DATE IN 8/17/09	SUSPENSE 9/3/09	ENGINEER Jones	LOGGED IN 8/17/09	TYPE SWD 1189	APP NO. 0922951700

PTGW

ABOVE THIS LINE FOR DIVISION USE ONLY

8/19 Newspaper Notice

NEW MEXICO OIL CONSERVATION DIVISION
- Engineering Bureau -
1220 South St. Francis Drive, Santa Fe, NM 87505

RECEIVED 2009 AUG 17 PM 1 44

ADMINISTRATIVE APPLICATION CHECKLIST

246238

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 ______________________________

[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.

Arthur W. Butler III	Arthur W. Butler III	Manager--High Plains Operating Company, LLC	8/14/09
Print or Type Name	Signature	Title	Date

bbutler@highplainsop.com
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance ___XX___Disposal _____Storage
Application qualifies for administrative approval? ___XX___Yes _____No

II. OPERATOR: High Plains Operating Company, LLC

ADDRESS: 32700 Aspen Drive Buena Vista, CO 81211

CONTACT PARTY: Arthur W. Butler III (a.k.a. Butch Butler) PHONE: 719-395-8059 or 719-207-0164 (Cell)

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 ___XX___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. SEE ATTACHED EXHIBIT.

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. THERE ARE NO OTHER WELLS WITHIN THE AOR.

VII. Attach data on the proposed operation, including: SEE ATTACHED EXHIBIT.

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. SEE ATTACHED EXHIBIT.

IX. Describe the proposed stimulation program, if any. SEE ATTACHED EXHIBIT.

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

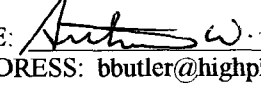
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken. SEE ATTACHED EXHIBIT.

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. SEE ATTACHED EXHIBIT.

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

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: Arthur W. (Butch) Butler III TITLE: Manager, High Plains Operating Company, LLC

SIGNATURE:  DATE: August 14, 2009

E-MAIL ADDRESS: bbutler@highplainsop.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: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

III. WELL DATA

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

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

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

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

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

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

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

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

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

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

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

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

XIV. PROOF OF NOTICE

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

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

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

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

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

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

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

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

Side 1

INJECTION WELL DATA SHEET

OPERATOR: High Plains Operating Company, LLC (HPOC)

WELL NAME & NUMBER: Eagle Springs 9 Federal #1 API #: 30-043-21065

WELL LOCATION: 460′ FNL & 350′ FWL of Section 9-T19N-R4W of the NMPM; Sandoval County, NM. See well location and acreage dedication plat that follows.

WELLBORE SCHEMATIC

See HPOC current schematic and well log on following pages.

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 12 1/4″ Casing Size: 9 5/8″ set at 340′ KB

Cemented with: 200 sks, circ to sfc *or* _____ ft^3

Top of Cement: Surface Method Determined: _____

Intermediate Casing—NONE SET

Hole Size: _____ Casing Size: _____

Cemented with: _____ *or* _____ ft^3

Top of Cement: _____ Method Determined: _____

Production Casing

Hole Size: 8 3/4″ Casing Size: 7″ set at 5518.08′ KB

Cemented with: 640 sks foamed, cir to sfc *or* _____ ft^3

Top of Cement: Surface Method Determined: Bond log

Total Depth: 5582′ in Entrada

Injection Interval

Perforate in the Morrison from 5087′ to 5251′

(Perforated or Open Hole; indicate which)

HPOC seeks approval to inject in the Morrison formation through five sets of perforations over a 164′ gross interval from 5,251′ to 5,087′. The proposed perforations are from 5,242′-5,251′, 5,197′-5,212′, 5,176′-5,191′, 5,114′-5,144′ and from 5,087′-5,095′. There are 77 net feet of perforations in these intervals.

INJECTION WELL DATA SHEET

Tubing Size: 3 ½" 9.3#/ft weight of tubing + 0.64#/ft lining J-55 Lining Material: HPOC proposes using a high-density polyethylene liner as specified by the plastic pipe institute's specification PE 3408. This patented product is highly abrasion resistant. HDPE is the barrier. The mechanically bonded seamless tube is tolerant to minor surface imperfections and eliminates concerns with holidays or voids as in adhesive or thermally bonded liners and coatings.

Type of Packer: 7" Arrowset 1 Retrievable Casing Packer

Packer Setting Depth: 5040'

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

Additional Data

1. Is this a new well drilled for injection? _____Yes __XX__No. If no, for what purpose was the well originally drilled?

   The well was originally drilled as a wildcat to test the potential of the Entrada sandstone. No hydrocarbons were encountered after drilling out of 7" casing at 5518' and attempting an open-hole completion in the Entrada from 5577' to 5582'. Very hard tight Todilto lime was drilled from 5518' to the top of Entrada at 5577'.

2. Name of the Injection Formation: Morrison

3. Name of Field or Pool (if applicable): Arena Blanca Entrada Southeast (96899)

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.

   The 7" long string of casing has never been perforated and was cemented to surface with a single stage, nitrogen foamed cement job, with cement returns to surface.

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

   There are no known oil or gas zones underlying or overlying the proposed Morrison injection zone in this wellbore. The Entrada formation does produce ½ mile to the west in the Arena Blanca Entrada Southeast pool. This Entrada pool appears to be very limited in areal extent.

6. Additional comments: HPOC plans to set a cast iron bridge plug in the Lower Morrison formation at 5,400' and bail 2 sacks of cement on top. We would then pressure test for plug integrity, perforate the proposed zones, collect water samples for analysis and perform an acid clean-up. We would then commence injection testing. If injection tests indicate good zones for SWD, we would RIH with the 7" packer on 3 ½" lined tubing, test the annulus for integrity and commence SWD.

INJECTION WELL DATA SHEET

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

DISTRICT II
1301 W. Grand Ave., Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV
1220 South 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

[1] API Number	[2] Pool Code	[3] Pool Name

[4] Property Code	[5] Property Name	[6] Well Number
	EAGLE SPRINGS 9 FEDERAL	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
246238	HIGH PLAINS OPERATING COMPANY, LLC	5681

[10] Surface Location

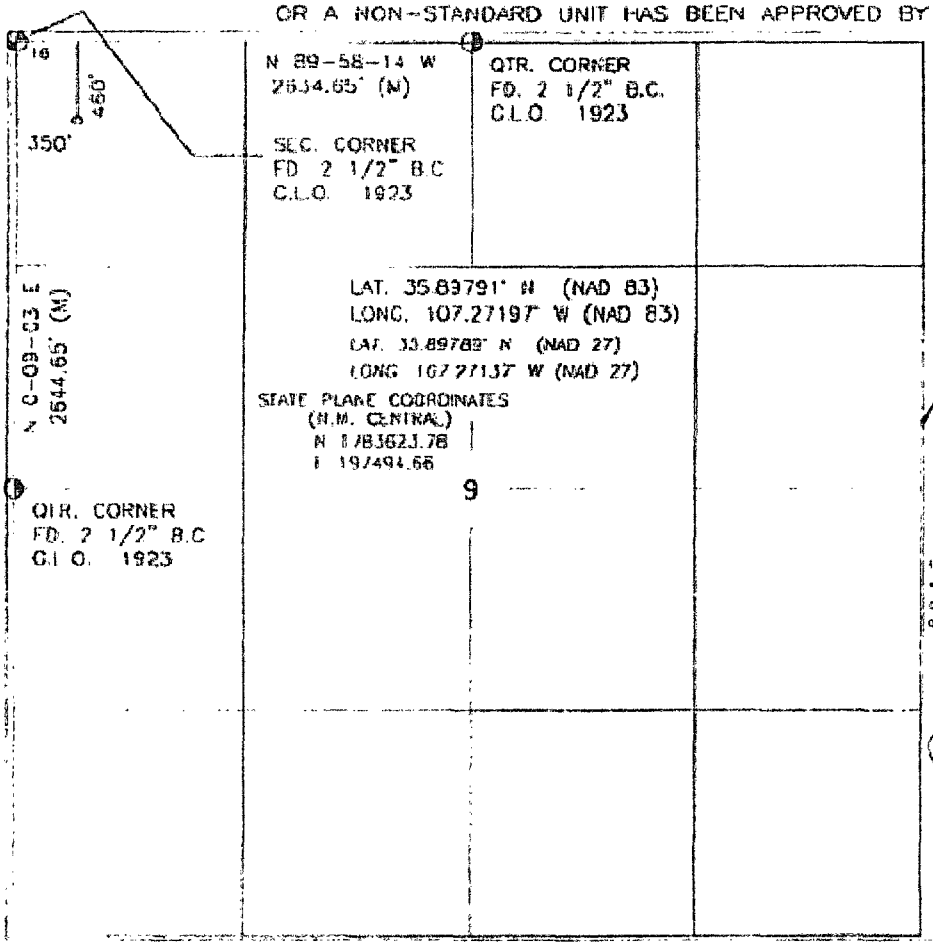
Ul. or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	9	19-N	4-W		460	NORTH	350	WEST	SANDOVAL

[11] Bottom Hole Location If Different From Surface

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

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

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



17 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.

Arthur W. Butler III 7/11/08
Signature Date

Arthur W. Butler III
Printed Name

18 SURVEYOR CERTIFICATION

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

Date of Survey

Signature and Seal of Professional Surveyor

ROY A. RUSH
NEW MEXICO
8894
REGISTERED PROFESSIONAL LAND SURVEYOR
6-30-08

Certificate Number

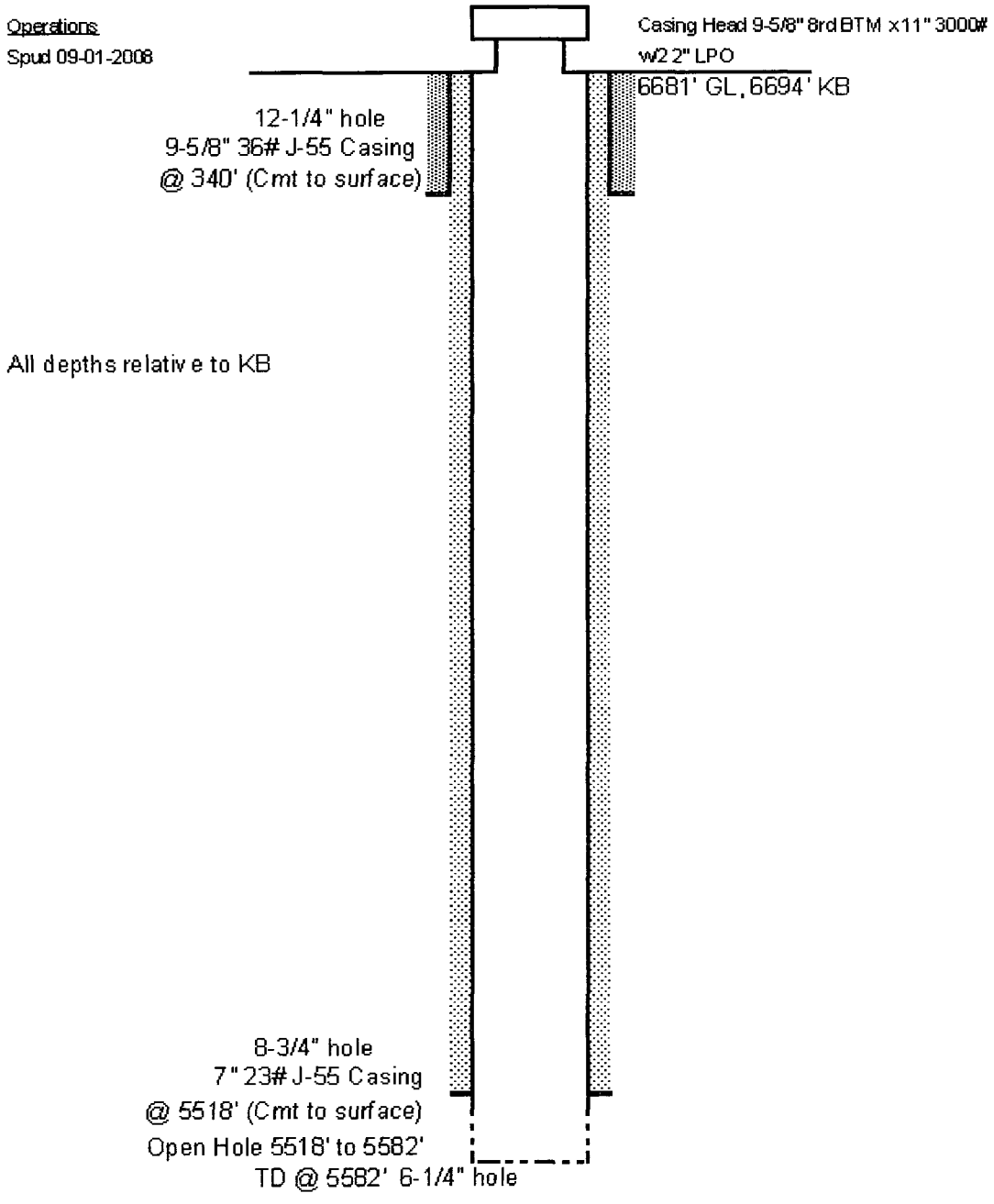
INJECTION WELL DATA SHEET

HPOC Wellbore Schematic—Existing configuration

Eagle Springs 9 Federal #1

Unit D (NW/NW) Section 9-T19N-R4W, Sandoval County, NM
Current configuration as of August 14, 2009

