD Leb	

Hugerta M RAW WATER Crown point, N. My 7313 X Radiological I/Bu Report to & Tiver Weaver TOTAL 14 10TH SLD user code No. 38270 Toxaphene 2, 4, 5.TP (Silvex) Mathorychia TREATED WATER 39732 Lindane ORGANIC 39390 Endrin 39730 2, 4-D 39400 23 53 Reviewed W. Date reported LONG Check one: The Organic RADIOLOGICAL PCI/I LA No. Owell-Depth 1, 4700 11 DCI/I PC1/I DCI/I Address Radlum-226 Gross Alpha Radium-228 Staidu Gross Beta The state of the s Oother (specify) PARAMETER County Thorsav McKIM 09501 11501 270 Date received was with doilled which TYPE of CHEMICAL ANALYSIS × Complete Secondary 2000,0 0,006 0,000 0.005 00 50,00V 0.22 00.0 I/Bu OLake DP001 9 Chromium Chromium 01025 A 071B0 Mercury 01145 Selentur HEAVY S 01000 Arsenic Barlum -Stream OSpring 01049 01075 Silver Peed Collector's ramarks City or Location WEST CHEMICAL and PHYSICAL ANAL × × × × CONSULT SLD Leb Annex L for proper presentation of sample(s). TYPE or PRINT with Ball Point Pen for WATER SAMPLES NTHAM PRIMARY PARAMETER GROUP SOURCE O Oratn 1/6m V611 1/20 all Syill Sylow Shelp Micromhos 29°C Filterable Residue Poblic Hratth Turbidity Agents (as Las) PHYSICAL 00400 PH 08000 38260 01330 Odor Color 70300 00095 Head · Non-community Well # 16 Collection Point -1/6m Bicarbonate (as HCO<sub>3</sub>) Alkalinity (as CaCO<sub>3</sub>) (as CO<sub>3</sub>) CHEMICAL Check individuel items for analysis ANALYSES: [Mark appropriate box [ext]] PUBLIC: Community State of New Mazico HEALTH and ENVIRONMENT DEPARTMENT Fluorida (as F) Chloride (as Ci) (98 504) 00620 Nitrate Sulfate Sulfate 00445 ANIONS 00430 00440 Md LABORATORY DIVISION Collection Time Thoreau Wear TYPE of SYSTEM, (Check one, NOV. 10, 1982 . 2 20.05 Jei It 0.54 LABORATORY REMARKS: I/6mm SCIENTIFIC Tot.Hardness Magnesium (as Mg) (45 CaCO 3) Manganese Iron-Total PRIVATE Steven Potassium Water Supply Sys West Calcium (88 Mr) 101 # 10 00930 Sodlum Collection Date CATIONS (as Ca) 00925 (as Fe) 01045 01056 (88 Na) (as K) 00915 50632

110 7 614

DISTRIBUTION: White - Water Supply Regulation, SF . Canary - WS System . Pink . EIA Regional Office . Goldenrod SLD Lab

SLD 702 Form Revised 478

CHEMICAL and PHYSICAL ANALYSES for WATER SAMPLES

State of the caten HEALTH ALLS INVIDORMENT DEPARTMENT

SCIENTIFIC LABORATORY DIVISION

SLD user code No.

SONSOLI SLU LE	D Annex L	SONSUL! SLU LEB Annex L for proper presentation of sample(s), TYPE or	flon of sample	s). TYPE or PRINT W	PRINT with Ball Point Pen	u	50 V			A Same Same	A STATE OF THE STATE OF
.,	[Mark app.	e p	o j	INTEHIM PHIMARY PARAMETER GROUP	METER GR	The state of	TYPE of CHEMICAL AN	۱۹۲	Organie	ie	M Radiological
West Thaveau	Than	±.ā		Weter Supply System Code No.	4	West The	VERU	horea Me Kin	80	Check one:	M RAW WATER
West On 10, 1952	Collection Time	7	Collection Point  Well	Head	Collec	Collector's ramarks		77.7	ort to	Streen west	Weaver Indian Hose
73737X	Weaver	7	Owner U.S. P.	Poblic Health	SWINE	11/10	Toursed		Address	(11 100 monde	Common point N. 111
YPE OF SYSTEM (Check one)	(Check on PUBL)	we 🔀	Non-community	n-commuhity	SOURCE:	SOURCE: Spring	DPool	Owett-Depth	17:001	\$ 0.00	
		A Mary Comment of the Art	11.50	10 公司 11 小型配	14 THE TO	1.51			1000000		
CATIONS	mg/i	ANIONS	mg/l	PHYSICAL .		HEAVY	I/Bu	PARAMETER		ORGANIC	l/ma/
00930 Sodium (as Na)		Chloride (as CI)		70300 Total Filterable Residue	V6m	01000 Arsenic				39390, Endrin	
man 15 mm		Fluoride		38250 Foaming Agents (as Las)		01005 Barfum				39732 Lindane	
00000 10 Hardnes (8 0003)		00620 Nitrate (as N)	0.97	googs Conductance		01025 Cadmlum	-			38270 . Methowychian	
edg15 Carclum E Ze1		Alkainliy (as CaCO <sub>3</sub> )	1	00400 pH		O1030 Chromlum		RADIOLOG 01501 Gross Alpha	RADIOLOGICAL PCI/I 01501 Gross Alphn	39400 Toxaphene	
mulum Maj		00440 Bicarbonata (as HCO <sub>2</sub> )		01330 Odor	(1) (1) (2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	01049 Lead		03501 Gross Bela	ğ	39730 2, 4-D	
		Carbonate (as CO <sub>3</sub> )		00080 Color	T/om	07180 Mercury		89501 Radium 226	26 DCI/I	39740 2, 4, 5-TP (Silvex)	
		Surrate Surrate (as SO <sub>4</sub> )		00070 Turbidity		01145 Selenium		11501 Fadium 226	28		
						01078 5110er					
MATORY REMARKS: 1	MARKS: 1			NUV SO							
										11/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1	
1											

11112

Report to STreet Weaver Ledian House TREATED WATER X RAW WATER Crown point, W.M. 7313 X Radiological SLD user code No. LONG 101 Check one: Organic Lab No. Owell-Depth 1566.CL 11/1 Address Date received County 11.1.1.1.1 "TYPE of CHEMICAL ANALYSIS Complete Secondary The 15 a per well Thorsan □ Lake CHEMICAL and PHYSICAL ANALYSES Spring -Stream Collector's remarks City or Location 11/20/ INTERIM PRIMARY PARAMETER GROUP 3 SOURCE: CONSULT SLD Lab Annex L for proper presentation of sample(s). TYPE or PRINT with Ball Point Pen for WATER SAMPLES 16.9. Pet 170 Mally Siv 4197 81 16 TG14 water Supply System Code No. ☐ Non-community 11/2/19 Collection Point Check individual Items for analysis PUBLIC: [4] Community State of New Moxico HEAI TH and ENVIRONMENT DEPARTMENT [Mark appropriate box[as]] SCIENTIFIC LABORATORY DIVISION PINT 15:00 1.01 Collection Time # 1.00 Call TYPE of SYSTEM (Check one) Water Supply System Name Nov. 16, 1982 57611511 ☐ PRIVATE Collection Date ANALYSES: CHEMICAL Collected By

Sodium (3.3°C) (3.0°C)	CHICINE	l/gm	PHYSICAL		METALS	I/Bu	PARAMETER		ORGANIC	I/6m
	00340		70300	l/6ru	01000				39390 Endrin	
	(as CI)	0.6	Filterable Residue	221	Arsonic	•				
William Milliam	00000		38260		01005 Barlum				39732 Lindane	***
(as K) //2 / 0	(as F)	00.3	(3	405		•				
00600	000520	7	26000		01025		7		38270	
(as CaCO <sub>3</sub> ) / 17 /	(as N)	•	Micromhos 25°C	10 4		•			Methoxychlor	•
\$1000	00430		00400		01030	ı	RADIOLO	RADIOLOGICAL PCI/I	39400 Toxoobago	
(as Ca)	(as CaCO <sub>3</sub> )	200	Ha	324	Chromlum	•	Gross Alpha	10		•
00925 Magnosium	00440 Bicarbonate	200	01330 Odor	0	01049 Lead	•	6ross Beta	pCI/I	2, 4-0	•
		7 . 1 . 1	000080	me/l	07180		09501	pci/i	39740	
Iron-Total	Carbonate (as CO3)	0,0	Color	3.0	Mercury		Radlum-226		2, 4, 5.TP (Silvex)	•
01056	00945		000070		01145		11501 Radlum-228	pCi/I		
Manganese (as Mn)	(as 504)	31.0		0.0		•				
					01075					
		9			Silver	•				
LABORATORY REMARKS:								Raviewed by	d by	
								(Clay	(Pur. infl	

DISTRIBUTION: White - Water Supply Regulation, SF . Canary - WS System . Pink - EIA Regional Office . Goldenrod - SLD Lab

#### WELL RECORD

Water Well Develope

Loc Beg Dia Sta Qua Kin Sec Cor  Qd	3 mile cation gan well ameter of tic water antity of and of casin	Febru 10" well 8" level water on te	ary 13, 0-600 600-677 180' est run: bailed rew Size ated Lee Bros. Dr r: Don Loose Sandst Red sh Red sh Red sh Red sh Red sh	sand tone, pur nale	New Me  Finishe Depth  down 20 8-7/8 600' Addres LOG	exico  ed well  of well  235' G. P. M.	677 ' Recover Tested for -600 '	ry 15 g	58 pm hours
Beg Dia Sta Qua Kin Sec Cor  Qd rcpu	gan well ameter of attic water antity of ad of casin between  From  0  7  45  440  448  535  570  580	Febru 10" well 8" level Scr water on te ng: Scr Perfor: Open ho Perry Drille: To 7 45 440 448 535 570 580	ary 13, 0-600 600-677 180' est run: baile rew Siz ated Le Bros. Dr r: Don Loose Sandst Red sh Red sh Red sh Red sh	Drawer: pump:  zes and length ength 525-6 elg. Co.  mation sand tone, purpliale hale, hard hale sandston	Finished Depth of the second s	d well of well 235'G. P. M. '' +1 to	677 ' Recover Tested for -600 '	ery 15 g 1 Cch Cut Arizona	pm_hours
Beg Dia Sta Qua Kin Sec Cor	gan well ameter of atic water antity of and of casin therefore  Trom  O  7  45  440  448  535  570  580	well 8" level Screen Sc	st run: baile rew Size ated Le Bros. Dr r: Don Loose Sandst Red sh Red sh Red sh Red sh Red sh	Drawer: pump:	Depth down 20 8-7/8 600' Addres LOG	of well	677 ' Recover Tested for -600 '	ery 15 g 1 Cch Cut Arizona	pm_hours
Dia Sta Qua Kin Sec Cor Qd repu	meter of attic water antity of and of casin tractor DEF  From 0 7 45 440 448 535 570 580	well 8" level Screen Sc	st run: baile rew Size ated Le Bros. Dr r: Don Loose Sandst Red sh Red sh Red sh Red sh Red sh	Drawer: pump:	Depth down 20 8-7/8 600' Addres LOG	of well	677 ' Recover Tested for -600 '	ery 15 g 1 Cch Cut Arizona	pm_hours
Sta Qua Kin Ser Cor  Qd  rcpu  rcps	antity of antity	perform Open ho Perry Drille To 45 440 448 535 570 580	st run: baile rew Siz ated Le Bros. Dr r: Don Loose Sandst Red sh Red sh Red sh Red sh White White	Draw er: pump:  zes and length ength 525-6 ength 600-6 ength Co.  sand tone, pury hale hale hale sandston	20 8-7/8 300' 577' Addres	235'G. P. M. '' +1 to I s Flags	Recover	1 1 g	hours
Qua Kin Ser Cor	######################################	Perform Open ho Perry Drille To 45 440 448 535 570 580	st run: baile rew Size ated Le Bros. Dr r: Don Loose Sandst Red sh Red sh Red sh Red sh White White	er: pump:  zes and length ength 525-6 ength 600-6 ength Co.  sand tone, purpliale hale hale sandston	20 8-7/8 300' 577' Addres	G. P. M. '' +1 to I	Tested for_	1 Cch Cut Arizona	hours
Cor Qd rcpu	### Kind  Tractor  DEF  From	Perform Open ho Perry Drille To 7 45 440 448 535 570 580	ated Lead Bros. Dr. Don Loose Sandst Red sh Red sh Red sh Red sh White	mation sand tone, purple lale lale, hard sandston sand	8-7/8 300' 377' Addres LOG	" +1 to ! sFlags	-600'	ch Cut Arizona	
Cor Qd rcpu	DEF From 0 7 45 440 448 535 570 580	Perform Open ho Perry Drille To 7 45 440 448 535 570 580	ated Le Bros. Dr r: Don Loose Sandst Red sh Red sh Red sh Red sh White White	mation  sand tone, puriale hale, hard	Addres LOG	s Flags			
Qd	DEF From 0 7 45 440 448 535 570 580	To 7 45 440 448 535 570 580	Loose Sandst Red sh Red sh Red sh White	sand tone, pur hale hale, hard hale sandston	LOG 1e		Mesh_Tor		
Qd	DEF From 0 7 45 440 448 535 570 580	To 7 45 440 448 535 570 580	Loose Sandst Red sh Red sh Red sh White	sand tone, pur hale hale, hard hale sandston	LOG 1e		staff, A		
Qd	DEF From 0 7 45 440 448 535 570 580	To 7 45 440 448 535 570 580	Loose Sandst Red sh Red sh Red sh White	sand tone, pur hale hale, hard hale sandston	LOG 1e				
rcpu	7 45 440 448 535 570 580	7 45 440 448 535 570 580	Loose Sandst Red sh Red sh Red sh White	sand tone, pur hale hale, hare hale sandston	le	Acquifer		Remarks	
rcpu	7 45 440 448 535 570 580	45 440 448 535 570 580	Red sh Red sh Red sh Red sh White	tone, purplate nale hare sandston					
rcps	45 440 448 535 570 580	440 448 535 570 580	Red sh Red sh Red sh White	nale, hardiale, sandston					
ccps	440 448 535 570 580	448 535 570 580	Red sh Red sh Red sh White	nale, hardiale, sandston					
cps	535 570 580	535 570 580	Red sh White White	nale sandston					
cps	535 570 580	535 570 580	Red sh White White	nale sandston					
. 0.	570 580	580	White White	sandston	0				
. 0.	570 580	580	White		P			9	
. 0.	580			sandston	<del></del>				
Ū.		615					<u>e streal</u>	ks	
Ū.	615			sandston			Ш		
	010	650	Gray s	sandstone	with r	ound gr	avel		
	8 650 II	675	Grav	sandv sil	tstone		_		-
	675	677		shale					
*****									
					<del> </del>				
	emarks:								
		1. 800	7	Domm + 50	<del>0</del>				
				Cemp: 58					
	Teta (	Calcium (	Magnesium Mg.	Sodium C	hlorides CL	Sulfates SO 4	Carbonates HCO 3	P.H.	CO 3

XX

SEF 27 1990 Beggy

#### 

2.1.1

TRIBAL WELL NO [//[07]-13 0]]]]]] PWSID []]]]]]
WELL NAME/OTHER NO []]]]]]]]]]]]]]
WELLSTATUS WELLUSE (MARK ONE ONLY)  WELLUSE (MARK ONE ONLY)
( ) WA ARTESIAN WELL ( ) INA INACTIVE ( ) AGR AGRICULT.  ( ) WS SPRING ( ) ABA ABANDONED ( ) LIVESTOCK  ( ) OW OBSERVATION WELL ( ) UNK UNKNOWN ( ) IND INDUSTRIAL  ( ) OP OIL PRODUCTION ( ) REC RECREATION  ( ) MW MINERAL WELL ( ) WINNOWN ( ) OTH OTHER  ( ) OTH OTHER  ( ) UNKNOWN ( ) ONK
NE SE SW NW/NE SE SW NW/NE SE SW NW ZEST TTZET I RT /131 W T
10 acre 40 acre 160 acre SECT. TOWNSHIP RANGE
APPROXIMATE LOCATION [3]M]] ] [ME] JOJE 17]HUREALY [] [] []
[ ] ] ] ] ]   LATITUDE[ ] ] ] ] LONGITUDE[ ] ] ] ]
UTM COORDINATES: X(east) 156660 Y(north) 392250 ZONE
OPERATOR [ ] DE MI ] USGS WATERSHED CODE [ 130 2020 17 1 1 ]
STATE: ( )AZ ARIZONA ( )MM NEW MEXICO ( )UT UTAH ( )CO COLORADO
COUNTY: ( ) AP APACHE ( ) MCKINLEY ( ) SJ SAN JUAN ( ) MT MONTEZUMA ( ) CO COCNINO ( ) BL BERNALLILLO ( ) KA KANE ( ) LP LA PLATA
( )SD SANDOVAL ( )SO SOCORRO GRAZING DISTRICT 1/161 ( )RA RIO ARRIBA ( )SA SAN JUAN
CHAPTER NAME   GODE []]]
LOCATION DATA SOURCE: WELL PHILES 1459 1111111
LOCATION FILE COMPLETED BY: DATE 5 1281 87
FIELD CHECKED BY: [7, ]8 E K]/]5] ]5]/]8]7] DATE 5 8 8 7
rev:840425

sep 27 1990 Begung

#### TRIBAL WELL RECORD STRUCTURE FILE

MELL NO []]]]]]	] ] ] STARTED / / COMPLETED / /
ELEVATION [7]/120] F	DEPTH []]]] FT DEPTH MEASURED _/_/
DEPTH IS ( )MEASURED ( )	ESTIMATED () REPORTED WELL DIA. []].]] IN
1 CASING DIA [ ] ].]	FROM[]]]]FT TO[]]]FT MATL[]]
2 CASING DIA []].]]	FROM[]]]FT TO[]]]FT MATL[]]
3 CASING DIA [ ] ].]	FROM[]]]FT TO[]]]FT MATL[]]
casing math codes brs=br	FROM[]]]]FT TO[]]]FT MATL[]] ass cop=copper evd=everdur irn=iron mon=monel astic stl=steel sst=stainless steel
1 CASING PERFORATED FROM	FT TO[]] FT TO[]] FT OPENING TYPE
2 CASING PERFORATED FROM	The state of the s
3 CASING PERFORATED FROM	[]]] FT TO[]] ] FT OPENING TYPE []
	[]] FT TO[]] PT OPENING TYPE []
opening codes: f=fractur m=mesh screen, p=perfora	ed rock, l=louvered or shutter-type screen, ted, porous, slotted casing, r=wire-wound screen = sand point, w=walled or shored, x=open hole  TRIBE: _/_/_
FUNDED BY: [ ] ] ] ]	] ] CONTRACTOR: [ ] ] ] ] ] ] ] ] ] ] ]
SITE IMPROVEMENTS (') WM WINDMILL (L) WP WATERING POINT (L) TA TANK (L) WL WATER LINE (L) TR TROUGH () CS CISTERN () HP HAND PUMP () NO NONE	TYPE OF LIFT  ( ) AL AIRLIFT ( ) PS PISTON ( ) DE DIESEL ENGINE ( ) TU TURBINE ( ) MT MULTIPLE TURBINE ( ) CN CENTRIFUGAL ( ) MC MULTIPLE CENTRIFUGAL ( ) BU BUCKET ( ) SU SUBMERSIBLE  ENERGY SOURCE ( ) EM ELECTRIC MOTOR ( ) LA HAND ( ) LP LP GAS ENGINE ( ) NG NATURAL GAS ENGINE ( ) WM WINDMILL ( ) SO SOLAR
	TE STORAGE CAPACITY [ ] ] ] ] GAL
STRUCTURE FILE COMPLETED rev:840426	BY: DATE / /

#### T R I B A L W E L L R E C O R D H Y D R O L O G Y F I L E

WELL NO [ ] ] ] ] ] USGS AQUIFER CODE [ ] ] ] ] ]
THICKNESS [ ] ] FT NOMINAL YIELD [ ] ] ] GPM YIELD MEASURED / /
( )BAILER ( )PUMP TEST @ [ ] ] ] GPM FOR[ ] ] ].] HOURS DATE / /
DRAWDOWN []]]]FT OBSERVATION WELL DATA AVAILABLE ()YES ()N
HORIZ CONDUCTIVITY[]]]]]] T/DAY SPECIFIC CAPACITY[].]] GPM/F
VERT. CONDUCTIVITY[]]]]] FT/DAY STORAGE COEF [.]]]]
COEF OF TRANSMISSIVITY [ ] ] ] ] FT2/DAY
INDICATE ADDITIONAL PUMPING TEST DATA AVAILABLE AS HARD COPY:  ( )Y ( )N MULTIPLE RATE DRAWDOWN PUMPING TEST  ( )Y ( )N SINGLE RATE DRAWDOWN PUMPING TEST  ( )Y ( )N MULTIPLE RATE DRAWDOWN/RECOVERY TEST  ( )Y ( )N RECOVERY TEST
LOGS AVAILABLE: ( )DL DRILLER'S LOG ( )EL ELECTRIC LOG
HYDROLOGY DATA SOURCE: []]]]]]]]]]]]
HYDROLOGY FILE COMPLETED BY: DATE/_/_
STATIC WATER LEVEL FILE
DEPTH TO SWLFT DATE _/ _/ DEPTH TO SWLFT DATE _/ _/
DEPTH TO SWLFT DATE_/_/_ DEPTH TO SWLFT DATE_/_/_
DEPTH TO SWLFT DATE / / DEPTH TO SWLFT DATE / /
DEPTH TO SWLFT DATE _/ _/ DEPTH TO SWLFT DATE _/ _/
DEPTH TO SWLFT DATE_/_/_ DEPTH TO SWLFT DATE_/_/_
DEPTH TO SWL FT DATE / / DEPTH TO SWL FT DATE / /
DEPTH TO SWL FT DATE / / DEPTH TO SWL FT DATE / /
DEPTH TO SWLFT DATE / / DEPTH TO SWLFT DATE / /
DEPTH TO SWL FT DATE / / DEPTH TO SWL FT DATE / /
DEPTH TO SWL FT DATE / / DEPTH TO SWL FT DATE / /
DEPTH TO SWL FT DATE / / DEPTH TO SWL FT DATE / /
rev:840427 form: well record hyd

# TRIBAL WELL RECORD

TRIBAL WELLNO [ ] ] ] ]

======================================
depth to top death to better
depth to top depth to bottom geohydro-unit lith.
lithologic modifier
נוננננננננננננננננננננננננננננננננננננ
contributing unit code [ ]
Sedeno[ ] ] ]
depth to top depth to bottom genhudro-unit
depth to top depth to bottom geohydro-unit lith.
lithologic modifier
נוננננננננננננננננננננננננננננננננננננ
contributing unit code [ ]
depth to top depth to bottom geohydro-unit lith.
lithologic modifier
נונונונונונונונונונונונווווווווווווווו
contributing unit code [ ]
: (q-no[]]]
**4 101 3 3 1
depth to top depth to bottom geohydro-unit lith.
lithologic modifier
נוננננננננננננננננננננננננננננננננננננ
contributing unit code [ ]
<pre>56d_Lto[]]]</pre>
depth to top depth to bottom dephydrania
depth to top depth to bottom geohydro~unit lith
lithologic modifier
נוננננננננננננננננננננננננננננננננננננ
contributing unit code [ ]
rev: 871123 form: well record int
2 1 2 1 2 2 1 2 2 1 2 2 1 2 2 2 2 2 2 2

#### T R I B A L W E L L R E C O R D C O M M E N T S F I L E

TRIBAL WELL NO []]]]]]] PERTINENT COMMENTS: rev:840430 form: well record com

#### PERRY BROTHERS

GEORGE P. - LLOYD C. - RALPH D.

#### WATER WELL CONTRACTORS

ANY SIZE, DEPTH OR PURPOSE

Phone PRospect 4-3841

8-23-08

600 - 615

615- 450 400 - 675

ムフム 4 ルコゼ

2033 N. Navajo Dr. FLAGSTAFF, ARIZONA Well # 16T 351 3 mi N.E. Thore que TOTAL DEPTH 677' the Bailer Test WATER Level 180' 20 8 PM @ 415 DATE Commerced 2-13-58 DATE Completed 2-24-58 8% - 601' Perforated bottom 75' CASING FORMATION LOOSE Blow SAND Depth O- 7' DATE 2-13-58 Purple SANDSTONE 7-10 People SANdSTONE 10 - 45 2-14-58 Red Shale 45 - 130 Red Share 130 - 184" 2-15-58 Rad Shale 185-2000 2-16-58 Red Share 205-250 2-17-58 Red shale 250 - 370 2-18-58 Red Shale 370 - 440 2-19-58 HArd Rod Shale 440-448 Red Shale 448 -520 Red Shale 520 - 535" White SANdsrove (hard) 2-20-58 535 -550 White SAIN STONE 5-30 -580 2-21-58 white said arove (water) 580 - 600 2-22-58 8% CASING A PENGONATED From 5-26'-601' RAM 601'

White SANdSTONE

Rluc Shale

Endy EAST SILPSTONE

Lab. No. 74-PHS-PD-319	F'eld No.
Date Received by Lab.	12-1; 3
Date Collected	12-17273
	orean Chapter
Source of Water	WM-16F529
Collector's Name	A. Smiley
Authorized By	W. Conway
ADDRESS: Department:	IISPHS
Agency:	Gallup
Branch:	OEh

Analyzed By
Transcribed B
Checked By
Date Analysis Completed
Reported By
Date Reported DEC 2 8 1974

Ward Conway SEND REPORT TO: P. O. Box 1337 Gallup, NM

					Recommended
(X) Test Requested			Meg/1	Mg/l	Standards
				0.20	1.0
 Boron (B)			0.003		0.3
 Iron (Fe)			2.60	52.10	75 - 200
 Calcium (Ca)			1.60	19.46	50 - 150
 Magnesium (Mg)			21.60	496.58	115 **
 Sodium (Na)			0.06	2.35	1000 to 2000
 Potas ium (K)				2,22	1000 10 2000
	CATIONS		25.86		
				Proce	50.0 **
 Phosphorus (P)			3.76	142.82	150
Bicarbonate (HCO3)		(I		6.31	
Carbonate (CO3)			0.21		250
Sulfate (SO,)			4.35	208.93	250
Chloride (C1)			17.28	612.75	250
		17	]		50°to 58.3° 1.
Fluoride (F)	,		0.03	0.62	58.7°to70.6°1.
					70.7°to90.5°1.
Nitrate (NO3)			0.07	4.34	45
	ANIONS		25.10		
				1515	500
Total Solids	Mg/1			1464	300
Dissolved Solids	Mg/1	1.99		7707	
DISSUIVED SUITES	Tons Per Acre Foot	1.79			
Hardness as Mg/l	Calcium, Magnesium			210	500
_	Non Carbonate		<u> </u>	52	
Ca CO <sub>3</sub>				11	
121 24 1	Phenolphthalein			-	N.A.
Alkalinity as Mg/1 Ca CO3	Total Alkalinity (Methyl Orange)			158	
-	centage (SSP)	94		K	
Sodium Absorption F		14.91			
Specific Conductant	ce (Micromhos at 25°C)	2730			
	bonate (RSC)				
PH		8.4			4 to 10
Class for Irrigation	on Water	cy54			
					0.01 *
 Arsenic (As)			<del> </del>		1.0 *
 Barium (Ba)			ļ		0.01 *
 Cadmium (Cd)			<del> </del>	-	1.0
 Copper (Cu)		ļ		-	0.2
 Cyanide (Cn)	("				0.2
 Hexavalent Chromium	n (Hex. Cr.)		1	1	0.05 *
 Lead (Pb)		<u> </u>		1	0.05
 Manganese (Mn)			<del> </del>	<del> </del>	0.005 **
 Mercury (Hg)			ļ	<del> </del>	0.005 **
 Selenium (Se)			-		5.0
 Zinc (Zn)	/Ang)		<del> </del>	-	0.5
 Alkyl Benzene Sulfo	onaces (ABS)		<del> </del>	1	
 Phenols		<u> </u>	1	1	0.001

<sup>\*</sup> Cause for Rejection of the Supply

\*\*Unofficial Standard

Tetal Inon- 2.20 pm

PAR. 110. 60	TEROTENTAO!	FICIU NO. CETATAO	BURTAGO DA	1 - 11 - 1
Date Recei	ved by Lab	11-16-73	Transcribed By	Des Petoura 1
Date Colle	ected	11-1 /3	Checked By	11000 11
Location_	Thoreau	Community Water System	Date Analysis Co	mplc_ed
Source of	Water	deep well & Domestic	Reported By	ande I lead
	's Name	Sammie S. Charlie	Date Reported	DEC & 8 EGS
Authorized	d By	Bruce R. Chelikowsky		on the same of
ADDRESS:	Department:	_USPIE	SEND REPORT TO:	Bruce R. Chelikowsky
	Agency:	Crownpoint		c/o PHS Hosp.
	Branch:	OEH		Crownpoint NM

_				T	T	Recommended
	(X) Test Requested			Meq/1	Mg/1	Standards
	Boron (B)			1	Druce	1.0
	Iron (Fe)			Boule		
	Calcium (Ca)		<u> </u>	1 20	84 17	75 - 200
	Magnesium (Mg)			1.30	15.81	50 - 150
	Sodium (Na)			0,42	9.66	
<del></del>	Potassium (K)			0.01	2,91	1000 to 2000
	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -					
		CATIONS		5,93		
	Phosphorus (P)				Done	50.0 **
	Bicarbonate (HCO3)	<u> </u>	- 4	4.13	252 01	150
	Carbonate (CO3)			0.41	12.30	100
	Sulfate (SO <sub>4</sub> )		1	1,28	101.48	250
	Chloride (C1)			0,20	7.09	250
	Olliotide (OI)			0,20	1.0	50°to 58.3° 1.8
	Fluoride (F)		× ×			58.7°to70.6°1.5
	Fluoride (F)			002	1126	70.7°to90.5°1.2
	Nitrate (NO3)			0.004	2.48	45
125	NICIALE (NO3)				2.72	43
		ANIONS		5,84		
	Total Solids	Mg/1			367	500
		Mg/1			296	
	Dissolved Solids	Tons Per Acre Foot	0.40			
	Hardness as Mg/1	Calcium, Magnesium			275	500
	Ca CO3	Non Carbonate			68	
		Phenolphthalein			21	N. A.
	Alkalinity as Mg/1	Total Alkalinity (Methyl Orange)			207	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	Ca CO3		7			
		entage (SSP)				
	Sodium Absorption R	atio (SAR)	0.25			
		e (Micromhos at 25°C)	560			
		bonate (RSC)	80			
	PH	**				4 to 10
	Class for Irrigatio	n water	0751			
	Arsenic (As)					0.01 *
	Barium (Ba)					1.0 *
	Cadmium (Cd)					0.01 *
	Copper (Cu)					1.0
	Cyanide (Cn)					0.2
	Hexavalent Chromium	(Hex. Cr.)				0.05 *
	Lead (Pb)					0.05 *
	Manganese (Mn)					0.05
	Mercury (Hg)					0.005 **
	Selenium (Se)					0.01 *
	Zinc (Zn)					5.0
	Alkyl Benzene Sulfo	nates (ABS)				0.5
	Phenols					0.001

<sup>\*</sup> Cause for Rejection of the Supply \*\*Unofficial Standard

Pield 10-15-73 10-15-73 Date Received by Lab.

Date Collected Location Thoreau water system (RL. 86-121)
Source of Water Thoreau Chapter ho Thoreau Chapter house Reported By Tommy Horton Collector's Name\_ Towny Horton Authorized By\_ USPHS ADDRESS: Department: Gallup Agency: OEH

Analyzed By
Transcribed By
Checked By
Date Analysis Completed 007 \$ 6 1973 Date Reported

SEND REPORT TO:

Tommy Horton - USPHS P. O. Box 1337 Gallup, New Mexico 87301

Agency:	OEH		GRIIU	p, New M	
Branch:	OLI				
					Recommended
		1	Meg/1	Mg/1	Standards
(X) Test Requested				100	
(x) 1636 1144		- 1	.]	0.05,	1.0
Boron (B)			0.01	0.24	0.3
Iron (Fe)			8.70	174.35	75 - 200
Calcium (Ca)			2.20	26.75	50 - 150
Magnesium (Mg)			0.16	3.68	115 **
			0.03	7.17	1000 to 2000
Sodium (Na)			0.0		
Porassium (K)		1	11.10		
	CATIONS		11.10		
				drill	50.0 **
				0.1116	
Phosphorus (P)		1	31.25	148.22	150
Bicarbonate (HCO3)			0.66	19.81	
Carbonate (CO3)			6.40	==1.41	250
Sulfate (SO <sub>A</sub> )			0.65	1.77	250
Chloride (C1)					50°to 58.3° 1.8
011101240 (00)		4	1		58.7°to70.6°1.5
Fluoride (F)			0.02	0.37	70.7°to90.5°1.2
Fluoride (r)			0.04	2.48	45
(110.)			0.07	- 1	13
Nitrate (NO3)			10.92	1	
	ANIONS		10.12		
	MATONO		1	752	500
	Mg/1				
Total Solids				747	
	Mg/1	1 03		1	
Dissolved Solids	Tons Per Acre Foot	1.02		<del></del>	
D200			1	545	500
	Calcium, Magnesium			282	
Hardness as Mg/1	Non Carbonate				
Ca CO3	Not Garbana		1	33	N. A.
9	Phenolphthalein			1/63	
Alkalinity as Mg/1	Total Alkalinity (Methyl Orange)			1/4 3	
Ca CO3	Total Alkalinity (Methyl orange)	,	1		
Ca COS	(0.00)	/			
Soluble Sodium Per	centage (SSP)	0.07			
Sodium Absorption	Ratio (SAR)	1000			
cs- Conductor	ce (Micromnos al 25 C)		1		
Pasidual Sodium Ca	arbonate (RSC)	7.6			4 to 10
DU		(25/			
Class for Irrigati	on Water	1 6 3 3/			
Class for intigues			1		0.01 *
	×	<u> </u>			1.0 *
Arsenic (As)					0.01 *
Barium (Ba)					
Cadmium (Cd)					1.0
Copper (Cu)					0.2
Cyanide (Cn)					0.05 *
Hexavalent Chromin	um (Hex. Cr.)	1			0.05 *
Lead (Pb)		-			0.05
Manganese (Mn)					0.005 **
Mercury (Hg)		+	-		0.01 *
Selenium (Se)					5.0
Zinc (Zn)					0.5
		1	1	1	
Alkyl Benzene Sul	fonates (ABS)				0.001

<sup>\*</sup> Cause for Rejection of the Supply

Total IROn - 3.00 ppm

<sup>\*\*</sup>Unofficial Standard

Date Received Date Collecte Location 2!: Source of Wat Collector's N Authorized By ADDRESS: Dep	by Lab.  d  mi. NB of  er  Name  oartment: ency:	May 18, 1975 Thorcau 16T-575 Samuel Charlie W. Commay USPES Gallup	Reported By Date Reported SEND REPORT TO:	ompleted	JUN 1 8 14/3 PHS
		ORH		Gallup, New Me	<u> </u>

			11-11	Recommended Standards
est Required		Meg/1	Mg/1	
est Redurred				1.0
	Boron (B)			0.3
	Iron (Fe)	ļ		75 - 200
	Calcium (Ca)			50 - 150
	Magnesium (Mg)			115 **
	Sodium (Na)			1000 to 2000
	Potassium (K)	ļ		
				(84)
	CATIONS	- A	/ Inc	
			1 300	
				50°to 58.3° 1.1
		1		1 58 70rg 70.60 1.5
	Fluoride (F)			70.7°to 90.5° 1.
				50.0 **
	Phosphorus (P)			150
	Bicarbonate (NCO2)			1.50
	Carbonate (CO <sub>2</sub> )			250
	Sulfate (SO <sub>2</sub> )			250
	Chloride (C1)			
	Nitrate (NO <sub>3</sub> )			45
	<del></del>			•
	ANIONS _			
	- 1 C-1/de:			500
	Total Solids:	1	317	
	Mg/1			
	Dissolved Solids:			
	Mg/1			
	Tons Per Acre Foot			500
	Hardness as Mg/1; (Ca CO <sub>3</sub> )			
	Calcium. Magnesium			
	Non Carbonate	-		N. A.
	Alkalinity as Mg/1 (Ca CO <sub>3</sub> ):			
	Phonologicalein		+	
	Total Alkalinity (Methyl Orange)			
	Solutile Sedium Percentage (SSP)			
	Is the Absorption Ratio (SAR)			
	(Specific Conductance (Micromhos at 25°C)			
	Residual Sodium Carbonate (RSC)			/ 10
	pH			4 to 10
	Class for Irrigation Water			<u> </u>
	Arsenic (As)			0.01 *
	Barium (Ba)			1.0 *
	Cadmium (Cd)			0.01 *
	Copper (Cu)			1.0
	Conside (Cn)			0.2
	Fexavalent Chromium (Hex. Cr.)			0.05 %
	Lead(Pb)			0.05 *
	Manganese (Mn)			0.05
	Mercury (Hg)			0.005 **
				0.01 *
			_(4)	5.0
	Zinc (Zn) Alkyl Benzene Sulfonates (ABS)			0.5
	TAIRET SENZERE BUILDHOLES (ADD)			0.001

\* Cause for rejection of the supply. \*\* Unofficial Standard

JUN 19 1973

OFF OF ENV HLTH

LAB NO. 72-PHS-580 F	TELD NO.	IKANSUKIDED DI	Put &	avn	
COLLECTOR Michael D. N LOCATION Thoreau Chapt DATE RECEIVED BY LABORA	er House	CHECKED BY	William		11
THE PART OF THE PA	1	ARTHORIZED BY	Michael	D. N.	2
DATE COLLECTED  DEPARTMENT USPHS	AGENCY_		47.		
				Meg/l	Mg/1
Temperature (°F)					
Silica (SiO <sub>2</sub> )					
Boron (B)					0.12
Iron (Fe)				trace	Kraee
Calcium (Ca)				9.00	180,36
Magnesium (Ng)				230	27.97
Sodium (Na)				0.30	6.90
				Lace	Knee
Potassium (K)		Cations		11.60	
W					0.02
Phosphorus (P)				4.06	247.74
Bicarbonate (HCO3)				toaler	
Carbonate (CO <sub>3</sub> )				7.45	357.82
Sulphate (SO <sub>4</sub> )				0.28	
Chloride (C1)				0,02	- (
Fluoride (F)				0,002	
Nitrate (NO <sub>3</sub> )				11.81	0.77
		Anlons		11,01	726
Total Solids	Mg/1				724
Dissolved Solids	Mg/1 Tons Per Acre Foot	<u> </u>	0.98		121
					565
Herdness as Mg/1	Calcium, Magnesium Non Carbonate				362
Ca CO3	Phenolphthalein				
Alkalinity as Mg/l Ca CO3	Total Alkalinity	(Methyl Orange)			203
Soluble Sodium Percer	ntage (SSP)		3		
Sodium Absorption Rat	io (SAR)		0.13	'	
Specific Conductance			1030	)	
Residual Sodium Carbo					
PH			7.5	-	
Class for Irrigation			C3 S1		
	•				

Remarks:

489

9.0

Class for Irrigation Water Gharks: Total IRON = 0.35 ppm 1

Residual Sodium Carbonate (RSC)\_\_\_\_\_

#### BUREAU OF INDIAN AFFAIRS SOILS LABORATORY GALLUP, NEW MEXICO LABORATORY DATA SHEET FOR WATER SAMPLES

16T-349

COLLECTOR Donald M LOCATION Thoreat, DATE RECEIVED BY LAR		TRANSCRIBED BY CHECKED BY REPORTED BY			
DATE COLLECTED 3 DEPARTMENT US.PHS	3-1-66	SOURCE OF WATER		16T-349 1	Navajo Trib
DEFARITENI US, PHS	AGENCI	BRANCH			
				Meq/1	Mg/1
			730		
Silica (SiO <sub>2</sub> )		<del> </del>			
Boron (B) Ictal (Fc)					0.03
				0.012	0.33
Calcium (Ca)				0.15	3.01
Magnesium (Mg)				traces	TRACE.
odium (Na)				623	143.29
					trace
		Cations		6.38	
Phosphorus (P)	1			1	0.092
					231.84
				-d6	36.00
					24.50
					25-89
				4	,
					0.40
ilitate (NO3)				Í	1.86
		Anions		6.29	
Cotal Solids	Mg/1	•			3.36
Dissolved Solids	Mg/1 Tons Per Acre Foot		0.45		3.34
lardness as Mg/1 Ca CO3	Calcium, Magnesium Non Carbonate				5
,			= }		
lkalinity as Mg/1 Ca CO3	Phenolphthalein Total Alkalinity (Mo	ethyl Crange)			_60_
	entage (SSF)		98		
odium Absorption Ra			22.75		
	(Micromhos at 25°C)				
	onate (RSC)		560	// /:	
PH	viace (IDC)		0 0	4.55	
			9.0		
Class for Irrigation	Water		C254		

Remarks:



# Navajo Nation Water Management Branch Well Log and Drilling Report

PO Box 678 Fort Defiance, Arizona \* PH: 928.729.4004 \* FAX: 928.729.4126

WELL NO: 16K-334 PWSID: NM3534017

WELL NAME/OTHER NO: THOREAU #925/#3

WELL TYPE: WW WELL STATUS: ACT WELL USE: DOM

LOCATION: 100 FT N OF BIA ELEVATED TANK

UTM: X(EAST) 752293 Y (NORTH) 3921430 ZONE: 12 OPERATOR: BIA

WATERSHED CODE: 13020207000 STATE: NM COUNTY: MK CHAPTER CODE: THOR

GRAZING DISTRICT: 16 LOCATION DATA SOURCE: FIELD CHECKED 4/11/95

WELLNO: 16K-334 STARTED: COMPLETED: 8/17/1962 10/3/1962 **ELEVATION:** 7161 FT. DEPTH: DEPTH MEASURED: 1201 FT. 10/3/1962 DIAMETER: IN. **DEPTH IS:** Measured, Estimated, Reported CASING\_DIAMETER: FROM: 12.75 IN. FT. TO: 45 FT. MATL: STL CASING\_DIAMETER: 10.75 IN. FROM: TO: MATL: STL FT. 130 FT. CASING\_DIAMETER: 8.62 IN. FROM: TO: FT. MATL: STL -2.1 FT. 900 FROM: CASING\_DIAMETER: 6.62 IN. 900 FT. TO: 1201 FT. MATL: STL

CASING PERFORATED FROM: TO: **OPENING TYPE:** 931 FT. 1191 FT. CASING PERFORATED FROM: 0 FT. 0 FT. **OPENING TYPE:** TO: CASING PERFORATED FROM: **OPENING TYPE:** 0 FT. TO: 0 FT. CASING PERFORATED FROM: 0 FT. TO: 0 FT. **OPENING TYPE:** CASING PERFORATED FROM: 0 FT. TO: **OPENING TYPE:** 0 FT.

DATE WELL TURNED OVER TO TRIBE:

FUNDED BY: BIA CONTRACTOR: LAYNE TEXAS

SITE IMPROVEMENTS: TA-WL TYPE OF LIFT: SU ENERGY: EM

HORSEPOWER RATING OF PUMP: 15 ON SITE STORAGE CAPACITY: 75000 GAL.

STRUCTURE DATA SOURCE: BIA WELL FILES

WELLNO: 16K-334 USGS PRINCIPLE AQUIFER CODE: 231CHNL

THICKNESS: 0 FT. NOMINAL YIELD: 104 GPM DATE YEILD MEASURED: 7/2/1994

BAILER/PUMP TEST: PT RATE: 39 GPM TEST PERIOD: 24 HR. TEST DATE: 10/18/1962

DRAWDOWN: 419.9 FT. OBSERVATION WELL DATA AVAILABLE: N

HORIZONTAL CONDUCTIVITY: 0 FT/DAY SPECIFIC CAPACITY: 0.09 GPM/FT.

VERTICAL CONDUCTIVITY: 0 FT/DAY STORAGE COEFFICIENT: 0

COEFFICIENT OF TRANSMISSIVITY: 0 FT2/DAY

AVAILABITY OF TEST DATA: NYNY DRILLERS/ELECTRIC LOGS: DL

HYDROLOGY DATA SOURCE: BIA WELL FILE

Thursday, September 14, 2017 11:24:02 AM



# Navajo Nation Water Management Branch Well Log and Drilling Report

PO Box 678 Fort Defiance, Arizona \* PH: 928.729.4004 \* FAX: 928.729.4126

WELL NO: 16B-39 PWSID:

WELL NAME/OTHER NO:

WELL TYPE: WW WELL STATUS: ACT WELL USE: LIV

LOCATION: 1 M N OF THOREAU

UTM: X(EAST) 752220 Y (NORTH) 3922940 ZONE: 12 OPERATOR: TRIBE O&M

WATERSHED CODE: 13020207 STATE: NM COUNTY: MK CHAPTER CODE: THOR

GRAZING DISTRICT: 16 LOCATION DATA SOURCE: WELL FILES

 WELLNO:
 16B-39
 STARTED:
 10/30/1943
 COMPLETED:
 11/2/1943

 ELEVATION:
 7234
 FT.
 DEPTH:
 730
 FT.
 DEPTH MEASURED:
 11/2/1943

DIAMETER: IN. **DEPTH IS:** M Measured, Estimated, Reported CASING\_DIAMETER: FROM: 12.5 IN. FT. TO: 95 FT. MATL: STL CASING\_DIAMETER: 10.5 IN. FROM: TO: MATL: STL FT. 637 FT.

CASING\_DIAMETER: 6 IN. FROM: 625 FT. TO: 730 FT. MATL: STL

CASING\_DIAMETER: 0 IN. FROM: 0 FT. TO: 0 FT. MATL:

CASING PERFORATED FROM: 605 FT. TO: 696 FT. OPENING TYPE: P

CASING PERFORATED FROM: 0 FT. TO: 0 FT. OPENING TYPE:

CASING PERFORATED FROM: 0 FT. TO: 0 FT. OPENING TYPE:

CASING PERFORATED FROM: 0 FT. TO: 0 FT. OPENING TYPE:

CASING PERFORATED FROM: 0 FT. TO: 0 FT. OPENING TYPE:

DATE WELL TURNED OVER TO TRIBE:

FUNDED BY: BIA CONTRACTOR:

SITE IMPROVEMENTS: WM TA TYPE OF LIFT: PS ENERGY: WM

HORSEPOWER RATING OF PUMP: 0 ON SITE STORAGE CAPACITY: 50000 GAL.

