Initial Application Part I

Received 10/9/20

This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete

2N0UC-201009-C-1080

Revised March 23, 2017

RECEIVED: 10/9/20	REVIEWER:	TYPE: SWD	APP NO: pBL2028757664

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

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

ADMINISTRATIVE APPLICATION CHECKLIST

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

Applicant: BC & D Operating Inc. **OGRID Number:** 25670
Well Name: Jal Public Library Trust 11-24-35 SWD 1 **API:** 30-025-
Pool: SWD; Devonian-Silurian **Pool Code:** 97869

SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW

1) **TYPE OF APPLICATION:** Check those which apply for [A]
A. Location – Spacing Unit – Simultaneous Dedication
☐ NSL ☐ NSP (PROJECT AREA) ☐ NSP (PRORATION UNIT) ☐ SD

SWD-2394

B. Check one only for [I] or [II]
[I] Commingling – Storage – Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
[II] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

2) **NOTIFICATION REQUIRED TO:** Check those which apply.
A. ☒ Offset operators or lease holders
B. ☒ Royalty, overriding royalty owners, revenue owners
C. ☒ Application requires published notice
D. ☒ Notification and/or concurrent approval by SLO
E. ☒ Notification and/or concurrent approval by BLM
F. ☒ Surface owner
G. ☒ For all of the above, proof of notification or publication is attached, and/or,
H. ☐ No notice required

3) **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.

Brian Wood
Print or Type Name

Signature

9-23-20
Date

505 466-8120
Phone Number

brian@permitswest.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 XXX Disposal _____ Storage
Application qualifies for administrative approval? _____ Yes _____ No

II. OPERATOR: BC & D OPERATING INC.

ADDRESS: P. O. BOX 302, HOBBS NM 88241

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: **JAL PUBLIC LIBRARY TRUST 11-24-35 SWD 1**

SWD; Devonian-Silurian

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

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

IX. Describe the proposed stimulation program, if any.

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

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

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

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

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

NAME: BRIAN WOOD TITLE: CONSULTANT

SIGNATURE: B. Wood DATE: SEPT. 18, 2018

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

Side 2

III. WELL DATA

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

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

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

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

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

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

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

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

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

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

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

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

XIV. PROOF OF NOTICE

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

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

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

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

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

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

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

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

INJECTION WELL DATA SHEET

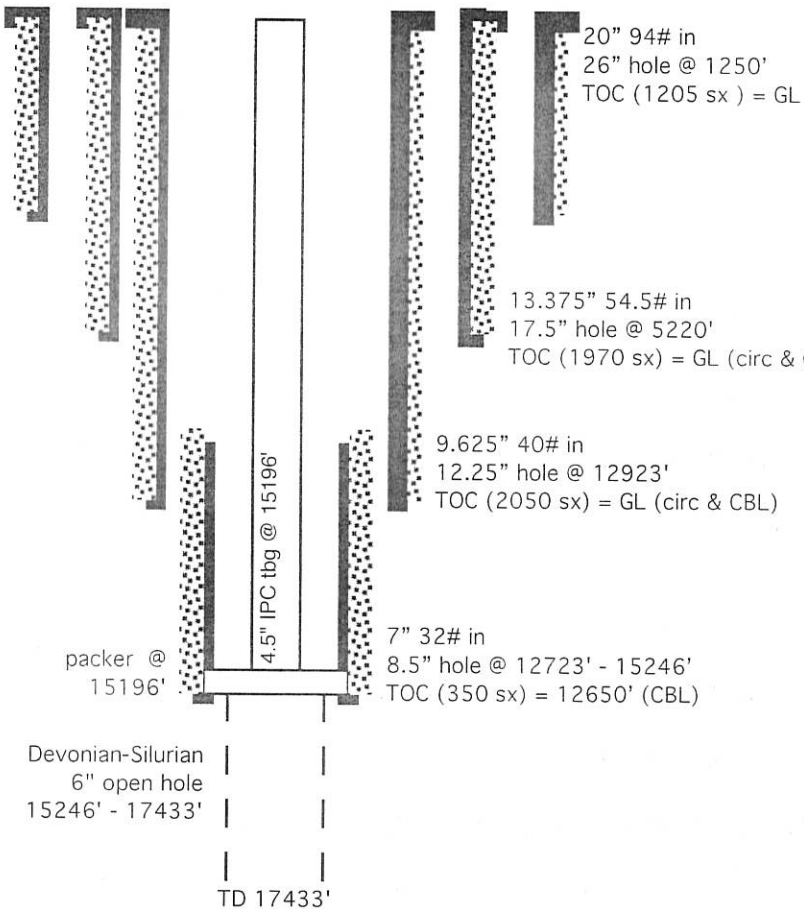
OPERATOR: BC & D OPERATING INC.

WELL NAME & NUMBER: JL PUBLIC LIBRRY TRUST 11-24-35 SWD 1

WELL LOCATION:					
	200 FSL & 200 FEL	P	11	24 S	35 E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

(not to scale)



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 26" Casing Size: 20"

Cemented with: 1205 sx. *or* _____ ft³

Top of Cement: SURFACE Method Determined: CIRCULATE

Intermediate Casing

Hole Size: 17.5" Casing Size: 13.375"

Cemented with: 1970 sx. *or* _____ ft³

Top of Cement: SURFACE Method Determined: CIRCULATE & CBL

Production Casing

Hole Size: 12.5" & 8.5" Casing Size: 9.625" & 7"

Cemented with: 2050 & 350 sx. *or* _____ ft³

Top of Cement: GL & 12,650' Method Determined: CBL

Total Depth: 15,246' CASING & 17,433' HOLE

Injection Interval

6" HOLE SIZE 15246 feet to 17433'

~~(Perforated~~ or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 4.5" Lining Material: DUOLINE®

Type of Packer: FULL INCONEL 4.5" TCPC W/ HIGH TEMPERATURE ELASTOMER

Packer Setting Depth: ≈15,196'

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: DEVONIAN-SILURIAN

3. Name of Field or Pool (if applicable): SWD;DEVONIAN-SILURIAN (97869)

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. N/A

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

   OVER: YATES (3918'), DELAWARE (5667'), BONE SPRING (8942'), WOLFCAMP (11799'), & MORROW (13858')

   UNDER: NONE

BC & D OPERATING INC.
JAL PUBLIC LIBRARY TRUST 11-24-35 SWD 1
200' FSL & 200' FEL
SEC. 11, T. 24 S., R. 35 E., LEA COUNTY, NM

I. Goal is to drill a 17,433' deep commercial saltwater disposal well. Proposed disposal interval will be 15,246' – 17,433' in the SWD; Devonian-Silurian (97869). See Exhibit A for C-102 and map. Well is staked on fee surface and fee minerals.

II. Operator: BC & D Operating Inc. [OGRID 25670]
Operator phone number: (405) 837-8147
Operator address: P. O. Box 302, Hobbs NM 88241
Contact for Application: Brian Wood (Permits West, Inc.)
Phone: (505) 466-8120

III. A. (1) Lease name: Jal Public Library Trust 11-24-35 SWD (fee)
Well name and number: Jal Public Library Trust 11-24-35 SWD 1
Location: 200' FSL & 200' FEL Section 11, T. 24 S., R. 35 E.

A. (2) Surface casing (20", 94#, J-55, BTC) will be set at 1,250' in a 26" hole and cemented to GL with 1,205 sacks.

Intermediate casing 1 (13.375", 61#, L-80, BTC) will be set at 5,220' in a 17.5" hole and cemented to GL with 1,970 sacks. Casing shoe depth will be ≥100' below the Capitan Reef base as determined by the mud logger. GR/CNL/CDN logs will be run to identify the Reef. CBL will be run after the casing is cemented.

Intermediate casing 2 (9.625", 40#, L-80, BTC) will be set at 12,923' in a 12.25" hole and cemented in 2 stages to GL. DV tool will be set at ≈5,500'. First stage will consist of 1,140 sacks. Second stage will consist of 910 sacks. TOC will be verified with CBL.

Intermediate casing 3, aka liner, (7", 32#, P-10 HC, BTC SpCL) will be set from 12,723' to 15,246' in an 8.5" hole and cemented with 350 sacks to 12,650'. TOC will be verified with CBL. Liner has a coupling OD of 7.375" and will yield a 0.563" clearance inside the open hole.

A 6" open hole will be drilled from 15,246' to 17,433'. If the Montoya is penetrated, it will be plugged back to at least 100' above its top.

A. (3) Tubing will be Duoline®, 4.5", 11.6#, N-80 set at ≈15,196'. (Disposal interval will be 15,246' - 17,433'.)

A. (4) A full inconel 4.5" TCPC permanent packer with high temperature elastomer will be set at ≈15,196' (or ≤100' above the top of the open hole which will be at 15,246').

B. (1) Disposal zone will be the Devonian and Silurian (SWD; Devonian-Silurian (97869) pool). Estimated fracture gradient is ≈0.65 psi per foot.

