STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance YES Disposal _____Storage
Application qualifies for administrative approval? _____Yes XXX No

II. OPERATOR: ROSETTA RESOURCES OPERATING LP

ADDRESS: 1200 17TH ST., SUITE 770, DENVER, CO 80202

CONTACT PARTY: BRIAN WOOD (PERMITS WEST, INC.) PHONE: (505) 466-8120

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? XXX Yes _____No
If yes, give the Division order number authorizing the project: SWD-1063 & SWD-1063-A

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: BRIAN WOOD TITLE: CONSULTANT

SIGNATURE: B. Wood DATE: NOV 21 2006

E-MAIL ADDRESS: brian@permitswest.com

* If the information required under Sections VI, VIII, X, and XI above has been pr
Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one co[illegible] Rosetta

Oil Conservation Division
Case No. _____
Exhibit No. 1

Side 2

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

V

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2-7/8" 6.5# J-55 Lining Material: PLASTIC

Type of Packer: 5-1/2" x 2-7/8" COMPRESSION SET WITH ON/OFF TOOL

Packer Setting Depth: WITHIN 50' OF THE HIGHEST PERFORATION

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? XXX Yes _____ No

   If no, for what purpose was the well originally drilled? _____

   _____

2. Name of the Injection Formation: CLIFF HOUSE

3. Name of Field or Pool (if applicable): SWD; MESA VERDE

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. _____

   PERFORATED 3,248' – 3,818' IN MENEFEE & 4,172' – 4,310' IN POINT LOOKOUT

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: _____

   OVER: FRUITLAND (1,386') & PICTURED CLIFFS (1,636')

   UNDER: GALLUP (≈5,186') & DAKOTA (≈6,159')

   _____

Side 1

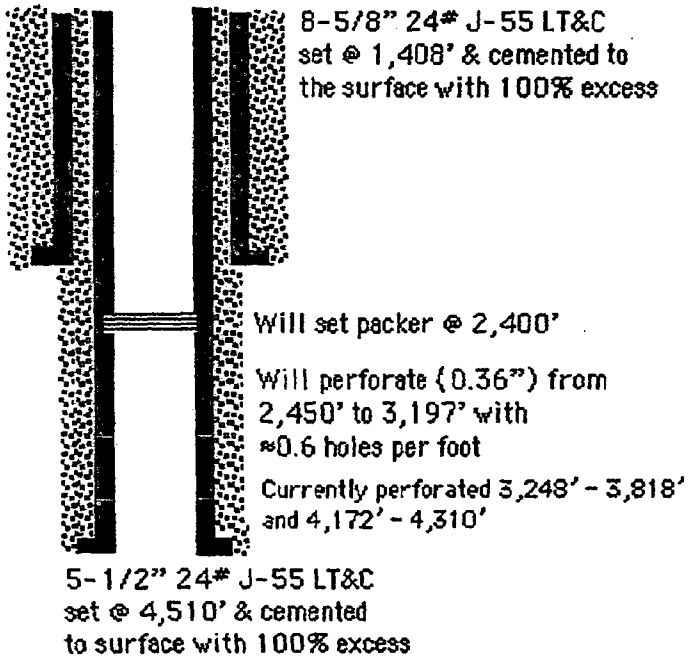
INJECTION WELL DATA SHEET

OPERATOR: ROSETTA RESOURCES OPERATING LP

WELL NAME & NUMBER: TSAH TAH SWD #11

WELL LOCATION:	970' FSL & 1510' FWL	N	11	24 N	10 W
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 12-1/4" Casing Size: 8-5/8" 24# J-55 LT&C

Cemented with: 535 sacks *or* 979 ft^3

Top of Cement: SURFACE Method Determine: VISUAL

Intermediate Casing

Hole Size: Casing Size:

Cemented with: _____ sacks *or* _____ ft^3

Top of Cement: _____ Method Determined: _____

Production Casing

Hole Size: 7-7/8" Casing Size: 5-1/2" 24# J-55 LT&C

Cemented with: 755 sacks *or* 1,348 ft^3

Top of Cement: SURFACE Method Determine: VISUAL

Total Depth: 4,510'

Injection Interval

From 2,450 feet To 4,346 feet

(Perforated or Open Hole; indicate which)

ROSETTA RESOURCES OPERATING LP
TSAH TAH SWD #11
970' FSL & 1510' FWL
SEC. 11, T. 24 N., R. 10 W., SAN JUAN COUNTY, NM
CLIFF HOUSE ZONE

I. Purpose is to add one more zone (Cliff House) for additional water disposal capacity. (Well was drilled and completed in 2007.)

II. Operator: Rosetta Resources Operating LP
Operator phone number: (720) 359-9144
Operator address: 1200 17th St., Suite 770
Denver, CO 80202
Contact: Brian Wood (Permits West, Inc.)
Phone: (505) 466-8120

III. A. (1) Lease: BLM lease NMNM-112955
Lease Size: 1,761.69 acres
Lease Area: SW4NE4, S2NW4, S2, & Lots 2-4 Sec. 1
SE4NE4 & NE4SE4 Sec. 3
SW4 & N2 Sec. 11
all Sec. 12
all T. 24 N., R. 10 W., San Juan County
Closest Lease Line: 970'
Well Name & Number: Tsah Tah SWD #11 (API # 30-045-34082)
Well Location: 970' FSL and 1510' FWL Sec. 11, T. 24 N., R. 10 W.
(see Exhibit A)

A. (2) Surface casing (8-5/8", 24#, J-55, L T & C) is set at 1,408' KB in a 12-1/4" hole. Led with 395 sacks (814 cubic feet) Type V + 2% SMS + 3 pounds per sack gilsonite + 1/4 pound per sack cellophane. Tailed with 140 sacks (165 cubic feet) Type V with 1% $CaCl_2$ + 1/4 pound per sack cello flake. Circulated 60 barrels to the surface.

Production casing (5-1/2", 24#, J-55, L T & C) landed at 4,509' KB in a 7-7/8" hole. Float collar is at 4,496' KB. Marker joint is at 4,033'. DV tool is at 2,234' KB.

First stage was 345 sacks (652 cubic feet) of 65/35 Type V poz with 6% gel + 5 pounds per sack gilsonite + 1/8 pound per sack poly flake. Tailed with 100 sacks (146 cubic feet) of 50/50 poz with 2% gel + 10% Halad 9-2 + 10% CFR + 5 pounds per sack gilsonite + 1/8 pound per sack poly flake. Circulated 40 barrels to the surface.
Second stage was 260 sacks (491 cubic feet) of 65/35 Type V poz with 6% gel + 5 pounds per sack gilsonite + 1/8 pound per sacks poly-flake. Tailed with 50 sacks (59 cubic feet) Type V Neat. Pressure tested casing to 2,500 psi. Circulated 8 barrels to the surface.

A. (3) Tubing is 2-7/8" 6.5# J-55 plastic lined injection string. It is currently set at 3,199'. It will be reset at 2,400' KB (i. e, 50' above highest perforation, which will be 2,450').

A. (4) A 5-1/2" x 2-7/8" compression set packer with an on/off tool or its equivalent will be set within ≈50' of the highest perforation. Thus, packer will be set at ≈2,400' which will be ≈50' above the top perforation of ≈2,450'.

B. (1) Initial disposal zones were the Menefee (3,197' - 4,166' which was perforated with 0.36" holes from 3,248' to 3,818') and Point Lookout (4,166' - 4,346' which was perforated with 0.36" holes from 4,172' to 4,310') sandstones. Rosetta plans to add the Cliff House to the disposal interval. All three zones are in the Mesa Verde Formation (Pool 96160). Fracture gradient is expected to be a normal ≈0.433 psi per foot.