STRUCTURE DATA SOURCE: WELL FILES

WELLNO: 16B-39 USGS PRINCIPLE AQUIFER CODE: 231CHNL

THICKNESS: 0 FT. NOMINAL YIELD: 0 GPM DATE YEILD MEASURED:

BAILER/PUMP TEST: BT RATE: 4 GPM TEST PERIOD: 0 HR. TEST DATE: 11/2/1943

DRAWDOWN: 320 FT. OBSERVATION WELL DATA AVAILABLE: N

HORIZONTAL CONDUCTIVITY: 0 FT/DAY SPECIFIC CAPACITY: 0 GPM/FT.

VERTICAL CONDUCTIVITY: 0 FT/DAY STORAGE COEFFICIENT: 0

COEFFICIENT OF TRANSMISSIVITY: 0 FT2/DAY

AVAILABITY OF TEST DATA: NNNN DRILLERS/ELECTRIC LOGS: DL

HYDROLOGY DATA SOURCE: WELL FILES



# Navajo Nation Water Management Branch Well Log and Drilling Report

PO Box 678 Fort Defiance, Arizona \* PH: 928.729.4004 \* FAX: 928.729.4126

WELL NO: 16T-575 PWSID:

WELL NAME/OTHER NO:

WELL TYPE: WW WELL STATUS: ACT WELL USE: LIV

LOCATION: 1.5 M NE OF THOREAU CHPTR. HSE.

UTM: X(EAST) 756290 Y (NORTH) 3924270 ZONE: 12 OPERATOR: TRIBE O&M

WATERSHED CODE: 13020207 STATE: NM COUNTY: MK CHAPTER CODE: THOR

GRAZING DISTRICT: 16 LOCATION DATA SOURCE: WELL FILES/B. STONE RT-6

 WELLNO:
 16T-575
 STARTED:
 11/30/1971
 COMPLETED:
 10/3/1972

 ELEVATION:
 7280
 FT.
 DEPTH:
 1150
 FT.
 DEPTH MEASURED:
 10/3/1972

DIAMETER: 0 IN. DEPTH IS: R Measured, Estimated, Reported

CASING\_DIAMETER: FROM: 6.62 IN. FT. TO: 805 FT. MATL: STL CASING\_DIAMETER: 0 IN. FROM: MATL: STL 805 FT. TO: 1000 FT.

CASING\_DIAMETER: 0 IN. FROM: 0 FT. TO: 0 FT. MATL:

CASING\_DIAMETER: 0 IN. FROM: 0 FT. TO: 0 FT. MATL:

CASING PERFORATED FROM: 960 FT. TO: 1000 FT. OPENING TYPE: P

CASING PERFORATED FROM: 1000 FT. TO: 1150 FT. OPENING TYPE: )

CASING PERFORATED FROM: 0 FT. TO: 0 FT. OPENING TYPE: CASING PERFORATED FROM: 0 FT. TO: 0 FT. OPENING TYPE:

CASING PERFORATED FROM: 0 FT. TO: 0 FT. OPENING TYPE:

DATE WELL TURNED OVER TO TRIBE: 10/17/1972

FUNDED BY: BIA CONTRACTOR: FRONTIER DRLG

SITE IMPROVEMENTS: WM TA WL TR TYPE OF LIFT: ENERGY: WM

HORSEPOWER RATING OF PUMP: 0 ON SITE STORAGE CAPACITY: 27900 GAL.

STRUCTURE DATA SOURCE: WELL FILES

WELLNO: 16T-575 USGS PRINCIPLE AQUIFER CODE: 231CHNL

THICKNESS: 0 FT. NOMINAL YIELD: 0 GPM DATE YEILD MEASURED:

BAILER/PUMP TEST: BT RATE: 15 GPM TEST PERIOD: 6 HR. TEST DATE: 10/3/1972

DRAWDOWN: 350 FT. OBSERVATION WELL DATA AVAILABLE: N

HORIZONTAL CONDUCTIVITY: 0 FT/DAY SPECIFIC CAPACITY: 0 GPM/FT.

VERTICAL CONDUCTIVITY: 0 FT/DAY STORAGE COEFFICIENT: 0

COEFFICIENT OF TRANSMISSIVITY: 0 FT2/DAY

AVAILABITY OF TEST DATA: NNNN DRILLERS/ELECTRIC LOGS: DL

HYDROLOGY DATA SOURCE: WELL FILES

# APPENDIX D NMOSE Records Existing Well Logs





### STATE ENGINEER OFFICE

#### WELL RECORD

#### Section 1. GENERAL INFORMATION

Street or F	Post Office Ad	s Electric <sub>dress</sub> P.O. B uerque, New	0X 6551	Off & If	arisin;	sion Co	5-op, 1116,	wner's Well	No	7-B-5-4	
ell was g <b>epa</b> i	red under Permit	No. B-87-B-	S-4		and	is located	in the:				
a	1/4 _SW 1/4	SW ¼SE	¼ of Sec	tion 2	3 To	wnship <u>1</u>	North	Range 12	2 West	N.M.P.M	
b. Tract N	Vo,	of Map No	_	of	the			77.2		<u> </u>	
Lat Ma		of Block No		of	the			r- cr			
c. Lot No	ision, recorde	d in			_ Count	7.		Ë	į	27.11W22	
d. X=		_ feet, Y=						And the	el.	Zone ir	
the								17.	·	Grant	
) Drilling Co	ontractor_ <b>St</b>	ewart Broth	ers Dri	ling Cor	npany		_ License No			<del>-</del>	
dress = P.	0. Box 20	67, Milan,	New Mexi	ico				m ×	ji Q	<b></b>	
		Comple						Si	ze of hole.	in	
		Compr									
evation of lan	d surface or _										
mpleted well	is  s	hallow 🖾 ar	tesian.		Dept	h to water	upon comple	tion of we	11	55 ft	
		Secti	on 2. PRIN	CIPAL WA	TER-BE	ARING ST	RATA				
Depth i		Thickness in Feet	ı	Description	of Wate	-Bearing F	ormation	(6	Estimated allons per		
From	То			<u> </u>	CI						
1265	1331	66		Gloriet	a Sand	stone		***			
1410	1448	38	- (	Cloriet	a Sand	stone					
			See	section	7 on	reverse	side.			<u></u>	
			Saatio	n 3. RECC	DD OF	CASING		1			
Diameter	Pounds	Threads		in Feet		Length	Type of	Shoe	Perf	orations	
(inches)	per foot	per in.	Top	Bottor	n	(feet)	Type of		From	То	
					_						
									13		
									(		
	<u> </u>	Postio	n 4. RECO	DD OE MI	IDDING	AND CEN	IENTING		~	1	
Depth	in Feet	Hole	Sack	<s td=""  <=""><td>Cubic</td><td>Feet</td><td></td><td>lethod of</td><td></td><td></td></s>	Cubic	Feet		lethod of			
From	То	Diameter	of M	ud	of Cer	nent			3		
									هدسخ هسسخ		
								35	<u></u>		
								1.0			
			Contin	on 5. PLUC	CINC D	ECOPD		· · · · · -			
ugging Contr	actor				MINUT N	-					
ddress						No.		h in Feet		Cubic Feet	
						- 1	Top	Bott	om	of Cement	
ugging appro						2					
		State Engi	neer Repres	entative		- 3					
			FOR USE	OF STAT	E ENGP		LY				
			TON USE	VI 3141	17011						
ate Received File No	6-22	.92					F\				

Section 6. LOG OF HOLE

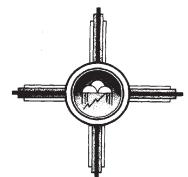
Depth	in Feet	Thickness	Section 6. LOG OF HOLE					
From	То	in Feet	Color and Type of Material Encountered					
			Sample logs were filed with the State Engineer					
			on June 16, 1983 (see letter dated 6-16-83 attached)					
			(Job Forter auteu v 10 05 artalicus)					
		<del> </del>						
		]						

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well was cleaned out, the old torch, liner removed and 438 feet of 4", 0.04 slot stainless steel screen installed and gravel packed.

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Louis D. O'Dell Driller



#### PLAINS ELECTRIC GENERATION AND TRANSMISSION COOPERATIVE, INC.

Albuquerque Headquarters 2401 Aztec Road, NE, P.O. Box 6551 Albuquerque, New Mexico 87197 Phone (505) 884-1881

Escalante Generating Station P.O. Box 577 Prewitt, New Mexico 87045 Phone (505) 876-2271

June 17, 1992

File A.2.5

Mr. Charles A. Wohlenberg New Mexico State Engineer's Office, District 1 3311 Candelaria, NE, Suite A Albuquerque, New Mexico 87107

RE: Permits To Repair Well Nos. B-87-B-S-4 & B-87-B-S-5

Dear Mr. Wohlenberg:

Enclosed in triplicate are Well Logs for the wells referenced above. These well logs are filed in accordance with the condition of approval on the Permits To Repair Or Deepen Well issued October 18, 1991.

Also enclosed are pump test data and a letter dated June 16, 1983 for your convenient reference.

Please advise if there are any questions.

Sincerely,

Louis D. O'Dell

Water Resource Engineer

Enclosures

Copys To: Dick Toth w/ encl

Oren Key w/encl

Charlie Harding w/encl

# STATE ENGINEER OFFICE WELL RECORD

#### Section 1. GENERAL INFORMATION

Street or	Post Office Ac	s Electric G ddress P.O. B querque, New	ox 6551	n & Transmi	ssion Co-	op, Incown	er's Well	No. B-87-	-B-S-5
eli was delle	i red d under Permit	No. B-87-B-S	-5	ar	d is located i	in the:			
		4 <u>SW</u> ¼ <u>SW</u>					nge12	Salan	N.M.P.M
b. Tract	No	of Map No		of the			to m	22	
		of Block No					Sartis Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Arriva Ar	JUN 22	
	•	d in				3		A <b>CO</b>	Zone in
						• "		0	Grant.
		tewart Broth				_ License No	ris m	80	
	). Box 2067	7, Milan, Ne	w Mexico						
ep <b>air</b> riffing Began	12-19-91	Comple	ted 12-3	<b>1-91</b> T	ype tools		Siz	e of hole_	in.
levation of la	nd surface or _			at well is	6934	_ ft. Total deptl	h of well	1445	ft.
ompleted we	ll is 🔲 s	shallow 🗓 arte		De			n of well	189	ft.
Denth	in Feet	Section Thickness	on 2. PRINC	IPAL WATER-B	EARING ST	RATA	1	Estimated '	Yield
From	То	in Feet	De	escription of Wat	er-Bearing F	ormation		allons per r	
1233	1445	212	Sa	n Andres/GI	orieta			100	
				<u>e section 7</u> de.	on the r	keverse	-		
	<u> </u>						<u> </u>		<del></del>
Diameter	Pounds	Threads	Section Depth in	3. RECORD OF	CASING Length			Perfo	ations
(inches)	per foot	per in.	Тор	Bottom	(feet)	Type of Sh	oe	From	То
	-	Section	4. RECOR	D OF MUDDING	G AND CEMI	ENTING			
Depth From	in Feet To	Hole Diameter	Sacks of Mu	Cubi	Feet		od of P	lacement	
								_	
			Section	5, PLUGGING	RECORD				
					_	D- 4 1	- E:		
lugging Mcth	od				No.	Depth in Top	Botto		bic Feet Cement
ate Well Plug lugging appro	~				- <u>1</u> 2				
- ••	-	State Engin	eer Represer	ntative	- 3				
			EUD HEE C	IE STATE ENGL	MEED ONL	V			
ate Received	6-22 B-87-B-	1-92	FOR USE C	OF STATE ENG		Y FWL			

Section 6. LOG OF HOLE

Depth i	in Feet	Thickness	
From	То	in Feet	Color and Type of Material Encountered
			Sample logs were filed with the State Engineer on
			June 16, 1983 (see letter dated 6-16-83 attached).
		<u> </u>	Julie 10, 1903 (see letter dated 0-10-03 attached).
ĺ			
<del></del>		-	
1			
1			
-			

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well was cleaned out and 220 feet of 4-inch stainless steel 0.04 slot screen was installed and gravel-packed.

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Louis D. O'Dell Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and exhmitted to the appropriate district office of the State Engineer. All sections, excu Section 5, shall be unswered as completely a accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

File Number:

B-87B (Repair & Deepen)

### NEW MEXICO OFFICE OF THE STATE ENGINEER CARROLL OF THE STATE CARROLL OF THE STATE ENGINEER CARROLL OF THE STATE CARROLL OF THE WELL RECORD

1. OWNER OF WELL	2009 JAN -7 PM 2: 43
Name: Tri State Commention and Transmission	Wal Phase 505 083 4366
Name: Tri-State Generation and Transmission Contact: Dennis R. Cooper	Work Phone: 505-983-4366
DOD 20205	Home Phone:
City: Denver,	State: CO Zip: 80233-0695
2. LOCATION OF WELL (A, B, C, or D required, E or F if known	
A. <u>NW</u> 1/4 <u>NW</u> 1/4 <u>SW</u> 1/4 Section: <u>23</u> Townsh	
B. X = feet, Y =	feet, N.M Coordinate System
U.S.G.S. Quad Map	
C. Latitude: d m s Longitude:	: d m s
D. East (m), North (m), UTM Z	Zone 13, NAD (27 or 83)
E. Tract No, Map No, of the	Hydrographic rvey 3
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	<b>万</b> きず
H. Give State Engineer File Number if existing well: B-87-B-	-S-6 골
I. On land owned by (required): Applicant	•
3. DRILLING CONTRACTOR	
License Number: WD-225  Name: Rodgers & Co., Inc.  Agent: Clarence Rodgers  Mailing Address: 2615 Isleta Blvd. SW	Work Phone: 505-877-1030 Home Phone:
City: Albuquerque,	State: NM Zip: 87105
4. DRILLING RECORD	
Drilling began: 8/7/07 ; Completed: 12/31/07  Size of hole: in.; total depth of well: f  Completed well is: (shallow, artesian);  Depth to water upon completion of well:  SEE ITEM 10.	; Type tools: Rotary ; t.; ft.
File Number: B-87B (Repair & Deepen) Form: wr-20 page 1 of 4	Trn Number: 380574

#### NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

#### 5. PRINCIPAL WATER-BEARING STRATA

From	oth in Feet To LITEM 10.	Thickness in Feet	Description of water-bearing for			Estimated Yield (GPM)
. RECORD O	F CASING					
Diameter (inches)	Pounds per ft.	Threads per in.	Depth in Feet Top Bottom	Length (feet)	Type of Shoe	Perforations From To
		AND CEMENT				
Depth From	Depth in Feet From To			Cubic Feet of Cement	Method	of Placement
8. PLUGGING	G RECORD					
	ugging Contract	or:				
	Addre					
	Plugging Metho					
Ι	Date Well Plugge	ed:				
Plug	gging approved l	by:				
			Sta	te Engineer Repr	esentative	
	No.		oth in Feet Bottom	Cub	oic Feet of Cement	
	1.	, op				
	2.					
	3.					_
	4.					<del>_</del>
	5.					

page 2 of 4

File Number: B-87B (Repair & Deepen)
Form: wr-20

Trn Number:

File Number:

### NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

2009 JAN -7 PM 2: 43

#### 9. LOG OF HOLE

Depth in Feet From To SEE ITEM 10.		Thickness in Feet	Color and Type of Material Encountered							
			,							
				-						
					<del> </del>					
<del></del>										
				2008 FE 8	1126/4					
				-CO	55					
				m	297					
					*					
				S						
				7	<del></del>					
				**						
				25	12					
			-							
					*****					
<del></del>										
<del> </del>										
				<del></del>						
	<del> </del>									

File Number: B-87B (Repair & Deepen) wr-20

page 3 of 4

## NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

#### 10. ADDITIONAL STATEMENTS OR EXPLANATIONS:

the static water level was measured at 451-ft., the total well depth v		• • • • • • • • • • • • • • • • • • • •
and the well capacity was about 10 GPM. Fill was removed from the	he well from a depth of	_
927-ft. to 990-ft. Following redevelopment, the static water level w		
capacity was about 130 GPM. We were unable to clean the well be	eyond 990-ft.	<del></del>
	······································	
		—
		_
The undersigned hereby certifies that, to the best of his know belief, the foregoing is a true and correct record of the above hole.  Dry Achardon / Recorded (remodel)		
V Driller C (mm/dd/	year)	
FOR STATE ENGINEER USE ONLY		
Quad; FWL; FSL; Use; Location No		
File Number:	Trn Number: 3845	74
Form: wr-20 page 4 of 4		

STATE BROKEN TO

### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER

2003 JAN -7 PH 2: 42

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

District 1 121 Tijeras NE, Suite 2000 Albuquerque, NM 87102-3400

December 15, 2008

File: B-87-B (Repair and Deepen)

Rogers & Co., Inc. 2615 Isleta Blvd. SW Albuquerque, NM 87105

#### Greetings:

Although this Well Record was filed last February, we just realized that the driller neglected to sign the back of the forms. Please have the driller sign the back of the enclosed Well Records and return them to our office. We apologize for bringing this to your attention after so much time has past, but we do need a signature before we can file this document.

Thank you for your cooperation in this matter. If you have any questions, please do not hesitate to call me.

Sincerely,

Robert D. Thompson Water Resource Specialist

Robert D. IL

Office of the State Engineer

(505) 764-3844

**Enclosures** 

Signed copies enclosed.

# STATE ENGINEER OFFICE WELL RECORD

#### Section 1. GENERAL INFORMATION

Street or	well Plain Post Office Ad State	s Electric Idress P.O. E Albuqu	G & T Co Box 6551 Jerque, 1				Own	er's Well No	B-87-	-B-S-7-Ехр
Well was drilled	under Permit	No. B-87-E	8-S-7-Ex	olore	a	nd is located :	in the:			
a	_ 1/4 1/4	SW 1/4 SE	¼ of Sec	ction	27	Township <u>14</u>	North R	ange <u>12 We</u>	st	N.M.P.M.
b. Tract l	No	of Map No			of the _					A
		of Block No								<u> </u>
		_ feet, Y=					ystem			
(B) Drilling C	ontractor <u>S</u>	tewart Brot	hers Dr	illing			_ License No	WD-0331		
Address P.C	D. Box 206	7, Milan Ne	w Mexic	o 8702	21					
Drilling Began	12-12-90	Comple	eted1-	5-91	т	ype tools <u>R</u> Approx.	Rotary	Size of		12½ in. 7 <u>7/8</u> in.
Elevation of lan	d surface or			a	it well is	6945	_ ft. Total dept	th of well 1	376	ft.
Completed well	is 🗆 sl	hallow 🖾 art	tesian.		De	pth to water	upon completic	on of well	216	ft.
Depth i	in Faat	Section	on 2. PRIN	CIPAL W	ATER-B	EARING ST	RATA	Entim	nated \	Viold
From	То	in Feet	I	Descriptio	on of Wa	ter-Bearing F	ormation	(gallon		4 .
1122	1376	254	Glor	ieta Sa	andsto	<b>₹</b> 20gpm				
							Party Party	3		
							The state of the s	R 29		
		<u></u>		. 2. DEC	ODD OI	CACING	1			
Diameter	Pounds	Threads		in Feet	OKD OI	Length	Type ∰ SI		Perfor	ations
(inches)	per foot	per in.	Тор	Botto	om	(feet)		noe Fr	om	То
8 5/8	28		14	1122	2	1108				
4 .04	slot SS	Screen	1122	1376	5	254	4½ Guide	1	122	1366
		Section	n 4. RECO	RD OF M	UDDIN	G AND CEM	ENTING			
Depth From	in Feet To	Hole Diameter	Sack of M			c Feet ement	Met	hod of Placen	nent	
0	1122	12½"	5	00						
								-		
-			Section	on 5. PLU	GGING	RECORD				
							Depth i	n Feet	T 2	thin Fresh
Plugging Metho	od					No.	Тор	Bottom		bic Feet Cement
Date Well Plugs Plugging approv						- <u>1</u> 2			_	
	<del>- ,</del>	State Engir	neer Repres	entative		- <u>3</u>				
Date Received			FOR USE	OF STA	TE ENG	INEER ONL	Y			
					Quad		FWL		_ FSL	
File No				Use			Location No			

<u>_</u>		T	Section 6. LOG OF HOLE
Depth	in Feet	Thickness in Feet	Color and Type of Material Encountered
From	То	ın Feet	Color and 1, po or material Encountered
			SEE ATTACHED
			SEL ATTAMIED
			BORING LOG
· · · · · · · · · · · · · · · · · · ·			
			l l
	1		
		L	

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller



FOR OSE INTERNAL USE

FILE NUMBER B-87-B

LOCATION

### STATE BYGNEER OFFICE ALBUQUERQUE, NEW VEXICO

2012 DEC 20 AM 11: 51

WR-20 WELL RECORD & LOG (Version 06/08/2012)
TRN NUMBER 47-2802

PAGE I OF 2

		JMBER (WE	ELL NUMBER)					OSE FILE NU	MBER(S)					
LOCATION	10							B-87-B						
CAT	WELL OWNER NAME(S)								ONAL)					
Š	Tri-State Generation and Transmission Association Inc								3459		710			
ELL	PO Box							Denver	CC	STATE	ZIP 30233			
GENERAL AND WELL	PO BOX	33033						Deliver		, ,	0233			
ANE	WELL			GREES	MINUTES	SECO		ACCURACY REQUIRED: ONE TENTH OF A SECOND						
ZAL.	LOCATIO (FROM GI		TITUDE 3					1	QUIRED: WGS 84	H OF A SECOND				
NEF	(PROM GI	s) LC	NGITUDE 1(	)8	05	13	.77 W	DATOMIKE	CONCED: WG3 64		-			
GE	DESCRIPTION	DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIIP, RANGE) WHERE AVAILABLE												
_	Well 1R													
	LICENSE NU	JMBER	NAME OF LICENSED	DRILLER					NAME OF WELL DRI	LLING COMPANY				
	WD:	225	Michael Roug	gier and Fe	lipe Leon				Rodgers & Co	o., Inc.				
	DRILLING S	TARTED	DRILLING ENDED	DEPTH OF COM		(FT)	l	LE DEPTH (FT)	DEPTH WATER FIRS	T ENCOUNTERED	(FT)			
	4/10	/12	10/1/12		1550		1	550	unknown					
									STATIC WATER LEVEL IN COMPLETED WEL					
Z.O	COMPLETE	O WELL IS:	■ ARTESIAN	DRY HOLE	SHALL	OW (UNCC	ONFINED)		<u> </u>	272				
ATI	DRILLING F	LUID:	■ AIR	■ MUD	ADDIT	IVES – SPE	CIFY:							
CASING INFORMATION	DRILLING N	ETHOD:	ROTARY	HAMMER	CABLE	TOOL	ОТНЕ	R - SPECIFY:		· · · <u></u>				
	DEPTH (feet bgl) BO		BORE HOLE		ATERIAL AN	ND/OR	C/	ASING	CASING	CASING WAL	L SLOT			
NG	FROM TO		DIAM	1	GRADE ch casing string	o and	CON	NECTION	INSIDE DIAM.	THICKNESS	SIZE			
ASI			(inches)		note sections of screen)			YPE	(inches)	(inches)	(inches)			
8	0	40	30		urface cas		·	ented in	place 15.25	3/8				
DRILLING	0	1226		API GR X65 blank			eaded	8	.277					
ILL	1226	1280	<del></del>	API GR X65 perforated		threaded		8	.277	0.25_				
	1280	1300	<del></del>	liner			welded welded		4	.247	0.125			
2.	1300	1550	7-7/8		liner		we	elaea	4	.247	0.125			
				1										
	DEPTH	(feet bgl)	BORE HOLE	LIST	ANNULAR S	SEAL MA	TERIAL A	ND	AMOUNT	MET	HOD OF			
AL	FROM	то	DIAM. (inches)	1	EL PACK SIZ				(cubic feet)	PLAC	EMENT			
ERL	0	40	30	<del>                                     </del>	cement	/sand s	slurry		140.5	tre	emie			
1AT	40	1280	<del></del>	<u> </u>	cement b				968.2		ire grout			
3. ANNULAR MATERIAL	1280	1300	<del></del>			vel pac			21.5		emie			
UL,	1300	1550	7-7/8		grav	vel pac	k		56.9	tre	emie			
Z														
3.														
			1	1					1					

POD NUMBER POD 10

120   190   Red bed shale and sandstone   Y   N   N		DEPTH (I	eet bgl)	THICKNESS	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES	WATER BEARING?	ESTIMATED YIELD FOR WATER-
190   190   Red bed shale and sandstone	`	FROM	TO	(feet)		(YES / NO)	
TOP	. }	0	30	30	Blow sand	□Y ■N	
THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF. THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMITH POLD BY AFFER COMPLICATION OF WELL DRILLING.   SIGNATURE OF DRILLER / "WANT SIGNEE NAME"  DATE		30	1220	1190		■Y □N	
THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND DISCHARGE METHOD.  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE OBSCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DESCRIBED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE OBSCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE OBSCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE OBSCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE OBSCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE OBSCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DELIEF. THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE OBSCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DELIEF. THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE OBSCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND DELIEF. THE FOREGOING IS A TRUE AND CORRECT RECORD WITH THE STATE ENGINEER AND DELIEF. THE FOREGOING IS A TRUE AND CORRECT RECORD WITH THE STATE E	İ	1220	1550	330	Sandstone, grey with red shale underbeds, Glorieta SS	N □ N	
THE UNDERSTONED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FORECOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH HE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH HE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH HE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH HE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH HE STATE ENGINEER AND THE FERMIT HOLDER WITHIN 20 DAYS AFTER COMMETTION OF WELL DRILLING.  JELLY JEST TEST RESULTS ATTACHA COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD.  THE UNDERSTONED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FORECOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE FERMIT HOLDER WITHIN 20 DAYS AFTER COMMETTION OF WELL DRILLING.  JELLY JEST THE FORECOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE FERMIT HOLDER WITHIN 20 DAYS AFTER COMMETTEN ON WELL DRILLING.  JELLY JEST THE FORECOING IS A TRUE AND CORRECT RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMMETTEN ON WELL DRILLING.  JELLY JEST THE FORECOIN OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THAT						OY ON	
19   19   19   19   19   19   19   19						□Y □N	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JULY JULY JULY JULY JULY JULY JULY JULY	٦,					N D Y	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START TIME FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRU	WEI	-				OY ON	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START TIME FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRU	OF					N D A	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START TIME FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRU	00′				·	□Y; □N	- 4 .
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START TIME FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRU	121					□Y □N	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START TIME FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRU	707					N D Y	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START TIME FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRU	SEO					N D A	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START TIME FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRU	ROC					N DY	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START TIME FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRUE AND MICHAEL ROUGHER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIAN JERONAL START THE FOREGOING IS A TRU	U.A.					N DY	
WELL TEST  TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WISCELLANEOUS INFORMATION:  PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIPS JELIP	4.					N D N	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  MISCELLANEOUS INFORMATION:  PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERRWIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Jelipi Jest Jest Jest Jest Jest Jest Jest Jest						DY DN	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: PUMP TOTAL ESTIMATED    AIR LIFT						N DY	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: PUMP    DATE   PUMP   TOTAL ESTIMATED   WELL YIELD (gpm): 175						N DY	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: PUMP    METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: PUMP   METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: PUMP   METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: PUMP   METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: PUMP   METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: PUMP   METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: PUMP   WELL YIELD (gpm): 175   WELL TEST   TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, STRATT TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.    MISCELLANEOUS INFORMATION:   MISCELLANEOUS INFORMAT				:		N DY	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:    PUMP						N D A	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  MISCELLANEOUS INFORMATION:  PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Jelipa Leou Telipa Leou Michael Rougier  SIGNATURE OF DRILLER / PRINT SIGNEE NAME  DATE						N D A	
WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  MISCELLANEOUS INFORMATION:  PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Felipe Leon  MICHAEL Rougen / TO Michael Rougier  SIGNATURE OF DRILLER / PRINT SIGNEE NAME  DATE		METHOD U	SED TO ES	TIMATE YIELD	OF WATER-BEARING STRATA:   PUMP	TOTAL ESTIMATED	
START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.  MISCELLANEOUS INFORMATION:  PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Jelipi Jew Jew Jew Jew Jew Jew Jew Jew Jew Jew		☐ AIR LIF	r 🗀 1	BAILER [	OTHER - SPECIFY:	WELL YIELD (gpm):	175
MISCELLANEOUS INFORMATION:  PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Jelipa Jesu Type Michael Rougier  THOUGH ROUGH TYPE MICHAEL PRINT SIGNEE NAME  DATE		WELL TES	TEST	RESULTS - ATT	ACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCL	UDING DISCHARGE	METHOD,
PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:  Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Jelipi Leon  Wichael Rougier  TIME UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Jelipi Leon  TOTAL HOLDERS OF DRILLER / PRINT SIGNEE NAME  DATE	SION		STAR	I TIME, END TI	WE, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER	THE TESTING FERIC	
Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Felipe Leon  Michael Rougier  T2/18/12  Michael Rougier  SIGNATURE OF DRILLER / PRINT SIGNEE NAME  DATE		MISCELLA	NEOUS INF	ORMATION:			
Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Felipe Leon  Michael Rougier  T2/18/12  Michael Rougier  SIGNATURE OF DRILLER / PRINT SIGNEE NAME  DATE	UPE						
Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Felipe Leon  Michael Rougier  T2/18/12  Michael Rougier  SIGNATURE OF DRILLER / PRINT SIGNEE NAME  DATE	S DI						
Michael Rougier and Felipe Leon  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:  Felipe Leon  Michael Rougier  T2/18/12  Michael Rougier  SIGNATURE OF DRILLER / PRINT SIGNEE NAME  DATE	T; R						
THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:    Jelips Levi 18		PRINT NAM	4E(S) OF D	RILL RIG SUPER	VISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONS	TRUCTION OTHER TI	IAN LICENSEE:
CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:    Jelipa Levi / B	5.	Michael I	Rougier	and Felipe l	Leon		
CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:    Jelipa Levi / B		THE UNDE	RSIGNED F	IEREBY CERTIE	IES THAT. TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIE	F. THE FOREGOING IS	S A TRUE AND
SIGNATURE OF DRILLER / PRINT SIGNEE NAME DATE	FURE	CORRECT I	RECORD O ERMIT HO	F THE ABOVE D LDER WITHIN 2	DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RE 0 DAYS AFTER COMPLETION OF WELL DRILLING:	CORD WITH THE STA	TE ENGINEER
SIGNATURE OF DRILLER / PRINT SIGNEE NAME DATE	NA.	) )	elipe a	Leon/10	Felipe Leon	40/40/40	
SIGNATURE OF DRILLER / PRINT SIGNEE NAME DATE		me	charl.	Roucies	Michael Rougier	12/18/12	
	9				R / PRINT SIGNEE NAME	DATE	
FOR OSE INTERNAL USE WR-20 WELL RECORD & LOG (Version 06/08/2012)	EOI	OSE INTER	NAL LISE		WP.20 WEI	L RECORD & LOG (Va	rsion 06/08/2012)

POD NUMBER

FILE NUMBER

LOCATION

TRN NUMBER

PAGE 2 OF 2



LOCATION

### WELL RECORD & LOG

### OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

### STATE ENGINEER OFFICE ALBUQUEROUE NEW MEXICO

2012 DEC 20 AM 11: 51

PAGE I OF 2

	1	JMBER (WEI	L NUMBER)			OSE FILE NU	MBER(S)		
GENERAL AND WELL LOCATION	9					B-87-B			
CAT	WELL OWN					PHONE (OPTIO	•		
Š				smission Association Inc		303-254 <b>-</b>	·3459 	<u> </u>	
ELL	PO Box		ADDRESS			спү Denver	CC	STATE	233
- ×	- 500	33033				Deliver			<u> </u>
N	WELL		DE 3	GREES MINUTES SECONDS		• ACCUBACY	' REOUIRED; ONE TENT	TH OF A SECOND	
% K	LOCATIO (FROM GF	1.27	TODE			]	QUIRED: WGS 84	IN OF A SECOND	
NE		LO	GITUDE 10			l			
35	ļ		G WELL LOCATION TO	STREET ADDRESS AND COMMON LANDM	IARKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WHI	ERE AVAILABLE	
	Well 5R								
	LICENSE NU	JMBER	NAME OF LICENSED	DRILLER			NAME OF WELL DRI	LLING COMPANY	
	WD	225	Felipe Leon a	nd Michael Rougier			Rodgers & Co	•	
	DRILLING S		DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	ı	LE DEPTH (FT)		T ENCOUNTERED (FT	)
	7/3/	12	10/3/12	1500	1	500	1	unknown	
	COMPLETEI	WELL IS:	<b>ARTESIAN</b>	DRY HOLE SHALLOW (UNCO	NFINED)		STATIC WATER LEV	EL IN COMPLETED WI	ELL (FT)
NO.	- COMI EDITE						l		
1AT	DRILLING F	LUID:	AIR	MUD ADDITIVES - SPEC	CIFY:				
ORN	DRILLING M	ETHOD:	ROTARY	HAMMER CABLE TOOL	OTHE	R - SPECIFY:			
CASING INFORMATION	DEPTH	(feet bgl)	BORE HOLE	CASING MATERIAL AND/OR GRADE	CA	ASING	CASING	CASING WALL	SLOT
NG	FROM	ТО	DIAM	(include each casing string, and		VECTION YPE	INSIDE DIAM.	THICKNESS	SIZE
SAS			(inches)	note sections of screen)		116	(inches)	(inches)	(inches)
~3	0	30	30	steel surface casing		ented in	place 15.25	3/8	
JNC.	0	1290	14-3/4	API GR X65 blank		eaded	8	.277	0.105
DRILLING	1265	1290	14-3/4	liner		elded	4	.247	0.125
2. DF	1290	1500	7-7/8	liner	WE	elded	4	.247	0.125
,,,			<del></del>					-	<del>                                     </del>
	_				-		,		
			-	-					
	DEPTH	(feet bgl)	BORE HOLE	LIST ANNULAR SEAL MA	TERIAL A	ND	AMOUNT	метно	DD OF
AL	FROM	то	DIAM. (inches)	GRAVEL PACK SIZE-RANGE	EBY INTE	RVAL	(cubic feet)	PLACEN	
ERI	0	30	30	cement/sand s	slurry		105.3	trem	nie
ИАТ	30	1290	14-3/4	cement by Halli			983.9	pressure	
ANNULÁR MATERIAL	1265	1290	14-3/4	gravel pac			27	tren	
'UL'	1290	1500	7-7/8	gravel pac	k		50	trem	nie
ANA									
3.			<del>_</del>			-			
							<u> </u>		
	OSE INTER		- N				WELL RECORD &		08/2012)
FILE	NUMBER	B-8	7-B	POD NUMBER	B-87P	009 TRN 1	NUMBER 47	2718	

						20001144 555
	DEPTH (	leet bgl)	TUICVNESS	COLOR AND TYPE OF MATERIAL ENCOUNTERED -	WATER	ESTIMATED YIELD FOR
	rnov.	700	THICKNESS (feet)	INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES		WATER-
	FROM	TO	. (/est/)	(attach supplemental sheets to fully describe all units)	(YES / NO)	BEARING ZONES (gpm)
	0	25	25	Blow sand	□Y ■N	
	25	1280	1255	Red bed shale and sandstone	N P	
	1280	1500	220	Sandstone, grey with red shale underbeds, Glorieta SS	■Y □N	
į					□Y □N	
					□Y □N	
ן נו					OY ON	
VEL					□Y □N	
OF \					□Y □N	
50				-	□Y □N	
ICL					□Y □N	
507					OY DN	
HYDROGEOLOGIC LOG OF WELL					□Y □N	
ROC			,		. П Y П N	
1VD			-		□Y □N	
4.					□Y □N	
					ОУ ОМ	
					OY ON	
	<u> </u>				OY DN	
	- <del></del>				□Y □N	
i					□Y □N	
					□Y □N	
	METHOD L	ISED TO ES	TIMATE YIELD	OF WATER-BEARING STRATA:	TOTAL ESTIMATED	·
	☐ AIR LIF	r 🗆	BAILER [	OTHER - SPECIFY:	WELL YIELD (gpm):	125
<u> </u>						
N.	WELL TES			ACH A COPY OF DATA COLLECTED DURING WELL TESTING, INC ME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVE		
VISION	MISCELLA	NEOUS INF	ORMATION:			
SUI						
RIG						
S. TEST; RIG SUPER	DD 1277 1141	(E/O) OF D	ou i pio ciper	AND DESCRIPTION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERT	TERLICEION OTHER T	1431110000
5. TI				VISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CON-	STRUCTION OTHER TI	HAN LICENSEE:
	Michael	Rougier	and Felipe I	Leon		
	THE UNDE	RSIGNED H	EREBY CERTIF	TIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIE	EF, THE FOREGOING IS	S A TRUE AND
JRE				DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RI TO DAYS AFTER COMPLETION OF WELL DRILLING:	ECORD WITH THE STA	TE ENGINEER
AT		=	Rousier,			
SIGNATURE	1.20	ipe Le	178)	Felipe Leon	12/18/12	
6.9	<del>- 32</del>		( ( ( )	R / PRINT SIGNEE NAME	DATE	
		JINAT	OKE OF DRILLE	A T TRINI SIGNAL NAME	DATE	
FOF	R OSE INTER	NAL USE		WR-20 WEI	LL RECORD & LOG (Ve	ersion 06/08/2012)

POD NUMBER

TRN NUMBER

PAGE 2 OF 2

FILE NUMBER

LOCATION

# STATE ENGINEER OFFICE WELL RECORD

125 AB9 8 5H 9 Section 1. GENERAL INFORMATION

C.	10	well Thore	drace P. O	ROX 0	96		Dist	rict	:	_	Owr	ner's	Well No. T	est	hole 1
		under Permit ?											2.58		•
a.	NE	14 <u>NE</u> 14	_NE_ ¼ _1	NE_ ¼	of Sec	tion3	0	_ Tow	nship_	1	4 N	ange	Z		_N.M.P.M.
b.	Tract N	lo	_ of Map No			0	f the.				- 0		24		<u></u>
c.	Lot No		of Block No.			0	f the_				죠.		A <b>9</b>		
	Subdiv	ision, recorded	in				Co	ounty.			ر. ح				
d.							2t, N.N	M. Coo	ordinate	Sys	stem	· · · ·			Zone in Grant.
(B) D	rilling C	ontractor Jo	oe I. Sal	azar							•	1.4			
A ddrosi	. P	.O. Box 9	l6 , Gran	ts , N	lew N	1exico	8702	20							
											air		700 fee		
Drilling	Began _	4/22/85	Com	pleted _	4/30	0/65		. Туре	tools _	101	ary ,mud		_ Size of h :st	ole	_6=5⅓_ in.
Elevatio	on of lan	d surface or _				a	t well	is_72	279		ft. Total dep	th of	well1	380	ft.
Comple	ted well		doned nallow 🔲	artesian.			1	Depth	to wate	er up	on completi	on of	well_plu	igged	1 ft.
			Se.	ction 2	PRIN	CIPAL W.	ATFR	-RFA	RING S	TR.	<b>ΔΤ</b> Δ				
Γ	Depth i	n Feet	Thicknes									Т	Estim	ated \	/ield
Fre	om	То	in Feet		1	Descriptio	n of W	vater-i	Bearing	l. or	mation	-	(gallons	per n	inute)
515		580	65		silt	stone	, sa	ndst	one, ĉ	lir	ty	s	ee rema	rks	
625		685	60		sand	Istone	(So	nsel	.a)			s	ee rema	rks	i
1127		1370	243		lima	stone	sand	lstor	A (SE	a - C	lorieta)	5	ee rema	rks	
1127			243	_	11116	.scone,	Julia		10 (50		<u> </u>	1	cc rema	110	
L			l <u></u>											<del>.</del>	
F 13.	· · · · · · · · · · · · · · · · · · ·					n 3. REC	ORD							D - 6 -	41
	neter :hes)	Pounds per foot	Threads per in.	Top		in Feet Botto	m		ength feet)		Type of S	hoe	Fre		ations To
6.5.	/O			0		100		100	`		surface r	nine			
6 5/	0					inch h	ole			_1_		TPE			
										+					
			Sec	tion 4. F	RECO	RD OF M	UDDI	NG A	ND CE	MEI	TING				
Fr	Depth om	in Feet To	Hole Diameter		Sacl of M			bic Fo			Me	thod	of Placem	ent	
	)	100	8 3/4				 1	L8		cem	ented in	sur	face pi	pe .	gravity
	ndonme		3 3,1					-							
900	)	_1380	6 <u>+</u>	-							lling mud				
840		900 840	<u> </u>								lling mud ent <u>, for</u> c				nt
(	)	690			Section	n 5. PLU	GGIN	GRE	CORD	dri	lling mud	d, c	onditio	ned	
Pluggin	g Contra	nctor <u>Joe</u>	Salazar-						OOND						
Addres	s	Grants No	ew_Mexico						No.	Ţ	Depth			_	bic Feet
	g Metho 'ell Plugg	d_drill_ ed_Apr	olpe - pu il 30 , l		115D.	Lacemer	<u>ال</u>		1	+	Тор 690		Bottom B40	of	Cement 40
Pluggin	g approv	ved by:							2						
			State Er	igineer R	Repres	entative			3 4	+		_			

Use explore Location No. 14N.13W.30.222

File No. B-386-Explor 258568

Section 6, LOG OF HOLE

			Section 6, LOG OF HOLE
Depth in		Thickness in Feet	Color and Type of Material Encountered
From	То	III rect	
0	65	65	Sd, fine to medium, brown and some loose gravel
65	100	35	Clay, red-brown Chinle(Upper member)
100	117	17	Clay ,brown-orange
117	122	5	Clay, brown and some gravel, angular
122	385	263	Clay, brown-orange
385	435	50	Shale, brown with green reduction spots
435	480	45	Shale,purplish,hard
480	51.5	35	Shale, brown with green reduction spots
515	580	65	Siltstone and sandstone, brn-grn Chinle(Middle member)
580	625	.45	Shale, brown
625	685	-60	Sandstone, med, gray-green with pebbles (Sonsela)
685	870	185	Shale, purplish Chinle (Lower member)
870	875	5	Limestone,gray
875	1042	. 167	Shale,purplish,some gray green
1042	1043	1	Limestone,gray
1043	1127	84	Shale,gray-green and some other colors
11.27	1141.	14	Limestone,white-gray,hard San Andres(top?)
1141	1182	41	Shale,gray-green,green,purple
1182	1252	70	Sandstone,pink-white,med,hard Glorieta (top)
1252	1253	1	Shale break
1253	1370	117	Sandstone, white, soft Yeso (top?)
1370	1380	10	Shale, brown
	1380		Total depth

#### Section 7. REMARKS AND ADDITIONAL INFORMATION

Geophysical log run (One copy attached)

Gamma spike- inshale above top of Glorieta at 1181 feet.

Sandstone interval 515-580 produced by airlift in open hole at 400 feet. Short term yield less than 4 gpm. Non-pumping water level near 238 feet below land surface.

Sandstone interval 515-580 and also 625-685 produced by airlift in open hole from a depth of 700 feet. Yield 20-35 gpm. Apparent conductivity 900 mMhos at 60 F. Water very dirty. Water sample collected.