API#: 30-043-21065

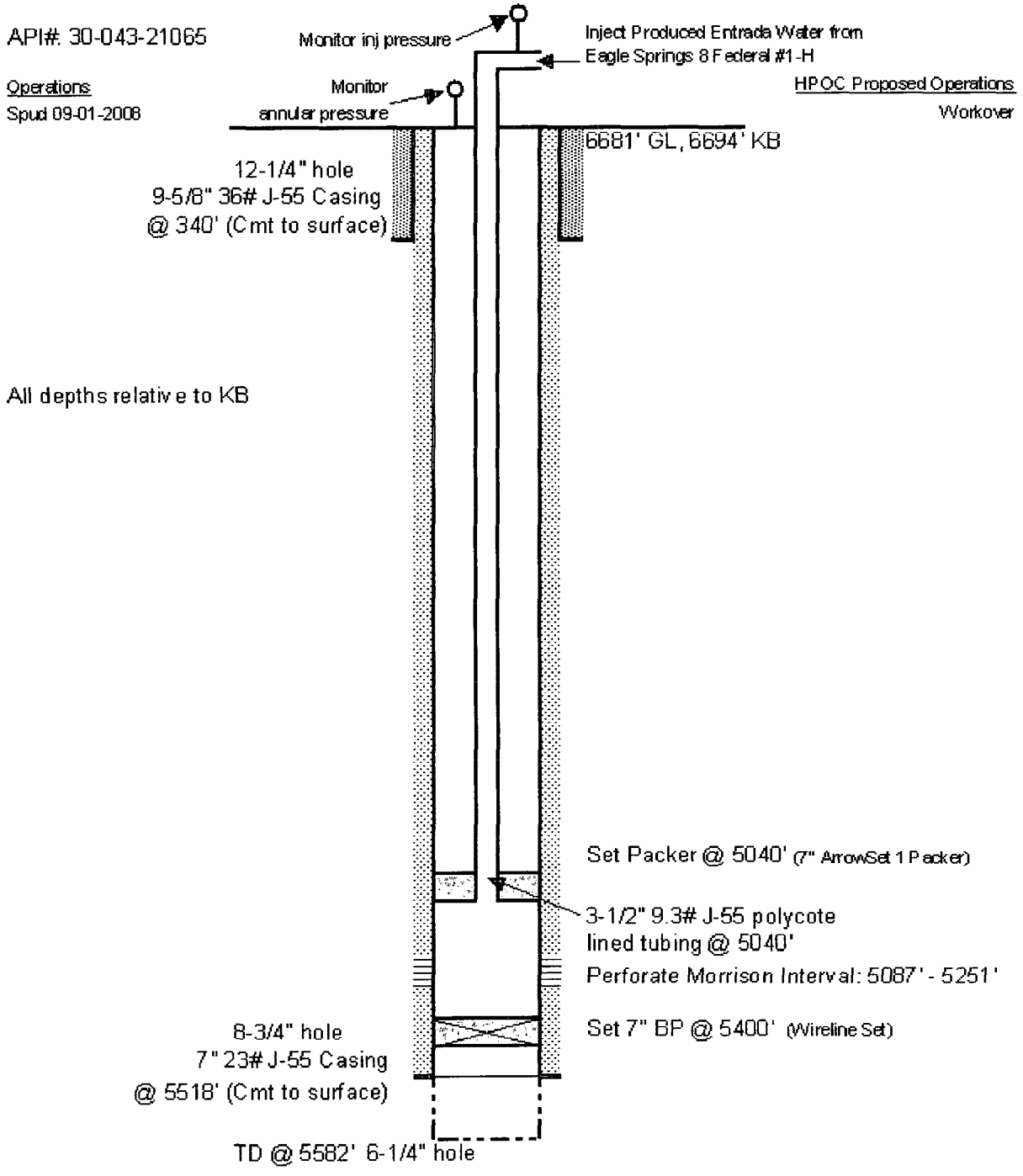


INJECTION WELL DATA SHEET

HPOC Wellbore Schematic—Proposed Operations

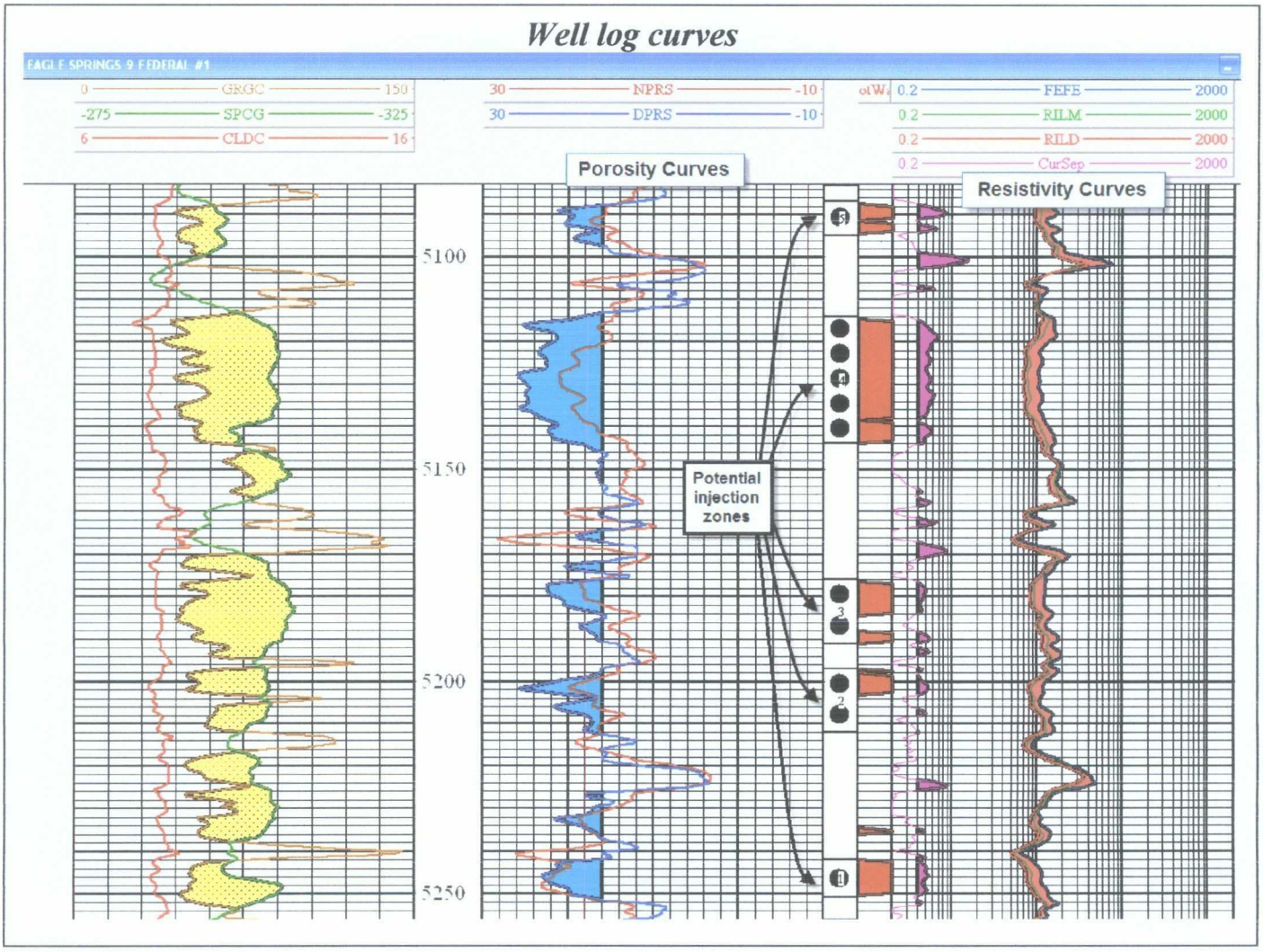
Eagle Springs 9 Federal #1

Unit D (NW/NW) Section 9-T19N-R4W, Sandoval County, NM
Well Schematic for Water Injection in Morrison (5087' - 5251' KB)



The proposed perforations are from 5242-5,251, 5197-5212, 5176-5191, 5114-5144 and from 5087-5095. There are 77 net feet of perforations in these intervals.

INJECTION WELL DATA SHEET



The log display on this page covers the proposed perforated interval in the Morrison section in the wellbore. In log tract #1 (to the left of the depths), the Gamma curve is displayed in brown, the SP in green (note a "more negative" SP deflects to the right, not to the left as is the normal presentation for this curve) and the caliper curve is in red. A sandstone curve fill exists between the gamma and SP curves, where the gamma ray is cleaner and the SP indicates permeability with a deflection to the right.

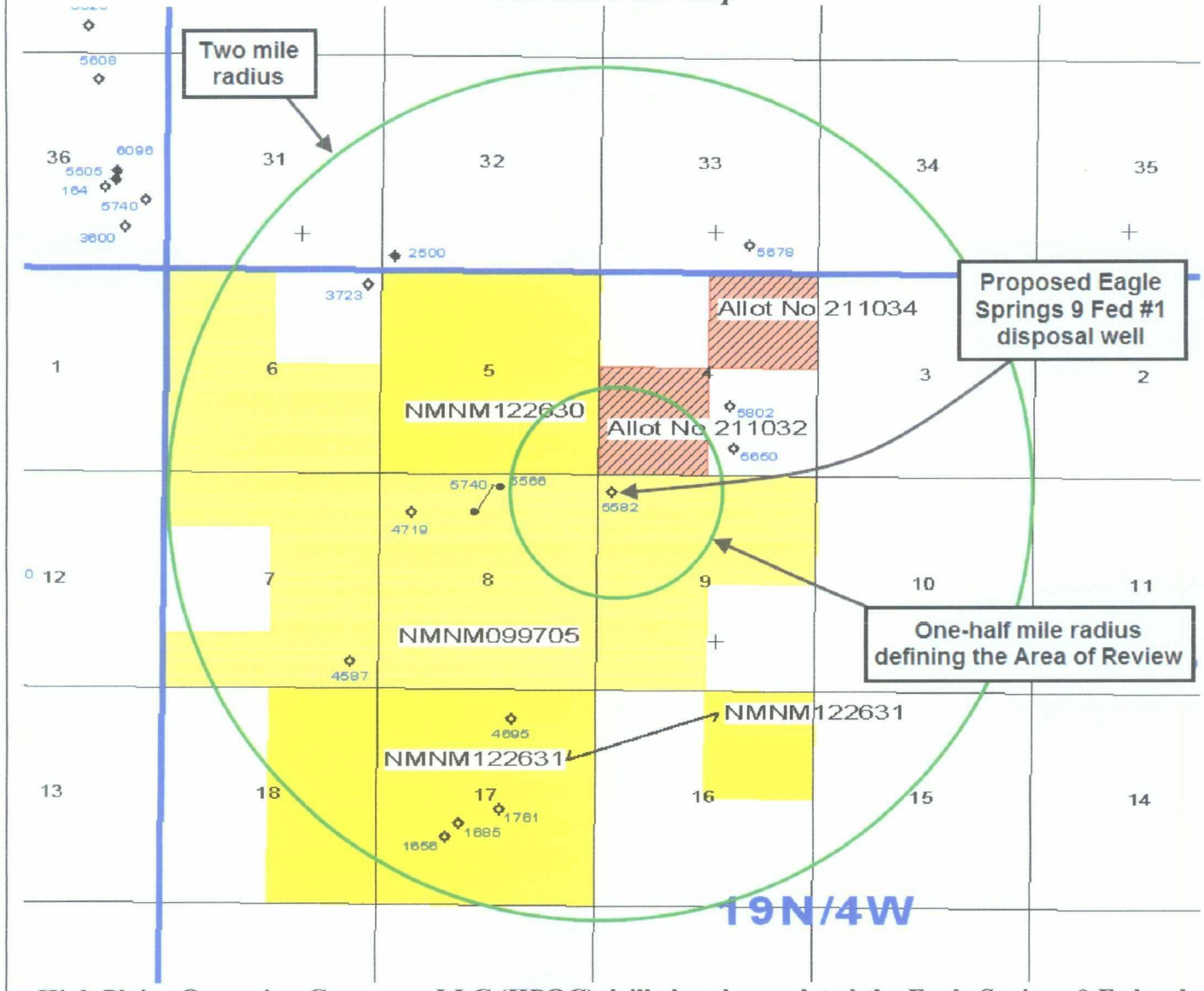
In log tract #2 (to the right of the depths), density and neutron porosities are displayed using a sandstone matrix. Density porosity greater than or equal to 16% is filled with cyan. In log tract #3, the resistivity curves are displayed, with a red curve fill between the shallow curve (labeled with FEFE mnemonic) and the deep curve (labeled with RILD mnemonic). In addition, a normalized separation curve was calculated, being the shallow curve minus the deep curve divided by the deep curve. Where there is positive separation, it indicates an invasion profile and permeability. Normalized curve separation greater than or equal to 0.4 is filled with magenta color.

Finally, potential injections zones where identified using a conditional calculation. Potential injection zones are where the gamma curve is less than or equal to 60 API units, the density porosity is greater than or equal to 16% and the normalized curve separation is greater than or equal to 0.4. Intervals meeting these criteria are flagged in red. Five sets of perforations are suggested over a 164′ gross interval from 5,251′ to 5,087′. The proposed perforations are from 5,242′-5,251′, 5,197′-5,212′, 5,176′-5,191′, 5,114′-5,144′ and from 5,087′-5,095′. There are 77 net feet of perforations in these intervals.

Note that the porosities in all of these intervals reach at least 20%, and the larger interval from 5,114′ to 5,144′ reaches 26%.

EXHIBITS TO ACCOMPANY
APPLICATION FOR AUTHORIZATION TO INJECT, SECTION V.

Well and lease map



High Plains Operating Company, LLC (HPOC) drilled and completed the Eagle Springs 9 Federal #1 wildcat well as a dry hole in 2008. HPOC is now ready to complete this well as a salt-water disposal well.

A little over one-half mile to the west, HPOC is producing oil and water from the Entrada formation in the Eagle Springs 8 Federal #1H well in Arena Blanca Entrada Southeast field. The lateral in the Entrada pay is in Unit C (NE/NW) of section 8. HPOC plans to produce from the 8 Federal #1H well and dispose of the produced water into the 9 Federal #1 SWD well. HPOC also operates the Eagle Springs 8 Federal #2M well located in Unit B (NW/NE) of section 8, which is currently shut-in but is capable of production from the Entrada, albeit at very high water cuts. For HPOC to consider bringing this well back into production, we must have tied in SWD and better commodity prices.

High Plains is the lessee of Federal leases NM|NM99705 and NM|NM122630. Yates Petroleum et als are the lessees of a Federal lease that covers the SE quarter of section 4.

EXHIBITS TO ACCOMPANY

APPLICATION FOR AUTHORIZATION TO INJECT; SECTION VII.

Operational Data

1. Average initial daily injection rate: 250 bbls; Maximum daily injection rate: 1,800 bbls; Average annual volume of fluids to be injected: at average expected initial daily rate, approximately 92,000 bbls; at maximum daily injection rate, approximately 660,000 bbls. Over the life of the Entrada producing wells generating water to be disposed of, the water cut will continually increase necessitating increased injection volumes over time.
2. The system will be a closed system.
3. Average injection pressure: 400 psi; Maximum injection pressure: 1100 psi.
4. Injecting produced water from the Entrada formation in Arena Blanca Southeast Entrada pool into the Lower Morrison formation approximately 350' above the Entrada. An Entrada water analysis follows from the Eagle Springs 8 Federal #2M well. Morrison waters are believed to be of similar salinity, based on open-hole log resistivity data in the Morrison.
5. The Morrison formation is not productive of oil within one mile of this proposed injection well. There is no history for the Morrison formation in this area, so no water analyses are available. To the best of our knowledge, no previous operators have injected into these Morrison zones. HPOC will collect a Morrison formation water sample following perforating, have analyzed and submit the results to NM OCD.

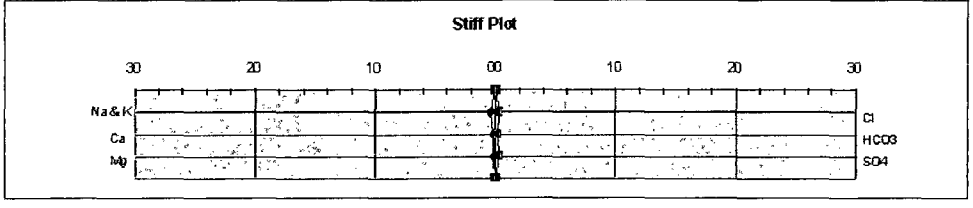
Key Pressure Pumping Services
Water Analysis Result Form
Farmington, NM.
708 S. Tucker
Phone: (505) 325-4192
Fax: (505) 564-3524
Zip: 87401

Operator:	High Plains Operating	Sample Date:	August 28, 2007
		Analysis Date:	August 29, 2007
Well	Eagle Springs 8 Fed 2M	District:	Farmington
Formation:	Entrada	Requested By:	Brad Salzman
County:	San Juan, NM	Technician:	Roger Nash
Depth:		Source:	1" connection

PHYSICAL AND CHEMICAL DETERMINATION

SPECIFIC GRAVITY:	1.010	84 (°F)	S.G. (Corrected):	1.010	
pH:	7.77		MAGNESIUM:	19	ppm
RESISTIVITY:	0.74	ohm/meter	CALCIUM:	32	ppm
IRON:	0.10	ppm	BICARBONATES:	242	ppm
H2S:	0	ppm	CHLORIDES:	2772	ppm
POTASSIUM:	15	ppm	SODIUM:	1824	ppm
SULFATES:	173	ppm	TDS:	5077	ppm

CaCO3 Scale Tendency = Remote
CaSO4 Scale Tendency = Remote



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

Entrada ... also Entrada is being stimulated for oil in this area.

EXHIBITS TO ACCOMPANY

APPLICATION FOR AUTHORIZATION TO INJECT; SECTION VIII.

The injection zone in this wellbore is in the lower portion of the Morrison formation, which is Upper Jurassic in age. The lower Morrison is deposited regionally across the San Juan Basin. An Abstract from the AAPG describing the depositional setting of the Morrison follows.

From **Abstract: Sedimentology of Morrison Formation in Southern San Juan Basin;** C. L. Sandusky

"A major climatic change took place in the southern San Juan basin within Jurassic time. With the advent of Morrison sedimentation, a transition from the northeast tradewinds to the westerlies can be seen as a change from dominantly arid, eolian sediments to more humid, fluvial deposits.