B. (2) For water sampling purposes, three zones were perforated with two 0.34" shots per foot (2 shots per zone x 3 zones = total 6 shots). Cliff House was perforated at 2,469' KB. Menefee was perforated at 3,645' KB, and Point Lookout was perforated at 4,181' KB.
For disposal purposes, Menefee was perforated with 432 holes (≈1.3 holes per foot) and Point Lookout was perforated with 238

holes (≈0.6 holes per foot). Upon approval, additional similar perforations will be shot in the Cliff House (2,450' - 3,197').

B. (3) Well has been drilled. It was and will be for Rosetta's exclusive use and for the sole purpose of water disposal from present and future Rosetta wells. Water analyses from three Rosetta Basin Fruitland coal gas wells within a three mile radius are attached.

B. (4) For water sampling purposes, three zones have been perforated to date with two 0.34" shots per foot (2 shots per zone x 3 zones = total 6 shots). Cliff House was perforated at 2,469' KB. Menefee was perforated at 3,645' KB, and Point Lookout was perforated at 4,181' KB. Upon approval, additional similar perforations will be shot in the Cliff House (2,450' - 3,197'). For disposal purposes, the Menefee is perforated from 3,248' to 3,818' and the Point Lookout is perforated from 4,172' to 4,310'.

B. (5) Top of the Cliff House is at 2,411'. Highest current Cliff House perforation is at 2,469'. Highest proposed Cliff House perforation will be 2,450'. Bottom of the closest overlying potentially productive zone (Pictured Cliffs) is at 1,838'. There will be a 612' interval between the bottom of the Pictured Cliffs and the highest injection perforation at 2,450'. Searches of NMOCD and Go-Tech web sites did not find any records of oil or gas production from the Cliff House.

Bottom of the Cliff House is at 3,197'. Top of the closest underlying potentially productive zone (Gallup) is at ≈5,186'. There will be a ≈1,989' interval between the bottom of the Cliff House and the top of the Gallup. Within this ≈1,989' interval are the Menefee and Point Lookout zones which are currently being used for water disposal in this same well. Oil is being produced elsewhere in the San Juan Basin from the Menefee (≈37 miles south in 18-18n-10w at the Seven Lakes Menefee Field). Closest plugged Menefee well is 26 miles south in 30-20n-9w (wildcat with no production).

IV. This is not an expansion of an existing injection project. It is an expansion (one more zone) of an existing water disposal project.

V. A map (Exhibit B) showing 3 existing well bores (2 Rosetta Tsah Tah wells + 1 stock watering well) within a half mile radius is attached. A map (Exhibit C) showing all 86 wells (40 P & A + 41 oil or gas producers + 5 water) within a two mile radius is attached. Details on the three wells within a half mile are:

WELL	API 30-045	T24N, R10W	ZONE	STATUS	TD	DISTANCE
Tsah Tah 11 #3	-34047	SWSW Sec. 11	Fruitland coal	P & A	1,872'	306'
Tsah Tah 11 #3R	-34713	SWSW Sec. 11	Fruitland coal	Gas Well*	1,870'	319'
Yazzie stock well	N/A	NWSE Sec. 11	Nacimiento	Water Well	≈800'**	>1/4 mile

*spudded 11-4-08, not yet completed

**no depth record found in family, Federal, state, or Tribal offices; depth based on conversation with Mr. Yazzie

Exhibit D shows all leases (all BLM) within a half mile radius. Details are:

AREA	LESSOR	LEASE #	LESSEE
E2 10-24n-10w	BLM	NMNM-104606	Coleman
W2 & NE4 11-24n-10w	BLM	NMNM-112955	Rosetta
SE4 11-24n-10w	BLM	NMNM-114376	Rosetta
N2 14-24n-10w	BLM	NMNM-016760	Questar
NE4 15-24n-10w	BLM	NMNM-100807	Coleman

A map (Exhibit E) showing all lessors within a two mile radius is attached. Most leases are BLM. The remainder are Navajo allotted (FIMO) or State (NMSLO).

VI. None of the three wells which are within a 1/2 mile radius penetrate the proposed injection zone. The deepest (Rosetta's Tsah Tah 11 #3) of the three wells has a total depth of 1,872'. There will be a 578' interval between the bottom of that gas well and the highest proposed perforation (2,450').

VII. 1. Average injection rate will be ≈2,000 bwpd.
Maximum injection rate will be ≈3,000 bwpd.

2. System is closed. (Rosetta laid water pipelines with its gas pipelines). Facilities include a tank battery with skimmer and settling tanks, filters, meter, and an injection pump.

3. Average injection pressure will be ≈450 psi
Maximum injection pressure will be ≈508 psi (≤0.2 psi x depth of top perforation)

4. Water source will be existing and future Rosetta wells in the San Juan Basin. Rosetta has 41 Fruitland coal gas wells in Townships 24 and 25 North, Range 10 West. Water analyses (Exhibit F) from the Cliff House in this well are attached. Three produced water analyses (Exhibit G) from the Basin Fruitland coal are also attached. A summary follows. All are Rosetta Tsah Tah wells.

Well:	2-4	33-2	34-4	SWD 11
Where:	2-24n-10w	33-25n-10w	34-25n-10w	11-24n-11w
What Zone:	Fruitland	Fruitland	Fruitland	Cliff House
Parameter				
Barium	2.44	3.19	2.26	Not Analyzed
Bicarbonate	518.5	786.9	549.0	486
Calcium	800	400	960	56
Chloride	19,000	18,000	16,000	9,552
Iron	27.62	46.22	21.77	0.10
Magnesium	344.04	245.22	149.33	48
pH	7.3	6.8	7.0	8.5
Sodium	10,906	10,980	9,166	6,240
Sulfate	zero	zero	2.0	23
TDS	31,599	30,462	26,851	16,443

5. The Cliff House is not productive within two miles of the well. Searches of NMOCD and Go-Tech web sites did not find any records of oil or gas production from the Cliff House in the San Juan Basin. Stone et al in Hydrogeology and water resources of San Juan Basin, New Mexico wrote that the Cliff House in the deeper parts of the basin probably has a specific conductance exceeding 30,000 micro mhos. This would be considered very saline.

VIII. The Cliff House is a coastal marine sandstone of the Late Cretaceous. It is 786' thick in this well. Top is at 2,411'. Bottom is at 3,197'. Perforated interval will be 2,450' - 3,197'.

Formation tops in this well are:

Nacimiento: 0'
Ojo Alamo Sandstone: 886'
Kirtland Shale: 961'
Fruitland Formation: 1,386'
Pictured Cliffs Sandstone: 1,636'
Lewis Shale: 1,838'
Cliff House Sandstone: 2,411'
Menefee: 3,197'
Point Lookout Sandstone: 4,162'
Mancos Shale: 4,350'
Plugged Back Total Depth: 4,496'
Total Depth: 4,510'

There is one water well within a one mile radius. It is a stock watering well ≈1/4 mile northeast in the NWSE Section 11. There are five water wells within a two mile radius. All five water wells are believed to be above the Cliff House. Likely aquifers are the Nacimiento and Ojo Alamo. From close to far, the five water wells are:

stock well ≈1/4 mile NE in NWSE Sec. 11
windmill ≈1.2 miles SW in NWNW Sec. 15
two Mission wells ≈1-3/4 miles NE in NENE Sec. 12
Dugan well ≈1.95 miles NE in NWNW Section 7

No existing underground drinking water sources are below the Cliff House within a two mile radius. There will be ≈1,311' of vertical separation between the bottom of the deepest (1,100') water well (Dugan) within ≈1.95 miles and the top of the Cliff House.