Yield test attempted in open hole at total depth. Produced by airlift at setting of 600 feet. Yield 30 gpm. Conductivity 650 mMhos at 68 F. Very poor test of lower part of hole. Water very dirty. Water sample collected

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

\*\*William F. Hale. \*\*Hyplirlegue!\*\*

For Joe 1. Saleyan!\*\*

Driller\*\*

INSTRUCTIONS: This form should be parted in triplicate, preferably typewritten, an obmitted to the appropriate district office of the State Engineer. All sections, experience of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer. All sections of the State Engineer of the State Engineer of the State Engineer. All sections of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the Engineer of the State Engineer of the State Engineer of the State Engineer of the State Engineer of the Engineer of the State Engineer of the En

6.2, 1279

	HUNDERB		UD (	CO.			DEALL	ING	MUD I	REPOR	T REPO	RT	
P.(	O. BOX 1972 •						DATE 4/-	Per	19	85 m	EPTH 2 3		8
	FARMINGTO	N, NM 8	37499				API	STATI	and the second	1745	WELL		5/
				THE A			WELL NO.				HELL		1
OPERATOR	7 0 1	-	-	Ico	NTRACTOR				1	Inig	NO.		11
SA /42)	91 /1/2.	Co.								No	3		
ADDRESS			0.7%	ADI	DRESS	76	100		. 19	SPUC	DOATE		
REPORT FOR MR.										14	-32	- 8	-3
Set la	241			ne,	PORT FOR MR	1				SECT	TION, TOWN	SHIP	RANG
WELL NAME AND NO.	273	1	FIELD	OR BLOCK	( NO	Cou	NTY		. Is	TATE	-14	11-1	13
Thoreas h	U.W. Tes	1	2			ARE	1951	131		Non	17-	v	
OPERATION	CAS	ING	M	UD VOLL	ME (BBL)	T		c	IRCULAT	ION DAT	A		
PRESENT ACTIVITY	- sunr	ACE	HOLI	-	PITS	PU	MP SIZE	×	IN.	ANN	TULAR VEL	SFT.Zi	MIN
BIT SIZE IIN 1 NO	6 9 IN. AT		7.	7.17	7 3 3					OPPOS	ITE DP		
50 7	· · · · · · · · · · · · · · · · · · ·			L CIRCULA	TING YOLUME	PU	MP MAKE			OPPOS	ITE COLLAR		
DRILL PIPE SIZE TYPE	PRODUCTION		T IN S	TORAGE	WEIGHT		L./STROKE	57	TOKE/MIN				
2 20	IN AT			-						PRESSL	ATING		
DRILL COLLAN SIZE LENGT	н (2)	A.A.							-	вотто	MS UP (MIN		
5-84	TYPE /	000				001	L./MIN 2.	4		BYSTEN	(MIN )		
Sample from [] Flo		MUD	PROPERT	ries				EQUI	PMENT				
Flowline Temperature		-	-	1		size	HRS/TOU	OR .	11	SIZE	HRS	TOUR	
Time Sample Taken	130	I a see a			Centrifuge		1.		Desilter	J.			
Depth (ft )		13.80		-	Denasser				Shaker	1	1	- 1	
Weight ☐ (ppg) ☐ (lb /cu, l) Mud Gradient (psi/ft.)	(1.)	4,0			Desander	191			Other		1	-1	
Funnel Viscosity (sec./qt.) AP	r at	00		-	DAILY COST				CUMULAT	TIVE COST	1		
Plastic Viscosity cp at/	1 at*F	80											
Yield Point (lb./100 sq. ft.)		29					MUD PROP	ERTLES	SPECIFI	CATION	s		
Gel Strength (lb / 100 sq. ft.)	10 sec /10 min	0/19	1	1	WEIGHT		VISCOSI	TY	TES.	FILTRATE	1	8:	
pH Strip Meter	7 TO SEC. / TO HIM.	8113	-	-/-	BY AUTHORITY		OPERATOR	s wait	TEN	П	DRILLING C	ONTRA	ecto
Filtrate API (ml./30 min.)		FO					OPERATOR	S REPR	ESENTATIV		ОТНЕН		
API HP-HT Filtrate (ml/30 mir	n.)*F	210				ECC	MMEND	ED T	OUP T	DEAT	MENT	150	
Cake Thickness 32nd in. API		2					MMEIND		OUK I	KEATI	ALEIAI		
Alkalinity, Mud (Pm)	J. 10. C.	2			0	200							
Alkalinity, Filtrate (P <sub>1</sub> /M <sub>1</sub> )	1	1	7	/	0								-
a . I'l som	loride spm	02/12/	/	/									
Calcium □ ppm □ Gyp (p	11.464	10	-		0								
Sand Content (% by Vol.)		1		700						1			
Solids Content (% by Vol.)		49			0			100					
Oil Content (% by Vol.)		7.1	7	CONT	0								4
Water Content (% by Vol.)	L.C.	201	- /	16.0	0		1.5	_					
LCM, #/bbl		1211	1		- Lad	Į.		100				-	-
REMARKS:	1000	12	1	100		-	-	-					_
Glorie TA 1183	1 65	1010	·V	10	L	1	-	_				-	-
SAVADRES 1/27		100	ine	1 6	neke	1	10 91	80			112		1
CONSELS 1029				_						100			
Jane 180 520		151											- 6
Surface Blus	1 Carre	2			11/2	-				1,0			- 1
R1. 41.1	EN	2000 0	11	12/	1	10	-				-		1
ENGINEER	0 110013	200 B	ME AD	DDEEE	101					Iveres	WIONE.		100
Boh	Topotter	- 100	we no	DKE33	Z and		100	1		TELEP	7 - 7	54	18
	200	W	AREHOL	SE LOCA	ATION		T. 1	1		TELEP			1

- ....

#### STATE ENGINEER OFFICE

#### WELL RECORD

A) Owner of	C	eau Mutua umers and	Sewage	wark	s as	ORMATION <b>sociati</b>	on Owner	s Well No	2	
		dress Generous, New	TOTT DOT	J. V C I .7						
		NoB <b>-3</b> 86				nd is located	d in the:			
a. <u>SW</u>	½ <u>NE</u> ½	NW ¼ Ne	¼ of Sect	tion3	3	Township_	14 N Rang	ge <u>13 W</u>	1978	_N.M.P.M.
b. Tract h	No	of Map No			of the _				- J	
c. Lot No Subdiv	ision, recorded	of Block No			of the Cou	inty.			AN -3	
d. X=		_ feet, Y=		fe	et, N.M	. Coordinate	System		- P	_Zone in Grant.
							License NoW	731	:.: ::::::::::::::::::::::::::::::::::	
Address P.O	Box 96	9. Gallur	New M	exico	87	301				
Orilling Began	July 6.	1977 Compl	leted _Dec	. 9.	1977	type tools !	& Rotary	Size of	hole 6	in.
							5_ ft. Total depth			
Completed well	(	hallow 🗀 ar					er upon completion			
Ompreted wet			ion 2. PRINC	CIPAL W						
	in Feet	Thickness in Feet				ater-Bearing			nated Y s per m	
From 270	390	77	Sand	of C	ninle	e Forma	tion	12 GI	PM 🗷	+
920	1150	230	Glori	_eta ;	Sand	stone &	Yeso Forma	100	GPM	+
			Section	1 3. REC	ORD C	F CASING				
Diameter (inches)	Pounds per foot	Threads per in.	Depth Top	in Feet Botte	om	Length (feet)	Type of Sho	e F	Perfor rom	To
10 3/4	28.04	Welded	Ground	100		102	Regular P			-0-
6 5/8	18.97		Ground	674		674	Regular P	attern	270 <b>299</b>	390
5 9/16 3 1/2	14.62 7.58	Welded Welded	662.5	804 115	0	137.5 357	Regular F Coupling	attern 9	20	-0- 1150
			on 4. RECOI		7		MENTING			
Depth From	in Feet To	Hole Diameter	Sack of Mu		1	oic Feet Cement	Metho	od of Placer	nent	
0	1001	12"	Cabel		175		Drop Pipe			
100 441.8	441.8 674	10"	Cable Cable	Tool					<u>ק</u>	
834	1896	6! 4 7/8"	Cable Rotary		SKS.		087	, , , , , , , , , , , , , , , , , , ,	າ <b>&gt;&gt;</b>	
		, ,, -				G RECORD	i C P		<b>70</b>	
							Depth in	1 (1) F C > ] (	1 0	) · F · (
Plugging Meth	odb					No.	Top	Battom	of of	bic Feet Cement
Date Well Plug Plugging appro								MEX.		
- waging apply		State Eng	incer Repres	entative		$-\frac{3}{4}$				
			FOR USE	OF STA	TE EN	GINEER O	NLY			
Date Received	Decemb	er 28, 19		• •			FWL -		_ FSL	
File No	B-386-	S		Use _				14N.13V (Valence		

Section 6 LOG OF HOLE

Depth in	Feet	Thickness			OG OF HOLE						
From	То	in Feet			Color and Ty	pe of M	aterial 1	Encountered			
			1								
				4 mm 4 =====	DDT1	* ^ ~	NTO.	Taroman	DOOM	^x1 (1977 Tr ~	
		ļ	SEE	ATTACHED	DRILLERS	LOG,	NOT	ENOUGH	ROOM	ON THIS	ON
						-					
			-								
		]									_
		1									
											_
							****				
			Ì								
											_
	U		ļ								_
,	•		.								
			ļ								_
									•		
	<del> </del>		-								-
			<del>                                     </del>								_
									····		_
											_
1											
			ļ								
		ļ									
			<del>                                     </del>		*********	_					_
			<del>                                     </del>								_
	·		1								_
											_
<del></del>			-								_
			1						*		
			<del> </del>				(3)	on =	3		-
							V:44	<u></u>			
	-		<b>†</b>	. 5					3		-
							3	jaa t	- 3		
		Section	7 DE	MARKS AND A	DDITIONALD	JEODM 4	TION	THE PROPERTY OFFICE			-
		Section	7. KE	MARKS AND A	TIONAL II	TORMA	LION	MINI TE			
								1.5			
								72 73	<i>ω</i> :	1	
								ACTION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE			
								7	در نت		
								1.1	-		
										!	

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

Owner City of Thoreau

CUSTOMER PHONE

## PAUL HUBBELL GALLUP DRILLING CO.

### P. O. Box 969 Phone 863-3515

LOCATION Thoreau, New Mexico

Gallup, New Mexico 87301

DATE 8/15/77 --

DEPTH	FORMATION	<u> Дертн</u>	FORMATION
0-401	Topsoil	350-360	Gray Conglomerate Sandstone
40-50'	Casing Quicksand(Set 52! of 12 3/4 OD	360 <b>-</b> 365	Purple Shale
51 <b>-</b> 80'	Orange Shale w/Gravel	365 <b>-</b> 380'	Gray Shale
80-1021	Red Shale Set 102' of 10 3/4" Cemented top to botto	m380-390'	Tan Sandstone
102-128'	Red Sandy Shale	390-4201	
128-130'	Sandstone, multi-colored	420-4231	Gray Sandstone, Hard
130 <b>-</b> 170'	Orange Sandy Shale	423-4351	Blue Shale
170 <b>-</b> 180'	Blue Shale	435-4751	Set 441'8" of Purple Shale 8 5/8 OD Casing
180-210'	Lt. Pink Shale	475 <b>-</b> 495 <b>'</b>	Gray Sandy Shale
210-2201	Lt. Gray Shale	495-5351	Gray Shale
220-2221	Purple Shale	535-5701	Purple Shale
222-2451	Gray Sandstone 1GPM Water	570-5801	Red Shale
245-2651	Purple Sandy Shale	580-6231	Purple Shale
265 <b>-</b> 270'	Gray Sandy Shale	623-628	Gray Limestone, Hard
270-2851	Gray Sandstone 4GPM Water	628-6421	Red Shale
285-2901	Red Sandy Shale	642-6471	Gray Limestone, Hard
290-3371	White Sandstone	647-6701	Red Shale Set 674' of
<b>3</b> 37-3501	White Shale	670-674	Gray Limestone, Hard Casing OI
CASING	SIZE TYPE T.D. PU	MP SIZE	Make T.D.
	12 3/4 280 W 52!	vii GIZE	MARE 1.00
	10 3/4 307 W 102'		
	8 5/8 188 <b>a</b> 441! 8"		
	TONS FROM 270 TO 390"		
	то	GALLUP	DRILLING CO.
	TO 0-	( <i>L</i> )	1 1 Likell

Owner City of Thoreau

# PAUL HUBBELL GALLUP DRILLING CO.

P. O. Box 969

LOCATION Thoreau, New Mexico

Gallup, New Mexico 87301

Phone 863-3515

Customer		p, New Mexic	DATE 12/9/77	
<u> Dертн</u>	FORMATION	<u> Depth</u>	FORMATION	
674-744"	Gray Limestone, Hard			
744-7481	Gray Shale			
748-750!	Gray Limestone	-		
750-7671	Purple Shale			
767-7821	Gray Shale			
782-801'	Hard Gray Sandstone Set 5 9/16 Od Li			
801-8041	Water Sand, Caving Bad at 804	· uer.		
804-8621	Hard Gray Sandstone			
862-890'	Red Shale			
890-1010'	White sandstone with stretches			
	of red shale.			
1010-1150	Buff to tan color. Glorrieta Sandstone,			
	Size Type T.D. Pl 6 5/8 OD .280 W 674!	JMP SIZE	MAKE T.D.	
Ş	9/16 OD .188 W ##3x8 141.5			
PERFORATI	ONS FROM 920 TO 1150			
	то	GALLUI	P DRILLING CO.	
	то	ILLER !	+ Hubbell .	

#### STATE ENGINEER OFFICE

#### WELL RECORD

#### Section 1. GENERAL INFORMATION

Street or l	Post Office Ad	<u>horeau W</u> <sub>dress</sub> <u>P.</u> Thoreau,	O. Box	66			trict o				3	
									2	_		
		No. B-38						n.	J. P.			
a. <u>NE</u>	_ ¼ <u>NE</u> ¼	NE ¼ N	E ¼ of Sec	ction	30	Township _	14N	Range _	87 JANAS		N.N	A.P.M
b. Tract h	No	of Map No.			of the _			F-				
		of Block No						76.7				
		1 in						7		0		
		_ feet, Y=			et, N.M.	Coordinate	System	T.				one in Grant,
3) Drilling C	ontractor	Joe I	. Salaz	ar			License No	WI	975			
ddress	P.O. Box	916, Gr	ants, N	ew Me:	xico	87020						
		6 Comp							line of h	l 2	 	7/8.
levation of lan	id surface or _	-			it well is	1219	ft. Total do effec	pth of we tive -		134	5 <u>+</u>	ft.
ompleted well	is 🗆 st	nallow 🗓 a	rtesian.		De	pth to wate	r upon comple	tion of w			/86	
			tion 2. PRIN	CIPAL W	ATER-	BEARING S	TRATA				<u></u>	
From	in Feet · To	Thickness in Feet	1	Descriptio	n of Wa	ter-Bearing	Formation		Estima   gallons			:)
1133	1145	12	Li	mesto	ne				40 g	pm		
1190	1354±	164		ndsto					with		awd	lown
									of 6	0.5	fee	
									01 0	0.5		
<u>:                                      </u>			1		<del></del>				<u>-</u>			
Diameter	Pounds	Threads		n 3. REC in Feet	ORD O	F CASING	<u></u>		P	erfor	ation	
(inches)	per foot	per in.	Тор	Botto	m	Length (feet)	Type of		Froi	m		Го
8 <sup>5</sup> /8 6 <sup>5</sup> /8	nino	pipe	+1 1094	112 113		1122 44	cemente blank		12¼"	dri	11	hol
and scr		screen	1134	114		10	(.04 s				-	
		pipe	1144	114		1	blank					
		pipe screen	1145 	118		41 130	blank, (.04 s		DW CT	ose	α	
			1316 on 4. RECO									
Depth From	in Feet To	Hole Diameter	Sack of M	(S	Cub	c Feet ement		ethod of				
1 10111			<del> </del>					50 V.	- 87			
		see s	ection	/ for	pacı	cer int	ormation		<u>- Ş</u>			
-		<u> </u>	<del>-</del>					me	တ			
									A			
			Sectio	n 5 PI li	CCINC	RECORD		受別	•••			
lugging Contr	actor				20110			OFFICE MEXICO	프			
ddress						No.		ı in Feet			bic F	
				• •		_   _	Тор	Bot	lom	01	Cem	ent
lugging approv	ved by:					2						
		State Eng	incer Repres	entative		<u>3</u>						
	~		FOR USE	OF STA	TE ENG	INEER ON	LY					
ate Received	Jan 15.	1987	500				FW				-	
					Quad 🗀		1771					
	B. 386.5				•		Location No.					

Section 6. LOG OF HOLE Depth in Feet Thickness Color and Type of Material Encountered in Feet From To Major units inferred from gamma and point resistivity log and from samples distant) test hole of nearby (100' 525 clay, shale 0 525 525 592 67 siltstone and sandstone 592 630 38 shale 688 58 sandstone 630 688 876 188 shale 884 8 limestone 876 178 884 1062 shale 1062 1.068 limestone 6 1068 1133 65 shale 1145 12 1133 limestone 1145 1190 45 shale 1190 1255 65 sandstone 1255 1256 shale 1256 1350 94 sandstone 1350 1370 20 no geophysical log-prob. sandstone

#### Section 7. REMARKS AND ADDITIONAL INFORMATION

 $6^{5}/8$  inch pipe and screen liner has cup packers outside the blank pipe in the following intervals near the top and base of screen sections

- 3 cup packer at the top of the liner and up in the  $8^5/8$ -inch liner, 1094'1094.5' shale basket at 1133 feet
- 5 cup packer from 1133'-1134'
- 4 cup packer from 1144'-1145'
- 6 cup packer from 1185'-1186'

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

INSTRUCTIONS: This form should be expected in triplicate, preferably typewritten, and printted to the appropriate district office of the State Engineer. All sections, exceeds Section 5, shall be answered as completely a a faccurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

#### FIELD REPORT FOR CEMENTING OF WELLS

Name of Applicant Thoreau	•
Name of Well	
Driller's Name Joe SILIZAV	
Drilling Method Votavy	
CASING NATA: Surface NOTE feet of inch. Grado	
Inspected by on	
(Approved)(Rejected)	
Water string 1140 tent of 85/8 inch. Grade 0250 Wall	
Inspected by JP\$ RLC on W. 11 Sep86	
(Approved)(Rejected)	12
Oil string feet of inch. Grade	Contralizar
Inspected by on .	1-2
(Approved)(Rojected)	3-4"
Comented by BJ Titan supervised by Ralph Gruswoll	7-8-
Type of shoe used Float collar used K	9-10"
Hottom three joints welded Cement: around shoo sks. 4	11-12
around casing 'sks. Additives .	73-14
	. 15-14"
Size of holo Size of ensing sks. of cement required	• * *
Plug pumped down 10;45((a.m.)(p.m.) 12-50-86	19-20
	21-22-
Temp. survey ran (a.m.)(p.m.) Cement at feet	23-24
Temp, survey ran (a.m.)(p.m.) Cement at feet	100 to
Checked for shut off 10,45 (a.m.) (p.m.) 750 ps/ (200 ove	rdifferents)
Method used Supervised by	
Checked for shut off (a.m.) (p.m.)	
Method used Supervised by	
REMARKS: 24 Joints 89/8" 1220PS, PROTUMSA	
95/8 × 250 22.36 2 yellow bands	
Wolded by Ellis James	,
11 DM Danie Atatal	
III III Campa Drampa	
Must	
Job approved by USW  File No. 9-9-11-5-1 Location No. 14, 13, 30, 222 7	
rate so, 1) y V( T / C Location No. 17/17/17/17/	



### sullivan design group, incorporated

227 east palace avenue, p.o. box 283, santa fe, n.m. 87504-0283

engineering

planning

landscape architecture

June 16, 1986

Mr. Charles Wohlenberg State Engineer's Office 2340 Menaul, N.E. Albuquerque, New Mexico 87107 LBUQUEHQUE, real

Dear Mr. Wohlenberg:

Enclosed for your review and comment are the drawings and contract documents for the Thoreau Water & Sanitation District Water Well.

The new well will be the same location as the proposed well for Permit No. B-386-S-2 dated August 17, 1978. The Village has stopped using Well No. B-386 which was leased and has since been separated from the water system by the new overpass.

The Thoreau Water & Sanitation District requests a variance to use welded casing pipe in place of threaded casing pipe because of costs. The proposed pipe specifications are spelled out in Division 4 of the Contract Documents.

The District is presently operating on one well which does not have adequate capacity to supply the entire system. Your prompt consideration would be appreciated.

If you have additional questions, please call.

Sincerely yours,

SULLIVAN DESIGN GROUP, INCORPORATED

Walter L. Williams, P.E.

WLW/vw

Encl. Copy of Application for Permit No. B-386-S-2

cc: Thoreau Water & Sanitation District

110. 112000	INGINEER				CONTROL NO	JMBER	
	YA FE, NEW MEXICO	_		•	DATE		
OFFI	CIAL RECEIPT	Γ			Dec.	8, 198	3
FILE NO				AM'T REC'D	GW	5W	
				CASH			
B-386-S + -S-2				CHECK	X		\$]
First Interstate Bank ( FOR PAYMENT AS INDICATED BELOW Application for Extens:		Dollars	Only			-	
First Interstate Bank of FOR PAYMENT AS INDICATED BELOW  Application for Extens:  NAME AND ADDRESS  Thoreau Water & Sanitat	ion of Time	Dollars	FOR USE E	WATER RIG	E OFFICE O	NLY	
First Interstate Bank of FOR PAYMENT AS INDICATED BELOW  Application for Extens:  NAME AND ADDRESS  Thoreau Water & Sanitat Box 66	ion of Time	Dollars	FOR USE E			TRANSCRIPT	
First Interstate Bank of FOR PAYMENT AS INDICATED BELOW  Application for Extens:  NAME AND ADDRESS  Thoreau Water & Sanitat	ion of Time		FOR USE E	WATER RIG	нтѕ	·-·	
First Interstate Bank of FOR PAYMENT AS INDICATED BELOW  Application for Extens:  NAME AND ADDRESS  Thoreau Water & Sanitat Box 66	ion of Time		FOR USE E	WATER RIG	нтѕ	TRANSCRIPT	
First Interstate Bank of FOR PAYMENT AS INDICATED BELOW  Application for Extens:  NAME AND ADDRESS  Thoreau Water & Sanitat Box 66	ion of Time		FOR USE E	WATER RIG	нтѕ	TRANSCRIPT	
First Interstate Bank of FOR PAYMENT AS INDICATED BELOW Application for Extens:  NAME AND ADDRESS Thoreau Water & Sanitation Box 66 Thoreau, NM 87323	ion of Time		FOR USE E	WATER RIG	нтѕ	TRANSCRIPT	



FILE NUMBER

### WELL RECORD & LOG

#### OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

### STATE ENGINEER CHICE ALBUQUEROLE, NEW MEDICA

2013 APR 30 PM 1: 59

B-386		OCE BOD NI	MDED (V	VELL	NI IMPERI					OCE EU E NUI	ADED(C)			
WELL OWNER MAILING ADDRESS PO Box 66  WELL LOCATION (FROM GPS) LOCATION (FROM GPS)  DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIJP, RANGE) WHERE AVAILABLE  LICENSE NUMBER WD225 Pelipe Leon and Michael Rougier  DRILLING STARTED Plant of Completed Well (FT) Plant of Completed Well (FT) Plant of Completed Well is:  ARTESIAN PHONE (OPTIONAL)  PHONE (OPTIONAL)  CITY STATE ZIP Thoreau NM 87323  *ACCURACY REQUIRED: ONE TENTH OF A SECOND *DATUM REQUIRED: WGS 84  *ACCURACY REQUIRED: ONE TENTH OF A SECOND *DATUM REQUIRED: WGS 84  *ACCURACY REQUIRED: ONE TENTH OF A SECOND *DATUM REQUIRED: WGS 84  **DATUM REQUIRED: WGS	z	OSE POD NUMBER (WELL NUMBER)							OSE FILE NUMBER(S)  R-386					
LICENSE NUMBER  WD225  Felipe Leon and Michael Rougier  DRILLING STARTED  9/24/12  11/8/12  DRY HOLE  SHALLOW (UNCONFINED)  NAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DEPTH WATER FIRST ENCOUNTERED (FT) UNKNOWN  STATIC WATER LEVEL IN COMPLETED WELL (FT)  150.5	5 F		CD NIAME	2(5)		<u> </u>					ONAL			
LICENSE NUMBER  WD225  Felipe Leon and Michael Rougier  DRILLING STARTED  9/24/12  11/8/12  DRY HOLE  SHALLOW (UNCONFINED)  NAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DEPTH WATER FIRST ENCOUNTERED (FT) UNKNOWN STATIC WATER LEVEL IN COMPLETED WELL (FT)  150 5	CA				Sanitation I	District				1110142 (01111	ONAL)			
LICENSE NUMBER  WD225  Felipe Leon and Michael Rougier  DRILLING STARTED  9/24/12  11/8/12  DRY HOLE  SHALLOW (UNCONFINED)  NAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DEPTH WATER FIRST ENCOUNTERED (FT) UNKNOWN  STATIC WATER LEVEL IN COMPLETED WELL (FT)  150.5	3,								<del> </del>	CITY	<del></del>	STATE		ZIP
LICENSE NUMBER  WD225  Felipe Leon and Michael Rougier  DRILLING STARTED  9/24/12  11/8/12  DRY HOLE  SHALLOW (UNCONFINED)  NAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DEPTH WATER FIRST ENCOUNTERED (FT) UNKNOWN  STATIC WATER LEVEL IN COMPLETED WELL (FT)  150.5	ELL										NI			
LICENSE NUMBER  WD225  Felipe Leon and Michael Rougier  DRILLING STARTED  9/24/12  11/8/12  DRY HOLE  SHALLOW (UNCONFINED)  NAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DEPTH WATER FIRST ENCOUNTERED (FT) UNKNOWN  STATIC WATER LEVEL IN COMPLETED WELL (FT)  150.5	<b>M</b> 0							2700				-	=	
LICENSE NUMBER  WD225  Felipe Leon and Michael Rougier  DRILLING STARTED  9/24/12  11/8/12  DRY HOLE  SHALLOW (UNCONFINED)  NAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DEPTH WATER FIRST ENCOUNTERED (FT) UNKNOWN  STATIC WATER LEVEL IN COMPLETED WELL (FT)  150.5	AN									* * * CCLID * CV	DECLUDED: ONE TENT	TUOEA	SECOND	
LICENSE NUMBER  WD225  Felipe Leon and Michael Rougier  DRILLING STARTED  9/24/12  11/8/12  DRY HOLE  SHALLOW (UNCONFINED)  NAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DEPTH WATER FIRST ENCOUNTERED (FT) UNKNOWN STATIC WATER LEVEL IN COMPLETED WELL (FT)  150 5	Y L		ļ. <u></u> .	LATIT	ODE						-	IHOFA	SECOND	
LICENSE NUMBER  WD225  Felipe Leon and Michael Rougier  DRILLING STARTED  9/24/12  11/8/12  DRY HOLE  SHALLOW (UNCONFINED)  NAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DAME OF WELL DRILLING COMPANY Rodgers & Co., Inc.  DEPTH WATER FIRST ENCOUNTERED (FT) UNKNOWN  STATIC WATER LEVEL IN COMPLETED WELL (FT)  150.5	ER	(FROM GP	(S) 1	LONGI	TUDE 1	08	14	51	.27 <sup>w</sup>	* DATOM KE	QUIRED: WG3 84			
LICENSE NUMBER  WD225  Felipe Leon and Michael Rougier  DRILLING STARTED  9/24/12  11/8/12  DRY HOLE  SHALLOW (UNCONFINED)  NAME OF WELL DRILLING COMPANY  ROdgers & Co., Inc.  DEPTH WATER FIRST ENCOUNTERED (FT)  UNKNOWN  STATIC WATER LEVEL IN COMPLETED WELL (FT)  150.5	GE	DESCRIPTION	ON RELA	TING	WELL LOCATION T	O STREET ADDE	RESS AND COMM	ON LANDA	IARKS – PLS	S (SECTION, TO	WNSHJIP, RANGE) WH	ERE AV	AILABLE	
WD225 Felipe Leon and Michael Rougier Rodgers & Co., Inc.  DRILLING STARTED DRILLING ENDED DEPTH OF COMPLETED WELL (FT) BORE HOLE DEPTH (FT) DEPTH WATER FIRST ENCOUNTERED (FT)  9/24/12 11/8/12 1120 1210 unknown  STATIC WATER LEVEL IN COMPLETED WELL (FT)  COMPLETED WELL IS: ARTESIAN DRY HOLE SHALLOW (UNCONFINED)  150.5								-	•		•			1
WD225 Felipe Leon and Michael Rougier Rodgers & Co., Inc.  DRILLING STARTED DRILLING ENDED DEPTH OF COMPLETED WELL (FT) BORE HOLE DEPTH (FT) DEPTH WATER FIRST ENCOUNTERED (FT)  9/24/12 11/8/12 1120 1210 unknown  STATIC WATER LEVEL IN COMPLETED WELL (FT)  COMPLETED WELL IS: ARTESIAN DRY HOLE SHALLOW (UNCONFINED)  150.5	=	LICENSE MI	MDED	<u> </u>	NAME OF LICENSEI	DDII I EB			-	<del></del>	NAME OF WELL DR	II I ING (	COMPANY	
DRILLING STARTED DRILLING ENDED DEPTH OF COMPLETED WELL (FT)  9/24/12  11/8/12  1120  BORE HOLE DEPTH (FT)  Unknown  STATIC WATER FIRST ENCOUNTERED (FT)  Unknown  STATIC WATER LEVEL IN COMPLETED WELL (FT)  150.5				- 1			el Rougier							
9/24/12 11/8/12 1120 1210 unknown  STATIC WATER LEVEL IN COMPLETED WELL (FT)  COMPLETED WELL IS: ARTESIAN DRY HOLE SHALLOW (UNCONFINED) 150.5	-				•				BORE HOL	F DEPTH (FT)	_			
STATIC WATER LEVEL IN COMPLETED WELL (FT)  COMPLETED WELL IS: ARTESIAN DRY HOLE SHALLOW (UNCONFINED)  150 5								( ,					• •	
COMPLETED WELL IS: ■ ARTESIAN □ DRY HOLE □ SHALLOW (UNCONFINED) 150.5	-					L								LL (FT)
DRILLING FLUID:  DRILLING METHOD:  DRILLING METHOD:  DEPTH (feet bgl)  DEPTH (feet bgl)  BORE HOLE  GRADE  GRADE  GRADE  CONNECTION  INSIDE DIAM.  THICKNESS  SIZ	·~	COMPLETE	WELL I	s: [	ARTESIAN	DRY HOL	LE SHALI	.OW (UNC	NFINED)					` '
DRILLING METHOD:  DRILLING METHOD:  DRILLING METHOD:  DRIPTH (feet bgl)  DEPTH (feet bgl)  BORE HOLE  GRADE  GRADE  CONNECTION  INSIDE DIAM.  THICKNESS  SIZ	Į Į	DRILL DIG C	LUID		- AUR	- Aug		TIVES SDE	CIEV.		L			
DEPTH (feet bgl)  DEPTH (feet bgl)  BORE HOLE  GRADE  CASING MATERIAL AND/OR  GRADE  CONNECTION  INSIDE DIAM.  THICKNESS  SIZ	MA								Ċ					
DEPTH (feet bgl)  BORE HOLE  GRADE  CASING CASING  CASING CASING WALL  SLC  CONNECTION  INSIDE DIAM.  THICKNESS  SIZ	OR				ROTARY				OTHE	R - SPECIFY:				
FROM TO DIAM (include each casing string and CONNECTION INSIDE DIAM.) IHICKNESS SIZ	Z				1	CASING		ND/OR						SLOT
(inches) (inches) (inches) (inches) (inches) (inches)	NG.	FROM	ТО	)			each casing strir				' -	1	(inches)	SIZE (inches)
(inches) note sections of screen)	CAS					<del></del>						ļ`		
								g					<del></del>	
880 890 7-7/8 steel casing welded 4	ING.													4/4
890 1120 7-7/8 steel slotted welded 4 1/	11.	890_	112	20	7-7/8	st	eel slotted		W6	elded	4			1/4
880 890 7-7/8 steel casing welded 4 890 1120 7-7/8 steel slotted welded 4 1/	NG.		-		47.5	4.49						ļ		
o 60 17.5 14" conductor casing welded	. 2	0	60		17.5	14" CO	nductor ca	ising	WE	elaea		-		
	-					<u> </u>						1		
	-					-						<del> </del>		
	ŀ							`				-		
	-													
	=					<del></del>						1		
DEPTH (feet bgl) BORE HOLE LIST ANNULAR SEAL MATERIAL AND AMOUNT METHOD OF PLACEMENT  FROM Coubic feet)  DIAM. (inches)  GRAVEL PACK SIZE-RANGE BY INTERVAL  Coubic feet)	اد	DEPTH				1					ł			
FROM TO DIAM (IIICIES) GRAVEL FACK SIZE-KANGE BY INTERVAL (CUBIC IEE)	IAI	FROM				GRA			E DI INIE		`			
0 60 17.5 Cement 50.5 tremie	TE					ļ								
© 907 12.5 Cement 425 Halliburton	MA													
FROM   TO   DIAM. (inches)   GRAVEL PACK SIZE-RANGE BY INTERVAL   (cubic feet)   PLACEMENT	AR									1				
1120 1145 7-7/8 3/8" hole plug and gravel seal 7.67 tremie	5					3/				eal				
		1145	121	0	7-7/8	-	3/8	grave	<u> </u>		19.94		trem	ie
													<del></del>	
WP 20 WELL RECORD & LOG (Version 06/08/2012						<u> </u>					L			

POD NUMBER

TRN NUMBER

PAGE 1 OF 2

-			•						
	DEPTH (	feet bgl) TO	THICKNESS (feet)	INCLUDE WATER-BE	PE OF MATERIAL ENCOU ARING CAVITIES OR FRA ental sheets to fully describe	CTURE ZONES	BEAF	TER LING? / NO)	ESTIMATED YIELD FOR WATER- BEARING
					See attached	·	Y	□N	ZONES (gpm)
							□Y	□N	
							□Y	□N	
							□Y	□N	
Ì							ΠY	□N	
Ţ							□Y	□N	
4. HYDROGEOLOGIC LOG OF WELL							ΠY	□N	
OF							□Y	□ и.	
507							□Y	□и	
3IC							ΠY	□ и	
000							□Y	□N	
GEC							□ Y	□N	
DRO							□Y	□N	
HXI							□ Y	□N	
4							□ Y	Πи	
							□Y	□N	
							□ Y	□N	
							□ Y	□N	
							□ Y	□N	
							ПΥ	Пи	
		<u> </u>	<u>                                     </u>				□ Y	□N	
	METHOD U			OF WATER-BEARING STF OTHER – SPECIFY:	RATA: 🔳 PUMP		TOTAL ESTII WELL YIELI		85
z	WELL TES				DLLECTED DURING WELL NG DISCHARGE AND DRA				
VISION	MISCELLA	NEOUS IN	FORMATION:						
5. TEST; RIG SUPER							•		
ST; I									
. TE	PRINT NAM	ME(S) OF D	RILL RIG SUPER	VISOR(S) THAT PROVIDE	D ONSITE SUPERVISION (	OF WELL CONS	TRUCTION C	THER TH	IAN LICENSEE:
٠,	Michael	Rougier	, Felipe Leor	1					
6. SIGNATURE	CORRECT AND THE F	RECORD ( ERMIT HO	OF THE ABOVE D OLDER WITHIN 2		OF HIS OR HER KNOWLED AT HE OR SHE WILL FILE ION OF WELL DRILLING:				
6. SIGN	- Telyp	il Lev	Vusies 170	Michael Rougie	er, Felipe Leon		4/2	:6/13	
		SIGNAT	TURE OEDRILLE	R / PRINT SIGNEE NAM	E		· · · · · · · · · · · · · · · · · · ·	DATE	
FOI	R OSE INTER	NAL USE				WR-20 WEL	L RECORD &	LOG (Ve	rsion 06/08/2012)
	E NUMBER			POI	O NUMBER	TRN NUMBE			
LO	CATION								PAGE 2 OF 2

# JOHN SHOMAKER & ASSOCIATES, INC. 2611 Broadbent Parkway NE Albuq. NM 87107

### **Borehole Logging Form**

Client: Sullivan Des	ign Group		• • • • • • • • • • • • • • • • • • • •		Но	ole: Well 4	l of
Site: Thoreau Wa	ter and Sanitation Distri	ict Well 4 (B-386	6-POD5),	Thoreau, NM	Da	te: 9-24-12	to 10-13-12
Geologist: AMM, E	AM	Contractor:	Rodge	rs & Company	Map:		
Drill Method:	Direct Rotary	Rig:	Challen	ger No. 280			
Notes: drilled with mudrilled with air to 1,210		Bit size: 17 1/2 7 7/8" to 1,210		12 1/2" to 907 ft,			
Elevation, ft	Land Surface:	1 7 778 10 1,210		OC:			
Sample Depth, ft	Descrip	tion	ł.				
0-50		nd; sand, fine; silt estone pebbles	t, red-brov	vn; minor angular to r	ounded san	dstone	
50-60	silty mu	dstone, pink-red			-		
60-80	clay; pir	nk-red and mediu	ım-brown,	high plasticity			
80-110	clay; pir	nk-red, medium-b	brown, and	l light-gray, high plass	ticity		
110-120	sandy c	lay; clay, pink-rec	d, high pla	sticity; sand, fine, me	dium-brow	a	
120-140	clay; sar	me as 80-110 ft					
140-160	silty cla	y; clay, pink-red	and purple	e-brown, high plastici	ty		
160-170	clayey s	silty sand; sand, fi	fine, medi	ım-gray and purple-br	rown		
170-180		ay and sandstone; emented, 50%	; clay, pinl	t-red, high plasticity, 5	50%; sandst	one, fine, med	lium-gray,
180-190	1 1 7 1	ink-red and light-s mented	-gray, high	plasticity; minor sand	lstone, fine,	medium-gray	,
190-210		d sandstone; pink n-gray, moderatel		ourple-brown, high pla mented, 50%	asticity, 50%	6; sandstone, f	îne,
210-220				y, pink-red, purple-br mented; mudstone, gr		ght-gray; sand	stone, fine,
220-230	clay; pi	nk-red and light-g	gray, bigh	plasticity			
230-240	sandy o	clay; clay, red, hig	gh plastici	ty, 70%; sand, fine, m	edium-brov		<u> </u>
240-250	clay; sa	ame as 220-230 ft	t				2013 MOR 3
250-260	silty cla	ay; clay, modium-	a-gray and	purple-brown, high pl	asticity		No.
260-280	clay; c	olay, medium-gray	y and purp	le-brown, high plastic	city	P	76 20

280-290	silty clay; same as 250-260 ft
290-300	sandstone; sandstone, fine, light-gray, moderately well-cemented; minor clay, purple-brown, high plasticity
300-310	sandstone; sandstone, fine, light-gray, moderately- to well-cemented; minor clay, purple-brown and light-gray, high plasticity
310-320	sandstone; sandstone, fine, light-gray and white, moderately- to well-cemented; minor clay, red, high plasticity; minor mudstone, red
320-330	sandstone; sandstone, fine, light-gray, moderately well-cemented, 25%; minor mudstone, red, 25%; calcareous shale, medium-gray, 25%; minor shale, dark-red, 25%
330-340	sand; sand, fine to very coarse, light-gray, angular to sub-angular, variety of lithologies
340-370	sand; sand, medium to very coarse, light-gray, angular to sub-angular, variety of lithologies
370-380	sand; sand, fine to very coarse, light-gray, angular to sub-angular, variety of lithologies; minor clay
380-400	clayey sand; sand, fine, light-gray, 80%; clay, light-gray, high plasticity, 20%
400-410	clayey sand; sand, fine, light-gray, 80%; clay, light-gray and pink-red, high plasticity, 20%
410-430	clayey sand; sand, fine, light-gray; clay, light-gray and light-purple, high plasticity
430-440	silty clay; clay, light-gray and light-purple, high plasticity; silt, light-gray and light-purple
440-450	clay; light-purple-brown and light-gray, high plasticity
450-460	silty sandy clay; clay, light-purple-brown and light-gray, high plasticity; sand, fine
460-470	sandy clay; light-purple-brown, moderate plasticity; sand, coarse, angular to sub-angular, variety of lithologies
470-480	sandy clay; light-purple-brown, moderate plasticity; sand, coarse, angular to sub-angular, variety of lithologies; minor mudstone, red
480-490	silty clay; clay, light-purple-brown and light-gray, moderate plasticity
490-500	silty sandy clay; same as 450-460 ft
500-510	sandy clay; clay, purple-red-brown, moderate plasticity; sand, coarse to very coarse, angular to sub-angular, variety of lithologies
510-530	silty sandy clay; clay, medium-red-brown, moderate plasticity; sand, fine to very coarse, angular to sub-angular, variety of lithologies
530-540	clayey sand; sand, medium-red-brown, fine to very coarse, angular to sub-angular, variety of lithologies
540-550	silty sandy clay; same as 510-530 ft
550-560	silty sandy clay; clay, pink-red, moderate plasticity; sand, fine to very coarse, angular to sub-angular, variety of lithologies
560-570	silty clay; clay, medium-red-brown, high plasticity

570-590	silty sandy clay; same as 510-530 ft
590-600	sandy clay; clay, medium-red-brown, high plasticity; sand, coarse to very coarse, angular to sub-angular, shale and mudstone lithologies
600-620	silty sandy clay; same as 510-530 ft
620-630	shale; shale, light-gray, dark-gray, and dark-red-brown; minor clay, pink-red-brown
630-640	shale, mudstone, and siltstone; light-gray, dark-gray, and dark-purple-brown, angular to sub-angular, to 5 mm
640-660	shale, mudstone, and siltstone; light-gray, dark-gray, and dark-purple-brown, angular to sub-angular, to 5 mm; minor clay, medium-red-brown, high plasticity
660-670	shale, mudstone; light-gray, dark-gray, and dark-purple-brown, angular, to 5 mm
670-700	mudstone; light-gray, dark-gray, purple-brown, angular to sub-rounded, to 5 mm, trace fossils (burrows) observed
700-710	clayey sand; sand, fine to very coarse, pink-red-brown
710-720	sandy clay; clay, medium-red-brown, high plasticity; sand, very coarse, light-gray, dark-gray and dark-red-brown, angular to sub-angular, mudstone lithology
720-730	clayey sand; sand, medium-red-brown, very coarse, angular to sub-angular, mudstone lithology
730-740	sandy clay; clay, medium-red-brown, high plasticity; sand, very coarse, light-gray, dark-gray dark-red-brown and pink-red, angular to sub-angular, mudstone lithology
740-770	clayey sand; sand, medium-red-brown, very coarse, angular to sub-angular, mudstone lithology
770-780	clayey sand; sand, light-gray, dark-gray, and medium-red-brown, coarse to very coarse, angular, mudstone lithology; clay, medium-red-brown
780-800	gravely sand; sand, light-gray, dark-gray, medium-red-brown, purple-brown, coarse to very coarse, angular to rounded; mudstone lithology
800-810	clayey gravel; gravel, light-gray, dark-gray, red-brown, purple-brown, angular to rounded, mudstone lithology
810-820	clayey, gravely sand; sand, light-gray, dark-gray, red-brown, purple-brown, very coarse, angular to rounded, variety of lithologies
820-830	clayey gravel; gravel, light-gray-brown, angular to sub-angular, variety of lithologies
830-840	clayey sandy gravel; gravel, light-gray-brown, angular to sub-angular, mudstone lithology with minor chert
840-850	mudstone and limestone; mudstone, red-brown, 70%; limestone, gray, 30%
850-870	mudstone; red-brown
870-890	mudstone; mudstone, red-brown and gray-white; minor gravel, variety of lithologies
890-910	mudstone and sandstone; mudstone, red-brown and dark-gray, 80%; sandstone, white, 20%
910-920	silty mudstone and sandstone; mudstone, red-brown, dark-purple-brown, and dark gray, 60° sandstone, light-gray, fine, 35%; minor quartz and gypsum

920-930	silty mudstone and limestone; mudstone, red-brown, dark-purple-brown, and dark-gray, sub-angular to rounded, to 40 mm, 70%; limestone, light-gray, subangular, to 40 mm, 30%
930-950	silty mudstone, limestone, and sandstone; mudstone, red-brown, dark-purple-brown, and dark-gray, sub-angular to rounded, to 20 mm, 70%; limestone, light-gray, subangular, to 40 mm, 15%; sandstone, light-gray, fine, friable, 15%
950-960	limestone, sandstone, and shale; limestone, light-gray, sub-angular to rounded, to 20 mm, 70%; sandstone, light-gray, fine, friable, 15%; shale, pink-brown and light-gray, sub-angular to rounded, to 10 mm, 15%
960-970	sand and limestone; sand, buff-tan, fine to medium, 70%; limestone, light-gray to medium-gray, sub-angular to rounded, to 20 mm, 30%
970-990	clayey sandstone and limestone; sandstone, red-brown, dark-purple-brown, and medium-gray, sub-angular to rounded, to 20 mm, 60%; limestone, light-gray, sub-rounded, to 20 mm, 40%
990-1,000	sand, limestone, and silty shale; sand, buff-tan, fine to medium, 70%; limestone, light-gray, angular to sub-rounded, to 30 mm, 15%; shale, dark-gray, angular to sub-rounded, 15%
1,000-1,010	sand and silty shale; sand, buff-tan, fine to medium, 90%; shale, dark-gray, angular to sub-rounded, 10%
1,010-1,020	sand and limestone; sand, buff-tan, fine to medium, 70%; limestone, light-gray, angular to sub-angular, to 15 mm, 30%
1,020-1,030	sand, sandstone, and limestone; sand, buff-tan, fine to very coarse, variety of lithologies, 50%; sandstone, buff-tan, fine, to 10 mm, 25%; limestone, light-gray, angular to sub-rounded, to 10 mm, 25%
1,030-1,040	sand and limestone; sand, light-buff, fine to medium, 90%; limestone, medium-gray, angular to sub-angular, to 5 mm, 10%
1,040-1,050	sandstone and limestone; sandstone, light-buff, fine, friable, to 5 mm, 80%; limestone, medium-gray, angular to sub-angular, to 5 mm, 20%
1,050-1,060	sandstone and limestone; sandstone, light-buff, fine, friable, to 5 mm, 70%; limestone, medium-gray, angular to sub-rounded, to 15 mm, 30%
1,060-1,070	silty limestone; limestone, medium-gray, angular, to 30 mm; minor silty clay, pink; minor sandstone, light-buff, to 3 mm
1,070-1,080	calcareous shale; medium-gray, angular to sub-angular, to 5 mm
1,080-1,100	sand; sand, medium to coarse, predominantly quartz; minor limestone, medium-gray, angular, to 10 mm; minor calcareous shale, medium-gray, angular, to 10 mm
1,100-1,110	clayey sand; sand, medium-brown, fine to coarse, 70%; clay, medium-brown, high plasticity, 30%
1,110-1,120	sand, sandstone, shale, and limestone; sand, light-brown, medium to very coarse, 60%; sandstone, light-buff, fine, friable, to 5 mm, 20%; shale, dark-brown, angular, to 5 mm, 10%; limestone, medium-gray, angular, to 5 mm, 10%
1,120-1,130	silty shale, limestone, and sandstone; shale, dark-brown, angular, to 10 mm, 60%; limestone, medium-gray, to 5mm, 30%; sandstone, light-buff, fine, friable, 10%
1,130-1,140	sandstone, shale, and limestone; sandstone, light-buff and salmon-pink, fine, friable, to 5mm, 50%; shale, dark-brown, angular, to 5 mm, 25%; limestone, medium-gray, to 10 mm, 25%
1,140-1,170	silty sand; sand, dark-red-brown, very fine to coarse, 25%; minor clay, dark-red-brown; minor shale, dark-brown, angular, to 5 mm
1,170-1,180	shale and sandstone; shale, dark-brown, to 5 mm, 90%; sandstone, light-buff, fine, friable, to 5 mm, 10%
1,180-1,200	sand and sandstone; sand, dark-brown, medium, shale lithology, 90%; sandstone, light-buff, 10%
1,200-1,210	shale and sandstone; same as 1,170-1,180 ft