In early Morrison time, Recapture sediments reflect the braided-stream pattern of the wadi channels and predominantly oxidized silts and clays. An increase in the uplift of the source area accompanied by an increase in moisture during Westwater Canyon sedimentation resulted in an enhancement in the rate of weathering. This, in turn, allowed an increase in the rate of sedimentation and subsequent burial of the sediments and associated organic material. Deposited under reducing conditions, the Westwater Canyon sands exhibit the traits of a dominantly coarse-grained meander belt, whereas the Brushy Basin sediments show a sedimentation pattern more typical of meandering streams. Locally, a fine-grained meander belt was responsible for the deposition of the Jackpile sand. A slight tilting and beveling of Morrison sediments closed the Jurassic Period and allowed the introduction of oxygenated waters."

The lower Morrison proposed injection intervals have streaks of porosity in the 22% to 26% range with good horizontal permeability. Although believed to be fluvial in nature, the proposed intervals can be easily correlated in the wells in section 8 to the west and section 4 to the north and display a similar invasion profile on the resistivity log indicating good permeability. Interbeds of tighter rock between the perforated intervals will reduce the vertical permeability.

The regional thickness of the Morrison is about 700′ in this area.

We believe that the Morrison water has total dissolved solids close to but below 10,000 ppm, and will confirm by testing following perforating. Log analysis indicates an average Rwa in the proposed perforated intervals of 0.33 ohmm at a reservoir temperature of 130 degrees. This yields a salinity of 9,800 ppm. The nearest overlying formation containing drinking water is the Ojo Alamo sandstone, which is at the surface in this area with a base at approximately 100′. No known sources of drinking water are below the Morrison.

EXHIBITS TO ACCOMPANY

APPLICATION FOR AUTHORIZATION TO INJECT; SECTION IX.

The current proposed injection perforations will be broken down with produced Entrada water and rates and pressures measured. If 2 bbls/minute at a maximum of 1,000 p.s.i. is not attained, the perforations will be treated with 2,000 gals of 15% HCL with 100% excess ball sealers and flushed with 50 bbls of water and rates and pressures will be tested again.

EXHIBITS TO ACCOMPANY

APPLICATION FOR AUTHORIZATION TO INJECT; SECTION XI.

There are no fresh water wells within one mile of the proposed injection well.

EXHIBITS TO ACCOMPANY

APPLICATION FOR AUTHORIZATION TO INJECT; SECTION XII.

High Plains Operating Company, LLC does hereby state that we have examined all 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.

EXHIBITS TO ACCOMPANY

APPLICATION FOR AUTHORIZATION TO INJECT; SECTION XIII.

As of this 14th day of August 2009, High Plains Operating Company, LLC has delivered via courier service a copy of this application to the following, with acknowledgment of receipt documents:

SURFACE OWNER

United States Department of the Interior
Bureau of Land Management
Attn: Jim Lovato
1235 La Plata Highway, Ste. A
Farmington, NM 87401

OFFSET MINERAL OWNER—UNLEASED NAVAJO ALLOTTED

Federal Indian Minerals Office
Christina Ashley—Interim Director-Farmington Indian Minerals Office
Agent for Navajo Allottees
1235 La Plata Highway, Ste. B
Farmington, NM 87401

OFFSET MINERAL OWNER—LEASED FEDERAL TRACT NM|NM114370 COVERING THE NW & SE QUARTER SECTIONS OF SECTION 4-T19N-R4W.

Yates Drilling Company, Myco Industries Inc, and Abo Petro Corp (all at the same address)

Mail to Kathy Porter, Yates Petroleum Corporation
105 S 4th St
Artesia, NM 88210

PROOF OF PUBLICATION

As of this 14th day of August 2009, High Plains Operating Company, LLC has sent a notice for publication to the following:

Albuquerque Journal (to be published in the August 19, 2009 edition)

NOTICE. High Plains Operating Company, LLC, Attn: Arthur W. Butler III, 32700 Aspen Drive, Buena Vista, CO 81211 (719-395-8059) is making application to the New Mexico Oil Conservation Division for administrative approval to dispose of produced water into the Morrison formation through perforations from 5087′ to 5251′ measured depth in the Eagle Springs 9 Federal #1 well located 460′ FNL and 350′ FWL of section 9-T19N-R4W, Sandoval County, NM. The maximum expected injection rate is 1800 bbls of water per day and the maximum expected injection pressure is 1100 psi. Interested parties may file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, NM 87505 within 15 days of the date of publication of this notice.

SURFACE OWNER ACKNOWLEDGEMENT OF APPLICATION RECEIPT

Jim Lovato
United States Department of the Interior
Bureau of Land Management
1235 La Plata Highway, Ste. A
Farmington, NM 87401

High Plains Operating Company, LLC has delivered to Jim Lovato as representative for the United States Department of the Interior–Bureau of Land Management, surface owner, a complete copy of its application with the New Mexico Oil Conservation Division (Form C-108 & exhibits) to inject produced Entrada water into the Morrison formation in the Eagle Springs 9 Federal #1 (API: 30-043-21065). Receipt of this application is hereby acknowledged.

By: _____ Date: _____

OFFSET MINERAL OWNER—UNLEASED NAVAJO ALLOTTED ACKNOWLEDGEMENT OF APPLICATION RECEIPT

Federal Indian Minerals Office
Christina Ashley—Interim Director-Farmington Indian Minerals Office
Agent for Navajo Allottees
1235 La Plata Highway, Ste. B
Farmington, NM 87401

High Plains Operating Company, LLC has delivered to Christina Ashley as agent for the Navajo allottees in the southwest quarter of section 4-T19N-R4W, a complete copy of its application with the New Mexico Oil Conservation Division (Form C-108 & exhibits) to inject produced Entrada water into the Morrison formation in the Eagle Springs 9 Federal #1 (API: 30-043-21065). Receipt of this application is hereby acknowledged.

By: _____ Date: _____

OFFSET MINERAL OWNER—LEASED BLM TRACT NM|NM122630 ACKNOWLEDGEMENT OF APPLICATION RECEIPT

Kathy Porter, Yates Petroleum Corporation for
Yates Drilling Co, Myco Industries Inc
& Abo Petro Corp
105 S 4th St
Artesia, NM 88210

High Plains Operating Company, LLC has delivered to Yates Drilling Co, Myco Industries Inc & Abo Petro Corp, lessees in the southeast quarter of section 4-T19N-R4W, a complete copy of its application with the New Mexico Oil Conservation Division (Form C-108 & exhibits) to inject produced Entrada water into the Morrison formation in the Eagle Springs 9 Federal #1 (API: 30-043-21065). Receipt of this application is hereby acknowledged.

By: _____ Date: _____

Print Name: _____

Print Title: _____

Jones, William V., EMNRD

From: Butch Butler [butch.b53@mccoymail.net]
Sent: Monday, August 17, 2009 1:46 PM
To: Jones, William V., EMNRD
Subject: Fwd: adproof.pdf - Adobe Reader
Attachments: ES9Fed#1_AlbuquerqueJournal_SWD app adproof.pdf

Hi Will: Please see attached.
b

From: "Legals" <legals@abqpubco.com>
To: <bbutler@highplainsop.com>
Subject: adproof.pdf - Adobe Reader
Date: Mon, 17 Aug 2009 13:35:16 -0600

~Jenny Gomez
Albuquerque Journal
Legal Department
(505) 823-3379
legals@abqpubco.com

++

Butch Butler -- Manager
HPOC (High Plains Operating Company, LLC)
32700 Aspen Drive
Buena Vista, CO 81211-9620
Ph: 719-395-8059
Fax: 719-395-8093
Cell: 719-207-0164
E-mail: bbutler@highplainsop.com
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* * * Proof * * *

Albuquerque Publishing Company
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Account Information

Phone:	(719) 395-8059
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	BUENA VISTA, CO 81211-9620
Client:	
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Fax #:	

Ad Information

Classification:	0001-Legals - Non - Government	**Size:**	1 x 26.000
Start date:	08-19-09	**Billed size:**	26.00 lines-6.5pt
Stop date:	08-19-09	**Ad #:**	5682328
Insertions:	1	**Ad type:**	Liner Ad
Rate code:	Non-Government Le- gals		
Publications:	Journal Daily (AM)		

Ad Cost:	$ 16.38
Tax @ 6.8750%:	$ 1.13
Tax @ 7.3125%:	$
Tax @ 8.0625%:	$
Total:	$ 17.51

Ad Copy:

NOTICE. High Plains Operating Company, LLC, Attn: Arthur W. Butler III, 32700 Aspen Drive, Buena Vista, CO 81211 (719-395-8059) is making application to the New Mexico Oil Conservation Division for administrative approval to dispose of produced water into the Morrison formation through perforations from 5087' to 5251' measured depth in the Eagle Springs 9 Federal #1 well located 460' FNL and 350' FWL of section 9-T19N-R4W, Sandoval County, NM. The maximum expected injection rate is 1800 bbls of water per day and the maximum expected injection pressure is 1100 psi. Interested parties may file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, NM 87505 within 15 days of the date of publication of this notice.
Journal: August 19, 2009.

RECEIVED

JUL 17 2008

Bureau of Land Management
Farmington Field Office

High Plains Operating Company, LLC
Eagle Springs 9 Federal #1—Drilling program

API #: 30-043- (To be determined)
Well location: NW quarter of the NW quarter of section 9–Township 19 North–Range 4 West Sandoval County, New Mexico
Surface location: 460′ FNL and 350′ FWL
Bottomhole location: Same
Federal Lease #: NM|NM 99705

DRILLING PROGRAM

Synopsis: High Plains Operating Company, LLC (HPOC) plans to drill the Eagle Springs 9 Federal #1 well to a total measured depth of approximately 5,530′ and evaluate the Entrada sandstone formation for productive potential. This well is one-half mile east of the existing HPOC Eagle Spring 8 Federal #2M well located in the northwest of the northeast quarter of section 8, completed as an Entrada producer by HPOC in 2007. The Eagle Springs 9 Federal #1 will test a separate structural feature in the area.

HPOC will drill to approximately 5,510′ immediately above the Entrada reservoir, run open hole logs, set 7″ casing and change the drilling fluid from a water-based mud to produced Entrada oil. A closed-loop circulation system will be used for oil drilling the last 20′–30′ of hole into the Entrada. Only 6–8′ of porous Entrada reservoir will be penetrated.

Depending on structural position and formation evaluation, the Eagle Springs 9 Federal #1 well will be completed "open hole" as an Arena Blanca Entrada, Southeast Pool producing well.

1. FORMATION TOPS

FORMATION NAME	MEASURED DEPTH
Kirtland/Fruitland	Surface
Cliff House	810′
Menefee	1,401′
Point Lookout Sandstone	2,154′
Mancos	2,430′
Gallup Sandstone	3,224′
Greenhorn	4,271′
Graneros	4,348′
Dakota Sandstone 1	4,482′
Dakota Sandstone 2	4,582′
Morrison	4,720′
Summerville Shale	5,458′
Todilto	5,534′
Entrada Sandstone	5,520′
Total Depth	5,530′

2. ZONES OF INTEREST

OIL & GAS ZONES	WATER ZONES	COAL ZONE
Gallup SS (3,224′ MD)	Ojo Alamo (220′ MD)	Fruitland (280′ MD)
Dakota Sandstone 2 (4,582′ MD)	Point Lookout (2,154′ MD)	
Entrada Sandstone (5,520′ MD)		

All fresh water zones will be protected behind 7″ casing run to a measured depth of approximately 5,510′.

3. PRESSURE CONTROL

The drilling contractor has not been selected as of this date, so the exact BOP configuration to be used is not yet known. A typical 2,000 psi stack (900 series) is shown on Exhibit A. A 900 series (2,000# WP) choke manifold system is shown in Exhibit B and will be installed and tested to 1,000 psi before drilling out below surface casing.

This BOP and choke manifold will remain in use throughout the drilling operations. A full opening safety valve shall be on the rig floor at all times in the open position. This valve will have a thread design to be compatible with the drill pipe and drill collars.

All BOP pressure and daily mechanical tests will be recorded in the driller's log. BOP's will be inspected and operated daily to assure good mechanical working order. Inspections will be recorded on the daily drilling report. Pressure tests will be conducted before drilling out from under all casings strings, which are set and cemented in place.

4. CASING AND CEMENT

Hole Size	Csg O.D.	Weight/Ft.	Grade	Thread Type	Condition	Depth
12.25″	9 5/8″	32.3#	H-40	8rd ST&C	New	350′
8.75″	7″	23#	J-55	8rd LT&C	New	5,510′

The 9 5/8″ surface casing will be cemented in one stage circulated to surface with a volume no less than 100% excess over gauge hole. Type G cement will be used, containing 2% calcium chloride and 1/8th lb/sk poly-E-flake mixed at 15.6 ppg with a 1.18 yield.

The 7″ production casing will be cemented in one stage using foamed lead cement. The 7″ casing will be run as follows. First, a 7″ guide shoe will be run, then a 7″ shoe joint, followed by a float collar and casing back to surface. Centralizers will be placed according to indicated porous zones. The 7″ casing is proposed to be cemented as follows: Pump 10 bbls 8.33 lb/gal fresh water, followed by 20 bbls 10.0 lb/gal Super Flush 101, followed by 10 bbls 8.33 lb/gal fresh water, followed by 710 sks HALSEAL ™ SYSTEM foamed lead cement, followed by 120 sks HALSEAL ™ SYSTEM tail cement, followed by 222 bbls 8.33 lb/gal fresh water. The HALSEAL ™ SYSTEM will be mixed at 13 ppg with a 1.43 yield. The cement will be foamed to a density no less than 9.0 ppg. Actual cement volumes will be determined using the open hole log caliper plus 25% excess.

5. MUD PROGRAM

Depth	Type	Weight/PPG	Viscosity	Fluid Loss	pH
0′–400′	Water based, Gel-Chem	8.6–8.8	50-60	No control	8.0–10
400′–5,530′	Water based, Gel-Chem	8.8–9.2	35–45	10–12 cc	8.0–10
5,510′–5,530′	Produced Entrada oil	7.2	10	No control	n/a

Jones, William V., EMNRD

From: Butch Butler [butch.b53@mccoymail.net]
Sent: Friday, August 14, 2009 7:12 AM
To: Jones, William V., EMNRD
Cc: rmrlik@highplainsop.com
Subject: Morrison Rw; Another line of evidence
Attachments: ES9Fed#1_MorrisonZone Log Analysis.xls

Hi Will: I did some more looking at the Morrison interval this morning. Studying the Pickett plots and what they look like for various values of Rw put into Archie. See the Charts tab in the attached spreadsheet -- the 2nd column of charts that is color coded by Vsh criteria. I am focusing on the data with Vsh in the 0 to 20%
(red) and 20 to 40% (yellow) range that has porosities above the 16% line. These are the better sands where I think Archie will work best.

What I notice is that if I use an Rw of .35, then many of the values are below the 100% Sw line. My experience is that if the chart does not look right, then probably the Rw is not correct. So I present a series of charts at Rw's of .35, .3, .25 and .2 ohmm. When I look at these, I like the .3 ohmm best, but the .25 also doesn't look to unreasonable.

So.....this evidence indicates that the Rw might be a little less than .33, and if it is, this would put the Morrison salinity above 10,000 ppm.

We'll have to get a sample and see what it really is. Going to be interesting. All the evidence sure points to something around 10,000 ppm.

FYI,
b

++
Butch Butler -- Manager
HPOC (High Plains Operating Company, LLC) 32700 Aspen Drive Buena Vista, CO 81211-9620
Ph: 719-395-8059
Fax: 719-395-8093
Cell: 719-207-0164
E-mail: bbutler@highplainsop.com
++

Jones, William V., EMNRD

From: Butch Butler [butch.b53@mccoymail.net]
Sent: Thursday, August 13, 2009 5:34 PM
To: Jones, William V., EMNRD
Subject: 9 Fed #1 log analysis with Pickett Plot
Attachments: ES9Fed#1_MorrisonZone Log Analysis.xls

Will: I forgot to do this earlier. I've added a Pickett Plot and color coded our proposed perforations. Non-perforated intervals are black.