IX. The zone will be stimulated with a sand-water fracture (e. g., 20/40 Brady with slick water and 15% HCl).

X. Depth correlation, spectral density, high resolution induction, and gamma ray/casing collar locator logs were run. Copies were provided to the NMOCD by Blue Jet.

XI. There is one water well within a one mile radius. Its exact depth is unknown, but a family member believes it to be ≈800' deep. It is ≈1/4 mile northeast in the NWSE of Section 11. Water analysis are attached as Exhibit H. The well is only used for stock watering. A Navajo Tribal Utility Authority water pipeline provides drinking water to the family.

XII. Rosetta is not aware of any geologic or engineering data which may indicate the Cliff House is in hydrologic connection with any underground sources of water. There will be 1,311' of vertical separation between the top (2,411') of the Cliff House and the bottom (1,100') of the deepest water well within ≈1.95 miles. This interval includes at least one shale zone (Lewis).

XIII. Notice (this application) will be sent to the surface owner (BLM), operators of all wells, and lessees or lease operating right holders within a half mile.

DISTRICT I
1625 N. French Dr., Hobbs, NM. 88240

DISTRICT II
811 South First, Artesia, NM. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM. 87410

DISTRICT IV
2040 South Pacheco, Santa Fe, NM. 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-102
Revised August 15, 2000

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

RECEIVED
2006 NOV 27 PM 12 39
070 FARMINGTON NM

RCVD JAN 10'07
OIL CONS. DIV.
DIST. 3

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-045- 34082	96160	SWD; MESA VERDE

4 Property Code	5 Property Name	6 Well Number
35715	TSAH TAH SWD	11

7 OGRID No.	8 Operator Name	9 Elevation
239235	ROSETTA RESOURCES OPERATING LP	6886'

10 Surface Location

UL or Lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	11	24N	10W		970'	SOUTH	1510'	WEST	SAN JUAN

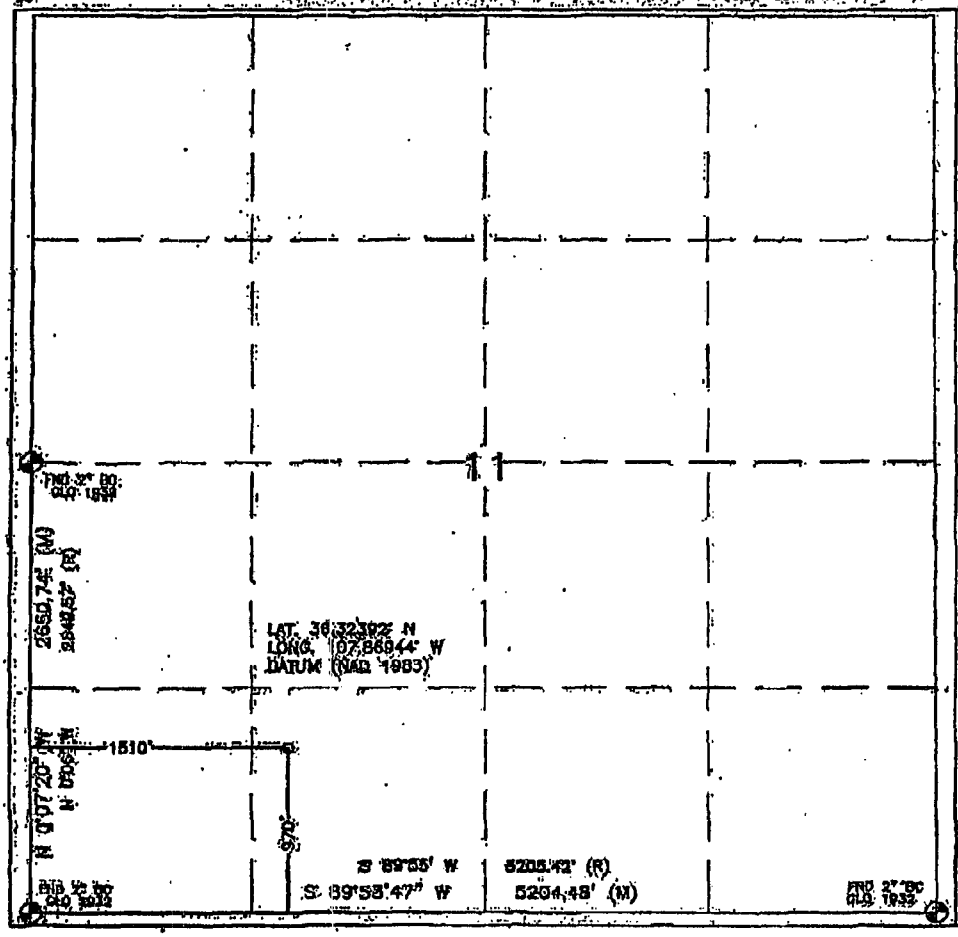
11 Bottom Hole Location If Different From Surface

UL or Lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature

BRIAN WOOD
Printed Name

CONSULTANT
Title

NOV. 23, 2006
Date

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

SEPTEMBER 25, 2006
Date of Survey

NEW MEXICO
10201
REGISTERED PROFESSIONAL LAND SURVEYOR

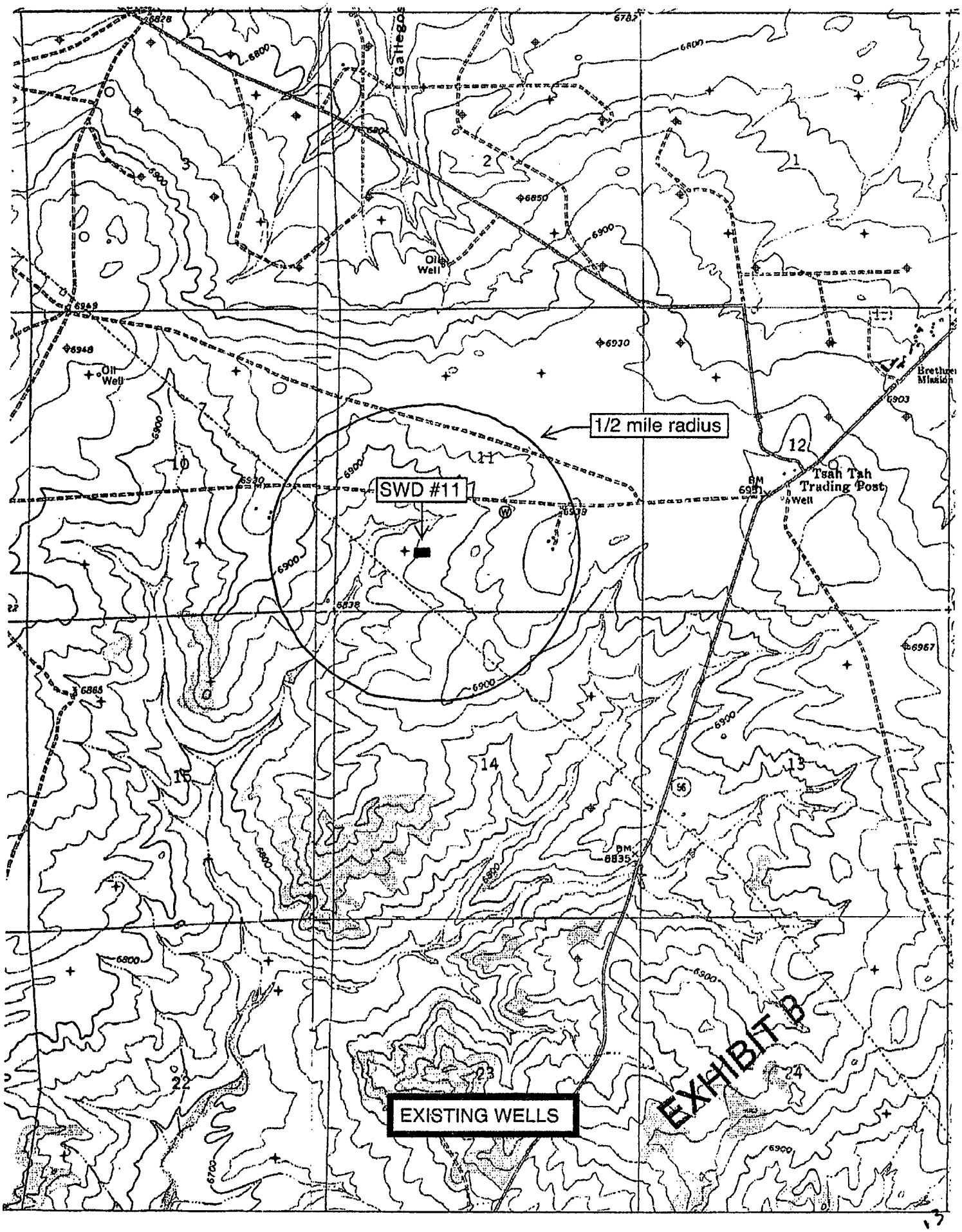
Signature and Seal of Professional Surveyor