B. (2) Disposal interval will be open hole from 15,246' to 17,433'.

B. (3) Well has not been drilled. It will be drilled as a saltwater disposal well.

B. (4) No perforated intervals are in the well.

B. (5) There is no current production within a mile radius. Potential productive zones in the area of review and above the Devonian (15,246') are the Yates (3,918'), Delaware (5,667'), Bone Spring (8,942'), Wolfcamp (11,799'), and Morrow (13,858'). No oil or gas zone is below the Silurian in the area of review.

IV. This is not an expansion of an existing injection project. It is disposal only.

V. Exhibit B shows and tabulates the 3 existing wells within a 1-mile radius. All 3 wells are P&A. Deepest of the wells is 14,940' TVD (Morrow). Exhibit C shows all 28 existing wells (12 oil or gas + 8 P&A + 8 water) within a 2-mile radius.

All leases within a one-mile radius are BLM, fee, or NMSLO. Exhibit D shows and tabulates all leases within a one-mile radius. Two-mile radius leases are BLM, fee, or NMSLO (Exhibit E).

VI. No Devonian penetrator is within a mile. Deepest (14,940' TVD) well within a mile bottomed in the Morrow, 306' above the Devonian.

VII. 1. Average injection rate will be ≈20,000 bwpd.
Maximum injection rate will be 25,000 bwpd.
2. System will be open and closed. Water will both be trucked and piped.
3. Average injection pressure will be ≈2,500 psi.
Maximum injection pressure will be 3,049 psi (= 0.2 psi/foot x 15,246' (top of open hole)).
4. Disposal water will be produced water, mainly Bone Spring. There are 165 approved Bone Spring wells in T. 24 S., R. 35 E. and the adjacent T. 23 S., R. 35 E. The well will take other Permian Basin waters (e. g., Delaware, Morrow, Wolfcamp) too. Abstracts from the NM Produced Water Quality Database v.2 for wells in T. 24 S., R. 35 E. and the 8 adjacent townships are in Exhibit F. A table of TDS ranges from those wells is below

Formation	TDS range (mg/l)
Artesia	1,506 – 316,728
Atoka	51,475
Bone Spring	204,652
Brushy Canyon	67,516
Capitan	44,270
Delaware	52,115
Devonian	71,708- 176,234
Morrow	282,741
Penn	196,831

No compatibility problems have been reported from the closest active Devonian; SWD well. At least 32,285,325 barrels have been disposed in 30-025-42448 (>6.3 miles west in N-14-24s-34e). (Closest pending SWD well (SWD-2362) is BC & D's Jal Public Library Trust SWD 1 staked 1.61 miles southwest in E-23-24s-35e.)

5. Closest Devonian producer (30-025-27210) is >7.3 miles east in J-36-24s-36e.

VIII. The Devonian-Silurian (estimated 2287' thick) consists of limestone and dolomite. The disposal zone is confined by the Woodford shale above and by the Simpson below. Estimated formation tops are:

Quaternary = 0'
Rustler = 1618'
Salt top = 1769'
Salt base = 3917'
Capitan = 4024'
Delaware = 5667'
Bell Canyon = 5734'
Cherry Canyon = 6434'
Brushy Canyon = 7634'
Bone Spring = 8942'
Wolfcamp = 11799'
Strawn = 12773'
Atoka = 13064'
Morrow = 13858'
Mississippian = 14480'
Woodford = 14908'
Barnett = 11355'
Devonian = 15246'
disposal interval = 15246' - 17433'
Fusselman = 16788'
TD = 17433'
Montoya = 17533'

Closest possible underground source of drinking water above the proposed disposal interval is the Capitan Reef. The Capitan is brackish at best, but there is talk of treating and developing it as a drinking water source. According to State Engineer records (Exhibit G), closest water well is 1.16-mile northwest. That well

(CP 01056) and one other well (CP 01057) are both completed in the Capitan. Water bearing strata in the 2 wells were reported from 4399' to 5396'. Deepest water well within 2-miles is 5396'. There will be 9850' of vertical separation, including confining shales, between the bottom of the Capitan Reef and the top of the Devonian.

More likely source of drinking water (due to better quality) are the red bed siltstones, mudstones, and sandstones from the surface to the top of the Rustler. Six water wells within 2-miles targeted the red beds. There are >2,000' of salt and anhydrite between the bottom of the red beds and top of the Devonian, and overall >2-1/2 miles of vertical separation between the bottom of the red beds and top of the Devonian.

No underground source of drinking water is below the proposed disposal interval.

IX. Well will be stimulated with acid as needed.

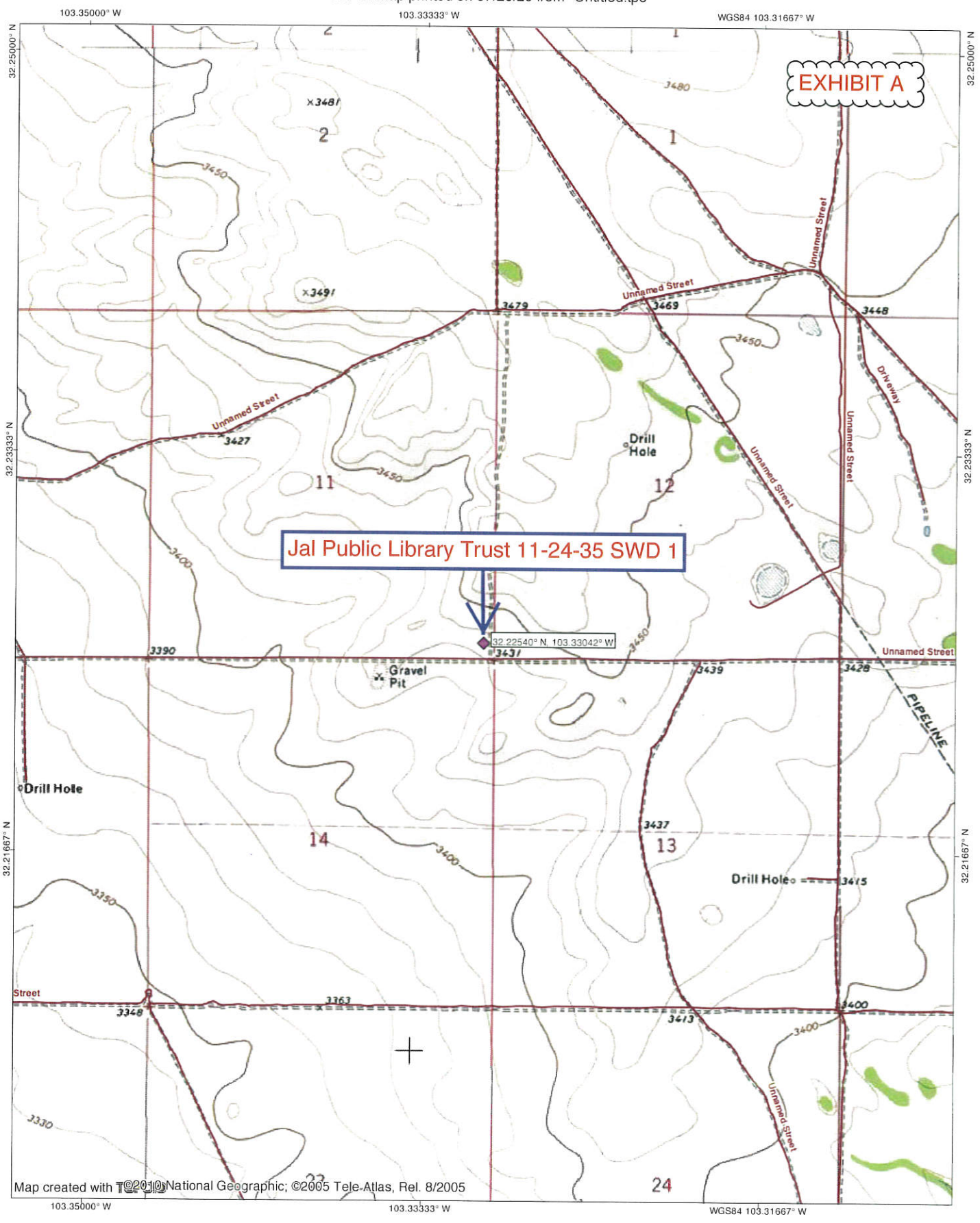
X. Deviation surveys and CBL and GR/CNL/CDN logs will be run.

XI. According to State Engineer records (Exhibit H), eight water wells are within a 2-mile radius. Three were found and sampled during a July 28, 2020 field inspection.

XII. BC & D Operating Inc. (Exhibit I) is not aware of any geologic or engineering data that may indicate the Devonian-Silurian is in hydrologic connection with any underground sources of water. Deepest water well within a 2-mile radius is 5396'. There are 165 active Devonian SWD wells in New Mexico, of which 19 are also Silurian.