# STATE ENGINEER OFFICE WELL RECORD



#### Section 1. GENERAL INFORMATION

(A) Owner of Street of City and	of well r Post Office Ad l StateThore	Western  Idress P.O. eau N.M.	Box 899				Owne	r's Well	l No2	5-1
Well was drille	d under Permit	NoB-	417			and is located	l in the:			
a. SW	¼ <u>NE</u> ¼	SE 1/4	NW ¼ of Sec	ction	25	_ Township _	15 Rai	nge	13	N.M.P.M.
b. Tract	No	of Map No.		(	of the .					
Subd	ivision, recorded	d in			Co	ounty.				
		_ feet, Y=		fe	et, N.M	1. Coordinate	System			Zone in Grant.
(B) Drilling	Contractor	Salazar	Brothers	Dri	llin	g	License No		WD-748	
Address 20	5 Airport	Road, Mila	ın, N.M.	870	21					
Drilling Began	9/17/79	Com	pleted 9	/29/79		Type tools	Rotary	Si	7-7/8''-0 ze of hole_	-2800 '
							ft. Total depth			
							r upon completion			
Completed we	ellis ∟ s	hallow X a						i oi we		
Depth	in Feet	Thickness				-BEARING S		Ţ	Estimated	Yield
From	То	in Feet	1	Descriptio	on of W	ater-Bearing l	Formation	(g	gallons per i	ninute)
2783	2900	117	San	Andres	Lin	nes tone		Coml	bined yi	eld of
2900	3102	202	G1o	rieta S	Sandstone				least 23	gpm
			Sectio	n 3. REC	ORD (	OF CASING				
Diameter	Pounds	Threads		in Feet		Length (feet)	Type of She	ое		rations
(inches)	per foot X-Line	per in. Welded	Тор	Botto			h-11 mode		From	То
6"	Grade 42	w/ collar		1240		1240'	Lea Equipme	nt C		
5''	"	11	1240'	2800	)'	1560 '	5.5"Type600 Guide Shoe		none	
Denth	ı in Feet	Secti	ion 4. RECO			NG AND CEN			Placement	
From	То	Diameter	of M			Cement	<u>&gt;</u>		Placement	
2532'	2800'	7-7/8			50	sacks	<del></del>	lug	-	
,	<b>*</b> =						SE X		, co ;	
	- 11	-					ลับ <sub>ะ</sub>		0	
	=	ا الله الله الله الله الله الله الله ال					2		··	
lugging Cont			Section	n 5. PLU	GGIN	G RECORD	ME X		6	
Address	= 1	500				No.	Depth in			bic Feet
lugging Meth Date Well Plu						1	Top	Botto	om o	Cement
lugging appr						2				
		State Eng	gineer Repres	entative		4				
			FOR USE	OF STA	TE EN	GINEER ON	LY			
Date Received	1				Ouad	· · · · · · · · · · · · · · · · · · ·	FWL .		FSI	· ———
****	B-417	7				. Dom/Sa	n 1	5N.1	3W.25.	140
File No				Use	-		Location No.	WCK1	лтеу С	<del>uunty</del>

Section 6. LOG OF HOLE

Lithold Depth 1 0 - 45 45 - 20 201 - 1	ogy: Interval:		N NUCLEAR Formation: Mancos Dakota	Description:  Dark grey shale  Fine buff sand w/ occasional
<del>Depth</del> 0 - 45 45 - 20	Interval:	45 156	Mancos	Dark grey shale  Fine buff sand w/ occasional
0 - 45 45 - 20	01	45 156	Mancos	Dark grey shale  Fine buff sand w/ occasional
45 – 20		1.56		Fine buff sand w/ occasional
			Dakota	Fine buil sand W/ occasional
201 - 1	342	141		COAL STYINGERS
201 – t	342	141		**
		1	Morrison	Brushy Basin- green mudstone W/ poorly sorted sand lenses up
				to 30' thick near base
342 -	522	180	11	Westwater Canyon- poorly sorted
				fine to coarse grained redesands
				w/ widely separated thin shale
500	1105	583	Cow Springs.	Undifferentiated maroon and green
522 -	1.105	283	Summerville	shales and siltstones w/ minor
		<del> </del>		sandstones.
1105 -	1117	12	Todilto	Massive grey limestone
1117 -	1125	8	11	Chalky limestone and gypsum
1125 -	1287	162	Entrada	Well sorted very fine grained red sandstone and siltstone
1287 -	2783	1496	Chinle	Maroon and green shale and siltstones with minor sand intervals
2783 -	2811	28	Chinle(?)	Well sorted clean white med. grained sandstone
2811	2900	89	San Andres	Massive dark grey limestone
2900 -	2930	30	Glorieta	Clean white med. grained sandstone
2930 -	2938	8	11	Reddish siltstone and fine grained sandstone
2938 -	3081	143	11	Clean white med. to coarse grained sandstone
3081	3090	9	Yeso (?)	Dark red shale
3090 -	3102	12	Yeso (?)	Clean lt. pink sandstone
3102	T.D.			
			<u> </u>	
				4 3

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller Resident Manager

### STATE ENGINEER OFFICE WELL RECORD

A) Owner of	well R	P	Section 1	GENERAL IN		Owner's W	/ell No	1
Street or F	ost Office Add	dess Bu	9× 2 N	146	8	7373		
	•	•	•	6	and is located in	the:		
						4 N Range	134	N.M.P.M.
b. Tract N	lo	_ of Map No		of the			· · · · · · · · · · · · · · · · · · ·	
c. Lot No Subdiv	ision, recorded	of Block No		of the	ounty.			<u></u>
the						stem		Grant.
Drilling C	ontractor	SAUM	der	6 Dr.	Hing	License No. LO	D 8	04
iress <u>F</u>	o Be	× 30	381	MI	BN	U. M	870	21
lling Began 4	2-16-	TI Compl	eted 2	-19-81	Type tools	Rolory	Size of hole	in.
wation of lan	d surface or			at well	is	ft. Total depth of	well 34	3_ ft.
mpleted well		iallow 🗀 ar		I I	Depth to water u	pon completion of	well <i>15</i>	10ft.
					-BEARING STR			
Depth i		Thickness in Feet		Description of W	Vater-Bearing Fo	rmation	Estimate (gallons pe	
From	7 7 5 To	29	1.3	toc			70	)
770	<i>99</i> 9	91	w	ure y	HNCL		70	
				n 3. RECORD	OF CASING			
Diameter (inches)	Pounds per foot	Threads per in.	Depth Top	in Feet Bottom	Length (feet)	Type of Shoe	From	forations To
59/1	190Psi		0	343	343		296	338
1100	17:15							
						NOWA		
Depth	in Feet	Section Hote	n 4. RECO		NG AND CEME		of Placement	
From	TČE	Diameter	of M	lud of	Cement	Methoa c	- Common	
		. E				<u> </u>	24	
	記	N.N.					ننق	
		TO ALL					0:	
	F	STATE	1				<u>သ</u> တ	
	. —	SA	Section	on 5. PLUGGIN	G RECORD	>	n n	
gging Contra dress	ictor <u>es</u>				No.	Depth in Fee	et	Cubic Feet
gging Metho te Well Plugg					1	Top B	ottom	of Cement
gging approv					2			
		State Engi	neer Repres	sentative	3 4			
			FOR USE	OF STATE EN	IGINEER ONLY			
te Received	Feb. 24,	1981				FWL	Ti	SI
	2 000			Dom		ocation No. 14N.		
File No	3-826			UseDom	esticI	ocation No.	1011.00.2	- x ( navisitit

Section 6. LOG OF HOLE

Depth in Feet Thickness			Section 6, LOG OF HOLE
From	in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	70	70	Sand
70	180	110	Red to purple Shale
180	193	13	white sand
193	200	#7	Shale
200	226	26	White Sweet
226	258	32	purple Shoils
258	270	12	Sand.
270	796	26	Thale Red
296	335	39	White SAND STONE
235	343	8	Green Shate.
-			,
-			
-			
		·	

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

INSTRUCTIONS: This form should be excepted in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, exception 5, shall be answered as completely a locurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

### STATE ENGINEER OFFICE

### WELL RECORD

m	TENTENT DANG	Section 1.	GENERAL I	NFORMAT,	10N 47: 47	B-9	900-x
(A) Owner of wellT  Street or Post Office A	ddress P.O.	DOV 2/17			Owner	's Well No	
Street or Post Office A City and State	RANTS, NM		8702		<u> </u>		
Well was drilled under Permit					ated in the:		
a 1/4 SW 1							
b. Tract No							
c. Lot No Subdivision, recorde	of Block No d inMcKi	nley	of th	e County.			
d. X=			feet, N	.M. Coordin	nate System		Zone in Grant.
(B) Drilling Contractor	ROTZ	RY DRILL	LING		License No	WD-643	
AddressI				GRANT	S, NM 87020		
Drilling Began 4/5/88							
Elevation of land surface or			at we	ell is	ft. Total depth	of well 401	•5 ft.
_	shallow 🗀 ar				vater upon completion	1.00	ft.
	Secti	on 2. PRIN	CIPAL WATE	R-BEARIN	G STRATA		
Depth in Feet From To	Thickness in Feet	I	Description of	Water-Bear	ing Formation	Estimated (gallons per	
360 401.5	41.5		CRACK	S IN THE	CHINLEE	15	
300 10210							
		-	****				
			4 PECONE	OF CACIN			
Diameter Pounds	Threads		n 3. RECORL in Feet	Length	h	Perf	orations
(inches) per foot	per in.	Тор	Bottom	(feet)		From	То
4 SCH 4	0	+ 2	401.5	403.5	5	380	400
_							
7" STEEL WELDED		6	60	54	SURFACE (	CASING	
•	Section	n 4. RECOI	RD OF MUDI	DING AND	CEMENTING		
Depth in Feet From To	Hole Diameter	Sack of M	_	Cubic Feet of Cement	Metho	od of Placement	
			1	SACK	POURED		
					SHALE TRAP SE	r @ 16 <b>6%</b> _	
					AL.	APR	
<u> </u>		Section	n 5. PLUGGI	NG RECOR	RD CO	29 P	
Plugging ContractorAddress					Depth in	Fem	Cubic Feet
Plugging Method					Top	Bottom U	of Cement
Date Well Plugged Plugging approved by:					2	ME O	
A	State Engi	neer Repres	entative		3 4	c m	
Anta	20,1050	FOR USE	OF STATE I	ENGINEER	ONLY		
Date Received	- 07,1788		Qua	d	FWL -	FS	SL
Date Received April	4.00.X	<u> </u>	Use	Don	Location No	40.13W.	35.133

Section 6. LOG OF HOLE Depth in Feet Thickness Color and Type of Material Encountered in Feet From To 0 21 21 BROWN BLOWSAND 21 49 28 LARGER ALLUVIAL GRAVEL 49 401.5 351.5 RED SHALE ( CHINLEE)

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and mitted to the appropriate district office of the State Engineer. All sections, excellection 5, shall be answered as completely a. accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

"aleganine is

 ${\tt HC-100298...\$3.00.tota1}_{\tt IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM.}$ 

### Declaration of Owner of Underground Water Right

BLUEWATER UNDERGROUND WATER BASIN BASIN NAME B - 954February 3, 1982 Declaration No. Date received TWPLCo. Sta. 5 #1 Well 1. Name of Declarant Transwestern Pipeline Company Mailing Address P.O. Box 1019, Thoreau, New Mexico 87323 County of McKinley , State of New Mexico 2. Source of water supply Sonsella sandstone bed of Chinle Formation (artesian or shallow water aquifer) 3. Describe well location under one of the following subheadings: Twp. 14N Rge. 13W N.M.P.M., in \_ ¼ \_\_\_SW \_ ¼ \_\_ SE \_ ¼ of Sec. \_County. b. Tract No. \_\_ of Map No. c. X = . feet, Y = \_ \_ feet, N. M. Coordinate System Zone in the \_ Grant. On land owned by Transwestern Pipeline Company Layne Texas driller 4. Description of well: date drilled outside diameter of casing 10 3/4 inches; original capacity\_\_\_ \_\_gal. per min.; present capacity 10 gal. per min.; pumping lift 680' feet; static water level 397 feet (255%) (below) land surface; Grundfos 5hp. Submersible set at 680' Electric Service make, type, horsepower, etc., of power plant .\_\_ Fractitional or percentage interest claimed in well. 5. Quantity of water appropriated and beneficially used\_ 16.1 Domestic, Industrial, and Agricultural (acre feet per acre) (acre feet per annum) 6. Acreage actually irrigated NO acres, located and described as follows (describe only lands actually irrigated): Acres Subdivision Range (Note: location of well and acreage actually irrigated must be shown on plat on reverse side.) 7. Water was first applied to beneficial use February 1960 has been used fully and continuously on all of the above described lands or for the above described purposes except as follows: a complete aquifyer test on this well was done by John Shomaker. consulting geologist on May 19, 1981. Water is used continuously and only for Transwestern's purposes, such as: engine cooling, hygenic, household domestic, beautification and gardening except for (A) 8. Additional statements or explanations Occasional county and state maintenance projects. and (b) ten-fifteen Indian families haul water for their household use; this frequency depends on tribal water supplies See attached sheet for additional information I, L. Davina, Division Engineer, Transwestern Pipeline Company. being first duly sworn upon my oath, depose and say that the above is a full and complete statement prepared in accordance with the instructions on the reverse side of this form and submitted in evidence of ownership of a valid underground water right, that I have carefully read each and all of the items contained therein and that the same are true to the best of my knowledge and belief. attest Salome C. Woody Transwestern Pineline

### STATE ENGI WELL

INEER OFFICE		
RECORD		

	1		Section 1. GENI					-17
) Owner of	well #	rthur	L. Ca	nver		Owner	r's Well No	ے
Street or l	Post Office Ad State	breau	2 Rtz New 1	Mexi	cu 87	823		
			984					
								,
•			¼ of Section_		-	•	_	
c. Lot No Subdiv	ision, recorded	of Block No 1 in		_ of the Cour	nty.			
d. X= the		_ feet, Y=		feet, N.M.	Coordinate Sy	ystem		Zone in
Drilling C	ontractor	Strang	Drilli	ng		License No	WD - 83	5 G
Iress _ G	remade	a Nil	η,					
/ ling Began _	NOU 16	1982 Comp	oleted <i>Nov 18</i> ,	<i>198</i> = T	ype tools	able	Size of ho	le 6 1/2 in
			70					
nnloted wall	is Fall	hallow 🔲 a	rtecian	De:	nth to water i	ipon completion	of well	90ft
ipieteu wen	15 🖭 51						01 #011	
Depth i	n Feet	Thickness	tion 2. PRINCIPAL				Estimat	ed Yield
From	То	in Feet	Descrip	tion of Wat	er-Bearing Fo	rmation	(gallons p	er minute)
150	155	5	Sandi	Inn. 7	trem a	1 Coul	18	?
15-	1-5				7			··
			Continuo 2 Di	ECOBD OF	CASING		<u>L</u>	
Diameter	Pounds	Threads	Section 3. R		Length	- CO1	Pe	rforations
(inches)	per foot	per in.		ttom	(feet)	Type of Sho	Fron	n To
4							150	170
			on 4. RECORD OF				S 828	)
Depth From	in Feet To	Hole Diameter	Sacks of Mud		Feet ement	Met	od of Place	nt
						Ĉ.	23	
				-		Sec.	. b	·
						•	· =	
						2 2	۔ س	
						×		
			Section 5. Pl	LUGGING .	RECORD	,	r	
gging Contra	ictor				- ,			
					No.	Depth in Top	Feet Bottom	Cubic Feet of Cement
e Well Plugg					_ 1	1 ор	Bottom	
gging approv	red by:				2			
		State Eng	ineer Representativ	e	- <u>3</u>			
			TOD					
te Received	11/23	1/82	FOR USE OF ST	ATE ENGI	NEEK ONLY			
. Received	11/23	,, 02				FWL _		
	B-986	,		-		3W NMPM M	cKinley	Co.
File No			Use		I	ocation No		

Section	6	IC	C	OE	HOI	E

			Section 6. LOG OF HOLE
Depth	in Feet	Thickness	
From	То	in Feet	Color and Type of Material Encountered
0	5	5	2 ft top Boil +3 Sandstone white
5	10	5	Sandstone white
	15	5	n re se
15	20	วั	11 11
20	25	5	41 71
25	30	5	Brown Shale
30	35	5	Sandrock + Red Stones
35	40	5	/ • / ·
40	45	5	Brown shale
45	50	5	10 11
50	55	5	Brown shale + Sandrock
55	60	-5	//
60	65	5	Sand rock & Stone yellow and Red Hard
65	70	5	,, ,,
78	75	5	//
75	80	<u>వ</u>	"
86	85	5	Brown Shale
85	90	ร์	Gray Shale
90	95	5	1. A 18
95	100	5	11 17
100	186	10	Brown Shall
	115	5	Gray shell .
115	150	45	Jan stone trans of Cool. 150'
150	165	15	12 11 water
	170	5	Brown Shale

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, exc. Section 5, shall be answered as completely accurately as possible when any well is wrilled, repaired or deepened. When this found is used as a plugging record, only Section 1(a) and Section 5 need be completed.

# WELL RECORD & LOG OFFICE OF THE STATE ENGINEER www.ose.state.nm.us

# RECEIVED OFFICE OF STATE ENGINEER SANTA FE NEW MEXICO

DATE 4/8/16

										_						
-	OSE POD NU			•							OSE FIL					
<u>S</u>	POD-14 (T	RCPC	C-15)	)							B-1019		POD 14			
AT	WELL OWN	ER NAM	Æ(S)								PHONE					
ΟĆ	Tri-State G	enerat	tion a	and Transmission	Association						303-45	2-611	1			
ŢŢ	WELL OWN	ER MAII	LING	ADDRESS						T	CITY	•		STATE		ZIP
GENERAL AND WELL LOCATION	P.O. Box 3	3695									Denver			Co	80233-0	695
é				D	EGREES	MINU	JTES	SECON	IDS .	T			·			
A	WELL	.,			35	2.5		7.8		,	* ACCU	RACY	REQUIRED: ONE TENT	H OF A	SECOND	
M	LOCATIO (FROM GP	- ⊢	LAT	ITUDE						$\dashv$	]		UIRED: WG\$ 84			
Ξ	(11.01.1)	,	LON	GITUDE	108	3	, <b>'</b>	54.4	6" N	٧	L					
E	DESCRIPTION	ON REL	ATING	G WELL LOCATION T	O STREET ADDRE	SS AND	COMMON	LANDM	ARKS – PI	LSS	S (SECTIO	יסד ,אי	WNSHJIP, RANGE) WHI	ERE AV	AILABLE	
-	(NW) Sect	ion 25	, To	wnship 14N, Rang	ge 12W											
	LICENSE NU	MBER		NAME OF LICENSE	D DRILLER					_			NAME OF WELL DRI	LLING C	OMPANY	
	33				tewart Brothers	s Drill	ing Co./.	Joel H. S	Stewart				Stewart	Brother	s Drilling Co.	
	DRILLING S'	TARTE	D .	DRILLING ENDED	DEPTH OF COM	PLETEU	WELL (F	F)	BORE H	IOL	E DEPTH	(FT)	DEPTH WATER FIRS	T ENCO	UNTERED (FT)	
	01/20	)/16		02/03/16		260'	•				270"	, ,			, ,	
					<u> </u>								STATIC WATER LEV	EL IN CO	OMPLETED WE	LL (FT)
7	COMPLETE	) WELL	IS:	ARTESIAN	DRY HOLE	J	SHALLO	W (UNCO	NFINED)					31	r	,
CASING INFORMATION	DRILLING F	LUID:		AIR	✓ MUD		ADDITIV	ES – SPEC	IFY:							
RMA	DRILLING M		):	ROTARY	HAMMER		CABLE T			HEI	R – SPECI	FY:				
<u> </u>	DEPTH	(fact h	~1)		CASING M	ATED	IAI AND	VOP								T
Z	FROM		O Bi)	BORE HOLE		GRAD		//OK			SING		CASING		ING WALL ICKNESS	SLOT
INC	FROM	1	U	DIAM (inches)	(include ea				COr		VECTION YPE	٧.	INSIDE DIAM, (inches)		inches)	SIZE (inches)
CAS					-	note sections of screen)					1751 1 7					<u> </u>
	0'	2.2		8.75	<del></del>	Sch 40 PVC Blank Threaded/Flush Joi Sch 40 PVC Screen Threaded/Flush Joi			3.998		.25	n/a				
DRILLING &	220'	220' 260' 8.7			Sch 40 PVC Screen			Thread	ied	1/Flush Jo	oint	3.998		.25	0.010	
					<del> </del>										N)	
D. D.															23	
.5															60%	100 300
															- F	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
																5 7 6 7
																- 11 11 1
																No. 1 A
					<u> </u>											- Sign
	DEPTH	(feet b	gl)	BORE HOLE	LIST	ANN	ular se	EAL MA	TÉRIAL	. A	ND		AMOUNT		МЕТНО	D OF
AL	FROM	Т	0	DIAM. (inches)	1		CK SIZE						(cubic feet)		PLACEN	MENT
ANNULAR MATERIAL	0'		8.61	8.75			Grout	Well DF		_					Trem	ie
IAT	208.6'		3.3'	8.75				ite Pellet							Trem	
2	213.3'	26		8.75				a Sand							Trem	
ILA	265'		'0"	8.75		Nat	ural Fill "		d hole'	_						
Ž					<del></del>			Collapse								
3. AI				<u> </u>	<del>                                     </del>									+		
1.0				+										+		
				_l												
	OSE INTER						DOE NO.		113				WELL RECORD &		(Version 10/2	9/15)
~	NUMBER		- •		, na		POD NU		14			RN N	IUMBER 581L	161	1	
LOC	ATION 🔨	<i>IW</i>	N	E SW	Sec. 2	45.	$\neg \tau_I$	4N	R	١,	200				PAGE	1 OF 2

### RECEIVED

OFFICE OF STATE ENGINEER SANTA FE NEW MEXICO

					DATE 4/8	16
	DEPTH (1		THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONE	WATER BEARING?	ESTIMATED YIELD FOR WATER-
	FROM	ТО	(IEEI)	(attach supplemental sheets to fully describe all units)	(YES / NO)	BEARING ZONES (gpm)
	0'	10.5'	10.5	Fine Grained Sands & Clayey Sands (Alluvium)	Y VN	
	10.5'	215'	204.5'	Chinle Claystone	Y ✓N	
	215'	265'	50'	Correo Sandstone	✓ Y N	
	265'	2701	5'	Chinle Claystone	y ✓N	
					Y N	
					Y N	
4. HYDROGEOLOGIC LOG OF WELL					Y N	
OF					Y N	
007					Y N	
GIC					Y N	
010				****	Y N	
GE					Y N	
DRC					Y N	
HY				<u> </u>	Y N	
4					Y N	
					Y N	
					Y N	ì
!					Y N	
					Y N	
					Y N Y N	
	ACTUODI	CED TO E	TIME TO VIEW D	OF WATER-BEARING STRATA:	TOTAL ESTIMATED	
						≅ 0.00
	PUMI	Р ЦА	IR LIFT	BAILER OTHER - SPECIFY: Awaiting pump test		4.7
NO	WELL TES	TEST STAR	RESULTS - ATT T TIME, END TI	ACH A COPY OF DATA COLLECTED DURING WELL TESTING, INC ME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVE	CLUDING DISCHARGE ER THE TESTING PERIO	METHOD, DD
VISION	MISCELLA	NEOUS IN	FORMATION:			
PER			Gl	PS used was GPS Tour a iphone app		
ns 9						<u>co</u>
RI.						
TEST; RIG SUPER	PRINT NAN	ME(S) OF D	RILL RIG SUPER	VISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CON	ISTRUCTION OTHER TI	HAN LICENSEE:
หก๋	Joseph F. V	igil Jr. & [	Oonald Taylor			
TURE	CORRECT I	RECORD O	F THE ABOVE D	IES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELI ESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL R O DAYS AFTER COMPLETION OF WELL DRILLING:	EF, THE FOREGOING IS LECORD WITH THE STA	S A TRUE AND ATE ENGINEER
6. SIGNATURE	bel	1/1	6	Joel H. Stewart	3-29-16	
		SIGNAT	URE OF DRILLE	R / PRINT SIGNEE NAME	DATE	

FOR OSE INTERNAL USE		WR-20 WELL RECORD & LOG (Version 06/08/2012)
FILE NUMBER B-1019	POD NUMBER 14	TRN NUMBER 561461
LOCATION NW NE SW	Sec25 TI4N RIZW	PAGE 2 OF 2

### STATE ENGINEER OFFICE

### WELL RECORD

### Section 1. GENERAL INFORMATION

nder Permit	No. B = 4 2 3 4 2 3 4 4 2 4 4 4 4 4 4 4 4 4 4 4	Smith.  Smith.  Smith.  Spleted S-  artesian.  ction 2. PRINC	tion 7  of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the o	and is located and is located Township  ne County.  N.M. Coordinate  Co Type tools  tell is	System Rain System License No Rain y = Ain	Size of a of well	Zone Gran  Gran  34  hole 634 i
ion, recorde  tractor  Surface or  Tell s	No. B - 4 2 2 2 3 3 4 2 3 4 2 3 4 3 4 3 4 3 4 3	Smirk.  Smirk.  Smirk.  Partesian.  Ction 2. PRINCES  D	tion 7  of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the o	and is located and is located Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Township  Townsh	System Rain System License No Rain y = Ain	Size of a of well	Zone Gran  Gran  34  hole 634 i
ion, recorde  htractor  Surface or  Feet To	of Map No of Block No. d in	Smirk.  Smirk.  Smirk.  artesian.  ction 2. PRINC	of the of the feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I feet, I	Township	System Rain System License No Rain y = Ain	Size of a of well	Zone Gran  Gran  34  hole 634 i
ion, recorde  htractor  Surface or  Feet To	of Map No of Block No. d in	Smirk.  Smirk.  Smirk.  artesian.  ction 2. PRINC	of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of	County.  N.M. Coordinate  Co.,  Type tools ,  ell is  Depth to wate.  ER-BEARING S' f Water-Bearing I	System License No  1	Size of a of well	Zone Gran  Gran  34  hole 634 i
ion, recorde  thractor  5-20  surface or  Feet To	of Map No. of Block No. d in  feet, Y=    WAy No.   Com   Com   See   Thickness in Feet	Smirk.  Smirk a Spleted S-  artesian.  ction 2. PRINCES  D	of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of the of	County.  N.M. Coordinate  Co.,  Type tools ,  ell is  Depth to wate.  ER-BEARING S' f Water-Bearing I	System License No  1	Size of a of well	Zone Gran  Gran  34  hole 634 i
ntractor	of Block No. d in	Smith.  Smith.  Spleted S-  artesian.  etion 2. PRINC	feet, 1  On IIIN 9  On IIIN 9  at w	County.  N.M. Coordinate  Co.  Type tools  ell is  Depth to wate  ER-BEARING S' f Water-Bearing I	System	Size of a of well	Zone Gran  34  hole 634 i
ntractor	of Block No. d in	Smith.  Smith.  Spleted S-  artesian.  etion 2. PRINC	feet, 1  On IIIN 9  On IIIN 9  at w	County.  N.M. Coordinate  Co.  Type tools  ell is  Depth to wate  ER-BEARING S' f Water-Bearing I	System	Size of a of well	Zone Gran  34  hole 634 i
surface or Feet To	Let, Y=	s D	Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dullin	Type tools — Depth to wate  ER-BEARING S' f Water-Bearing I	License No	Size of a of well	Zone Gran  34  hole 634 i
surface or Feet To	Let, Y=	s D	Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dulling Dullin	Type tools — Depth to wate  ER-BEARING S' f Water-Bearing I	License No	Size of a of well	Zone Gran  34  hole 634 i
surface or Feet To	Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Se	g Chapleted S- artesian.	at w	Type tools  ell is  Depth to wate  ER-BEARING S' f Water-Bearing I	License No	Size of a of well	hole 634 i
surface or Feet To	Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Second Se	g Chapleted S- artesian.	at w	Type tools  ell is  Depth to wate  ER-BEARING S' f Water-Bearing I	License No	Size of a of well	hole 634 i
Po, 5-20 surface or  EV s  Feet To	Box 600  Com  hallow  See  Thickness in Feet	artesian.	at w	Type tools  rell is  Depth to wate.  ER-BEARING S' f Water-Bearing l	A 273/3  Ratury - A/  — ft. Total depth r upon completion  TRATA  Formation	Size of a of well	hole 634 i
Po, 5-20 surface or	Box 600  Com  hallow  See  Thickness in Feet	artesian.	at w	Type tools  rell is  Depth to wate.  ER-BEARING S' f Water-Bearing l	A 273/3  Ratury - A/  — ft. Total depth r upon completion  TRATA  Formation	Size of a of well	hole 634 i
surface or _  surface or _  EV s  Feet To	hallow See	artesian.	at w	Type tools ell is  Depth to wate  ER-BEARING S' f Water-Bearing l	Formation	Size of a of well	hole 634 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150 in 150
surface ors \( \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} a	hallow Sec	artesian. etion 2. PRINCs D	at w	Depth to wate ER-BEARING S	ft. Total depth r upon completion FRATA Formation	e of well	nated Yield is per minute)
surface ors \( \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} \begin{aligned} a	hallow Sec	artesian. etion 2. PRINCs D	at w	Depth to wate ER-BEARING S	ft. Total depth r upon completion FRATA Formation	e of well	nated Yield is per minute)
Feet To	Sec Thickness in Feet	artesian.  ction 2. PRINC  D	escription o	Depth to wate ER-BEARING S' f Water-Bearing I	r upon completion	Estin (gallon	nated Yield is per minute)
Feet To	Sec Thickness in Feet	artesian.  ction 2. PRINC  D	escription o	Depth to wate ER-BEARING S' f Water-Bearing I	r upon completion	Estin (gallon	nated Yield is per minute)
Feet To	Sec Thickness in Feet	s D	escription o	ER-BEARING S'	Formation	Estin (gallon	nated Yield is per minute)
То	Thickness in Feet	s D	escription o	f Water-Bearing l	Formation	(gallon	s per minute)
То	Thickness in Feet	s D	escription o	f Water-Bearing l	Formation	(gallon	s per minute)
То	in Feet	D				30	) 
478	42	Fin	le whi	te & GWAY	SAND		.) <b>7</b>
478	42	FIN	le Whi	te 8 (31/14)	<i>5,4Na</i>		.) <b>7</b>
							7
					5	2	>
						-	
					r	<del>],</del>	<del></del>
	ــــــــــــــــــــــــــــــــــــــ	1 .				-	22
							⊅
	,	Section	3. RECOR	D OF CASING			
Pounds	Threads per in.		Depth in Feet Length Ton Bottom (feet)			5ē	Rerforations To
per foot	per III.	Top	Bottom	(1000)	-		To To
PVC	6"Bell	1 FT About	485	486	CAP	4.	35 478
~							
						. 8 6	
	0. 4	i A DECOR	D OF MUD	DINC AND CEN	IENITING M	<u> </u>	
Foot			- 1				
~-	Diameter						nent
-						, T	0
					<u>F</u>	<u> </u>	-
					Z	-0 <b>-</b>	<b>5</b>
					<u> </u>	7	
					×		
		Section	1 5. PLUGG	ING RECORD			
					· · · · · · · · · · · · · · · · · · ·	_	
				No.			Cubic Feet of Cement
					1 op	вонош	or coment
d by:				2			
	C1-1- F	gingas Danne	ntativo	3			
	State En	gineer Keprese	ntative	4			<u> </u>
		FOR USE 0	OF STATE	ENGINEER ONI	.Y		
janz 4.	168%						
J							
	34		п. Т	·ma/	Location No. 14	N.13.	U. 1 400
t	1 by:	Feet Hole Diameter  To State En	Section  Section  Section  For USE 1	Section 5. PLUGG  To  Section 5. PLUGG  or  State Engineer Representative  FOR USE OF STATE  Qua	Section 5. PLUGGING RECORD  or  Section 5. PLUGGING RECORD  or  I by:  State Engineer Representative  FOR USE OF STATE ENGINEER ONI  Quad  Quad	Section 5. PLUGGING RECORD  Or	Section 4. RECORD OF MUDDING AND CEMENTING  Feet Hole Sacks Out Feet of Cement  To Diameter of Mud of Cement  Section 5. PLUGGING RECORD  Or

Section	6	LOG	OF	HOLE	

			Section 6. LOG OF HOLE
Depth	in Feet	Thickness	
From	То	in Feet	Color and Type of Material Encountered
0	26	26	DINT
26	58	32	HArd Lmy SAND
_58	138	80	Red shale w/ sdysh rsdstks
138	205	67	Red Shly SAND
205	210	-5	Green Shale wy sd stks
210	229	19	HAID Lime Rock
229	235	6	SAND White
_235	258	23	SAND TAN
258	264	6	Redshale
264	274	10	SAND TAN
274	425	151	Redshale wy Redshaly SANDSHIS
425	436	11	SAND TAN
436	478	42	SAND FINE- Ging + white-WAter
478	485	7	Shale - puple
-			

Section 7. REMARKS AND ADDITIONAL INFORMATION

Dulled wy AIL & FOAM 750 CFM.

Testing while Dulling @ 440 - 30 gpm
@ 460 - 60 gpm

FINAL test @ 485- 30.9.Pm.

RUN CASING - WATER Level Approx 150' The Next Day
Test wy AIL @ 200' - 5 gpm

Will Plobling Set Prompe 300'

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.



### STATE ENGINEER OFFICE

### WELL RECORD



### Section 1. GENERAL INFORMATION

(A) Owner of	well	5.H M/	Irsh			Owner	's Well No	
Street or	Post Office A	ddress <u> </u>	0 X 958 UNDOWY	N.m 8	73/3			
Well was drilled	under Permi	t No. <u>B -</u>	1034		and is located	in the:		
a	_ ¼	¼ <u> </u>	E 1/4 of Sec	ction 7	Township	<u>/4//</u> Rang	ge 12 W	N.M.P.M.
b. Tract l	No	of Map No.		of the				
c. Lot No Subdiv	o vision, record	of Block No.	C. KIN/L	of the	ounty.		A	100-110-
		feet, Y=		feet, N.	M. Coordinate	System		
	_	•		-		License No/		
Address	Po.	BOX 60	9 CK	ownpor.	et N.m	87313		
Drilling Began .	5-2	<b>∠</b> Comr	oleted <b>S</b>	-30	_ Type tools	Rotory - Alt	Size of holes	63/4 in.
						ft. Total depth of		
mevation of fan								
Completed well	is 🕡	shallow 🔲 a	rtesian.		Depth to water	upon completion	of well	<i></i> ft.
		Sec	tion 2. PRING	CIPAL WATER	R-BEARING ST	RATA		
Depth i From	To	Thickness in Feet	r	Description of \	Water-Bearing F	Tormation	Estimated (gallons per	
436	478	42	رشير	1. 1116.4	e & Glipy.	< nud	30	
700	770	/		VE WIII	CO GWIG.	377712		
				-				
			_					
							·-···	
			Section	a 3. RECORD	OF CASING			
Diameter (inches)	Pounds per foot	Threads per in.	Depth Top	in Feet Bottom	Length (feet)	Type of Shoe	Perfo From	rations
			-					
51/2	PVC	6 Dell	[ F T Abov	485	486	CAP	435	478
							ω	
		Section	on 4. RECOR	RD OF MUDDI	NG AND CEM	ENTING E	Z	
Depth i	n Feet To	Hole Diameter	Sack of Mu		bic Feet Coment	Method	of Placement	
						2 2 2	7	
						<u></u>	, 0	
						3	19 <u></u>	
		٠.				×	Ĉ.	
			Section	n 5. PLUGGIN	G RECORD			
Plugging Contra	ctor	W. 94						
Address					No.	Depth in F		ubic Feet f Cement
Date Well Plugg	ed					Тор	Bottom 0	Centent
Plugging approv	ed by:				$\frac{1}{3}$			
		State Eng	ineer Represe	ntative	4			
	<u> </u>	1984	FOR USE	OF STATE EN	GINEER ONL	Υ		
Date Received	Jane 7	. 170		Quad.		FWL	FSL	
File No	B-11	34		_ Use _ D @	-M	Location No. 141	1.12111.0	100
riic No				0880		Location No. 14 L	(MCH	nt s. h
							CIICE	ney

			Section 6. LOG OF HOLE
Depth From	in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	26	26	DINT
26	58	32	HArd Lmy SAND
58	138	80	Red shale wy sdysh rsdstks
138	205	67	Red Shly SAND
205	210	_5	Green Shale wy sd stks
210	229	19	HAID Lime Rock
229	235	6	SAND White
_235	258	23	SAND TAN
258	264	6	Red shale
264	224	10	SAND TAN
274	425	151	Redshale wy Redshaly SANdSHIS
425	436	11	SAND TAN
436	478	42	SAND FINE- Ging & white-Water
478	485	7	Shale- Purple
<del></del>			
		-	
	1		

Section 7. REMARKS AND ADDITIONAL INFORMATION

Dulled wy AII t FOAM 750 CFM.

Testing while Dilling @ 440 - 30 gpm
@ 460 - 60 gpm

FINAL Test @ 485- 30 gpm.

RUN CASING - WAREL Level APPLOXISO' The Next Day
Test WI AII @ 200'- 59pm

Will Publing Set Pumpe 300'

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Hym Z L

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

### STATE ENGINEER OFFICE

### WELL RECORD

### Section 1. GENERAL INFORMATION

Section   2. PRINCIPAL WATER-BEARING STRATA	
b. Tract No of Map No of the	
b. Tract No. of Block No. of the Subdivision, recorded in McKINLEY County.  d. X= feet, Y= feet, N.M. Coordinate System the B. Drilling Contractor WALLIE G. FREEMAN / DBA ROTARY DRILLING License No. WD-643 P.O. BOX 129 GRANTS, NM 87020    Completed State of State of Hole Sacks Cubic Feet Method of Placement of Hole Sacks Cubic Feet Method of Placement of the Subdivision, recorded in McKINLEY County.    County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County County Co	
c. Lot Noof Block No	N.M.P.M.
d. X=	
the	
P.O. BOX 129 GRANTS, NM 87020    Completed   3/31/86   Type tools   ROTARY   Size of hole   6/3	
Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size of hole   Size	
evation of land surface or	
Section 2. PRINCIPAL WATER-BEARING STRATA  Depth in Feet Thickness in Feet Description of Water-Bearing Formation  SEEP AT 240' RED SANDY SHALE SEEP  475 480 5 SANDSTONE 15+  Section 3. RECORD OF CASING  Diameter (inches) per foot per in. Top Bottom (feet) Type of Shoe From From Top Bottom (feet) Type of Shoe From Section 4. RECORD OF MUDDING AND CEMENTING  Section 4. RECORD OF MUDDING AND CEMENTING  Depth in Feet Hole Sacks Cubic Feet Method of Placement	in.
Section 2. PRINCIPAL WATER-BEARING STRATA  Depth in Feet Thickness in Feet Description of Water-Bearing Formation (gallons per min Feet)  SEEP AT 240 PVC Section 3. RECORD OF CASING  Depth in Feet Thickness in Feet Description of Water-Bearing Formation  Section 3. RECORD OF CASING  Diameter (inches) Pounds per in. Top Bottom (feet) Type of Shoe From From A" 160psi PVC	ft.
Depth in Feet   Thickness in Feet   Description of Water-Bearing Formation   Estimated Yie (gallons per min Feet   A75   480   5   SANDSTONE   SEEP	ft.
Description of Water-Bearing Formation   Gallons per min	
SEEP AT 240   RED SANDY SHALE   SEEP	
Section 3. RECORD OF CASING    Diameter (inches)   Pounds per foot   Threads per in.   Top   Bottom (feet)   Type of Shoe   From	
Diameter (inches)         Pounds per foot         Threads per in.         Depth in Feet         Length (feet)         Type of Shoe         Perforate From           4" 160psi PVC         +2         200         202	
Diameter (inches)         Pounds per foot         Threads per in.         Depth in Feet         Length (feet)         Type of Shoe         Perforate From           4" 160psi PVC         +2         200         202	
Diameter (inches)         Pounds per foot         Threads per in.         Depth in Feet         Length (feet)         Type of Shoe         Perforate From           4" 160psi PVC         +2         200         202	
Type of Shoe   From   Top   Bottom   (feet)   Type of Shoe   From	
4" 160psi PVC         +2         200         202           4" SCH 40 PVC         200         510         310    Section 4. RECORD OF MUDDING AND CEMENTING  Depth in Feet  Hole  Sacks  Cubic Feet  Method of Placement	ions To
4" SCH 40 PVC 200 510 310  Section 4. RECORD OF MUDDING AND CEMENTING  Depth in Feet Hole Sacks Cubic Feet Method of Placement	-10
Section 4. RECORD OF MUDDING AND CEMENTING  Depth in Feet Hole Sacks Cubic Feet Method of Placement	
Depth in Feet Hole Sacks Cubic Feet Method of Placement	
Method of Flacement	
From To Diameter of Mud of Cement	
Troin to Co	
1 SACK POURED	
3 SHALE TRAPS SET @ 501,250, 4506.	
	· ·
Section 5. PLUGGING RECORD	
ddress Depth in Feet Cubi	c Feet ement
ate Well Plugged 1	
ugging approved by:	
State Engineer Representative 4	
FOR USE OF STATE ENGINEER ONLY ate Received July 8, 1986 OuadFWLFSL	
File No. B-1102 Use dom Location No. 14N.12W.7.S\frac{1}{2}S\frac{1}{2}S\frac{1}{2}	

Section 6. LOG OF HOLE

Depth	Depth in Feet Th		Section 6. LOG OF HOLE
From	То	Thickness in Fect	Color and Type of Material Encountered
			The Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of the Prince of th
	1		
	ŀ		
	-	<del> </del>	
		1	
		-	
		1	
		1	
		1	
		,	
İ			
İ			
ĺ			

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

INSTRUCTIONS: This form should be entered in triplicate, preferably typewritten, and in nitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

#237554

Revised June 1972

### STATE ENGINEER OFFICE WELL RECORD

### Section 1. GENERAL INFORMATION

	f well						Owner's We	ll No	B-1173
	Post Office Ad State			57 M 87323					-
ll was drilled	l under Permit	No	-1173		and is located	d in the:			
а	1/4 1/4	4 NE 14 NI	¼ of Se	ction 33	Township_	14N	Range	13W	N.M.P.
				of the					
				of the					
Subdi	vision, recorde	d in McKi	nley	Of the	ounty.				
		_ feet, Y=		feet, N.I	M. Coordinate	System			
Drilling (	Contractor	Badger D	rilling (	· .		License	No. WD	1028	
dress	,	200 West	eren Skid	s Rd. # 14	2 Gallu	p N.M.	87301		
lling Began	6/30/88	Com	pleted	1/7/88	Type tools_	Air Ret	ary s	ize of hole_	6 1/2
vation of la	nd surface or			at well	is	ft, Total	depth of we	ell 375	
		hallow 🗆 a			Depth to wate				
iipietea wei	113 LAV 5						piction of w		
Depth	in Feet	Thickness		Description of V				Estimated	
From	То	in Feet					- 1 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	gallons per	minute)
		-	Sa	endstone (C	hinle for	metien)	A C.	Is All	
							A .	2	
							<b>1</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	٠ / :	
			Section	on 3. RECORD	OF CASING		84	23	
Diameter	Pounds	Threads		in Feet	Length	Type	of Shoe		orations
(inches)	per foot	per in.	Тор	Bottom	(feet)	1 201		From	То
7	Glass	3	+2	100	102	None			
4 1/2	PVC		1.5	375		<del>                                     </del>	<u> </u>	160	370
				T.		1			
			an 4 DECO	вр ое миррі	NG AND CEN	MENTING			
			т			alli i i i i i i i i i i i i i i i i i i			
Depth From	in Feet To	Secti Hole Diameter	Sacl of M	ks Cu	bic Feet Cement		Method of	Placement	
	k	Hole	Sac	ks Cu	bic Feet		Method of	Placement	
	k	Hole	Sac	ks Cu	bic Feet		. v	Placement	
	k	Hole	Sac	ks Cu	bic Feet		. v	30 JUL 88	
	k	Hole	Sac	ks Cu	bic Feet		A TA		
	k	Hole	Saci of M	ks Cu	bic Feet Cement		. v	30 JUL 88	
From	To	Hole Diameter	Saciof M	ks Cu ud of	bic Feet Cement		STATE ENGINEER DISTRICT ALBUQUERQUE,	88JUL20 PI:	
From	To	Hole Diameter	Saciof M	ks Cu ud of	bic Feet Cement		STATE ENGINEER &	88JUL20 PI: 3	ubic Feet f Cement
From  agging Contributes agging Methote Well Plug	actor	Hole Diameter	Saciof M	ks Cu ud of	G RECORD  No.	De	STATE ENGINEER ENGINEER ALBUQUERQUE, NE	88JUL20 PI: 3	ubic Feet f Cement
From  agging Contributes agging Methote Well Plug	actor	Hole Diameter	Saciof M	ks Cu iud of	G RECORD  No.  1 2 3	De	STATE ENGINEER &	88JUL20 PI: 3	
From  agging Control dress agging Methote Well Plug	actor	Hole Diameter	Saciof M	ks Cu iud of	G RECORD  No.  1 2	De	STATE ENGINEER &	88JUL20 PI: 3	
regging Control dress regging Methot te Well Plug regging appro	actorodged_ved by:	Hole Diameter	Saction M Section	ks Cu iud of	G RECORD  No.  1 2 3 4	De Top	STATE ENGINEER &	88JUL20 PI: 3	
igging Contributes Ingging Methotic Well Plug	actor	Hole Diameter	Saction M Section	ks Cu ud of  on 5. PLUGGIN  centative  OF STATE EN	G RECORD  No.  1 2 3 4	De Top	ALBUQUERQUE, NITHEX	88 JUL 20 P 1 : 35 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5 Com 5	f Cement

Depth	in Feet	Thickness	C-1	d Type of Material Engagetered
From	То	in Feet	Color an	d Type of Material Encountered
0	11	· .	Sand	(Red)
11	13		Shele	(Red sandy)
13	19		Sand	(Pink)
19	24		Shale	(Firm Clay)
24	26		Sand	(Red)
266	32		Shele	(Red sandy dry)
32	53		Shele	(Very sandy damp)
53	66		Quicksand	(10st cirk)
66	772		Sand	(Red)
72	77		\$11t	(Gravel)
77	165		Shele	(Red)
165	195		Sandstone	(Soft, shale streaks)
195	256		Shale	(Purple)
256	259		Sandstone	(Grey)
259	278		Shele	(Purple grey streaks)
278	290		Sandstone	(Brown grey streaks)
290	302		Shale	(Purple)
302	313		Sandatone	(Brown)
313	314		Fractured	(Water)
314	319		Shale	(Purple)
319	328		Sandstone	(White)
328	334		Fractured	(Water)
334	339		Shale	(Purple)

Section 7. REMARKS AND ADDITIONAL INFORMATION

Sendstone

375

(White, fractured, water)

Had to case out the water from 53' to 72' it had to much very fine slit.