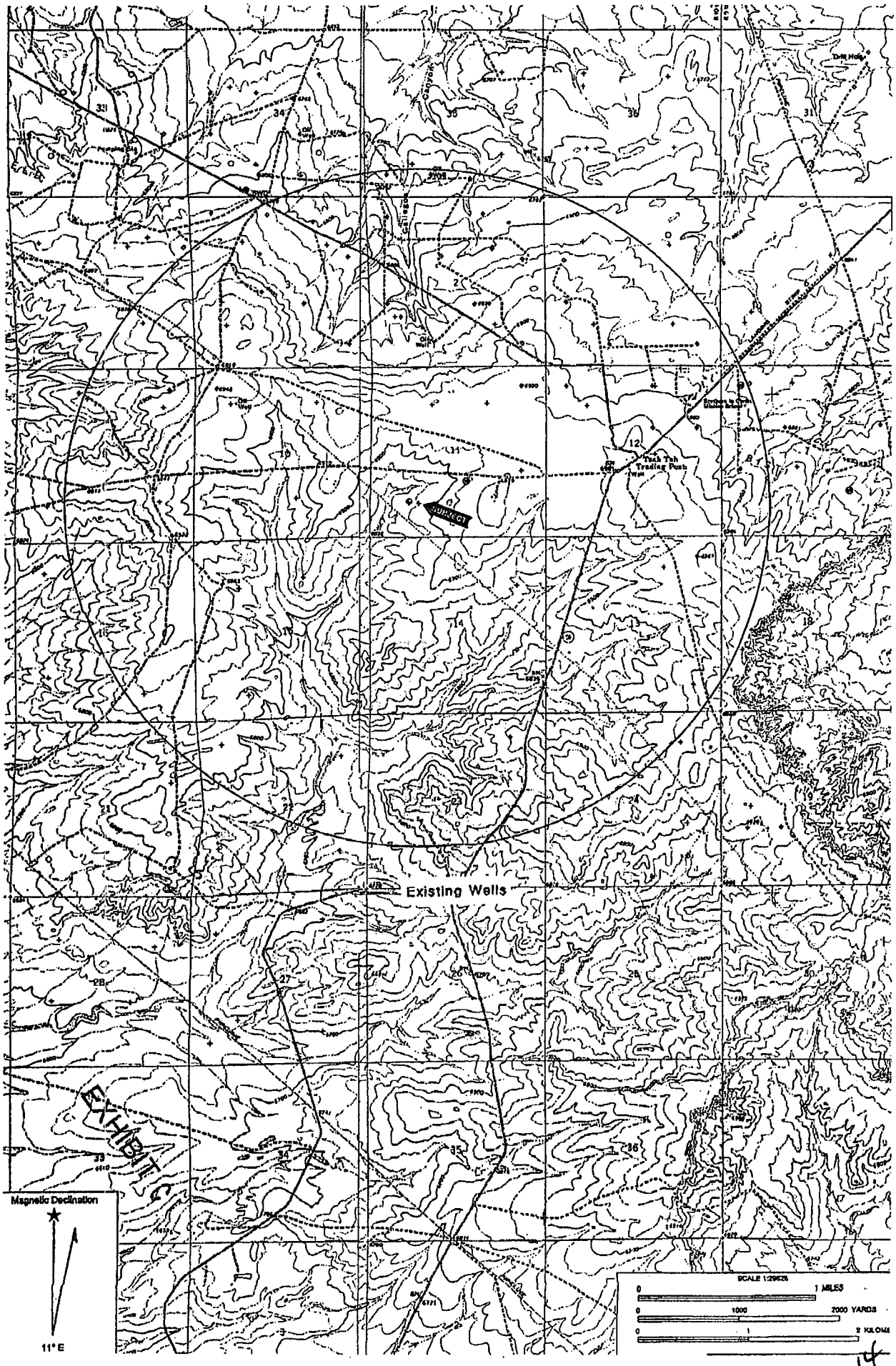
DAVID RUSSELL

Certificate Number 10201

EXHIBIT A

17


1/2 mile radius
SWD #11
EXISTING WELLS
EXHIBIT B
Tsah Tah
Trading Post
Oil Well
Oil Well
Gallegos
Brethren Mission
BM 6951
BM 6835