XIII. A legal ad (Exhibit J) was published on July 31, 2020. Notice (Exhibit K) and this application has been sent to the surface owner (Jal Public Library Fund), all

well operators regardless of depth, government lessors, lessees, and operating right holders within a mile.


TOPO! map printed on 07/20/20 from "Untitled.tpo"
103.35000° W
103.33333° W
WGS84 103.31667° W
32.25000° N
32.23333° N
32.21667° N
EXHIBIT A
Jal Public Library Trust 11-24-35 SWD 1
32.22540° N, 103.33042° W
Unnamed Street
Drive way
Drill Hole
Gravel Pit
PIPELINE
Street
3480
3450
3400
3350
3330
3390
3427
3431
3439
3428
3437
3415
3348
3363
3413
3469
3479
3448
3491
3481
Map created with TOPO! ©2010 National Geographic; ©2005 Tele-Atlas, Rel. 8/2005
NATIONAL GEOGRAPHIC
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 miles
0.0 0.5 1.0 km
TN MN
6.5°
07/20/20

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate

EXHIBIT A

☐AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-	97869	SWD; Devonian-Silurian

Property Code	Property Name	Well Number
	JAL PUBLIC LIBRARY TRUST 11-24-35 SWD	

OGRID No.	Operator Name	Elevation
25670	BC & D OPERATING, INC	3434'

Surface Location

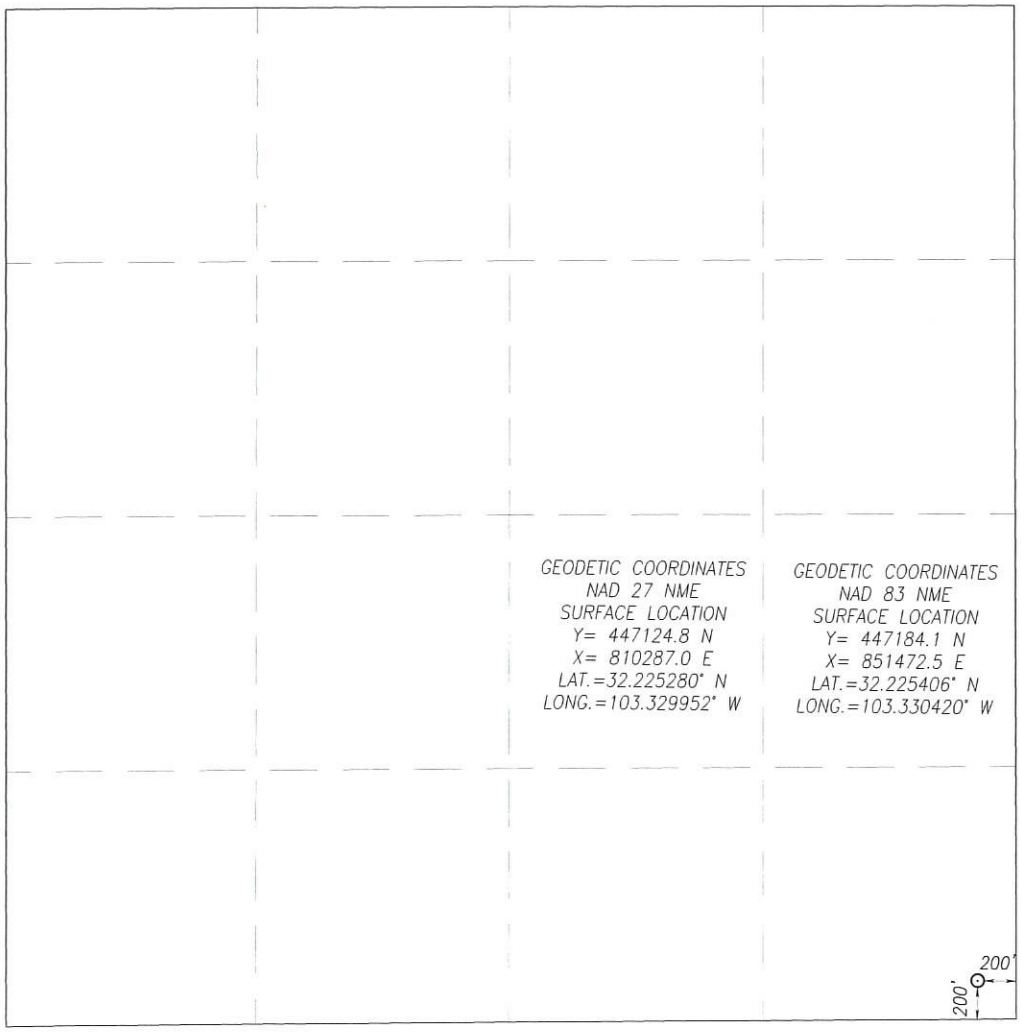
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	11	24-S	35-E		200	SOUTH	200	EAST	LEA

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

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 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 7/9/2020
Date

Richard Hill
Printed Name

rhill@wellconsultant.com
E-mail Address

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.

APRIL 17, 2020
Date of Survey

Signature & Seal of Professional Surveyor:

RONALD J. EIDSON
NEW MEXICO
3239
REGISTERED PROFESSIONAL SURVEYOR

Ronald J Eidson 05/13/2020
Certificate Number

Gary G. Eidson 12641
Ronald J. Eidson 3239

LSL JWSC W.O.: 20.11.0201

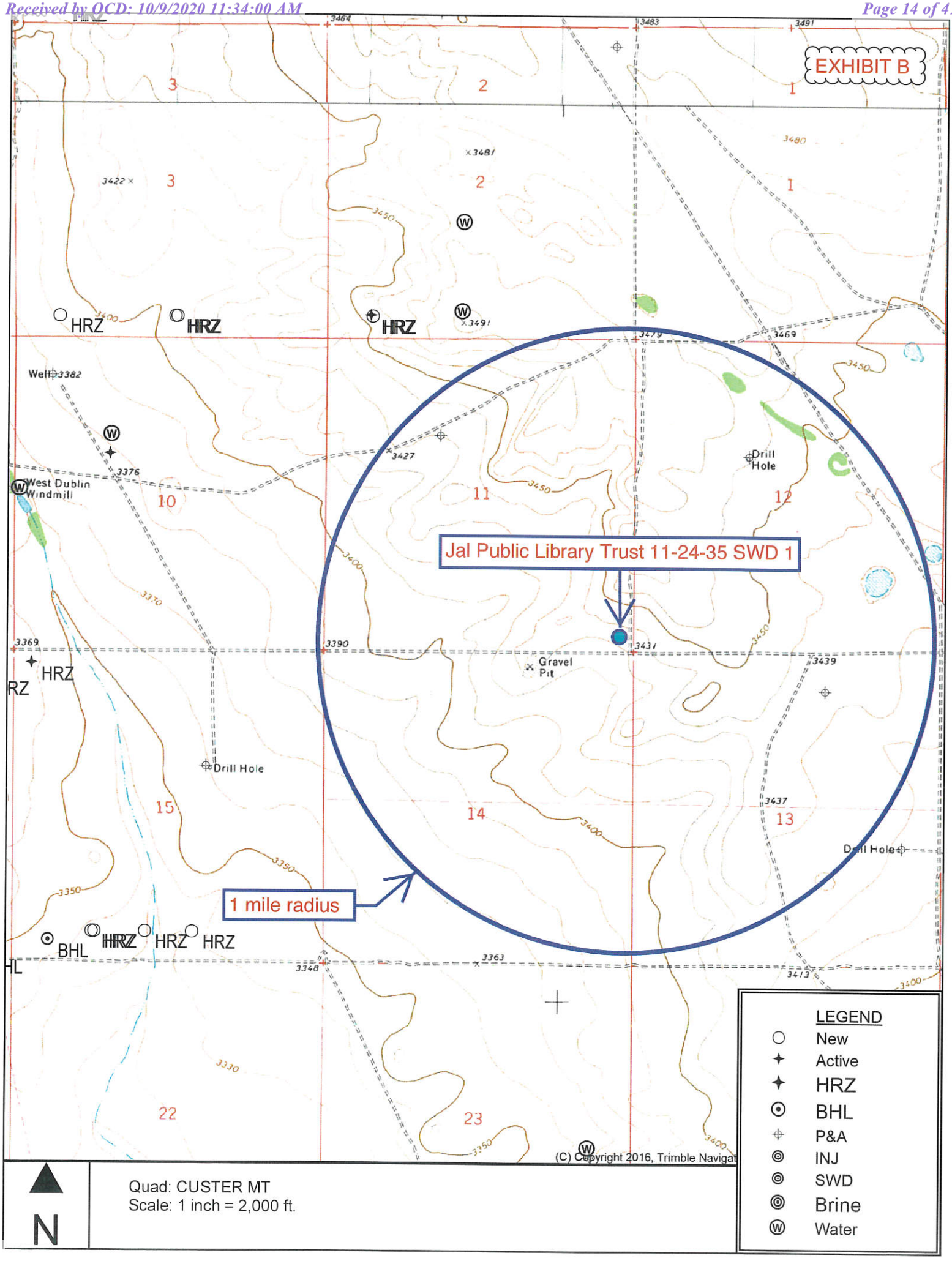


EXHIBIT B
Jal Public Library Trust 11-24-35 SWD 1
1 mile radius
HRZ
BHL
Drill Hole
Gravel Pit
West Dublin Windmill
Well
Quad: CUSTER MT
Scale: 1 inch = 2,000 ft.
N
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Brine
Water
(C) Copyright 2016, Trimble Navigat