Not that informative, as there are no higher resistivities indicating oil pay, which would make these zones stand out on the plot better.

What this analysis doesn't have is the Log Edit software calculated shallow-deep normalized resistivity separation curve -- a permeability indicator. But I do think the RWA analysis is good.
We'll see what kind of salinity we measure.

Thanks for all your help. It is really appreciated. I will have this out tomorrow.

Take care Will.
b
PS-And if you get the Pfeffer software, call me and I'll walk you through loading our 9 Fed #1 LAS file. Once you do it one time, it'll be easier for future work.

++
Butch Butler -- Manager
HPOC (High Plains Operating Company, LLC) 32700 Aspen Drive Buena Vista, CO 81211-9620
Ph: 719-395-8059
Fax: 719-395-8093
Cell: 719-207-0164
E-mail: bbutler@highplainsop.com
++

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie				Concentration in ppm for NaCl solutions at 130 degree reservoir temp:										9,800
PARAMETERS	ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
X	1	5050.0	0.5	16.8	0.146	0.36	11.25	2.21	0.818	0.120	0.067	0		
Y	2	5050.5	0.5	17.1	0.139	0.33	12.34	2.17	0.850	0.118	0.062	0		
A 1	3	5051.0	0.5	17.0	0.129	0.28	14.33	2.08	0.919	0.119	0.080	0		
M 2	4	5051.5	0.5	16.5	0.127	0.27	14.83	2.05	0.948	0.121	0.087	0		
N 2	5	5052.0	0.5	15.2	0.133	0.27	13.64	2.05	0.947	0.126	0.078	0		
RW 0.24	6	5052.5	0.5	14.6	0.149	0.32	10.88	2.15	0.864	0.128	0.073	0		
CTHK 250.5	7	5053.0	0.5	14.6	0.155	0.35	9.97	2.20	0.827	0.128	0.068	0		
AVPHI 0.16	8	5053.5	0.5	15.5	0.162	0.41	9.14	2.29	0.768	0.124	0.061	0.02		
FTOIL 2.81	9	5054.0	0.5	16.4	0.159	0.41	9.51	2.30	0.762	0.121	0.052	0		
PAYFEET 91	10	5054.5	0.5	19.0	0.144	0.39	11.64	2.25	0.782	0.112	0.051	0		
P 8581	11	5055.0	0.5	20.6	0.134	0.37	13.41	2.21	0.807	0.108	0.069	0		
Q 4.4	12	5055.5	0.5	21.9	0.110	0.26	19.93	2.04	0.955	0.105	0.150	0		
R 2	13	5056.0	0.5	20.4	0.099	0.20	24.56	1.92	1.098	0.108	0.254	0		
DMIN 5050	14	5056.5	0.5	14.8	0.092	0.13	28.30	1.73	1.382	0.127	0.535	0		
DMAX 5300	15	5057.0	0.5	12.3	0.099	0.12	24.26	1.70	1.406	0.140	0.677	0		
KB	16	5057.5	0.5	9.0	0.123	0.14	15.86	1.73	1.325	0.163	0.865	0		
TD	17	5058.0	0.5	8.2	0.133	0.14	13.65	1.75	1.291	0.171	0.912	0		
BHT	18	5058.5	0.5	7.5	0.139	0.14	12.36	1.74	1.287	0.179	0.964	0		
ST	19	5059.0	0.5	7.4	0.138	0.14	12.67	1.73	1.307	0.180	0.946	0		
RMF	20	5059.5	0.5	7.7	0.126	0.12	15.07	1.68	1.399	0.177	0.864	0		
RMFT	21	5060.0	0.5	8.0	0.117	0.11	17.62	1.63	1.486	0.173	0.819	0		
	22	5060.5	0.5	8.7	0.098	0.08	24.95	1.55	1.692	0.166	0.781	0		
CUT-OFFS	23	5061.0	0.5	9.1	0.092	0.08	28.50	1.52	1.770	0.162	0.774	0		
PHICUT 0.16	24	5061.5	0.5	9.5	0.089	0.07	30.52	1.52	1.792	0.159	0.714	0		
SWCUT 1	25	5062.0	0.5	9.4	0.092	0.08	28.18	1.54	1.736	0.160	0.688	0		
VSHCUT 0.3	26	5062.5	0.5	8.4	0.111	0.10	19.58	1.62	1.525	0.169	0.755	0		
BVWCUT 1	27	5063.0	0.5	7.2	0.137	0.13	12.87	1.71	1.338	0.183	0.923	0		
	28	5063.5	0.5	6.7	0.147	0.14	11.17	1.73	1.296	0.190	0.986	0		
Colors: ON	29	5064.0	0.5	6.1	0.153	0.14	10.24	1.73	1.292	0.198	0.960	0		
	30	5064.5	0.5	6.1	0.151	0.14	10.52	1.71	1.315	0.199	0.892	0		
RSH	31	5065.0	0.5	6.4	0.139	0.12	12.41	1.67	1.388	0.193	0.773	0		
PHISH	32	5065.5	0.5	6.8	0.131	0.12	13.99	1.64	1.437	0.188	0.717	0		
	33	5066.0	0.5	7.6	0.116	0.10	17.82	1.60	1.535	0.178	0.648	0		
	34	5066.5	0.5	7.9	0.111	0.10	19.59	1.59	1.571	0.174	0.634	0		
	35	5067.0	0.5	8.1	0.114	0.10	18.61	1.62	1.519	0.173	0.639	0		
	36	5067.5	0.5	7.8	0.121	0.11	16.36	1.65	1.447	0.175	0.657	0		
	37	5068.0	0.5	7.0	0.139	0.14	12.39	1.71	1.329	0.185	0.690	0		
Lat-Long_to_UTM	38	5068.5	0.5	6.6	0.150	0.15	10.72	1.74	1.274	0.191	0.715	0		
LONG.	39	5069.0	0.5	6.1	0.169	0.18	8.36	1.82	1.170	0.198	0.772	0		
LAT.	40	5069.5	0.5	6.1	0.176	0.19	7.79	1.86	1.133	0.199	0.808	0		
UTMZONE	41	5070.0	0.5	6.5	0.180	0.21	7.43	1.92	1.072	0.193	0.850	0		
PRJZONE	42	5070.5	0.5	6.9	0.174	0.21	7.89	1.92	1.072	0.187	0.845	0		
UTM, X	43	5071.0	0.5	7.6	0.162	0.20	9.12	1.90	1.092	0.177	0.767	0		
UTM, Y	44	5071.5	0.5	7.9	0.157	0.20	9.71	1.89	1.108	0.174	0.713	0		
	45	5072.0	0.5	8.4	0.151	0.19	10.49	1.88	1.119	0.169	0.641	0		
SIM. PARAMETERS	46	5072.5	0.5	8.8	0.146	0.19	11.22	1.87	1.132	0.166	0.596	0		
GR. PAY	47	5073.0	0.5	10.1	0.125	0.16	15.32	1.80	1.232	0.154	0.463	0		
NET PAY	48	5073.5	0.5	11.1	0.109	0.13	20.16	1.73	1.351	0.147	0.365	0		
PAY TOP	49	5074.0	0.5	10.9	0.109	0.13	20.16	1.72	1.363	0.149	0.378	0		
AVG. PHI	50	5074.5	0.5	9.1	0.131	0.15	14.09	1.78	1.246	0.163	0.513	0		
PERM. X	51	5075.0	0.5	8.3	0.143	0.17	11.69	1.82	1.189	0.170	0.598	0		

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie			Concentration in ppm for NaCl solutions at 130 degree reservoir temp:											9,800
PARAMETERS	ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
PERM. Y	52	5075.5	0.5	7.3	0.165	0.20	8.78	1.90	1.094	0.181	0.686	0		
PERM. Z	53	5076.0	0.5	7.2	0.172	0.21	8.11	1.94	1.058	0.182	0.690	0		
OIL SAT.	54	5076.5	0.5	7.6	0.162	0.20	9.18	1.90	1.098	0.178	0.615	0		
WTR SAT.	55	5077.0	0.5	7.8	0.151	0.18	10.55	1.84	1.160	0.175	0.580	0		
INT PR	56	5077.5	0.5	8.1	0.130	0.14	14.22	1.73	1.324	0.172	0.528	0		
	57	5078.0	0.5	8.0	0.126	0.13	15.00	1.70	1.370	0.173	0.533	0		
LANDGRID	58	5078.5	0.5	7.7	0.139	0.15	12.37	1.76	1.265	0.176	0.646	0		
TWN	59	5079.0	0.5	7.6	0.147	0.16	11.06	1.80	1.207	0.178	0.699	0		
SEC	60	5079.5	0.5	7.8	0.154	0.19	10.07	1.86	1.138	0.176	0.771	0		
Ft. North	61	5080.0	0.5	8.2	0.153	0.19	10.29	1.88	1.123	0.171	0.751	0		
Ft. South	62	5080.5	0.5	9.7	0.137	0.18	12.73	1.86	1.149	0.158	0.580	0		
Ft. East	63	5081.0	0.5	10.8	0.129	0.18	14.38	1.86	1.154	0.149	0.490	0		
Ft. West	64	5081.5	0.5	12.7	0.120	0.18	16.55	1.87	1.143	0.138	0.363	0		
	65	5082.0	0.5	13.4	0.118	0.19	17.21	1.88	1.134	0.134	0.353	0		
CROSS SECTION	66	5082.5	0.5	13.6	0.108	0.16	20.43	1.82	1.224	0.133	0.435	0		
DATUM 1	67	5083.0	0.5	13.3	0.103	0.14	22.61	1.77	1.304	0.134	0.483	0		
DATUM 2	68	5083.5	0.5	12.0	0.101	0.12	23.38	1.71	1.399	0.142	0.556	0		
No. of Prf	69	5084.0	0.5	10.7	0.105	0.12	21.79	1.68	1.427	0.150	0.554	0		
Perf1 Top	70	5084.5	0.5	10.4	0.106	0.12	21.21	1.68	1.432	0.152	0.565	0		
Perf1 Bot	71	5085.0	0.5	9.9	0.107	0.11	20.85	1.67	1.452	0.156	0.637	0		
	72	5085.5	0.5	9.8	0.107	0.11	20.92	1.66	1.463	0.157	0.672	0		
	73	5086.0	0.5	9.7	0.110	0.12	19.98	1.67	1.432	0.157	0.672	0		
	74	5086.5	0.5	9.8	0.113	0.13	18.73	1.70	1.386	0.157	0.637	0		
	75	5087.0	0.5	9.7	0.128	0.16	14.59	1.80	1.225	0.157	0.496	0		x
	76	5087.5	0.5	9.7	0.141	0.19	12.15	1.88	1.122	0.158	0.408	0		x
	77	5088.0	0.5	9.4	0.166	0.26	8.72	2.04	0.962	0.160	0.248	0.00		x
	78	5088.5	0.5	9.4	0.176	0.29	7.71	2.11	0.907	0.160	0.191	0.01		x
	79	5089.0	0.5	9.4	0.187	0.33	6.90	2.18	0.858	0.160	0.136	0.01		x
	80	5089.5	0.5	9.4	0.184	0.32	7.10	2.17	0.868	0.160	0.123	0.01		x
	81	5090.0	0.5	9.4	0.177	0.29	7.70	2.12	0.903	0.160	0.137	0.01		x
	82	5090.5	0.5	9.4	0.177	0.29	7.64	2.12	0.903	0.160	0.157	0.01		x
	83	5091.0	0.5	9.3	0.184	0.31	7.09	2.16	0.874	0.161	0.200	0.01		x
	84	5091.5	0.5	9.3	0.188	0.33	6.76	2.19	0.852	0.161	0.221	0.01		x
	85	5092.0	0.5	9.6	0.190	0.35	6.67	2.22	0.832	0.158	0.225	0.02		x
	86	5092.5	0.5	9.9	0.185	0.34	6.99	2.21	0.839	0.156	0.206	0.01		x
	87	5093.0	0.5	10.8	0.168	0.30	8.54	2.13	0.890	0.149	0.165	0.01		x
	88	5093.5	0.5	11.3	0.159	0.28	9.49	2.09	0.918	0.146	0.149	0		x
	89	5094.0	0.5	11.9	0.153	0.28	10.27	2.08	0.929	0.142	0.143	0		x
	90	5094.5	0.5	12.0	0.165	0.32	8.85	2.17	0.860	0.142	0.136	0.01		x
	91	5095.0	0.5	11.9	0.172	0.35	8.08	2.22	0.823	0.142	0.132	0.02		x
	92	5095.5	0.5	12.3	0.176	0.38	7.75	2.27	0.794	0.140	0.133	0.02		
	93	5096.0	0.5	12.7	0.172	0.38	8.10	2.26	0.799	0.137	0.135	0.02		
	94	5096.5	0.5	14.0	0.158	0.35	9.60	2.20	0.828	0.131	0.172	0		
	95	5097.0	0.5	14.7	0.152	0.34	10.38	2.19	0.840	0.128	0.195	0		
	96	5097.5	0.5	15.6	0.144	0.32	11.64	2.15	0.865	0.124	0.202	0		
	97	5098.0	0.5	15.6	0.141	0.31	12.05	2.13	0.879	0.124	0.197	0		
	98	5098.5	0.5	15.3	0.136	0.28	12.96	2.08	0.922	0.125	0.186	0		
	99	5099.0	0.5	15.2	0.132	0.26	13.84	2.05	0.953	0.125	0.193	0		
	100	5099.5	0.5	16.0	0.114	0.21	18.51	1.93	1.077	0.123	0.228	0		
	101	5100.0	0.5	17.0	0.099	0.17	24.51	1.84	1.199	0.119	0.238	0		
	102	5100.5	0.5	22.0	0.067	0.10	54.19	1.67	1.568	0.104	0.205	0		

