

DATE IN 11/25/08	SUSPENSE 12/1/08	ENGINEER W. J. JONES	LOGGED IN 11/25/08	TYPE SWD	APP NO. PKW08 33055187
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ORIGINAL  
CF - Original

ABOVE THIS LINE FOR DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

**Application Acronyms:**

- [NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
- [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
- [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
- [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
- [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
- [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

- [A] Location - Spacing Unit - Simultaneous Dedication  
 NSL  NSP  SD

Check One Only for [B] or [C]

- [B] Commingling - Storage - Measurement  
 DHC  CTB  PLC  PC  OLS  OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
 WFX  PMX  SWD  IPI  EOR  PPR

[D] Other: Specify \_\_\_\_\_

*OC RID = 102928  
12/2/08  
2/15/08 wells inactive  
FA = OK*

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or  Does Not Apply

- [A]  Working, Royalty or Overriding Royalty Interest Owners
- [B]  Offset Operators, Leaseholders or Surface Owner
- [C]  Application is One Which Requires Published Legal Notice
- [D]  Notification and/or Concurrent Approval by BLM or SLO  
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E]  For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F]  Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note: Statement must be completed by an individual with managerial and/or supervisory capacity.**

Mr. Don Graham

*Don Graham*  
Signature

Sr. Operations Superintendent

11-24-2008

Print or Type Name

Title

Date

dgraham@energen.com  
e-mail Address

**APPLICATION FOR AUTHORIZATION TO INJECT**

I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance  X  Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval?  X  Yes \_\_\_\_\_ No

II. OPERATOR:  Energen Resources Corporation

ADDRESS:  2010 Afton Place , Farmington NM 87401

CONTACT PARTY:  Mr. Patricio W. Sanchez  PHONE:  505-325-6800

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? \_\_\_\_\_ Yes  X  No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_

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:  Don Graham  TITLE:  Sr. Operations Superintendent

SIGNATURE:    DATE:  11-24-2008

E-MAIL ADDRESS:  dgraham@energen.com

\* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal:  (resubmit all -prior approved SWD-1068 February 4, 2007)

### 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.

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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.

INJECTION WELL DATA SHEET

OPERATOR: Energen Resources Corporation

WELL NAME & NUMBER: Carracas SWD #2

WELL LOCATION: 1,489' FSL 134' FEL UNIT LETTER I SECTION 9 TOWNSHIP 32N RANGE 4W  
FOOTAGE LOCATION

WELLBORE SCHEMATIC

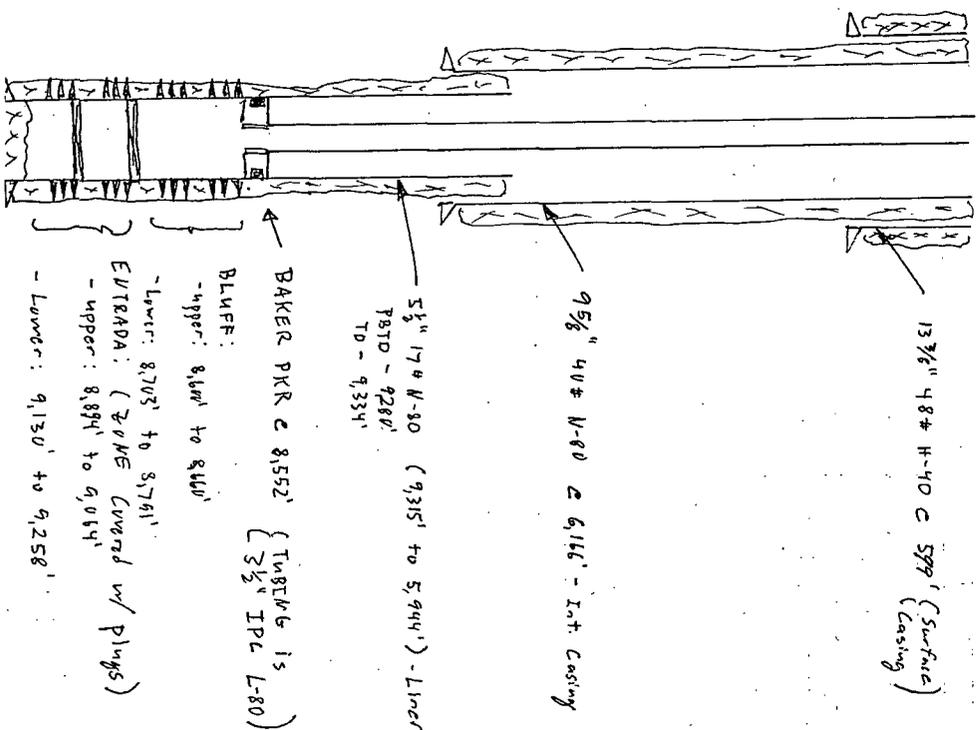
Form 17-0000-0005



AN ENERGEN COMPANY  
Engineering Chart

Sheet No. \_\_\_\_\_  
File \_\_\_\_\_  
Appn. 11-24-2008  
Date \_\_\_\_\_  
By \_\_\_\_\_

Subject: Wellbore Diagram - Carracas SWD #2  
API No. 30-039-30198



Annotations:  
- 13 7/8" 48# H-40 @ 599' (Surface Casing)  
- 9 5/8" 40# H-40 @ 616' - Int. Casing  
- 5 1/2" 17# N-80 (9,315' to 5,944') - Liner  
- P&TD - 9,280'  
- TD - 9,334'  
- BAKER PKR @ 8152' (Turbite is 3 1/2" IPL L-80)  
- BLUFF:  
- upper: 8150' to 8400'  
- Lower: 8,705' to 8,791'  
- EUTRADA: (20# covered w/ plugs)  
- upper: 8,894' to 9,064'  
- Lower: 9,130' to 9,258'

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17-1/2" Casing Size: 13-3/8" @ 599'

Cemented with: 729 SX. or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: Surface Method Determined: Visual

Intermediate Casing

Hole Size: 12-1/4" Casing Size: 9-5/8" @ 6,166'

Cemented with: 1,200 SX. or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: Surface Method Determined: Visual

Production Casing

Hole Size: 7-7/8" Casing Size: 5-1/2" @ 9,315' (liner)

Cemented with: 575 SX. or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: TOL @ 5,786' Method Determined: CBL

Total Depth: 9,334'

Injection Interval 8516 feet to 9258  
8600' feet to 9258'

(Perforated or Open Hole; indicate which)

**INJECTION WELL DATA SHEET**

Tubing Size: 3-1/2" 9.3# N-80 Lining Material: IPC

Type of Packer: Large Bore 5-1/2" Baker Lock set or equivalent

Packer Setting Depth: 8,552'

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

Additional Data

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

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

2. Name of the Injection Formation: SWD: Bluff & Entrada

3. Name of Field or Pool (if applicable): Wildcat

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. \_\_\_\_\_

No - new well - only in Bluff-Entrada

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Now overlying: Fruitland coal +/- 2,600' to +/- 2,900'

Now underlying: None

\_\_\_\_\_  
\_\_\_\_\_

- I. Purpose: Disposal of Produced Water.(Repermit of prior approved SWD#1068)
  
- II. Operator: Energen Resources Corporation  
 2010 Afton Place  
 Farmington, NM 87401  
 505.325.6800 - Contact Patricio W. Sanchez
  
- III. Well Data
  - A(1.) Lease type: Fee  
 Lease Size: 101.16 Acres  
 Lease Area: Section 9 T32N R4W  
 Closet Lease Line: 134'  
 Well Name and Number: Carracas SWD#2  
 Well Location: 1,489' FSL 134' FEL Section 9, T32N R4W (see Exhibit A)

A(2,3,4)

<u>Casing, Tubing, &amp; Casing Equipment:</u>			Tubulars		
String	Interval	Wellbore	Casing	Csg Wt	Grade
Surface	0'-599'	17 1/2"	13 3/8"	48 ppf	H-40 ST&C
Intermediate	0'-6166'	12 1/4"	9 5/8"	40 ppf	N-80 LT&C
Production	5944'-9315'	7 7/8"	5 1/2"	17 ppf	N-80 LT&C
Tubing	0'-8571'		3 1/2"	9.3 ppf	N-80(IPC)

**Casing Equipment:**

**Surface Casing:** Depending on wellbore conditions, a Texas Pattern Guide Shoe on bottom. Casing centralization with standard bow spring centralizers to achieve optimal standoff.

**Intermediate Casing:** Sting will be cemented in multiple (3) stages. Cement float shoe on bottom with float collar on top of 2<sup>nd</sup> shoe joint. One centralizer on every joint on bottom with one below and 12 above second stage packer stage collar placed every 3<sup>rd</sup> joint. One centralizer below and 12 above third stage collar placed every 3<sup>rd</sup> joint for a total of 30 centralizers.

**Liner:** Depending on wellbore conditions, a cement nose guide shoe on bottom with self fill insert float collar on top of shoe joint and casing centralization with standard bow spring centralizers to optimize standoff.

**Wellhead**

11" 3000 x 9 5/8" Casing Head. 11" 3000 x 11" 3000 spool. 11" 5000 x 7 1/16" 5000 Christmas Tree

## **Cementing**

**Surface Casing:** 729 sks Type V with 2.0 % CaCl<sub>2</sub> and ¼ #/sk Flocele (15.6 ppg, 1.18 ft<sup>3</sup>/sk 266 ft<sup>3</sup> of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 1000 psi for 30 min.

**Intermediate Casing:** Before cementing, circulate hole at least 1 ½ hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout.

**First Stage:** Depending on wellbore conditions, cement may consist of 300 sks 50/50 Class G with 0.60 % Halad-9, 0.10 % CFR-3, 5 #/sk Gilsonite, and ¼ #/sk Flocele (13.5 ppg, 1.30 ft<sup>3</sup>/sk). (449 ft<sup>3</sup> of slurry, 100 % excess to circulate to surface). **Stage Collar at 5300'**. Circulate 4 hours starting at time of plug down.

**Second Stage:** Depending on wellbore conditions, cement may consist a lead of 400 sks 65/35 Type V with 2.0% CaCl<sub>2</sub>, 10 #/sk Gilsonite, and ½ #/sk Flocele and a tail of 50 sks Type V with 1.0 % CaCl<sub>2</sub>. (12.3 ppg, 1.93 ft<sup>3</sup>/sk and 15.6 ppg, 1.18 ft<sup>3</sup>/sk respectively). (1439 ft<sup>3</sup> of slurry, 100% excess to circulate to surface). **Stage Collar at 3100'**. Circulate 4 hours starting at time of plug down.

**Third Stage:** Depending on wellbore conditions, cement may consist a lead of 517 sks 65/35 Type V with 2.0% CaCl<sub>2</sub>, 10 #/sk Gilsonite, and ½ #/sk Flocele and a tail of 50 sks Type V with 1.0 % CaCl<sub>2</sub>. (12.3 ppg, 1.93 ft<sup>3</sup>/sk and 15.6 ppg, 1.18 ft<sup>3</sup>/sk respectively). (1989 ft<sup>3</sup> of slurry, 100% excess to circulate to surface).

## **Set slips with full string weight**

WOC 12 hrs. If cement does not circulate, run temperature survey in 8 hrs. to determine TOC.

Nipple up 11" 3000 psi double gate BOP in preparation to start air drilling.

**Liner:** Before cementing, circulate hole at least 1 ½ hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Cement with 575 sks of 50/50 Class G with 35.0% SSA-1, 0.40% Halad-413, 0.20% SCR-100, 5.0 #/sk Gilsonite, 0.25 #/sk Flocele (13.5 ppg, 1.35 ft<sup>3</sup>/sk) followed by 200 sks Class G with 35.0% SSA-1, 0.40% Halad-413, 0.20% SCR-100, 0.20% CFR-3, 5.0 #/sk Gilsonite, 0.25 #/sk Flocele. (15.6, 1.10 ft<sup>3</sup>/sk (1401 ft<sup>3</sup> of slurry, 125% excess to circulate off liner top). Calculate volume based on Caliper log plus 25 % excess. WOC 18 hrs prior to completion.

**Packer/tubing:** 3-1/2" 9.3# N-80 IPC (Internally plastic coated) ran with a 5-1/2" Baker model or equivalent – retrievable "Lockset" with high temperature elastomer. Packer will be set within 50' to 100' of top of injection interval.

III. B(1.) The formation for injection will be the Bluff/Entrada,  
SWD: Entrada-Chinle Pool code 96159.

B(2.) The injection interval will be cased and perforated.

B(3.) This well will be a new drill specifically for produced water disposal.

B(4.) The estimated injection interval is between 8,516' and 9,216'. The injection will occur through a cased and cemented 5-1/2" liner – construction described above in section above in III A (2,3,4)

B(5.) In this area the known commercially productive zone above the interval is the Fruitland Coal, usually +/- 2,600' to 2,900' TVD, and the Pictured Cliffs +/- 2,800' to +/- 3,200'. There is no known commercial production below the interval within the area of review.

- IV. No - This is not an expansion since this is a disposal well and not a secondary recovery well. (Note: Well prior approval February 4, 2007 – SWD#1068)
- V. See attached topographic map denoted EXHIBIT A Map – shows ½ mile Area of Review and 2 mile radius. (Note: all oil and gas wells in the radius belong to Energen Resources) None of the wells in either radius penetrate the proposed disposal zone – all wells are above the proposed disposal zone. (This is a table of Blue colored or water wells – note none are within ½ Mile, only one (well#2) is within 1 mile.)