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, excl. Section 5, shall be answered as completely: accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

#237262

Revised June 1972

### STATE ENGINEER OFFICE WELL RECORD

### Section 1. GENERAL INFORMATION

A) Owner Stree City	er of w t or Po and Sta	ell st Office Ad	RICO MOTO	OR CO. A 501-23 GALLUP,	CORP. WEST CO NM 873	AL 01			wner's We	ll No	3-1178
Vell was di	illed u	nder Permit	No	B-1178		an	d is located	in the:			
a1	Œ	¼ ½	i ¼	¼ of Se	ction3	7	Γown <b>ship</b>	1.3N	Range	13W	N.M.P.N
b. Ti	act No		of Map No.		0	f the					
c. Lo Si	ot No	on, recorde	of Block No d inMcKIN	NLEY	0	f the	ty.	TO A. A. S. A. L. C. C. C. C. C. C. C. C. C. C. C. C. C.	!		
			_ feet, Y=		fee	t, N.M. (	Coordinate	System			Zone i
3) Drilli	ng Con	itractor	BADGEI	R DRILLIN	g co.			License N	oWI	01028	
ddress		,	200 WI	ESTEREN S	KIES RD	. #14	2		<u>:</u>		
rilling Be	gan	8/18/8	8 Comp	pleted9	/15/88	Ty	pe tools	AIR ROTA	RY S	ize of hole	6 1/2 i
evation c	f land	surface or _			a	well is_		ft. Total d	epth of we	11 35	<u>0</u> f
ompleted	well is	la 🗓	hallow 🗀 a					upon compl	etion of we	ell <u>11</u>	3 f
Dej	pth in	Feet	Thickness							Estimate	d Yield
From	_	То	in Feet		-		er-Bearing F		(	gallons pe	r minute)
42		74		G	RAVEL A	ND RU	NNING SA	ND		1	1/2
134		350		s	ANDSTON	ES OF	THE CHI	NLE	i	8	
D: .					n 3. RECC	RD OF		<b>,</b>			
Diamete (inches		Pounds per foot	Threads per in.	Тор	in Feet Bottor	n	Length (feet)	Турс о	f Shoe	From	To To
6 5	/8	STEEL		+2	981		100'				
4"		PVC		10'	350		340'			140'	3451
De	pth in	Feet	Secti Hole	on 4. RECO		JDDING Cubic		ENTING			
From		То	Diameter	of M		of Ce		. N	lethod of	Placement	
	+	<del></del>		-					> ±;	S 83	
	+	·	<u> </u>	<u> </u>					<u> </u>	<u></u>	
			<u> </u>	1					OUE R	25	
lugging C	ontract	or			n 5. PLUC	GING I	RECORD			A <b>co</b>	
ddress							No.		h kan Feet		Cubic Feet
ate Well I	Plugged	L	-				- - 1	Тор	Bott	om	of Cement
ugging ap	prove	1 by:	State Eng	ineer Repres	antativo		- <u>2</u> - <u>3</u>		,		
					·	E ENGU	L 4 NEER ONL	Y			
	ved 🕹	20pt 26,1	988	052			OIAT	•			
rate Recei	,,,,	,			-	hiad		F\	1/7	-	S. 100 Linkey)

Section	6.	LOG	OF	HOLE

			Section 6. LOG OF HOL	.E
***************************************	in Feet	Thickness in Feet	Color and	Type of Material Encountered
From	То	III reet		
0	3		CLAY	:
3	7		SAND	(TAN)
&	8		CLAY	(BROWN)
8	40		SAND	(TAN)
40	42		GRAVEL	(LOST CIRCULATION)
42	56		SAND	(TAN)
56	65		SANDSTONE	(SOME CHERT)
65	74		SOFT SAND	
. 74	, 83		SANDSTONE	(TAN)
83	97		SHALE	(PURPLE)
97	102		SANDSTONE	(WHITE)
102	134		SHALE	(PURPLE)
134	157		SANDSTONE	(WHITE)
157	161		SHALE	(GREEN)
161	165		SHALE	(PURPLE)
165	169		SANDSTONE	(GREENISH)
169	176		SANDSTONE	(WHITE)
176	198		SHALE	(GREEN)
198	230		SHALE	(PURPLE)
230	231		SANDSTONE	(LT.GREY)
231	304		SHALE	(PURPLE)
304	312		SANDSTONE	(GREEN)
312	315		SHALE	(RED)
315	318		SANDSTONE	(RED)
318	320		LIMESTONE	(LT. GREY)
320	323		SANDSTONE	(GREENISH)

Section 7. REMARKS AND ADDITIONAL INFORMATION

323 350

SHALE

(PURPLE)

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shift he unswered so enterprise and sections is the appropriate district office of the State Engineer. All sections, except Section 5, shift he unswered so enterprise to the opening of the state of the appropriate of the appro

### IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

E F.	AM 10 31 A	. 10 1000	)		р толл	Evoloro 1 9 2	
T De	AME TO SERVE MARCH	n 10, 1992	Daniel B	File No.	D-1244	Explore-1 & 2	
M A.	Mailing address		6020 Aca	demy, Ni	<u>Suite I</u>	00	
	City and State		Albuquer	<u>que. NM</u>	87109		
2.	Source of water supply				ated in		11 1
•	Two The wellsis-to be located	rtesian or sha	llow water ac	juiter) / SE 1/	Section 20	(name of undergrou	
۶۰	Range 13 West N.M.I	P.M., or Tract	Noof	Map No	of the	10 whomp	D
	on land owned byTra	answesterr	<u>Pipelin</u>	e			
4.	Description of well: nam Outside Diameter of casis	e of driller		(Ruidoso	Acc depth to be	H WD-831	
5.	Quantity of water to be a					dimed	acı
,	_					ctive use, diversion)	
_	for Test purpo				None	,	pu
6.	Acreage to be irrigated or	r place of use,			110110		
	Subdivision	Section	Township	Range	Acres	Owner	
		20011011					
		_					
7.	Additional statements or To determine hy Proposed divers	vdraulic c	haracter	istics ( ximately	of the all	uvial aquifer. r 6 months.	
7.	To determine hy	vdraulic c	haracter	istics ( ximately	of the all	uvial aquifer. r 6 months.	
7.	To determine hy	vdraulic c	haracter	istics ( ximately	of the all	uvial aquifer. r 6 months.	
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all	uvial aquifer. r 6 months.	(2)
7.	To determine hy	vdraulic c	haracter	istics (	of the all	uvial aquifer. r 6 months.	
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all	uvial aquifer.	32MA
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all	r 6 months.	32MAR 10
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all	r 6 months.	
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all	r 6 months.	32MAR 10
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all	r 6 months.	32MAR 10
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all	r 6 months.	J2MARIC PI
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all	r 6 months.	J2MARIC PI
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all 7 l gpm fo	r 6 months.	J2MARIC PI
7.	To determine hy	vdraulic c	haracter	istics (ximately	of the all 7 l gpm fo	r 6 months.	32MAR10 P1
= 1,,	To determine hy Proposed divers	ydraulic osion will		ximately	7 1 gpm for	The state of the best of	22MAR 10 P 1 45
= 1,,	To determine hy Proposed divers	ydraulic osion will		ximately	7 1 gpm for	The state of the best of	22MAR 10 P 1 45
= 1,,	To determine hy Proposed divers	ydraulic osion will		ximately	7 1 gpm for	The state of the best of	22MAR 10
= 1,,	To determine hy Proposed divers	ydraulic osion will		ximately	7 1 gpm for	The state of the best of	22MAR 10
= 1,,	Bob Marley  Bob Marley	ent shall not o		ximately	7 1 gpm for	The state of the best of	22MAR 10
= 1,,	Bob Marley d belief and that developm	ent shall not o	, Pen	ximately  to the forego	7 1 gpm for	The state of the best of	22MAR 10
= 1,,	Bob Marley  Bob Marley	ent shall not o		ximately  to the forego	7 1 gpm for	The state of the best of	22MAR 10

this permit	B-1244-Explore-1	&

#### ACTION OF STATE ENGINEER

After	notice pursuant to statute and by authority vested in me, this application is approved parallel interest and by authority vested in me, this application is approved parallel in the statute and by authority vested in me, this application is approved parallel in the statute and by authority vested in me, this application is approved parallel in the statute and by authority vested in me, this application is approved parallel in the statute and by authority vested in me, this application is approved parallel in the statute and by authority vested in me, this application is approved parallel in the statute and by authority vested in me, this application is approved parallel in the statute and by authority vested in me, this application is approved parallel in the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and the statute and t
wxk	k ASCHRANCOS PERK ARCHIVENCE PROSECUTION AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT AND ACCOUNT A
	pertaining to the drilling of <u>shallow</u> wells be complied with; and further subject to the following
	tions;
Ι.	Wells shall be drilled by a drilling contractor licensed by the State Engineer of New Mexico.
	Engineer of New Mexico.
2.	A complete and properly executed well(s) record on the form provided by
	the State Engineer shall be filed not later than ten (10) days after
	completion of the well. Test data shall be filed not later than ten (10)
	days after completion of the test(s).
3.	No water shall be diverted from these wells except for testing purposes
	which shall not exceed 180 cumulative days, and wells shall be plugged
	or capped on or before March 15, 1993, unless a permit to use water from
	these wells is acquired from the office of the State Engineer.
_	
Proof	of completion of well shall be filed on or before
Proo	of application of water to beneficial use shall be filed on or before, 19
Witne	ss my hand March this 10th day of March , A.D., 19 92
1714	The Mark Strategy of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of the Art of t
	id L. Martinez, State Engineer
Bu-	SDW OHNENDER.
~,	
	C. A. Wohlenberg, District I

#### INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of \$5,00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

Secs. 1-4-Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water per acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed lands describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7—If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.



### '93 JUN 23 AM 10 46 STATE OF NEW MEXICO STATE ENGINEER OFFICE

ELUID L MARTINEZ FE NEW MEXICO

STATE ENGINEER

DISTRICT 1 3311 CANDELARIA, N.E. SUITE A ALBUQUERQUE, NM 87107

June 22, 1993

FILE: B-1244-Explore 1 & 2

Robert H. Ward Ward Drilling Company P. O. Box 872 Ruidoso, NM 88345

Dear Mr. Ward:

We have been advised by Daniel B. Stephens & Associates, Inc. that you drilled a well for them on April 9, 1992. A copy of the permit is enclosed for your reference.

To date, we have not received a Well Record from you. As you know, State Engineer Rules and Regulations clearly state that a Well Record must be submitted to this office within ten (10) days after completion of the well.

Please send this Well Record in now.

Sincerely,

(505) 841-9482

cc: SEO, Santa Fe



### DANIEL B. STEPHENS & ASSOCIATES, INC.

ENVIRONMENTAL SCIENTISTS AND ENGINEERS

93JUN18 P1: 10

ALBUQUERQUE, M. MEXA

June 16, 1993

Ms. Susan Raffay State Engineers Office 3311 Candelaria NE Suite A Albuquerque, NM 87109

Dear Ms. Raffay:

As you requested, we are submitting lithologic and well construction logs for the two wells drilled under exploratory permit number B-1244-Explore-1 & 2. As stated in the permit application, the wells were used to determine the hydraulic characteristics of the alluvial aquifer. Since completing the test in mid-December 1992, the wells have not been used. We will apply for additional permits prior to using the wells in the future.

Please let me know if you need anything else. I can be reached at 822-9400.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES

Bob Marley Hydrogeologist

Bot Marly



### DANIEL B. STEPHENS & ASSOCIATES, INC.

GIATE ENGINEER OFFICE ALBUQUENQUE, N. MEX.J

Client:

Transwestern Pipeline

Compressor Station No. 5 Thoreau, New Mexico

**Drilling Contractor:** 

Boring No.:

5-36E

Ward Drilling Company

Ruidoso, New Mexico

Project No.:

2105 2.3

**Drilling Method:** 

Cable Tool

Date Started:

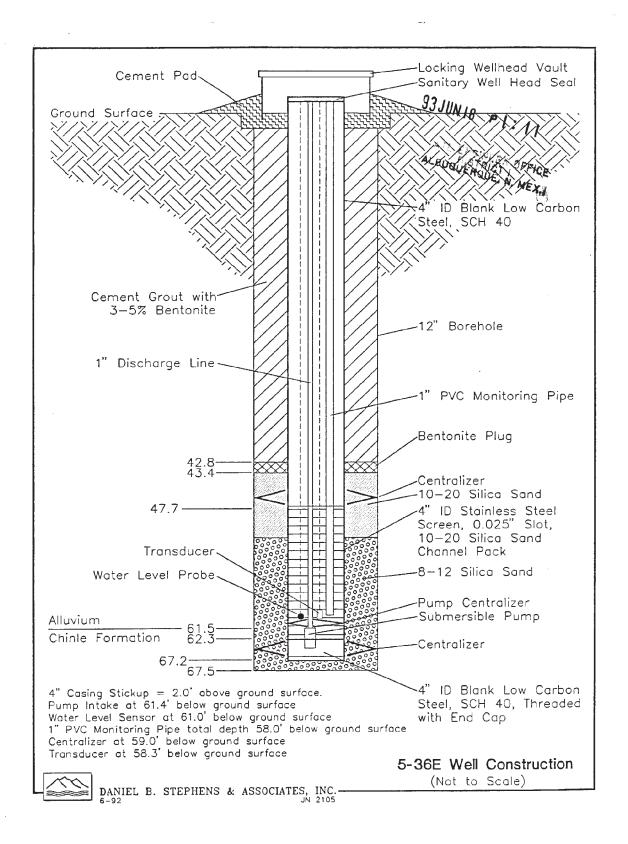
4/8/92

Total Depth Drilled:

67.5 ft

Date Completed: 4/9/92

DEPTH INTERVAL (FEET)	SAMPLE TYPE	MATERIAL TYPE	DESCRIPTION
0.0 - 20.0	Cuttings	Silty sand	Very fine-grained, moderately sorted, trace clay, weak red (10 R 5/4, wet)
20.0 - 25.0	Cuttings	Silty sand	Very fine-grained, moderately sorted, minor clay, reddish-brown (2.5 YR 5/4, wet)
25.0 - 32.0	Cuttings	Silty sand	Fine-grained, moderately sorted, 5% coarse sand, reddish-brown (2.5 YR 5/3, wet)
32.0 - 35.7	Cuttings	Silty sand	Fine-grained, moderately sorted, 5-10% gravel (0.3 - 0.4 cm diameter), reddish-brown (2.5 YR 5/3, wet)
35.7 - 36.5	Split spoon	Sand	Medium-grained, well sorted, 10% coarse sand and gravel, reddish-brown (2.5 YR 5/3, wet)
36.5 - 49.9	Cuttings	Silty sand	Fine-grained, poorly sorted, 10-15% coarse sand and gravel, red (2.5 YR 5/6, wet)
49.9 - 51.1	Split spoon	Sand	Medium-grained, well sorted, moist to wet, minor silt, red (10 R 5/6, wet)
51.1 - 52.0	Cuttings	Sand	Medium-grained, well sorted, red (10 R 5/6, wet)
52.0 - 58.0	Cuttings	Sand	Fine-grained, moderately sorted, red (10R 5/6, wet)
58.0 - 59.0	Split spoon	Sand	Medium-grained, well sorted, 2% gravel and cobbles (1.0 - 1.5 cm diameter), red (10R 5/6, wet)
59.0 - 61.5	Cuttings	Sand	Very fine-grained, moderately sorted, 2% coarse sand, minor clay, red (2.5 YR 5/6)
61.5 - 67.5	Cuttings	Clay	Plastic, with light gray reduction spots, red (10 R 5/6, wet)





### DANIEL B. STEPHENS & ASSOCIATES, INC.

ENVIRONMENTAL SCIENTISTS AND ENGINEERS

Client:

Transwestern Pipeline

Compressor Station No. 5

Thoreau, New Mexico

**Drilling Contractor:** 

Boring No.:

5-371

Ward Drilling Company Ruidoso, New Mexico

Project No.:

2105 2.3

Drilling Method:

Cable Tool

Date Started:

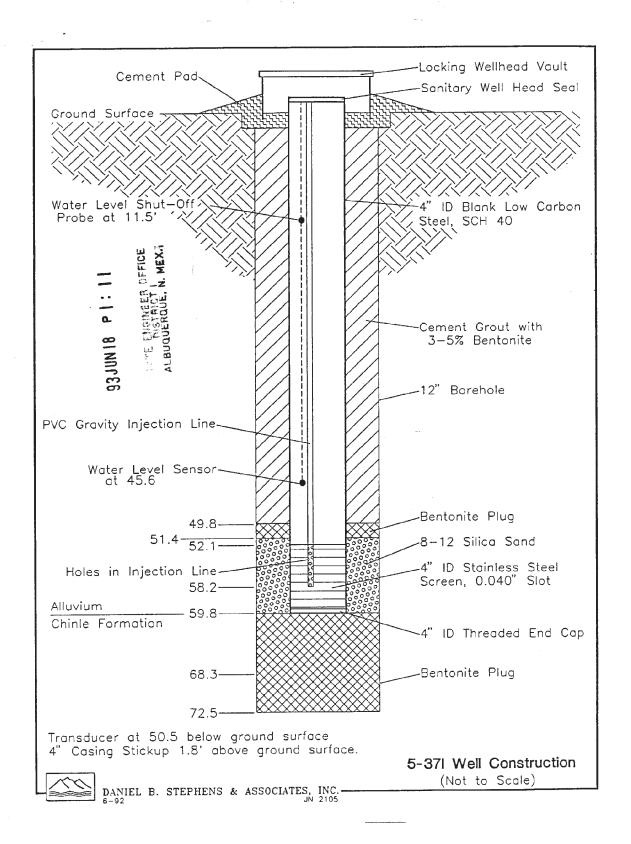
4/15/92

Date Completed: 4/16/92

Total Depth Drilled:

72.5 ft

DEPTH INTERVAL (FEET)	SAMPLE TYPE	MATERIAL TYPE	DESCRIPTION
0.0 - 37.0	Cuttings	Silty sand	Very fine to fine-grained, moderately sorted, trace clay, yellowish-red (5 YR 5/6, wet)
37.0 - 53.0	Cuttings	Silty sand	Fine-grained, poorly sorted, 15% limestone gravel and coarse sand, trace clay, yellowish-red (5 YR 5/6, wet)
53.0 - 59.0	Cuttings	Silty sand	Very fine to fine-grained, moderately sorted, trace clay, yellowish-red (5 YR 5/8, wet)
59.0 - 72.5	Cuttings	Clay	Plastic, moist to dry, trace fine sand, red (2.5 YR 4/8), partings with light gray reduction spots to 1/8" diameter. (N8)





### STATE OF NEW MEXICO STATE ENGINEER OFFICE ALBUQUERQUE

ELUID L. MARTINEZ STATE ENGINEER

June 15, 1993

DISTRICT 1 3311 CANDELARIA, N.E. SUITE A ALBUQUERQUE, NM 87107

FILE: B-1244-Explore-1 & 2

Daniel B. Stephens 6020 Academy, NE, Suite 100 Albuquerque, NM 87109

#### -Greetings:

Under date of March 10, 1992, when forwarding your approved exploratory permit, numbered above, we advised you that in accordance with the conditions of approval, the well could only be tested for 10 cumulative days, and that the well was to be plugged on or before March 15, 1993, unless a permit to use the water was acquired from this office.

Please advise this office if the well was drilled and, if so, please see that the well log is submitted immediately. Since you have not applied for a permit to use the well, any well that was drilled under the above permit should now be plugged.

Very truly yours,

Susan Raffay (505) 841-9482

sjr

cc: Santa Fe SEO

93 JUN 17 PM 2 24 STATE ENGINEER OFFICE SANTA FE HEW MEXICO

### IMPORTANT—READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM



### APPLICATION FOR PERMIT

To Appropriate the Underground Waters of the State of New Mexico

	January	18, 1996		ile No		B-1325	
Date	Received January ame of applicant Nor	thwest Nev	v Mexic	o Reg	ional	Solid Waste	Authority
4.4	····	BOY 133	,				
C	ity and StateTho	reau, New	Mexico	28/.3	2.3	wowstor Ragi	n
2. S	ource of water supply S	onsela Aquesian or shallow	11 rer	, locate	d in B1	(name of undergr	ound basin)
	(arte he well is too be located in	sian or shallow t	SE 14 S	se: 4 s	ection 2		
3. T	he well is toke located in lange 12W N.M.P.	M., or Tract No.	of Map	No	_of the		District,
	n land owned by Nort	hwest New	Mexico	o Kegi	onal E	Solid Waste 1	Authority.
		- Claiman Chor	wart Bi	rother	e Dril	lina	;
C	Description of well: name Jurside Dinmeter of casing Juantity of water to be app		inches; A	ipproxima:	te depth AD2	16	acre feet,
5. (	Juantity of water to be app	ropriated and ben	enciany as		(consu	mptive use, diversion)	
f	or Consumpti	ve Use				2 25111	purposes.
6. /	Parker real real real real real real real re	olace of use R	ed Roc	ks Rec	gional	Landfill	actes.
						O	_
	Subdivision	Section Tov	vnship R	ange	Acres	Owne	r
	South 1/2	21 1		12W	320	NWNMRSWA	<u> </u>
	North 1/2	28 1	4N	12W	315	NWNMRSWA	<b>D</b>
							<b>Z</b> (4)
-							
				-			Deni.
							<u> </u>
							<u> </u>
7.	Additional statements or e	xplanations				Ugo Pormit t	o appropriate
	1. This Appl	ication 11	for a	Temp	from	the Sonsela	o appropriate Aquifer for a
	neriod of	20 vears.	The	Permi	t for	the Red Rock	s Regional
	t == 4 = 1 1 1	ie slen fo	or a 20	) vear	perio	d	
	2. Water wil	1 be used	at the	Red	Rocks	Regional Lan	ofire
	domestic	<u>and sanita</u> n. dust co	ntrol	and c	ompost	t maintenanc	
	3. This well	was const	ructed	1 for	Conoco	Inc. in 19	80 as their
	monitorin	a wall MW.	_2. TH	ne wei	1 dept	n 18 946 ree	c. Seven
	inch O.D. steel casing is set from 0.0 feet to 723.5 feet. Well screen consists of 6 5/8" OD #60 slot-louvered screen						
	Well scre	en consisi	926 fe	eet.	The wa	ter level wa	s measured
	at 100 5	feet on A	iniigh 2	24. 19	195.		
	A The well	numn test	ed the	week.	of May	8, 1995 us	ng a remp-
					galic	ons per minut	<u>e 101 u</u>
	period of 24 hours.						
			· · · · · · · · · · · · · · · · · · ·				
=	THE NAME OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PA						
ι,_	_ Henry Will	<u>son</u> ,	assirm that	the forego	ing statem	ents are true to the be	st of my knowledge
an-					or the pen	nit has been obtained.	
N.	NORHWEST MEW!	MERILLO BE	SIVNAL	-			•
5	OUD WASTE ALLT	HORLIN					•
	Sens L	Select	. Darmi	ittee.			
-	1 C 1 K		, r ctur				
By: Dalmy Wha							
12th day of January . A.D. 1996 -							
Subscribed and sworn to before me this day of the day of the day of							
М	y commission expires	1127/99			/	Jandra /	Crucs.
						Notary Public	/ \

#### ACTION OF STATE ENGINEER

ARANANTEN PULANTAN IN ARANAN ARAK IN ANAKATAN TENERTIKAN MENJANJARAN TENENGANAN ANAKATAN TENENGAN KANAN TENENGAN
AND THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPER
######################################
**************************************
After notice pursuant to statute and by authority vested in me, this application
is approved provided it is not exercised to the detriment of any others having
existing rights; is not contrary to conservation of water within the state and
is not detrimental to the public welfare of the state; further provided that all
Rules and Regulations of the State Engineer pertaining to the drilling of
Shallow wells be complied with; and further subject to the following conditions:
(SEE ATTACHED CONDITIONS OF APPROVAL)
(SEE ATTACHED CONDITIONS OF AFFROVAL)
Proof of completion of well shall be filed on or before, 19
Proof of application of water to beneficial use shall be filed on or before, 19
Witness my hand and seal this 1st day of February , A.D., XX 2002
Thomas C. Turney
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
By: And A. Min.
Andrew L. Lieuwen
Water Resource Master

#### INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of \$5.00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

Secs. 1-4-Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water of acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed lands describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7-If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.

#### CONDITIONS OF APPROVAL

1. This application is approved as follows:

Permittee: Northwest New Mexico Regional Solid Waste Authority

Permit Number: B-1325-T

Priority: Filing date of January 18, 1996

Source: Ground Water from the Sonsela aquifer

### Point of Diversion:

Well No. B-1325 located in NE1/4 SE1/4 SE1/4 of Section 21, Township 14 North, Range 12 West, NMPM, drilled to a depth of 946 feet with 7-inch casing on land owned by the applicant, at the Red Rocks Regional Landfill, McKinley County,

New Mexico.

### Purpose of Use:

Domestic and sanitary uses, equipment maintenance, fire protection, and dust control.

### Place of Use:

Red Rocks Regional Landfill, McKinley County, New Mexico.

Amount of Water: Consumptive use: 16.0 acre-feet per annum

- 2. Diversion of water under this permit shall occur only from the Sonsela aquifer (at approximate depth between 720 and 920 feet) and shall not exceed 10 acre-feet per annum over the 20-year period from February 1, 2002 to February 1, 2022.
- 3. This permit shall automatically expire on February 1, 2022, and any subsequent diversion of water from well B-1325 shall occur only under a separate permit from the State Engineer.
- Well B-1325 shall be equipped with a totalizing meter, or meters, of a type and at a location(s) approved by and installed in a manner acceptable to the State Engineer.
- Records of the total amount of water diverted from Well B-1325 shall be submitted to the State Engineer on or before the 10th day of each month for the preceding calendar month.

### CONDITIONS OF APPROVAL (continued)

- 6. Well B-1325 shall be plugged in a manner acceptable to the State Engineer no later than March 1, 2022, unless a separate application to appropriate water from well B-1325 is approved by the State Engineer. A plugging record shall be filed with the State Engineer no later than ten (10) days after plugging.
- 7. The permittee shall utilize the highest and best technology to ensure conservation of water to the maximum extent practical.

Witness my hand and seal this 1st day of February, A.D., 2002.

Thomas C. Turney, P.E. New Mexico State Engineer

Rv

Andrew L. Lieuwen, District 1



## STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ALBUQUERQUE

THOMAS C. TURNEY STATE ENGINEER

July 5, 2002

DISTRICT 1 121 TIJERAS, NE, STE. 2000 ALBUQUERQUE, NM 87102-3400 (505) 841-9480

J. R. Murrietta, Executive Director NW NM Regional Solid Waste Authority PO Box 1330 Thoreau, NM 87323

Files: B-1324 and B-1325

Greetings:

Your meter reading has been received. In order to enter it into our database, please complete the enclosed form and submit it to our office as soon as possible. I appreciate your cooperation.

Please don't hesitate to call if you have any questions.

Zie Robinson

Sincerely,

Eric Robinson

Water Resource Specialist

ER:er

cc: Santa Fe OSE



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ALBUQUERQUE

\*02 FEB 4 AM 9 07

DISTRICT I 121 TIJERAS, NE, STE. 2000 ALBUQUERQUE, NM 87102-3400 (505) 841-9480

THOMAS C. TURNEY STATE ENGINEER

February 1, 2002

File: B-1325-T

Northwest New Mexico Regional Solid Waste Authority P.O. Box 1330 Thoreau, NM 87323

#### Greetings:

Enclosed is your copy of the above-numbered Permit to Appropriate the Underground Water of the State of New Mexico, which has been approved subject to the conditions set forth on the reverse side thereof.

The permit shall automatically expire on February 1, 2022, and any subsequent diversion of water from Well B-1325 shall occur only under a separate permit from the State Engineer.

Well B-1325 shall be equipped with a totalizing meter, or meter, of a type and at a location(s) approved by and installed in a manner acceptable to the State Engineer.

Records of the total amount of water diverted from Well B-1325 shall be submitted to the State Engineer on or before the 10<sup>th</sup> day of each month for the preceding calendar month.

Well B-1325 shall be plugged in a manner acceptable to the State Engineer no later than March 1, 2022, unless a separate application to appropriate water from Well B-1325 is approved by the State Engineer. A plugging record shall be filed with the State Engineer no later than ten(10) days after plugging.

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

Sincerely yours,

Andrew L. Lieuwen Water Resource Master

ALL:cp

Enclosure as stated cc: Santa Fe OSE

#### ADMINISTRATIVE PROCESS

Correctly prepared Proofs of Application of Water to Beneficial Use or Completions of Wells or Works, filed on or before the due date, will be accepted for processing.

Correctly prepared Proofs of Application of Water to Beneficial Use or Completions of Wells or Works, delivered after the due date, will not be accepted for filing or processing until one or more Applications for Extensions of Time are filed to bring the permit up to date.

Applications for Extensions of time which are filed on or before the due date will be processed in the order received as time and personnel are available.

If Applications for Extensions of Time are filed after the due date (LATE) but before cancellation of the permit, the file will be reviewed in the District Office and forwarded to the State Engineer with a recommendation to seek fines or other legal action through the Legal Services Division of the State Engineer Office.

If neither Proofs nor Applications for Extensions of Time are filed, the records of the permit will be reviewed and the file will be forwarded to The State Engineer with a recommendation to cancel the permit and/or to seek fines or other legal remedies through the Legal Services Division of the State Engineer Office.

### **MEMORANDUM**

New Mexico State Engineer Office Water Rights Division - District 1

DATE:

February 1, 2002

FILE:

TO:

FROM:

SUBJECT:

Jess L. Ward M for JW

Jerry E. Carr JEC

Application Application for Permit to Appropriate Ground Water of the State of New Mexico in the Bluewater Underground Water Basin -- Northwest New Mexico Regional

Solid Waste Authority.

HISTORY: The subject application was filed on January 18, 1996, by Northwest New Mexico Regional Solid Waste Authority, P.O. Box 1330, Thoreau, New Mexico 87323. The notice for publication was issued on February 19, 1996. The affidavit of publication was filed on March 22, 1996, stating that the legal notice had been published on February 24, and on March 2 and 9, 1996, in The Independent. The protest period ended on March 19, 1996 and no protests were filed.

A field investigation concerning applications B-1325 and B-1325 was conducted on May 1, 1997 by District 1 personnel David Miller and Robin Hulette. The following information was recorded:

	B-1325	B-1325
Торо Мар	38.2.2	38.2.2
Location	14N.12W.28.124	14N.12W.21.442
Meter Installed	NO	Master Meter
Serial Number	NA	Not Readable
Unit of Measure	NA	Gallons
Multiplier	NA	X10
Reading	NA	143896(0)
Previous Reading	NA	NONE
Date of Previous Reading	NA	NA
Usage in Acre-Feet	0	UNKNOWN
Permitted Diversion	10.0 AFA	16.0 AFA
Required Readings	NA	NA
GPS Readings,	NM Coordinate System, Wo	est Zone
(Corrected)	X = 415862.517	418954.517
(Corrected)	Y = 1607867.238	1610174.404

Both wells were constructed in 1980 as Conoco, Inc. monitoring wells. Well B-1325 reportedly has no pump nor meter installed; no water meter was observed. The electric meter reading for the meter on a pole about 15 feet from the well B-1325 was all 0's. Well B-1325 was found to be in operation and reportedly providing water for the facility office which normally has 4 people working full-time. A water meter reading was recorded as shown above. The meter was found in a small "pit" adjacent to and on the north side of the concrete pad. The wooden top of the "pit" was buried under about 3 inches of dirt and cardboard. Reportedly, neither well has been used for dust control. No significant landscaping was observed around the office facility. Dust control is being accomplished using "run-off" water stored in a pond about 1/4 mile south of B-1325. The dam did not appear to be over about 6 to 8 feet in height nor cover more than about 1 [acre] of land.

CONSIDERATIONS: The applicant proposes to use an existing well B-1325 (Exhibits A and B), located in the NE1/4 SE1/4 SE1/4 of Section 21, Township 14 North, Range 12 West, NMPM, drilled to a depth of 946 feet with 7-inch easing on land owned by the applicant, at the Red Rocks Regional Landfill for domestic and sanitary uses, equipment maintenance, fire protection, dust control, and composting located in the South 1/2 of Section 21 (321 acres), and North 1/2 of Section 28 (315 acres), Township 14 North, Range 12 West, NMPM, on land owned by the applicant.

The well and lands are generally located as follows-- drive west on I-40 to the Thoreau exit and drive north on NM 371 for about 5.4 miles from the railroad overpass and turn right onto Red Mesa Bluffs Road. Drive for 1.6 miles to the office building. B-1325 is about 0.9 mile beyond the office and on the far side of the actual dump.

This application is for a Temporary Use Permit to appropriate 16 acre-feet of water per year from the Sonsela Aquifer for a period of 20 years.

Well logs by Jacobson Helgoth Consultants were obtained from the applicant on December 7, 2001, confirming that the well are in the Sonsela aquifer. In addition, this is also in agreement with the data given by Mr. Peter F. Frenzel in "Simulation of Ground-Water Flow in the San Andres-Glorieta Aquifer in the Acoma Embayment and Eastern Zuni Uplift, West-Central New Mexico": USGS Water Resources Investigations Report 91-4099, Figure 7, page 15.

## **EVALUATION OF WATER RIGHTS APPLICATION:**

A study using the Their Non-Equilibrium Well Formula was also conducted to estimate the drawdown on any wells of other ownership within 5,280 feet of the subject well. OSE records show that the nearest well of other ownership, B-1019, is about 1 mile from well B-1325. In addition well B-1019 is only 88 feet in depth compared to 946 feet of the pumping well which would lesson the vertical effects of pumping in this type of aquifer. Calculations were performed using the Formula with a Transmissivity of 337.0 gpd/ft and a Storage Coefficient of 0.0001. These values were given by Andy Core, Hydrology bureau, Office of the State Engineer. A pumping rate of 9.913 gallons

Memorandum to Jess L. Ward Application B-1325 Northwest New Mexico Regional Solid Waste Authority Page 3 February 1, 2002

per minute (16 acre feet per annum) was assumed. As Exhibit C shows, after 20 years of pumping the expected drawdown of a well at one mile the drawdown is 18.83 feet. Therefore, the additional withdrawal of 16 acre-feet per annum from well B-1325 does not appear to have a significant effect on other wells.

#### CONCLUSION:

There would be no impairment of existing water rights due to the granting of this permit. The operation of the regional landfill is in the public interest. Therefore, I am of the opinion that this application is not detrimental to the public welfare or contrary to the conservation of water within the State of New Mexico.

## RECOMMENDATION:

Approval of this application to Appropriate Ground Water of the State of New Mexico in the Bluewater Underground Water Basin in the amount of 16.0 acre-feet per annum of consumptive use rights subject to the Rules and Regulations of the State Engineer. Suggested conditions of approval are stated as follows:

## SUGGESTED CONDITIONS OF APPROVAL

1. This application is approved as follows:

Permittee: Northwest New Mexico Regional Solid Waste Authority

Permit Number: B-1325-T

Priority: January 18, 1996

Source: Ground Water

### Point of Diversion:

Well No. B-1325 located in NE1/4 SE1/4 SE1/4 of Section 21, Township 14 North, Range 12 West, NMPM, drilled to a depth of 946 feet with 7-inch easing on land owned by the applicant, at the Red Rocks Regional Landfill, McKinley County, New Mexico.

11077 1110312

## Purpose of Use:

Domestic, and sanitary uses, equipment maintenance, fire protection, and dust control.

Memorandum to Jess L. Ward Application B-1325 Northwest New Mexico Regional Solid Waste Authority Page 4 October 31, 2001

## Place of Use:

Red Rocks Regional Landfill, McKinley County, New Mexico.

Amount of Water: Consumptive use: 16.0 acre-feet per annum

- 2. Diversion of water under this permit shall not exceed 16.0 acre-feet per annum over a 20 year period.
- 3. All withdrawals of water under this permit shall expire on February 1, 2022.
- 4. Well B-1325 shall be equipped with a totalizing meter, or meters, of a type and at a location(s) approved by and installed in a manner acceptable to the State Engineer.
- 5. Records of the total amount of water diverted from Well B-1325 shall be submitted to the State Engineer on or before the 10th day of each month for the preceding calendar month.
- 6. The permittee shall utilize the highest and best technology to ensure conservation of water to the maximum extent practical.

Thomas C. Turney, P.E.

Witness my hand and seal this 1th day of February, A.D., 2002.

New Mexico State Engineer

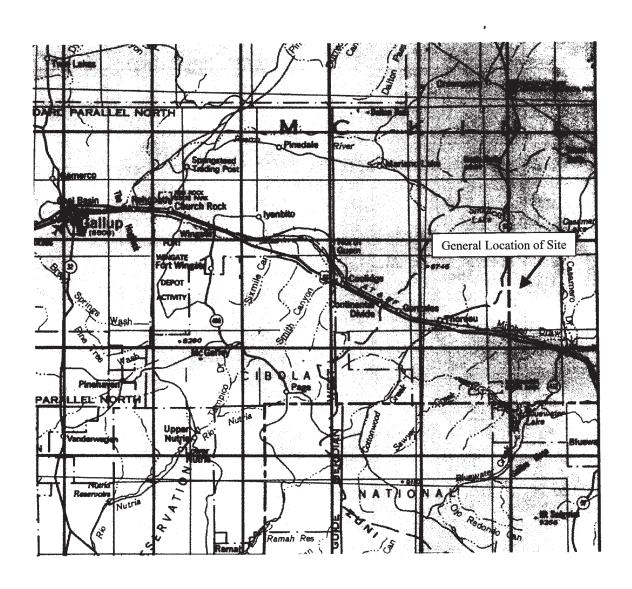
By:

Jess L. Ward, District 1

JEC:jec

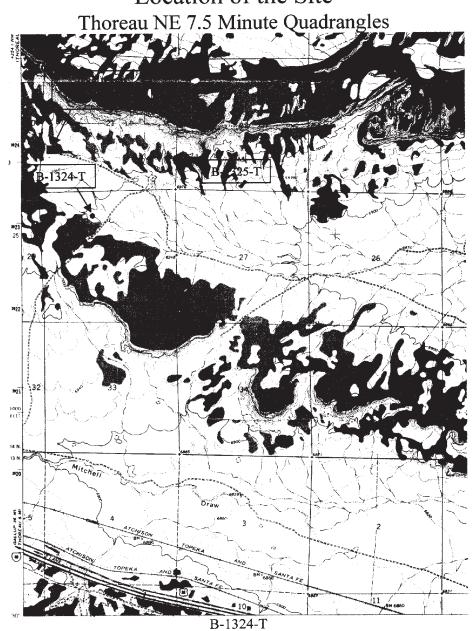
cc: Santa Fe, OSE

# EXHIBIT A General Location of the Site



B-1324-T December 27, 2001

# EXHIBIT B Location of the Site



December 27, 2001



November 27, 2001

Mr. Joe Murrietta Executive Director Northwest New Mexico Solid Waste Authority P.O. Box 1330 Thoreau, New Mexico 87323

Re:

Sonsela Well Information Red Rocks Regional Landfill

JHC Project 266-05

Dear Mr. Murrietta:

Attached is the Conoco Sonsela well information that was provided to JHC by the Elkins Family to evaluate the property for the landfill permit. Note that Sonsela Well SW-3 is located near the center of the landfill property (NE NW Section 28, T14N-R12W). This well was originally called MW-3 by Conoco and this well does not currently have a pump installed. Well SW-2 (Conoco MW-2) is located on the northeast side of Landfill Cell No. 1 (NE SE Section 21, T14N-R12W). This well is the current water supply well for the Authority.

If you need any additional information, please contact me.

Sincerely yours,

JACOBSON HELGOTH CONSULTANTS, INC.

Norman C. Hogg, P.G. Hydrogeologist

w/attachments

DEC -7 Ad 9:

## SECTION 3.0 SONSELA WELL DETAILS

Conoco drilled and constructed three Sonsela monitoring wells on and adjacent to the Site in November and December of 1980 as part of the planning for a Uranium processing facility that was not constructed. The wells were designed both to establish background water quality and to evaluate the potential for the Sonsela Aquifer to provide a source of industrial water for the Uranium processing operation. Two of the three Sonsela wells are on Authority property. The third Sonsela well is currently being used by the Elkins Ranch for domestic and stock use and is similarly constructed. The Conoco well, formally known as MW-2, has been renamed SW-2 and MW-3 is now known as SW-3. The following describes the Sonsela Sandstone lithology and construction details of the two wells.

## 3.1 Lithologic Details

Well SW-2 was drilled in November of 1980. A 12 and three-eighths inch diameter hole was drilled to 766 feet. From 766 feet to 946 feet the well was drilled with a 10-inch diameter hole. Well SW-2 encountered 200 feet of Sonsela Sandstone between 720 and 920 feet. The sandstone was described as grayish-white with variable cement and shale interbeds every 40 or 50 feet.

Well SW-3 was drilled in December of 1980. A 12 and three-eighths inch diameter hole was drilled to 740 feet. The Sonsela Sandstone is 170 feet thick in SW-3 (540 to 710 feet). The samples were described as a grayish-white, well-cemented sandstone. The sandstone is poorly cemented where carbonate is present. The presence of shale interbeds were noted but not their specific location. The Conoco sample logs are included in Attachment 2 of this Technical Memorandum.

Issued: October 17 1995 Revision 0

## 3.2 Construction Details

For well SW-2, the casing consists of seven-inch outside diameter steel casing between the depths of zero and 692.5 feet. Another section of seven-inch casing is located between 698 and 723.5 feet. The interval between 692.5 and 698 feet is a drilled out cement plug. The screen is constructed of six and five-eighths inch outside diameter steel #60 slot-louvered screen from 723.5 feet to 926 feet. A 20-foot long blank six and five-eighths inch screen was placed at the bottom of the louvered screen. There is some question as to how uniform the three-eighths diameter pea gravel is in the interval from 766 to 946 feet. The top of the pea gravel is estimated to be at 710 feet. The interval between the well casing and the borehole from 7 to 710 feet was pressure emplaced using cement with two percent gel.

The available well construction information is incomplete for well SW-3. Apparently the well is constructed of seven-inch O.D. steel casing from zero to 558 feet. Six and five-eighths inch O.D. #60 slot-louvered screen is placed from 558 feet to 720 feet. A 20-foot section of blank screen is placed at the bottom of the screen. Three-eighths inch diameter pea gravel was used as a filter pack media. The exact height of the pea gravel is unknown, but from the volumes used, the top should be at least ten feet above the top of the Sonsela Sandstone. The interval from 4.0 to 558 was cemented using cement with two percent gel. The best available copies of the construction diagrams are included in Attachment 3 of this Technical Memorandum. Development information is unavailable for both wells.