Subject
Existing Wells
EXHIBIT C
Magnetic Declination
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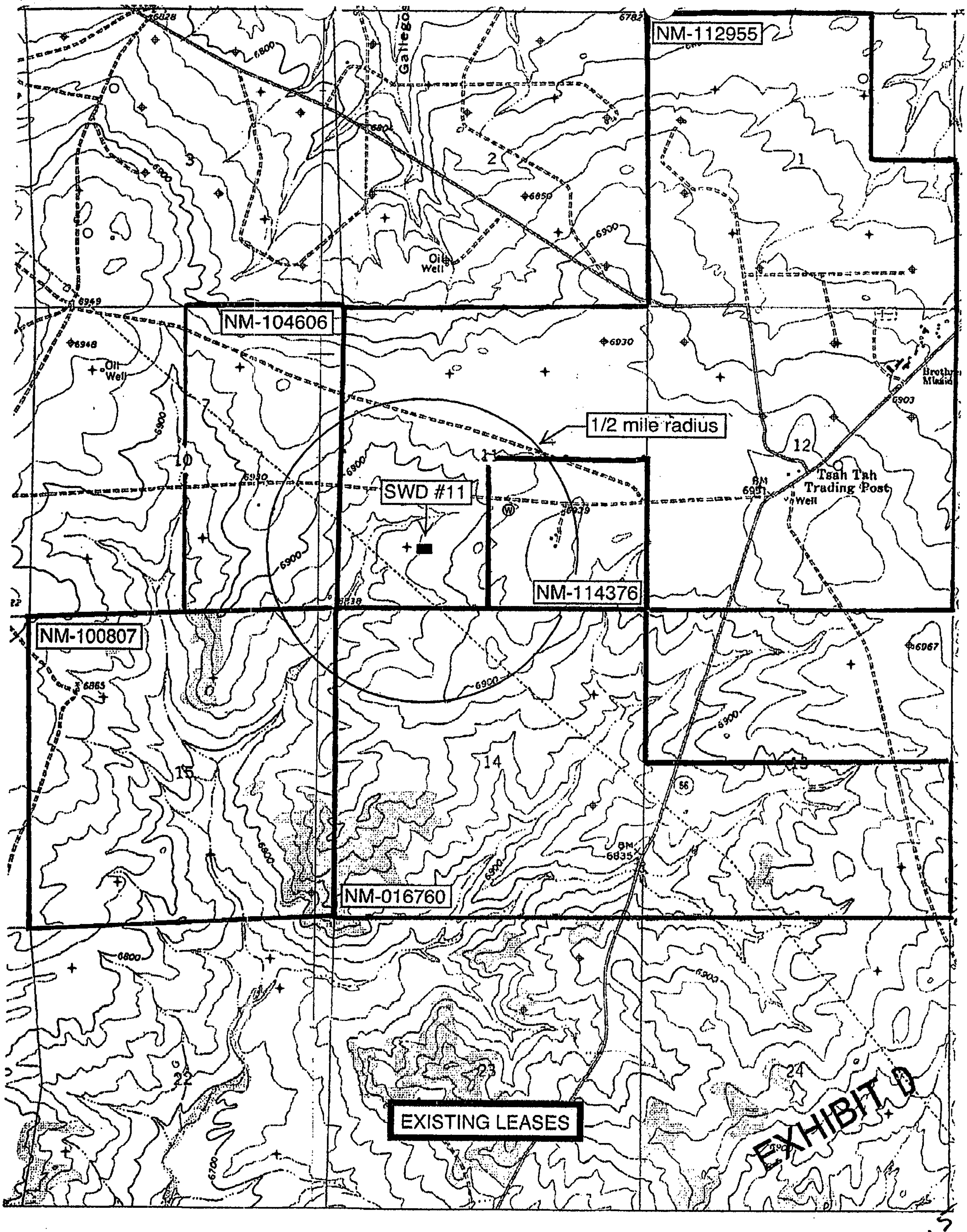
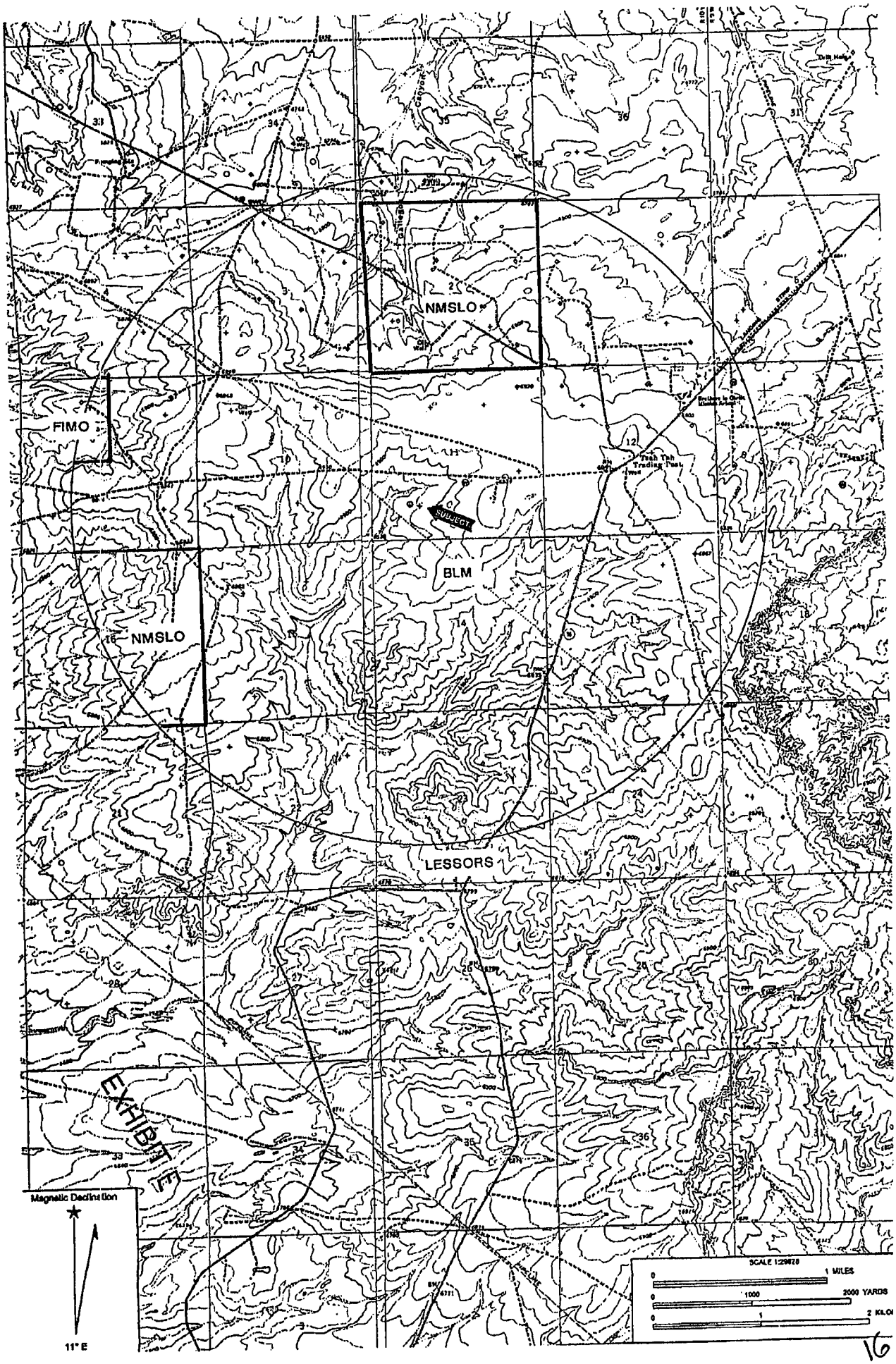
SCALE 1:29626
1 MILES
1000
2000 YARDS
1 KILOME

14


NM-112955
NM-104606
NM-100807
NM-114376
NM-016760
1/2 mile radius
SWD #11
Tsah Tah
Trading Post
Oil Well
EXISTING LEASES
EXHIBIT D


NMSLO
FIMO
SUBJECT
BLM
NMSLO
LESSORS
EXHIBIT E
Magnetic Declination
11° E
SCALE 1:24000
1 MILES
2000 YARDS
2 KILO