SORTED BY DISTANCE FROM JAL PUBLC LIBRARY TRUST 11-24-35 SWD 1

API	OPERATOR	WELL	STATUS	UNIT-SECTION-T24S-R35E	ZONE @ TD	TVD	FEET FROM JAL PUBLIC LIBRARY TRUST 11-24-35 SWD
3002525649	Union Oil	Luzon Federal 1	P&A	B-13	Morrow	14940	3618
3002508682	British-Amer Oil	Fields Federal 1	P&A	F-12	Bone Spring	8703	3756
3002530531	Enron O&G Co.	Hefner 11 Com 1	P&A	F-11	Morrow	14873	4565
3002508683	*Bert Fields, Jr*	*Peggy E Baetz 1*	*P&A*	*I-13*	*Yates*	*4512*	*5997*

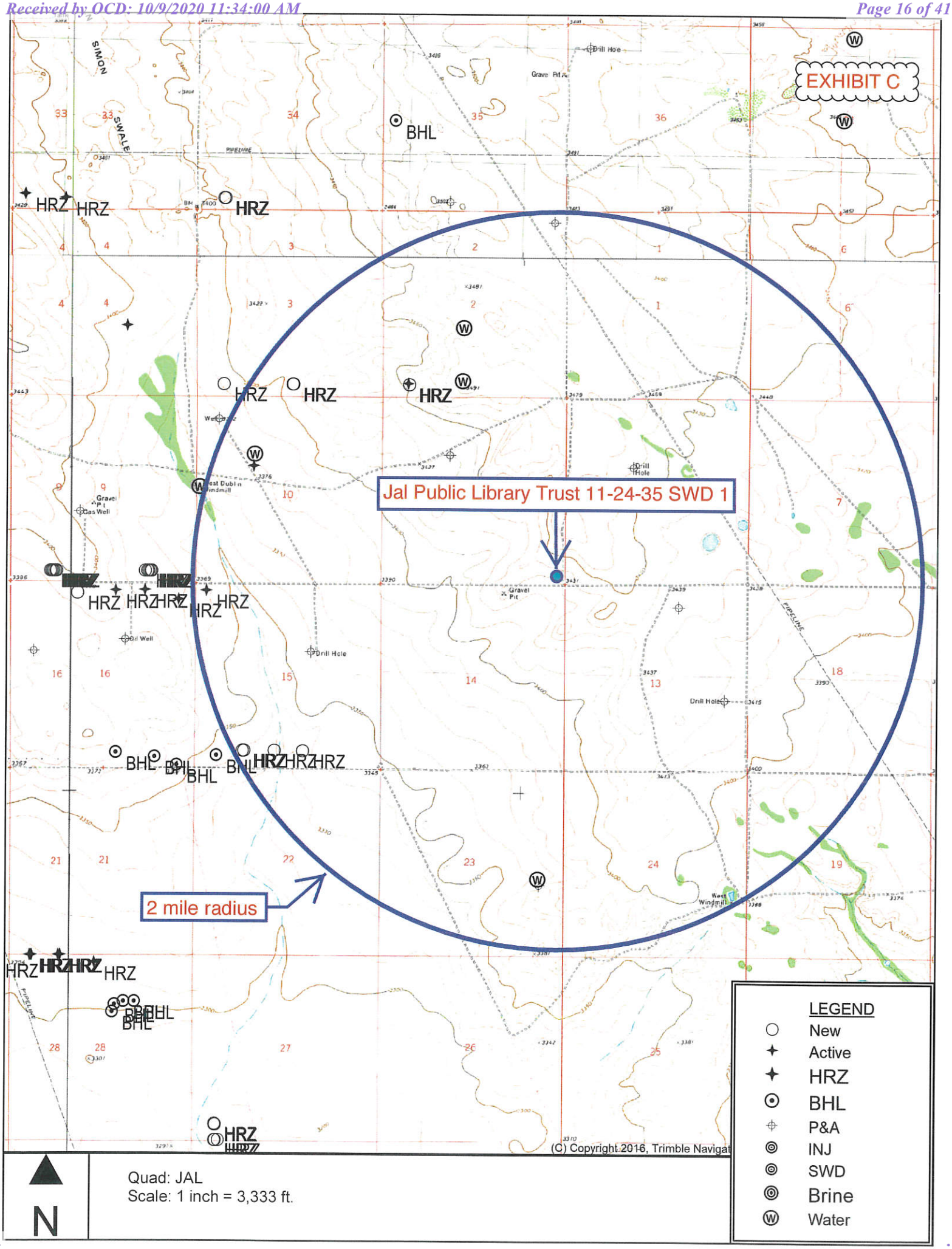
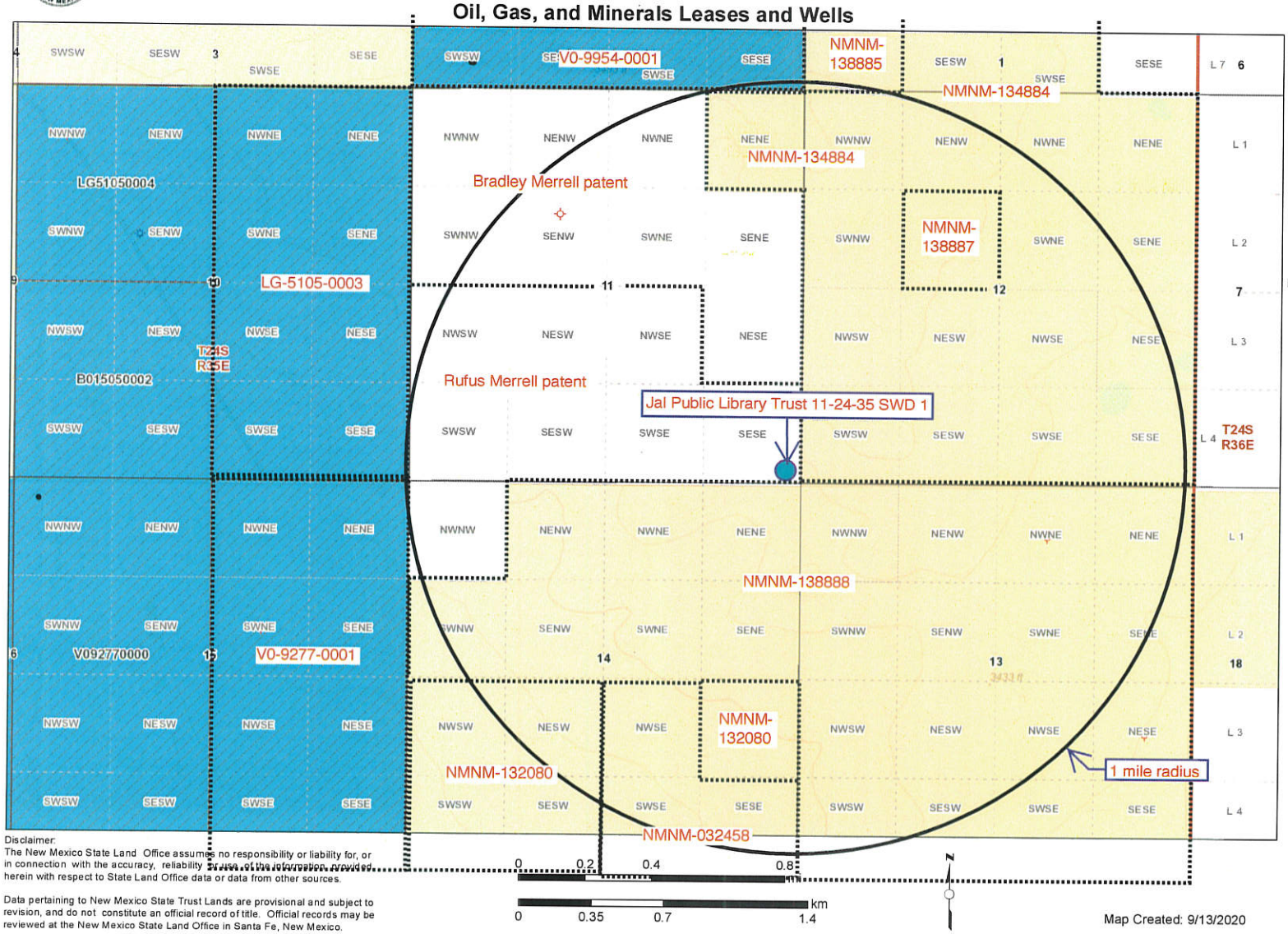