No. on Map	Well Depth	RNG	RDIR	TS	TDIR	SEC	Q160	Q40
#1	16	3	W	32	N	18	SW	SW
#2	140	4	W	32	N	24	SW	NW
#3	14	4	W	32	N	24	NE	SE
#4	0	4	W	32	N	16	SE	SE
#5	140	3	W	32	N	18	SW	SW
#6	0	3	W	32	N	19	NW	NW
#7	30	4	W	32	N	21	NE	NE
#8	60	4	W	32	N	16	SE	SE
#9	170	4	W	32	N	16	SE	SE

8516  
 170 32

VI. No other wells in the area have penetrated the proposed injection (disposal) zone. No plugged and abandoned wells of record within the ½ or 2 mile Area of review. (All oil and gas wells in the area of review belong to Energen Resources.) As tabulated below and plotted as red dots on EXHIBIT A:

Lease Name	Well Number	Operator	Location	Formation
CARRACAS 10B	15	Energen	10O 32N 4W SE	FRUITLAND COAL
CARRACAS 11B	15	Energen	11O 32N 4W SE SW SE	FRUITLAND COAL
CARRACAS MESA 14	1	Energen	14D 32N 4W SE NW NW	FRUITLAND COAL
CARRACAS 14B	10	Energen	14J 32N 4W SW NW SE	FRUITLAND COAL
CARRACAS UNIT FR	104	Energen	15G 32N 4W NE SW NE	FRUITLAND COAL
CARRACAS 15B	14	Energen	15N 32N 4W NW SE SW	FRUITLAND COAL
CARRACAS 16B	6	Energen	16F 32N 4W NW SE NW	FRUITLAND COAL
CARRACAS 16B	12	Energen	16L 32N 4W SE NW SW	FRUITLAND COAL
CARRACAS 17B	14	Energen	17N 32N 4W NW SE SW	FRUITLAND COAL
CARRACAS 17B	15	Energen	17O 32N 4W SW SW SE	FRUITLAND COAL
CARRACAS 21B	5	Energen	21E 32N 4W NE SW NW	FRUITLAND COAL
CARRACAS UNIT PC	201	Energen	22G 32N 4W NE SW NE	PICTURED CLIFFS
CARRACAS UNIT PC	7	Energen	22G 32N 4W NE SW NE	PICTURED CLIFFS

VII. Attached data on proposed operating conditions:

1. Proposed Average injection rate = 4,000 bwpd. Maximum = 4,500 bwpd.
2. System will be open and closed (water will be trucked and piped). Facilities will include 8 to 10 tanks, of 400 or 500 barrels volume each, two filtration units, and two injection pumps.
3. Average injection pressure = 1,600 psi. Maximum pressure = 1,703 psi  
 (The the pressure allowed in SWD#1068 is 1,703 psi)  
 Note: well injection rate and pressure will be checked via a step rate test after completion, but prior to commencing injection operations if more pressure is needed.

4. Water source will be present and future Energen wells in the San Juan Basin. Three produced water analyses (Exhibit B) are attached.

**Averages follow. No local sample exists from the Bluff or Entrada.**

Bicarbonates (HCO <sub>3</sub> )	6,520 mg/L
Calcium	27 mg/L
Carbonates (CO <sub>3</sub> )	27 mg/L
Chloride	1,703 mg/L
Iron	0 mg/L
Magnesium	20 mg/L
pH	7.5 pH units
Potassium	0 mg/L
Resistivity	1.02 units
Sodium	3,504 mg/L
Specific Gravity	1.012 units
Sulfate	0 mg/L
Total Dissolved Solids	11,800 mg/L

The injected water should not have any compatibility issues since the deeper zones are generally lower (i.e. higher TDS) quality – any plugging can easily be removed with common acid techniques used in the field or a scale inhibitor can be added to the injection effluent.

5. The Bluff and Entrada have not been proven productive within two miles of the proposed well. (Energen will attempt to swab back load water after stimulation and take Bluff and Entrada water samples. If successful, then the analyses will be provided to the New Mexico Oil Conservation Division.) According to Stone et al in Hydrogeology and water resources San Juan Basin. New Mexico, lower (known variously as the Junction Creek, Cow Springs, or Bluff member of the) Morrison water near the basin fringe has a specific conductance of <2,000 pmhos. Morrison water from one deep test of the basin had a specific conductance of 4,300 pmhos. Stone et al state, “No wells are known to derive their water exclusively from this aquifer ....” and transmissivity is “relatively low”. Stone et al also state, “Generally, however, water from the Entrada is not suitable for drinking, especially in deeper parts of the basin.”

Summaries of analyses of Morrison and Entrada water follow (also see Exhibit C).

<u>Well</u>	<u>Simms Fed. 1</u>	<u>NEBU 501</u>
Location	13-30n-4w	10-32n-7w
Distance from Carracas SWD#2	13 miles South	17.5 miles West
Zone	Morrison	Entrada
Bicarbonate	180 ppm	152 ppm

Calcium	150 ppm	1,310 ppm
Carbonate	N/A	0 ppm
Chloride	10,479 ppm	8,280 ppm
Hydroxide	N/A	0 ppm
Hydrogen Sulfide	No Trace	N/A
Iron	0 ppm	164 ppm
Magnesium	24 ppm	29 ppm
pH	7.1	5.07
Potassium	15,600 ppm	169 ppm
Sodium	N/A	4,760 ppm
Sodium Chloride	17,237 ppm	N/A
Specific Gravity	1.015 @ 72 F	1.01 @ 73 F
Sulfate	256 ppm	2,100 ppm
Total Dissolved Solids	22,873 ppm	19,000 ppm

VIII. According to the U. S. Geological Survey (Ground Water Atlas of the United States: Arizona. Colorado. New Mexico, Utah HA. 730-C). The middle and lower Morrison is an “ ... interbedded fine to medium sandstone, siltstone, and mudstone.” It produces oil elsewhere in the basin (e. g., XTO’s Ute A #30 in 2-T31N R4W)). Bluff member of the Morrison Formation is predicted to be 160’ thick in the planned well bore. Top is 8,586’ and bottom is 8,746’. The Entrada sandstone is very porous and permeable eolian sandstone. It produces oil elsewhere in the basin (e. g., Eagle Mesa, Media, Ojo Encino, Papers Wash, Snake Eyes Fields). Entrada is estimated to be 355’ thick in the well bore. Top is 8,861’ and bottom is 9,216’.

Estimated Formation Tops are:

- San Jose Sandstone: 0’
- Ojo Alamo Sandstone: 2,318’
- Kirtland Shale: 2,534’
- Fruitland Formation: 2,666’
- Pictured Cliffs Sandstone: 3,095’
- Lewis Shale: 3,151’
- Cliff House Sandstone: 5,204’
- Menefee Formation: 5,466’
- Point Lookout Sandstone: 5,666’
- Gallup Sandstone: 6,910’
- Greenhorn Limestone: 7,668’
- Graneros Shale: 7,686’
- Dakota Sandstone: 7,811’
- Morrison Formation: 8,156’
- Bluff Sandstone: 8,586’
- Todilto Limestone: 8,831’
- Entrada Sandstone: 8,893’
- Chinle Formation: 9,216’
- Total Depth: 9,316’**

There are nine water wells within a two mile radius. Of the nine water wells, deepest reported depth is 170'. Water well bores are in Quaternary alluvium or the San Jose sandstone. Possible water bearing strata are 0' to 2,371'. No existing underground drinking water sources are below the Entrada within a two mile radius. There will be 8,416' vertical separation between the bottom of the lowest existing underground water source and the top of the Bluff.

IX. It is anticipated following the perforating on the injection interval each zone will be acid stimulated with 100 gallons 15% HCL per foot. Based on the results of the after-flush step rate test conducted with the acid job Energen will then determine if the well will require a hydraulic fracture stimulation to ensure injection potential.

X. Logging Program: (Note: all logs already turned in to NMOCD)

Open hole logs: From Surface to Intermediate setting depth - None  
From Intermediate setting depth to TD – Temp / HRI / CNT, LDT / GR  
Cased hole - CBL/CCL/GR from PBTD to above liner top.  
Mud Logs: From 3600' to TD  
Coring: None  
Surveys: Surface and/or every 500' to TD  
Copies of Log's to NMOCD

XI. There are no water wells within a one mile or two miles which penetrate the Bluff or Entrada. The deepest reported water well depth within two miles is 170'. We do not have any water samples available from shallow water wells as previously stated the injection zone about 8,416' below any known water zone and the interval will be covered by a cased and cemented surface casing and a cased and cemented intermediate string. The Surface casing will be at a set depth of 599' and the Intermediate will be at a depth of 6,166''. The well to total depth of 9,334' will be cased and cemented with a liner from 5,944' to 9,315'. The casing tubing annulus will contain a packer fluid which will protect the annulus from corrosion and also provide a positive pressure between the casing/tubing and packer to ensure that injection fluid goes in the proposed injection zone. The tubing will be plastic lined so that injection water will not corrode the injection tubing.

XII. Energen is not aware of any geologic or engineering data which indicate the Bluff or Entrada are in hydrologic connection with any underground sources of water. There will be 8,416' of vertical separation and four shale zones (Kirtland, Lewis, Menefee, and Mancos) between the top (8,586') of the Bluff and the bottom (170') of the deepest water well – which is not within ½ mile of the proposed disposal well.

XIII. Notice (this application) does not need to be sent to the surface owner because Energen Resources owns the surface. Operators of all oil and gas wells in the area do not need to be noticed because Energen Resources is the only operator, and lease operating right holders within a half mile have been notified via certified mail - see attached list (Exhibit D). A legal ad (Exhibit E) has been submitted for publication in the Rio Grande Sun, Newspaper for Rio Arriba County. Exhibit F- all paperwork already submitted under SWD#1068.

# EXHIBIT A

EXHIBIT A  
Carracas SWD#2

1,489' FSL 134' FEL  
Section 9 T32N R4W

GAS WELLS  
WATER WELLS

## EXHIBIT B

# HALLIBURTON

## Water Analysis Report

To: Energen Resources Date: 2/25/2004  
Submitted by: Halliburton Energy Services Date Rec: 2/23/2004  
Attention: Sam Mohler Report #: FLM004120  
Well Name: Big Elk 32-6; #5-1 Formation: Well Head

Specific Gravity	1.012	
pH	7.70	
Resistivity	1.10	@ 70° F
Iron (Fe)	0	Mg / L
Potassium (K)	0	Mg / L
Sodium (Na)	3235	Mg / L
Calcium (Ca)	28	Mg / L
Magnesium (Mg)	20	Mg / L
Chlorides (Cl)	960	Mg / L
Sulfates (SO <sub>4</sub> )	0	Mg / L
Carbonates (CO <sub>3</sub> )	60.0	Mg / L
Bicarbonates (HCO <sub>3</sub> )	7035	Mg / L
Total Dissolved Solids	11358	Mg / L

Respectfully: Bill Loughridge

Title: Senior Scientist

Location: Farmington, NM

NOTICE: This report is limited to the described sample tested. Any person using or relying on this report agrees that Halliburton shall not be liable for any loss or damage whether due to act or omission resulting from such report or its use.

EXHIBIT B

# HALLIBURTON

## Water Analysis Report

To: Energy Resources Date: 2/26/2004  
Submitted by: Halliburton Energy Services Date Rec: 2/23/2004  
Attention: Sam Mohler Report #: FLMM4121  
Well Name: Dugan 32-S; #3-1 Formation: Well Head

Specific Gravity	1.012	
pH	7.40	
Resistivity	0.85	@ 70° F
Iron (Fe)	0	Mg / L
Potassium (K)	0	Mg / L
Sodium (Na)	3896	Mg / L
Calcium (Ca)	24	Mg / L
Magnesium (Mg)	20	Mg / L
Chlorides (Cl)	2800	Mg / L
Sulfates (SO <sub>4</sub> )	0	Mg / L
Carbonates (CO <sub>3</sub> )	0.0	Mg / L
Bicarbonates (HCO <sub>3</sub> )	5165	Mg / L
Total Dissolved Solids	11705	Mg / L

Respectfully: BIR Loughridge

Title: Senior Scientist

Location: Farmington, NM

NOTICE: This report is limited to the described sample tested. Any person using or relying on this report agrees that Halliburton shall not be liable for any loss or damage whether due to act or omission resulting from such report or its use.

EXHIBIT B

# HALLIBURTON

## Water Analysis Report

To: Energen Resources Date: 2/25/2004  
Submitted by: Halliburton Energy Services Date Rec: 2/23/2004  
Attention: Sam Mohler Report #: FLM44122  
Well Name: Padget 32-6; #5-2 Formation: Well Head

Specific Gravity	1.012	
pH	7.50	
Resistivity	1.10	@ 70° F
Iron (Fe)	0	Mg / L
Potassium (K)	0	Mg / L
Sodium (Na)	3590	Mg / L
Calcium (Ca)	28	Mg / L
Magnesium (Mg)	20	Mg / L
Chlorides (Cl)	1350	Mg / L
Sulfates (SO <sub>4</sub> )	0	Mg / L
Carbonates (CO <sub>3</sub> )	0.0	Mg / L
Bicarbonates (HCO <sub>3</sub> )	7361	Mg / L
Total Dissolved Solids	12338	Mg / L

Respectfully: Bill Loughridge

Title: Senior Scientist

Location: Farmington, NM

NOTICE: This report is limited to the described sample tested. Any person using or relying on this report agrees that Halliburton shall not be liable for any loss or damage whether due to act or omission resulting from such report or its use.