Key Pressure Pumping Services

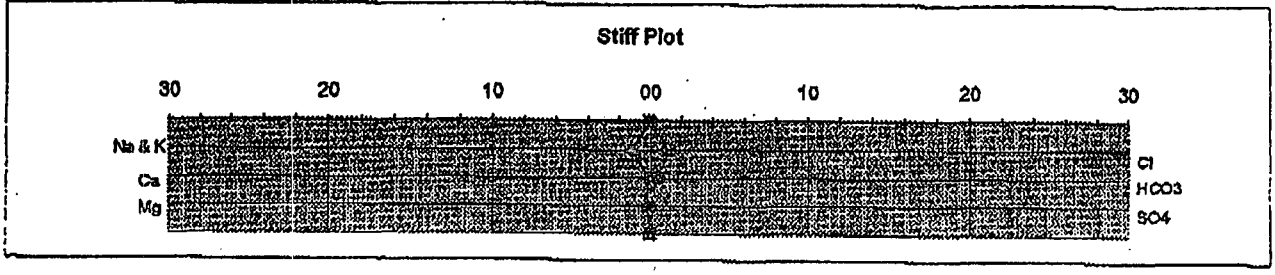
Water Analysis Result Form
Farmington, NM.
708 S. Tucker
Phone:(505)325-4192
Fax:(505)564-3524
Zip:87401

Operator:	Rosetta Resources	Sample Date:	March 15, 2007
		Analysis Date:	March 17, 2007
Well	Tsah Tah SWD # 11	District:	Farmington
Formation:	CLIFFHOUSE	Requested By:	RUSS McQUITTY
County:	SAN JUAN N.M.	Technician:	BEN BARELA
Depth:	2469	Source:	Swab Run #1

PHYSICAL AND CHEMICAL DETERMINATION

SPECIFIC GRAVITY:	1.005	59 (°F)	S.G. (Corrected):	1.005	
pH:	8.50		MAGNESIUM:	48	ppm
RESISTIVITY:	0.70	ohm/meter	CALCIUM:	56	ppm
IRON:	0.10	ppm	BICARBONATES:	486	ppm
H2S:	0	ppm	CHLORIDES:	9652	ppm
POTASSIUM:	38	ppm	SODIUM :	6240	ppm
SULFATES:	23	ppm	TDS:	16443	ppm

CaCO3 Scale Tendency = Remote
CaSO4 Scale Tendency = Remote



Data contained in this document is based on the best information & most current test procedures and materials available. No liability is expressed or implied.

EXHIBIT F

Water Analysis

Analysis #: 1058

Company: Rosetta Resources
Lease: .
Location: Farmington, New Mexico

Date: January 16, 2007
Attention: Bryan Enns
Description:
Well: Tsah Tah 2 #4
Sample Point: 2 #4

MULTI-CHEM PRODUCTION CHEMICALS®

DISSOLVED SOLIDS

CATIONS	mg/l	meq/l
Sodium, Na (calc)	10,906.14	474.18
Calcium, Ca	800.00	39.80
Magnesium, Mg	344.04	28.20
Barium, Ba	2.44	0.04
Iron, Fe	27.62	1.48

ANIONS	mg/l	meq/l
Hydroxyl, OH		
Carbonate, CO3		
Bicarbonate, HCO3	518.50	8.49
Sulfate, SO4	0.00	0.00
Chloride, Cl	19,000.00	535.21
Sulfide, S		

OTHER PROPERTIES

pH	7.30
Specific Gravity	1.014
Dissolved Oxygen, (Mg/l)	
Dissolved Carbon Dioxide	19.80
Sulfide as H2S, (ppm)	0.00
Sample Temp	F. 72 C. 22
CO2 in Gas Phase (Mg/l)	
H2S in Gas Phase (Mg/l)	
Total Hardness (Me/l)	68.00

Total Dissolved Solids (Mg/l)	31,599
Total Ionic Strength	0.5784
Maximum CaSO4, (calc.)	0.00
Maximum BaSO4, (calc.)	0.00
Total SRB (colonies/cc)	
Total APB (colonies/cc)	
Total Aerobic (colonies/cc)	
Manganese (Mg/l):	0.84

Conclusion:

Calcium Carbonate scaling index is positive above 9 degrees Centigrade.
Calcium Sulfate scale is not indicated from 0 to 100 degrees Centigrade.
Barium Sulfate scale is not indicated from 0 to 100 degrees Centigrade.

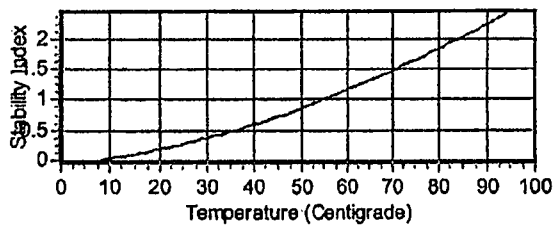
Remarks:

EXHIBIT G

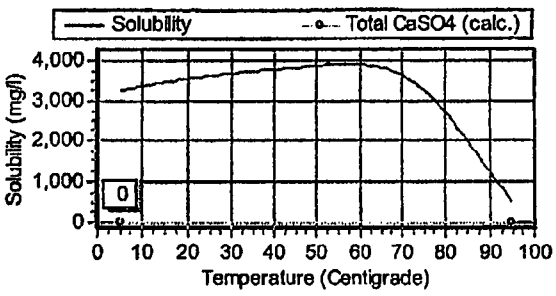
Fahrenheit Degrees 32 85 122 167 212
(C X 1.8) + 32
Centigrade Degrees 0 25 50 75 100

Scaling Indices vs. Temperature

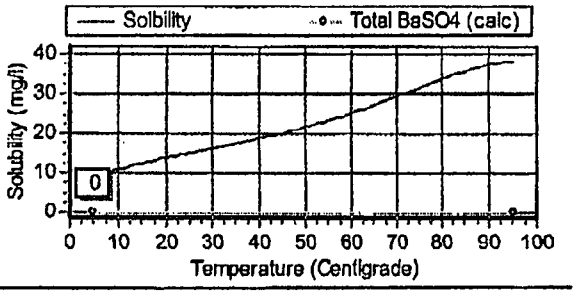
Calcium Carbonate Saturation Index



Calcium Sulfate Solubility



Barium Sulfate Solubility



Water Analysis

Analysis #: 1059

Date: January 16, 2007

Company: Rosetta Resources

Attention: Bryan Enns

Lease: .

Description:

Location: Farmington, New Mexico

Well: Tsah Tah 33 #2

Sample Point: 33 #2

MULTI-CHEM PRODUCTION CHEMICALS

DISSOLVED SOLIDS

CATIONS	mg/l	meq/l
Sodium, Na (calc)	10,979.97	477.39
Calcium, Ca	400.00	19.90
Magnesium, Mg	245.22	20.10
Barium, Ba	3.19	0.05
Iron, Fe	46.22	2.48

ANIONS	mg/l	meq/l
Hydroxyl, OH		
Carbonate, CO3		
Bicarbonate, HCO3	786.90	12.88
Sulfate, SO4	0.00	0.00
Chloride, Cl	18,000.00	507.04
Sulfide, S		

OTHER PROPERTIES

pH	6.80	Total Dissolved Solids (Mg/l)	30,462
Specific Gravity	1.014	Total Ionic Strength	0.5402
Dissolved Oxygen, (Mg/l)		Maximum CaSO4, (calc.)	0.00
Dissolved Carbon Dioxide	7.90	Maximum BaSO4, (calc.)	0.00
Sulfide as H2S, (ppm)	0.00	Total SRB (colonies/cc)	
Sample Temp	F. 72 C. 22	Total APB (colonies/cc)	
CO2 in Gas Phase (Mg/l)		Total Aerobic (colonies/cc)	
H2S in Gas Phase (Mg/l)		Manganese (Mg/l):	0.43
Total Hardness (Me/l)	40.00		

Conclusion:

Calcium Carbonate scaling index is positive above 41 degrees Centigrade.
Calcium Sulfate scale is not indicated from 0 to 100 degrees Centigrade.
Barium Sulfate scale is not indicated from 0 to 100 degrees Centigrade.