EXHIBIT C
Jal Public Library Trust 11-24-35 SWD 1
2 mile radius
Quad: JAL
Scale: 1 inch = 3,333 ft.
N
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Brine
Water
(C) Copyright 2016, Trimble Navigat

New Mexico State Land Office

Oil, Gas, and Minerals Leases and Wells



Cancelled / Not Drilled
Detailed Roads
Unit Agreement Boundaries
Oil and Gas Leases

Federal Minerals Ownership
All Minerals
Coal Only
Oil and Gas Only
Oil, Gas and Coal Only
Other Minerals

New Mexico State Trust Lands
Subsurface Estate
Surface Estate
Both Estates

Federal Surface Management
Bureau of Indian Affairs/Tribes
Bureau of Land Management
Bureau of Reclamation
Department of Agriculture
Department of Defense
DOE
USDA Forest Service
Fish and Wildlife Service
National Park Service
Valles Caldera National Preserve
State Parks

EXHIBIT D

Map Created: 9/13/2020

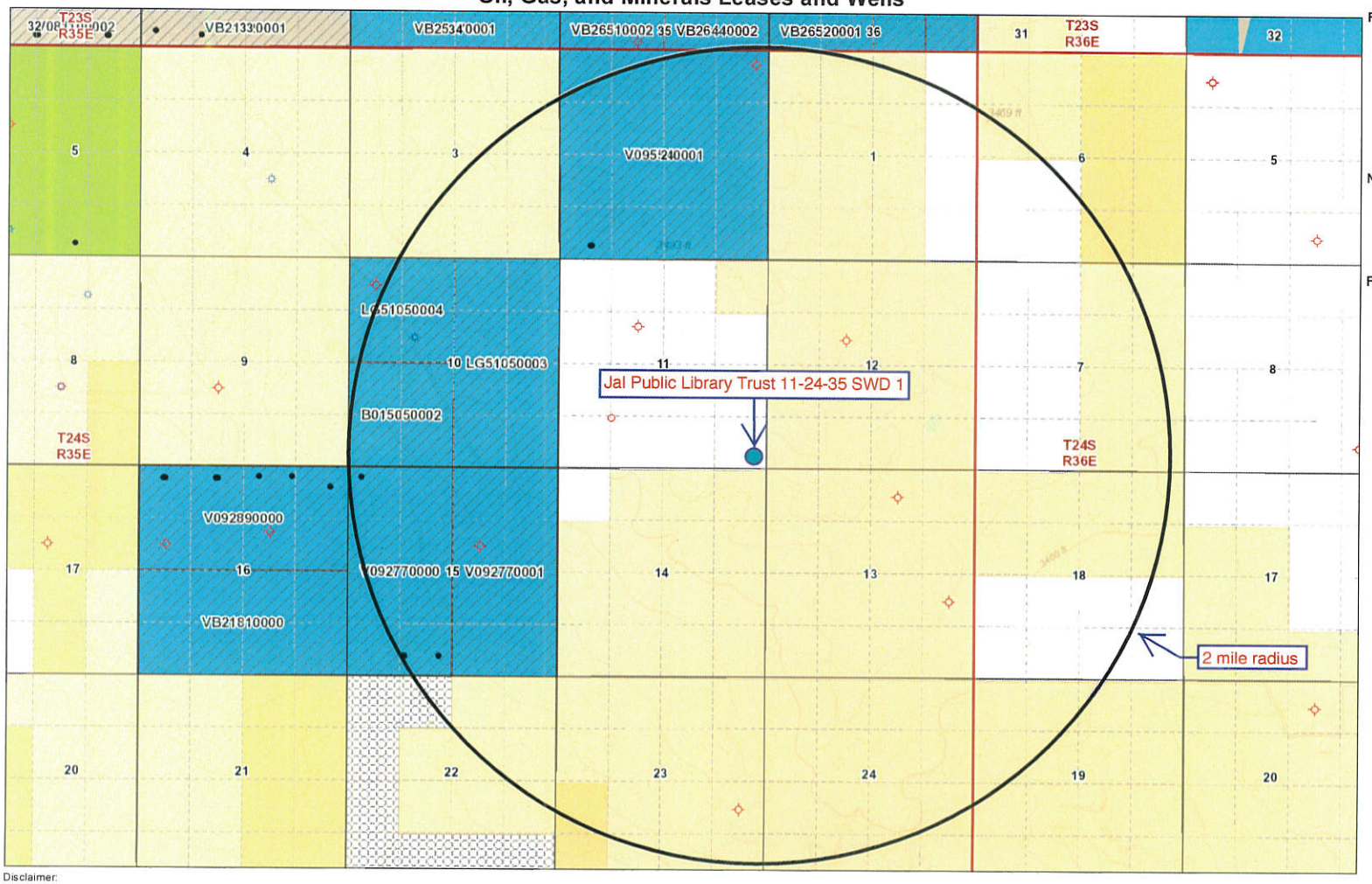
JAL PUBLIC LIBRARY TRUST 11-24-35 SWD 1 AREA OF REVIEW LEASES

Aliquot Parts in Area of Review (T. 24 S., R. 35 E.)	Lessor	Lease	Lessee(s) of Record	Well Operator (If any, all shallower than Devonian)
SWSW Sec. 1	BLM	NMNM-138885	Blackbeard	none
S2SE4 Sec. 2	NMSLO	V0-9554-0001	EOG	none
E2SE4 Sec. 10	NMSLO	LG-5105-0003	COG	COG
NENE Sec. 11	BLM	NMNM-134884	Blackbeard	none
NWNE, N2NW4, S2N2, & S2 Sec. 11	fee	Merrells	COG	none
N2N2, SWNW, S2NE4, & S2 Sec. 12	BLM	NMNM-134884	Blackbeard	none
N2, N2S2, S2SW4, & SWSE Sec. 13	BLM	NMNM-138888	MRC, Franklin Mt.	none
NE4, E2NW4, & SWNW Sec. 14	BLM	NMNM-138888	MRC, Franklin Mt.	none
NWNW Sec. 14	fee	Rufus Merrell	COG	none
NESE Sec. 14	BLM	NMNM-132080	Franklin Mt.	none
W2SE4 & SESE Sec. 14	BLM	NMNM-032458	Devon, Occidental, & XTO	none
N2SW4 & SESW Sec. 14	BLM	NMNM-132080	Franklin Mt.	none

EXHIBIT D

New Mexico State Land Office

Oil, Gas, and Minerals Leases and Wells



- Cancelled / Not Drilled
- Detailed Roads
- Unit Agreement Boundaries
- Oil and Gas Leases

Federal Minerals Ownership

- All Minerals
- Coal Only
- Oil and Gas Only
- Oil, Gas and Coal Only
- Other Minerals

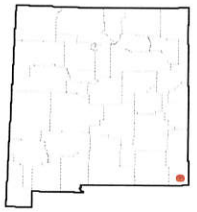
New Mexico State Trust Lands

- Subsurface Estate
- Surface Estate
- Both Estates

Federal Surface Management

- Bureau of Indian Affairs/Tribes
- Bureau of Land Management
- Bureau of Reclamation
- Department of Agriculture
- Department of Defense
- DOE
- USDA Forest Service
- Fish and Wildlife Service
- National Park Service
- Valles Caldera National Preserve
- State Parks

EXHIBIT E



Disclaimer:
The New Mexico State Land Office assumes no responsibility or liability for, or in connection with the accuracy, reliability or use of the information provided herein with respect to State Land Office data or data from other sources.

Data pertaining to New Mexico State Trust Lands are provisional and subject to revision, and do not constitute an official record of title. Official records may be reviewed at the New Mexico State Land Office in Santa Fe, New Mexico.

0 0.4 0.8 1.6 mi

0 0.5 1 2 km

N

Map Created: 9/13/2020

WATER ANALYSES (in mg/l) T 23 - 25 S., 34 - 36 E.