EXHIBIT B

## EXHIBIT C

**BJ SERVICES COMPANY**  
**WATER ANALYSIS #FW01W718**  
**FARMINGTON LAB**

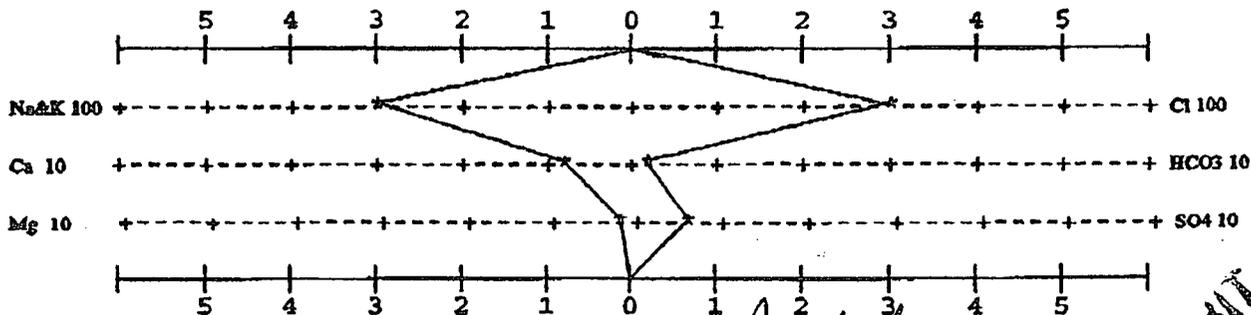
GENERAL INFORMATION			
OPERATOR:	MALLON OIL	DEPTH:	
WELL:	SIMMS FED. #1	DATE SAMPLED:	11/15/99
FIELD:	13-30n-4w	DATE RECEIVED:	11/15/99
SUBMITTED BY:	J. ZELLITTI	COUNTY:	STATE: NM
WORKED BY:	D. SHEPHERD	FORMATION:	Mallison
PHONE NUMBER:			

SAMPLE DESCRIPTION	
SAMPLE #1	

PHYSICAL AND CHEMICAL DETERMINATIONS			
SPECIFIC GRAVITY:	1.015	@ 72°F	PH: 7.10
RESISTIVITY (MEASURED ):	0.340	ohms @ 71°F	
IRON (FE++) :	0 ppm	SULFATE:	256 ppm
CALCIUM:	150 ppm	TOTAL HARDNESS	473 ppm
MAGNESIUM:	24 ppm	BICARBONATE:	180 ppm
CHLORIDE:	10,479 ppm	SODIUM CHLORIDE (Calc)	17,237 ppm
SODIUM+POTASS:	11,485 ppm	TOT. DISSOLVED SOLIDS:	22,873 ppm
H2S: NO TRACE		POTASSIUM (PPM):	15,600

REMARKS	

STIFF TYPE PLOT (IN MEQ/L)



ANALYST *D. Shepherd*  
D. SHEPHERD

**EXHIBIT E**

2605  
DURANGO, CO 81302  
(303) 247-4220

ATTEN: CLARK  
PO BOX 1237  
DURANGO, CO 81302  
(303) 247-0728

DATE SAMPLED: 9/1/88  
WELL NAME: NEBU UNIT 501  
LOCATION: 10-32N-7W  
FORMATION: ENTRADA WATER  
SAMPLED FROM:  
WELL OR/OFF:

CDS ID #: 1119

CONSTITUENT	ppm	ppm
Sodium Na +	4760	207.1
Potassium K +	169	4.3
Calcium Ca ++	1310	65.4
Magnesium Mg ++	29.4	2.4
Iron Total Fe++ & Fe+++	164	8.8

Item 2A  
SWD-339

POSITIVE SUB-TOTAL 6432.4 287.9799

Chloride Cl -	8280	233.5
Carbonate CO3 =	0	0.0
Bicarbonate HCO3-	152	2.5
Hydroxide OH -	0	0.0
Sulfate SO4 =	2100	43.7

NEGATIVE SUB-TOTAL 10532 279.70928

Total Dissolved Solids 19000 ppm  
pH 5.07 units  
Specific Gravity 1.01 @ 73 F.  
Resistivity 45 ohm-cm

APPROVED BY:



DR. JOE BOWDEN, DIRECTOR

This Laboratory report may not be published or used for advertising or in connection with advertising of any kind without prior written permission from CDS Laboratories.

Results are based on analysis made at the time samples are received at the laboratory.

EXHIBIT E

## EXHIBIT D



R E S O U R C E S

November 24, 2008

Certified Mail  
7005 1820 0002 8596 6203

Bureau of Land Management  
1235 La Plata Highway  
Farmington, NM 87401

Gentlemen:

As required by New Mexico Oil Conservation Division Rules, I am notifying you of the following proposed water disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Energen Resources Corporation is applying (see attached application) to drill its Carracas SWD #2 well.

Well Name: Carracas SWD #2                      Total Depth: 9316'  
Proposed Disposal Zone: Bluff & Entrada (from 8516' to 9216')  
Location: 1489' FSL & 134' FEL Sec. 9, T. 32 N., R. 4 W., Rio Arriba County, NM on a Fee lease.  
Approximate Location: 8 air miles southeast of Arboles, Colorado  
Applicant Name: Energen Resources Corporation  
Applicant's Address: 2198 Bloomfield Highway, Farmington, NM 87401

Submittal Information: Application for a water disposal well will be filed with the NM Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

David M. Poage  
District Landman



R E S O U R C E S

November 24, 2008

Certified Mail  
7005 1820 0002 8596 6197

Mr. Ed Trahan  
Southern Ute Indian Tribe  
Department of Energy  
14933 Hwy. 172  
P.O. Box 1500  
Ignacio, CO 81137

Gentlemen:

As required by New Mexico Oil Conservation Division Rules, I am notifying you of the following proposed water disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Energen Resources Corporation is applying (see attached application) to drill its Carracas SWD #2 well.

Well Name: Carracas SWD #2                      Total Depth: 9316'  
Proposed Disposal Zone: Bluff & Entrada (from 8516' to 9216')  
Location: 1489' FSL & 134' FEL Sec. 9, T. 32 N., R. 4 W., Rio Arriba County, NM on a Fee lease.  
Approximate Location: 8 air miles southeast of Arboles, Colorado  
Applicant Name: Energen Resources Corporation  
Applicant's Address: 2198 Bloomfield Highway, Farmington, NM 87401

Submittal Information: Application for a water disposal well will be filed with the NM Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

  
David M. Poage  
District Landman



November 24, 2008

Certified Mail  
7005 1820 0002 8596 6210

Pat Bailey  
808 Santa Barbara Dr.  
Farmington, NM 87401-4034

Gentlemen:

As required by New Mexico Oil Conservation Division Rules, I am notifying you of the following proposed water disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Energen Resources Corporation is applying (see attached application) to drill its Carracas SWD #2 well.

Well Name: Carracas SWD #2                      Total Depth: 9316'  
Proposed Disposal Zone: Bluff & Entrada (from 8516' to 9216')  
Location: 1489' FSL & 134' FEL Sec. 9, T. 32 N., R. 4 W., Rio Arriba County, NM on a Fee lease.  
Approximate Location: 8 air miles southeast of Arboles, Colorado  
Applicant Name: Energen Resources Corporation  
Applicant's Address: 2198 Bloomfield Highway, Farmington, NM 87401

Submittal Information: Application for a water disposal well will be filed with the NM Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

  
David M. Poage  
District Landman



November 24, 2008

Certified Mail  
7005 1820 0002 8596 6180

Monica Meier  
P.O. Box 1744  
Arboles, CO 81121

Gentlemen:

As required by New Mexico Oil Conservation Division Rules, I am notifying you of the following proposed water disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Energen Resources Corporation is applying (see attached application) to drill its Carracas SWD #2 well.

Well Name: Carracas SWD #2                      Total Depth: 9,316'  
Proposed Disposal Zone: Bluff & Entrada (from 8516' to 9216')  
Location: 1489' FSL & 134' FEL Sec. 9, T. 32 N., R. 4 W., Rio Arriba County, NM on a Fee lease.  
Approximate Location: 8 air miles southeast of Arboles, Colorado  
Applicant Name: Energen Resources Corporation  
Applicant's Address: 2198 Bloomfield Highway, Farmington, NM 87401

Submittal Information: Application for a water disposal well will be filed with the NM Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "David M. Poage".

David M. Poage  
District Landman

# EXHIBIT E

# Advertising Invoice

**Rio Grande Sun**  
 PO Box 790  
 Espanola, NM 87532  
 Phone: (505)753-2126  
 Fax: (505)753-2140

PATRICIO SANCHEZ  
 ENERGEN RESOURCES CORP.  
 2010 AFTON PLACE  
 FARMINGTON, NM 87401

**Cust#:** 02105912-000  
**Ad#:** 02530623  
**Phone:** (505)324-4141  
**Date:** 11/24/08

**Ad taker:** DM      **Salesperson:**      **Classification:** 899

Description	Start	Stop	Ins.	Cost/Day	Surcharges	Total
01 RIO GRANDE SUN	11/27/08	11/27/08	1	25.20		25.20
05 Rio Grande Sun Online	11/27/08	11/27/08	1	0.00		0.00
AFFIDAVIT						5.00
EXTRA AFFIDAVIT						5.00

**Payment Reference:**

**Total:** 35.20  
**Tax:** 2.73  
**Net:** 37.93  
**Prepaid:** 37.93

Notice of permit application per NMOCDC requirements:  
 Energen Resources Corporation is applying to permit the Carracas SWD#2 water disposal well. The well will be located at 1,489' FSL 134' FEL, Section 9 T. 32 N R. 4W, Rio Arriba County, New Mexico. The well will dispose produced water from gas wells located in Rio Arriba County New Mexico into the Bluff and Entrada Formations at a depth of 8,516' to 9,216' at a maximum rate of 4,500 barrels per day and a maximum pressure of 1,703 psig. Interested parties must file objections or request for hearing with the New Mexico Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505 within 15 days of this add. Additional information may also be obtained by contacting: Energen Resources Corporation  
 2010 Afton Place  
 Farmington,  
 New Mexico 87401  
 Telephone: 505.325.6800  
 Attn: Mr. Patricio Sanchez

**Total Due** 0.00

**NOTICE OF PERMIT  
APPLICATION PER NMOCD  
REQUIREMENTS:**

Energen Resources Corporation is applying to permit the Carracas SWD#2 water disposal well. The well will be located at 1,489' FSL 134' FEL, Section 9 T, 32 N R. 4W, Rio Arriba County, New Mexico. The well will dispose produced water from gas wells located in Rio Arriba County New Mexico into the Bluff and Entrada Formations at a depth of 8,516' to 9,216' at a maximum rate of 4,500 barrels per day and a maximum pressure of 1,703 psig. Interested parties must file objections or request for hearing with the New Mexico Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505 within 15 days of this add. Additional information may also be obtained by contacting: Energen Resources Corporation  
2010 Afton Place  
Farmington,  
New Mexico 87401  
Telephone: 505-325-6800  
Attn: Mr. Patricio Sanchez  
(Published November 27, 2008)

Exhibit F – paperwork already submitted and approved under SWD#1068 – no more filing of these.

**Pat Sanchez**

---

**From:** Pat Sanchez  
**Sent:** Friday, November 21, 2008 3:49 PM  
**To:** 'richard.ezeanyim@state.nm.us'; 'william.v.jones@state.nm.us'; 'charlie.perrin@state.nm.us'  
**Cc:** Vicki Donaghey; David Poage; Charlie Donahue; Sam Mohler; Don Graham; Gary Brink  
**Subject:** Re-Permit for Carracas SWD#2 - prior approval February 4, 2007  
**Attachments:** Req to Mr. Enz. w NMOCD 11 18 2008.pdf

Gentlemen - per your direction(NMOCD) we will re-permit the Carracas SWD#2 ( original Administrative Order SWD-1068 - dated February 4, 2007)

The above attached request has been verbally denied by Mr. Ezeanyim of NMOCD.

The reason we have been required to re-submit is due to the fact a request was not submitted before February 4, 2008 to extend injection authority.

I understand the SWD order will be re-issued as **SWD-1068A**

Mr. Poage and I will hand deliver a re-permit on Tuesday November 25 to NMOCD in Santa Fe, NM.

Thanks for your help in this matter.

**Patricio W. Sanchez**  
**Energen Resources**  
**District Engineer- San Juan**  
**2010 Afton Place**  
**Farmington, NM 87401**  
**Telephone 505.324.4141**  
**Cell 505.793.7605**



November 18, 2008

Mr. Richard Ezeanyim  
Bureau Chief  
Engineering and Geological Services Bureau  
New Mexico Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, NM 87505

RE: Carracas SWD#2 – Administrative Order SWD-1068 – approved February 4, 2007.

Dear Mr. Ezeanyim,

I respectfully request that our authority to inject be extended – the original order stated that our injection should start within one year of the order date of February 7, 2007 – Energen Resources was not able to begin injection by that date for the following reasons and we request that for good cause we be allowed to begin injection by December 4, 2008 – we are currently finishing up the surface facilities and will not be able to begin injection until that date. We were not able to get a drilling rig to the location until last fall, and because of closure stipulations could not move in a completion rig until the spring of 2008. We began completion operations on April 24 of 2008 and did not finish until August 18 of 2008. We had the local NMOCD Aztec district office witness and pass the MIT on the on August 18 of 2008. We had to close out the reserve pit and then begin facility construction, which will not be completed until December 4 of 2008.

During the completion process, none of the permitted injection zones on initial perforating would flow back a sample – we had to acid stimulate with large volumes of acid in order to establish injection into the Bluff. The Entrada was acidized and fracture treated, but was not of quality injection capacity – we therefore were unable to flow native fluid samples out of the zones due to the big treatments and over flush that were put on the zones. We did run a Resistivity log on the well and perhaps water Resistivity can be determined from the log. The logs were turned into the NMOCD and are on the NMOCD website. The surface location is owned by Energen Resources and none of the other Area of review conditions have changed from the original permit application.

Based on the above information, the effort involved in resubmitting this SWD application would be of no value because we have not actually began injection and the fact that none of the original application data have changed. Please extend this authority to December 12, 2008.

Sincerely,

A handwritten signature in black ink, appearing to read "Patricio W. Sanchez".

Patricio W. Sanchez  
District Engineer  
505.324.4141  
[psanchez@energen.com](mailto:psanchez@energen.com)

Attached – Administrative Order SWD-1068



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**  
Governor  
**Joanna Prukop**  
Cabinet Secretary

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

ADMINISTRATIVE ORDER SWD-1068

## APPLICATION OF ENERGEN RESOURCES CORPORATION FOR PRODUCED WATER DISPOSAL, RIO ARRIBA COUNTY, NEW MEXICO

### ADMINISTRATIVE ORDER OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), ENERGEN RESOURCES CORPORATION made application to the New Mexico Oil Conservation Division for permission to utilize for produced water disposal its proposed Carracas SWD Well No. 2 (API No. 30-039-30148) located 1489 feet from the South line and 134 feet from the East line of Section 9, Township 32 North, Range 4 West, NMPM, Rio Arriba County, New Mexico.

#### THE DIVISION DIRECTOR FINDS THAT:

- (1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;
- (2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified;
- (3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met; and
- (4) No objections have been received within the waiting period prescribed by said rule.

#### IT IS THEREFORE ORDERED THAT:

The applicant is hereby authorized to utilize its proposed Carracas SWD Well No. 2 (API No. 30-039-30148) located 1489 feet from the South line and 134 feet from the East line of Section 9, Township 32 North, Range 4 West, NMPM, Rio Arriba County, New Mexico, in such manner as to permit the injection of produced water for disposal purposes into the Bluff and Entrada formations through perforations from approximately 8516 feet to 9216 feet and through plastic-lined tubing set with a packer located within 100 feet of the top of the injection interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

**During completion operations, the operator shall swab perforations in each of these target formations and attempt to swab in-situ water samples. The water samples shall be analyzed and the swab results, water analysis, and initial static fluid levels shall be sent to the engineering bureau of the Division in Santa Fe.**

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

After installing injection tubing, the casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The wellhead injection pressure on the well shall be limited to **no more than 1703 psi**. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Aztec district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Aztec district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

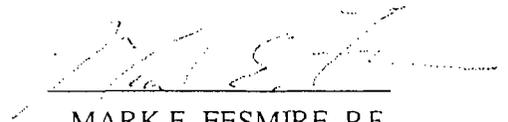
PROVIDED FURTHER THAT, jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall provide written notice of the date of commencement of injection to the Aztec district office of the Division.