T.M. 9 Page 7 of 20 Issued: October 17 1995 Revision 0

## St |

			ON NEY	7.0 f	-//	-80)	DRIL	L CONTR	TION	7.1	71	t R	121		GROUND	EL. له	80/7
	DRILL	RIG FA	LINGZ	500	BOR	ING DIA	. 12 3/	8 - 1	ACTUR.	2TE	WART	- 14R	746	AS	TOTAL D	EPIH C	144
× 1.	201F		4 1 10 4 4 4				· ^ . /·	- 1	1			1 11 03	<u> ኢዲ –</u>	26/00	LOGGEO	BY MP	W
A. Armen	CLASS.		arisi silek	DESCRIP	TIUN			DEP		KPLE KO.	PR	REC.	HODE		REM	2384	$\mathcal{D}_{i}^{n} + \cdots$
	3.4	-	<u> </u>								1145		-				
	= 13fs	0.0:-	30 SAND	1857.	STIX	ved dau	48	7	===	٠.			_	0.0 -	600.	2 100-1	
		30	720.0	11000	: 0 M-	,,	-		Ė					mythe.	مح لارسه و	-6em	toute
		CHINL	E FOR	1A TIC	-1C1 1E	7.4.6 E.H	_		$\exists$					Fluid.			
20 E		1	المعارضين المراجات	48 S 3 1 1		, i		110.	Ė				- 5	00 -	755.0 7	عبزااد	ن به بهر
	7.5	3.0	- 230,0	MUD	STONI	E. BH	ick		#			,		15/4.	tercone	LHOCK	oit.
		THALSIE	- 230.0 lighthy wear -, leas the	50/0	المعارمة	سضدهونهو	<del>^</del> 1		3								10 m
) E	1		2 4 - 3 2) 3		2,000				∄ .								•
· E								120 -	] [			- 1					
					and and and				] .								
3 E													- 1				
		7							]				. [			_	
E								30 -	=			- 1					4.1 .
E									3	- [		.	. ]				
# E						0	.1.	. 1			$\prod$						
E	- শ্বর্টা	4		Ta	UE	BOR	1246	L0	CBI	102							
(	- 11												- 1	1131			
: E					ے د							İ		-			-
E				-	ر.			) 	ומ	2 に 7	1			х.,		1.134	,
F				56	CTIO	ا 2 ر	,	11410	, "	2							
E				•								'					· · · ·
E	,	pt .											- 1				· •.
. F			- '														
: F	.											ı			***	9	
F											ļ			•			-
E		. **									1						<i>.</i>
· E.											1					-1:	
·  -			ر در بوش	*				74 —		-1	11				15.4	<u>.</u>	. :
E						inger Projekt		" ‡					İ			0	-
. E					1 / 2 / 2 / 2 / 2 / 2 / 2 / 2 / 2 / 2 /	in.		₹	•							<u>.</u>	=
:	4.							Ξ	:			- 1			$\{\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{1}{2}\}$		્રે <u>-</u>
E				-		grade and the		30-7	·		ł						-
<b>-</b>	- 1					. 17		Ξ	~					A	is in the		· · , <del>-</del>
E	には						<i>0</i> ∫	: =	•								Ξ
Ë		4.			تر. ایالا ایالادید			$\exists$								-1 V.	Ξ
E	· - ½	in Air	The Park Sec.	i etali	ارا بر فاسد. انتهامها		<u> </u>		- 3			-   '	٠	41211	11, 11		83 . E
	2.44 2.44					٠. اه ادار د	٠,	<u>,                                    </u>	等 等							1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	$\Xi$
E	A 473								4		4			618.		(2)	
	75. N.G.		1217,00%		्रकात्तिहरू विक्रिक्तिक	Sing i						5-1	- 1			25.15	-: ∃
					1 TANK	10.00	10	70 -	7.47					352.5		7. 3	
Y	Wah	ler l	有一些	CROW	NPOIN	T RED	Br.iii	FF (%)	in strange from	المراجعة	┯┸—						
As	sociat	los I			PRO.	JECT		1		ver i	LAT	LAXAL	INN		6 L06	BORIN	G NO.
			The second of the	1 - 1 / B		المتحار والتهامان	- Y	That's '	7747	44	CNC	11221	TO.	SI SHEE	T HO.	100	KITCH I

DEPTH	ELEV.	WATER 1850	1: 2-8	30)	ORILL :	ONTRAC	TOR <	! TI	<u>+</u> N <u>13</u>	12W/	12727)
		-AILING 2500	BOR	ING DIA.	123/8	- 10.	O" DA	E DRIL		22-2	LUIBO LOGGED BYMPW
CLASS		DESCR	IPTION			DEPTH	SAMPLE NO.	PR	REC.		4.
- 1		7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -				100 -			1		. 42
	3.0	) - 230.0	MUDS	TONE (	(P+200)	=					1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.
				:			:				
-						110			1		
= 3						$\exists$		,			
	1					=					
= :-						=	* * * *		j	1	
I ()						120-					
				•		Ė	3.1				
						=					
	1					<u>,                                    </u>	**	:			
	'					30-7	**				
						= =					
-	-			•		F04	1.00			-	
			₹**			Ξ				· [	Tale .
						Ė	j				
774						=		İ			
•			· .		: [1:	20-7	7.1				
						Ė					
•				••		- =		- 1			
	.				·	੍ਰੀ			1		
					.  "						
				•	.	Ħ					
				*. :		=		- 1			
K 31	:	As the second				E	1 44		İ		
- 1						_ =			- 1		
				1 1 1 V		Ė	- 1				· 经有效的。
			**		2.4	=			X.		Service Control
· · · · · · · · · · · · · · · · · · ·			,		18	o크					
-2						=				4	<b>计过程</b>
			The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of th	in the second			***		i.		
		garan karan				$\exists$	4.4	*	39	3 1	17-04
23	و (آ) رائ	1485 (1484) (1484) (1486) 1486 (1484) (1484) (1484)	-	45.7	1-1	(3	1	1		堂"	-22 - 00 am
No.	7			7.70	<u></u>		-31	C 1 7 3 5 5	会によりの	3	
3	3.0	1870年	A STEEL STEEL				1	45	75	2	
72.00	- 95		POST OF	14.50		$_{-}$ E $_{c}$			4	書	12-80 out
X Wo	iatros.						N 7,71		14.		11 3435 (4) - 1C 41 C (40)
usoci	unier -	# CI	NOWNFOI	NI REI OJECT	BLUI See	F	a street	蒙 EX	PLORA	TION	BORING LOG BORING
NOUCK	JISS	一个社会经验的	*** (*********************************	S STOR	253	设设	差洪	2 01	C HOLD		ACT TO MW-1
777	deta	AL HEALTH ARASE	£ 057300	مزيدة المتامرة	Y	مرا سطنان	CONTRACTOR	و جو شودوی	- 1011	*******	THE TOP MW-1

	LEV. WATER 1800 (	10-80)	ORILL'S	CONTRACT	TION ZI	WAG		Q⊥HÉ M	RS	GROUND EL.60 TOTAL DEPTH	946 A
	IG FAILING Z500	BORING D	11.123/8"	- 10.0	" DATE	DRILL	ED (1) A	2-Z6	120	LOGGED BY M	PW
SOIL CLASS.	DESCR			DEPTH	SAMPLE NO.	PR Rao	REC.	11		REMARKS	
54				200-							
1	3.0 -230.0 MUD	BTONE (C	Duthouad)	E				1	٠.		
			•,	]				1			
			. *	] =							• .
- 4				203				[ . ]			e jaronija.
						[ .			1		
					* U.			1	:		
				]							
_				220-	77	,			٠.	vo.	
				=	***						
				=						1.7	
				]						Maria Valor	
-	230.0 -250.0	CORRED SA	NDSTONE	=	, .		_				
	gray slightly weather	red; well indi	wated;	1 3							
	redium to Fine gran	•		=							
_				240					•		11.1
-				=				}			
				3	٠.						
= 1				=							
	250.0 - 720.0 Mu	DSTOJE: bić	V . o.l	750-							
<del>-</del>	with light grown b	www.dous. a	July He	=							
- ".	with light grown by weathered blooders	kely indusate	a Fredore	] ]				<u> </u>			
<u>:</u>	less than sologe	avet.		200							
	\	l je		] ]	·						
<u> </u>				-							
-				]							
ion.		to dec	• • • • • •	270-						A 8	* **
= .			*	3					:		
- -			1.	=						4.19-5.	
				L . =						indigen it in an Carrier to	
= :				160	7.5						
Ξ,				1 3					::	4.7	
= .		1							-3		
<u>-</u> .	in the said			290					, 15 15		
	The street of the street of			1 3					. 7		
										AND THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF T	TATES OF THE STREET
= -							14%	3	190. 190.		× , , , , ,
				300	27.67.					CANCER OF LANGE	ur samo
M. W	/ahler	CROWNPOIN	T RED B	LUFF	THE CASE	77	EXPLO	RATI	ON B	ORING LOG	BORING
Assoc	ciates	CROWNPOIN PRO	JECT	1		F	PROJ CAL	ECT NO	-	3 or 10"	MW
	ما المشارع بالمانية المانية المانية المانية						<u> </u>	,0,14		<u> </u>	

DRILL RI	LEV. WAT	ER 180	0 (1	BORING	DRILL DIA. 123	CUNTRAC	DATE	DRILL	ED ILLY	ATHERS	GROUND EL. TOTAL DEPTH O LOGGED BY N	946.0
2011	HAIL				142	78 - 10	SAMPLE	PR/				IPW
CLY22	* *	**.":	DESCRIPT	ION	1 1	рертн	. מא	ROD	REC.	MODE	REMARKS	
41.						-300-						,
	2500	- 720.0	MUD	STONE (	Continued)						1 to 1	
			•							[ ]		
						1 3						
_	14.7 13.15.5		14	rojektek Leganjonje		310-						1
- 7-7		٠.										
	133				. 1	1 3						
: jr							**					
_						320-	-					
-						.   =						4
_	134					=						
- 1												#
-	•					330-	, i					1.4 541 + 1 2.7 4575
					•	=	•				- ( 사용)	
											선생하는 기	
- 1	* 4. 4. 3.				2 ***	340						
						E						
						l i	•					Tana s
		de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la	: :			1 =						
	,				- ' •	700 H						• • • • • • • • • • • • • • • • • • •
						1 = 1						
			1		*	1 3	4.3					
					* . *	1 3			1			
-			•			360-						
- ,					. *	1 3						
						l i						
-			•			1 =					and a second second second second second second second second second second second second second second second	
- ~		er et et.				370-	7, 1				· 建水砂 医红色	
: :						1 =			:			
-						=	1.					
:					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	I I	440					- 1
:						380-		٠.				
						=	٠,					
						390						
		and the second		er Generalise	ing page of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the	E	5	41			in the Open A server	
- 多、全、金、金、金、金、金、金、金、金、金、金、金、金、金、金、金、金、金、金、	135				r Ager	- OFC	- 10		. S. 134	- 1	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	
	374							1	が発展	- S		15
	7.5	36 652		17.30	17.30.70		Time.	1	25.	2	THE PARTY OF	35 E4 4
- 25-	أيواداهم		1. 200			1407	1	÷C	13	4		3 84 W
***						الممار	1.00			للا	Tractory where office and	elicaria diri
W K	ahler	24.00	CR	OWNPOI	NT RED B	LUFF		愛上	EXPLO	RATION	BORING LOG	BORING NO
Assoc	iates	本社	1000	PRO	الما الما الما الما الما الما الما الما	**************************************		級上	PROIS	Ath -	BORING LOG	MW
1000	51888	المراجع والمناوة	شان رازس	Service oran	YABBERUL	المناور بواتهم				PART	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	PHIR SOURS OF
What failed		· <del>- W</del> ANGEL			ىرى بىرىكىلىكىلىكى دا دا							2 417

		IS FAILING 2500	-10-80)   DRILL   BORING DIA. 123/3	CUNTRAC	TOR STE	WAR	3R07	HERS	TOTAL DEPTH Q-40.0
	SOIL	- AILING 2500	-   BURING BIA.   1238	<del>- 10.8</del>			ED 11/2	2 -Zu	LOGGED BY MAPW
	LASS.	DESC	RIPTION	DEPTH	SAMPLE NO.	PR	REC.	MODE	REMARKS
				-400-					
	12.	250.0 -720.0 M	lubstone (Conty)	[					
E	2.0		•				}		·
F	37.								
F				410-	Ş.,				
E	13.7								
E	13.4								
E									
E	N.			420-					
F				1 =					Algebra de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya del companya del companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de
E				1 3					
E				430-				•	
E									
E				]					
E	250-2	1							
F	1			140					
Ē				=					
E	***			=					
E		• •		450-					11-12-80 pm
E				=					11-28-80 am
E				] =					
F				E					
F				HUD				, .	
E				=					
E			•	E					•
E.			1.1.4	470=					
E)		•		=					· · ·
E	l			=	- 1				
E				l i					
				teo ]					•
E	:	• *		=	1	Ì			
E				E	*				
E	-			[492]				1	
E	1.60			]	29	- 1		]	
E	1. C			=			7		25年1月1日
E	2046 2016			490	4.473	- :		-	
				2002	1,44				1000000000000000000000000000000000000
7	X wo	ahler Prison	CROWNPOINT RED B	LUFF	्रीकृष्टिको	1	EXPLO	RATI	ON BORING LOG BORING
A	ssoci	ates a second	CROWNPOINT RED B			\$# F	PROJE	CT NO	
							CMC 1		1 2 cet 10 MM-Y

BORING LOCATION NEVY OF SWYY OF SWYY SECTION 21, THN GROUND EL. 6950(7070) 211 DRILL CONTRACTOR STEWART BROTHERS DEPTH/ELEV. WATER 1800 ( TOTAL DEPTH 246.0 10-20) BORING DIA. 1236 - 10.0" DATE DRILLED 11/22 - 26/80 DRILL RIG FAILING 2500 LOGGED BY MPWI SOIL DESCRIPTION SAMPLE DEPTH REC. MODE REMARKS CLASS. ROO NO. 250.0-7200 MUDSTONE (Cont) 4.73 0-7200 Mut . 19,3 . --. A. ) 養野難以致以 The state of factors Marie alegan 1923 The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s 经港區 CROWNPOINT RED BLUFF
PROJECT Wahler Wahler EXPLORATION BORING LOS Servi Total PROJECT NO. **Associates** CNC INA HA THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE S

12	BORING	LOCATION NEVY SWY	L SWY+ SE	(TION 2	TIHN	, R12	•	-	GROUND EL. (6980(702)
[1]			10-80)   URIL	L CUNIRAC	TOR ST	EWAR	TORK	ンブルド	Q IIVIAL UEPTH C
1. 20.5	ORILL	RIG FAILING 2500	BORING DIA. 123	18-10	D" DATE	DRILL	ED 11/2	2-21	PISO LOGGED BY MPW
- K 15- 15	7102	DESCRIPT		DEPTII		PR/	1		
1	CLY22			DETTI	NO.	ROD	KEC.	MODE	REMARKS
				/000				1	
	<u> </u>	250.0 - 720.0 Muos	STONE (Continue	g) [25]					200 0 944. 2 3 41 1
	<b>-</b> 25			´  =					600.0 - 940.0 Dulled with Goodegradable synthis doubling Fluid
				. I E					doubling Fluid
		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s							Thomps how it
	<u> </u>			. 610 -	415 455 4 7 2 3		-,		
				<u> </u>					
				=					
				1 =					
	<u> </u>			620_					
. E	: - <del>(</del> )	直転与機能など	nagen, n	.  .∃					
过源于上	- 33			1 3					
THE E				.  =					
Fig. 1	-			430 F	4.1			. [	
<u> </u>				= =	. [			- 1	
(1) E	i ;				- 1				
				1 =			- ; ]	-	
	-			640	7.1		- 1	- 1	
E E				E					
<b> </b>   <b> </b>								- 1	
( E			· · ·	I I	*	- 1	- 1		
E				1. 3		- 1		- 1	
-				1020					11-23-80 gm -
- E									" 23
				1 =	1				
E	. 1			E	1				
- 4 E	[			660-			- 1		<u></u>
- F			•	1 =			ł		<u> </u>
E	- 1	**		E					
- Jan E				1 =					
F			Α	670	V:		-		
E				1 3			İ		
-			•	=		İ			
E	- : .			I I					
墓上				sea_					
E	· . ]								
(2) E		3".		E.					
** E									
	· · ·	Committee the second second		LAO 7			25	.:	
	400	The groups of the second of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of th	A STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STA	W0.11	14/31   27/22		·-		
初於上		一點表於物類。在点		==	- \$7				
7 E	7	一个人的 经专业的	ALPRES AND	E	Zer-in			17.4	
LE	11.1							# P	
			• •					<del>~</del>  -	The complete of the services of property of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of th
1	X Wa	hler CRO	WNPOINT RED B	LUFF 📑	45-254 - ST-Y	a EX	PLORA	TINN	BORING LOG BORING NO.
- 3 € - A	usock	ntos Transition	PROJECT		经验	5 P	ROJECT		SHEET NO.
		and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t	to Company or and Mile	277 ( A. )	-160	·   Cx	10,100		7 8F 10 MW-2
mitalities La	باختات	والمالية والمستقدمة والمستخدمة والمستحدث	يات ويور دروادر الناء والمشاهرة	ماد عود دیانون					10 100

DEP	TH/ELEV	. WATER 180.0	LY4 SWY4 SECTION	121 T	74N, R	12W			GROUND EL. 69800
2 1		FAILING 2500	CI 10-801   PRILL	CUNTRAC	TOR STE	WART	KRO.	THER	T PIOTAL DEPTH A
50			17. 18	- 10.0	DAT	E DRILL	ED 17	22-2	WEO LOGGED BY MAN
CLA		DESCR	IPTION 2 3	DEPTH	1	PR/	1		
\ <del> </del>				]	NO.	ROD	REC.	MODE	REMARKS
## <u> </u> -		<u> </u>	<u>.</u>			1		_	
	25	0.0 - 720.0 H	WOOTONE (CONTINUED)	700-			_	<del>                                     </del>	
*. <b> </b>	-			$\exists$			]	ĺ	
F				1 3			Ì		
	£			] ]	4.7				是 <b>有</b> 是特殊的。 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
E i	-			100					11-23-Bonu
5分 <b>上</b>				l ∃	* 1		`.		11-24-80am
- E			43	1 3					· · · · · · · · · · · · · · · · · · ·
<b>.</b>				] ]					
				=	3.1		100		
: F	720	.0 - 920:0 H	TIDDLE MEMBER -	720-		- 1			
: E				=		ĺ		- 1	
: E	. g.a.	yishwhite, well	comments			- 1	]	- 1	
₽ E ×	· ken	mented when a	1: SANDSTOVE: cemented, poorty	7					
	· Sha	le rudes ledes of	undonate is present.	730		ĺ		- 1	n de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya del Companya de la Companya del Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Companya de la Co
E			-12 dolectorso.	E	- 1	1		- 1	
				=		- 1			
E	.			- =					
E	1 7			=		- 1	- 1		
E				- OF		-			
過卡 员				Е		- 1			
<b>-</b>			*	$\exists$			- 1		
. E				4			- 1		
- E		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		,_ =			- 1		
<b>:</b>	1 .			20-	- 1	- 1			
·				3		ı	- 1		
F				-=			- 1		
E				7			.	7.5	55.0 - 946.00 11-1
: <b>E</b>		:	ין	∞∃ □				$\omega$	75.0 - 946.0 Drilled the 976" trume
· <b> </b> =						ĺ		10	ckbit.
F				=					
. E	1			Ⅎ	- 1	.		7:	55.0 Probable
E			<b>1</b>	. =	-3.1		- 1	I his	doing of gwel.
F	l		[7]	E		- 1			refined of trace
F	1			- =		- 1	- 1	100	
E			A CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR	=					
$\mathbb{E}_{\mathbb{R}^n}$				. 🗎		-	- 1		
• E	1		7 <i>E</i>	0					
F 20	1.1						- 1		
: F			7. St. 9	<±±			٠. ا		
	. 1						<i>;</i> .		
			から温いた。	<u>.</u> =	1000 1000 1000 1000 1000 1000 1000 100	: N			
計 第1	20.0	1977 jedných sa vagyst vasou selber to Tour brous	790	רכנ					
E &				<b>#</b> #	感	5	4 M. 1		A-30-2
The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	- 1		Desire The Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of				5 3		TOTAL TOTAL
1	*,7		TO CHARLES A MARKET	3 <b>-1</b>		3 -		i -	3. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
		**************************************	791 791 792 792 793	54_	200 F			5	
X Wo	17.						• •	1	a man a ter terretermentaristic matter Entrate Affer 1
A W	ner	CR	OWNPOINT RED BLUF	F		EXP	LORAT	TON	BORING LOG BORING NO.
Associ	ates	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	PROJECT 18		2005	71	TOBLO	10.	#W/23/25
			an attendance of the Sale Marie Sale	*****	- Delastra	CHA	TALK T		B11403 MV-2

DEPT	H/ELE	CATION NEVY, SWYY SWYY SECTION V. WATER 1892 (1 0-80) OFILE	CONTRA	7700 0				GROUND EL. CAROCTO
DRIL	LRIG	FAILING 2500 BORING DIA 123/g	"	TOR ST	EWART	BRO-	THERS	TOTAL DEPTH QUE.O
201	١ ١	DESCRIPTION	10.4	7 1001	C DRILL	ED 11	22 - 761	80 LOGGED BY MPW
CLAS	2.	DESCRIPTION	DEPTH	SAMPLE	PR/	REC.	1 1	
-	_ _		+	NO.	ROD			REMARKS
E A	7	20.0 - 920.0 SANDSTONE (Cont)	-ko-		l	L		
E		2 1001 = (CONT.	71 E	•	1 1			
E			1 3				1 1	
<b>F</b>			1 =					<i>*</i>
E	: [ ]		6.7					protection of the second
E 500	9		E"					
<b>E</b> 10			=		- 1		- 1	
			1 7		i	- 1		
-		과 전하는 왕이 살아 그렇게 되는다.	]_ 3	324	- 1	- 1	- 1	
= .			207	- 1				
E ·					- 1	- 1		•
E	1 /		7					
E			3	- 1		- 1		
-	1		220-		- 1			
Ε.	1		∄		- 1.			•
_	Ι.		3	- 1	- 1	-		
4.5	1		#	.				
_	) is		F.74		- 1			
E 🐃	1		E	- 1				
: 1,5			#		- 1			
- 1			#	- 1	- 1			
-			Ε·	- 1	- 1		-	
:			20-1		- 1			
:			#					
٠ ]			Ξ	- 1		. ]		
_			4		- 1			
:		34	卢				- 1	•
			7	- 1	- {		1	
			3		- 1			
- 1			Ⅎ	- 1	i			
*		37	ν <del>ͺ</del> Ϊ		- 1			•
		r de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l	73	1				
			= -	- 1			274	. D
- 1			7		- 1		P Lox	.0 Rome-lag
	,		Е		1.		"	
			그	.	1		1 .	
			#	. 1 :		.		and the second second
			7	- 1	1			3
-	ν.		3				7	
11.00		70	_		1	1	11-24	
1	17.		Ε	2.0	1 .		11-24	- BO 041
	21, 550 21, 25		Ξ.	á l	1:	100	8747	80 pu
	***	(アルド) がは日本の名の道郷原家の・1 しゃ	7			1 :	ユデセム	-940.0 Dulled
			∄ ∵				43	running a logs.
×	T	N00-			1		- 1	2003.
Wahl	er	CROWNPOINT RED BLUFF PROJECT	TVILLIVE	PALMAZIE I	F V C			こうではない アンデン かいかい 乗ります
sociat	es l	PROJECT	the state of	27000	CYLFO	RATI	ON BO	RING LOG BORING NO.
1.00		PROJECT	生物类	<b>****</b>		CT NO		
		A CONTRACTOR OF THE CONTRACTOR			CHC	AIO	9	BF IO MW-Z

	ELEY, WA	TER 180.	o C	-10-90	)   0	RILL	CONTRAC	OR STE			-THE	
	RIG FAI	LING 250	. 0	BORING	BIA.	231B	- 16"	DATE	DRILL	E0 11/2	7 - 26	180 LOGGED BY MPW
CLASS			ESCŘIPT	ION		• ;	DEPTH.	SAMPLE No.	PR	REC.	MODE	REMARKS
		14 66					900					
F 545	0.021	- 9200	SANDS	TONE (	Contin	ued)	[°°″]	•				
E	1 000					1.77	=		1			
Ε		dan er		. i	, i <sup>re</sup>	100	1 7					
= 44	- No.			TY	65 m/2		910 -					
							l d					
上兴							=					
F 11.	ું ેું.											
	10.30%	AN TOTAL				44	920 =					
<b>=</b> 5.7	720.0	- 9460 L	OWER M	1EMBER	-CHINI	LE	I '~∃				٠- ا	
= ;;;	FORMAT	110N - MI	SNOTEGG	: puck	Led;	* * *	1 3			3		
두 분.	mmen	haved jaio.	£: judu	wated; F	rable	4 3						
E 41	ress m	haved, and	o grav.	دا. '		* .		;		,-		
	2747.3		·				930-					
=	1				11.00		=					
Ξ	1						=			·	1	
		<b>3</b>					Ε·Ι					
							940				· [	
- 1							'" ♯					
=												
	946.4				7 .		=					11-24-80 Pm
	746.2	דסו נ	AL DE	PTH.	g trans		=			· ·		
					April		620 T			·		
						,	$\exists$					
: :	1.0		·*.			4.5	. =					
-	1						=					
-	}						960-					
	1			::			$\vdash$					
-	1 .						=				- 1	BATA OF THE COLOCIE AND SURGER-
	1 .					,	=			٠,	- 1	FACE COMDITIONS RECAUSE FREE INFOR- MATION WAS DETAINED FROM INDIRECT, DISCONTINUOUS, AND POLAISET DIS-
							970					TURNED EMPTLINE TECESSITATES TO DEZ OF DALL-SINGTES BOLES. BOYARY AND WASE SORIES BACKS EAVE
_							۱" 🗄	-				PORTER CONTLICATIONS IN THIS
							=					S SWITTING ACTUAL VERNOR CYPING IN
					era Georgia	. 5 6	=	Ç4		-		THIS BOLK OFLY OF THE BATE INDI-
	1 .						_ =			· ·		CATES AND MAY FOR REPLETERY COMMI- TIONS AT CYMEN LOCATIONS AND ON STREET BATES. ANY MATES LEVELS
三 字:						- ,	&====================================			12	-	THIS WOLK WAS LOOKED IN STOCK & WAT
	1	7.7				.	=					AS TO PROVIDE DATA PRIDATALLY FOR
				11.			$\exists$		٠,	- 4		CEPIC CONTRACTORS
	1 397						: =	1154	193	- 4	- :	THE STRATUTE LINE OF ACTUAL
	1 32			1.5	37.16	37	990 -	7	* .	-ij	- \$	MARCHA
	[ 74.14]	337		و من المنظمة	Tarres &	11.	:3	2.73/17	37	1		NET FOUR CLASSIFICATIONS MADE OF LOSS
- gra	1		<b>强力</b>	7		<b>3</b>	# =	2424	基	1		THE MAN IN CASE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF
	1 2	mily and	10.45.14	0-10-6			900	A . S	.8.	A STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STA	おおいません	<b>学工作工作</b>
- 18.	1 380		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$	ALL GE	17.	142	Ε	M to	ೌ	\$4 m	2	Solf Civil Classics some or real
								1000	I			HALL A STANK AND THE STANK
XV	Vahler	The state of	CROW	NPOIN:	T RED	BLUI	F			XPLO	RATII	ON BORING LOG BORING
	ciates			PRO.	JECT	77				PRDJE		_ ~
										NG 100		= 1503010 - MM-
The state of the	Laren	Strike OF	35.00					100				Salar Milaric Care Co

CLY22	FAILING 2500	BORING DIA.		Inat	EWART	FO in 1		1 -	100000 00	1H 7400
= 3	( DESCRIPTION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY			1	E DRILL	1	ı		LOGGED BY	MPIN
			DEPTH	NO.	ROD	REC.	HODE		REMARI	KS
_ : . 1	<u> </u>		0 -							
- CL	ALLUVI			Ŧ				0.0 -	7400Dr1	ledwith
I	0.0 - 85.0 SAND	(CLAY: blowing	h =	]				1244"	tricare	tockhi
- '	Md, damp: 2540 med	cure to time sour	<u>ا</u> زا	1						
-	Toolo moderately plastic	Fixes.	10	]				0.0 -	740.0 Dr	-االعط بناء
					i i			beuto	nite aud p	shince w
		and the water in the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract								7
			=					الحديد الماريال	rphonebas cuttings	sed ou
			20 =					<b>T</b> FIII	cuttings	7.41
=									,	
=						- 1		1+		
= -1			] =				- 1		ta ya ng P	•
_			30 =			- 1	.			
-			=				ļ			
		·	_ =				.			
	16 - 18 - 18 - 18 - 18 - 18 - 18 - 18 -		1 =				- [			
- [	SSO - 540 0 UPPE HINLE FORMATION	R MEMBER -	40 =							
		*,								
E	5.0 - 105.0 CORRECTION - 105.0 CORRECTION - 105.0 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105.00 CORRECTION - 105	SAUDSTONE.	l I					٠,		
	my slightly weathere	o well industed;							1	,
-	down to Free grain		50 <u> </u>			-	ļ			
			E			- 1		•		
1			1 3					*:		
	•		1 =			1	- 1	- 4	A	•
.			E cou		1					
			3				1			
- 1		• •	=		1		1		•	-
			I I	· ·		İ				
<u> </u>			170 J	- 1						•
		Totale and the second	E	,				**		
	et.		I I		- 1	ı				
				1						
			203	. ]		.			1	
			E	- 1			. ]		15. T	
1		A Survey San	1 =			.				t a
			=						eriesione Ariani	
			90 111		1				1	
			E					المناز		
	The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of th			7.7		7		4		1
				17	- /		1	الم الميكون المراجعة الميكون		iga erapakaba Garan
, <u>; -</u> '			'	- * . *	· ,					
			100							
<b>X</b> Wah	ller cRor	NPOINT RED B	LUFF	1	EX	PLORA	TIO	BOR	ING LOG	BORING 1
Associa	tes	PROJECT	17.			Kalfci	HQ.	EH	EET #0	MUI-
ارجه الرجاية	AND THE CONTRACTOR				101	101	4	3,	18 g	MWI-

٠E	EPTH/	LOCATION NE VI CV	Y 14 NW 14 C	DECTION	8 T141	V.RI	7 W_			GROUND	EL. UPS
. !		10.00	17-80)	TILL CUNTRA	CTOR ST	EY/A:	BA	OTHE	RS	TOTAL D	EPTH 740
Ľ	RILL	FAILING 2500	- BORING DIA.	123/8"	DATE	EDRILL	LED 12	15-	Nas	LOGGED	BY NATIO
	SOIL	DESCRIP	2012/04/05	j	1 .	PR /	1		2,00		12/6/
	CLASS.	AND DESCRIP	TION ST.	DEPTI	NO.	1 /	REC.	MODE		REM	2384
		Andreas and the second of the second			No.	RQD	11				
				100-	<u> </u>						
		35.0 - 105.0 CORRE	O SAHOSTONE (C	out'd)	‡						
	- 17	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 .	1	ł			1.		
-			<del></del>		1 .		1				_
		105.0 -540.0 MU	DS TALL L	, [ :	1				27		
		with light green lawing wedgestely	T TOUR DUCK	led :	1	l		1 1			:
-	i-	Mec Hi Said	arrows, slightly	110	-						
		macracely	industed that	{<;					14.		
		less than 50% grave	<u>.</u> (.	- 1	1 2.4	1		.			4.4
	2.0					1		1 1			
				4.5	1 2 7		i		1.14		
-				120-			Ι "				
			1 2 × 2 × 1 1 1 1	1,~0=							
		Southern States	s krajada					.	4.5.45	11,15	
				,   T					*	:53	
	- :			=			,	-	•		
		h (j.g. 17 4) 17 g백달(17		=							
-				130 -		1		- 1	5.5		
				~ =	1	ĺ					
	1			=	·	- 1		- 1		17.	
				1 =	1	· /		- : [			:
		그 이렇게 되는 것은 말래.		-   -			· 1	- 1			
				=		- 1					
				140 =		]		.	1,455	1	
	,					1		- 1	7.35		
	3.7.3			1 7	- 1	- 1	- 1	ı			
					1	- 1	- 1	- 1			
				L I	**:	- 1	• [				11
			54	·  - 7	· · · · ·	- 1	ļ				
	_			150 7		- 1				集等。	
	- 1			1 - 1	•				#1.		n
	* ·			- J - F		- 1	- 1		3.3		
	ı				- 1	ļ	- 1				
	1					- 1				in the section	
	- 1			၂, 크	• [	- 1	- 1	- 1			
	1	•		1607	1		.		;		
	1				. 1	- 1	ł		Į.	٠.,	
	.	· <u>.</u>	•	1 1		j	- 1	1	12.34	A	100
	[			7	- 1	İ		İ	:40		
	- 1				.	- 1					
	- 1			1 7	- 1	- 1	- 1		- 411		
	~.			1170-	1		- 4		ne d		
	2.7			.   . 🗆			· 1		1,111,111		
	- 1						· [				
	. 1		Section 1	L l	- 1	1	- !	- [ .			
	.				- 1. L	- :			٠ <u>٠</u> .		
				1,, 1							
				180-	-					eraka Asta era	
				1 7		. [	- 1				
		ti kiladi sahida kesala salah		1 7				- 1	100		
•	. [	on the first through the grant of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of th					.		1.5	2011	
			A Section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the sect			11				erīji -	
		THE SHOP SHOWS THE	To the second	11907					£1.	10.21	
	-41	Company of the contraction					7.1			* ( V	ار در از از از از از از از از از از از از از
	a l	والصروان وأرفع والمالوم والمتالية	en Sales aller vi	( L ( ) H				$\cdot$	2 17 47	ATT THE	
	2,1		一类组织。	201 後日	234	- <u>                                    </u>	1111		40.0	到某个	
		on the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract	and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t		71.16	- F		1	1/20	1	
			CHAIR TO THE	190 1111	123	3.	55 10 10 10 10 10 10 10 10 10 10 10 10 10	3	17.	黄之法,	****
		THE TOTAL SHEWFHARMAN CHESTON	Section Front Co.	1,,,,-7	122.0	(8)	***	*	A 1627	2.5	4.
_			et sterile	120-7		-				- Fac 2 637."	
Ŋ	Wat	alas Silvinitarias Conor	MIDOTAIN SO	TA:			01.55	_			
			VNPOINT RED	BLUFF	4	₹ EX	PLORA	TION	BORI	NG LOG	BORING
S	socic	rtes	PROJECT			2	ROJECT		1		120
		- 作品を記録を記録	(1) (2) 经基础的	M. mar ir		A L	10101	4 77-		verg æ	1
_		The second second									

BORING LOCATION NE V4 SW V4 NW V4 SECTION 28 TIAN 12W
DEPTH/ELEV. MATER 1800 -12-80 ORILL CONTRACTOR STEWART BR GROUND EL. 6987(TOF DRILL CONTRACTOR STEWART BROTHERS TOTAL DEPTH 7400 DRILL RIG FAILING 2500 BORING DIA. 12 3/8" DATE DRILLED 12/5- 10/80 LOGGED BY MPW SOIL DESCRIPTION PR SAMPLE CLASS. DEPTH REC. MODE NO. REMARKS ROD 200 105.0 - 540.0 MUDSTONE (Continued) 1 240 The state of 4 4. Wahler Wahler CROWNPOINT RED BLUFF
PROJECT EXPLORATION BORING LOG BORING NO. **Associates** PROJECT NO. 3 118 : - Total .... CHC 1014

DRILL RIG		RING DIA.	123	CONTRAC		EWIAR- E DRILLI	D 12/	THERE	GROUND EL. 69E  TOTAL DEPTH740  LOGGED BY MPV
SOIL CLASS.	DESCRIPTION		123				0 12	T-10/e	D LOGGED BY MPL
CLASS.		OUE (Cont)		DEPTH	SAMPLE	PD /	ì	1 -	
= 10	05.0 - 540.0 Muder	ONE (Cont)		1 1	NO.	ROD	REC.	MODE	REMARKS
	25.0 - 540.0 MUDST	oue (Cont)		300-					
			g) _	E					- Annual Control
								1	
			- 1	1 =		1 1	İ		1.4.1
			.	7			.		
		44		310					
1 14 64					· · · · · · · · · · · · · · · · · · ·				
100	는 기 등이 되었다. 이 전 이 바라 하는 것이 되었다. 			=	1.35		·		
7-1				7					
•				320=		- 1	- 1		
				Ε		- 1		- 1	
		T		= =		- 1			
			1	-:		1		-	
			- 1	. #	- 1				
		F	3	330-∄			1	-	
				3		.		- 1	Andrew State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of th
	·新克尔克·西克克·金克	•,		_ = =		-			
		i de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l		7		1			
			3	Eof			.		
		1.00	_ ا	E		- 1			
				3	1			1.	
				=					
				7					
		4.3	, 3	:50-7		- 1			
				Ξ				1	
				Ⅎ					
				=	1				
J		1. 2	34	~ <del> </del>		•			
. ]				E	. [			.	
				3					
I				$\exists$		-	].		
				⇉		j		1 .	
	ter garage to be a company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the co		37	70-				1 3	
				3				1 5,	
1		14 mm		#				1 :	
		-		Ε.					
3.			38	E			-		
				-				1 4	
				Luin					
	error electron for for the Add 内容 for electron electron	i de la la la la la la la la la la la la la		===					
		TARKY Nakatan	٠ .	. =	35-			1 -32	
- 1 ( )	an and an extension and an extension and an extension and an extension and an extension and an extension and a An extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension and an extension	2亿元	: 390	Εc	* *			1 3	THE RESERVE
130	(1) 15 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)				1.				
			<u>.</u>	: =				1 70	
		<b>\</b> 7:		;;;;       ;	27.4	3		1/42 1/45	and the experience of the second
97.5	राज्यसम्बद्धाः । अस्ति स्रोत्या स्रोति	11.		1				1	
<u> </u>			400	7-			+	33.34	
Wahle	CROWNPOI	NT RED	BLUFF	भाग्नुस	1944127	FÝP	URIT		
sociates	PR	OJECT :		1 . T.	18.6	201	LURA!		RING LOG BORING
	1000年の日本の日本の日本	المجانبة والمجانبة	4.34.5	4.5.2		CALA	ICT W		MW Barry

	LEV. WATER 1820 (	-(2-80) BORING DIA	( DKILL I	UNTRAC	OR STE	NART.		5-10 P	LDGGED BY N	740.
SOIL CLASS.	DESCRIP		<u> (X 3)</u>	DEPTII	SAMPLE ND.	PR		NDDE S	REMARKS	
500.00	<u> </u>					RQD				
4.5	1050 - 740.0 MU	DETONE (CA	11 - 11	100						
		20.0.22 (60	ic indied)		, .					
			Laket 1	410	•,		١.			
				=	1	] .				
									Marin Att	
							1			
				420						
				1						
		1.					Ì			
							1			
-				430			1		*	
		*		] =						
				1 3			ĺ			
				440	÷					
				E					* .	
				1 =						
				450-						
				=	:					
				=					* *	
				l d	,				, •	
-	·		:	460						
		•		$\vdash$			Ì			
-	•									
_	•.			470						
5				$\mathbb{F}^{n}$ $\exists$	ı					
	· · · · · · · · · · · · · · · · · · ·		**	l ∃						
	1. 1			=	. 1				* . • . * • . • . •	
-	n Karanasa (1944)			480-						
			,	E	. !		1			
		4	S. 1	=			{			
- . 41	in de la completa de la completa de la completa de la completa de la completa de la completa de la completa de La completa de la completa de la completa de la completa de la completa de la completa de la completa de la co	1.00 mg		1490-7						.1
	and the second	AND A		=	33.5			-;		1
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		490 11111111					্রান্ত্রের প্রতিক্রার বিশ্ব প্রক্রান্ত্রের প্রতিক্রার	
		,		1 1						
				500-						_
X W	ahler C	ROWNPOINT	RED BI	LUFF	E	<u> </u>	EXPLO	RATIO	N BORING LOG	BC
Assoc	ahler lates	Sign PROJ	ECT 🤶	C. 1.	Te ye	A F		CT NO.	SHEET HO.	7
	Confedence State Control of				<u> </u>		INV IVI	и,	15 42	1-1

2:

	EPTH/T	LEY. WA	180	△ (1)	12-80)	DRILL	CONTRAC	TOR ST	12.W				GROUND E	L. 6997	(10
	RILL R	IIG FAI	LING Z	500	BORING DIA	. 12 0	J-"	10n ST	EMMZ.	<u> </u>	DTHE.	RS	LIGIAL DE	71H 74A	δ
ि	SOIL					. \.	<u> 18</u>		TE DRIL	LED 12	15-1	oleo	LOGGED B	MPW	
L	CLASS.	-		DESCRIP	TION		DEPTH	SAMPLE NO.	PR	REC	. Мора		REMA	RKS	
F			·				500-					1			
		105.0 -	- 5400	MUD	STONE (Cont	mad)	E								_
þ							1 =								
E	- :		•				1 =				1				
F							510		1		1				
E			1000				3								•
F			1 1 1		9		=		1			1			
E							1 =					1			
E				100			East				1			**	
E	٠.		1-1		14.5		1 =								
Ė	- :	· · ·					1 =					* ::		•	
F		•					- =	٠.		1					
=							530				•				
_		•			5.1		=								
E							E								
-			• • • •	4.7		- 44								•	
		747					240-								
:	. 10	UIAH -	- 710.0		DLE MEMBER	2 -	Ė								
				المكلا .	SANDSTONE	.	=								
_	10		$\sim$ $\sim$ $\sim$		ovate is prese		$\equiv$								
	. 8	hale in	iterlood.	5.	علاعدام الع مجاوعة	enti :	550-								
				-•			· 🗏			ĺ		,			
							· ∃		.				4 7 5		
-							_, ू =								
						٦	560-J		- 1				•••••••••••••••••••••••••••••••••••••••		
=					•		=				1				
:		,			41	.	3			- 1					
-		•	•			5	70-		- 1						
							, <sub>10</sub>							:	
-					. t		7								
						1	=======================================								
-			100			5	20°Z			-	. [	. 13. 4			
		16	• '		±2	1	=					- ','	7. 4		
		• <i>A</i> * ,			27/4	. [	$\exists$	:	.				4.83		
	1.						=					15.3		1000	
	!-		o Armig - Giran		1.4	5	70-7								: :
		1.12 m	137	a, y		;						ون پرون		i Sakatat Kanada	
٠,	3			ridge om	A STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STA			2	"		14		NAME OF		ِ ن
- 1	7		4.5			4	. ∄ .		, \$4 (F.2)	- T					#. **
-												14-5-6	Same of the		:
Ä	Wah	ler	Carrie Carre	CROW	NPOINT RED	BLUF	F j		Ç EX	PLORA	TION		G LOG	BORING H	
	ociat	es	3.5		PROJECT	. 15			,	ROIECT	×O.	2HE	I ND.	MIN-3	٠.
_			-constant		and the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o		military of Australia	Section Prof. 27.	T / / 1	IA LOU		1 7 4	18"		1

		LEV. WATER 1820 (	-12-8010	RILL C	ONTRACT	OR C	E-WAY.	Ba	DT4E	35	GROUND EL.	7400
0	RILL R	IG FAILING 2500	BORING DIA.	123	<u>la",</u>		DRILL	ED 12	5-Y	deo	LOGGED BY	MPW
	SOIL CLASS.	DESCRIP	TION		OEPTH	SAMPLE No.	PR	REC.	MODE		REMARKS	
					600 -							
Ξ	1.5.	540 - 710.0 SAND	STONE (Continu	ued								
_	1			-,	=							
E					]							
E	- 10°				,,, =							
E					90-			1				
E					. =							
E	15				=				1			
E	1.5				620=			'				
-	1.5											
F	1.5				=							
E			5.L		. =					• .		
F					=							
E					630-J							
F					=							
E			ger gew		=						1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
E	100				ΙΞ							11.
E	*		<u> </u>		1540 I							
F	**				E						: .	
E					=			}				1
E					_ =							•.•
F					480 7	1						
E					3		· I					
=					=						:	••
Ξ					3	•						
F			* • *		(40)							
E		·			7						-:	
F					=							•
E					=							٠.,٠
-	*.				670							
E	٠.	·		٠. ا	=					•		,
F					3							
E					=	:					∛ -i	
F					680 ]							
E					=							
E	: . ;	s to a training	1.0	ja l	=							
F			in the first soul	2.7	$\exists$							
F				,	690 <u>-</u>	1.12						
F	37		a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co	336 (c.) 26 (c.)	$\exists$							
E					·==							Callery and the
E						1,14						
上		The Market of the con-	- Qx + 1 3 <del>G</del> 1 1 - 8	****	7007			<u> </u>				5( <b>4</b> 1)(1, 45)
1	W	<u> </u>					ادی	E Y D I ^	D 1 7 '	01/ 5		
		ahler ci	ROWNPOINT RE PROJECT	D BL	UFF	en Greet To	, L		IIAN ON 133		ORING LOG	BOR IN
- 1	\ssoc	iates   神景音音	77.77	المسيري	4000		100	17/61		$\dashv$	TOFR ST	MW-

	ELEY. WATER 1970		-80)	DE	CONTRAC	28,7	1447	5.5N			GROUND E	1.692	,71-
DRILL	RIG FAILING 250	S B0	RING DÍA.	12.	38"	TOR ST	EWHR.	7 3R	OTHE	.९५	IUTAL DE	PTH 74	D.D
SOIL	1 1965 A 2 1 1		The GIA:	12	78		E DRIL	LED 12	5-1	عاهما	LOGGED E	BY MPI	<u> </u>
CLASS		ESCRIPTION			DEPTH	SAMPLE NO.	PR	REC.	MODE		A REMA	RXS	ia i
	19870 1200						HUI	,					<u> </u>
E	5400 - 7100	SANDST	ONE (Cont	rucad)	700 =	-	-	1	-				· 1
<b>.</b>				7				'					
E				- 4	=								
, E			4.		<u> </u>							-	
E A	710.0-740.0	LOWER	TEMBER.		1710 =	- 4		100					2
<b> </b>	CHINLE FORM	M - MOITA	UDSTONE	11	=					No.	354. T.		
E	prekred; shout	tyweathor	ed: wade 4	ately		71						•	
E S	Indusated Freak	احاديم	سخاه مامر	ا لی ی									Ĵ
E		1	7	-	720-	147	}						15.
F			).	1	$\exists$	એક કરો -		.1	- 1	25 (A	wyw.\	ز شو	
F					=	2 \$		21					
E					=				- 1				• (• ) • (• )
E	I was in the same		•	- 1	730-7	1.4			•	-		7	27 ( 27 (
E				İ	=					,			
F				:	⇉	47.5		ľ					3
E	and spring at the				E		.			1			
E	740.0 - 7071	LDEPTH			740								
=					. 3								
			¥.		Ħ							1	
_ `				· L	=		- 1			-	ું હ		
					750-			11					
E					Ξ			- 1					
Ē					=			- "					÷ ,-
E	•			,	,,,∃	1	İ			,			
E				_ [′	60					, .			: '
-					=	4							
E i					=						4. 2 54		
<u> </u>	The second second				E			.		BATA O	TEIS LOS AND TEE GEOLOGIS	AF APPROXIMA-	
= ;				/	70-					Biscor	VAS OUTAINED S TINUDUS, AND	THE REPORT OF THE	
=					∃		İ			TOLARY BOTARY	THE MALE SON	ETER HOLES	
Ē '			$\phi = \lambda^{\pm}$		∃	,		-		PER CARD	MICAUME OF THE		
-				. "	ړ ≓					TRIS t	DIE MOLES.		255
=					30-	4					er catt Of 42	- Idal Elva P	
=		·			#	4		3		MINE	AD BAY BUT BEEN AT OTHER LOCAT DATES, ANY I ALL MUSIECT TO	ATTR LETTLE D TARLETTON.	- ارسان
= :										- Esta	LE WAS LOGGED ! PROFISE DATA P PORPORES AND	UNMALLY FOR	لاو
<u>-</u> 41				7 -	<u>,</u> =	75.75	:-	23		CORIC O		SEE OF CHI	
10年代提高				79				· · · · · · · · · · · · · · · · · · ·		C. TRICKLAN			
- 3計	10.40			3Ì.		:03	. 15.		美	TOTAL .	WINDLESS STORE STATES	TORK MAT M	
10000000000000000000000000000000000000		1	1	(3   )	3∃ ,	15.	15	W.	18 (8 (8 (8 (8 (8 (8 (8 (8 (8 (8 (8 (8 (8		PER SOLIO CO	TOTAL OF TOTAL	3
363	& March Harry	- 一	and Line			307	-6	献	કુ	ELST.		-	Ų.
337					I				-	mary to the	Chromatoric Control	OF BUTTON	T. (*)
W Wo	hler Ites	CROWNPO	INT RED	BLUF	T F		EX	PLORA			IG_LOG	BORING	
Associ	ites	Y 7	KOJECT ]					ROJECT	NO.	M SKI	T #8. 6	2387	
4.14		75997	1515F198Y 995	PAGASES	न जा <i>ं</i> नेतर	CONTRACTOR OF THE SERVICE	G Cr	(A. Inc.		8	多越	MW	3
	ئىنى <u>ر ئۇلاسىنىڭ</u> كېلودىن يەرايىلىدىك بەرىسىدى	CHANGE TO THE		A STATE OF		AN HOUSE			MALLEY.	Trans.	STORES OF THE	C/TCD-3/TM	466