EXHIBIT F

API	Section	Township	Range	Formation	TDS	Chloride	Bicarbonate	Sulfate
3002509236	3	23S	36E	Artesia	247652	149800	139	282
3002509236	3	23S	36E	Artesia	174624	105400	243	480
3002509254	4	23S	36E	Artesia	11694	5494	1341	882
3002509270	5	23S	36E	Artesia	6230	1820	1260	1190
3002509285	9	23S	36E	Artesia	41343	23090	1175	1608
3002509285	9	23S	36E	Artesia	35656	19660	1239	1700
3002509288	9	23S	36E	Artesia	12307	4572	1309	2014
3002520245	10	23S	36E	Artesia	16011	6179	1580	3039
3002509351	14	23S	36E	Artesia	17740	9843	703	896
3002510783	17	23S	36E	Artesia	123722	79130	89	2831
3002512761	17	23S	36E	Artesia	4761	2622	402	2
3002509362	20	23S	36E	Artesia	164005			
3002510809	20	23S	36E	Artesia	16978	9513	896	693
3002509370	21	23S	36E	Artesia	9048	2799	1067	2195
3002509374	22	23S	36E	Artesia	41375	22400	3050	500
3002509393	23	23S	36E	Artesia	161405	95830	791	1605
3002509433	27	23S	36E	Artesia	80249	50140	886	1143
3002509441	28	23S	36E	Artesia	17332	9989	690	505
3002509442	28	23S	36E	Artesia	47070	23890	1133	2575
3002509447	33	23S	36E	Artesia	13588	7638	552	683
3002509448	33	23S	36E	Artesia	15788	8932	794	784
3002509448	33	23S	36E	Artesia	15775	8888	778	837
3002509448	33	23S	36E	Artesia	13492	6968	1007	831
3002509448	33	23S	36E	Artesia	34426	19580	1005	887
3002509448	33	23S	36E	Artesia	12078	6393	1035	530
3002509448	33	23S	36E	Artesia	12541	6854	524	827
3002509448	33	23S	36E	Artesia	14249	7820	930	590
3002509448	33	23S	36E	Artesia	14782	7812	1497	610
3002509455	33	23S	36E	Artesia	9360	3720	1380	1190
3002509456	33	23S	36E	Artesia	10241	4899	750	946
3002509457	34	23S	36E	Artesia	11982	5277	928	1161
3002509462	34	23S	36E	Artesia	17162	9078	855	1401
3002509518	4	24S	36E	Artesia	12146	5583	1257	991
3002509517	4	24S	36E	Artesia	7680	3277	1876	10
3002509518	4	24S	36E	Artesia	8809	4261	592	836
3002509535	10	24S	36E	Artesia	9777	4800	950	500
3002509536	10	24S	36E	Artesia	8349	2814	1507	1286
3002509606	23	24S	36E	Artesia	6510	1540	1130	1820
3002509610	23	24S	36E	Artesia	23770	11000	1080	3600
3002509616	23	24S	36E	Artesia	11728	5963	1140	413
3002509616	23	24S	36E	Artesia	8300	3540	1560	310

WATER ANALYSES (in mg/l) T 23 - 25 S., 34 - 36 E.

EXHIBIT F

API	Section	Township	Range	Formation	TDS	Chloride	Bicarbonate	Sulfate
3002509617	23	24S	36E	Artesia	130547	74780	1674	3772
3002509674	26	24S	36E	Artesia	47719	26966	1127	1713
3002509668	26	24S	36E	Artesia	6350	2630	525	955
3002509668	26	24S	36E	Artesia	6787	3112	1054	288
3002509673	26	24S	36E	Artesia	17631	9532	1075	475
3002509673	26	24S	36E	Artesia	6861	2909	1474	123
3002509674	26	24S	36E	Artesia	203032	118900	69	8489
3002509674	26	24S	36E	Artesia	284020	170400	247	2865
3002509674	26	24S	36E	Artesia	47730	27010	1124	1711
3002525671	26	24S	36E	Artesia	19713	9500	1050	2300
3002509679	27	24S	36E	Artesia	7824	3069	1184	903
3002509689	34	24S	36E	Artesia	5620	1980	1330	460
3002509711	36	24S	36E	Artesia	8862	3988	1681	159
3002509711	36	24S	36E	Artesia	10063	4889	1593	114
3002509711	36	24S	36E	Artesia	8859	3988	1682	159
3002509711	36	24S	36E	Artesia	10058	4884	1592	114
3002509715	36	24S	36E	Artesia	14933	5993	520	3965
3002509719	1	25S	36E	Artesia	6676			
3002509721	2	25S	36E	Artesia	104690	60000	980	3400
3002509761	13	25S	36E	Artesia	9751	4320	1630	490
3002509766	13	25S	36E	Artesia	1506	400	305	315
3002509782	23	25S	36E	Artesia	10570	4914	1128	728
3002509788	24	25S	36E	Artesia	117899	68960	892	3567
3002509789	24	25S	36E	Artesia	316728	182700	424	10610
3002509791	24	25S	36E	Artesia	35753	18400	1220	3100
3002509812	25	25S	36E	Artesia	11346	4824	778	1799
3002520444	4	24S	34E	Atoka	51475	31000	317	340
3002520261	18	23S	34E	Bone Spring	204652	130000	512	260
3002523871	7	23S	36E	Capitan	44270	23400	573	3790
3002508489	30	23S	34E	Delaware	52115	32200	451	529
3002540628	29	23S	35E	Del-Brushy		190774	61	90
3002541864	30	23S	35E	Del-Brushy	67516	39091	732	740
3002541864	30	23S	35E	Del-Brushy		130601	122	920
3002541864	30	23S	35E	Del-Brushy		126850	122	690
3002541864	30	23S	35E	Del-Brushy		178278	37	380
3002541864	30	23S	35E	Del-Brushy		164000	49	269
3002508483	6	23S	34E	Devonian	71078	42200	500	1000
3002521082	34	23S	34E	Devonian	80187	47900	476	900
3002509716	36	24S	36E	Devonian	176234	107400	128	1004
3002520756	9	24S	35E	Morrow	282741	176800	161	650
3002509401	24	23S	36E	Penn.	196831	120300	208	1271

EXHIBIT G

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 01056 POD1		CP	LE	4	4	3	02	24S	35E	656465	3568304	1871	5396	4399	997
CP 01057 POD1		CP	LE	4	2	3	02	24S	35E	656464	3568762	2287	5390	4365	1025
CP 01119 POD2		CP	LE			4	23	24S	35E	657210	3564007	2636	1572		
CP 00573		CP	LE	1	4	1	10	24S	35E	654657	3567638*	2845	405	300	105
CP 00845 POD1		CP	LE		1	3	10	24S	35E	654360	3567130*	3002	190		
CP 00842 POD1		CP	LE		2	4	24	24S	35E	658834	3563982*	3059	130		
CP 00366 POD1		CP	LE	4	1	1	10	24S	35E	654447	3567834*	3113	1250		
CP 01513 POD1		CP	LE	3	3	1	10	24S	35E	654184	3567350	3218	186		

Average Depth to Water: **3021 feet**
Minimum Depth: **300 feet**
Maximum Depth: **4399 feet**

Record Count: 8

UTMNAD83 Radius Search (in meters):

Easting (X): 657323 **Northing (Y):** 3566642 **Radius:** 3220

(3220 meters = 10,560' = 2 miles)