The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

Approved at Santa Fe, New Mexico, on February 4, 2007.



MARK E. FESMIRE, P.E.  
Director

MEF/wvjj

cc: Oil Conservation Division - Aztec  
Bureau of Land Management - Farmington

State of New Mexico  
Energy, Minerals & Natural Resources

Form C-101  
May 27, 2004

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

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

Submit to appropriate District Office

RCVD DEC 28 2006  
OIL CONSV. DIV.  
DIST. 3

AMENDED REPORT

**APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

<sup>1</sup> Operator Name and Address Energen Resources Corporation 2198 Bloomfield Highway Farmington, New Mexico 87401		<sup>2</sup> OGRID Number 162928
<sup>4</sup> Property Code 36220		<sup>3</sup> API Number 30-039-30148
<sup>5</sup> Property Name Carracas SWD		<sup>6</sup> Well No. 2
<sup>9</sup> Proposed Pool 1 Chinle (96159)		<sup>10</sup> Proposed Pool 2

<sup>7</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
I	09	32N	04W	(5)	1489'	South	134'	East	Rio Arriba

<sup>8</sup> Proposed 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

Additional Well Location

<sup>11</sup> Work Type Code Drill	<sup>12</sup> Well Type Code Disposal	<sup>13</sup> Cable/Rotary Rotary	<sup>14</sup> Lease Type Code Fee	<sup>15</sup> Ground Level Elevation 6222'
<sup>16</sup> Multiple No	<sup>17</sup> Proposed Depth 9316'	<sup>18</sup> Formation Chinle	<sup>19</sup> Contractor	<sup>20</sup> Spud Date 02/01/06
Depth to ground water >100'		Distance from nearest fresh water well >1000'		Distance from nearest surface water >400'
Pit: Liner: Synthetic <input checked="" type="checkbox"/> 12 mils thick Clay <input type="checkbox"/> Pit Volume 2000 bbls Drilling Method: Rotary				
Closed-Loop System <input type="checkbox"/> Fresh Water <input checked="" type="checkbox"/> Brine <input type="checkbox"/> Diesel/Oil-based <input type="checkbox"/> Gas/Air <input type="checkbox"/>				

<sup>21</sup> Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17.5"	13.375"	48	400	500	
12.25	9.625"	40	5986	2160	
7.875	5.50"	17	9316	1075	

<sup>22</sup> Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

<sup>23</sup> I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOCD guidelines <input checked="" type="checkbox"/> a general permit <input type="checkbox"/> , or an (attached) alternative OCD-approved plan <input type="checkbox"/> . Signature:	OIL CONSERVATION DIVISION	
	Approved by: 	
Printed name: Vicki Donaghey	Title: DEPUTY OIL & GAS INSPECTOR, DIST. 3	
Title: Regulatory analyst	Approval Date: DEC 28 2006	Expiration Date: DEC 28 2007
E-mail Address: vdonaghe@energen.com	(Federal coal only)	
Date: 12/19/06	Phone: 505.325.6800	Conditions of Approval: Attached <input type="checkbox"/> obtain SWD order

B 12/28/06

B

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

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised October 12, 2005  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

<sup>1</sup> API Number 30-039-30148	<sup>2</sup> Pool Code 96159	<sup>3</sup> Pool Name SWD: Entrada-Chimle
<sup>4</sup> Property Code 36220	<sup>5</sup> Property Name CARRACAS SWD	
<sup>6</sup> Well Number #2	<sup>7</sup> Operator Name ENERGEN RESOURCES CORPORATION	
<sup>8</sup> OGRID No. 162928	<sup>9</sup> Elevation 6222'	

<sup>10</sup> Surface Location

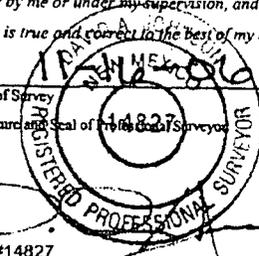
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
5 / I	9	32N	4W		1489	SOUTH	134	EAST	RIO ARRIBA

<sup>11</sup> 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

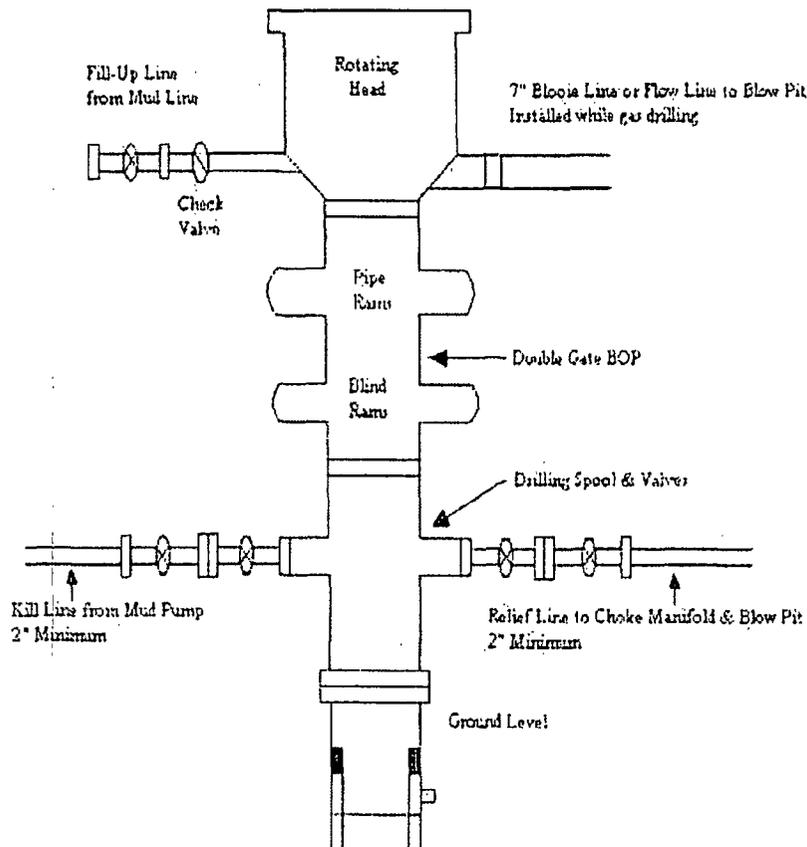
<sup>12</sup> Dedicated Acres	<sup>13</sup> Jalat or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.

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.

<sup>16</sup> ARCHULETA COUNTY, COLORADO RIO ARRIBA COUNTY, NEW MEXICO			<sup>17</sup> OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.	
			Signature _____ Date _____ Printed Name _____	
LOT 3      LOT 7      LOT 8			<sup>18</sup> 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.	
FD. 3 1/2" BRASS CAP BLM 1972			Date of Survey _____ Signature and Seal of Registered Professional Surveyor 	
FD. 2 1/2" BRASS CAP GLO 1918			NM #14827 Certificate Number	
S00°15'44"E 930.71' (M) LOT 5			S00°08'59"E 1320.47' (M)	
S89°57'05"W      2605.03' (M)			1489'	

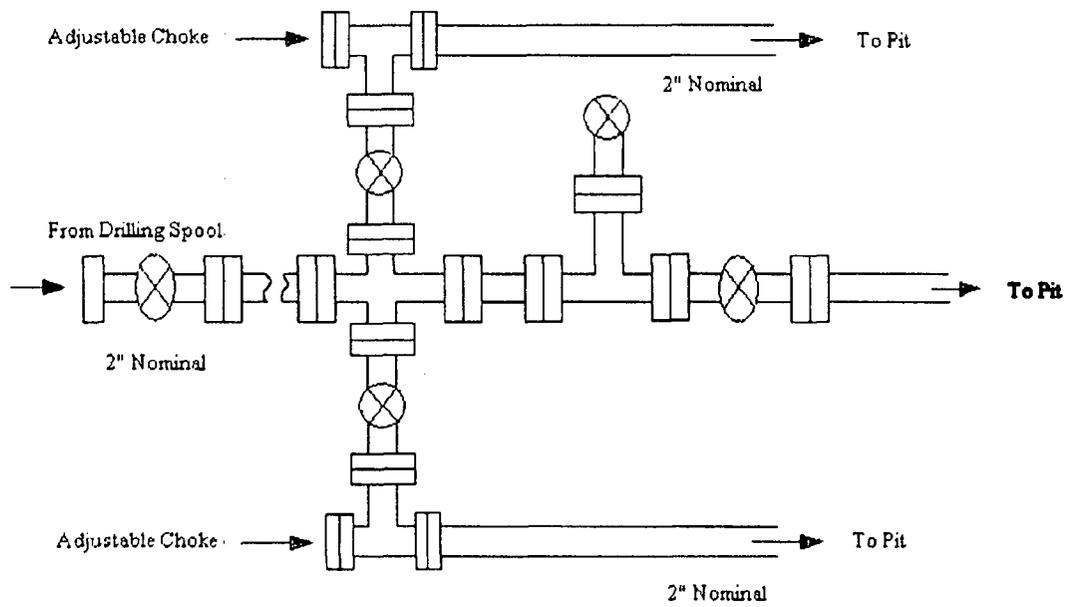
## Energen Resources Corporation

### Typical BOP Configuration for Gas Drilling



**Minimum BOP installation for a typical well from surface to total depth  
11" Bore, 3000 psi minimum working pressure double gate BOP to be equipped with  
blind and pipe rams. A Schaffer Type 50 or equivalent rotating head to be installed on  
the top of the BOP. All equipment is 3000 psi working pressure  
or greater.**

**Energen Resources Corporation**  
**Typical 2000 psi Choke Manifold Configuration**



**Choke manifold installed from surface to TD**

**Minimum choke manifold installation from surface to total depth. 2" minimum, 2000 psi working pressure equipment with two chokes.**

Submit 3 Copies To Appropriate District Office  
 District I  
 1625 N. French Dr., Hobbs, NM 87240  
 District II  
 1301 W. Grand Ave., Artesia, NM 88210  
 District III  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 District IV  
 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
 Energy, Minerals and Natural Resources

Form C-103  
 May 27, 2004

OIL CONSERVATION DIVISION  
 1220 South St. Francis Dr.  
 Santa Fe, NM 87505

WELL API NO.  
 30-039-30148

5. Indicate Type of Lease  
 STATE  FEE

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name:  
 Carracas SWD  
 RCVD MAR30'07

8. Well Number  
 # 2 OIL CONS. DIV.

9. OGRID Number  
 DIST. 3  
 162928

10. Pool name or Wildcat:  
 Entrada-chinle

SUNDRY NOTICES AND REPORTS ON WELLS  
 (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:  
 Oil Well  Gas Well  Other

2. Name of Operator  
 Energen Resources Corporation

3. Address of Operator  
 2198 Bloomfield Highway, Farmington, NM 87401

4. Well Location  
 Unit Letter I : 1489 feet from the South line and 134 feet from the East line  
 Section 09 Township 32N Range 04W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
 6222' GL

Pit or Below-grade Tank Application  or Closure   
 Pit type Drill Depth to Groundwater \_\_\_\_\_ Distance from nearest fresh water well \_\_\_\_\_ Distance from nearest surface water \_\_\_\_\_  
 Pit Liner Thickness: 12 mil Below-Grade Tank: Volume \_\_\_\_\_ bbls; Construction Material \_\_\_\_\_

12. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

PERFORM REMEDIAL WORK  PLUG AND ABANDON   
 TEMPORARILY ABANDON  CHANGE PLANS   
 PULL OR ALTER CASING  MULTIPLE COMPLETION

REMEDIAL WORK  ALTERING CASING   
 COMMENCE DRILLING OPNS.  PLUG AND ABANDONMENT   
 CASING TEST AND CEMENT JOB

OTHER:  OTHER:

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Energen Resources would like to change the setting depth of the surface casing to 600' and cement with 750 sks.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines  , a general permit  or an (attached) alternative OCD-approved plan

SIGNATURE Vicki Donaghey TITLE Regulatory Analyst DATE 03/30/07  
 Type or print name Vicki Donaghey E-mail address: vdonaghe@energen.com Telephone No. 505.325.6800

For State Use Only  
 APPROVED BY [Signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE MAR 30 2007  
 Conditions of Approval, if any:

B

District I

1625 N. French Dr., Hobbs, NM 88240  
Phone:(505) 393-6161 Fax:(505) 393-0720

District II

1301 W. Grand Ave., Artesia, NM 88210  
Phone:(505) 748-1283 Fax:(505) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
Energy, Minerals and Natural Resources

Form C-103  
Permit50877

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

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFRENT RESERVIOR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NUMBER 30-039-30148
1. Type of Well: S		5. Indicate Type of Lease P
2. Name of Operator ENERGEN RESOURCES CORPORATION		6. State Oil & Gas Lease No.
3. Address of Operator 605 21ST STREET NORTH , BIRMINGHAM , AL 352032707		7. Lease Name or Unit Agreement Name CARRACAS SWD
4. Well Location Unit Letter <u>5</u> : <u>1489</u> feet from the <u>S</u> line and <u>134</u> feet from the <u>E</u> line Section <u>9</u> Township <u>32N</u> Range <u>04W</u> NMPM Rio Arriba County		8. Well Number 002
11. Elevation (Show whether DR, KB, BT, GR, etc.) 6222 GR		9. OGRID Number 162928
Pit or Below-grade Tank Application <input type="checkbox"/> or Closure <input type="checkbox"/> Pit Type _____ Depth to Groundwater _____ Distance from nearest fresh water well _____ Distance from nearest surface water _____ Pit Liner Thickness: _____ mil Below-Grade Tank: Volume _____ bbls; Construction Material _____		10. Pool name or Wildcat

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO: PERFORM REMEDIAL WORK <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> TEMPORARILY ABANDON <input type="checkbox"/> CHANGE OF PLANS <input type="checkbox"/> PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPL <input type="checkbox"/> Other: _____		SUBSEQUENT REPORT OF: REMEDIAL WORK <input type="checkbox"/> ALTER CASING <input type="checkbox"/> COMMENCE DRILLING OPNS. <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> CASING/CEMENT JOB <input type="checkbox"/> Other: <b>Spud</b> <input checked="" type="checkbox"/>	
---	--	---	--

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work.) SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

4/2/2007 Spudded well.