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie				Concentration in ppm for NaCl solutions at 130 degree reservoir temp:										9,800
PARAMETERS	ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
	103	5101.0	0.5	26.4	0.055	0.08	79.23	1.62	1.733	0.095	0.172	0		
	104	5101.5	0.5	36.6	0.046	0.08	114.26	1.63	1.768	0.081	0.146	0		
	105	5102.0	0.5	37.7	0.044	0.07	122.39	1.62	1.801	0.080	0.172	0		
	106	5102.5	0.5	28.8	0.047	0.06	109.97	1.56	1.953	0.091	0.326	0		
	107	5103.0	0.5	23.5	0.052	0.06	89.47	1.55	1.950	0.101	0.418	0		
	108	5103.5	0.5	16.2	0.072	0.08	46.47	1.60	1.693	0.122	0.584	0		
	109	5104.0	0.5	14.0	0.084	0.10	33.76	1.64	1.554	0.131	0.645	0		
	110	5104.5	0.5	11.1	0.106	0.13	21.31	1.71	1.385	0.147	0.717	0		
	111	5105.0	0.5	9.0	0.126	0.14	15.01	1.75	1.294	0.164	0.737	0		
	112	5105.5	0.5	8.2	0.139	0.16	12.40	1.79	1.232	0.171	0.745	0		
	113	5106.0	0.5	7.2	0.165	0.20	8.78	1.89	1.107	0.183	0.810	0		
	114	5106.5	0.5	7.0	0.171	0.20	8.17	1.91	1.083	0.186	0.810	0		
	115	5107.0	0.5	7.5	0.154	0.18	10.15	1.84	1.166	0.179	0.707	0		
	116	5107.5	0.5	8.0	0.134	0.14	13.29	1.75	1.288	0.173	0.603	0		
	117	5108.0	0.5	9.4	0.101	0.10	23.53	1.60	1.580	0.160	0.455	0		
	118	5108.5	0.5	10.0	0.095	0.09	26.64	1.58	1.636	0.155	0.443	0		
	119	5109.0	0.5	10.1	0.099	0.10	24.42	1.62	1.554	0.154	0.471	0		
	120	5109.5	0.5	10.1	0.101	0.10	23.51	1.63	1.527	0.154	0.510	0		
	121	5110.0	0.5	9.9	0.101	0.10	23.43	1.63	1.536	0.155	0.593	0		
	122	5110.5	0.5	9.8	0.103	0.10	22.80	1.63	1.528	0.157	0.638	0		
	123	5111.0	0.5	9.5	0.113	0.12	18.86	1.69	1.408	0.159	0.666	0		
	124	5111.5	0.5	9.5	0.118	0.13	17.15	1.72	1.344	0.159	0.632	0		
	125	5112.0	0.5	9.7	0.129	0.16	14.45	1.81	1.219	0.157	0.499	0		
	126	5112.5	0.5	9.9	0.135	0.18	13.08	1.86	1.148	0.155	0.431	0		
	127	5113.0	0.5	10.4	0.152	0.24	10.42	2.00	1.000	0.152	0.354	0		
	128	5113.5	0.5	10.8	0.160	0.27	9.40	2.07	0.935	0.149	0.324	0		
	129	5114.0	0.5	11.4	0.169	0.33	8.38	2.17	0.857	0.145	0.238	0.01		x
	130	5114.5	0.5	11.6	0.171	0.34	8.22	2.19	0.842	0.144	0.181	0.01		x
	131	5115.0	0.5	11.3	0.182	0.38	7.24	2.26	0.799	0.145	0.111	0.02		x
	132	5115.5	0.5	10.8	0.205	0.45	5.70	2.40	0.726	0.149	0.110	0.03		x
	133	5116.0	0.5	10.6	0.213	0.48	5.29	2.45	0.707	0.151	0.120	0.03		x
	134	5116.5	0.5	10.4	0.211	0.46	5.39	2.42	0.721	0.152	0.146	0.03		x
	135	5117.0	0.5	10.3	0.204	0.43	5.78	2.36	0.749	0.153	0.156	0.03		x
	136	5117.5	0.5	10.3	0.190	0.37	6.67	2.26	0.804	0.153	0.173	0.02		x
	137	5118.0	0.5	10.3	0.187	0.36	6.88	2.24	0.819	0.153	0.177	0.02		x
	138	5118.5	0.5	9.9	0.185	0.34	7.05	2.20	0.844	0.156	0.146	0.01		x
	139	5119.0	0.5	9.6	0.184	0.33	7.09	2.18	0.858	0.158	0.119	0.01		x
	140	5119.5	0.5	8.9	0.185	0.30	7.03	2.14	0.888	0.164	0.073	0.01		x
	141	5120.0	0.5	8.6	0.188	0.30	6.81	2.14	0.891	0.167	0.070	0.01		x
	142	5120.5	0.5	7.9	0.196	0.31	6.22	2.15	0.886	0.174	0.097	0.01		x
	143	5121.0	0.5	7.7	0.201	0.31	5.93	2.16	0.879	0.177	0.119	0.01		x
	144	5121.5	0.5	7.3	0.209	0.32	5.47	2.19	0.865	0.181	0.167	0.01		x
	145	5122.0	0.5	7.2	0.212	0.32	5.33	2.19	0.861	0.183	0.197	0.01		x
	146	5122.5	0.5	7.1	0.216	0.33	5.15	2.21	0.851	0.184	0.236	0.02		x
	147	5123.0	0.5	7.1	0.216	0.33	5.15	2.21	0.849	0.183	0.227	0.02		x
	148	5123.5	0.5	7.3	0.211	0.33	5.38	2.20	0.857	0.181	0.178	0.02		x
	149	5124.0	0.5	7.4	0.210	0.33	5.45	2.20	0.858	0.180	0.159	0.01		x
	150	5124.5	0.5	7.4	0.208	0.32	5.55	2.19	0.864	0.180	0.149	0.01		x
	151	5125.0	0.5	7.4	0.208	0.32	5.53	2.19	0.863	0.180	0.157	0.01		x
	152	5125.5	0.5	7.3	0.208	0.32	5.53	2.18	0.870	0.181	0.215	0.01		x
	153	5126.0	0.5	7.1	0.211	0.32	5.39	2.18	0.871	0.184	0.260	0.01		x

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie				Concentration in ppm for NaCl solutions at 130 degree reservoir temp:										9,800
PARAMETERS	ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
	154	5126.5	0.5	7.0	0.216	0.33	5.16	2.20	0.859	0.185	0.255	0.02		x
	155	5127.0	0.5	6.8	0.230	0.36	4.56	2.27	0.819	0.188	0.214	0.02		x
	156	5127.5	0.5	6.7	0.235	0.37	4.34	2.31	0.802	0.189	0.184	0.02		x
	157	5128.0	0.5	6.8	0.237	0.38	4.28	2.32	0.795	0.188	0.130	0.02		x
	158	5128.5	0.5	6.8	0.235	0.38	4.36	2.31	0.799	0.187	0.118	0.02		x
	159	5129.0	0.5	6.9	0.232	0.37	4.46	2.30	0.802	0.186	0.138	0.02		x
	160	5129.5	0.5	7.0	0.232	0.37	4.48	2.30	0.803	0.186	0.166	0.02		x
	161	5130.0	0.5	6.9	0.229	0.36	4.56	2.28	0.813	0.186	0.218	0.02		x
	162	5130.5	0.5	6.9	0.228	0.36	4.63	2.27	0.819	0.186	0.228	0.02		x
	163	5131.0	0.5	6.9	0.226	0.35	4.70	2.26	0.825	0.187	0.241	0.02		x
	164	5131.5	0.5	6.9	0.226	0.35	4.69	2.26	0.823	0.186	0.250	0.02		x
	165	5132.0	0.5	7.0	0.224	0.35	4.79	2.25	0.827	0.185	0.259	0.02		x
	166	5132.5	0.5	7.1	0.222	0.35	4.89	2.24	0.832	0.184	0.254	0.02		x
	167	5133.0	0.5	7.1	0.218	0.34	5.07	2.22	0.843	0.183	0.232	0.02		x
	168	5133.5	0.5	7.2	0.217	0.34	5.11	2.22	0.845	0.183	0.221	0.02		x
	169	5134.0	0.5	7.1	0.217	0.34	5.08	2.22	0.845	0.184	0.184	0.02		x
	170	5134.5	0.5	7.1	0.220	0.34	4.98	2.23	0.839	0.184	0.165	0.02		x
	171	5135.0	0.5	7.0	0.225	0.35	4.75	2.26	0.825	0.185	0.132	0.02		x
	172	5135.5	0.5	6.9	0.228	0.36	4.62	2.28	0.815	0.186	0.126	0.02		x
	173	5136.0	0.5	7.0	0.228	0.36	4.62	2.28	0.812	0.185	0.141	0.02		x
	174	5136.5	0.5	7.3	0.220	0.35	4.95	2.26	0.823	0.181	0.145	0.02		x
	175	5137.0	0.5	7.6	0.216	0.35	5.15	2.25	0.825	0.178	0.141	0.02		x
	176	5137.5	0.5	8.1	0.212	0.37	5.33	2.27	0.810	0.172	0.152	0.02		x
	177	5138.0	0.5	8.4	0.211	0.37	5.38	2.29	0.800	0.169	0.166	0.02		x
	178	5138.5	0.5	8.7	0.206	0.37	5.68	2.27	0.806	0.166	0.208	0.02		x
	179	5139.0	0.5	8.8	0.200	0.35	6.01	2.24	0.827	0.165	0.226	0.02		x
	180	5139.5	0.5	8.8	0.194	0.33	6.40	2.20	0.852	0.165	0.221	0.01		x
	181	5140.0	0.5	8.9	0.192	0.33	6.48	2.19	0.855	0.164	0.212	0.01		x
	182	5140.5	0.5	9.2	0.196	0.35	6.25	2.24	0.825	0.162	0.195	0.02		x
	183	5141.0	0.5	9.4	0.197	0.36	6.21	2.25	0.813	0.160	0.195	0.02		x
	184	5141.5	0.5	9.8	0.195	0.37	6.34	2.27	0.803	0.156	0.215	0.02		x
	185	5142.0	0.5	10.0	0.192	0.37	6.51	2.26	0.806	0.155	0.210	0.02		x
	186	5142.5	0.5	10.5	0.185	0.36	7.02	2.24	0.819	0.151	0.199	0.02		x
	187	5143.0	0.5	10.7	0.182	0.35	7.24	2.23	0.823	0.150	0.201	0.02		x
	188	5143.5	0.5	11.1	0.172	0.33	8.09	2.18	0.854	0.147	0.229	0.01		x
	189	5144.0	0.5	11.2	0.165	0.31	8.82	2.13	0.886	0.146	0.274	0.01		x
	190	5144.5	0.5	11.3	0.156	0.28	9.83	2.08	0.931	0.145	0.440	0		
	191	5145.0	0.5	11.3	0.155	0.27	10.04	2.06	0.943	0.146	0.507	0		
	192	5145.5	0.5	11.3	0.151	0.26	10.46	2.04	0.962	0.146	0.513	0		
	193	5146.0	0.5	11.8	0.143	0.24	11.73	2.00	0.997	0.143	0.405	0		
	194	5146.5	0.5	12.3	0.139	0.24	12.44	1.99	1.006	0.140	0.365	0		
	195	5147.0	0.5	13.7	0.140	0.27	12.29	2.06	0.946	0.132	0.365	0		
	196	5147.5	0.5	14.6	0.142	0.29	11.98	2.10	0.906	0.128	0.352	0		
	197	5148.0	0.5	16.1	0.142	0.33	11.87	2.16	0.858	0.122	0.316	0		
	198	5148.5	0.5	16.8	0.140	0.33	12.17	2.16	0.851	0.120	0.311	0		
	199	5149.0	0.5	17.6	0.137	0.33	12.73	2.16	0.850	0.117	0.347	0		
	200	5149.5	0.5	17.4	0.139	0.34	12.33	2.17	0.842	0.117	0.367	0		
	201	5150.0	0.5	16.5	0.147	0.35	11.14	2.20	0.823	0.121	0.384	0		
	202	5150.5	0.5	15.9	0.150	0.36	10.73	2.21	0.822	0.123	0.387	0		
	203	5151.0	0.5	15.1	0.152	0.35	10.39	2.20	0.831	0.126	0.393	0		
	204	5151.5	0.5	14.8	0.150	0.33	10.67	2.17	0.848	0.127	0.408	0		

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie				Concentration in ppm for NaCl solutions at 130 degree reservoir temp:										9,800
PARAMETERS	ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
	205	5152.0	0.5	14.1	0.148	0.31	10.98	2.13	0.884	0.131	0.420	0		
	206	5152.5	0.5	13.7	0.149	0.31	10.77	2.13	0.886	0.132	0.422	0		
	207	5153.0	0.5	13.4	0.150	0.30	10.65	2.12	0.890	0.134	0.433	0		
	208	5153.5	0.5	13.5	0.149	0.30	10.74	2.12	0.893	0.133	0.428	0		
	209	5154.0	0.5	13.8	0.148	0.30	10.99	2.12	0.894	0.132	0.401	0		
	210	5154.5	0.5	13.9	0.148	0.30	11.00	2.12	0.891	0.132	0.379	0		
	211	5155.0	0.5	14.1	0.147	0.31	11.04	2.13	0.887	0.131	0.347	0		
	212	5155.5	0.5	14.3	0.147	0.31	11.09	2.13	0.880	0.129	0.341	0		
	213	5156.0	0.5	15.3	0.143	0.31	11.71	2.14	0.874	0.125	0.369	0		
	214	5156.5	0.5	17.4	0.133	0.31	13.60	2.12	0.885	0.118	0.417	0		
	215	5157.0	0.5	18.6	0.126	0.30	15.07	2.10	0.899	0.113	0.418	0		
	216	5157.5	0.5	18.6	0.117	0.25	17.67	2.02	0.975	0.114	0.419	0		
	217	5158.0	0.5	17.3	0.116	0.23	17.98	1.98	1.020	0.118	0.442	0		
	218	5158.5	0.5	12.7	0.132	0.22	13.87	1.96	1.045	0.137	0.508	0		
	219	5159.0	0.5	10.6	0.149	0.24	10.79	1.99	1.007	0.150	0.556	0		
	220	5159.5	0.5	8.3	0.177	0.26	7.69	2.05	0.960	0.170	0.614	0		
	221	5160.0	0.5	7.6	0.184	0.26	7.12	2.04	0.967	0.177	0.622	0		
	222	5160.5	0.5	7.0	0.185	0.24	7.01	2.00	0.997	0.185	0.656	0		
	223	5161.0	0.5	6.9	0.182	0.23	7.22	1.98	1.020	0.186	0.659	0		
	224	5161.5	0.5	7.2	0.165	0.19	8.86	1.88	1.110	0.183	0.621	0		
	225	5162.0	0.5	7.7	0.150	0.17	10.69	1.83	1.180	0.177	0.571	0		
	226	5162.5	0.5	9.3	0.118	0.13	17.23	1.71	1.361	0.161	0.429	0		
	227	5163.0	0.5	10.4	0.108	0.12	20.76	1.69	1.415	0.152	0.382	0		
	228	5163.5	0.5	10.9	0.110	0.13	19.80	1.73	1.347	0.148	0.415	0		
	229	5164.0	0.5	10.3	0.122	0.15	16.23	1.78	1.258	0.153	0.493	0		
	230	5164.5	0.5	8.2	0.161	0.21	9.26	1.93	1.065	0.172	0.671	0		
	231	5165.0	0.5	7.1	0.184	0.24	7.08	2.01	0.995	0.183	0.745	0		
	232	5165.5	0.5	5.8	0.223	0.29	4.82	2.12	0.914	0.204	0.871	0		
	233	5166.0	0.5	5.4	0.234	0.29	4.38	2.14	0.904	0.212	0.903	0		
	234	5166.5	0.5	5.1	0.236	0.28	4.29	2.11	0.922	0.218	0.927	0		
	235	5167.0	0.5	5.3	0.220	0.26	4.94	2.04	0.967	0.213	0.879	0		
	236	5167.5	0.5	5.6	0.207	0.24	5.61	2.00	1.001	0.207	0.879	0		
	237	5168.0	0.5	6.7	0.174	0.20	7.96	1.90	1.089	0.189	0.944	0		
	238	5168.5	0.5	7.5	0.159	0.19	9.48	1.88	1.121	0.178	0.914	0		
	239	5169.0	0.5	9.9	0.137	0.19	12.78	1.87	1.136	0.156	0.709	0		
	240	5169.5	0.5	11.3	0.128	0.19	14.70	1.87	1.138	0.145	0.547	0		
	241	5170.0	0.5	14.4	0.115	0.19	18.11	1.89	1.121	0.129	0.256	0		
	242	5170.5	0.5	15.6	0.113	0.20	18.68	1.92	1.094	0.124	0.198	0		
	243	5171.0	0.5	15.8	0.124	0.24	15.52	2.01	0.992	0.123	0.172	0		
	244	5171.5	0.5	15.1	0.134	0.27	13.32	2.06	0.940	0.126	0.170	0		
	245	5172.0	0.5	13.5	0.156	0.33	9.92	2.17	0.857	0.133	0.163	0		
	246	5172.5	0.5	12.9	0.165	0.35	8.86	2.21	0.828	0.136	0.151	0.01		
	247	5173.0	0.5	12.3	0.174	0.37	7.91	2.25	0.801	0.139	0.150	0.02		
	248	5173.5	0.5	12.2	0.174	0.37	7.96	2.24	0.808	0.140	0.186	0.02		
	249	5174.0	0.5	11.8	0.159	0.30	9.48	2.12	0.894	0.142	0.301	0		
	250	5174.5	0.5	11.6	0.148	0.25	10.99	2.03	0.973	0.144	0.363	0		
	251	5175.0	0.5	10.8	0.137	0.20	12.73	1.92	1.087	0.149	0.420	0		
	252	5175.5	0.5	10.4	0.143	0.21	11.73	1.94	1.064	0.152	0.401	0		
	253	5176.0	0.5	9.6	0.169	0.27	8.45	2.07	0.936	0.158	0.303	0		x
	254	5176.5	0.5	9.3	0.183	0.31	7.20	2.15	0.879	0.160	0.241	0.01		x
	255	5177.0	0.5	8.9	0.202	0.36	5.90	2.26	0.813	0.164	0.157	0.02		x