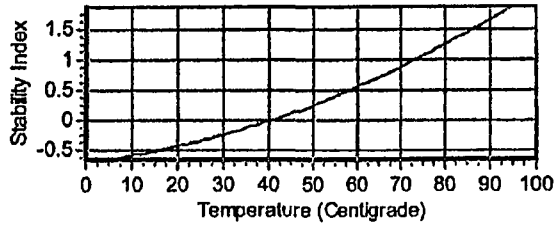
Remarks:

EXHIBIT G

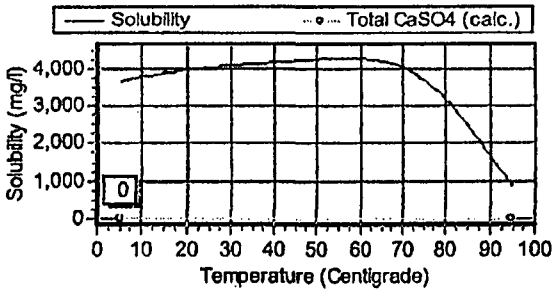
Fahrenheit Degrees 32 85 122 167 212
(C X 1.8) + 32
Centigrade Degrees 0 25 50 75 100

Scaling Indices vs. Temperature

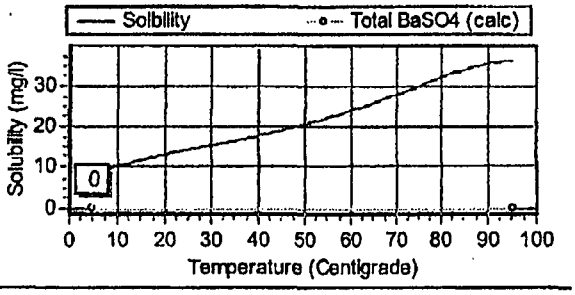
Calcium Carbonate Saturation Index



Calcium Sulfate Solubility



Barium Sulfate Solubility



Water Analysis

Analysis #: 1060

Company: Rosetta Resources

Lease: .

Location: Farmington, New Mexico

Date: January 16, 2007

Attention: Bryan Enns

Description:

Well: Tsah Tah 34 #4

Sample Point: 34 #4

MULTI-CHEM PRODUCTION CHEMICALS®

DISSOLVED SOLIDS

CATIONS	mg/l	meq/l
Sodium, Na (calc)	9,166.19	398.53
Calcium, Ca	960.00	47.76
Magnesium, Mg	149.33	12.24
Barium, Ba	2.26	0.03
Iron, Fe	21.77	1.17

ANIONS	mg/l	meq/l
Hydroxyl, OH		
Carbonate, CO3		
Bicarbonate, HCO3	549.00	8.99
Sulfate, SO4	2.00	0.04
Chloride, Cl	16,000.00	450.70
Sulfide, S		

OTHER PROPERTIES

pH	7.00
Specific Gravity	1.014
Dissolved Oxygen, (Mg/l)	
Dissolved Carbon Dioxide	11.90
Sulfide as H2S, (ppm)	0.00
Sample Temp	F. 72 C. 22
CO2 in Gas Phase (Mg/l)	
H2S in Gas Phase (Mg/l)	
Total Hardness (Me/l)	60.00

Total Dissolved Solids (Mg/l)	26,851
Total Ionic Strength	0.4905
Maximum CaSO4, (calc.)	2.85
Maximum BaSO4, (calc.)	3.87
Total SRB (colonies/cc)	
Total APB (colonies/cc)	
Total Aerobic (colonies/cc)	
Manganese (Mg/l):	0.26

Conclusion:

Calcium Carbonate scaling index is positive above 19 degrees Centigrade.
Calcium Sulfate scale is not indicated from 0 to 100 degrees Centigrade.
Barium Sulfate scale is indicated below 5 degrees Centigrade.

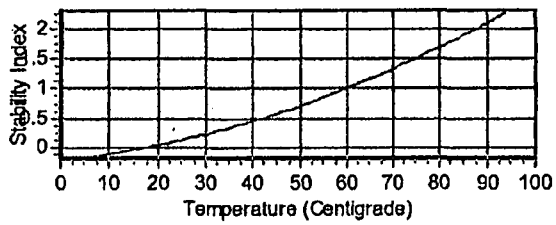
Remarks:

EXHIBIT G

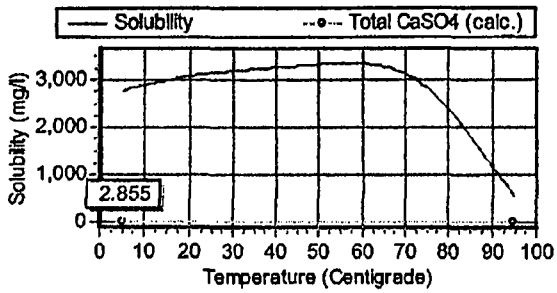
Fahrenheit Degrees: 32, 85, 122, 167, 212
(C X 1.8) + 32
Centigrade Degrees: 0, 25, 50, 75, 100

Scaling Indices vs. Temperature

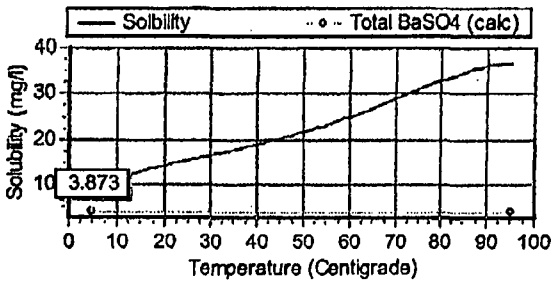
Calcium Carbonate Saturation Index



Calcium Sulfate Solubility



Barium Sulfate Solubility



Hall Environmental Analysis Laboratory, Inc.

Date: *07-Jan-08*

CLIENT:	Permits West	**Client Sample ID:**	Yazzie 11-Well
Lab Order:	0712325	**Collection Date:**	12/19/2007 4:45:00 PM
Project:	Yazzie-11 Well	**Date Received:**	12/20/2007
Lab ID:	0712325-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SMP
Chloride	8.3	0.10		mg/L	1	12/21/2007 12:31:12 PM
Sulfate	57	0.50		mg/L	1	12/21/2007 12:31:12 PM
EPA 6010B: HARDNESS						Analyst: TES
Hardness (As CaCO3)	67	1.0		mg/L	1	12/31/2007
EPA METHOD 6010B: DISSOLVED METALS						Analyst: TES
Calcium	21	1.0		mg/L	1	12/31/2007 3:47:20 PM
Iron	0.41	0.020		mg/L	1	1/7/2008 10:25:05 AM
Magnesium	3.3	1.0		mg/L	1	12/31/2007 3:47:20 PM
Potassium	1.3	1.0		mg/L	1	12/31/2007 3:47:20 PM
Sodium	76	1.0		mg/L	1	12/31/2007 3:47:20 PM
SM 2320B: ALKALINITY						Analyst: LMM
Alkalinity, Total (As CaCO3)	160	20		mg/L CaCO3	1	12/21/2007
Carbonate	ND	2.0		mg/L CaCO3	1	12/21/2007
Bicarbonate	160	20		mg/L CaCO3	1	12/21/2007
Hydroxide	ND	2.0		mg/L CaCO3	1	12/21/2007
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: LMM
Specific Conductance	470	0.010		µmhos/cm	1	12/21/2007
SM4500-H+B: PH						Analyst: LMM
pH	8.03	0.1		pH units	1	12/21/2007
SPECIFIC GRAVITY BY SM 2710F						Analyst: TAF
Specific Gravity	1.0	0			1	1/2/2008
SM 2540C: TDS						Analyst: TAF
Total Dissolved Solids	280	20		mg/L	1	12/26/2007