Spud @ 11:30 am on 04/02/07. Drill 17.50" hole to 603'. Run 14 jts. 13.375" 48# H-40 casing, set @ 599'. RU Halliburton. Cement with 476 sks. Type V poz, 1/8#/sk flocele tailed by 253 sks Type V, 2% CaCl2, 1/8#/sk flocele (860 cu.ft.). Plug down @ 11:20 pm on 04/05/07. Circulate 30 bbls cement to surface. WOC. RD Halliburton. RDMO. Surface casing test will be conducted prior to drilling out from under the surface. BLM will be notified to witness test.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCGD guidelines , a general permit  or an (attached) alternative OCD-approved plan .

SIGNATURE Electronically Signed TITLE Regulatory Analyst DATE 4/10/2007

Type or print name Vicki Donaghey E-mail address vdonaghe@energen.com Telephone No. 505-325-6800

**For State Use Only:**

APPROVED BY: Charlie Perrin TITLE District Supervisor DATE 4/23/2007

Submit 3 Copies To Appropriate District Office  
 District I  
 1625 N. French Dr., Hobbs, NM 87240  
 District II  
 1301 W. Grand Ave., Artesia, NM 88210  
 District III  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 District IV  
 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
 Energy, Minerals and Natural Resources

Form C-103  
 May 27, 2004

OIL CONSERVATION DIVISION  
 1220 South St. Francis Dr.  
 Santa Fe, NM 87505

WELL API NO. 30-039-30148
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>
6. State Oil & Gas Lease No. RCUD DEC 3 '07
7. Lease Name or Unit Agreement Name: Carracas SWD OIL CONS. DIV.
8. Well Number DIST. 3 # 2
9. OGRID Number 162928
10. Pool name or Wildcat Entrada-Chinle

SUNDRY NOTICES AND REPORTS ON WELLS  
 (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:  
 Oil Well  Gas Well  Other

2. Name of Operator  
 Energen Resources Corporation

3. Address of Operator  
 2198 Bloomfield Highway, Farmington, NM 87401

4. Well Location  
 Unit Letter I : 1489 feet from the South line and 134 feet from the East line  
 Section 09 Township 32N Range 04W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
 6222' GL

Pit or Below-grade Tank Application  or Closure   
 Pit type Drill Depth to Groundwater \_\_\_\_\_ Distance from nearest fresh water well \_\_\_\_\_ Distance from nearest surface water \_\_\_\_\_  
 Pit Liner Thickness: 12 mil Below-Grade Tank: Volume \_\_\_\_\_ bbls; Construction Material \_\_\_\_\_

12. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPLETION <input type="checkbox"/>	CASING TEST AND CEMENT JOB <input type="checkbox"/>	
OTHER: <input type="checkbox"/>		OTHER: <u>set intermediate casing</u>	<input checked="" type="checkbox"/>

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

11/16/07 Drill 12.25" hole to 6180'. Run 134 jts. 9.625" 40# N-80 casing, set @ 6166'. RJ Halliburton. Cement 1st stage with 300 sks 50/50 poz, 0.4% Halad-344, 0.2% CFR-3, 5#/sk gilsonite, 1/8#/sk flocele, 0.2% HR-5 (390 cu.ft.). Plug down @ 2:15 pm on 11/16/07. Circulate 5 bbls cement to surface. Circulate between stages. Cement 2nd stage with 350 sks Halco Light Premium-SEM, 2% CaCl2, 10#/sk gilsonite, 1/8#/sk flocele tailed by 50 sks Class C, 1% CaCl2 (740 cu.ft.). Plug down @ 7:40 pm on 11/16/07. Did not circulate after opening DV tool. Drop bomb and circulate between stages. Cement 3rd stage with 500 sk Halco Light Premium, 10#/sk gilsonite, 1/8#/sk flocele, 2% CaCl2 tailed with 17 sks Class G, 1% CaCl2 (1031 cu.ft.). Plug down @ 4:30 am 11/17/07. Did not circulate. (continued on page 2)

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines  , a general permit  or an (attached) alternative OCD-approved plan

SIGNATURE Vicki Donaghey TITLE Regulatory Analyst DATE 11/29/07  
 Type or print name Vicki Donaghey E-mail address: vdonaghe@energen.com Telephone No. 505.325.6800

For State Use Only  
 APPROVED BY H. Villanueva TITLE Deputy Oil & Gas Inspector, District #3 DATE DEC 04 2007  
 Conditions of Approval, if any:

48

Carracas SWD #2

Page 2

RD Halliburton. NU BOP. Test casing & BOP to 1200 psi - ok.

11/20/07 Ran two CBLs (second one @ 1000 psi) Showed bond with TOC @ 364'.

*13<sup>3</sup>/<sub>8</sub> surface set at - 599'*  
*HW*

Submit 3 Copies To Appropriate District Office  
 District I  
 1625 N. French Dr., Hobbs, NM 87240  
 District II  
 1301 W Grand Ave., Artesia, NM 88210  
 District III  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 District IV  
 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
 Energy, Minerals and Natural Resources

Form C-103  
 May 27, 2004

OIL CONSERVATION DIVISION  
 1220 South St. Francis Dr.  
 Santa Fe, NM 87505

WELL API NO. 30-039-30148
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>
6. State Oil & Gas Conservation No. 11'08 OIL CONS. DIV.
7. Lease Name or Unit Agreement Name: Carracas SWD DIST. 3
8. Well Number RCUD JAN 11 '08 # 2
9. OGRID Number 162928
10. Pool name or Wildcat Entrada-Chinle

SUNDRY NOTICES AND REPORTS ON WELLS  
 (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:  
 Oil Well  Gas Well  Other SWD-1068

2. Name of Operator  
Energen Resources Corporation

3. Address of Operator  
2198 Bloomfield Highway, Farmington, NM 87401

4. Well Location  
 Unit Letter I : 1489 feet from the South line and 134 feet from the East line  
 Section 09 Township 32N Range 04W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
6222' GL

Pit or Below-grade Tank Application  or Closure   
 Pit type Drill Depth to Groundwater \_\_\_\_\_ Distance from nearest fresh water well \_\_\_\_\_ Distance from nearest surface water \_\_\_\_\_  
 Pit Liner Thickness: 12 mil Below-Grade Tank: Volume: \_\_\_\_\_ bbls; Construction Material \_\_\_\_\_

12. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPLETION <input type="checkbox"/>	CASING TEST AND CEMENT JOB <input type="checkbox"/>	
OTHER: <input type="checkbox"/>		OTHER: <u>set liner</u>	<input checked="" type="checkbox"/>

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

12/28/07 TD:9334' PBID:9280' Drill 6.25" hole to 9334'. Run 79 jts. 5.50" 17# N-80 production liner, set @ 9315'. TOL:5944'. RU Halliburton. Cement with 375 sks 50/50 poz, 35% SSA, 0.6% SCR-100, 0.4% Halad-413, 5#/sk gilsonite, 1/4#/sk flooele tailed by 200 sks Class G, 6% SCR-100, 0.4% Halad-413, 35% SSA, 0.3% CFR, 5#/sk gilsonite, 1/4#/sk flooele (1015 cu.ft.). Did not plug down because of liner hanger disengagement. Did not circulate. Will run CBL. Will repair top of liner during completion.  
 01/03/08 Ran CBL. TOC @ 8000'  
 01/05/08 Ran 92 jts. 2.375" tubing, set @ 2998'. ND BOP. Release rig.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines  , a general permit  or an (attached) alternative OCD-approved plan

SIGNATURE Vicki Donaghey TITLE Regulatory Analyst DATE 01/08/08  
 Type or print name Vicki Donaghey E-mail address: vdonaghe@energen.com Telephone No. 505.325.6800

For State Use Only  
 APPROVED BY H. Villanueva TITLE Deputy Oil & Gas Inspector, District #3 DATE JAN 11 2008  
 Conditions of Approval, if any:

*[Handwritten mark]*



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

## MECHANICAL INTEGRITY TEST REPORT

(TA OR UIC)

Date of Test 8-18-08 Operator Emergen Res. API # 30-0 39-30148

Property Name Cenacast SLOD Well # 2 Location: Unit        Sec 9 Twn 32 Rge 4

Land Type:

State         
Federal ✓  
Private /  
Indian       

Well Type:

Water Injection         
Salt Water Disposal /  
Gas Injection         
Producing Oil/Gas         
Pressure observation       

Temporarily Abandoned Well (Y/N):        TA Expires:       

Casing Pres. 0  
Bradenhead Pres. 0  
Tubing Pres. 380  
Int. Casing Pres. N/A

Tbg. SI Pres.         
Tbg. Inj. Pres.       

Max. Inj. Pres.         
RCVD AUG 18 '08  
OIL CONS. DIV.  
DIST. 3

Pressured annulus up to 350 psi. for 30 mins. Test passed/failed

REMARKS:

fracture set at 8551 - topped at 8600

need to perform BHT & kill check

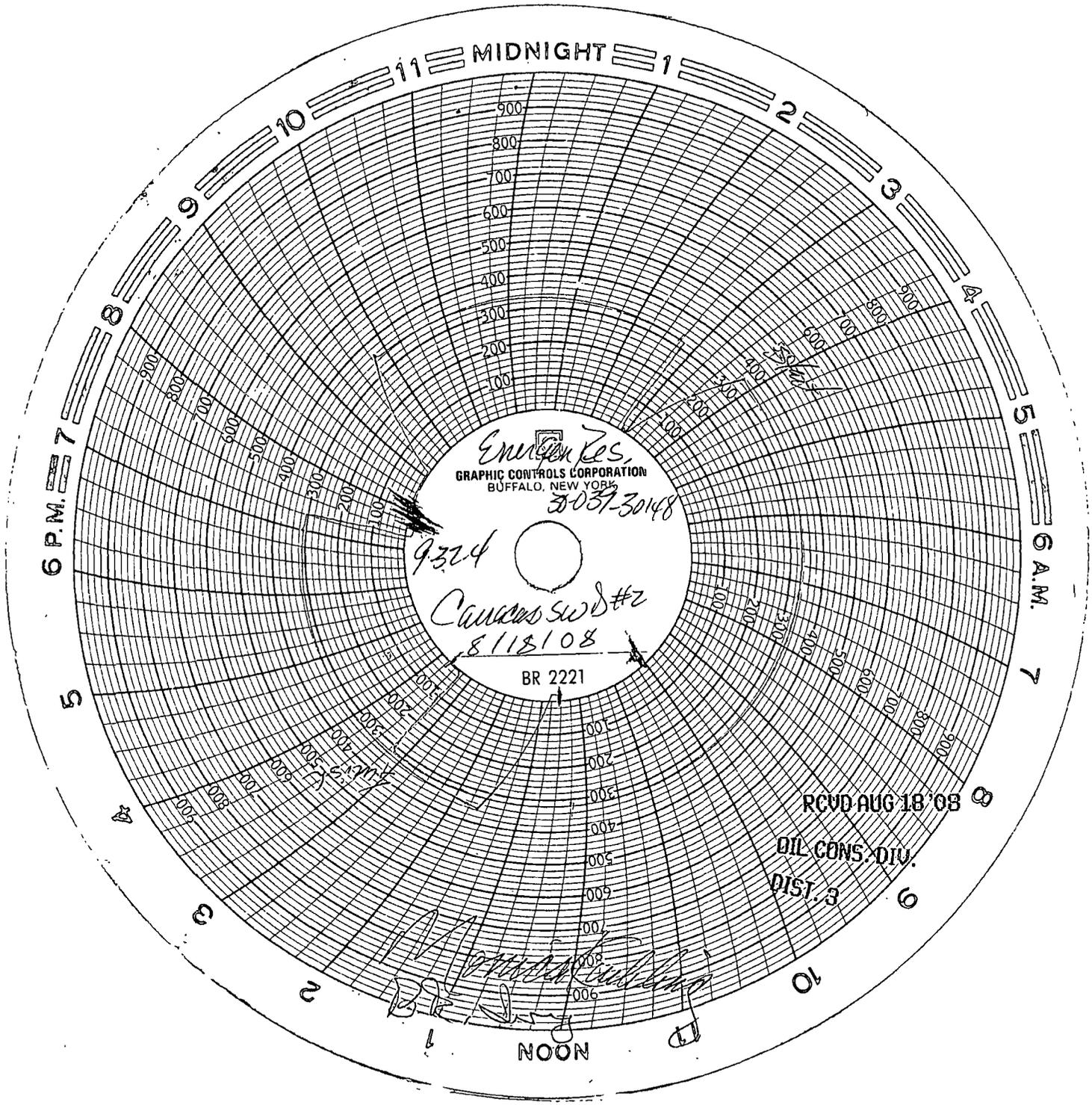
By B.R. Long  
(Operator Representative)

Witness Monica Kuchling  
(NMOCD)

(Position)

Revised 02-11-02

08



11 MIDNIGHT 1

6 P.M. 7

6 A.M. 7

Emerson Res.  
GRAPHIC CONTROLS CORPORATION  
BUFFALO, NEW YORK

3-037-30148

9.324

CANCAS SWD #2

8118108

BR 2221

RCVD AUG 18 '08

OIL CONS. DIV.  
DIST. 3

NOON

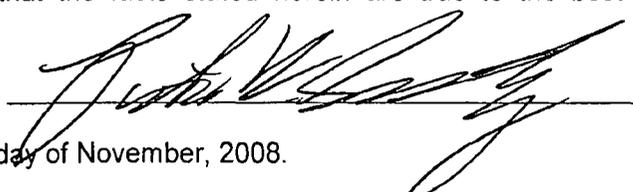
# DEVIATION REPORT

<b>Name of Company</b>		<b>Address</b>		
Energen Resources Corporation		2010 AFTON PLACE, FARMINGTON, NM 87401		
<b>Lease Name &amp; Number</b>	<b>Unit Letter</b>	<b>Section</b>	<b>Township</b>	<b>Range</b>
CARRACAS SWD #2	I	09	32N	04W
<b>Pool and Formation</b>		<b>API Number</b>	<b>County</b>	
Chinle/Bluff/Entrada		30-039-30148	Rio Arriba County, NM	

<u>Depth (Ft.)</u>	<u>Deviation (Degrees)</u>
180	1.00
400	1.50
557	2.00
812	1.50
1040	1.50
1232	1.50
1508	1.50
1808	.75
2142	1.75
2490	1.25
2772	1.25
3168	1.50
3482	1.75
3865	3.00
4120	2.50
4370	2.75
4658	1.75
4977	2.25
5300	2.50
5961	1.00
6180	1.75
6476	1.00
6732	1.00
7240	2.00
7776	.75
8208	1.75
9128	1.00

RCVD NOV 17 '08  
OIL CONS. DIV.  
DIST. 3

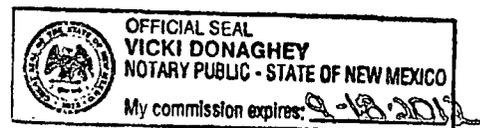
I, the undersigned, certify that I, acting in my capacity as Petroleum Engineer for Energen Resources Corporation, am authorized by said Company to make this report; and that this report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

  
\_\_\_\_\_

Subscribed and sworn to before me this 14<sup>th</sup> day of November, 2008.

  
\_\_\_\_\_

Notary Public in and for San Juan County, New Mexico.  
My commission expires: September 18<sup>th</sup>, 2012.



B"117

Submit 3 Copies To Appropriate District  
 Office  
 District I  
 1625 N. French Dr., Hobbs, NM 88240  
 District II  
 1301 W. Grand Ave., Artesia, NM 88210  
 District III  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 District IV  
 1220 S. St. Francis Dr., Santa Fe, NM  
 87505

State of New Mexico  
 Energy, Minerals and Natural Resources

Form C-103  
 June 19, 2008

OIL CONSERVATION DIVISION  
 1220 South St. Francis Dr.  
 Santa Fe, NM 87505

WELL API NO. 30-039-30148
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name Carracas SWD
8. Well Number #2
9. OGRID Number 16298
10. Pool name or Wildcat Entrada -Chinle

**SUNDRY NOTICES AND REPORTS ON WELLS**  
 (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well  Gas Well  Other

2. Name of Operator  
Energen Resources Corporation

3. Address of Operator  
2010 Afton Place Farmington, NM 87401

4. Well Location  
 Unit Letter I: 1489 feet from the South line and 134 feet from the East line  
 Section 09 Township 32N Range 04W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
6,222' GL

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

<b>NOTICE OF INTENTION TO:</b>		<b>SUBSEQUENT REPORT OF:</b>	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	P AND A <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>	
DOWNHOLE COMMINGLE <input type="checkbox"/>			
OTHER: <input type="checkbox"/>		OTHER: Completion operations on new SWD <input checked="" type="checkbox"/>	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

SUMMARY OF WORK FROM APRIL 24, 2008 TO AUGUST 18, 2008.

RCUD NOV 17 '08  
 OIL CONS. DIV.  
 DIST. 3

- MIRU WSU NUBOP
- POOH W/ 2-7/8" Kill string TIH W/ RBP TO 5,954' Run CCL/GR/CBL w 1,000 psig applied to Surface. POOH W/RBP TIH W/ 5-1/2' PKR TO 5,998' Pressure Test 5-1/2" TO 1,800 PSIG - Held 30 minutes - Okay.  
 (See attached pages - )

Spud Date:  Rig Release Date:

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

SIGNATURE Vicki Donaghy TITLE Regulatory Analyst DATE 11/14/2008  
 Type or print name Vicki Donaghy E-mail address: vdonaghe@energen.com PHONE: 505.325.6800  
**For State Use Only**

APPROVED BY: [Signature] TITLE SUPERVISOR DISTRICT # 3 DATE NOV 17 2008

Conditions of Approval (if any): CONDUCT BRADENHEAD TEST AND CHECK AUTOMATIC SHUT-DOWN - NOTIFY OCD 24 HOURS PRIOR TO START OF INJECTION AND 24 HRS PRIOR TO CONDUCTING BHT + KILL CHECK.

b

**PAGE 2.**

SUMMARY OF WORK FROM APRIL 24, 2008 TO AUGUST 18, 2008.

(Continued)

3. TIH W/ C/RET - SET RET @ 6124 RKB - RU HSR , PUMP THRU RET - PSI 350 PSI @ 2 BPM - RD HSR CEMENT TRK - RU SQUEEZE MANIFOLD - SECURE WELL - SDFN . PUMP TYPE V CEMENT AS FOLLOWS 10 BBL SPACER - 77SKS W/ .1 % HR-5 .08 % HALAD [R] 9 , .1 % CFR-3 PUMPED @ 15.4 LB - MAX 390 PSI - TOH W/ 5 JTS - CIRCULATE 2 BBLs OF CEMENT AFTER STINGING OUT OF RET - TOH W/ WRK STRING - SECURE WELL - SDFN.
4. NU 4-3/4 BIT & DCS - TIH TO 5957 RKB - TEST TO 500 PSI , OK - TIH TAG CEMENT @ 6014 RKB - BRK CIRCULATION - DRLG CEMENT F/ 6014 TO RET @ 6124 RKB - PSI TEST SQUEEZE HOLE @ 6092 RKB ,TO 1000 PSI ,OK - DRLG OUT RET @ 6124 FT & CEMENT TO 6145 FT - CIRCULATE CLEAN - TOH W/ 1 JT - SECURE LOC - SDFN .
5. BRK CIRCULATION DRL F 6145 FT TO 6270 RKB - PSI TEST SQUEEZE TO 1000 PSI , OK - TIH TO C/O PBTB @ 9280 RK - TOH STD BK WRK STRING - SECURE WELL - SDFN . RUN SECTOR BOND LOG F/ 6500 TO 5960 RKB - BOND BETWEEN 6,092' TO 6,250'.
6. TIH TO 3,460' SET BP & DUMP SAND. SHOOT SQZ HOLES @ In 9-5/8" CASING 2,890'. SET PRK @2879 RKB - BRK DN SQUEEZE HOLES @ 2000 PSI .9 BPM - INCREASE RATE AS PSI ALLOWED - FINAL 1645 PSI @ RATE 2.2 BPM. SQUEEZE PERFS @ 2890 RKB - PRK @ 2752 RKB - APPLY 1000 PSI TO BK/SD - ESTABLISH RATE @ 2.2 BPM , 1250 PSI - PUMP 375 SKS OF 50/50 POZ W/ 75 SKS OF TYPE V W/ .2 % R-9 HALAD - DISPLACE 3 BBLs BELOW PRK SD W/1000 PSI. W.O SQUEEZE CEMENT TO SET.
7. PSI CSG TO 500 PSI. TAG CEMENT @ 2,775' - DRLG CEMENT TO 2,850'. DRLG CEMENT F/2850 RKB TO 2896 RKB - PSI TEST SQUEEZE TO 1000 PSI , OK - TOH W/ WRK STRING - SECURE LOC - SDF/WK/END .
8. RUN SECTOR BOND LOG F/ 3456 RKB TO SURF.
9. MIX 25 SKS OF MICRO MATRIC CEMENT TO 25 SKS OF MICRO FLY ASH - SPOT BALANCED PLUG F/ 2903 RKB TO 2801 RKB - CEMENT PUMPED @ 11.8 # - TOTAL SLURRY OF 9 BBLs - TOH TO 2280 RKB - APPLY 1500 PSI TO CEMENT. TIH TO 212 RKB - SET PRK APPLY 1100 PSI TO ANNULUS - BRK CIRCULATION THRU BRADEN HD - PUMP 25 BBLs 2% KCL - MIX 240 SKS CLASS G W/ .03 HALAD 344 2 % C.C - PUMPED @ 15.6 # GAL , DISPLACE 9 BBLs - PUMPED 30 BBLs % HAD RETS THRU BRADEN HD - SI TBG W/ 190 PSI - RD HRS CEMENT EQUIP - SECURE LOC - SDFN .

**PAGE 3.**

10. TIH W/ BHA - TAG CEMENT @ 290 RKB - DRLG CEMENT F/ 290 TO 3920 RKB - PSI TEST SQUEEZE TO 1000 # , OK. TI H - TAG FILL @ 9117 RKB - CIRCULATE DN TO PBTD @ 9,280'.

11. TIH W/ HOMCO CSG PATCH - TIH W/ PATCH - SET PATCH & TOH W/ WRK STRING - PULL THRU PATCH - PATCH SET ACROSS PERFS @ 2,890'. HOMCO CSG PATCH @ TOP 2,879' - BTM @ 2,899'. PSI TEST CSG PATCH ACROSS 2,890' TO 1,000 PSIG -OKAY.

12. TIH W/ HOMCO CSG PATCH TIH - SET CSG PATCH @ 370' TOP BTM 390' TOH W/ WRK STRING RU WEATHERFORD WIRE LINE - RUN CALIPER LOG - HOMCO CSG PATCH BTM @ 390 RKB - TOP @ 370' WIRELINE RUN BOND LOG F/PBTD TO SURFACE - RD WIRELINE - TIH W/ 2-7/8 TBG . PSI TEST BOTH HOMCO CSG PATCHES TO 1000 PSI , OK.

13. **PERF LOWER ENTRDA F/ 9130 RKB TO 9258 RKB** - 4 SPF -0,5 , EHD 19 " - 128 FT , 512 PERFS. PUMP 1500 GALS OF MCA 15 % & START BALLS - PUMP ADDITIONAL 8000 GAL OF ACID W 640 BIO- BALLS , @ 5 BPM - PUMPED FLUSH @ 7 BPM - PUMPED ADDITONAL 100 BBLs @ 2 BPM @ 1150 AVJ PSI - ISIP 1119 PSI - 5 MIN 1073 PSI - 1 HR SI 986 PSI - MAX TRATING PSI 1289 - AVJ TREATING PSI 1289 - AVJ CLEAN RATE 3.9 BPM - SLURRY VOLUME 17,795 GALS - MAX RATE 7.9 BPM. **RBP SET @ 9100 RKB.**

14. **PERF UPPER ENTRADA - PERF ZONE F/ 8894 TO 9064 RKB** - 4 SPF , 0.5 EHD & 19 " PENETRATION. ACIDIZE W/ 1,500 GALS AHEAD & 8,500 GALS OF MCA 15 % W/ 850 BIO BALLS - BK DN 1778 PSI , RATE 5.7 BPM.

15. FRAC UPPER ENTRADA - PERFS F/ 8894 TO 9064 RKB - FRAC AS FOLLOWS - PUMPED 115,909 GALS OF 15 CP DELTA 200 W/ SWNT FRAC FLUID - PUMPED 2,262 SKSOF 20/40 OTTAWA W/ MAX BH CONCENTRATION OF 5.48 BH CONCENTRATION - COATED 2,238 SKS W/ SWNT @ 2 GAL /MLBS STARTING W/ 1 LB - TOTAL FLUID TO RECOVER IS 2,602 BBLs - A 25 %PAD PUMPED - PUMPED 105,842 DELTA 200 F/ TICKET - AVJ RATE OF 25.4 BPM SLURRY CLEAN RATE 22.8 BPM - ISIP 1908 PSI - 5 MIN 1493 PSI - 10 MIN 1399 PSI - 15 MIN 1333 PSI - SHUT IN 1314 PSI. TIH SET WLRP @ 8800 RKB - TEST PLUG -OK.

16. **PERF LOWER BLUFF F/ 8,703' TO 8,791' RKB** W/ 4 SPF 0.5 EHD 19 " PENETRATION - TOTAL PERFS 352 - RD WIRE LINE - NU HRS PRK TIH TO 8191 RKB - PSI TEST BK SIDE TO 250 , OK - TBG 340 PSI.

**PAGE 4.**

17. BRK DN FORMATION @ 5 BPM @ 1520 - START ACID 1000 GALS OF 15 % MCA W/ ADDITIVES - PUMP 7000 GALS OF ACID @ 5BPM , INCREASE RATE TO 7 BPM - GOOD BALL ACTION - MAX PSI 1811 - AVG TREAT PSI 1167 - MAX RATE 7 BPM - AVJ RATE 3.7 BPM - ISIP 659 PSI - 5 MIN 267 PSI - 10 MIN 279 PSI. RU JUNK BASKET TIH TO 8800 RKB - TOH - NU **RBP TIH SET @ 8,675' RKB**

18. **PERFORATE UPPER BLUFF F/8600 TO 8660 RKB** - PERFS BLUFF W/ 4 SPF 0.5 EHD 19" PENETRATION. TIH W/ PRK TIH & SET @ 8,222' RKB.

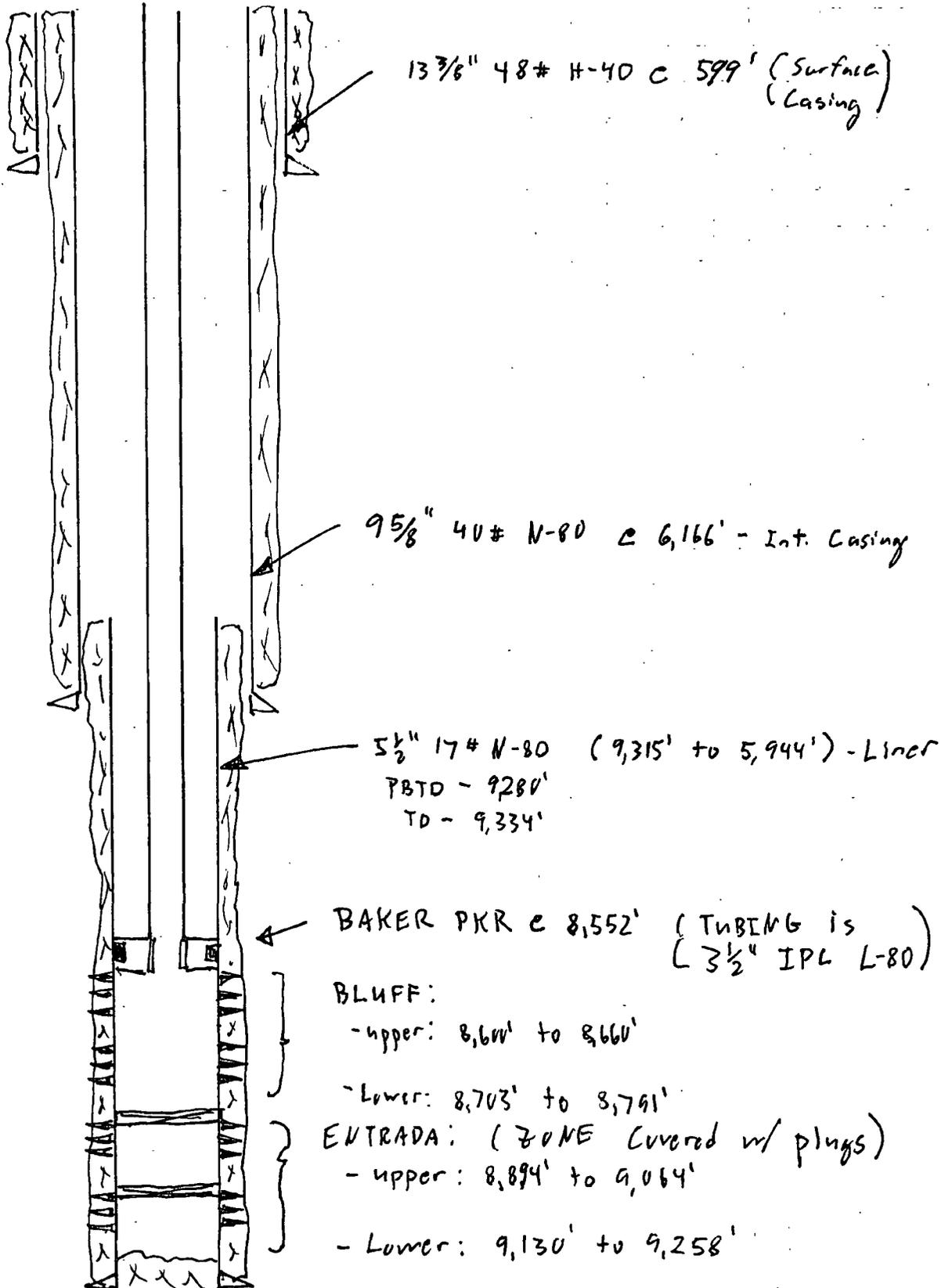
19. PUMP 1000 GALS 15 % MCA ACID AHEAD - PUMP 4000 GALS W/ 300 BIO - BALLS - HAD BALL ACTION , NO BALL-OUT - AVJ RATE 2.9 BPM - MAX RATE 6.9 BPM - MAX PSI 2390 PSI - AVJ PSI 1126 PSI - ISIP 618 PSI - 5 MIN 352 PSI - SI/PSI AFTER 30 MIN 341 PSI.

20. REL RBP@ 8,675'. WAS NOT ABLE TO RETRIEVE RBP SET @ 9100 RKB- CANNOT DISPOSE INTO ENTRADA WILL ONLY BE ABLE TO INJECT INTO BLUFF. SET CIBP @ 8,886' RKB.

21. RIH W/ INJECTION STRING. BAKER PRK - BDW TIH W/ INJECTION PRK & IPC 3-1/2 TBG - **PRK SET @ 8,552' RKB.**

22. MIT - RUN MIT TEST W/ OCD EMPLOYEE - TEST OK - RDMO WSU.

Subject Wellbore Diagram - Carracas SWD#2  
API No. 30-039-30148



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

State of New Mexico  
 Er. by, Minerals and Natural Resources

Form C-105  
 July 17, 2008

OIL CONSERVATION DIVISION  
 1220 South St. Francis Dr.  
 Santa Fe, NM 87505

1. WELL API NO.  
 30-039-30148  
 2. Type Of Lease  
 STATE  FEE  FED/INDIAN  
 3. State Oil & Gas Lease No.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

4. Reason for filing:  
 COMPLETION REPORT (Fill in boxes #1 through #31 for State and Fee wells only)  
 C-144 CLOSURE ATTACHMENT (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)

5. Lease Name or Unit Agreement Name  
 Carracas SWD  
 6. Well Number  
 #2

9. Type of Completion  
 NEW WELL  WORKOVER  DEEPENING  PLUGBACK  DIFFERENT RESERVOIR  OTHER

8. Name of Operator  
 Energen Resources Corporation

9. OGRID Number  
 162928

10. Address of Operator  
 2010 Afton Place, Farmington, NM 87401

11. Pool name or Wildcat  
 SWD: Bluff/Entrada

12. Location	Unit Letter	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:	I	09	32N	04W		1489	South	134	East	Rio arriba
BH:										

13. Date Spudded 04/02/07 14. Date T.D. Reached 12/28/07 15. Date Rig Released 01/05/08 16. Date Completed (Ready to Produce) 08/19/08 17. Elevations (DF & RKB, RT, GR, etc.) 6222'

18. Total Measured Depth of Well 9334' 19. Plug Back Measured Depth 9280' 20. Was Directional Survey Made No 21. Type Electric and Other Logs Run SBT/OCL/GR

22. Producing Interval(s), of this completion - Top, Bottom, Name  
 Injection Zone - Bluff/Entrada

23. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13.375	48	599	17.5	729 sks - 860 cu.ft. circ.	
9.625	40	6166	12.5	1215 sks - 2161 cu.ft. CBL	TOC: 364'

24. LINER RECORD 25. TUBING RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
5.50	5944	9315	575 sks		<del>2.375</del> 3.500	8571'	8,552'
			CBL-TOC 8000				

26. Perforation record (interval, size, and number)  
 Entrada: Lower 9130'-9258' 512 holes Upper 8894'-9064' 680 holes 4 spf - Bluff: Lower 8703'-8791 352 holes Upper 8600'-8660' 240 holes 4 spf 0.50"

27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.  

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
8894' - 9064'	115,909 gals Delta 200 & 226200#
	20/40 sand

28. PRODUCTION

Date First Production Production Method (Flowing, gas lift, pumping - Size and type pump) Well Status (Prod. or Shut-in)

Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API -(Corr.)	

29. Disposition of Gas (Sold, used for fuel, vented, etc.) 30. Test Witnessed By

31. List Attachments

32. If a temporary pit was used at the well, attach a plat with the location of the temporary pit.

33. If an on-site burial was used at the well, report the exact location of the on-site burial:  
 Latitude Longitude NAD: 1927 1983

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief  
 Signature *Vicki Donaghey* Printed Name Vicki Donaghey Title Regulatory Analyst Date 11/14/08  
 E-mail address vdonaghe@energen.com



RECEIVED

2 December 2008

2008 DEC 3 PM 1 20

Mr. William Jones  
Petroleum Engineer  
Oil Conservation Division  
Engineering and Geological Services Bureau  
1220 South St. Francis Drive  
Santa Fe, NM 87505

RE: Affidavit of Publication – Original Copy- Rio Grande Sun- Carracas SWD#2

Mr. Jones;

Enclosed, with this cover letter you will find the Original Copy of the Affidavit of Publication for Energen Resources' Carracas SWD #2 – the permit was originally issued as SWD#1068 on February 4, 2007. We had to re-permit do to injection not being achieved by February 4, 2008.

Thanks for your help in this matter.

Sincerely,



Patricio W. Sanchez  
District Engineer  
Energen Resources  
505.324.4141  
[psanchez@energen.com](mailto:psanchez@energen.com)

Enclosed: Rio Grande Sun – Affidavit of Publication November 27, 2008

**NOTICE OF PERMIT  
APPLICATION PER NMOCD  
REQUIREMENTS:**

Energen Resources Corporation is applying to permit the Carracas SWD#2 water disposal well. The well will be located at 1,489' FSL 134' FEL, Section 9 T. 32 N R. 4W, Rio Arriba County, New Mexico. The well will dispose produced water from gas wells located in Rio Arriba County New Mexico into the Bluff and Entrada Formations at a depth of 8,516' to 9,216' at a maximum rate of 4,500 barrels per day and a maximum pressure of 1,703 psig. Interested parties must file objections or request for hearing with the New Mexico Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505 within 15 days of this add. Additional information may also be obtained by contacting: Energen Resources Corporation 2010 Afton Place, Farmington, New Mexico 87401 Telephone: 505-325-6800 Attn: Mr. Patricio Sanchez (Published November 27, 2008)

**er's Bill**

one time at 25.20  
times at \_\_\_\_\_

Affidavit 10.00

Subtotal 35.20

Tax 2.73

Total 37.93

**Payment received at Rio Grande SUN**

Date 11/28/08

By [Signature]

**Affidavit of Publication**

State of New Mexico  
County of Rio Arriba

I, Robert Trapp, being first duly sworn, declare and say I am the publisher of the Rio Grande SUN, a weekly newspaper published in the English language and having a general circulation in the County of Rio Arriba, State of New Mexico, and being a newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 of the Session Laws of 1937. The publication, a copy of which is hereto attached, was published in said paper once each week for

1 consecutive weeks and on the same day of each week in the regular issue of the paper during the time of publication and the notice was published in the newspaper proper, and not in any supplement. The first publication being on the

27 day of November 2008

and the last publication on the 27 day of

November 2008 payment for said advertisement has been duly made, or assessed as court costs. The undersigned has personal knowledge of the matters and things set forth in this affidavit.

[Signature]  
Publisher

Subscribed and sworn to before me this 27<sup>th</sup> day of NOV-A.D. 2008

[Signature]  
Maria V. Lopez-Garcia/Notary Public  
My commission expires 13 July 2009

**Jones, William V., EMNRD**

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**From:** Ezeanyim, Richard, EMNRD  
**Sent:** Wednesday, December 03, 2008 8:49 AM  
**To:** Perrin, Charlie, EMNRD  
**Cc:** Jones, William V., EMNRD  
**Subject:** RE: Energen SWD

Charlie:

As you know, Energen has reapplied altogether for the SWD Order, including all public notices and due processes. We will re-issue an amended order at the expiration of the due processes unless you have an objection, or someone else objects. Please let me know if you want me to hold on to the order, otherwise we can issue it by December 15, 2008. Have a pleasant day.

Richard

---

**From:** Perrin, Charlie, EMNRD  
**Sent:** Wednesday, December 03, 2008 8:14 AM  
**To:** Ezeanyim, Richard, EMNRD  
**Subject:** Energen SWD

Richard

Greetings:

Can you tell me the status on the Energen SWD disposal permit that they brought you?

frmWellFilterSub																			
API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf_Owner	UL	Sec	Twp	N/S	Rng	W/E	Feet	NS	Ft	EW	Last Insp	Order_No
30-039-30148-00-00	CARRACAS SWD	002	ENERGEN RESOURCES CORPORATION	S	N	Rio Arriba	P		9	32	N	4	W	1489	S	134	E	10/21/2008	SWD-1068

Thanks  
Charlie

**Jones, William V., EMNRD**

---

**From:** Pat Sanchez [Pat.Sanchez@energen.com]  
**Sent:** Tuesday, December 02, 2008 4:04 PM  
**To:** Jones, William V., EMNRD  
**Cc:** David Poage; Sam Mohler  
**Subject:** Letters to effected persons- Carracas SWD#2  
**Attachments:** Return Rec Carracas SWd#2.pdf; Letters Carracas SWD#2.tif

Mr. Jones - here are the return receipts and letters from notified parties for Carracas SWD#2 - it was originally permitted as SWD#1068 - we had to re-permit do to the expire date of February 4, 2008 being passed- NMOCD now has a fully completed re-permit.

If you have any questions let me know- I'll be mailing the originals to NMOCD thanks.

**Patricio W. Sanchez**  
**Energen Resources**  
**District Engineer- San Juan**  
**2010 Afton Place**  
**Farmington, NM 87401**  
**Telephone 505.324.4141**  
**Cell 505.793.7605**

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This inbound email has been scanned by the MessageLabs Email Security System.

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SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> <li>■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>■ Print your name and address on the reverse so that we can return the card to you.</li> <li>■ Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	<p>A. Signature <input type="checkbox"/> Agent  <input checked="" type="checkbox"/> Addressee  <i>Pat Bailey</i></p> <p>B. Received by (Printed Name) <input type="checkbox"/> Yes  <i>Pat Bailey</i> <input type="checkbox"/> No</p> <p>C. Date of Delivery  <i>12/1/08</i></p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes  <input checked="" type="checkbox"/> No          If YES, enter delivery address below:</p>
<p>1. Article Addressed to:</p> <p><i>PAT BAILEY          808 SANTA BARBARA DR          FARMINGTON, NM 87401          - 4034</i></p>	<p>3. Service Type  <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail  <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise  <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p> <p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>
<p>2. Article Number          (Transfer from service label)</p>	<p>7005 1820 0002 8596 6210</p>
<p>PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540</p>	

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> <li>■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>■ Print your name and address on the reverse so that we can return the card to you.</li> <li>■ Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	<p>A. Signature <input type="checkbox"/> Agent  <input checked="" type="checkbox"/> Addressee  <i>Monica Meier</i></p> <p>B. Received by (Printed Name) <input type="checkbox"/> Yes  <input checked="" type="checkbox"/> No</p> <p>C. Date of Delivery  <i>11-26-08</i></p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes  <input checked="" type="checkbox"/> No          If YES, enter delivery address below:</p>
<p>1. Article Addressed to:</p> <p><i>MONICA MEIER          P.O. Box 1744          Arboles, CO 81121</i></p>	<p>3. Service Type  <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail  <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise  <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p> <p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>
<p>2. Article Number          (Transfer from service label)</p>	<p>7005 1820 0002 8596 6180</p>
<p>PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540</p>	

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Bureau of Land Management  
 1235 La Plata Hwy.  
 Farmington, NM 87401

2. Article Number

(Transfer from service label)

7005 1820 0002 8596 6203

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

X

Agent

Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1?  Yes

If YES, enter delivery address below

No

3. Service Type

Certified Mail

Express Mail

Registered

Return Receipt for Merchandise

Insured Mail

C.O.D.

4. Restricted Delivery? (Extra Fee)

Yes

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ed Trahan  
 Southern Ute Indian Tribe  
 14933 Hwy 17a  
 PO Box 1500  
 Ignacio, CO 81137

2. Article Number

(Transfer from service label)

7005 1820 0002 8596 6197

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

X

Agent

Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1?  Yes

If YES, enter delivery address below:

No

3. Service Type

Certified Mail

Express Mail

Registered

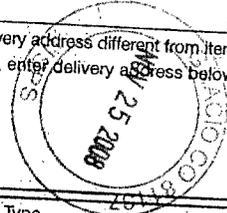
Return Receipt for Merchandise

Insured Mail

C.O.D.

4. Restricted Delivery? (Extra Fee)

Yes





R E S O U R C E S

November 24, 2008

Certified Mail  
7005 1820 0002 8596 6203

Bureau of Land Management  
1235 La Plata Highway  
Farmington, NM 87401

Gentlemen:

As required by New Mexico Oil Conservation Division Rules, I am notifying you of the following proposed water disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Energen Resources Corporation is applying (see attached application) to drill its Carracas SWD #2 well.