## ATTACHMENT 3

CONSTRUCTION DIAGRAMS

01 DEC -1 Mil 5: 10

	NC JOIN 1	1-24-80	<u>ح.م.</u>	KUJŁ	CT		MVI - 2 CROSS SECTION
	<del></del>		<i>ن.</i> ن				
						V	0.0 - 766.0 123/8" hole.
[	•			li l		1.	}
ı						1/	
İ			100			1,	
1						V	
ŀ	· <del>-</del> -						eest.
l						17	
	** ** ** **			1:1		1/	WATER LEVEL 180.0
	the section of the section of	*	. 100			1	
		<del>-</del>		-1/4		1/	. :
		en men				V	
		. •					ا بالمحادث عدادها ما الما
						1/	
			300			V	
				11		1	
		ıt .		1. 1		1	
	00-710	.0 2" treuie pi	pe	7]	4	1:	0.0 - 492.5 7" O.D wan per Foxeded cosin
						1/	
		Mercura de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de la compans	400		·		a sa sa da sa da sa da sa da sa da sa da sa da sa da sa da sa da sa da sa da sa da sa da sa da sa da sa da sa
		**		4.4		1	
				-   -			
						1	~7.0.017 - '0.7.
		• •	500		-	′	425 F3 L50/o excess) pressur emplica
							cement with 2010 gel. (Volume to becemented = 400 F3)
		* * * **		1.1			(Volume to becomented = 400F3)
				1:1			•
	•	•	600	1: 1			• • • • • • • • • • • • • • • • • • •
	,			1.			
				1.4			-
		•					
	200			1:3	•		
		.1	.700	200	171	200	692.5 - 678.0 coment plug with forts at of 69
	.::	NO SAND	5	5 -	A) A		698 - 723.5 7"0.0 cuport. cashing
	71	- 11 =1	_	0.	3	00	***
	110.0 -	766.0 gmvel (-3/E	5)		<u> 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 </u>	00	766.0 -946.0 10" hole.
	-	011/2 2 2 1 11		- 1	H		
	. 166.0 -	- 946.0 Probable	800		[]		mad on a thing of
		n ounds	3-0				729.5 - 126 % 0 p3/80.0 burendur/1500
	267ce	-,			h1		
	* .	•		ĺ	[]	1	
	•	•• •			1::1	1	
		. <u></u>	900				and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th
		.*					
			-		1=4	$\vdash$	- 926 - 976 Blank 45000 well school.
		# v * • • • • • • • • • • • • • • • • • •		b	946.0	<u>-</u>	
		بست		4			
					F.	: }	

·	CAICIDIA 12-9-80	PROJECT	1MW-3 CR	055 SECTION
			0.0 - 740.0 DH rockbit.	Hed with 1244" trace
.	· · · · · · · · · · · · · · · · · · ·		0.0 - 55E.0 7	O.D. unpertonded casing.
	180.0 WATER LEVE	1 1 11 11 11	4.0-5400 Ceu	uent with ziolo gel.
1 6004	-200		558.0 - 720.0 louvered well-sch	65/2"0.0. # 60slot
5:1::0	900		720.0 - 740.0	Blank well scoon.
Marielland and 100 Souths J Monath			<del></del>	· · · · · · · · · · · · · · · · · · ·
	sa en en en en en en en en en en en en en			1
	To the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the Total Control of the To	RUE BURING	: LOCATION	
-	•			treme pipe
( )	٨.	w/+, SECTI.	20,	S FOR CEMENTING CEMENT PLUG AND LAYER
	77	HW RIZW	•	GRAVEL PACK (-3/8")
-	·			
	Volume of gravel (Vg) = Vgs+ Va	3c =(.5959 x1e	o')+(.5680 x 13	30') = 114.6F3
	Volume of soud (Vs) = .5-620 x			
	Volume of cement (Vc) = 540	* .5620 = 30°	75 <sup>3</sup> x 1.5 (50%	0 EXLESS) = 460 F3
(	e en		-	
1			•	; -
			•	

## IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

## APPLICATION FOR PERMIT

To Appropriate the Underground Waters of the State of New Mexico

	10 11pp10p11011					
Dat	Received January 18, 1996		_File No.	B-]	1324	uthoritu
1.	Name of applicant Northwest	New Mex	kico Re	gronar	Solid waste	MCHOLICA
	failing address P.O. Box 1	330 Movi	100 8	7323		
	City and StateThoreau, Nource of water supply Sonsela A	aulfer	loge.	B1	uewater Basin	
2.	(artesian or shall	OW Water an	nifer)		(name of undergrow	nd basin)
	The well is XXXXX located in the SE	1/ NIF 1/	NW 1/4.	Section 2		
3.	Dance 12W N.M.P.M or Tract	No. of	Map No	of the		District,
	on land owned by Northwest Ne	w Mexic	co Rea:	ional S	<u>olid Waste Aut</u>	hority.
4.	Description of well: name of driller	Stewart	Brothe	ers Dri	Iling	<del> </del>
	Outside Diameter of casing	inches	; Approxim	ate depth 🚳	758 drilled	feet;
5.	Quantity of water to be appropriated and	beneficially	y used		10	acre feet,
	a			(consu	mptive use, diversion)	purposes.
	for Consumptive Use Acreage to be irrigated or place of use	Ped P	ocks R	egional	Landfill	ncres.
6.	Acreage to be irrigated or place of use_	nea n	OCKB IC	0910		
		m	D	A	Owner	
	Subdivision Section	To wn ship	Range	Acres	Owner	English Samp
	South 1/2 21	14W	1 2 W	320	NWNMRSWA	
		14W	12W	315	NWNMRSWA	<del></del>
						Con Line
						• • • • • • • • • • • • • • • • • • •
						w
						<u></u>
7.	Additional statements or explanations	in for	a Tomp	orary I	lse Permit to	appropriate
	1. This Application 10 acre-feet of w	ater pe	a Temp	from 1	he Sonsela Ag	uifer for
	a period of 20 ye	ars. T	he Per	mit for	the Red Rock	s Regional
	Tandfill is also	for a 2	?O vear	perio	1.	
	2 Water will be use	d at th	ie Red	Rocks I	Regional Landi	ill for
	domestic and sani	tary us	ses, ec	uipmen	t maintenance,	fire
	protection, dust	control	l and o	compost	ing.	
	3. This well was con	structe	ed for	Conoco	, inc. in 1960	Seven
	monitoring well Minch O.D. steel of	IW-3.	rne wel	from 0	0 feet to 558	feet.
	Well screen consi	sts of	6 5/R'	'OD#6	O STOC-TOUVEL	d screen
	from 558 feet to	720 fee	et. Th	ie wate	r level was me	easured
	at 186 4 feet on	August	24. 19	95.		
4	The well was numr	, tested	d the v	week of	May 8, 1995 t	ising a
	temporary pump at	the ra	ate of	19.5 g	allons per min	iute loi
	a period of 144 m	ninutes	•			
				· · · · · · · · · · · · · · · · · · ·		
=	111					C. turnladan
1,	Henry Wilson	, affirm th	hat the fore	going statem	ents are true to the best	of my knowledge
R	d belief and that nevelopment shall not	commence u	intil approv	at of the per	mit has been obtained.	
	OPTHWEST NEW MERILO F	ZEGIONIA	AL.			•
-	OUD WASTE AUTHORETY	- ·				
,	2)					
	Derry wars	, P	ermittee,			
	90 0 11).1					
1	vi Dany IVI			$\bigcirc$		01
,	ubscribed and sworn to before me this_	12	<u>r~</u>	lay of	mary, s.c	1999
•					/hadia X/	Than 1
1	ly commission expires 42719	7			Notery Public	- July

umber	n.E a1	 :-	B-1324

## ACTION OF STATE ENGINEER

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	MANAGERY ACCOUNTS	de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la	SKADOVOV KOTOKOVIKA	NOW HOW WE'VE WASHINGTON TO WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WARRE TO THE WAR	MOCYEYCY OCIONESI
VALVEY NOTHING BY CITATION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF	ADEMINA XUENCEX X	De Ne Kele X exces	CONTRACTOR OF THE SECOND	A XIMAYAR RAN KALAMATAN	Y KANYA WYALY
APERIX ROTANI DUDIN XXX XINEX CANDADA XXX X X X X X	xxxxxxxxxx	XXXWMXX	OK KOMADI NEXTXIMINES	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	THE VIEW WATER
XSON-ROXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXX	XXXXXXX	XXXXXXXXXXX	XXXXXXXXXXXXXXXXX	XXXXXXXXX
After notice pursuant to st	atute and b	y author	rity vested :	in me, this appl	ication
To approved provided it is	not exercis	ed to th	ne detriment	of any others h	Ottimo
EXTRITIS LIBITS: 18 DOL CON	Trary to co	neamiati	On of mater	rrithin wha	
is not detrimental to the p	ublic welfa	re of th	ne state; fun	ther provided t	hat all
reger and regulations of th	e State Eng	ineer ne	rtaining to	the drilling of	
Shallow wells be complied	with; and f	urther s	subject to the	ne following con	ditions:
-					
(SEE ATTACHED	CONDITIONS (	OF APPRO	VAL)		
Proof of completion of well shall be file	ed on or before				
Proof of application of water to benefic	ial use shall be	filed on or	hefore		
			•		
Witness my hand and seal this	st	day of	February	A D XX	2002
Thomas C. Turney		_ day or		, A.D., Ty	2002
Thomas C. Turney					,
By: Colw & Tun					
Andrew L. Lieuwen		-			
Water Resource Master					

## INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of \$5.00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

Secs. 1-4-Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water per acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed lands describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7---If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.

#### CONDITIONS OF APPROVAL

1. This application is approved as follows:

Permittee: Northwest New Mexico Regional Solid Waste Authority

Permit Number: B-1324-T

Priority: Filing date of January 18, 1996

Source: Ground Water from the Sonsela aquifer

## Point of Diversion:

Well No. B-1324 located in SE1/4 NE1/4 NW1/4 of Section 28, Township 14 North, Range 12 West, NMPM, drilled to a depth of 740 feet with 7-inch casing on land owned by the applicant, at the Red Rocks Regional Landfill, McKinley County, New Mexico.

## Purpose of Use:

Domestic and sanitary uses, equipment maintenance, fire protection, and dust control.

## Place of Use:

Red Rocks Regional Landfill, McKinley County, New Mexico.

Amount of Water: Consumptive use: 10.0 acre-feet per annum

- 2. Diversion of water under this permit shall occur only from the Sonsela aquifer (at approximate depth between 540 and 710 feet) and shall not exceed 10 acre-feet per annum over the 20-year period from February 1, 2002 to February 1, 2022.
- 3. This permit shall automatically expire on February 1, 2022, and any subsequent diversion of water from well B-1324 shall occur only under a separate permit from the State Engineer.
- 4. Well B-1324 shall be equipped with a totalizing meter, or meters, of a type and at a location(s) approved by and installed in a manner acceptable to the State Engineer.
- 5. Records of the total amount of water diverted from Well B-1324 shall be submitted to the State Engineer on or before the 10th day of each month for the preceding calendar month.

## CONDITIONS OF APPROVAL (continued)

- 6. Well B-1324 shall be plugged in a manner acceptable to the State Engineer no later than March 1, 2022, unless a separate application to appropriate water from well B-1324 is approved by the State Engineer. A plugging record shall be filed with the State Engineer no later than ten (10) days after plugging.
- 7. The permittee shall utilize the highest and best technology to ensure conservation of water to the maximum extent practical.

Witness my hand and seal this 1st day of February, A.D., 2002.

Thomas C. Turney, P.E. New Mexico State Engineer

By:

Andrew L. Lieuwen, District 1



## STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ALBUQUERQUE

THOMAS C. TURNEY STATE ENGINEER

July 5, 2002

DISTRICT 1 121 TIJERAS, NE, STE. 2000 ALBUQUERGUE, NM 87102-3400 (505) 841-9480

J. R. Murrietta, Executive Director NW NM Regional Solid Waste Authority PO Box 1330 Thoreau, NM 87323

Files: B-1324 and B-1325

Greetings:

Your meter reading has been received. In order to enter it into our database, please complete the enclosed form and submit it to our office as soon as possible. I appreciate your cooperation.

Please don't hesitate to call if you have any questions.

Ein Robinson

Sincerely,

Eric Robinson

Water Resource Specialist

ER:er

cc: Santa Fe OSE



STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ALBUQUERQUE

February 1, 2002

121 TIJERAS, NE, STE. 2000 ALBUQUERQUE, NM 87102-3400 (505) 841-9480

THOMAS C. TURNEY STATE ENGINEER

File: B-1324-T

Northwest New Mexico Regional Solid Waste Authority P.O. Box 1330 Thoreau, NM 87323

Greetings:

Enclosed is your copy of the above-numbered Permit to Appropriate the Underground Water of the State of New Mexico, which has been approved subject to the conditions set forth on the reverse side thereof.

The permit shall automatically expire on February 1, 2022, and any subsequent diversion of water from Well B-1324 shall occur only under a separate permit from the State Engineer.

Well B-1324 shall be equipped with a totalizing meter, or meter, of a type and at a location(s) approved by and installed in a manner acceptable to the State Engineer.

Records of the total amount of water diverted from Well B-1324 shall be submitted to the State Engineer on or before the 10<sup>th</sup> day of each month for the preceding calendar month.

Well B-1324 shall be plugged in a manner acceptable to the State Engineer no later than March 1, 2022, unless a separate application to appropriate water from Well B-1324 is approved by the State Engineer. A plugging record shall be filed with the State Engineer no later than ten(10) days after plugging.

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

Sincerely yours,

Andrew L. Lieuwen Water Resource Master

ALL:cp

Enclosure as stated cc: Santa Fe OSE

## ADMINISTRATIVE PROCESS

Correctly prepared Proofs of Application of Water to Beneficial Use or Completions of Wells or Works, filed on or before the due date, will be accepted for processing.

Correctly prepared Proofs of Application of Water to Beneficial Use or Completions of Wells or Works, delivered after the due date, will not be accepted for filing or processing until one or more Applications for Extensions of Time are filed to bring the permit up to date.

Applications for Extensions of time which are filed on or before the due date will be processed in the order received as time and personnel are available.

If Applications for Extensions of Time are filed after the due date (LATE) but before cancellation of the permit, the file will be reviewed in the District Office and forwarded to the State Engineer with a recommendation to seek fines or other legal action through the Legal Services Division of the State Engineer Office.

If neither Proofs nor Applications for Extensions of Time are filed, the records of the permit will be reviewed and the file will be forwarded to The State Engineer with a recommendation to cancel the permit and/or to seek fines or other legal remedies through the Legal Services Division of the State Engineer Office.

#### **MEMORANDUM**

New Mexico State Engineer Office Water Rights Division - District 1

DATE:

December 27, 2001

FILE:

B-1324-T

TO:

Jess L. Ward At for JW

FROM:

Jerry E. Carr JEC

SUBJECT:

Application for Permit to Appropriate Ground Water of the State of New Mexico

in the Bluewater Underground Water Basin -- Northwest New Mexico Regional

Solid Waste Authority.

HISTORY: The subject application was filed on January 18, 1996, by Northwest New Mexico Regional Solid Waste Authority, P.O. Box 1330, Thoreau, New Mexico 87323. The notice for publication was issued on February 19, 1996. The affidavit of publication was filed on March 22, 1996, stating that the legal notice had been published on February 24, and on March 2 and 9, 1996, in The Independent. The protest period ended on March 19, 1996 and no protests were filed.

A field investigation concerning applications B-1324 and B-1325 was conducted on May 1, 1997 by District 1 personnel David Miller and Robin Hulette. The following information was recorded:

	B-1324	B-1325
Topo Map	38.2.2	38.2.2
Location	14N.12W.28.124	14N.12W.21.442
Meter Installed	NO	Master Meter
Serial Number	NA	Not Readable
Unit of Measure	NA	Gallons
Multiplier	NA	X10
Reading	NA	143896(0)
Previous Reading	NA	NONE
Date of Previous Reading	NA	NA
Usage in Acre-Feet	0	UNKNOWN
Permitted Diversion	10.0 AFA	16.0 AFA
Required Readings	NA	NA
GPS Readings,	NM Coordinate System, Wes	st Zone
(Corrected)	X = 415862.517	418954.517
	Y = 1607867.238	1610174.404

Page 2 December 27, 2001

Memorandum to Jess L. Ward Application B-1324 Northwest New Mexico Regional Solid Waste Authority

Both wells were constructed in 1980 as Conoco, Inc. monitoring wells. Well B-1324 reportedly has no pump nor meter installed; no water meter was observed. The electric meter reading for the meter on a pole about 15 feet from the well B-1324 was all 0's. Well B-1325 was found to be in operation and reportedly providing water for the facility office which normally has 4 people working full-time. A water meter reading was recorded as shown above. The meter was found in a small "pit" adjacent to and on the north side of the concrete pad. The wooden top of the "pit" was buried under about 3 inches of dirt and cardboard. Reportedly, neither well has been used for dust control. No significant landscaping was observed around the office facility. Dust control is being accomplished using "run-off" water stored in a pond about 1/4 mile south of B-1325. The dam did not appear to be over about 6 to 8 feet in height nor cover more than about 1 [acre] of land.

CONSIDERATIONS: The applicant proposes to use existing well B-1324 (Exhibits A and B), located in the SE1/4 NE1/4 NW1/4 of Section 28, Township 14 North, Range 12 West, NMPM, drilled to a depth of 740 feet with 7-inch casing on land owned by the applicant, at the Red Rocks Regional Landfill for domestic, and sanitary uses, equipment maintenance, fire protection, dust control, and composting located in the South 1/2 of Section 21 (321 acres), and North 1/2 of Section 28 (315 acres) Township 14 North, Range 12 West, NMPM, on land owned by the applicant.

The well and lands are generally located as follows—drive west on I-40 to the Thoreau exit and drive north on NM 371 for about 5.4 miles from the railroad overpass and turn right onto Red Mesa Bluffs Road. Drive for 1.6 miles to the office building. Well B-1324 is about 1/4 mile beyond (east) of the office and about 1/4 [mile] south of the road.

This application is for a Temporary Use Permit to appropriate 10 acre-feet of water per year from the Sonsela Aquifer for a period of 20 years.

Well logs by Jacobson Helgoth Consultants were obtained from the applicant on December 7, 2001, confirming that the well are in the Sonsela aquifer. In addition, this is also in agreement with the data given by Mr. Peter F. Frenzel in "Simulation of Ground-Water Flow in the San Andres-Glorieta Aquifer in the Acoma Embayment and Eastern Zuni Uplift, West-Central New Mexico": USGS Water Resources Investigations Report 91-4099, Figure 7, page 15.

### **EVALUATION OF WATER RIGHTS APPLICATION:**

A study using the Their Non-Equilibrium Well Formula was also conducted to estimate the drawdown on any wells of other ownership within 5,280 feet of the subject well. OSE records show that the nearest well of other ownership, B-1019, is about 1-1/2 mile from well B-1324. In addition well B-1019 is only 88 feet in depth compared to 740 feet of the pumping well which would lesson the vertical effects of pumping in this type of aquifer. Calculations were performed using the Formula with a Transmissivity of 337.0 gpd/ft and a Storage Coefficient of 0.0001. These values were given by Andy Core, Hydrology bureau, Office of the State Engineer. A pumping rate of

Memorandum to Jess L. Ward Application B-1324 Northwest New Mexico Regional Solid Waste Authority Page 3 December 27, 2001

6.195 gallons per minute (10 acre feet per annum) was assumed. As Exhibit C shows, after 20 years of pumping the expected drawdown of a well at one mile the drawdown is 11.76 feet. Therefore, the additional withdrawal of 10 acre-feet per annum from well B-1324 does not appear to have a significant effect on other wells.

#### CONCLUSION:

There would be no impairment of existing water rights due to the granting of this permit. The operation of the regional landfill is in the public interest. Therefore, I am of the opinion that this application is not detrimental to the public welfare or contrary to the conservation of water within the State of New Mexico.

#### RECOMMENDATION:

Approval of this application to Appropriate Ground Water of the State of New Mexico in the Bluewater Underground Water Basin in the amount of 10.0 acre-feet per annum of consumptive use rights subject to the Rules and Regulations of the State Engineer. Suggested conditions of approval are stated as follows:

#### SUGGESTED CONDITIONS OF APPROVAL

1. This application is approved as follows:

Permittee: Northwest New Mexico Regional Solid Waste Authority

Permit Number: B-1324-T

Priority: January 18, 1996

Source: Ground Water

#### Point of Diversion:

Well No. B-1324 located in SE1/4 NE1/4 NW1/4 of Section 28, Township 14 North, Range 12 West, NMPM, drilled to a depth of 740 feet with 7-inch casing on land owned by the applicant, at the Red Rocks Regional Landfill, McKinley County,

New Mexico.

#### Purpose of Use:

Domestic, and sanitary uses, equipment maintenance, fire protection, and dust control.

Page 4 October 31, 2001

#### Place of Use:

Red Rocks Regional Landfill, McKinley County, New Mexico.

Amount of Water: Consumptive use: 10.0 acre-feet per annum

- 2. Diversion of water under this permit shall not exceed 10 acre-feet per annum over a 20 year period.
- 3. All withdrawals of water under this permit shall expire on December 31, 2021.
- 4. Well B-1324 shall be equipped with a totalizing meter, or meters, of a type and at a location(s) approved by and installed in a manner acceptable to the State Engineer.
- 5. Records of the total amount of water diverted from Well B-1324 shall be submitted to the State Engineer on or before the 10th day of each month for the preceding calendar month.
- 6. The permittee shall utilize the highest and best technology to ensure conservation of water to the maximum extent practical.

Thomas C. Turney, P.E.

Witness my hand and seal this 27th day of December, A.D., 2001.

New Mexico State Engineer

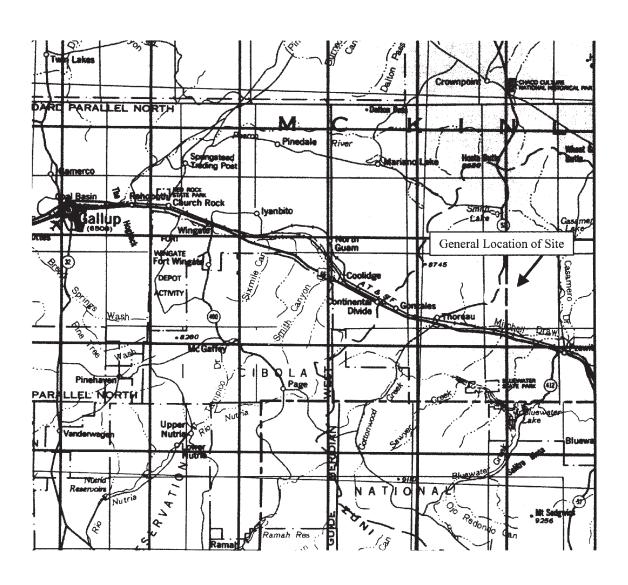
By:

Jess L. Ward, District 1

JEC:jec

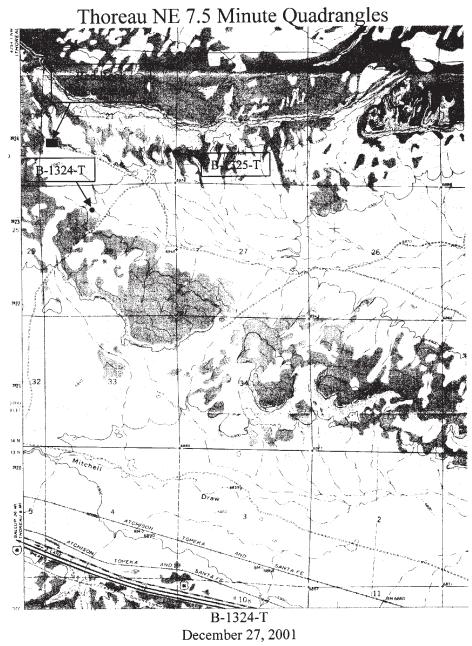
cc: Santa Fe, OSE

# EXHIBIT A General Location of the Site



B-1324-T December 27, 2001

# EXHIBIT B Location of the Site





November 27, 2001

Mr. Joe Murrietta Executive Director Northwest New Mexico Solid Waste Authority P.O. Box 1330 Thoreau, New Mexico 87323

Re:

Sonsela Well Information Red Rocks Regional Landfill

JHC Project 266-05

Dear Mr. Murrietta:

Attached is the Conoco Sonsela well information that was provided to JHC by the Elkins Family to evaluate the property for the landfill permit. Note that Sonsela Well SW-3 is located near the center of the landfill property (NE NW Section 28, T14N-R12W). This well was originally called MW-3 by Conoco and this well does not currently have a pump installed. Well SW-2 (Conoco MW-2) is located on the northeast side of Landfill Cell No. 1 (NE SE Section 21, T14N-R12W). This well is the current water supply well for the Authority.

If you need any additional information, please contact me.

Sincerely yours,

JACOBSON HELGOTH CONSULTANTS, INC.

Norman C. Hogg, P.G. Hydrogeologist

w/attachments

01 DEC -7 AM 9: 10

### SECTION 3.0 SONSELA WELL DETAILS

Conoco drilled and constructed three Sonsela monitoring wells on and adjacent to the Site in November and December of 1980 as part of the planning for a Uranium processing facility that was not constructed. The wells were designed both to establish background water quality and to evaluate the potential for the Sonsela Aquifer to provide a source of industrial water for the Uranium processing operation. Two of the three Sonsela wells are on Authority property. The third Sonsela well is currently being used by the Elkins Ranch for domestic and stock use and is similarly constructed. The Conoco well, formally known as MW-2, has been renamed SW-2 and MW-3 is now known as SW-3. The following describes the Sonsela Sandstone lithology and construction details of the two wells.

#### 3.1 Lithologic Details

Well SW-2 was drilled in November of 1980. A 12 and three-eighths inch diameter hole was drilled to 766 feet. From 766 feet to 946 feet the well was drilled with a 10-inch diameter hole. Well SW-2 encountered 200 feet of Sonsela Sandstone between 720 and 920 feet. The sandstone was described as grayish-white with variable cement and shale interbeds every 40 or 50 feet.

Well SW-3 was drilled in December of 1980. A 12 and three-eighths inch diameter hole was drilled to 740 feet. The Sonsela Sandstone is 170 feet thick in SW-3 (540 to 710 feet). The samples were described as a grayish-white, well-cemented sandstone. The sandstone is poorly cemented where carbonate is present. The presence of shale interbeds were noted but not their specific location. The Conoco sample logs are included in Attachment 2 of this Technical Memorandum.

T.M. 9 Page 6 of 20

Revision 0

<u>\O</u> ber 17 1995 Revision 0

#### 3.2 Construction Details

For well SW-2, the casing consists of seven-inch outside diameter steel casing between the depths of zero and 692.5 feet. Another section of seven-inch casing is located between 698 and 723.5 feet. The interval between 692.5 and 698 feet is a drilled out cement plug. The screen is constructed of six and five-eighths inch outside diameter steel #60 slot-louvered screen from 723.5 feet to 926 feet. A 20-foot long blank six and five-eighths inch screen was placed at the bottom of the louvered screen. There is some question as to how uniform the three-eighths diameter pea gravel is in the interval from 766 to 946 feet. The top of the pea gravel is estimated to be at 710 feet. The interval between the well casing and the borehole from 7 to 710 feet was pressure emplaced using cement with two percent gel.

The available well construction information is incomplete for well SW-3. Apparently the well is constructed of seven-inch O.D. steel casing from zero to 558 feet. Six and five-eighths inch O.D. #60 slot-louvered screen is placed from 558 feet to 720 feet. A 20-foot section of blank screen is placed at the bottom of the screen. Three-eighths inch diameter pea gravel was used as a filter pack media. The exact height of the pea gravel is unknown, but from the volumes used, the top should be at least ten feet above the top of the Sonsela Sandstone. The interval from 4.0 to 558 was cemented using cement with two percent gel. The best available copies of the construction diagrams are included in Attachment 3 of this Technical Memorandum. Development information is unavailable for both wells.

T.M. 9 Page 7 of 20 Issued: October 17 1995 Revision 0

Ų,

DEPTH/EL	UCATION NEVY OFS	WIT OF SW	14 SECT	10N21	工厂	M.R	12 4/		GROUND EL.	9.04
DRILL RI	FAILING 2500	7-10-80) 0	RILL CONTRAC	TOR STE	WA.	RRO	7-14-	0 <	TOTAL DEPTH	<u> </u>
SOIL	FAILING 2500	, BORING DIA.	13/8 - 10.	O" DATE	DRILL	ED 11 1		26/00	LOGGED BY	7460
CLASS	DESCRIP		DEPTH		PR/	1	1			rw
<del> </del>			DEFIN	NO.	ROD	REC.	MODE		REMARKS	127
27.					N U U		-			• •
Ser.	0:- 30 BANDY ELLY	VIUM	- 0 -							
753	-1- 30 GANDI CLAY:	brukined; day						0.0 -	400.0 Dr	rilled
: \$3/l3	D -720.0 UPPE	8 MENGED						س بهرستو	sq-sara-ps	utoute
- L	HINLE FORMATIO	Al	_					المنه.		
- "	たか よさば 変化 はつそかぶつ	and the state of the state of					1,	20 - 7	55.0 Dill	11 11
3	0 - 230.0 MUD	STONE	10 =					12 44" 4	TICONELOCI	حص بهر
- 7.5 14	A; slightly weathered; ?	contradica to 1.	`   I	1344				1 T	, , , , , , , , , , , , , , , , , , ,	2011-
- 端标	able, less than 5%	atavet	1 7		: 1	- 1	- ,	-		
- 4		1			1	*				
7				1.1				1.		
			20 =							
			·   . i		- 1			in the second		
					- 1			3	\$ <sup>0</sup>	
401			1 1	1			.	, in		
<u>- 왕</u> [			=				- 1		Ţ.	
E + 3.1			130 =			- 1	1			
			1 1	Į.			.			
							İ			¥
4	Site in Ta	UE BORIA	16 Loc	BTIDD	11		- [			5 - A
- 56	and a state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the					.	· [			High sign
全十					- 11		- 1	1.		
			_ ,		- 11		- 1			
- *:  ·		1	,	. /	П	- 1	- 1	* .		
		21	TIUN.	RIZW	-	- 1				$I^{\gamma} =$
	)e	CTION 21,	,		- 1	- 1				100
						'				•
	ar and a second							. A		†
							-1	and the		
.	31						- 1	1.4		
·							-		0	
	•	,			1		-		<u></u>	
	en en en en en en en en en en en en en e				İ			•	rn.	
					ì				1	
5 10	4.								71.33	`-: :
			170 -	1	1				· =:	,
			1, 7			-		the street		747 <u>-</u>
							.			8 July 1
			1 =			1	1		Ö	<u> </u>
			1 4	***	1			> .		역 =
		្រុក្ស។ ស្ថិត្ត ប្រជាព	80	.			1			· =
			[ ]				1	i (60.		
			1 7		1		1 4		And the second	
		the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of th	1 7		-		1.0	أميد عالي		
		WEAR IN	1 4	7.5	1					- 7
	The second of the second		90 =			1	1 3	ia Krijila. Navada		3 4
	er en en en en en en en en en en en en en		90 = :				1 3	1000年	(1) 经营业	§ - ∃
鐵鐵		the transfer with	= = =	3.5	1		2			77 F
760		門的學學。				1 47	1	PART OF	2000年	23 T
\$ S		n居各组。[18]	<u>⊈</u> ∃			1		rus verily Publication		1
A		Article of the second			1	1		17.00		<b>1</b>
			100	4 T		27	L : 3	17 56.64		공인다
Wahler	TATHER COOK	20711111 200								
wanter	CROWN	PROTE RED BL	UFF White		EXPLO	RATI	ON R	ORING	Inc poor	ום עם
ociates	"多"是一个	PROJECT	<b>经验</b> 证的	证的。十	7801	ECT NO			LOG BORIA	
		entering the little to	Marine - Line	50.发表现6	CNCI			THEET	×0   /500	7 75
n lideon	ingiachemanic				CMC II	OLA -	" <del>"</del>	CL ALCOHOL:	IO MW	~ * ****. 1

		LEY. WI				_12 - <u>10</u> _8				CONTRAC					0TH		TOTAL E	BYMD:	146.0 N
	OIL	2.4				IPTION				DEPTH		PR		1	KODE	1		MARKS	~
	-33									100 -							. J. 3		
E	v	3.0 -	- ス	30.0	٥.	Mui	STO	NE (	(Cont)			7							
E		7			. ;			:		=							17.77		
E					<u>.</u>											l .			;
F		1		77						110-				11			44		
E													-				,		
E		رو. دستا								E				- 6			1155 1451		
E										ارما	4 4 5 14,		.	•					
E		1 12 24 1								1,2				., .,			7.		
_										=					- 3		713,125		
F		1.0		1,20° 1185, 1					: ':	I I	2.797		$\cdot$		-				
		***		. / 1						130-	i.			Ì		1			
E		• • • • • • • • • • • • • • • • • • •								=	1 - 1								
Ē	, .							3.	er er	l i							XX.		
							- 24.			E0+1						2.4	2.		
=		5.3					• .		1.17	E					- 1		rut	-	
_														·					
=						2.				1 =						:5.			
_										120-		1			Ì			, ,	
=			1.												į	131		7	
_									•		- '						4		
=	-								2	Ewil						1			
=										=						• • •	e factorial		
_	.																		
=											i da					17.			
<del></del>		4 4 4 4							ev., etc.	170	A-2-		•				7		·
-					*											- 13 24 4			-1.
-		4,	- 1. 				·			-	1.33			- <sub>y</sub> [		$L_{\mathcal{S}}$		ng in Tara Ng Santawa	4
_						, j				180						121	nestern) Nesterni	j- 1	
-										=								i e strati Gjegar	
-	od:		14.29 14.00		:					E·	У.,			i	- 5	. Ar:	3 3		
-	AXX		د دید. معارف	ं दु <sup>9</sup> े १५५ क		ing the second	ا د ایسان	8 x 5 x	#635 [124]		27.5			10000000000000000000000000000000000000	17.12.6	11-77	WAR.	44 - 2	. EC
-	A	1/2	2,5				ميکر ورود. من منه الا		3,7.	E OF	The state of				事	\\-22.	<u>യ വസ</u> 180 വധ		4.5
		12. T				· 📆	- 37		50	$\exists$	1	1	C & d. S.	4.	\$	A to		THE STATE OF	115
- '				ز جرد سرخ		: * \$ 5 ° F		الله مير الله مير		*=		6		Sam	The Later	4	1	413.C4	+ 11 . C
	3	- 100	د بغیال :	<u> </u>		FATE S	12.	****	28 × 1	190		5.		₹ <u>\$</u>	1	到	20 our	P.	
		hler										£.38	F				ING L		
لد م	N WC	inier	65				PRO	OJEC	T 二灣	UFF &	The same			PROJEC				Ub   Bl	RING NO
	soci		.745	C TAN	1276	Section of	يومو پ	\$ -£25.0		(1)	A	7	C	101 34	منند ۸	A 15	STOP 10	TE M	W. T.

DEPTH,	ELEV. WATER 1870	SWYY 0 FSV	ALLIEF COMISSI	CIUR	T141	V, R1:	2W	GROUND EL. 698
	RIG FAILING Z500	BORING DIA.	123/8" - 10	O" DAT	E DRILL	<u>- 13 F</u>	70TH	EV2 Linus BELIN OA
CLASS	DESC		DEPTI	1	PR	í	1 -	SIED TENGER BY WAY
		art -	UEPI	NO.	ROD	REC.	MODE	REMARKS
	3 O 220 2 M	- (4)	700-					
E 🧐	3.0 -230.0 MUT	TONE (Cont	inuad)					
E 💥	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	gara gara	:					
Ė ::								
F ::			210-	25 a		-		
E st.			=					
				* \$4 11			1	
E in					- 1	- 1	- 1	
			220-				- 1	
						.		
=			. I =		-	- 1		The Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian State of the Asian Sta
	2300				.			
	230.0 - 250.0 C	ORRED SANDST	ONE SUP					
= 1	ley slightly weather edicul to Fine glein.	ea, well indusated	i I 🗦			-		
	10 megian.				.			
			240					
			1 =					
					- 1			
h	50.0 - 720.0 MUDS	TOUE: LINE	750-					
ن ا	ithe light green bour	inalions -1 111			Ī		-	
. M	the light grown bur eathered; woodendeli 35 than 50/ 200	y industra ful	L I			-		
1,5	35 than 50/0 grave	d	2/00		-			•
	7			-			-	
							1	
					ł		1	
· ·		a see	270			1		
			l i					
		en en en en en en en en en en en en en e			- 1	1		
					1	1 .	1	. Jakoba
4			280		1			
			1 =					
.			=		.	1	1 :	
- J. J.		er - Garagania Talahan	290				1 :	
	en de les autorités de la commune de la commune de la commune de la commune de la commune de la commune de la c La commune de la commune de la commune de la commune de la commune de la commune de la commune de la commune d		1290-			1 1	1	
		<b>生物等的</b> 。这						
	terne December († 1921) 1946 - Gregoria Stromer, se se 1968 - Gregoria Stromer, se se se		1 3	3	1 3		1 3	
-	Property of the second		[ ]			1 -	- S	
*			1		-	1	- 22	The second second
Wahle	r CRO	WNPOINT RED B	LUFF 32	をなる	EXPLO	RATI		
sociate	S	PROJECT	And the second	遊論	P R 0 J	ECT NO		ORING LOG BORING NO
	and the control of the control of	and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th	क शक्षणाम्बर्गित ५० हिन्द्रीयः 	Electronic Control	CNL		7	3 or 10 MW-2

The set	DRILL RI	LEV. WATER 18 G FAILING Z	3001					<del></del>	RI	2W		GROUND EL. 69	_
	SOIL	TAILING Z	500 .	BORING D	114. 123/	8 - 1	2017	EWAR	CT Br	HTO	RS	TOTAL DEPTH Q	500
(	CLY22		DESCRIPT	108					10112	<b>1 −2</b>	6BO	LOGGED BY MP	46
第一举上	41.1				<u>.</u>	DEPTH	SAMPLE No.	1''/		MODE			<u></u>
E	- 2	50.0	<u> </u>					ROD		_		REMARKS	
海流 F		500 - 720.	O Muds	TONE (COL	thrued)	1300-							_
: E	-				,	E. 1							_
E						1 =	- 1	' 1				s file of	÷
\$ F						1 7	- 1	- 1	- 1				
ME E	1 - 1					310-		- 1		- 1			: :
:	7.1					= = 1		- 1		- 1			
E					. 1	E		- 1	- 1		16		à
: F					- 1	=		. ]					. 22
E				· .	. /3	120-				- 1			
E	.			grituat.		E		- 1	- 1	- 1			
£ E				3.3	- 1	7		1	- 1	-			
	.				1	7	- 1			-			
E	4				31	Eas	4	- 1	-				
F	: -				- 1	7	- 1		- 1	- [			
E	.		- 40-		- 1	Ħ		1	-				
F	4				1	7		- 1	- 1				
E					. 34.	E.	1	-		-   -			
F					. [	4		- 1	-	1			
F				•	1	#			1	1			. '
· E 🙃	1			· .		3	1			1			
F	1				1200	, ‡	- 1						
E	1				350	·E		1	1	Ι΄		y distallar	
F	1	*			1	#		1	1				-
F	1			10.2	1	]	1	1			7		
E	1	•				-	-	1					=
F,					1360-	7	- 1	1					_
E "					:	]	- 1	1		;			
E. I				. •			1						$\exists$
FOL					1 =	1	1 1						7
E : 1			16.5 - 2.		370-	13.				ı.			E
F 1					1 =	.:	1 1	- 1	- 1	ź			E
E					1 3	,	1 1	- 1	1				$\exists$
F	÷.,				1 3		1 1		- 1				Ξ
E 11	+ <del>+</del> √	<b>N</b>			380-	<i>:</i>			- 1				ļ
			7.5		1 =		1 1		.	45			1
=				Marie Erre	EI				- 1		-		1
-			e e i i regista. Mari		1 - 3					7100	3		l
	4.896			giana an	390=	311	4				1100		1
	3.7	34.3. 3	32 100 20	ANGERIA La Ligazio	E					July 1	Cally and		
第十	100 kg/g/s					275	1	31	¥ 1	ALT	33.5		
25			17.73	70.7		Toping .		31	돌	187	验心	日歌觀鏡	
			2. 35. 35 (E	£-x-, \$		27	225	· ·		1 T	18 G	上海影響	
Y Wahl		and the same of			400	100		3.5	-	£	and the		6
Assa VYCDI	zr   📑	CRO	WNPOINT	RED BLI	JFP B	Mary Sec.	FOC   5 7 -			والكريجو	den iFre-	markey a day	, 2
Associate	25   7	CRO	PROJ	ECT	<b>经验</b>	112	爱上以	LORAT	IUN	BORI	(6 Inc	2001110 110	4
200	E Sha	The second second second	A STATE OF THE PARTY	S. C. Salveria	THE T	1377	震	101101	10.	A INT	1 11	DUNTAL NU.	بو
	HOUSE LANGE		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	ER ST		Defiance.	ICNO	-161A	(4.00)	4 4	10 A	BORING NO.	类
								TO TO	ATE 12		COCOCOC	Activities of some some of	

	EPTH/E	LEV. WATER 160.	2 /12-10-80) DRI	II CONTRA	ECTION	21, 7	144,	RIZW	GROUND EL. 6980
	RILLR	IG FAILING 2500	- BORING DIA. 123		CLOK ZILI	EW/ -	BRAT	.π=Ω<	TOTAL DEPTH 946.
	2011			- 10	DAT	E Dhill	ED 11/2	2-26/80	LOGGED BY MAPW
L	LY22	ំង់ស៊ី នៅ ្លា	SCRIPTION	DEPTI	SAMPLE	PR	7	MODE	
					NO.	ROD	, ALL.	MUDE	REMARKS
	9.24	2 == ==================================		1400-					
_		250.0 -720.0	MUDSTONE (Conty)	1,22				<del></del>	
_		-		=		1 1			•
F	7 1			=					. •
E				=			- 1	1	•
F	$d: \mathbb{R}$	그렇게 되었다.		410-		1 1			
F					* :		- 1		
F				1 7		1 . 1	[	- 1 -	
	10-1			1 7					1877 M. M. H.
_				1 7		- 1			
-				420-		- 1			
_	3 1			1 7			- 1	İ	
F	1.		1.1.				- : [		
_				1 =		- 1	- 1		
_				1 4			- 1		
-	. [			430-	1	- 1	- 1		
-				1 7	- 1	ĺ	- 1		
=					- 1	- 1	1		4
	57   E			1 F			- 1	1	
	.~}			1 7	- 1	- 1			
	: l		•	440-	1	- 1	- 1		
	4   1	***		1 7		- 1	- 1		
			4.4		- 1		- 1		
	7.		at the second	7			- 1		
				3	- 1	- 1			Para di Karamatan Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Ka
•				450-			- 1	11-22-	BO pu
				7			- 1	11-25-	80 am
	-			7	- 1	j	- 1		
				Ξ	- 1	- 1		1	
	1		1	$\exists$		1			
	1			140-]	- 1	- 1		1	
	.		. 1	F	.		1		
			i, ' ,	7	1	- 1		1 .	
	1			E	.		1	1	
				Е	- 1	- 1			
		•	· · · · · · · · · · · · · · · · · · ·	70-]	A.	- 1		, ·	
7.7				3		1		1	
			* * *	⇉		1	1		***
	1		1	#		1	1	1.	
			1	コ	1	-			
				ロコ	. [			,	,
: 4,‡	1	•		Ⅎ	· /	1			-
ч,*				$\exists$	.				
				7	1			***	•
-			u0	4 :		1	1 1		
11.04		· And we see	117. 11. 11.	n		1 "		1000	
100 mg	10	ي دارد دري دارگاه ديد والا		4 :	.	1 .	1 1		
-3		100		11111	4   11			1772 0	لله والمرازع والمرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع المرازع
છન.	5.4		49	7		1			经基础设施 经正
	:				h :	**	-	$b_1 \equiv c_1 \cdot c_2$	Stranger and
			F-00					CAR.	
W	ahler	Surrence Cl							
· · · · ·	ates	4	ROWNPOINT RED BLUF	the state of	1977	EXPLO	RATIO	K BORIN	G LOG BORING NO.
			The Company of the Company	(医性)	1885	LK015	CT NO.	200	23.00000000000
2	Like	Salar No. of the state	A TRANSPORTED TO A SECTION OF	Company of a	1938Q1	CUC I	OIA	5	10° MW-2
		TERRESPONDED MAN AND L	the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	*		_			