***UTM location was derived from PLSS - see Help**

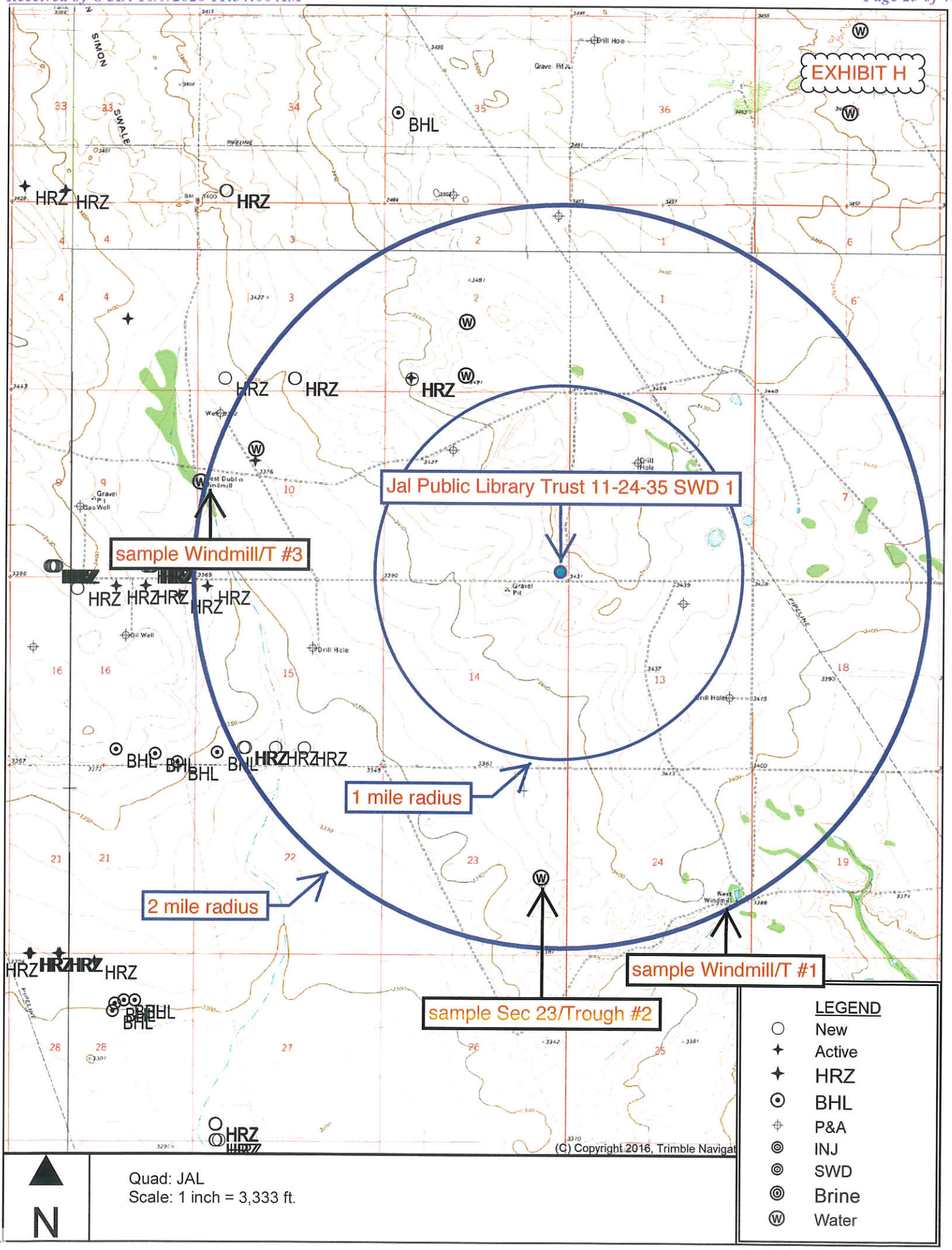


EXHIBIT H
Jal Public Library Trust 11-24-35 SWD 1
sample Windmill/T #3
1 mile radius
2 mile radius
sample Windmill/T #1
sample Sec 23/Trough #2
BHL
HRZ
SIMON
SWALE
PIPELINE
Drill Hole
Gravel Pit
Oil Well
Gas Well
West Dublin Windmill
West Windmill
(C) Copyright 2016, Trimble Navigat
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Brine
Water
N
Quad: JAL
Scale: 1 inch = 3,333 ft.

EXHIBIT H

Analytical Rep

Lab Order **2007E83**

Date Reported: **8/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West
Project: BC&D
Lab ID: 2007E83-001 **Matrix:** AQUEOUS

Client Sample ID: Windmill/T #1
Collection Date: 7/28/2020 3:24:00 PM
Received Date: 7/29/2020 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B							Analyst: **SMS**
N-Hexane Extractable Material	ND	9.88	P	mg/L	1	8/5/2020	54141
NOTES:							
Sample not preserved properly; analyst added acid to adjust pH to <2.0.							
EPA METHOD 300.0: ANIONS							Analyst: **JMT**
Chloride	11	5.0		mg/L	10	7/29/2020 8:00:48 PM	R70716
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**
Total Dissolved Solids	311	20.0		mg/L	1	8/4/2020 10:40:00 AM	54089

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

EXHIBIT H

Analytical R

Lab Order **2007E83**

Date Reported: **8/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West
Project: BC&D
Lab ID: 2007E83-002 **Matrix:** AQUEOUS

Client Sample ID: Sec 23/Trough #2
Collection Date: 7/28/2020 4:08:00 PM
Received Date: 7/29/2020 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B						Analyst: **SMS**	
N-Hexane Extractable Material	ND	10.0	P	mg/L	1	8/5/2020	54141
NOTES: Sample not preserved properly; analyst added acid to adjust pH to <2.0.							
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	2400	100	*	mg/L	200	8/4/2020 1:00:34 PM	R70834
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	6310	20.0	*	mg/L	1	8/4/2020 10:40:00 AM	54089

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

EXHIBIT H

Analytical L
Lab Order **2007E83**
Date Reported: **8/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West
Project: BC&D
Lab ID: 2007E83-003 **Matrix:** AQUEOUS

Client Sample ID: Windmill/T #3
Collection Date: 7/28/2020 5:09:00 PM
Received Date: 7/29/2020 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B						Analyst: **SMS**	
N-Hexane Extractable Material	ND	9.93	P	mg/L	1	8/5/2020	54141
NOTES: Sample not preserved properly; analyst added acid to adjust pH to <2.0.							
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	68	5.0		mg/L	10	7/29/2020 8:50:26 PM	R70716
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	466	20.0		mg/L	1	8/4/2020 10:40:00 AM	54089

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

EXHIBIT H

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2007E83

10-Aug-20

Client: Permits West
Project: BC&D

Sample ID: **MB-54141**	SampType: **MBLK**	TestCode: **EPA Method 1664B**							
Client ID: **PBW**	Batch ID: **54141**	RunNo: **70870**							
Prep Date: **8/4/2020**	Analysis Date: **8/5/2020**	SeqNo: **2468000**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	ND	10.0								
Silica Gel Treated N-Hexane Extract	ND	10.0								

Sample ID: **LCS-54141**	SampType: **LCS**	TestCode: **EPA Method 1664B**							
Client ID: **LCSW**	Batch ID: **54141**	RunNo: **70870**							
Prep Date: **8/4/2020**	Analysis Date: **8/5/2020**	SeqNo: **2468001**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	40.2	10.0	40.00	0	101	78	114			
Silica Gel Treated N-Hexane Extract	12.2	10.0	20.00	0	61.0	64	132			S

NOTES:
SGT-LCS failed low; results should not be used for SGT regulatory compliance purposes.
SGT-LCS failed low; results should not be used for SGT regulatory compliance purposes.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

EXHIBIT H

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2007E83

10-Aug-20

Client: Permits West
Project: BC&D

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R70716**	RunNo: **70716**
Prep Date:	Analysis Date: **7/29/2020**	SeqNo: **2460950** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R70716**	RunNo: **70716**
Prep Date:	Analysis Date: **7/29/2020**	SeqNo: **2460951** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.4	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R70834**	RunNo: **70834**
Prep Date:	Analysis Date: **8/4/2020**	SeqNo: **2466494** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R70834**	RunNo: **70834**
Prep Date:	Analysis Date: **8/4/2020**	SeqNo: **2466495** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

EXHIBIT H

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2007E83

10-Aug-20

Client: Permits West
Project: BC&D

Sample ID: **MB-54089**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **54089**	RunNo: **70809**
Prep Date: **7/31/2020**	Analysis Date: **8/4/2020**	SeqNo: **2464963** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-54089**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **54089**	RunNo: **70809**
Prep Date: **7/31/2020**	Analysis Date: **8/4/2020**	SeqNo: **2464964** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1070	20.0	1000	0	107	80	120			

Sample ID: **2007E83-001BDUP**	SampType: **DUP**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **Windmill/T #1**	Batch ID: **54089**	RunNo: **70809**
Prep Date: **7/31/2020**	Analysis Date: **8/4/2020**	SeqNo: **2464976** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	317	20.0						1.91	10	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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

EXHIBIT I

NM Oil Conservation Division
1220 S. St. Francis Dr.
Santa Fe, NM 8705

Re: Geology Statement
BC&D Operating Inc.
Jal Public Library Trust 11-24-35 SWD No. 1
Section 11, T. 24S, R. 35E
Lea County, New Mexico

To whom it may concern:

Publicly available geologic and engineering data related to the proposed well have been thoroughly reviewed, and no evidence for open faults or any other hydrologic connection between the proposed Devonian-Silurian injection zone and any underground sources of drinking water has been found. Please see the attached seismic risk assessment for additional information.

Sincerely,

Cory Walk

Cory Walk
Geologist

EXHIBIT I

Seismic Risk Assessment

BC&D Operating, Inc.

Jal Public Library Trust 11-24-35 SWD No. 1

Section 11, Township 24 South, Range 35 East

Lea County, New Mexico

Cory Walk

Cory Walk

B.S., M.S.

Geologist

Permits West Inc.

September 17, 2020

EXHIBIT I

GENERAL INFORMATION

Jal Public Library Trust 11-24-35 SWD No. 1 is located in the SE 1/4, section 11, T24S, R35E, about 11 miles northwest of Jal, NM in the Permian Basin. BC&D Operating proposes the injection zone to be within the Devonian-Silurian formation through an open hole from 15,246'-17,433' below ground surface. This report assesses any potential concerns relating to induced seismicity along deep penetrating Precambrian faults or the connection between the injection zone and known underground potable water sources.

SEISMIC RISK ASSESSMENT

Historical Seismicity

Searching the USGS earthquake catalog resulted in one (1) earthquake above a magnitude 2.5 within 6 miles (9.7 km) of the proposed deep disposal site since 1970 (Fig. 1). The nearest earthquake occurred on October 21, 2019 about 5.28 miles (~8.50 km) northwest of the proposed SWD site and had a magnitude of 2.7.