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie				Concentration in ppm for NaCl solutions at 130 degree reservoir temp:										9,800
PARAMETERS		ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
		256	5177.5	0.5	8.6	0.205	0.36	5.69	2.26	0.814	0.167	0.146	0.02		x
		257	5178.0	0.5	8.5	0.206	0.36	5.68	2.25	0.818	0.168	0.163	0.02		x
		258	5178.5	0.5	8.4	0.204	0.35	5.76	2.24	0.828	0.169	0.230	0.02		x
		259	5179.0	0.5	8.4	0.203	0.34	5.84	2.23	0.835	0.169	0.248	0.02		x
		260	5179.5	0.5	8.4	0.201	0.34	5.94	2.21	0.843	0.169	0.257	0.02		x
		261	5180.0	0.5	8.4	0.200	0.33	6.01	2.20	0.848	0.169	0.251	0.02		x
		262	5180.5	0.5	8.3	0.195	0.32	6.34	2.17	0.872	0.170	0.206	0.01		x
		263	5181.0	0.5	8.4	0.192	0.31	6.51	2.15	0.882	0.169	0.193	0.01		x
		264	5181.5	0.5	8.5	0.186	0.29	6.93	2.12	0.905	0.168	0.174	0.01		x
		265	5182.0	0.5	8.6	0.183	0.29	7.18	2.10	0.915	0.167	0.167	0.01		x
		266	5182.5	0.5	8.9	0.175	0.27	7.84	2.08	0.936	0.164	0.154	0.01		x
		267	5183.0	0.5	9.3	0.168	0.26	8.47	2.05	0.954	0.160	0.146	0.00		x
		268	5183.5	0.5	10.4	0.152	0.24	10.34	2.00	0.998	0.152	0.153	0		x
		269	5184.0	0.5	10.9	0.146	0.23	11.27	1.98	1.015	0.148	0.154	0		x
		270	5184.5	0.5	11.3	0.138	0.21	12.62	1.94	1.058	0.146	0.143	0		x
		271	5185.0	0.5	11.0	0.139	0.21	12.39	1.94	1.061	0.148	0.137	0		x
		272	5185.5	0.5	10.3	0.149	0.23	10.75	1.98	1.022	0.153	0.130	0		x
		273	5186.0	0.5	10.0	0.157	0.25	9.73	2.02	0.985	0.155	0.149	0		x
		274	5186.5	0.5	9.9	0.169	0.28	8.45	2.09	0.925	0.156	0.182	0.01		x
		275	5187.0	0.5	9.9	0.170	0.29	8.32	2.10	0.917	0.156	0.192	0.01		x
		276	5187.5	0.5	10.1	0.169	0.29	8.43	2.10	0.913	0.154	0.211	0.01		x
		277	5188.0	0.5	10.6	0.161	0.27	9.23	2.07	0.934	0.151	0.230	0.01		x
		278	5188.5	0.5	10.9	0.158	0.27	9.64	2.06	0.942	0.149	0.231	0		x
		279	5189.0	0.5	11.4	0.152	0.26	10.38	2.05	0.954	0.145	0.200	0		x
		280	5189.5	0.5	11.5	0.150	0.26	10.64	2.04	0.960	0.144	0.194	0		x
		281	5190.0	0.5	11.5	0.148	0.25	10.99	2.03	0.976	0.144	0.201	0		x
		282	5190.5	0.5	11.4	0.145	0.24	11.35	2.00	0.996	0.145	0.218	0		x
		283	5191.0	0.5	11.2	0.138	0.21	12.58	1.94	1.060	0.146	0.286	0		x
		284	5191.5	0.5	11.1	0.135	0.20	13.16	1.92	1.088	0.147	0.320	0		
		285	5192.0	0.5	11.2	0.130	0.19	14.29	1.88	1.129	0.146	0.335	0		
		286	5192.5	0.5	11.4	0.127	0.19	14.81	1.87	1.138	0.145	0.321	0		
		287	5193.0	0.5	12.4	0.121	0.18	16.29	1.87	1.148	0.139	0.275	0		
		288	5193.5	0.5	13.0	0.117	0.18	17.54	1.86	1.162	0.136	0.257	0		
		289	5194.0	0.5	13.8	0.112	0.17	19.03	1.85	1.174	0.132	0.279	0		
		290	5194.5	0.5	13.7	0.112	0.17	19.03	1.85	1.177	0.132	0.352	0		
		291	5195.0	0.5	13.1	0.111	0.16	19.59	1.82	1.224	0.135	0.677	0		
		292	5195.5	0.5	12.3	0.116	0.17	17.81	1.83	1.204	0.140	0.812	0		
		293	5196.0	0.5	11.5	0.137	0.22	12.78	1.95	1.055	0.145	0.788	0		
		294	5196.5	0.5	11.4	0.147	0.25	11.10	2.02	0.985	0.145	0.648	0		
		295	5197.0	0.5	12.1	0.153	0.28	10.22	2.09	0.919	0.141	0.331	0		x
		296	5197.5	0.5	12.7	0.150	0.29	10.62	2.09	0.915	0.138	0.245	0		x
		297	5198.0	0.5	12.4	0.151	0.28	10.54	2.09	0.921	0.139	0.185	0		x
		298	5198.5	0.5	11.2	0.163	0.30	9.01	2.12	0.899	0.147	0.173	0.01		x
		299	5199.0	0.5	10.4	0.172	0.31	8.08	2.14	0.881	0.152	0.181	0.01		x
		300	5199.5	0.5	9.2	0.191	0.33	6.60	2.20	0.848	0.162	0.208	0.01		x
		301	5200.0	0.5	8.7	0.197	0.34	6.20	2.21	0.844	0.166	0.215	0.02		x
		302	5200.5	0.5	8.0	0.209	0.35	5.50	2.24	0.829	0.173	0.218	0.02		x
		303	5201.0	0.5	7.8	0.217	0.37	5.09	2.28	0.807	0.175	0.211	0.02		x
		304	5201.5	0.5	7.8	0.229	0.41	4.57	2.36	0.767	0.176	0.180	0.03		x
		305	5202.0	0.5	7.8	0.227	0.40	4.66	2.35	0.772	0.175	0.166	0.03		x
		306	5202.5	0.5	8.1	0.203	0.34	5.82	2.21	0.846	0.172	0.239	0.02		x

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie			Concentration in ppm for NaCl solutions at 130 degree reservoir temp:											9,800
PARAMETERS	ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
	307	5203.0	0.5	8.3	0.188	0.30	6.76	2.13	0.901	0.170	0.342	0		x
	308	5203.5	0.5	8.6	0.169	0.24	8.45	2.01	0.992	0.167	0.600	0		x
	309	5204.0	0.5	8.6	0.167	0.24	8.61	2.00	1.000	0.167	0.687	0		x
	310	5204.5	0.5	8.4	0.175	0.26	7.82	2.04	0.963	0.169	0.617	0		x
	311	5205.0	0.5	8.3	0.182	0.28	7.25	2.08	0.933	0.170	0.500	0		x
	312	5205.5	0.5	8.4	0.193	0.31	6.43	2.16	0.874	0.169	0.318	0		x
	313	5206.0	0.5	8.6	0.195	0.33	6.29	2.19	0.854	0.167	0.285	0.01		x
	314	5206.5	0.5	9.2	0.187	0.32	6.86	2.18	0.861	0.161	0.289	0.01		x
	315	5207.0	0.5	9.6	0.178	0.30	7.56	2.14	0.887	0.158	0.284	0.01		x
	316	5207.5	0.5	10.3	0.162	0.27	9.12	2.07	0.939	0.152	0.277	0.00		x
	317	5208.0	0.5	10.7	0.158	0.27	9.60	2.06	0.947	0.150	0.274	0		x
	318	5208.5	0.5	11.4	0.158	0.29	9.56	2.09	0.917	0.145	0.255	0		x
	319	5209.0	0.5	11.6	0.162	0.31	9.10	2.14	0.884	0.144	0.258	0.01		x
	320	5209.5	0.5	11.6	0.163	0.31	9.06	2.13	0.885	0.144	0.253	0.01		x
	321	5210.0	0.5	11.5	0.167	0.32	8.60	2.16	0.865	0.145	0.250	0.01		x
	322	5210.5	0.5	11.5	0.169	0.33	8.40	2.18	0.853	0.144	0.242	0.01		x
	323	5211.0	0.5	11.6	0.173	0.35	8.00	2.21	0.830	0.144	0.274	0.01		x
	324	5211.5	0.5	11.6	0.173	0.35	8.00	2.21	0.831	0.144	0.317	0		x
	325	5212.0	0.5	10.8	0.168	0.30	8.49	2.13	0.887	0.149	0.450	0		x
	326	5212.5	0.5	10.2	0.163	0.27	9.09	2.06	0.943	0.153	0.551	0		
	327	5213.0	0.5	8.7	0.157	0.22	9.73	1.94	1.056	0.166	0.701	0		
	328	5213.5	0.5	8.1	0.157	0.20	9.69	1.90	1.093	0.172	0.731	0		
	329	5214.0	0.5	7.2	0.158	0.18	9.58	1.85	1.151	0.182	0.741	0		
	330	5214.5	0.5	7.0	0.161	0.18	9.30	1.84	1.155	0.186	0.741	0		
	331	5215.0	0.5	6.9	0.164	0.19	8.96	1.86	1.138	0.186	0.696	0		
	332	5215.5	0.5	7.0	0.168	0.20	8.54	1.89	1.108	0.186	0.638	0		
	333	5216.0	0.5	7.5	0.166	0.21	8.76	1.91	1.081	0.179	0.480	0		
	334	5216.5	0.5	7.9	0.161	0.20	9.32	1.91	1.083	0.174	0.410	0		
	335	5217.0	0.5	9.2	0.152	0.21	10.45	1.93	1.065	0.161	0.316	0		
	336	5217.5	0.5	10.0	0.149	0.22	10.79	1.96	1.038	0.155	0.281	0		
	337	5218.0	0.5	11.7	0.146	0.25	11.29	2.02	0.983	0.143	0.221	0		
	338	5218.5	0.5	12.7	0.142	0.26	11.95	2.03	0.969	0.137	0.193	0		
	339	5219.0	0.5	15.4	0.127	0.25	14.99	2.01	0.987	0.125	0.174	0		
	340	5219.5	0.5	18.8	0.106	0.21	21.24	1.95	1.062	0.113	0.162	0		
	341	5220.0	0.5	20.9	0.092	0.18	28.13	1.87	1.161	0.107	0.166	0		
	342	5220.5	0.5	25.2	0.062	0.10	61.65	1.68	1.564	0.098	0.177	0		
	343	5221.0	0.5	27.5	0.052	0.07	90.07	1.60	1.811	0.093	0.186	0		
	344	5221.5	0.5	32.1	0.042	0.06	135.36	1.55	2.053	0.086	0.227	0		
	345	5222.0	0.5	33.7	0.042	0.06	136.95	1.56	2.015	0.084	0.234	0		
	346	5222.5	0.5	34.9	0.038	0.05	167.07	1.52	2.188	0.083	0.238	0		
	347	5223.0	0.5	33.9	0.036	0.04	188.61	1.48	2.360	0.084	0.247	0		
	348	5223.5	0.5	29.7	0.036	0.04	190.40	1.44	2.530	0.090	0.304	0		
	349	5224.0	0.5	27.3	0.037	0.04	174.80	1.44	2.532	0.094	0.346	0		
	350	5224.5	0.5	22.0	0.050	0.05	97.70	1.50	2.105	0.104	0.412	0		
	351	5225.0	0.5	19.6	0.062	0.07	63.45	1.58	1.798	0.111	0.410	0		
	352	5225.5	0.5	15.6	0.098	0.15	25.24	1.79	1.273	0.124	0.320	0		
	353	5226.0	0.5	14.2	0.120	0.20	16.73	1.92	1.087	0.130	0.260	0		
	354	5226.5	0.5	12.8	0.152	0.29	10.39	2.11	0.902	0.137	0.169	0		
	355	5227.0	0.5	12.4	0.155	0.30	10.02	2.11	0.900	0.139	0.173	0		
	356	5227.5	0.5	11.9	0.145	0.25	11.46	2.02	0.982	0.142	0.263	0		
	357	5228.0	0.5	11.6	0.139	0.22	12.49	1.96	1.037	0.144	0.309	0		

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie				Concentration in ppm for NaCl solutions at 130 degree reservoir temp:										9,800
PARAMETERS	ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
	358	5228.5	0.5	11.1	0.139	0.21	12.47	1.94	1.062	0.147	0.363	0		
	359	5229.0	0.5	10.9	0.143	0.22	11.78	1.96	1.037	0.148	0.354	0		
	360	5229.5	0.5	10.7	0.154	0.25	10.18	2.03	0.976	0.150	0.305	0		
	361	5230.0	0.5	10.2	0.161	0.26	9.27	2.05	0.954	0.154	0.342	0		
	362	5230.5	0.5	9.8	0.164	0.27	8.90	2.06	0.951	0.156	0.367	0		
	363	5231.0	0.5	9.2	0.174	0.28	7.97	2.08	0.932	0.162	0.359	0		
	364	5231.5	0.5	9.0	0.181	0.29	7.37	2.12	0.904	0.163	0.314	0		
	365	5232.0	0.5	8.8	0.198	0.34	6.13	2.22	0.837	0.166	0.216	0.02		
	366	5232.5	0.5	8.6	0.202	0.35	5.88	2.24	0.825	0.167	0.214	0.02		
	367	5233.0	0.5	8.4	0.196	0.32	6.26	2.18	0.862	0.169	0.247	0.01		
	368	5233.5	0.5	8.4	0.190	0.30	6.64	2.14	0.891	0.169	0.258	0.01		
	369	5234.0	0.5	8.6	0.182	0.29	7.24	2.10	0.918	0.167	0.256	0.01		
	370	5234.5	0.5	8.9	0.180	0.29	7.41	2.11	0.912	0.164	0.240	0.01		
	371	5235.0	0.5	9.7	0.174	0.29	7.93	2.12	0.904	0.157	0.221	0.01		
	372	5235.5	0.5	10.1	0.170	0.29	8.30	2.11	0.907	0.154	0.217	0.01		
	373	5236.0	0.5	10.5	0.166	0.29	8.76	2.10	0.913	0.151	0.216	0.01		
	374	5236.5	0.5	10.5	0.165	0.29	8.82	2.10	0.916	0.151	0.229	0.01		
	375	5237.0	0.5	10.2	0.160	0.26	9.37	2.04	0.961	0.154	0.273	0.00		
	376	5237.5	0.5	9.8	0.156	0.24	9.92	1.99	1.005	0.156	0.306	0		
	377	5238.0	0.5	8.9	0.147	0.19	11.04	1.89	1.112	0.164	0.410	0		
	378	5238.5	0.5	8.3	0.145	0.17	11.48	1.83	1.175	0.170	0.482	0		
	379	5239.0	0.5	6.8	0.154	0.16	10.12	1.79	1.217	0.187	0.684	0		
	380	5239.5	0.5	6.2	0.167	0.17	8.57	1.82	1.174	0.196	0.801	0		
	381	5240.0	0.5	5.3	0.202	0.22	5.86	1.94	1.053	0.213	0.999	0		
	382	5240.5	0.5	5.0	0.216	0.23	5.12	1.98	1.012	0.219	0.976	0		
	383	5241.0	0.5	5.1	0.212	0.23	5.34	1.97	1.027	0.218	0.864	0		
	384	5241.5	0.5	5.5	0.201	0.22	5.97	1.95	1.038	0.208	0.560	0		
	385	5242.0	0.5	5.9	0.199	0.23	6.05	1.98	1.016	0.202	0.420	0		x
	386	5242.5	0.5	6.4	0.209	0.28	5.52	2.09	0.929	0.194	0.258	0.01		x
	387	5243.0	0.5	6.6	0.210	0.29	5.44	2.12	0.908	0.191	0.219	0.01		x
	388	5243.5	0.5	7.0	0.204	0.29	5.76	2.12	0.907	0.185	0.191	0.01		x
	389	5244.0	0.5	7.2	0.203	0.30	5.82	2.13	0.900	0.183	0.198	0.01		x
	390	5244.5	0.5	7.5	0.211	0.33	5.42	2.21	0.851	0.179	0.193	0.02		x
	391	5245.0	0.5	7.5	0.216	0.35	5.14	2.25	0.826	0.178	0.181	0.02		x
	392	5245.5	0.5	7.6	0.223	0.37	4.84	2.30	0.801	0.178	0.187	0.02		x
	393	5246.0	0.5	7.6	0.223	0.38	4.82	2.30	0.799	0.178	0.196	0.02		x
	394	5246.5	0.5	7.5	0.224	0.38	4.80	2.30	0.798	0.178	0.206	0.02		x
	395	5247.0	0.5	7.6	0.224	0.38	4.78	2.31	0.794	0.178	0.204	0.02		x
	396	5247.5	0.5	7.8	0.225	0.39	4.76	2.33	0.781	0.175	0.185	0.02		x
	397	5248.0	0.5	8.0	0.222	0.39	4.86	2.33	0.780	0.173	0.182	0.02		x
	398	5248.5	0.5	8.4	0.216	0.39	5.14	2.32	0.781	0.169	0.190	0.02		x
	399	5249.0	0.5	8.7	0.213	0.39	5.29	2.32	0.782	0.167	0.184	0.02		x
	400	5249.5	0.5	9.0	0.206	0.38	5.67	2.29	0.794	0.163	0.156	0.02		x
	401	5250.0	0.5	9.2	0.202	0.37	5.88	2.28	0.801	0.162	0.148	0.02		x
	402	5250.5	0.5	9.6	0.196	0.37	6.28	2.26	0.808	0.158	0.145	0.02		x
	403	5251.0	0.5	10.4	0.178	0.33	7.57	2.18	0.853	0.152	0.165	0.01		x
	404	5251.5	0.5	10.9	0.164	0.29	8.97	2.11	0.906	0.148	0.178	0.01		
	405	5252.0	0.5	12.0	0.128	0.20	14.54	1.91	1.100	0.141	0.217	0		
	406	5252.5	0.5	12.3	0.114	0.16	18.51	1.81	1.226	0.140	0.254	0		
	407	5253.0	0.5	12.0	0.105	0.13	21.88	1.73	1.351	0.141	0.327	0		
	408	5253.5	0.5	11.6	0.106	0.13	21.16	1.73	1.354	0.144	0.354	0		

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie			Concentration in ppm for NaCl solutions at 130 degree reservoir temp:											9,800
PARAMETERS	ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
	409	5254.0	0.5	10.8	0.113	0.14	18.81	1.75	1.318	0.149	0.375	0		
	410	5254.5	0.5	10.7	0.113	0.14	18.94	1.74	1.330	0.150	0.349	0		
	411	5255.0	0.5	10.8	0.110	0.13	19.98	1.72	1.363	0.149	0.309	0		
	412	5255.5	0.5	10.6	0.113	0.14	18.68	1.74	1.327	0.150	0.326	0		
	413	5256.0	0.5	9.2	0.134	0.16	13.46	1.81	1.212	0.162	0.447	0		
	414	5256.5	0.5	8.3	0.150	0.19	10.74	1.86	1.139	0.170	0.560	0		
	415	5257.0	0.5	6.7	0.181	0.22	7.35	1.95	1.044	0.189	0.781	0		
	416	5257.5	0.5	6.3	0.191	0.23	6.59	1.97	1.026	0.196	0.838	0		
	417	5258.0	0.5	6.0	0.188	0.21	6.76	1.93	1.064	0.201	0.789	0		
	418	5258.5	0.5	6.2	0.178	0.19	7.60	1.88	1.111	0.197	0.696	0		
	419	5259.0	0.5	7.2	0.149	0.16	10.77	1.79	1.223	0.182	0.508	0		
	420	5259.5	0.5	7.8	0.140	0.15	12.27	1.77	1.251	0.175	0.454	0		
	421	5260.0	0.5	8.2	0.135	0.15	13.26	1.76	1.273	0.171	0.397	0		
	422	5260.5	0.5	7.8	0.141	0.16	12.10	1.78	1.242	0.175	0.405	0		
	423	5261.0	0.5	6.8	0.168	0.19	8.48	1.88	1.113	0.187	0.539	0		
	424	5261.5	0.5	6.2	0.192	0.23	6.52	1.97	1.027	0.197	0.650	0		
	425	5262.0	0.5	6.1	0.192	0.23	6.49	1.96	1.029	0.198	0.638	0		
	426	5262.5	0.5	6.4	0.176	0.20	7.75	1.89	1.100	0.194	0.521	0		
	427	5263.0	0.5	6.6	0.168	0.19	8.47	1.86	1.133	0.191	0.507	0		
	428	5263.5	0.5	6.7	0.169	0.19	8.42	1.87	1.118	0.189	0.627	0		
	429	5264.0	0.5	6.5	0.178	0.21	7.59	1.91	1.077	0.192	0.694	0		
	430	5264.5	0.5	6.5	0.193	0.24	6.44	2.00	0.998	0.193	0.702	0		
	431	5265.0	0.5	6.8	0.190	0.24	6.66	2.01	0.991	0.188	0.627	0		
	432	5265.5	0.5	8.5	0.165	0.23	8.77	1.98	1.016	0.168	0.399	0		
	433	5266.0	0.5	10.1	0.150	0.23	10.73	1.97	1.029	0.154	0.310	0		
	434	5266.5	0.5	14.1	0.127	0.23	14.88	1.97	1.028	0.131	0.187	0		
	435	5267.0	0.5	15.8	0.124	0.24	15.69	2.00	0.996	0.123	0.149	0		
	436	5267.5	0.5	17.3	0.125	0.27	15.31	2.06	0.941	0.118	0.156	0		
	437	5268.0	0.5	17.0	0.127	0.28	14.81	2.07	0.932	0.119	0.173	0		
	438	5268.5	0.5	15.7	0.131	0.27	14.05	2.06	0.945	0.124	0.225	0		
	439	5269.0	0.5	15.0	0.133	0.26	13.67	2.05	0.954	0.126	0.246	0		
	440	5269.5	0.5	13.7	0.143	0.28	11.71	2.08	0.925	0.132	0.219	0		
	441	5270.0	0.5	13.1	0.152	0.30	10.41	2.12	0.891	0.135	0.192	0		
	442	5270.5	0.5	11.9	0.170	0.34	8.32	2.20	0.835	0.142	0.141	0.01		
	443	5271.0	0.5	10.9	0.183	0.36	7.19	2.25	0.812	0.148	0.132	0.02		
	444	5271.5	0.5	10.5	0.187	0.37	6.88	2.25	0.808	0.151	0.131	0.02		
	445	5272.0	0.5	10.1	0.192	0.37	6.50	2.27	0.804	0.154	0.107	0.02		
	446	5272.5	0.5	9.9	0.194	0.37	6.37	2.27	0.802	0.156	0.098	0.02		
	447	5273.0	0.5	9.5	0.200	0.38	6.03	2.28	0.795	0.159	0.094	0.02		
	448	5273.5	0.5	9.3	0.204	0.39	5.77	2.30	0.787	0.161	0.105	0.02		
	449	5274.0	0.5	8.8	0.216	0.41	5.16	2.35	0.764	0.165	0.105	0.03		
	450	5274.5	0.5	8.7	0.219	0.42	4.99	2.36	0.759	0.166	0.100	0.03		
	451	5275.0	0.5	8.5	0.219	0.41	4.99	2.35	0.765	0.168	0.132	0.03		
	452	5275.5	0.5	8.6	0.216	0.40	5.16	2.33	0.774	0.167	0.174	0.02		
	453	5276.0	0.5	9.1	0.206	0.39	5.65	2.30	0.789	0.163	0.240	0.02		
	454	5276.5	0.5	9.4	0.202	0.38	5.90	2.29	0.793	0.160	0.244	0.02		
	455	5277.0	0.5	10.1	0.194	0.38	6.39	2.28	0.795	0.154	0.209	0.02		
	456	5277.5	0.5	10.5	0.191	0.38	6.57	2.29	0.790	0.151	0.178	0.02		
	457	5278.0	0.5	11.4	0.184	0.39	7.08	2.28	0.788	0.145	0.166	0.02		
	458	5278.5	0.5	11.8	0.180	0.38	7.40	2.27	0.791	0.142	0.173	0.02		
	459	5279.0	0.5	12.1	0.174	0.37	7.92	2.24	0.807	0.141	0.220	0.02		

EAGLE SPRINGS 9 FEDERAL #1														
Morrison SWD						Average RWA in proposed Morrison perforated intervals:								0.33
Model = Archie				Concentration in ppm for NaCl solutions at 130 degree reservoir temp:										9,800
PARAMETERS		ZN	DEPTH	THK	RT	PHI	RWA	RO	MA	SW	BVW	VSH	PAY	FLOW	SWD Perfs
		460	5279.5	0.5	12.0	0.172	0.35	8.12	2.22	0.824	0.142	0.260	0.02		
		461	5280.0	0.5	11.0	0.176	0.34	7.75	2.20	0.840	0.148	0.293	0.01		
		462	5280.5	0.5	10.4	0.180	0.34	7.39	2.20	0.842	0.152	0.288	0.01		
		463	5281.0	0.5	9.6	0.184	0.32	7.10	2.18	0.860	0.158	0.254	0.01		
		464	5281.5	0.5	9.3	0.183	0.31	7.17	2.15	0.879	0.161	0.218	0.01		
		465	5282.0	0.5	9.3	0.183	0.31	7.20	2.15	0.880	0.161	0.193	0.01		
		466	5282.5	0.5	9.5	0.180	0.31	7.41	2.14	0.883	0.159	0.158	0.01		
		467	5283.0	0.5	9.6	0.177	0.30	7.63	2.13	0.890	0.158	0.155	0.01		
		468	5283.5	0.5	9.9	0.172	0.29	8.14	2.11	0.906	0.156	0.188	0.01		
		469	5284.0	0.5	10.0	0.171	0.29	8.23	2.11	0.906	0.155	0.203	0.01		
		470	5284.5	0.5	10.2	0.176	0.31	7.78	2.15	0.875	0.154	0.203	0.01		
		471	5285.0	0.5	10.2	0.179	0.33	7.51	2.18	0.859	0.154	0.185	0.01		
		472	5285.5	0.5	10.1	0.181	0.33	7.35	2.19	0.852	0.154	0.163	0.01		
		473	5286.0	0.5	10.1	0.178	0.32	7.55	2.17	0.863	0.154	0.176	0.01		
		474	5286.5	0.5	10.3	0.171	0.30	8.24	2.12	0.896	0.153	0.210	0.01		
		475	5287.0	0.5	10.3	0.167	0.29	8.57	2.11	0.910	0.152	0.226	0.01		
		476	5287.5	0.5	10.5	0.163	0.28	9.08	2.08	0.928	0.151	0.246	0.01		
		477	5288.0	0.5	10.6	0.160	0.27	9.36	2.07	0.941	0.151	0.252	0.00		
		478	5288.5	0.5	10.4	0.154	0.25	10.14	2.02	0.986	0.152	0.311	0		
		479	5289.0	0.5	10.3	0.150	0.23	10.72	1.98	1.021	0.153	0.358	0		
		480	5289.5	0.5	9.8	0.142	0.20	11.84	1.90	1.099	0.156	0.425	0		
		481	5290.0	0.5	9.5	0.140	0.19	12.17	1.88	1.130	0.159	0.442	0		
		482	5290.5	0.5	9.0	0.140	0.18	12.32	1.84	1.170	0.163	0.459	0		
		483	5291.0	0.5	8.6	0.140	0.17	12.32	1.82	1.195	0.167	0.477	0		
		484	5291.5	0.5	7.6	0.147	0.16	11.15	1.80	1.213	0.178	0.528	0		
		485	5292.0	0.5	6.3	0.175	0.19	7.81	1.88	1.115	0.195	0.658	0		
		486	5292.5	0.5	5.7	0.196	0.22	6.25	1.94	1.050	0.206	0.733	0		
		487	5293.0	0.5	4.9	0.231	0.26	4.48	2.06	0.955	0.221	0.819	0		
		488	5293.5	0.5	4.8	0.238	0.27	4.23	2.09	0.941	0.224	0.808	0		
		489	5294.0	0.5	5.0	0.223	0.25	4.81	2.03	0.977	0.218	0.729	0		
		490	5294.5	0.5	5.4	0.207	0.23	5.62	1.98	1.017	0.210	0.704	0		
		491	5295.0	0.5	6.5	0.170	0.19	8.30	1.86	1.127	0.192	0.633	0		
		492	5295.5	0.5	7.2	0.155	0.17	10.02	1.82	1.180	0.183	0.569	0		
		493	5296.0	0.5	8.6	0.131	0.15	13.89	1.76	1.271	0.167	0.444	0		
		494	5296.5	0.5	9.1	0.125	0.14	15.47	1.74	1.307	0.163	0.407	0		
		495	5297.0	0.5	8.9	0.126	0.14	15.22	1.74	1.305	0.164	0.417	0		
		496	5297.5	0.5	8.4	0.134	0.15	13.32	1.77	1.262	0.169	0.469	0		
		497	5298.0	0.5	6.9	0.158	0.17	9.56	1.83	1.173	0.186	0.591	0		
		498	5298.5	0.5	6.4	0.172	0.19	8.10	1.87	1.126	0.194	0.625	0		
		499	5299.0	0.5	5.8	0.193	0.21	6.47	1.93	1.058	0.204	0.634	0		
		500	5299.5	0.5	5.7	0.198	0.22	6.13	1.95	1.040	0.206	0.633	0		
		501	5300.0	0.5	5.7	0.198	0.22	6.15	1.96	1.036	0.205	0.645	0		

Jones, William V., EMNRD

From: Butch Butler [butch.b53@mccoymail.net]
Sent: Wednesday, August 12, 2009 6:43 AM
To: Jones, William V., EMNRD
Cc: rmrlik@highplainsop.com; andy.peterson@petersonenergy.com
Subject: HPOC's 9 Fed #1 SWD Permit Draft
Attachments: C108_App for authorization to inject-print duplex_ES9Fed#1.DOC; C108_Exhibits_App for authorization to inject_ES9Fed#1.DOC

Will: Attached is my draft of the SWD permit. Please take a look and let me know if you have any questions or suggestions for changes/additions. Once finalized, I will get the ad placed and send copies to the parties requiring notification as well as hardcopy to you.

Andy P, I have proposed a 1,000 gallon acid stimulation with a 50 bbl flush prior to injectivity testing. Does this seem reasonable?
b

++
Butch Butler -- Manager
HPOC (High Plains Operating Company, LLC) 32700 Aspen Drive Buena Vista, CO 81211-9620
Ph: 719-395-8059
Fax: 719-395-8093
Cell: 719-207-0164
E-mail: bbutler@highplainsop.com
++

Jones, William V., EMNRD

From: Jones, William V., EMNRD
Sent: Thursday, August 13, 2009 9:10 AM
To: 'Butch Butler'
Cc: Hayden, Steven, EMNRD; Ezeanyim, Richard, EMNRD
Subject: Disposal application preview from HPOC: Eagle Springs 9 Federal #1 (30-043-21065) Morrison disposal in Sandoval County

Hello Butch:
I have looked over the preview packets and only have a couple comments.

1. The packer setting depth in the application should read 5040 instead of 5400. It is correct on the well diagram.
2. Please send a "before conversion" wellbore diagram.
3. I usually ask for formation tops from surface to below the zone of interest, but found these in the well file for this well, so you don't have to send them. However, I was wondering, which member of the Morrison is this you propose injection into?
4. We have no well logs on the OCD web site - please make sure the logs you ran are supplied to Steve Hayden in Aztec.
5. We don't distinguish in our rules as to whether a proposed SWD will be "commercial" or not, but since it does affect things, I always ask what the applicant intends. Please include an explanation with the application as to what the "source" waste waters will be, is it from only your local operations? Is it from only the Entrada?
6. What salinity (mg/l tds) is this Entrada - you swabbed only water from this well in the Entrada, so you should have a water sample?
7. Also please include a statement as to what you think the salinity of the insitu waters in the Morrison formation are. You can propose to swab a sample, but we really prefer a calculation from the resistivity log data if you can do that. If the salinity of the insitu Morrison waters is higher than the Salinity from the Entrada waste waters - that is acceptable under OCD rules, but we need some sort of statement to that effect that is hopefully backed up by some science.
8. Make sure you send a copy of the C-108 to Steve Hayden. The bureau in Santa Fe must get feedback from the district geologist for SWD applications prior to processing them.
9. With the final C-108, please include a breakout of the separately owned tracts of land within the 1/2 mile AOR and who controls the minerals (in the Morrison) within these tracts. And of course, notice the surface owner of the well site (as you know).

Overall, looks like a good concept, will wait for the C-108.

Good luck with your ventures.

Will Jones

William V. Jones PE
New Mexico Oil Conservation Division
1220 South St. Francis
Santa Fe, NM 87505
505-476-3448

-----Original Message-----

From: Butch Butler [mailto:butch.b53@mccoymail.net]
Sent: Wednesday, August 12, 2009 6:43 AM
To: Jones, William V., EMNRD
Cc: rmrlik@highplainsop.com; andy.peterson@petersonenergy.com
Subject: HPOC's 9 Fed #1 SWD Permit Draft

Will: Attached is my draft of the SWD permit. Please take a look and let me know if you have any questions or suggestions for changes/additions. Once finalized, I will get the ad placed and send copies to the parties requiring notification as well as hardcopy to you.

Andy P, I have proposed a 1,000 gallon acid stimulation with a 50 bbl flush prior to injectivity testing. Does this seem reasonable?
b

++
Butch Butler -- Manager
HPOC (High Plains Operating Company, LLC) 32700 Aspen Drive Buena Vista, CO 81211-9620
Ph: 719-395-8059
Fax: 719-395-8093
Cell: 719-207-0164
E-mail: bbutler@highplainsop.com
++

Subject: Disposal application preview from HPOC: Eagle Springs 9 Federal #1 (30-043-21065) Morrison disposal in Sandoval County
To: "Butch Butler" <butch.b53@mccoymail.net>
Cc: "Hayden, Steven, EMNRD" <steven.hayden@state.nm.us>;
"Ezeanyim, Richard, EMNRD" <richard.ezeanyim@state.nm.us>

Hello Butch:
I have looked over the preview packets and only have a couple comments.

1. The packer setting depth in the application should read 5040 instead of 5400. It is correct on the well diagram. CORRECTED.
2. Please send a "before conversion" wellbore diagram. WILL DO.
3. I usually ask for formation tops from surface to below the zone of interest, but found these in the well file for this well, so you don't have to send them. However, I was wondering, which member of the Morrison is this you propose injection into? I WILL ADD THE FORMATION TOPS TO THE WELLBORE SCHEMATIC. I AM NOT SURE OF THE MEMBER OF THE MORRISON BUT WILL CHECK WITH STEVE HAYDEN. I SUSPECT IT'S THE WESTWATER CANYON.
4. We have no well logs on the OCD web site - please make sure the logs you ran are supplied to Steve Hayden in Aztec. I HAVE E-MAILED LAS AND TIFFS. WILL ALSO SEE THAT HARDCOPY LOGS ARE SENT TO STEVE.
5. We don't distinguish in our rules as to whether a proposed SWD will be "commercial" or not, but since it does affect things, I always ask what the applicant intends. Please include an explanation with the application as to what the "source" waste waters will be, is it from only your local operations? Is it from only the Entrada? OUR INTENT HAS BEEN TO ONLY DISPOSE OF HPOC PRODUCED WATER FROM THE ENTRADA. BUT PERHAPS WE SHOULD CONSIDER OTHER WATERS FROM OTHER OPERATORS. I KNOW RIGHT NOW, PEOPLE IN THIS AREA ARE HAULING A LONG WAY. HOW WOULD THIS AFFECT OUR APPLICATION? LET'S DISCUSS.
6. What salinity (mg/l tds) is this Entrada - you swabbed only water from this well in the Entrada, so you should have a water sample? WE DIDN'T HAVE A SAMPLE ANALYZED, BUT ALL THE ENTRADA SAMPLES I'VE LOOKED AT ARE PRETTY SIMILAR. ANY HPOC WELL THAT WILL GENERATE WATER TO BE DISPOSED OF IN THIS SWD WELL CAN EASLIY BE ANALYZED THOUGH. RIGHT NOW, IT'S JUST THE EAGLE SPRINGS WATER, WHICH YOU HAVE AN ANALYSIS ON–INCLUDED IN THIS PERMIT APP. BUT WE ARE DRILLING ANOTHER WELL BEFORE THE END OF THE YEAR ABOUT 6 MILES AWAY AT OJO ENCINO AND IF SUCCESSFUL, I'D EXPECT WE'LL GENERATE SOME WATER THERE TO BE DISPOSED OF IN THIS SWD WELL.
7. Also please include a statement as to what you think the salinity of the insitu waters in the Morrison formation are. You can propose to swab a sample, but we really prefer a calculation from the resistivity log data if you can do that. If the salinity of the insitu Morrison waters is higher than the Salinity from the Entrada waste waters - that is acceptable under OCD rules, but we need some sort of statement to that effect that is hopefully backed up by some science. SEE ATTACHED EXCEL LOG ANALYSIS DONE IN THE PFEFFER LOG ANALYSIS SOFTWARE. WE CAN GO THROUGH THIS, HOWEVER BASED ON THE EVIDENCE I SEE, IT APPEARS THE SALINITY IS ABOUT 9,800 PPM.
8. Make sure you send a copy of the C-108 to Steve Hayden. The bureau in Santa Fe must get feedback from the district geologist for SWD applications prior to processing them. WILL DO. SO TWO COPIES TO YOU AND ONE TO STEVE? AS WELL AS THE SUFACE

OWNER (BLM) AND CHRISTINA ASHLEY FOR THE ALLOTTEES AND YATES ET ALS. SO I'M SEEING SIX COPIES IN ALL. LOOK CORRECT?

9. With the final C-108, please include a breakout of the separately owned tracts of land within the 1/2 mile AOR and who controls the minerals (in the Morrison) within these tracts. And of course, notice the surface owner of the well site (as you know). WILL DO. THE ALLOTED TRACT IS UNLEASED AT THIS POINT IN TIME, AND CHRISTINA ASHLEY OF FIMO WILL GET NOTICE.

Overall, looks like a good concept, will wait for the C-108.

Good luck with your ventures.

Will Jones

William V. Jones PE
New Mexico Oil Conservation Division
1220 South St. Francis
Santa Fe, NM 87505
505-476-3448

-----Original Message-----
From: Butch Butler [mailto:butch.b53@mccoymail.net]
Sent: Wednesday, August 12, 2009 6:43 AM
To: Jones, William V., EMNRD
Cc: rmrlik@highplainsop.com; andy.peterson@petersonenergy.com
Subject: HPOC's 9 Fed #1 SWD Permit Draft

Will: Attached is my draft of the SWD permit. Please take a look and let me know if you have any questions or suggestions for changes/additions. Once finalized, I will get the ad placed and send copies to the parties requiring notification as well as hardcopy to you.

Andy P, I have proposed a 1,000 gallon acid stimulation with a 50 bbl flush prior to injectivity testing. Does this seem reasonable?
b

++

Butch Butler -- Manager
HPOC (High Plains Operating Company, LLC) 32700 Aspen Drive Buena Vista, CO 81211-9620
Ph: 719-395-8059
Fax: 719-395-8093
Cell: 719-207-0164
E-mail: bbutler@highplainsop.com

++

Jones, William V., EMNRD

From: Butch Butler [butch.b53@mccoymail.net]
Sent: Friday, August 28, 2009 6:05 AM
To: Jones, William V., EMNRD
Cc: andy.peterson@petersonenergy.com; rmrlik@highplainsop.com; lynnh49@msn.com; russell@walsheng.net
Subject: Re: SWD Application from HPOC: Morrison
Attachments: USPS certified mail return receipts-COMPLETED_ES9Fed#1 SWD Permit.pdf; AlbuquerqueJournal_Notarized acknowledgement of ad_ES9Fed#1 SWD.pdf

Will: Thanks for your assistance in this permit process. Attached are the completed certified mail return receipts and the notarized acknowledgement of our legal ad.

I will file a federal Sundry when we do our work. We do plan on swabbing after perforating to collect a water sample. We will also do injectivity testing. All info will be reported.

It will be very interesting to see how this turns out.

Take care,
b

At 11:46 AM 8/27/2009, you wrote:

Hello Butch:
The SWD Permit is ready – but must wait until Sept 3, 2009 to release as OCD rules state (unless something arises).

If you do any swab test on the well to see if it gives up any hydrocarbons or to get a water analysis or to judge injectivity..... just report on C-103 Sundry forms (or federal forms will work for OCD) and send me a copy of any test results and/or water analysis and I will add it to this application file which will become scanned into the OCD imaging system.

Good luck on your well.

William V. Jones PE
New Mexico Oil Conservation Division
1220 South St. Francis
Santa Fe, NM 87505
505-476-3448
From: Jones, William V., EMNRD
Sent: Monday, August 17, 2009 2:16 PM
To: 'Butch Butler'
Subject: RE: adproof.pdf - Adobe Reader

Butch:
Got it... and the application is here also.
We have a goal of getting these processed within 30 days, but should be quicker in this case.

Regards,

William V. Jones PE
New Mexico Oil Conservation Division
1220 South St. Francis
Santa Fe, NM 87505
505-476-3448
From: Butch Butler [mailto:butch.b53@mccoymail.net]
Sent: Monday, August 17, 2009 1:46 PM
To: Jones, William V., EMNRD
Subject: Fwd: adproof.pdf - Adobe Reader

Hi Will: Please see attached.
b

From: "Legals" <legals@abqpubco.com>
To: <bbutler@highplainsop.com>
Subject: adproof.pdf - Adobe Reader
Date: Mon, 17 Aug 2009 13:35:16 -0600

~Jenny Gomez
Albuquerque Journal
Legal Department
(505) 823-3379
legals@abqpubco.com

++
Butch Butler -- Manager
HPOC (High Plains Operating Company, LLC)
32700 Aspen Drive
Buena Vista, CO 81211-9620
Ph: 719-395-8059
Fax: 719-395-8093
Cell: 719-207-0164
E-mail: bbutler@highplainsop.com
++

STATE OF NEW MEXICO
County of Bernalillo SS

Bill Tafoya, being duly sworn, declares and says that he is Classified Advertising Manager of **The Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made of assessed as court cost; that the notice, copy of which is hereto attached, was published in said paper in the regular daily edition, for 1 times, the first publication being on the 19 day of August, 2009 and the subsequent consecutive publications on _____, 20___.

NOTICE: High Plains Operating Company, LLC, Attn: Arthur W. Butler III, 32700 Aspen Drive, Buena Vista, CO 81211 (719-395-8059) is making application to the New Mexico Oil Conservation Division for administrative approval to dispose of produced water into the Morrison formation through perforations from 5087' to 5251' measured depth in the Eagle Springs 9 Federal #1 well located 460' FNL and 350' FWL of section 9-T19N-R4W, Sandoval County, NM. The maximum expected injection rate is 1800 bbls of water per day and the maximum expected injection pressure is 1100 psi. Interested parties may file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, NM 87505 within 15 days of the date of publication of this notice. Journal: August 19, 2009.

RECEIVED
AUG 22 2009
BY: _____

Sworn and subscribed to before me, a Notary Public, in and for the County of Bernalillo and State of New Mexico this 19 day of August of 2009

PRICE 17.51

Statement to come at end of month.

ACCOUNT NUMBER C81928

OFFICIAL SEAL
Sandra B. Gutierrez
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 2-18-2013

Sandra B. Gutierrez

CLA-22-A (R-1/93)

STATE OF NEW MEXICO
County of Bernalillo SS

Bill Tafoya, being duly sworn, declares and says that he is Classified Advertising Manager of **The Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made of assessed as court cost; that the notice, copy of which is hereto attached, was published in said paper in the regular daily edition, for 1 times, the first publication being on the 19 day of August, 2009 ~~and the~~ subsequent consecutive publications on _____, 20___.

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CLA-22-A (R-1/93)

Injection Permit Checklist (7/17/09)

Case ________ R-________ SWD 1189 WFX______ PMX______ IPI______ Permit Date 9/3/09 UIC Qtr (J.A.S.)

Wells ___ Well Name: EAGLE SPRINGS 9 Federal #1

API Num: (30-)043-21065 Spud Date: 9/1/08 New/Old: N (UIC primacy March 7, 1982)

Footages 460 FNL/350 FWL Unit D Sec 9 Tsp 19N Rge 4W County SANDOVAL

Operator: HIGH PLAINS OPERATING COMPANY, LLC Contact BUTCH BUTLER

OGRID: 246238 RULE 5.9 Compliance (Wells) 0/3 (Finan Assur) ——— OK

Operator Address: 32700 ASPEN DR., Buena Vista, CO 81211

Current Status of Well: SHUT-IN Entrada Test

Planned Work to Well: PLUG BACK, perf, inject Planned Tubing Size/Depth: 3 1/2 @ 5040'

	Sizes Hole.......Pipe	Setting Depths	Cement Sx or Cf	Cement Top and Determination Method
Existing ____ Surface	12 1/4 9 5/8	340	200	CIRC
Existing ___ Intermediate				
Existing ___ Long String	8 3/4 7"	5518	640	CIRC

~~DV Tool~~ ~~Liner~~ Open Hole Entrada Total Depth 5582 (Entrada)

Well File Reviewed ✓

Diagrams: Before Conversion ✓ After Conversion ✓ Elogs in Imaging File: No

Intervals:	Depths	Formation	Producing (Yes/No)
Above (Name and Top)			
Above (Name and Top)	4720	Top Morrison	
Injection...... Interval TOP:	5087	Morrison	
Injection.......... Interval BOTTOM:	5251	"	
Below (Name and Top)	5458	Summerville Shale	

Arena Blanca; Entrada SE (Area) / 96899

1017 PSI Max. WHIP

________ ~~Open Hole (Y/N)~~

________ ~~Deviated Hole?~~

Sensitive Areas: ~~Capitan Reef~~ ~~Cliff House~~ ~~Salt Depths~~

...~~Potash Area (R-111-P)~~ ~~Potash Lessee~~ ~~Noticed?~~

5087/2 = 1017

Fresh Water: Depths: 0–100' Wells OJO ALAMO (no wells) Analysis? ——— Affirmative Statement ✓

Disposal Fluid Sources: Entrada Analysis?

Disposal Interval Production Potential/Testing/Analysis Analysis: ~~Not productive~~ never produced with SWAB

Notice: Newspaper(Y/N) ✓ Surface Owner BLM Mineral Owner(s)________

RULE 26.7(A) Affected Parties: FIMO / Yates / MYCo / Abo /

Area of Review: Adequate Map (Y/N) ✓ and Well List (Y/N) ✓

Active Wells 0 Num Repairs ——— Producing in Injection Interval in AOR No

..P&A Wells 6 Num Repairs ——— All Wellbore Diagrams Included? Yes

Questions to be Answered:

Send LOGS — Swabbed 243 bbls Entrada water ✓

Water analysis (inside + source water)

Required Work on This Well: ________ Request Sent ______ Reply: ______

AOR Repairs Needed: ________ Request Sent ______ Reply: ______

________ Request Sent ______ Reply: ______