Well Name: Carracas SWD #2

Total Depth: 9316'

Proposed Disposal Zone: Bluff & Entrada (from 8516' to 9216')

Location: 1489' FSL & 134' FEL Sec. 9, T. 32 N., R. 4 W., Rio Arriba County, NM on a Fee lease.

Approximate Location: 8 air miles southeast of Arboles, Colorado

Applicant Name: Energen Resources Corporation

Applicant's Address: 2198 Bloomfield Highway, Farmington, NM 87401

Submittal Information: Application for a water disposal well will be filed with the NM Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

David M. Poage  
District Landman

# **ENERGEN**

R E S O U R C E S

November 24, 2008

Certified Mail  
7005 1820 0002 8596 6197

Mr. Ed Trahan  
Southern Ute Indian Tribe  
Department of Energy  
14933 Hwy. 172  
P.O. Box 1500  
Ignacio, CO 81137

Gentlemen:

As required by New Mexico Oil Conservation Division Rules, I am notifying you of the following proposed water disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Energen Resources Corporation is applying (see attached application) to drill its Carracas SWD #2 well.

Well Name: Carracas SWD #2                      Total Depth: 9316'  
Proposed Disposal Zone: Bluff & Entrada (from 8516' to 9216')  
Location: 1489' FSL & 134' FEL Sec. 9, T. 32 N., R. 4 W., Rio Arriba County, NM on a Fee lease.  
Approximate Location: 8 air miles southeast of Arboles, Colorado  
Applicant Name: Energen Resources Corporation  
Applicant's Address: 2198 Bloomfield Highway, Farmington, NM 87401

Submittal Information: Application for a water disposal well will be filed with the NM Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,



David M. Poage  
District Landman



R E S O U R C E S

November 24, 2008

Certified Mail  
7005 1820 0002 8596 6210

Pat Bailey  
808 Santa Barbara Dr.  
Farmington, NM 87401-4034

Gentlemen:

As required by New Mexico Oil Conservation Division Rules, I am notifying you of the following proposed water disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Energen Resources Corporation is applying (see attached application) to drill its Carracas SWD #2 well.

Well Name: Carracas SWD #2                      Total Depth: 9316'  
Proposed Disposal Zone: Bluff & Entrada (from 8516' to 9216')  
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Applicant Name: Energen Resources Corporation  
Applicant's Address: 2198 Bloomfield Highway, Farmington, NM 87401

Submittal Information: Application for a water disposal well will be filed with the NM Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

David M. Poage  
District Landman



R E S O U R C E S

November 24, 2008

Certified Mail  
7005 1820 0002 8596 6180

Monica Meier  
P.O. Box 1744  
Arboles, CO 81121

Gentlemen:

As required by New Mexico Oil Conservation Division Rules, I am notifying you of the following proposed water disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Energen Resources Corporation is applying (see attached application) to drill its Carracas SWD #2 well.

Well Name: Carracas SWD #2                      Total Depth: 9,316'  
Proposed Disposal Zone: Bluff & Entrada (from 8516' to 9216')  
Location: 1489' FSL & 134' FEL Sec. 9, T. 32 N., R. 4 W., Rio Arriba County, NM on a Fee lease.  
Approximate Location: 8 air miles southeast of Arboles, Colorado  
Applicant Name: Energen Resources Corporation  
Applicant's Address: 2198 Bloomfield Highway, Farmington, NM 87401

Submittal Information: Application for a water disposal well will be filed with the NM Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

David M. Poage  
District Landman

**Jones, William V., EMNRD**

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**From:** Pat Sanchez [Pat.Sanchez@energen.com]  
**Sent:** Tuesday, December 02, 2008 7:46 AM  
**To:** Jones, William V., EMNRD  
**Cc:** David Poage; Sam Mohler  
**Subject:** Notice of publication - Carracas SWD#2 - 2nd permit  
**Attachments:** Carracas SWD#2 notice of publidcation.tif

Mr. Jones:

Here is the notice of publication that was printed in the "Rio Grande Sun" for the Carracas SWD#2 - Energen will mail the original today to the NMOCD Santa Fe office to your attention - the add ran on Thursday November 27, 2008.

As soon as Mr. Poage has his return rec. for the parties that need mail notification I'll scan those and e-mail and send you the originals also via mail - note he sent all of those out on Monday November 24, 2008 - so they all should have received them by now - as you recall Mr. Poage and I delivered the re-permit on Tuesday November 25 to the NMOCD Santa Fe Office.

Please note we will not be able to obtain samples of the water from the injection zones - since all the stimulations were over flushed.

Thanks

**Patricio W. Sanchez**  
**Energen Resources**  
**District Engineer- San Juan**  
**2010 Afton Place**  
**Farmington, NM 87401**  
**Telephone 505.324.4141**  
**Cell 505.793.7605**

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This inbound email has been scanned by the MessageLabs Email Security System.

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# Affidavit of Publication

## NOTICE OF PERMIT APPLICATION PER NMOCD REQUIREMENTS:

Energen Resources Corporation is applying to permit the Carracas SWD#2 water disposal well. The well will be located at 1,489' FSL 134' FEL, Section 9 T. 32 N R. 4W, Rio Arriba County, New Mexico. The well will dispose produced water from gas wells located in Rio Arriba County New Mexico into the Bluff and Entrada Formations at a depth of 8,516' to 9,216' at a maximum rate of 4,500 barrels per day and a maximum pressure of 1,703 psig. Interested parties must file objections or request for hearing with the New Mexico Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505 within 15 days of this add. Additional information may also be obtained by contacting: Energen Resources Corporation 2010 Afton Place Farmington, New Mexico 87401 Telephone: 505-325-6800 Attn: Mr. Patricio Sanchez (Published November 27, 2008)

## er's Bill

Time at 25.20  
times at \_\_\_\_\_

Affidavit 10.00

Subtotal 35.20

Tax 2.73

Total 37.93

Payment received at Rio Grande SUN

Date 11/28/08

By Daniel Martinez

State of New Mexico  
County of Rio Arriba

I, Robert Trapp, being first duly sworn, declare and say I am the publisher of the Rio Grande SUN, a weekly newspaper published in the English language and having a general circulation in the County of Rio Arriba, State of New Mexico, and being a newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 of the Session Laws of 1937. The publication, a copy of which is hereto attached, was published in said paper once each week for

1 consecutive weeks and on the same day of each week in the regular issue of the paper during the time of publication and the notice was published in the newspaper proper, and not in any supplement. The first publication being on the

27 day of November 2008

and the last publication on the 27 day of

November 2008 payment for said advertisement has been duly made, or assessed as court costs. The undersigned has personal knowledge of the matters and things set forth in this affidavit.

Robert Trapp  
Publisher

Subscribed and sworn to before me this 27<sup>th</sup>  
day of NOV-A.D. 2008

Maria V Lopez Garcia  
Maria V. Lopez-Garcia/Notary Public  
My commission expires 13 July 2009

Platform Express  
Array Induction Print

RCUD JAN 9 '08  
OIL CONS. DIV.  
D1S1. 3

LOCATION

1489 FSL & 134' FEL ✓  
 Permament Datum: GROUND LEVEL  
 Log Measured From: Kelly Bushing  
 Drilling Measured From: Kelly Bushing  
 BEV: KB 8238 ft  
 GL 8222 ft  
 D.F. 8235 ft  
 BEV: 8222 ft  
 14.0 ft above Perm. Datum

China  
 Location: 1489 FSL & 134' FEL  
 Well: Carracas SWD #2  
 Company: Energen Resources

API Serial No. 30-039-30149	Section 9 ✓	Township 32N ✓	Range 4W ✓
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Logging Date	27-Dec-2007
Run Number	1
Depth Driller	9324 ft
Schlumberger Depth	9324 ft
Bottom Log Interval	9316 ft
Top Log Interval	6152 ft
Casing Driller Size @ Depth	9.625 in @ 6188 ft
Casing Schlumberger	7.875 in
Bit Size	LSD
Type Fluid in Hole	
Density	9.7 lbm/gal
Viscosity	89 s
Fluid Loss	PHI 9.1
Source Of Sample	Flowline
RM @ Measured Temperature	0.890 ohm.m @ 76 degF
RMF @ Measured Temperature	0.898 ohm.m @ 76 degF
RM @ Measured Temperature	1.335 ohm.m @ 76 degF
RMF @ Measured Temperature	Calculated
Source RMF	RMF @ MRT
RM @ MRT	0.287 @ 250
RMF @ MRT	0.215 @ 250
Maximum Recorded Temperatures	250 degF @ 250
Circulation Stopped	28-Dec-2007 20:00
Logger On Bottom	27-Dec-2007 13:00
Unit Number	7006 Farmington
Recorded By	T. Oliver
Witnessed By	Mr. Jason Kircald

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### Input DLIS Files

DEFAULT      AIT\_TLD\_MCFL\_CNL\_ML\_023LUP    FN:22    PRODUCER    27-Dec-2007 13:14    9342.0 FT    8100.0 FT

### Output DLIS Files

DEFAULT      AIT\_TLD\_MCFL\_CNL\_ML\_045PUP    FN:44    PRODUCER    27-Dec-2007 16:33    9344.0 FT    8105.5 FT

### OP System Version: 15C0-309

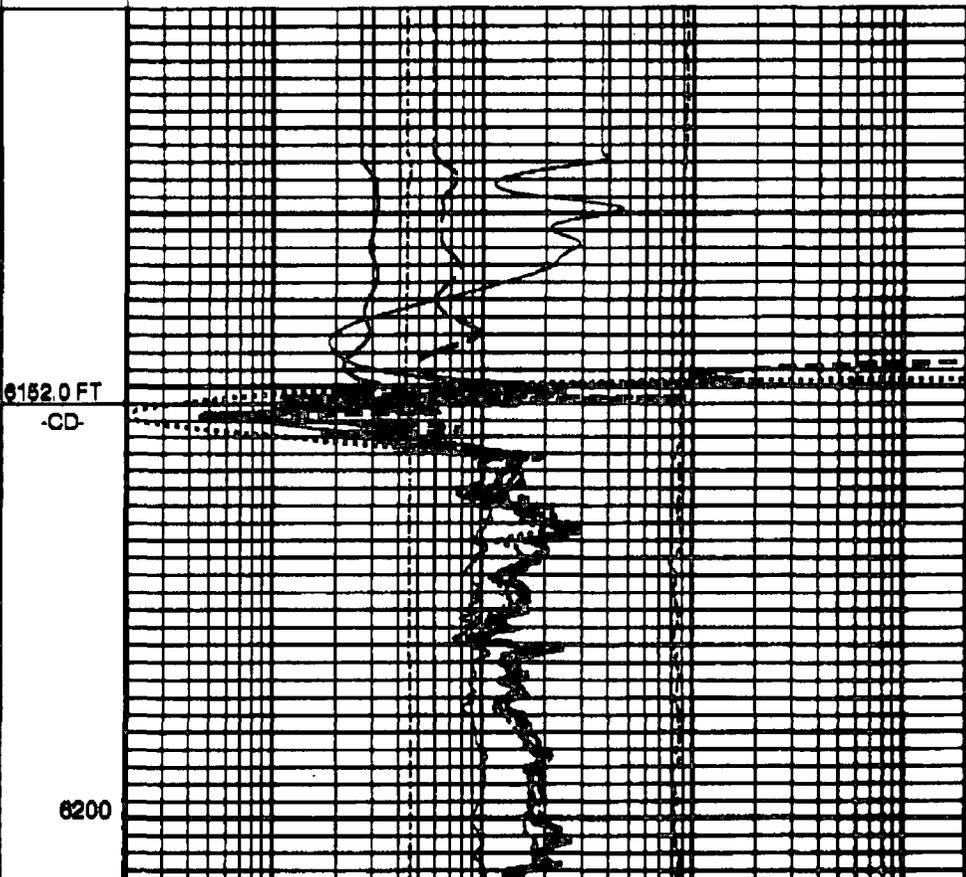
MCM

HILTB-FTB	15C0-309	MLT-A	15C0-309
NGT-D	15C0-309	DTA-A	15C0-309
DTC-H	15C0-309		

#### PIP SUMMARY

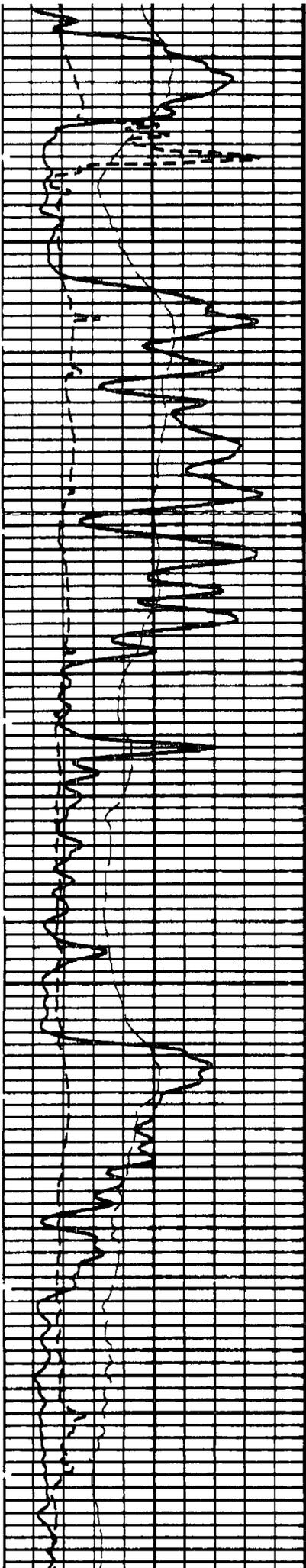
Time Mark Every 60 S

		Tension (TENS) (LBF)	
		4000	0
		AIT-H Mud Full Cal (AHMF)	
0.02	(OHMM)		200
		AIT-H 80 Inch Investigation (AHT80)	
0.2	(OHMM)		2000
		AIT-H 80 Inch Investigation (AHT80)	
0.2	(OHMM)		2000
6	HILT Calliper (HCAL) (IN)	16	
		0.2	AIT-H 30 Inch Investigation (AHT30) (OHMM) 2000
		0.2	AIT-H 20 Inch Investigation (AHT20) (OHMM) 2000
0	Gamma Ray (GR) (GAPI)	200	
		0.2	AIT-H 10 Inch Investigation (AHT10) (OHMM) 2000
-160	SP (SP) (MV)	40	
		0 (F) 80	



6152.0 FT  
-CD-

6200



8500

8600

8700