EXHIBIT H1

Qualifiers:	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: Permits West
Project: Yazzie-11 Well **Work Order:** 0712325

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB		*MBLK*			Batch ID:	R26660	Analysis Date:	12/21/2007 6:33:02 AM	
Chloride	ND	mg/L	0.10						
Sulfate	ND	mg/L	0.50						
Sample ID: MB-b		*MBLK*			Batch ID:	R26660	Analysis Date:	12/22/2007 12:07:29 AM	
Chloride	ND	mg/L	0.10						
Sulfate	ND	mg/L	0.50						
Sample ID: LCS		*LCS*			Batch ID:	R26660	Analysis Date:	12/21/2007 6:50:27 AM	
Chloride	5.036	mg/L	0.10	101	90	110			
Sulfate	10.18	mg/L	0.50	102	90	110			
Sample ID: LCS-b		*LCS*			Batch ID:	R26660	Analysis Date:	12/22/2007 12:24:53 AM	
Chloride	4.999	mg/L	0.10	100	90	110			
Sulfate	10.02	mg/L	0.50	100	90	110			
Method: SM 2320B: Alkalinity									
Sample ID: 0712325-01AMSD		*MSD*			Batch ID:	R26676	Analysis Date:	12/21/2007	
Alkalinity, Total (As CaCO3)	247.0	mg/L CaC	20	105	80	120	0.806	20	
Sample ID: MB		*MBLK*			Batch ID:	R26676	Analysis Date:	12/21/2007	
Alkalinity, Total (As CaCO3)	ND	mg/L CaC	20						
Carbonate	ND	mg/L CaC	2.0						
Bicarbonate	ND	mg/L CaC	20						
Sample ID: LCS		*LCS*			Batch ID:	R26676	Analysis Date:	12/21/2007	
Alkalinity, Total (As CaCO3)	83.00	mg/L CaC	20	104	80	120			
Sample ID: 0712325-01AMS		*MS*			Batch ID:	R26676	Analysis Date:	12/21/2007	
Alkalinity, Total (As CaCO3)	249.0	mg/L CaC	20	107	80	120			

EXHIBIT H

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Permits West
Project: Yazzie-11 Well
Work Order: 0712325

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 6010B: Dissolved Metals									
Sample ID: MB		*MBLK*			Batch ID:	R	Analysis Date:	2/1/2007 12:02:33 PM	
Calcium	ND	mg/L	1.0						
Iron	ND	mg/L	0.020						
Magnesium	ND	mg/L	1.0						
Potassium	ND	mg/L	1.0						
Sample ID: MB		*MBLK*			Batch ID:	R	Analysis Date:	3/24/2007 3:01:21 PM	
Calcium	ND	mg/L	1.0						
Iron	ND	mg/L	0.020						
Magnesium	ND	mg/L	1.0						
Potassium	ND	mg/L	1.0						
Sodium	ND	mg/L	1.0						
Sample ID: MB		*MBLK*			Batch ID:	R	Analysis Date:	4/3/2007 8:32:55 AM	
Calcium	ND	mg/L	1.0						
Iron	ND	mg/L	0.020						
Magnesium	ND	mg/L	1.0						
Potassium	ND	mg/L	1.0						
Sodium	ND	mg/L	1.0						
Sample ID: MB		*MBLK*			Batch ID:	R	Analysis Date:	5/14/2007 4:01:36 PM	
Calcium	ND	mg/L	1.0						
Iron	ND	mg/L	0.020						
Magnesium	ND	mg/L	1.0						
Potassium	ND	mg/L	1.0						
Sodium	ND	mg/L	1.0						
Sample ID: MB		*MBLK*			Batch ID:	R	Analysis Date:	5/16/2007 10:31:26 AM	
Calcium	ND	mg/L	1.0						
Iron	ND	mg/L	0.020						
Magnesium	ND	mg/L	1.0						
Potassium	ND	mg/L	1.0						
Sodium	ND	mg/L	1.0						
Sample ID: MB		*MBLK*			Batch ID:	R26764	Analysis Date:	12/31/2007 3:02:12 PM	
Calcium	ND	mg/L	1.0						
Iron	ND	mg/L	0.020						
Magnesium	ND	mg/L	1.0						
Potassium	ND	mg/L	1.0						
Sodium	ND	mg/L	1.0						
Sample ID: LCS		*LCS*			Batch ID:	R	Analysis Date:	2/1/2007 12:05:11 PM	
Calcium	45.61	mg/L	1.0	90.3	80	120			
Iron	0.4538	mg/L	0.020	90.8	80	120			
Magnesium	46.17	mg/L	1.0	91.4	80	120			
Potassium	49.36	mg/L	1.0	89.7	80	120			
Sample ID: LCS		*LCS*			Batch ID:	R	Analysis Date:	3/24/2007 3:04:14 PM	
Calcium	ND	mg/L	1.0	0	80	120			S
Iron	0.4847	mg/L	0.020	96.9	80	120			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

EXHIBIT H

QA/QC SUMMARY REPORT

Client: Permits West
Project: Yazzie-11 Well
Work Order: 0712325

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 6010B: Dissolved Metals									
Sample ID: LCS		*LCS*			Batch ID:	R	Analysis Date:	3/24/2007 3:04:14 PM	
Magnesium	ND	mg/L	1.0	0	80	120			
Potassium	ND	mg/L	1.0	0	80	120			
Sodium	ND	mg/L	1.0	0	80	120			
Sample ID: LCS		*LCS*			Batch ID:	R	Analysis Date:	4/3/2007 8:35:47 AM	
Calcium	52.88	mg/L	1.0	105	80	120			
Iron	0.5100	mg/L	0.020	100	80	120			
Magnesium	52.49	mg/L	1.0	104	80	120			
Potassium	55.47	mg/L	1.0	100	80	120			
Sodium	56.30	mg/L	1.0	111	80	120			
Sample ID: LCS		*LCS*			Batch ID:	R	Analysis Date:	5/14/2007 4:04:48 PM	
Calcium	48.26	mg/L	1.0	95.6	80	120			
Iron	0.4749	mg/L	0.020	95.0	80	120			
Magnesium	48.91	mg/L	1.0	96.8	80	120			
Potassium	52.03	mg/L	1.0	94.6	80	120			
Sodium	53.01	mg/L	1.0	105	80	120			
Sample ID: LCS		*LCS*			Batch ID:	R26764	Analysis Date:	12/31/2007 3:04:40 PM	
Calcium	50.99	mg/L	1.0	101	80	120			
Iron	0.4909	mg/L	0.020	98.2	80	120			
Magnesium	51.84	mg/L	1.0	103	80	120			
Potassium	55.71	mg/L	1.0	101	80	120			
Sodium	55.37	mg/L	1.0	110	80	120			
Method: SM 2540C: TDS									
Sample ID: MB-14730		*MBLK*			Batch ID:	14730	Analysis Date:	12/26/2007	
Total Dissolved Solids	ND	mg/L	20						
Sample ID: LCS-14730		*LCS*			Batch ID:	14730	Analysis Date:	12/26/2007	
Total Dissolved Solids	1016	mg/L	20	102	80	120			

EXHIBIT H

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits