SUSPENSE	ENGINEER	LOGGED IN	TYPE	APP NO.
	Jones	6/23/09	SWD	pTGW 0917437378

30-045-

Boardwalk SWD #12

Cimarex (215099)

D, 12-21N-9W

NEW MEXICO OIL CONSERVATION DIVISION

RECEIVED

- Engineering Bureau -

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

2009 JUN 23 AM 10 52

ABOVE THIS LINE FOR DIVISION USE ONLY

ADMINISTRATIVE APPLICATION CHECKLIST

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

Entrada Sands Fm 96436

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

Cimarex's
Boardwalk SWD 12

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.

Print or Type Name	Signature	Title	Date
BRIAN WOOD (505) 466-8120 FAX 466-9682	Brian Wood	CONSULTANT	6-20-09 e-mail Address brian@permitswest.com

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance YES Disposal _____Storage
Application qualifies for administrative approval? XXX Yes _____No

II. OPERATOR: CIMAREX ENERGY CO.

215099

ADDRESS: 1700 LINCOLN ST., SUITE 1800, DENVER, CO 80203-4518

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

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

IV. Is this an expansion of an existing project? _____Yes XXX No
If yes, give the Division order number authorizing the project:

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

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

VII. Attach data on the proposed operation, including:

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

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

IX. Describe the proposed stimulation program, if any.

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

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

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

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

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

NAME: BRIAN WOOD TITLE: CONSULTANT

SIGNATURE: _____ DATE: JUNE 20, 2008

E-MAIL ADDRESS: brian@permitswest.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.

INJECTION WELL DATA SHEET

Tubing Size: 2-/78" 6.5# J-55 Lining Material: PLASTIC

Type of Packer: ARROW SET MODEL DB OR ITS EQUIVALENT

Packer Setting Depth: WITHIN 100' OF THE HIGHEST PERFORATION

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

Additional Data

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

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

2. Name of the Injection Formation: ENTRADA

3. Name of Field or Pool (if applicable): SWD; ENTRADA (POOL CODE: 96436)

4. Has the well ever been perforated in any other zone(s)? NO List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. (see attachments)

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

   OVER: DAKOTA (4,770')

   UNDER: PENNSYLVANIAN (10,000' ?)

   _____

Side 1

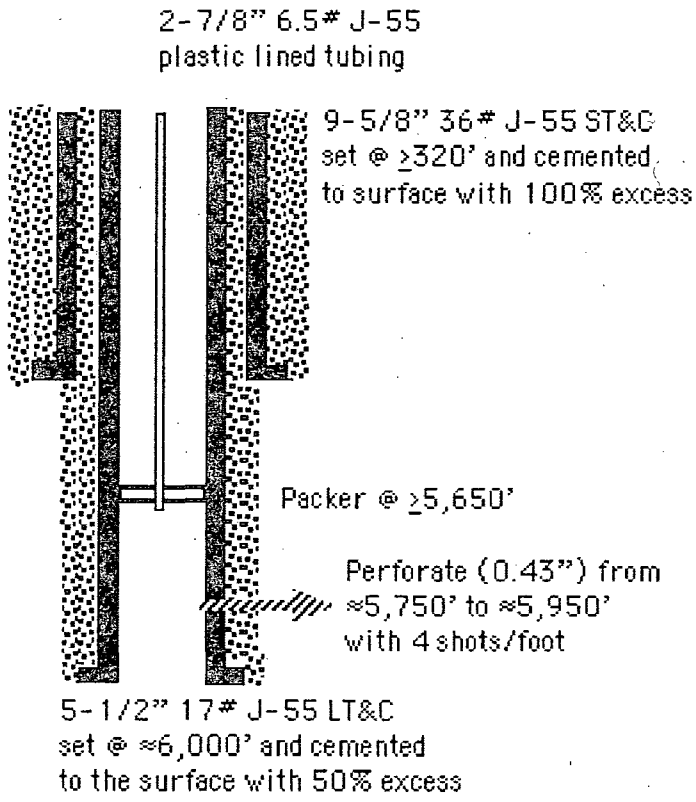
INJECTION WELL DATA SHEET

OPERATOR: CIMAREX ENERGY CO.

WELL NAME & NUMBER: BOARDWALK SWD #12

WELL LOCATION:	348' FNL & 662' FWL	D	12	21 N	9 W
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 12-1/4" Casing Size: 9-5/8" 36#

Cemented with: 175 sacks *or* 206 ft^3

Top of Cement: SURFACE Method Determine: VISUAL

Intermediate Casing

Hole Size: Casing Size:

Cemented with: *or* _____ ft^3

Top of Cement: Method Determined:

Production Casing

Hole Size: 8-3/4" Casing Size: 5-1/2" 17# J-55

Cemented with: 1,050 sacks *or* 2,276 ft^3

Top of Cement: SURFACE Method Determine: VISUAL & CAL

Total Depth: 6,000'

Injection Interval

From 5,750 feet To 5,950 feet

(Perforated or Open Hole; indicate which)

CIMAREX ENERGY CO.
BOARDWALK SWD #12
348' FNL & 662' FWL
SEC. 12, T. 21 N., R. 9 W.
SAN JUAN COUNTY, NEW MEXICO

I. Purpose is water disposal.

II. Operator: Cimarex Energy Co.
Operator phone number: (303) 285-2315
Operator address: 1700 Lincoln St., Suite 1800
Denver, CO 80203-4518
Contact: Brian Wood (Permits West, Inc.)
Phone: (505) 466-8120

III. A. (1) Lease: fee
Lease Size: >10,000 acres
Lease Area: T. 21 N., R. 9 W., Sections 1-15 et al
Closest Lease Line: 4,618' (east line of Section 12)
Well Name & Number: Boardwalk SWD #12
Well Location: 348' FNL and 662' FWL Sec. 12, T. 21 N., R. 9 W.
(see Exhibit A)

A. (2) Surface casing (9-5/8", 36#, J-55, S T & C) will be set at ≥320' in a 12-1/4" hole and cemented to the surface with >100% excess. Cement will be ≈175 sacks (≈206 cubic feet) Class G + cello flake + $CaCl_2$. Top will be determined by visual observation. Cement will be mixed at 15.6 pounds per gallon and 1.18 cubic feet per sack. Centralizers will be installed on the first 4 joints.

Production casing (5-1/2", 17#, J-55, L T & C) will be set at ≈6,000' in an 8-3/4" hole and cemented to the surface with >50% excess. Top will be determined by visual observation and bond log. Production casing will be cemented to the surface in two stages. Stage tool will be set at ≈3,000'. Approximately 12 to 15 centralizers will be installed on alternating joints. Open hole caliper logs will be used to determine actual volume.

Will cement first stage with ≈565 sacks (1,136 cubic feet) premium light high strength cement with 0.5% fluid loss additive + 1/4 pound per sack cello flake + 2% KCL. Slurry weight = 12.5 pounds per gallon. Yield = 2.01 cubic feet per sack.

Will cement second stage with ≈385 sacks (1,001 cubic feet) premium light high strength cement with gel + 1/4 pound per sack cello flake mixed at 11.9 pounds per gallon and 2.6 cubic feet per sack. Will follow with ≈100 sacks (139 cubic feet) Type 3 cement neat cement mixed at 14.5 pounds per gallon and 1.39 cubic feet per sack.

Mechanical integrity of the casing will be assured by hydraulically pressure testing and charting before perforating.

A. (3) Tubing will be 2-7/8" 6.5# J-55 plastic lined injection string. It will be set at ≈5,650' (disposal interval will be ≈5,750' to ≈5,950').

A. (4) Arrow Set Model DB packer or its equivalent will be set at ≈5,650' (or no more than 100' above top perforation).

B. (1) Disposal zone will be the Entrada sandstone (NMOCD pool code 96436). Fracture gradient is expected to be a normal ≈0.65 to ≈0.70 psi per foot.

B. (2) Disposal interval will be ≈5,750' to ≈5,950' (well logs will determine exact interval after drilling). It will be perforated (0.43") with four shots per foot.

B. (3) Well has not yet been drilled. It will be drilled for the exclusive use by Cimarex and for the sole purpose of water disposal from present and future Cimarex wells, which will most likely be Entrada oil wells,

but could include Dakota wells. (Cimarex has staked, but not yet drilled any Entrada oil or Dakota gas wells.) Produced water analyses from two Entrada wells are attached. One well (Santa Fe 20 #1) is 3 miles southeast. The other well (Santa Fe Leggs #1) is 6 miles west.

B. (4) Well bore has not yet been perforated since it has not been drilled. It will be perforated from ≈5,750' to ≈5,950' (logs will determine exact interval after drilling).

B. (5) Top of the Entrada is at ≈5,725'. Oil is produced elsewhere in the San Juan Basin from the Entrada. Closest (historic) Entrada production is 3 miles southeast in the Snake Eyes Entrada, which has since been plugged. Cimarex completed a 3 D seismic survey in 2008 (and reviewed earlier 2 D data) and used that data to select this well location to avoid impairing any future Entrada oil production. Cimarex has used the same data to stake Entrada oil wells in Section 11.

There is no current overlying production in Section 12 or any of its 8 adjacent sections. Bottom of the closest overlying potentially productive formation (Dakota) is at ≈4,770'. There will be a ≈980' interval between the highest injection perforation and the bottom of the Dakota. Closest Dakota production was the Snake Eyes Dakota field 3 miles southeast in Section 20. All wells in the field are now plugged and abandoned.

There is no underlying production in Section 12 or any of its 8 adjacent sections. Closest underlying productive formation is the Pennsylvanian. Closest Pennsylvanian production was over 50 miles northwest at Table Mountain and Tocito Dome.

IV. This is not an expansion of an existing injection project.

V. A map (See Exhibit B) is attached which shows the 2 well bores (1 P & A Dakota + 1 unplugged & currently dry water) which are within a half mile radius. Neither penetrated the proposed disposal zone. A second map (Exhibit C) shows all 6 (4 P & A Dakota wells and 2 water (1 dry & 1 wet) wells within a two mile radius.

A map (see Exhibit D) showing all leases (all fee and all Cimarex) within a half mile is attached. A map (see Exhibit E) showing all leases (all BLM, fee (all Cimarex), or FIMO) within two miles is attached.

VI. Two wells (below) are within a half mile. Neither penetrated the Entrada.

OPERATOR	WELL	T. 21 N., R. 9 W.	ZONE	TD	STATUS	DISTANCE
orphan	coal monitor	NWNE Sec. 12	Kirtland	382'	dry & unplugged	>600'
Davis	Blackjack 1 30-045-20822	NWSW Sec. 1	Dakota	4831'	P & A	2,328'

VII.

1. Average injection rate = 3,500 bwpd. Maximum = 4,000 bwpd.
2. System will typically be closed (i. e., piped). However, Cimarex may temporarily truck its water depending on the pace and cost of pipeline approvals. Facilities may include six 300 barrel water tanks, 2 filtration units, 2 injection pumps, and a 30' x 40' building.
3. Average injection pressure =1,000 psi
   Maximum pressure =1,150 psi
4. Water source will be future Cimarex wells in the San Juan Basin. (Four Cimarex oil well APDs are being processed by the Navajo Nation.) Two produced water analyses (Exhibit F) are attached. The analyses are from wells ≈3 miles southeast (Santa Fe 20 #1) and ≈6 miles west (Santa Fe Leggs #1). A summary follows.

3 MILES SE ENTRADA

6 MILES West ENTRADA

Parameter	Santa Fe 20 #1	Santa Fe Leggs #1
Bicarbonate	2,546 mg/l	683 mg/l
Calcium	27 mg/l	66 mg/l
Carbonate	ND	24 mg/l
Chloride	903 mg/l	700 mg/l
Hydrogen Sulfide	present	present
Iron	0.9 mg/l	-
Magnesium	8.9 mg/l	12 mg/l
pH	-	8.3
Potassium	-	29 mg/l
Resistivity	1.0	0.96 - 1.05
Sodium	3,228 mg/l	2,843 mg/l
Sulfate	4,400 mg/l	4,660 mg/l
Specific Gravity	1.009	-
Total Dissolved Solids	11,145 mg/l	8,670

Should be Shallower "Fruitland" when Subject well is W.V.S.

5. The Entrada has not been penetrated within two miles of the proposed well. Cimarex has staked several Entrada oil wells within two miles based on 3D seismic data collected in 2008. Cimarex has used the same data to select this disposal well location and avoid any potential oil reservoir.

In general, Entrada water near recharge zones (basin fringe) has a specific conductance of <1,500 μmhos. Entrada water from deeper parts of the basin has a specific conductance of >10,000 μmhos. Stone et al in Hydrogeology and water resources of San Juan Basin, New Mexico wrote, "Generally, however, water from the Entrada is not suitable for drinking, especially in deeper parts of the basin." Summaries of analyses of Entrada water are in the preceding table. Chlorides and sulfates generally exceed drinking water standards (250 mg/l each) and TDS (500 mg/l).

VIII. The Entrada sandstone is a very porous and permeable æolian sandstone. It produces, or has produced, oil elsewhere in the basin (e. g., Eagle Mesa, Leggs, Media, Ojo Encino, Papers Wash, Snake Eyes Fields). It is estimated to be >279' thick in the well bore. Top is ≈5,721' and bottom is >6,000'. Estimated

well bore formation tops are:

Kirtland Fruitland formation: 0'
Menefee shale: 896'
Pictured Cliffs Sandstone: 2,596'
Gallup Sandstone: 3,576'
Dakota sandstone: 4,501'
Morrison formation: 4,786'
Entrada sandstone: 5,721'
Total Depth: 6,000'

According to State Engineer records and after an on the ground inspection, there is one water well within a one mile radius. It is ≈600' southeast and is a now dry 382' deep well drilled in 1978 for Alamito Coal Company as a monitoring well. It yielded 1 - 3 gallons per minute in 1978. Its PVC casing is almost flush with the ground surface and open to the elements. Well logs indicate it bottomed in the Fruitland formation. There will be at least one shale zone (Menefee), at least one siltstone zone (Morrison), and ≈5,339' of vertical separation between the bottom of the water well and the top of the Entrada.

IX. The well will be stimulated with ≈3,000 gallons 7.5% HCl and ≈35,000 gallons gelled water with ≈150,000 pounds 20/40 sand.

X. TLD/CN and AI/CAL/GR/SP logs will be run. Copies will then be provided to the NMOCD.

XI. No water well within one mile penetrates the Entrada. The deepest water well within a mile is 382' deep. It is currently dry and a water sample could not be obtained.

A sample was obtained from a windmill which is ≈1-1/3 miles southeast in

SWSW 7-21n-8w. Depth of the windmill is unknown. It is not in the State Engineer's records. BLM, the windmill surface owner, could not find any depth data in its files according to BLM's Jeff Tafoya. An analysis (Exhibit G) from the windmill is attached.

XII. Cimarex is not aware of any geologic or engineering data which indicates the Entrada is in hydrologic connection with any underground sources of water. There will be ≈5,339' of vertical separation, a shale zone (Menefee), and siltstone (Morrison) between the top (5,721') of the Entrada and the bottom (382') of the deepest, and only, water well within a mile.

XIII. Notice (Exhibit H (this application)) has been sent to the surface owner ((Navajo Nation (fee land - not trust)), operators of all wells (only Cimarex), and lease hold operators (only Cimarex) within a half mile. A legal ad (see Exhibit I) was published on May 29, 2009.

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

State of New Mexico
Energy, Minerals & Mining Resources Department
OIL CONSERVATION DIVISION
2040 South Pacheco
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

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	BOARDWALK SWD	12

OGRID No.	Operator Name	Elevation
	CIMAREX ENERGY CO.	6536'

Surface Location

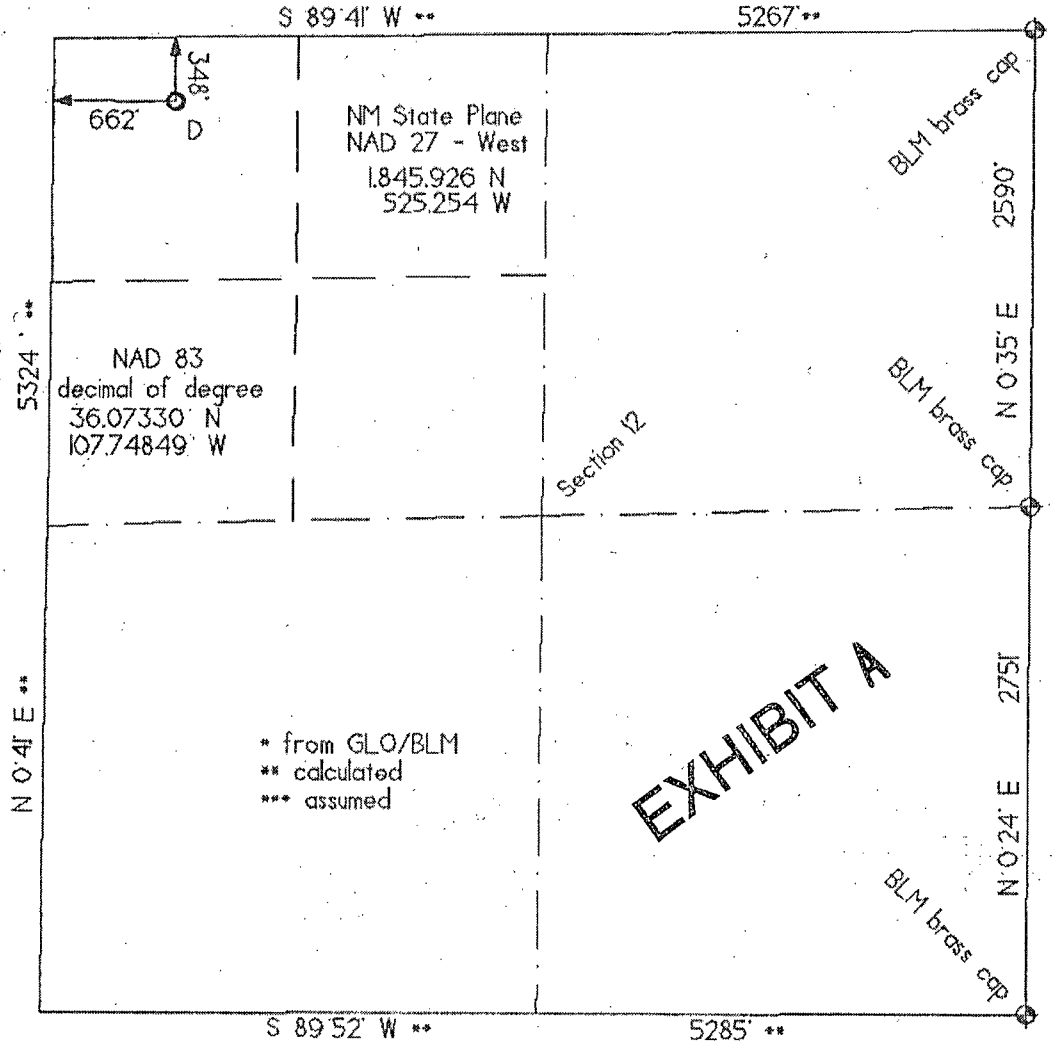
UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from>	North/South	Feet from>	East/West	County
D	12	21 North	9 West		348'	North	662'	West	San Juan

Bottom Hole Location If Different From Surface

UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from>	North/South	Feet from>	East/West	County

Dedicated Acres	Joint or Infill	Consolidation Code	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.



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 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 pool agreement or a compulsory pooling order heretofore entered by the division.

Date

Signature

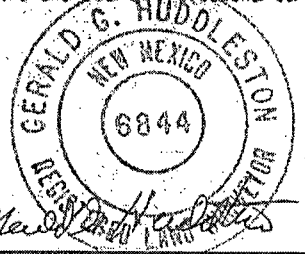
Printed Name

SURVEYOR CERTIFICATION

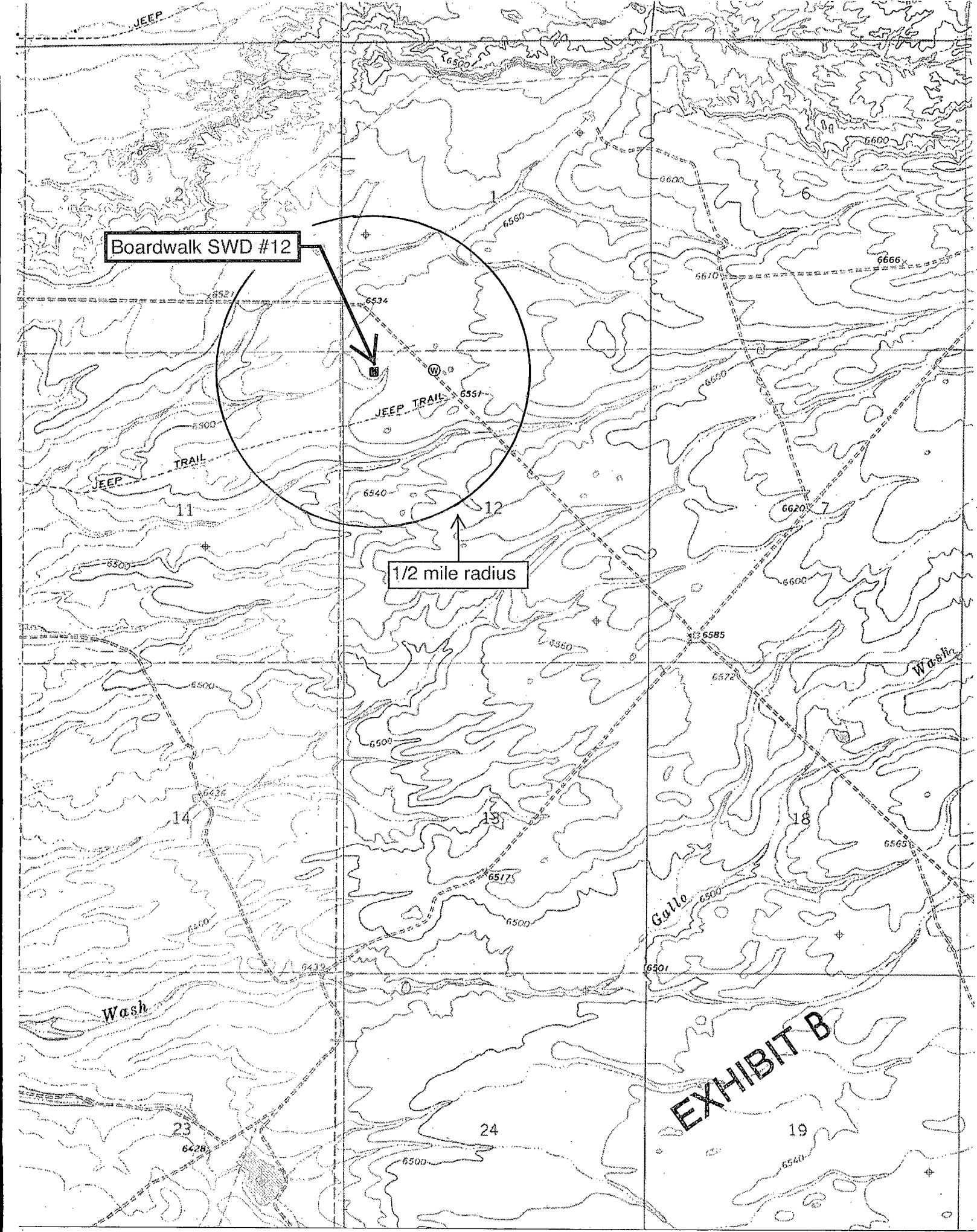
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

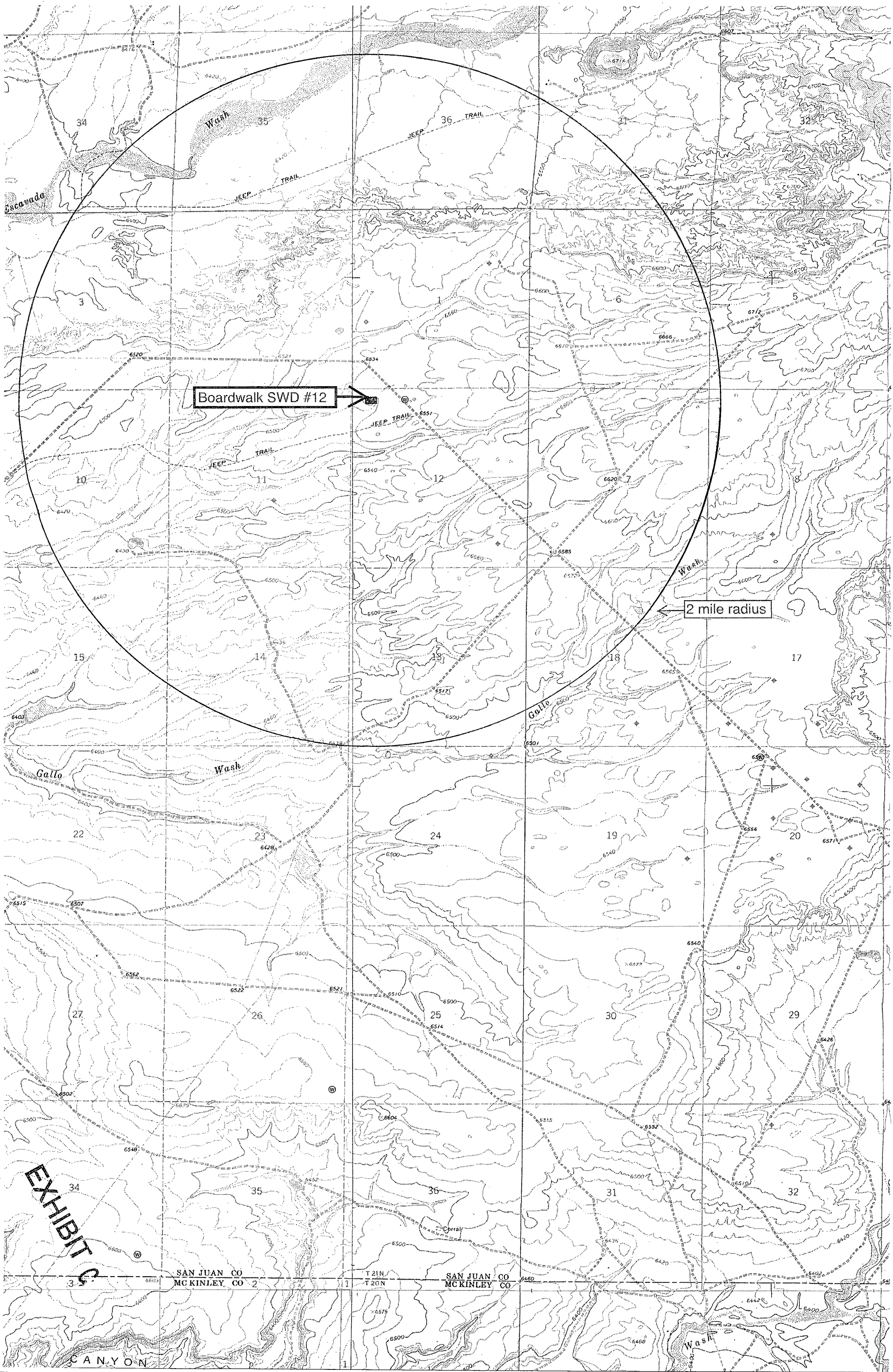
Date of survey 01 29 '09

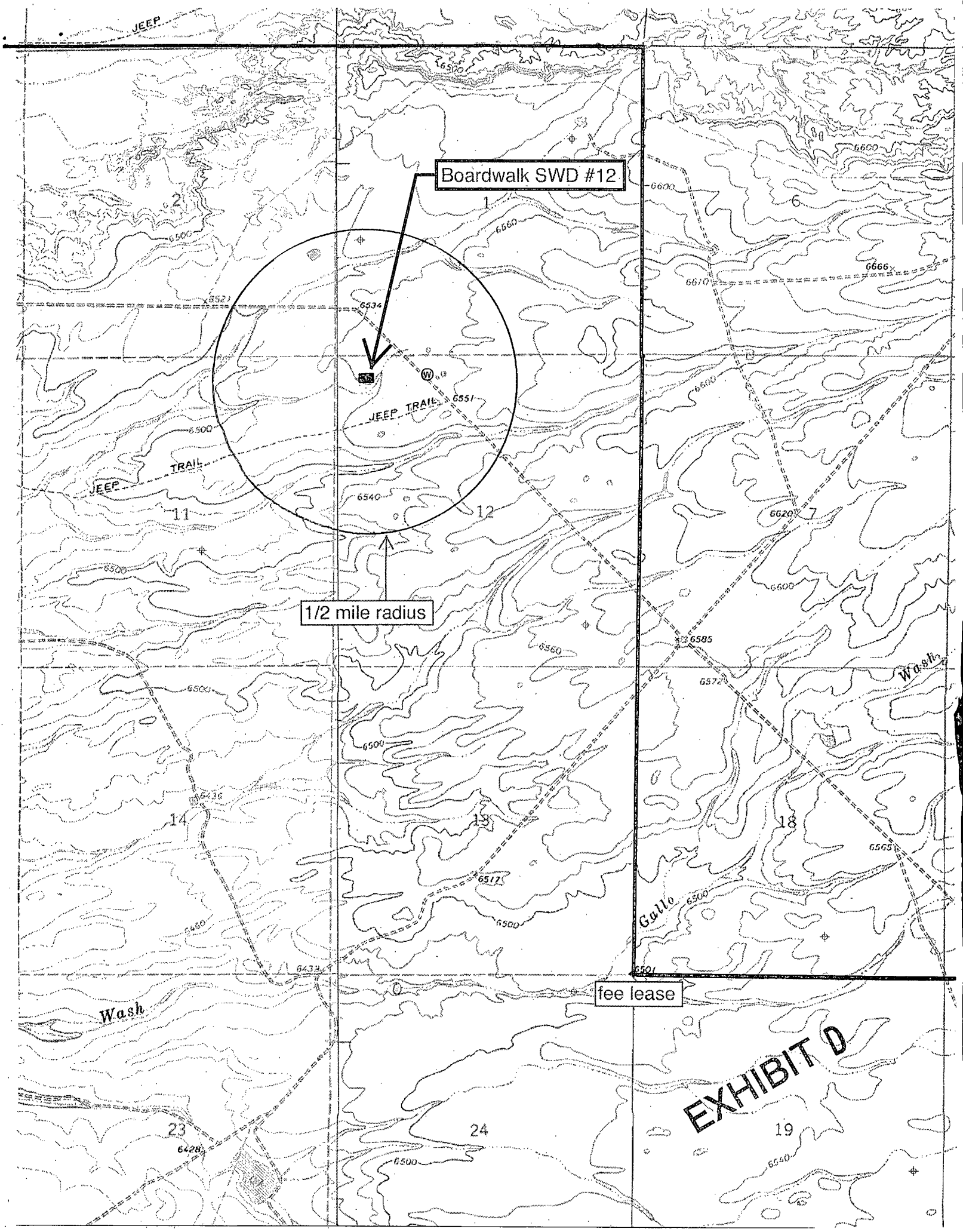
Signature and Seal of Professional Surveyor

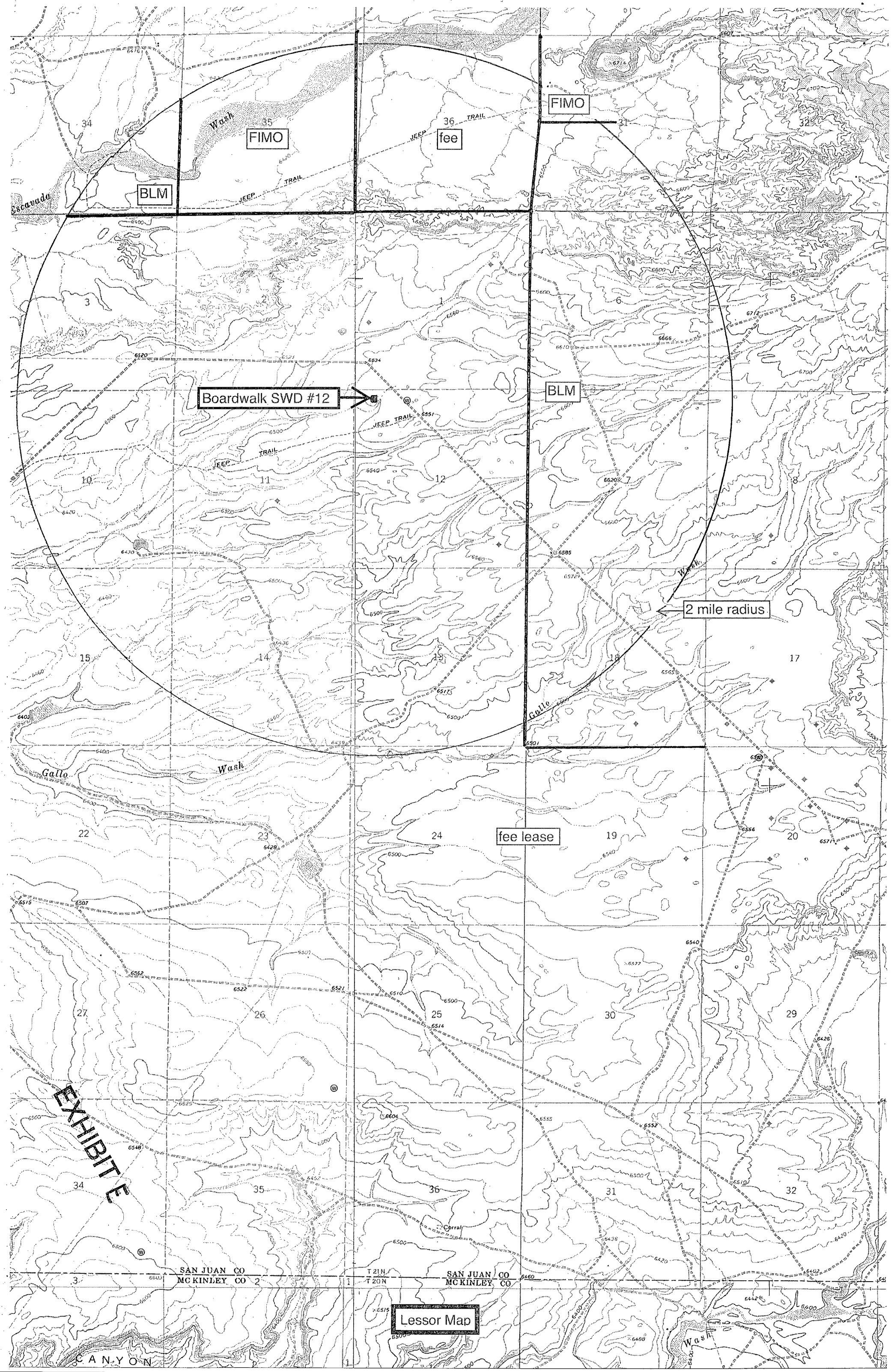


Certificate Number 6844


Boardwalk SWD #12
1/2 mile radius
JEEP TRAIL
JEEP TRAIL
Wash
Gallo
Wash
EXHIBIT B
1
2
6
7
11
12
13
14
18
19
23
24
6500
6534
6551
6540
6620
6585
6572
6565
6517
6501
6428
6436
6600
6560
6666
6610


Boardwalk SWD #12
2 mile radius
Escavado
Wash
JEEP TRAIL
Gallo
Wash
Gallo
Wash
Corral
SAN JUAN CO
MC KINLEY CO
T 21N
T 20N
SAN JUAN CO
MC KINLEY CO
CANYON
EXHIBIT C


Boardwalk SWD #12
1/2 mile radius
fee lease
EXHIBIT D
JEEP
JEEP TRAIL
Wash
Gallo
6534
6551
6585
6572
6565
6517
6436
6439
6428
6500
6540
6560
6600
6620
6610
6666
1
2
6
7
11
12
13
14
18
19
23
24


FIMO
FIMO
fee
BLM
BLM
Boardwalk SWD #12
2 mile radius
fee lease
Lessor Map
EXHIBIT E
SAN JUAN CO
MC KINLEY CO
T 21 N
T 20 N
SAN JUAN CO
MC KINLEY CO
Wash
Gallo
Wash
Gallo
Wash
Corral
CANYON

30-045-22291

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

RECEIVED
MAR 25 1977
Minerals Management Inc.

WATER ANALYSIS

File WA - 5

Company Dome Petroleum Corp. Well Name Sante Fe 20 No. 1 Sample No. SS-2

Formation _____ Depth _____ Sampled From _____

Location SWNE Sec 20 T 21N R 8W Field _____ County San Juan State N.M.

Date Sampled 3-9-77 Date Analyzed 3-13-77 Engineer RGC

Total Dissolved Solids 11,114.5 mg/L

Sp. Gr. 1.009 @ 70 °F.

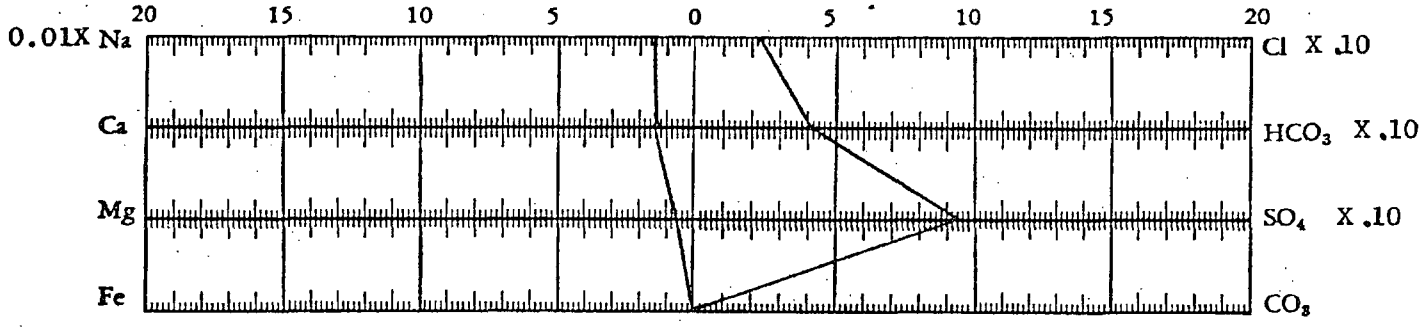
Resistivity 1.0 ohm-meters @ 70 °F.

Hydrogen Sulfide Present

pH 7.73

Constituents	meq/L	mg/L	Constituents	meq/L	mg/L
Sodium	140.44	3228.7	Chloride	25.47	903.0
Calcium	1.35	27.0	Bicarbonate	41.73	2546.0
Magnesium	0.73	8.9	Sulfate	91.61	4400.0
Iron	0.03	0.9	Carbonate	ND	ND*
Barium	ND	ND	Hydroxide	ND	ND

*ND = Less than 0.1 mg/L



Scale: meq/L

All analyses except iron determination performed on a filtered sample.

EXHIBIT F

CL1-12A (REV. 1964)

* SWSE 11-21n-10w

30-045-2263

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

WATER ANALYSIS REPORT

OPERATOR Dome Petroleum — DATE March 22, 1978 — LAB NO. 26805-1
WELL NO. Santa Fe Leggs No. 1 * — LOCATION
FIELD — FORMATION
COUNTY — INTERVAL
STATE New Mexico — SAMPLE FROM

REMARKS & CONCLUSIONS: Sample submitted by Core Lab-Farmington.

Cations	mg/l	meq/l	Anions	mg/l	meq/l
Sodium	2843	123.65	Sulfate	4660	96.93
Potassium	29	0.74	Chloride	700	19.74
Lithium			Carbonate	24	0.80
Calcium	66	3.29	Bicarbonate	683	11.20
Magnesium	12	0.99	Hydroxide		
Iron	-		Hydrogen sulfide	present	
Total Cations		128.67	Total Anions		128.67

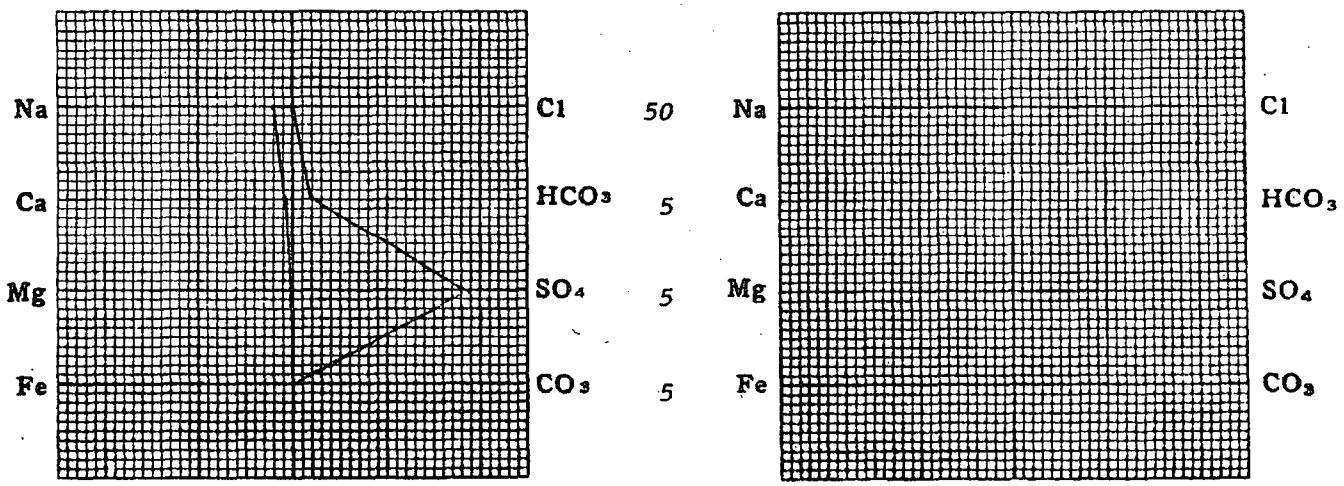
Total dissolved solids, mg/l — 8670
NaCl equivalent, mg/l — 6203
Observed pH — 8.3

Specific resistance @ 68°F.:
Observed — 0.96 ohm-meters
Calculated — 1.05 ohm-meters

WATER ANALYSIS PATTERN

Sample above described

Scale
MEQ per Unit



(Na value in above graphs includes Na, K, and Li)
NOTE: Mg/l=Milligrams per liter Meq/l= Milligram equivalents per liter
Sodium chloride equivalent=by Dunlap & Hawthorne calculation from components

EXHIBIT F

RECEIVED
MAR 27 1978
Minerals Management Inc.

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767

133 State Road 4, Los Alamos/White Rock, NM 87544-Phone 505-672-2770

2709D Pan American Freeway, Albuquerque, NM 87107-Phone 505-344-3777

Client: Permits West
Address: 37 Verano Loop
Santa Fe, NM 87508

Date Collected: 3/30/2009
Date Received: 4/3/2009
Project #: Board
Client ID #: C Board
Laboratory ID #: 0904141-03
Matrix: Liquid
Analyst: LMJ

Parameter	Method	Results	Reporting Limit	Date of Analysis
Total Dissolved Solids (TDS)	SM 2540-C	6272.0	2.0 mg/l	4/6/2009

EXHIBIT G

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767

133 State Road 4, Los Alamos/White Rock, NM 87544-Phone 505-672-2770

2709D Pan American Freeway, Albuquerque, NM 87107-Phone 505-344-3777

Client: Permits West
Address: 37 Verano Loop
Santa Fe, NM 87508

Date Collected:	See Below
Date Received:	4/3/2009
Project #:	Board
Client ID #:	See Below
Laboratory ID #:	See Below
Matrix:	Liquid
Method:	8021
Units:	ug/L
Analyst:	MS
Reporting Limit:	See Below
Date of Analysis:	See Below

Lab Sample ID:	0904141-01	0904141-02
Client Sample ID:	A Board	B Board
Reporting Limit (ug/L)	1.0	1.0
Date Collected:	3/30/2009	3/30/2009
Date Analyzed:	4/7/2009	4/7/2009
Benzene	ND	ND
Toluene	ND	ND
Ethylbenzene	ND	ND
Total Xylene	ND	ND
% Surrogate Recovery	85.6	92.9

EXHIBIT G

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS
37Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120

June 20, 2009

Howard Draper
Navajo Nation Project Review Office
P. O. Box 2249
Window Rock, AZ 86515

Dear Howard,

Cimarex Energy Co. is applying (see attached application) to drill its Boardwalk SWD 12 well as a water disposal well. As required by New Mexico Oil Conservation Division Rules, I am notifying you of the following proposed water disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Well Name: Boardwalk SWD 12 Total Depth: 6,000'
Proposed Disposal Zone: Entrada (≈5,750' to ≈5,950')
Location: 348' FNL & 662' FWL Sec. 12, T. 21 N., R. 9 W.,
San Juan County, NM on a fee lease
Approximate Location: ≈9 air miles northwest of Pueblo Pintado, NM
Applicant Name: Cimarex Energy Co. (303) 285-2315
Applicant's Address: 1700 Lincoln St., Suite 1800, Denver, CO 80203-4518

Submittal Information: Application for a salt water disposal well will be filed with the NM Oil Conservation Division (NMOCD). If you have an objection, or wish to request a hearing, then it must be filed with the NMOCD within 15 days of receipt of this letter. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr. Santa Fe, NM 87505. Their phone number is (505) 476-3440.

This project was delivered to your office for SAS review on April 9.

Please call me if you have any questions.

Sincerely,

Brian Wood

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com
OFFICIAL USE

Postage	$ 1.22
Certified Fee	2.80
Return Receipt Fee (Endorsement Required)	2.30
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.32

QUICKSEND CPU SANTA FE, NM 87508
Postmark Here
JUN 20 2009
USPS

Sent To Project Review
Street, Apt. No.; or PO Box No.
City, State, ZIP+4

PS Form 3800, August 2006 See Reverse for Instructions

7009 0820 0001 6000 5227

EXHIBIT H

AFFIDAVIT OF PUBLICATION

Ad No. 61552

STATE OF NEW MEXICO
County of San Juan:

TIA AVILES, being duly sworn says: That she is the CLASSIFIED MANAGER of THE DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said DAILY TIMES, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for publication and appeared in the Internet at The Daily Times web site on the following day(s):

Friday May 29, 2009

And the cost of the publication is $51.90

Tia Aviles

ON 6/09/09 TIA AVILES appeared before me, whom I know personally to be the person who signed the above document.

Christine Sellers

My Commission Expires – 11/05/11

COPY OF PUBLICATION

Legal Notices 152 Legal Notices 152

psi. Interested parties must file objections or requests for hearing with the NM Oil Conservation Division, 1220 South Saint Francis Dr., Santa Fe, NM 87505 within 15 days. Additional information can be obtained by contacting Brian Wood, Permits West, Inc., 37 Verano Loop, Santa Fe, NM 87508. Phone number is (505) 466-8120.

Legal No. 61552 published in The Daily Times, Farmington, New Mexico, on Friday, May 29, 2009

Cimarex Energy Co. is applying to drill its Boardwalk SWD 12 water disposal well at 348' FNL & 662' FWL Section 12, T. 21 N., R. 9 W., San Juan County. Water disposal will be into the Entrada formation from approximately 5,750' to 5,950' at a maximum rate of 4,000 barrels of water per day and at a maximum surface pressure of 1,150

EXHIBIT 1