}	DEPTHA	ELEV. WATER 187.0	(-10)-Qx)	IUKILI	CONTRAC	T.0.	17h.	BIZIA	1		GROUND EL. (	0 =
1	DRILL	FAILING Z 500	BORING DIA	. 12 3/2	,	176 NO.	EW 4- 1	BRO	THE	25	TOTAL DEPTH	-4EO(1
-1	1102 22413	DESCR	Brion 3	6	1 1		EDRILI	LED II	2 - 26	180	LOGGED BY M	746.0
F	DEN33.	DEZCH	PTION		DEPTH	ZYMPLE	PR	REC.	MODE			INVI
· L	•	entre de la refere de	15		<del>  </del>	NO.	RQD		1,000		REMARKS	1 4
F	4.3 3.4	250.0 - 7200 Mi	DOTALE (Co. +	111	500-							
F			32318426600	(4)	1 =	,						<u> </u>
. E			1.075		=							
Ŀ					E		ı		- 1			77.
: F					510-		]			•		
E				` t	7	- 1	77	- 1	- 1			
F	1				3							-1:-
F				- 1	#							
E					=							
	3			. 12	707	- 1				14. T.		
F	-		J.F.F.		E		-		- 1	1.5	y fatti ir Natio	
F					$\exists$		- 1	- 1				
E				- 1	$\exists$	17	-	. [				
E				b	Fa							* * * * * * * * * * * * * * * * * * * *
F	3.5			- 1	3		- 1.		- 1			
F.					4	. 1						1
E					7				1.			
E					, Ħ	·	- [					* ,
-				17	Ε°							
=				- 1	⇉	.	.		1			4월 [
:					7	- 1		- 1	1		, en la la la la la la la la la la la la la	
-				_	3	21			1		V /	137. <b>-</b>
				225	<u>`</u>			- 1	1 .			Sec I
		1. San San San San San San San San San San	- 1967 - 1968	11	#		-					: See - 를
	1		13.		E	- 1			1			트 글
	1.	,			<b>=</b>	- 1	1	1	1	* - <u>.1.</u> 1.1		તું ⊟ે 🗄
	1			560.	4	- 1		1	1			7
. ,			12 🕶 .		7		1	1 .	1			E
,	1			- 1	#	1						·
-	1 .			.	7	.	1			• • • • •		: ∃
٠,٠		entre de la companya de la companya de la companya de la companya de la companya de la companya de la companya La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co			3							3 · 🗇
	1			270	1	f	1 1	$ \cdot $	15			<i>=</i> ‡
	1			1 :		-		.		i ja Mily S Salahan M		绝日
Y. 1	1 .			1 3	]	1	'					第 目
				1 =						4 4	7.	Ē
* **				580-					3			<b>₩∃</b>
5				=			.:				ر و <del> </del>	1
	124		-34	] :=		1 1						3 4
	ĭ.		、碧彩、千里	l ∃			- 1	- 2			MA CAR	. =
1.75	. 4		<b>第</b> 1. 33.	550	31	1 31	- 7	3	7	12.3.5	2	= =
の 一年 文 大学 大学	or.	on to the weeking to only. To be well a live on the		140H		1 21	31		M			$\Xi$
150	~	汉 [ 本語] 含含	***	그리	3	1 4 1			-0.3	54.5	77	
77	lin's			三		Sec	1	3	流	(A)	1. 18 Y	臺井
-33	ak 🚉		議論。影響日			· 1000 1000 1000 1000 1000 1000 1000 10	Marketter (C)	المراج احرابهم	20 d . 2	Trans.	<b>。一种,一种</b>	EF.
			CARRY CALL	E.	_ <b>3</b> 3.	4	釜	3	1	300		
111	hler	or Management							A STATE	W. T. W.		95
• YYC	THET	CROWNP	OINT RED BL	UFF_#	传统	TE FI	PInp	ITION	0.00		dente de la Maria	
SOCK	ntes	至為接近是其	PROJECT		<b>沙</b> 茨、	84		MOTT	BOR	ING FO	6   BORING N	0.   🗳
47.13	Maril Reigy	And the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	2000年の日本の日本の	- A-1-20	500000	CI	101. Dr	NO.	2 8 11	EET KO.	<b>***</b>	器一案
		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Park Contract of the		time and a contract		_ 101	·		DI TAT	01 MW=7-2	ur 1 953

	RILL R	IG FA	ATER 18	500		BORIS	IG DIA	1.123	18 -	10.0	OR ST	DRIL	LED 11 2	2 -2	eleo	TOTAL DEP	MPW
1	SOIL CLASS.			DESC	1				- 1	PTH	SAMPLE NO.		REC.	HODE		REMAR	
									60	0		Ĭ					
		250.0	7720	۱.۵ ۲	1005	TONE (	Con	huu	9)	∃		1			600.	0 - 940.0 510degs	, Drel
	111	4.							- 1	$\exists$					ک ومجلمه کامیسال و	un Fluid	adalile
	6									₹	1.4		1		11,19	13 here.	, ,
_			,						. 614	긬			-		150		; ;
=	41							2.5		. =			1 3 3 3	1	1		
=		1.								$\exists$		-			:.		
<u>-</u>					19.5.1				62	Ė.					1		4 in 1, 2,
=				ington. Webs						- =	, , ,						
-					•					=							
							. As S		.	$\exists$	141				V.		
-									630	크					•		
		*1	· 1.		1.		•			$\exists$					47	and reflection of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the	
				٠\٠						$\exists$							. 7 . 7 . 6
_				•					642	Ę,	#/						
								-	1""	7							
		**		1.						=							
										$\exists$				I			. • •
		4.							650	<u>,</u>				ŀ	11-23-	RO au	
		Ġ.				į.				$\exists$			1		11-23-	20 pm	
										=	į						
		•								Ξ.	1			- 1			
	1							- '	660	$\exists$							
							.1	•		$\exists$	7.5	1	Ì	- 1	į, į		
							.*			Η.		1	1	1			A ***
						· · · · · · · · · · · · · · · · · · ·		٠.	670	널	*	Ì	-	- 1			ig, es
				-		1 2 3				$\exists$		l					
	[							2.1		$\exists$		- 1				153.5	
_									1.00	$\exists$		1		Ì	-1.		
	.				٠,		-		The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa	$\exists$			. [				÷.
									1.	$\exists$		-	- 1				
		?			• ::					∄						1073 Sec. 21.	J
	i d			ا چارونشا					490.	=		1	3.5				
	50	۱ الوان	anderson Ogsårete	4		3.Q			U90.	$\exists$	ુકું						
	566 374	Ä	i Adigiri I Barangan	(2) }	- 1 - 20 - 1	17.22	14.55 #/= -			=	13 (A)			£\$1.45		10-15-14 1-28 10-15-14-15-15-15-15-15-15-15-15-15-15-15-15-15-	
	55.00 192.11	٠,			د مع دور		1			$\exists$	16. A		**	必要	ν = 1		1. 1
_									700						-,17	TERMINAL TON	
•	<b>X</b> Wa	hler	المردود. المرادود المرادود	yen.	CRO	WNPOI	NT F	ED I	BLUFF	ب محایین در	+21 ×	E	XPLOR	ATIO	N BOR	ING LOG	B0811
A:	ssoci	ates	166	7.5	450	PF	OJE	T d		3	7	<b>%</b> -F	PROJEC		1.3	HEET NO.	常
- 	و يودانيون		والمستناد المستروب		6A 18321	- 4 12 4 1						15	Nein	V/A -		10	1170

DEP	TH/FLEV	WATER 1800	4 SWY4 SECTIO	NZIT	74N, R	12W				GROUND EL.	1.00 - 1
пян	1 pic c	180.0	-10-80) ORILL	CONTRAC	TOR STO	EWA	BRO	THER	٦	TOTAL DEPT	M O
		711MG 2500	BORING DIA. 12318	- 10.0	DAT	E DRIL	ED 11	22 -	1.10-	LOGGED BY	446.0
CLY:		DESCRIP					7	1	1 020		
LLX:	22.	orgent?	i i un	DEPTH	NO.	1/	REC.	MODE	1	REMARK	2
		Section 1997		-		ROD	-	<del> </del>	<u> </u>		
	- 250	.0 - 720.0 Mut	SOTOUE (Continued)	- 700-				<u> </u>		+ 6.11	
		720.0	20 IONE (COKINIONS)	)		ì				1.12 %	
- 1	F .			7		1	ľ				•
			$\mu_{ij} = H_{ij} + H_{ij}$	1 7		1			1		
				7		1	,				
= ;;	-   '			1007	•	1			11-23	-80 our	
					× 1.					-80 am	•
- 1			sy-	1 7							
	·   5										
	6   5				1976				2.5		
	720	0 - 920:- 10	14	720-					· · ·		
	Alle	0 - 920.0 MID	DLE MEMBER -	1 =			- 1	- 1	-1-		
-	· ICHN	CE FORKATION.	<b>c</b> -		i i		- 1	- 1			a vigi
	Brack	ishwhite well can	newled poorte								
: ;	. Cerru	ented when cost	Constrictioner.		- 1		- 1				
-	. Israc	e ingerpress one		730	· · ·	- 1	- 1	- 1			
			7 10/651,0420.			- 1	- 1	- 1	1		
				=	- 1						
				' - ±		- 1					
19	1 75					- 1					
				T-047	- 1	- 1					
	1			Ε		[			7	- <b></b> -	
							- 1	- 1			***
- £						- 1	- 1				
- 1			1	- 1		- [	- 1		· [4]4,		7.8 <b>3</b> 0.
	1 /	and the second of the second	J	150-	- 1		- 1		7		
1.				E		- [				5楼)	3.7.
				=		- 1			- 4	P 4.25	
				- 🗖	ĺ					1	
	1			7		- 1	·	1	حسيم '	041	13 1
			· h.	ω <del>-</del>	1	- 1		('3	~.U -	-946.0D+	ulled
	l ;			H		Ì	1	$\omega$	11 m. T	B THUM	۸د_
				7	- 1	- 1		100	<i>k</i> bit		
				7		- 1			1000	٠. ــــــــــــــــــــــــــــــــــــ	
			- 12 m	7		.		17:	5.0	Probal	ble :
.			h-	, <del>T</del>		- 1				g of grave	
- 1			$-$ , $^{\prime\prime}$	10 H		- 1			- Mari	2 01 FAN	دا
	•			$\exists$	1	- 1		. Po	حلا۔	V	
1				3		- 1		-	1		
	100			· 3					و الأسان		
			7 <i>B</i>	, 7		1					
	-		\/ \( \lambda \)				- [				)
			85 CH	目				:	3	EAG.	
· ·	• ±1.		34.9	·						200	
25	• *			<b>#</b> #					3. J.	Sales Sales	** <b>**</b> ** ** * *
37	1. 25		1000	ं 🗄 🔠				.] -	110		- L. 74.
	$\{T_{jL}, T_{j}\}$	Andrea in complete the	- A						120	A STATE OF THE	Part .
100	19:30	Bulled and the second	- 15 (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (15 ) V (	. Н	14.8				大学は	Mar and	<b>***</b> ***
基金	14-4	站觀的數分[3]	TO STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE ST	$\hat{n}$ :	强制。			1 3	TY.	EN STATE	14/07
A	12/72		Agent E			1.0	* I		A	<b>"好","我</b> "	
-15:	* * 3":			1		9 3			茶文	يزد در در الم	165
-  -		<u> </u>	1200		<b>5</b> 55		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				200
,								1 - 5	18:24-04 P	The work of the first	Karana kan
Wal	hler	CROWN	POINT RED BLUF	F 13-97	ASSESSED OF	EXP	DRIT				
ock	ites	CROWN	PROJECT FAR	344	班美生		ICCT :	. אטו		S LOS BOR	ING NO.
		· marine state of the state of	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	278	PET S	CNA	JECT R	V .	BREE	W EOF	-7.5%

DRILL R	LEY MATER 1890 -10-80 DRI						GROUND EL. (ABOCTO)
SOIL	IG FAILING 2500 BORING DIA 123	18" - 10	" DAT	E-W 1	1590	THERS	
CLASS.	DESCRIPTION	1		E DRILI	1 11	22 - 24	180 LOGGED BY MPW
		DEPTH	NO.	ROD	REC.	MODE	
No.	720.0 - 920.0 SANDSTONE (Cont	- 800-				<del> </del>	
1 1 1	TO I TOUTE (CONT	(g)					
		1 =					
E		E	j				
E		810-					2 MA 5 11 11 11 11 11 11 11 11 11 11 11 11 1
- 35   ·		I B	- 1				
		1 =	-	- 1	- 1		
	그들 회원 기술이 하는 사람들이 다른	I I					
		eza				-	
	사물 생활하다고 하는 병원 등 모든 모든	<u> </u>	1	- 1			
		1 =			- 1		
- 1		I I					
		830-					
= /44	공원 기회에 가는 생활이다.	]	- 1	-   .	.		
		=	- 1		- }		
		3	.		-	-	
		310-	1	- 1	:	-	
_:5/ -		3	- 1		1		
		∄	- 1			•	
- 1		Ξ.					
		Loci		- 1			
·		3		4	-	1	그 사람이 가는 사람들
1		Ħ	- 1				
- 1		=			- 1		Ξ.
	<b>3</b> 4	,o]	- 1		-		, =
		=		1		1	=
.		3			1		#
		∄	1	1		1	Ę
	<b>3</b> 77	6			1		= = = = = = = = = = = = = = = = = = = =
		= 1	"			12000	
· 1		Ξ	1.		1	374	
		#	1	1		Ploke	•
			. 1 -	1			<u> </u>
		7			•		
		3					Tann
(100) (4) (100)	770	3			<u>}</u> ,	1-24	-80 am
到 接			-   -		- 1	۱- ۲۰۷ -	80 ou
	<i>₹10</i>	<b>/</b> ::∴			18	74.0	-940 a
					- þ	Fter	-940.0 Dulled
Wahler ciates	900-				4	317	Hummy 2-1093
Vahlor 1	CROWNPOTATION	1	1				CA CASE IN DIST WILLIAM IN THE
ciates	CROWNPOINT RED BLUFF PROJECT	The Shier Park	MARIE E	XPLOR	ATIO	1 BOR	
Same 2	TOTAL TOTAL TOTAL	主宗及	等。		THO	7 - 01	ING LOG BORING NO.
	The Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Co		···· •   ^	NC 10		10	"In MW-Z

	RIG FAU	IER 180.0 (	-	BORING D	14.12314	- 16"	TOR STE		ED 11/2			LOGGED BY	MD:
SOIL	1	DESCR	1711			DEPTH	SAMPLE ND.	PR	REC.	HODE		REMARK	
-	1		* 1			<del> </del>	100.	ROD	-				
- 1,-	- 720.0	- 9200 SAN	DST	ONE (CO.	timued)	1900 -		<del> </del>					
						1 =		-			-	2.1	
	1				. * *						-		
			di.			1 3							
= ※				ii syy		910 -					-		
I (4)			. 5 .	. : د :						1			
Ξ 🔆	1 100	n's the second		h Wasan in	er lief	920		1			1.9		) - [+-6]
<b>-</b> 57	720.0 -	9460 LOWE	R ME	EMBER - CI	HINLE	]~~=					6		
	FORMAT	IDN - MUDST	NE :	DHICK HE	7,	1 =			, d.		1.5		
- 1	less the	non - Mudation	ملالاب	ated ; Fra	ple.	$\mathbb{E}$	****						
		10 91	عرو			930 =			1				
						= =				l			
•						=					* #\/ \**		
						- =					. ) (1		religiosi. Transport
_						940							
			j			E				1			
						I I					11-24	-20 Pm	
	1946.0	TOTAL	)EP	TH	en.	=			_	1		24.22.25H	
<b>-</b>	Agen.					200							
7 -					•	Ė							
					1. 63	=						24. 大学	
						[ ]		.	- 1	1	:		
						1960-			İ				
• •	1		٠.	ran ing sa		1 4					BATA	OR THE LOS ARE AR	APPENISA-
	1		•			E		-	.		MATI	OF THE GEOLOGIC AS COMMITTORS RECAUSE ON VAS OFFAIRLD FROM	THE INTER-
						970		1			100	CETTERUS AND FORE ED EASTLING RECEASE OF STALL-BLANCE	STATES BY
		er de la gradie de la companya de la companya de la companya de la companya de la companya de la companya de l La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co		5.45できる。 1.55 と こ		["]	, -				25.0	UT AND VALUE FOR HE THERE CONSTRUCTED OF THE E	TH THES
	:					=					P ADV	CELBA PEUTE AND/OR LIPETS SOLES.	CALDA DE
					. * . * . # . # . # . # . # . # . # . #	1 =	1911				TREE	LON INDICATES COR 1 NOLE CRLY OF THE ED AND SAY NOT LETTER	- 10PE TEAD
						200				- 1	9710	THE SATISTICS LOCATION OF SATISTICS AND WAS	TER LEVELS
						= = = = = = = = = = = = = = = = = = =						E HOLE WAS LOSSED DE TO PROVIDE DALL PEL LOS PORPORES DES I	DOTA NOT
		gaja saa		A14 170		$\vdash$	. 1					IOS PORPORES AND I	
				ور دول او			(1) (1) (2)	191			13		
	2357		,	1.	12 121	Fapp	4	5	4:		\*-	E BOUMDARIES BETWEEN LS. AND THE TRANSCTI BOOKS. AND THE TRANSCTI	ا لنا وا صدة
	22.4.3 38.27.3				20 114.		(335) (35)	₹ 2	ž	5	N PRI	FIELD CLASSIFICATION IN	DATE OF LOSS
100	1		<u>}</u>	<b>公</b> 选	3.3	31	199	() () ()	12	15		<b>一世界</b>	10.45
4	35.10	1880年1885年	10	8.8.0		E		\$	W. Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Constitution of the Con	報会	36		
- A	2Ne 374		754		145	1000-	545 Br.	26	7G-1	- PF -	***	ACOM TON	N. Carlo
					1								
AW	ahler	CR CR	OWN.	POINT RI	ED BLUI	11		S.F.	APLUK			RING LOG	BORING
Assoc	iates	防衛衛門	100	T WOOD O	0.57			100 C	UC TON		귀줎	4.103	MW
- r'2'-	at a start a se	His with the	THE	Ser instantes	Sara Maria	es encorra	AGNUSAS:	1041080			CANADA	- CALLANTICE S	

BRILLE 1725 - 10/20   LUGGED 87 MP.  SOLUTION   DESCRIPTION   DEFIN SAMPLE 1725 - 10/20   LUGGED 87 MP.  CL D.O. 35.0 SALDVIDM   OF PROPERTY   PARTY   PARTY   TO CORRECT    CL D.O. 35.0 SALDVIDM   OF PROPERTY   DESCRIPTION   OF PROPERTY    CL D.O. 35.0 SALDVIDM   OF PROPERTY   OF PROPERTY    CL D.O. 35.0 SALDVIDM   OF PROPERTY    CL D.O. 35.0 SALDVIDM   OF PROPERTY    CL D.O. 35.0 SALDVIDM   OF PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY   OF PROPERTY    CONTROL TO PROPERTY   OF PROPERTY    CONTROL TO PROPERTY   OF PROPERTY    CONTROL TO PROPERTY   OF PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPERTY    CONTROL TO PROPE			12-80) 10	RILL CONTR.	CTOR C	RIZL				GROUND EL	·487
SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH SAUTH	DRILL RIC	FAILING 2500	BORING DIA.	123/8"	DAT	E DRILL	UFO LA L		>	TOTAL DEF	" 74X)
ALLUVIUM  CL 20 - 25.0 SANDY CLAY: because he will be sound; sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of the sound of	2015					PR /	4	1	1	COURTED BA	MPIN
CL 0.0 - 35.0 SAIDY CLAY brownsh  Add down 2 2574 wedness frue and 3  Total medical plastic frues.  10  25.0 - 540.0 UPDER MEMBER  SIMILE FORMATION  25.0 - 105.0 Correspondent and justification of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the	CLX55.			I DE P		1 /	REC.	HODE	1	REMAR	KS
Socioles  SALDY CLAY: Description of the condy 12/4 tricone received description of the condy 12/4 tricone received description of the condy 12/4 tricone received description of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy of the condy		<u> </u>					1				
35.0 - 540 0 UPPER MEMBER  ZO  35.0 - 540 0 UPPER MEMBER  ZO  20  35.0 - 540 0 CORREO SAUDSTONE  AND SAUSH SAUSH WESTERNAMED  AND SAUSH SAUSH WESTERNAMED  AND SAUSH SAUSH WESTERNAMED  AND SAUSH SAUSH WESTERNAMED  AND SAUSH SAUSH WESTERNAMED  AND SAUSH SAUSH WESTERNAMED  AND SAUSH SAUSH WESTERNAMED  AND SAUSH SAUSH WESTERNAMED  AND SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAUSH SAU				- 1		<del>                                     </del>			00-7	40.00	1 1
25.0 - 540.0 UPPER MEMBER  CHINELE FORMATION  25.0 - 105.0 Cosses Salpatore  Aug. 1 shell westered well advants  To a shell westered well advants  To a shell westered well advants  To a shell westered well advants  To a shell westered well advants  To a shell westered well advants  To a shell westered well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a shell well advants  To a	ch b	.0 - 95.0 SAUC	YCLAY: hum.	المنا	₫				17 / 1	T 400 DH1	iled wit
Solution of the gain and polymer of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of		a, camp, 23 do mo	dicerento tivo a	and:	‡				1714	Tricone	. rockle
So - 5400 UPPER MEMBER - 40  Since Formation  Sco - 1050 Corres sandstone  July skylish weathered wellindered in the sand plane of the grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain  To free grain	E : 17:	solomoderately plastic	- Fines.	,	1		l				
Describional ordered de la custing s  35.0 - 540.0 OPPER MEMBER  CHINLE FORMATION  25.0 - 105.0 Cosses Saubstone Grung singlin weathered well networks  Library singlin weathered well networks  To a so a service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of th	E // I			10 -	3	1			0.0 -74	0.0 Dr	-اااوط س
Describional order de la la la la la la la la la la la la la	F				1				beutoni	re and po	slywar 1
35.0 - 540.0 UPPER MEMBER - 40  Since Formation  Side Office Sampstone  Analy shifth weathers will managed as bound to true gain.  To true gain.  Wohler Croimpoint RED Bluff  EXPLORATION BORING LOG BRING  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJE					1						
35.0 - 540.0 UPPER MEMBER  CHINLE FORMATION  25.0 - 105.0 Cosses Sandstone  And Statin weathered well members  12.1 Singly mentioned well members  12.2 Singly mentioned well members  12.3 Singly mentioned sandstone  12.4 Singly mentioned sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5 Sandstone  12.5	E 34							- 1	النال	11104510CC	sed ou
35.0 - 540.0 UPPER MEMBER  CHINLE FORMATION  S.C.D. 103.0 CORRED SANDSTONE  Day; shell months well managed  To  To  Wohler  CROWNFOINT RED BLUFF  EXPLORATION BORING LOG EXRING  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJECT  FROJEC	- 1			20 -					arm c	anings.	
Wahler CROWNPOINT RED BLUFF SET & EXPLORATION BORING LOG BORING SOCIOLES  PROJECT PROJECT TO THE TIME THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO THE TIME TO	<u> </u>						- 1			)	
35.0 - 540.0 UPPER MEMBER.  CHINLE FORMATION  SO - 105.0 CORRED SANDSTONE  Jan 1, Shell weathered well wanted  To - 100  Wohler  CROWNPOINT RED BLUFF  EXPLORATION BORING LOG  PROJECT  PROJECT  EXPLORATION BORING LOG  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PR				-					14 1	Arrest Commence	4 (47)
Wohler CROWNFOINT RED BLUFF EXPLORATION BORING LOG FORING SOCIOLES PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE	= 4				,						•
Wohler CROWNFOINT RED BLUFF EXPLORATION BORING LOG FORING SOCIOLES PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE PROJECT TO THE	_							- 1			
Wohler CROWNFOINT RED BLUFF EXPLORATION BORING LOG EXCISED SOCIOLES  WOHLE FORMATION  ESO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Co	-			30 -	1			- 1		٠.	
Wohler CROWNFOINT RED BLUFF EXPLORATION BORING LOG EXCISED SOCIOLES  WOHLE FORMATION  ESO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Co								- 1			$(x_1, x_2)$
Wohler CROWNFOINT RED BLUFF EXPLORATION BORING LOG EXCISED SOCIOLES  WOHLE FORMATION  ESO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  July shighty weathered well industries  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Coses Sandstone  TO 105.0 Co	:	Transfer and the second		<del> </del>			1				
Wohler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOLES  PROJECT  PROJECT  PROJECT  EXPLORATION BORING LOG BORING SOCIOLES  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PROJECT  PRO	35	0-5400	B MEMBER		- 1	- 1					•
Wohler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOLES PROJECT 300 MINES 100 BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG	- CHI	WLE FORMATION .	- THEMBEH -	40 =							
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOLES PROJECT OF TRACEL ROLL FRONTE TO BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG BORING LOG				1 3	1	- 1	1				1.2
Wohler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOLES PROJECT OF TRACEL BORING LOG BORING LOG BORING SOCIOLES PROJECT OF TRACEL BORING LOG BORING LOG BORING SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT SOCIOLES PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PR	b la	- 105.0 CORRECT	SAUDSTONE:	=		-[					
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOLES PROJECT WILLIAM PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PROJECT PRO	17	JI sugar to Estable	o well industed	;   =	-	- 1	- 1	- 1			
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOLES PROJECT OF TRACEL ROLL FRONTE TO THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL	`   _	and don't	•	'   5 7		- 1	- 1				
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOTES PROJECT NO. EXECT NO.	- 1			E or			- 1		*		
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOTES PROJECT ROUND FROM THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THE THOU THE THOU THE THOU THE THOU THE THOU THE THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THE THOU THE THE THE THOU THE THE THE THE THOU THE THE THE THE THE THOU THE THE THE THE THE THE THE THE THE THE				=	- 1				:		
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOTES PROJECT RED BLUFF EXPLORATION BORING LOG BORING SOCIOTES PROJECT NO. THEET NO.	1	•		1 =					18.3		-
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SOCIOTES PROJECT ROUND FROM THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THE THOU THE THOU THE THOU THE THOU THE THOU THE THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THOU THE THE THE THOU THE THE THE THOU THE THE THE THE THOU THE THE THE THE THE THOU THE THE THE THE THE THE THE THE THE THE			•	1 3	• ]						
Wohler CROWNPOINT RED BLUFF SOCIOTES  EXPLORATION BORING LOG BORING PROJECT PROJECT NO. TREET NO.				160			Ī				
Wahler CROWNPOINT RED BLUFF SOCIOTES  EXPLORATION BORING LOG BORING PROJECT PROJECT 100 TREET NO.			•		ļ			İ			
Wahler CROWNPOINT RED BLUFF SOCIOTES  EXPLORATION BORING LOG BORING PROJECT PROJECT 100 TREET NO.				1 =						:	
Wohler CROWNPOINT RED BLUFF SOCIOTES  EXPLORATION BORING LOG BORING PROJECT PROJECT NO. TREET NO.				$\exists$	- 1				7,		
Wahler CROWNPOINT RED BLUFF SOCIOTES  EXPLORATION BORING LOG BORING PROJECT 10 TREET NO.				70 -							
Wahler CROWNPOINT RED BLUFF SOCIOTES  EXPLORATION BORING LOG BORING PROJECT 10 TREET NO.	.	•	e feet							5	
Wahler CROWNPOINT RED BLUFF SOCIOIS  EXPLORATION BORING LOG BORING PROJECT 10 TREET NO.	1	•		=					. ', •	- 5.1	
Wahler CROWNPOINT RED BLUFF SSOCIATES  PROJECT  PROJECT  CROWNPOINT RED BLUFF  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.  FROICE NO.									•		-
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SSOCIATES PROJECT OF PROJECT NO. THEET NO.		of the second		10,7	. 1	- 1					
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SSOCIATES PROJECT PROJECT IN THEET NO.				1 1					· · · · · ·		15.4
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SSOCIATES PROJECT OF PROJECT NO. THEET NO.				l E	.					· ***	
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SSOCIATES PROJECT PROJECT NO. THEET NO.							.	1.			
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SSOCIATES PROJECT OF PROJECT NO. THEET NO.			and State of the	=	.,			1	August A		
Wahler crownpoint red bluff EXPLORATION BORING LOG BORING SOCIATES PROJECT PROJECT NO. INCET NO.		jorg James (1984) Grajanski stanski stanski stanski	ું અના દુધા હતા ક	90 -				1			
Wohler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SSOCIOTES PROJECT PROJECT NO. SHEET NO.	A	Reference	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s					1			
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SSOCIATES PROJECT PROJECT NO. SHEET NO.			10000000000000000000000000000000000000	1 7 4	321	.		ا ا	4		
Wohler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SSOCIOTES PROJECT PROJECT NO. THEET NO.		ぶんため サーゼム ディー・バ	马索尔尔克曼	=	4	7 L			graph (C. 1784) Call Barrier		*****
Wahler CROWNPOINT RED BLUFF EXPLORATION BORING LOG BORING SSOCIATES PROJECT PROJECT NO. THEET NO.		<del>-14 (18) Miller Caller</del>		기. '	1.		- 1				
SSOCIATES PROJECT PROJECT NO. SKEET NO.				1100				-			12592 - 12 1200 - 1200
SSOCIATES PROJECT PROJECT NO. SKEET NO.	Wahler	CROW	NPOINT RED F	BLUFF 54	artheritis	EXP	LORIT	צחו	800100		
		A STATE OF STATE	PROJECT &	1	1985					TOE B	UHING HO
MM-						CNA	1014		Z INCET	ا اخر 🛪	NAME OF THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE
The particular of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o	Salar Section	Come to many many	 باعضاید رای ایر ایرانی ایرانی ایرانی	ALL DINGS	research to the state	San Marie	متريم المؤنيان		i vez	<u> </u>	<u> 1W - 3</u>
				··· ··· ··· ··· · · · · · · · · · · ·				-cuil	and the state of	م نشخه هشده	-maclesies

DEPTH/	1200 0 112	-12-8a)	DRILL	CONTRAC	TOR 5	4,100				GROUND EL.	1957
DRILL	RIG FAILING 3500	BORING DIA	· 12	3/0"	DAT	E DRILL	T BR(	J-THE	RS.	TOTAL DEFT	17400
CLASS.	the state of the state of	2 + 2++ 1			SAMPLE	PR	)	1		LOGGED BY	MPW
	Total Control of Control			DEPTH	NO.	ROD	REC.	MODE		REMARK	3
	A Section of the Constitution			100					ļ		
	350-1050 CORRE	O SAMOSTONE	(Cout'd)	E	1.1.1						<del></del>
-		1 1 1 1 1 1 1		E							
	105.0 -540.0 MUT	DSTONE LU	اند، ما،	=						\$-00° Sec.	
	with light green lawing weathored, mederately	ations slight	کرسوه اربر	Eon			1				
	weathouse, understely	reducated the	idale;	4 🗐		5.			100		
	less than 5% grave		'	: =							
				120					14		
		د اداره دارستان از اعود زورگر دارد دار		- 1					e de e e d		
				. 3	199					s <b>a</b>	
			- 1	E			-	.			
-			, k	30 ∃				-			
				=	- 1	1	-		•		*5.
										Assessed to the second	
10.0				$\exists$		• • [		- 1			
			þ.	₩ 🚽							
			ĺ	=					-		
				$\exists$							
				#			ĺ			114	
			1:	20-7			.				
				- =							
				3							-, \frac{1}{2}
		**		_ ∄	-				7 P		**
			114	~ <del> </del>					1 .	$(-1)^{2n} (1-\epsilon)$	•
				Ė					4.71	. 19 - 19 - 19 - 19 - 19 - 19 - 19 - 19	
- 1				. =					49	17 5 6	
				=	1						
			117	0-1		: [			77.5	Salar Salar	. °\
				<u>.</u> =				1:			
				<del>,</del>				Ì			
			: 1180	Ē	. 44						: Y(.
	n egin erin erin erin erin erin erin. Histografia begeggetationer er			$\exists$				-			
				$\Xi$					1830		4.5
3. 31.			191					:			
		9775 SATURE				1					
		深熱	ÿ∤   {	í Ei	10 E			1 3	عامدون		م. م. وقد كوراً م. افضاً معوا
		MATERIAL TO SERVICE STREET				7. J	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	-	NAME OF		
40	व राष्ट्री स्वयंत्री स्वयंत्री हिन्दि	2000年中	200	덕분						E CONTRACTOR OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY O	1. 32 1. 4 1.
								<u> </u>	2217	DIRECT PROGRAM	25 m 514
<b>X</b> Wahi		POINT RED	BLUFF		4.3/学生	EXP	LORAT	ION	BORIX	G LOG RO	RING N
sociat	es The second	LKOJECT	5		254	PRO	TIECT N		TZ TO	T XO.	V-3
		and the same of the	. A Section	سوال سناجل تدس	51000	ALLA I	1014	-	J 11		V-3

the first the state of the second that the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the s

	ELEY. WATER 1803 ("	-12-80)	RILL CONTRI	CTOP -				G	ROUND EL. (	0987
DRILL	FAILING 7500	BORING DIA.	123/a"		E DRILL	<u> 1587</u> 1 1	) THE 8		OTAL DEPTH-	740.0
SOIL CLASS.	DESCRIPT		DEPT	1	PR /	l	1 1	20 1	DGGED BY	1PW
			JUEPI	NO.	ROD	REC.	HODE		REMARKS	
.,		4.		<del>                                     </del>	1					
	105.0 - 540.0 MU	DSTOUE (Conti	1) 300.	-				<del></del>		
										•
Ξ ,				1					1 to 1	
					1 1	1				
E ik			310-	]						
F 治								-,		
E						`				25.7
=								- 10 kg		
F			320-			- 1		A.		
Ε ::			_   -							
F i					- 1					
			330-		- 1	- 1				
=			1000	-						
=										1,50
Ξ		t di kar	1 3		- 1	ſ				
_			· [ ]						22.0	
			3 <sup>4</sup> 0 →							
				.						
1 1 1					- 1					
										1
			, 350-		- 1					
			$\vdash$		ı	İ				1.1
			1 =		- 1					
			-				i			
- 1			3607						•	
				. ]	- 1		•			
			1 7			- 1	1	100		
	•		E				-			
2	The second of the second			7 7	- 1					
			370		ĺ					
- 1	*.		=							
			- 1 3			1.		.519		1.74. 1 1
					-					
			350-		- 1					
			1 =		- 1					4.
			E							1
		4 7 Cm44 art 4 7 11	. 1	35			- 1	3- Vec		1.5
1.24	THE REPORT OF THE PARTY OF		390=	- 3				. V ( 4 a)		0.
12				771		- 1		T HIE	3.45 千分子	
ない。							4 3		1237	斑.
<b>E</b>	<b>等数据的数据</b> 证据	等特別。這			٠ <u>٠</u> ٠,		35		をよったこと	
115		明治/交通。	400 = _				<b>1</b>			¥.
			!!				The w.	न्द्रशास्त्रहरू जनगणसम्बद्धाः		
X Wahl	er crown 2s	POINT RED B	LUFF 15	1156-1157	EXP	LORAT		ORING		
sociat	25	ÉPROJECT 🔅	际智慧	SEL CO	PRO	JECT M			LUG BUR!	ING NO
	A - John State State of the	क्षेत्रकार व्यक्ति	Same State of		CHI	IOIA	<del>***</del>	LA COR	3 3 Mil	751 T
metal 3	and the second of the second	Code Mary Town	CONTRACTOR OF STREET	موتناستين	day'i	and America		-1	- 11144	

DRILL	RIG FAILING 250	O (12-12-	EO)   NG DIA.	DRILL CONTE	ACTOR S	TE'WAS	Ban	THET	5 1	DEPTH 74
CLASS	Ag (2.5%) (4)	ESCRIPTION			1	TE DRIL	1	i i	SO LUGGE	B BY MP
CLASS	. gerent 2 Berlie	escall   IVA		1 . DEP	NO.		REC.	HODE	R	2X R AN 3
	1050 - 740 0									
	140.0	MUDSTON	E (Cont	musch)	∄ .					
					Ė	-				
Ė i					=					
E				410	-				*****	•
E				1	∃ :		21			
F					]	1 1				
E					3	1 1				
E		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		420-	<b>-</b>					
E					3	1 1		.	*** : 5.8	
E					7	1 1				
E				430-	1		1			•
<b> </b>				1730-	7					
$E^{-1}$					1		1			
E 1				·   :						- 1
				440						
Ε Ι				=						•
		i i		=						
=										;
=	•			450-				-1		
-		4.4								
		*	•				.			
. [				l i		- 1	- 1		. •	
				1460		- 1				
			•		ļ					
	•	14			- 1				:	
-				] =	[					
				470		- 1				
	•					}				
.	5.3			1 =	- 1					
.		•		L., 7	.					
			- *					.		
			, N. 4.	=						
				490=						
4) 44	n in de Magata yeta i. Najaran salah dari	- <b>分数</b> 115	e e e e e e e e e e e e e e e e e e e	1						
					23.5					
			*** ***						3.37.444	n.
		177		_Eoo_	- 1 kg	_				
X Wahl	g.400361.144							1_	of the second	
A Wahl	er	CROWNPOINT	RED	BLUFF	artinger of	EXP	LORAT	1 O X	BORING LOG	BORING
usociat	SS   · · · · · · · · · · · · · · · · · ·	LOP E PROJ	ECT	-3 Per - 1		PRO	HECT H	0.	. SHEET NO.	3 6 6 6
	Little Strong and a later of					Crit !	$\triangle I \Delta$	S & 1	5 MA .	I KALL ~

DEPTH/E		CONTRAC	TOR STE	ZW			GROUND EL. LASTO
	IG FAILING 2500 BORING DIA. 123	la"	DATI	E DRI.	RED	THERS	
CLASS.	DESCRIPTION	DEPTH	SAMPLE	PR /	1	1 1	LOGGED BY MPW
		שבו וה	ND.	ROD	REC.	MODE	REMARKS
	A = -	500					
- "	05.0 - 540.0 MUDSTONE (Continued)						
-		=					
-		E					
=		510					A A STATE OF THE
=		E		1		- 1	
=		=		- 1	1		
:		E				- 1	
-		520-				- 1	
		]			- 1		
		=					
		E	- 1			- 1	
=		530-	1		- 1	-	
		Ξ	- 1			}	
		$\exists$		- 1		- 1	
		=					
5		140-7				1	
	INLE EDUNATION MIDDLE MEMBER -	#					
q La	HINLE FORMATION. SANDSTONE:	∃					
17	mented when and I to	#				1 .	
slu	mented when authorate is present; 5	50-					
	-						
		- =				-	
		E		-		1	
	pa pa	20-J				.	•
	· · ·	Ė					
		=					
		$\exists$					
	5	70-					
		3	- 1			1	
	to <del>‡</del> e +	=					
		3					
1		뉙			·   ·		
	52	E					No. 14
1, 1		#					
- i),   ,		E	50e)			1 1	
1/-	570	'H				1 33	
	Fig. 1. The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state	$\exists$		1 . 2	- 1	333	rando de Neigo de Secolo de Secolo de Secolo de Secolo de Secolo de Secolo de Secolo de Secolo de Secolo de Se Regular de Secolo de Secolo de Secolo de Secolo de Secolo de Secolo de Secolo de Secolo de Secolo de Secolo de
[ ]		4				1	Sylving Track
14   4		<b>=</b> =					
	The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa	,			1 3		Control of the state of the second
Wahler	CROWNPOINT RED BLUFF	े स्टब्स	14 may ( 15 m)	FYDI	np: -		whatehad the case of the same of
sociates	PROJECT PROJECT	11.2		Pan	ECT NO		HE LOE BORING HO.
	・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	200				. I . TW	TT NA 1 73777552

GROUND EL. 6987 (TOTA) DECTION 28 TIME RIZW TOTAL DEPTH 7400 -12-80) DRILL CONTRACTOR CTEW T BODTHEAS 123/2" LOGGED BY MPL DRILL RIG BORING DIA. DATE DRILLED 12/5-100 FAILING 2500 SOIL PR SAMPLE DEPTH REMARKS REC. MODE DESCRIPTION NO. ROD CLASS. 710.0 SANDSTONE (Continued) 610 620. c\$0 670 90= Ì. きない **W** Wahler CROWNPOINT RED BLUFF
PROJECT EXPLORATION BORING LOG BORING HO. PROJECT NO. SHEET NO. **Associates** ∵≉ CNG INIA THA

DRILL	RIG FAILING 2500	1 14 MANY 5 17 ORIL BORING DIA. 1	L CONTRA	CTOR ST.	EWAL,	BR	OTHE	
2011	FAILING 2500	BOKING DIX. 1	고려용"	DAT	E DRILL	ED 12	15-1	LOGGED BY MPW
CLAS		NOIT	DEPT	SAMPLE NO.	PR	REC.	RODE	REMARKS
	the Committee		700-		1			
Ē.	5400 - 7100 SA	NDSTONE (Continu	J) 700 =			1		
E				3				
E					Í :		'	
-		<u> </u>	710=					
	110.0-740.0 LOW	ER MEMBER-				៊ីតិ		
E	CHINLE FORMATION	- MUDSTONE:	1		[ ]			
E	brekred; slightly were Indusated; Fruble; les	ethored; moderately	) E			- 1		
F	"duse to Thable les	strongologianet	720-					
E	F		4 E	sa di				
E			] =	4,61		2.1		
F							ĺ	
Ē		rigeration to the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the com	- 1730-				- 1	
E		atternation of the second	=		.			
Ē			E			İ	}	
	Land Service Control for		l i		.			
<b>.</b>	740.0 TOTAL DE	<b>ਦਜ</b>	740					
	· 人名英格兰人名英格兰人		I I				- 1	
			l i					
. '			=			- :		
			750					
,								
			]			- "		
<u>-</u>			760			-		
	·		=					
		2.2	E				-1	The second second
			‡	3.4				
•			770-	1-2 3-4-3			.	TION OF THE COLUMN AN APPROXIMA- PACE COMPLIANCE RECEIVE THE INFOR-
- 7			Ē	-		19		MATION WAS OWNLINED FROM INDIRECT, BISCONTINUOUS, AND POSSINLY BIS- TORAND SANDLING MECKASTRATED BY
			=					BUE OF SPALL-STANDING MICH.  BOTARY AND MAKE AGRIEG HOLES LAVE FURTHER CONCLUCATIONS IN THIS BEGGAD RECLUS OF
			=	,			-	MICHAEL PLUTD AMPION CASING IN MICHAEL STATES OF THE MICHAEL OF THE MICHAEL OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHAEL STATES OF THE MICHA
- :			780-	ī		$\cdot$		THIS LOS TENEGRIES CONDITIONS IN THIS SOLE CHIEF OF THE DATE INDI- CATED AND PAY NOT REPRESENT COMMI- FLOWS AT COURSE CONTRACTOR OF
			$\exists$	- 5				Figure AT FOREST COATTON AND ON STREET DATES, ANY WATER LEVELS MICH.
			=			1		THE BOLE WE LONGE IN HOCK A MET
2°.			E	7.74	.	2		SALLEY FOR THE PORPORES OF STR.
	The State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the S		70 TI	27.5		劃.		THE STATISTICATION LINES OF SCHOOL
10.00				-44	Ú.	د اخس		MALE BOTHWATER MAINTE STATETY
1	· 在一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个	14 15 15 15 15 15 15 15 15 15 15 15 15 15		70			*	Sect CLASSIFICATION MADE IN LOSS OF FILE CLASSIFICATION MADE IN LOSS OF FILE CLASSIFICATION MADE IN
37					15 g	Market State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of th		THE MITTER MILE CLASSIFICATION OF
	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	100 100 100 100 100 100 100 100 100 100	<u></u> 200	1400 ·	** 1	77 S		This committee and or the more marked to the more marked construction for the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construc
Y W	hler croot	WEULKL BED BII	IFF ~	restauries.	FYD	10013		- manufaction of the Company
AR YYU	Too Too	PROJECT A	31 X 13	37/2		LUK X	IUN	BURING LOG BORING N
SOUR	TIK2	是这种的。 第124年的			CII	A TANK	η D . Δ '3:St	The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa
	Marie and the second	and of Condition and the December	والمالة والمهمانية	Philippin in			لـــــــ	0 -10 -111W-3

## ATTACHMENT 3

**CONSTRUCTION DIAGRAMS** 

01 DEC -T #1 9: 10

	0.0	MW-2 CROSS SECTION
<i>~</i> -		0.0 - 746.0 173/2"   1
1.		0.0 - 766.0 123/8" hole.
./	1.1	
	100	
	1	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon
		WATER LEVEL 180.0
ا ي	100	J
a vilo		1 1
27 Jay 200 Suggi		
70 AR	300	
;	00-710.0 2" trevic pipe.	
	Thems bike	0.0 - 692.5 7" O.D wanper Founded action
1		
	400	4   · · · · · · · · · · · · · · · · · ·
		1/1
( )		~7.0' - 710.0'?
`	500	1/ 425 F3/50/ -Wash
		cement with 20% ac!. (Volume to becomented = 400F3)
		(Volume to becomented = 400F3)
	ار ا محم	
		-
	No SAND TOO	20 692.5 - 678.0 comentyling with parts at it 693
		09B - 723.5 7"0.0 cuport casing
	710.0 - 764.0 gmvel (-7/5)	
	- · · · · · · · · · · · · · · · · · · ·	766.0 - 946.0 10" hole.
	766.0 - 946.0 Prosacle	
	Void in avuilat 800	723.5- 726 40 15/20 01
	3 pace.	723.5 - 126 40 p3/80.0 burendux secon
-		
	900	
-   .		
		925 - 976 Blank 65/000 well school
	H6.0	
-		1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
1	poo	

IMW-3 CROSS SECTION OD - 744.0 Dulled with 12/4" throng rackbit. 0.0 - 55E.0 7" O.D. wipertorated casing 4.0-5400 Cowert with 2% gcl. 180.0 WATER LEVEL 558.0 - 720.0 65/8" 0.0. # 603/ot louvered well-scheau. 720.0 - 740.0 Blank well scheen. TRUE BORING LOCATION NW/14, SECTION 28, TIHN, RIZW GRAVEL PACK (-3/8") Volume of gravel (Vg) = Vgs+ Vgc = (5959 x180')+ (.5680 x 130') = 114.653 Volume of soud (Vs) = .5620 x9' = 5.1 F3 Volume of cement (Nc) = 540'x .5620 = 307F3 x 1.5 (50% excess) = 460F3