Basement Faults and Subsurface Conditions

A structure contour map (Fig. 1) of the Precambrian basement shows the Jal Public Library Trust 11-24-35 SWD #1 is approximately 2.4 miles from the nearest basement-penetrating fault inferred by Todd Reynolds on behalf of NGL Energy Solutions (NMOCD Case Numbers 20141 and 20142). **Information about nearby faults is listed in Table 1.**

Snee and Zoback (2018) state, "In the western part of Eddy County, New Mexico, S_{Hmax} is ~north-south (consistent with the state of stress in the Rio Grande Rift; Zoback and Zoback, 1980) but rotates to ~east-northeast-west-southwest in southern Lea County, New Mexico and the northernmost parts of Culberson and Reeves counties, Texas." **Around the Jal Public Library Trust SWD site, Snee and Zoback indicate a S_{Hmax} direction of N075°E and an A_φ of 0.60, indicating an extensional (normal) stress regime.**

Induced seismicity is a growing concern of deep SWD wells. Relatively new software developed by the Stanford Center for Induced and Triggered Seismicity allows for the probabilistic screening of deeply penetrating faults near the proposed injection zone (Walsh et al., 2016; Walsh et al., 2017). This software uses parameters such as stress orientations, fault strike/dip, injection rates, fault friction coefficients, etc. to estimate the potential for fault slip. Using the best available data as input parameters (Table 2) including the subject well injecting at 25,000 bbls/day and all other existing and proposed SWDs within a 6 mile radius injecting at 30,000 bbls/day (23 total SWD wells), the Fault Slip Potential (FSP) models suggest a three (0.03) percent chance of slip on nearby faults, inferred by Frenzel et al (1988), Ewing et al. (1990), and Todd Reynolds (NMOCD Case Nos. 20141 and 20142), through the year 2045 (Fig. 2; Table 1). **This model also suggests a pore pressure increase of 7.5 psi on the nearest fault (Fault 29; Fig. 3; Table 1) by the year 2045.** Geomechanical modeling shows that the primary fault of concern (fault 29) would need a pressure increase of 2382 psi to reach a 100% probability of slip on the fault. Even a 50% probability requires an increase of 774 psi which is far greater than the modeled increase of 7.5 psi (Fig. 3).

EXHIBIT I

GROUNDWATER SOURCES

Three principal aquifers are used for potable groundwater in southern Lea County; these geologic units include the Triassic Santa Rosa formation, Tertiary Ogallala formation, and Quaternary alluvium. Nicholson and Clebsch (1961) state, "Potable ground water is not available below the Permian and Triassic unconformity but, because this boundary is not easily defined, the top of the Rustler anhydrite formation is regarded as the effective lower limit of 'potable' ground water." Around the Jal Public Library Trust 11-24-35 SWD #1, the top of the Rustler Formation lies at a depth of approximately 1618 feet bgs.

VERTICAL MIGRATION OF FLUIDS

Thick permeability barriers exist above (Woodford shale; 205 ft thick) and below (Simpson Group; 916 ft thick) the targeted Devonian-Silurian injection zone (Plate 2, Comer et al., 1991; Fig. 8, Frenzel et al., 1988). Well data indicates approximately 13,628 ft of rock separating the top of the Devonian from the previously stated lower limit of potable water at the top of the Rustler anhydrite formation. The stratigraphy suggests that the Woodford Shale and Simpson Group are adequate confining barriers that would prevent the vertical migration of injected fluids.

CONCLUDING STATEMENT

After examination of publicly available geologic and engineering data, there is no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

EXHIBIT I

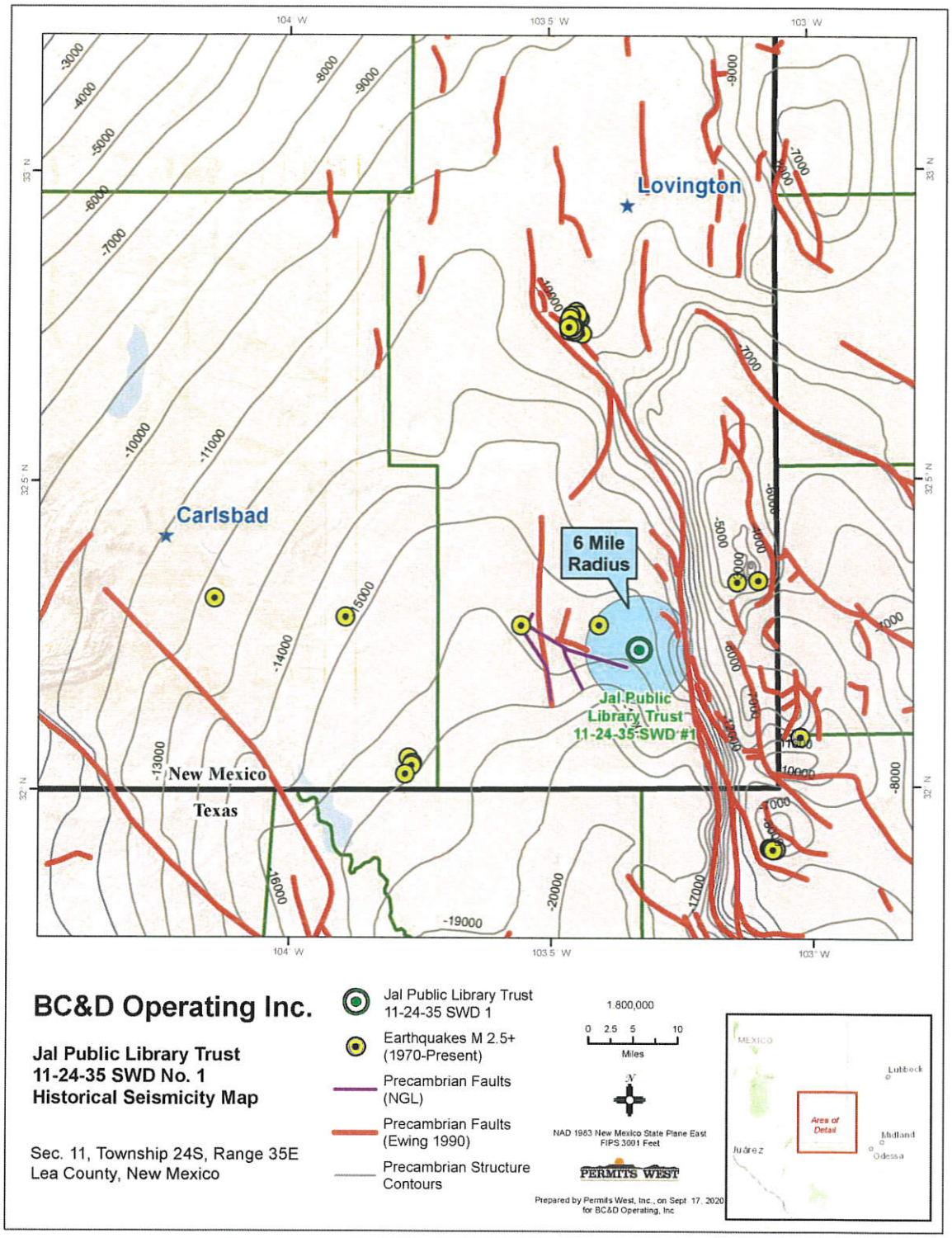


Figure 1. Structural contour map of the Precambrian basement in feet below sea level. Red lines represent the locations of Precambrian basement-penetrating faults (Ewing et al., 1990). Purple lines represent the locations of basement-penetrating faults inferred by Todd Reynolds representing NGL in NMOCD Case Nos. 20141 and 20142. The Jal Public Library Trust 11-24-35 SWD #1 well lies ~2.4 miles northeast of the closest deeply penetrating fault and ~5.3 miles southeast from the closest historic earthquake.

EXHIBIT I

Table 1: Nearby Basement Fault Information

ID	Distance from proposed SWD (mi)	Strike (°)	Dip (°)	FSP	Pore Pressure change after 25 years (psi)
Fault 29	2.4	106	50-90	0.03	7.5
Fault 30	7.6	153	50-90	0.00	5.0
Fault 25	5.8	121	50-90	0.00	5.0

Table 2: Fault Slip Potential model input parameters

Faults	Value	Notes
Friction Coefficient	0.58	Ikari et al. (2011)
Dip Angle (deg)	70	Snee and Zoback (2018)
Stress		
Vertical stress gradient (psi/ft)	1.1	Hurd and Zoback (2012)
Max Horizontal Stress Direction (deg)	75	Snee and Zoback (2018)
Depth for calculations (ft)	17000	Proposed injection zone
Initial Reservoir Pressure Gradient (psi/ft)	0.7	calculated from mud wt (ppg) used in drilling at these depths
A Phi Parameter	0.60	Snee and Zoback (2018)
Reference Friction Coefficient	0.58	Ikari et al. (2011)
Hydrology		
Aquifer thickness (ft)	2200	Proposed injection zone
Porosity (%)	6	
Permeability (mD)	150	
Injection Rate (bbl/day)	25000	Maximum proposed injection rate

EXHIBIT I

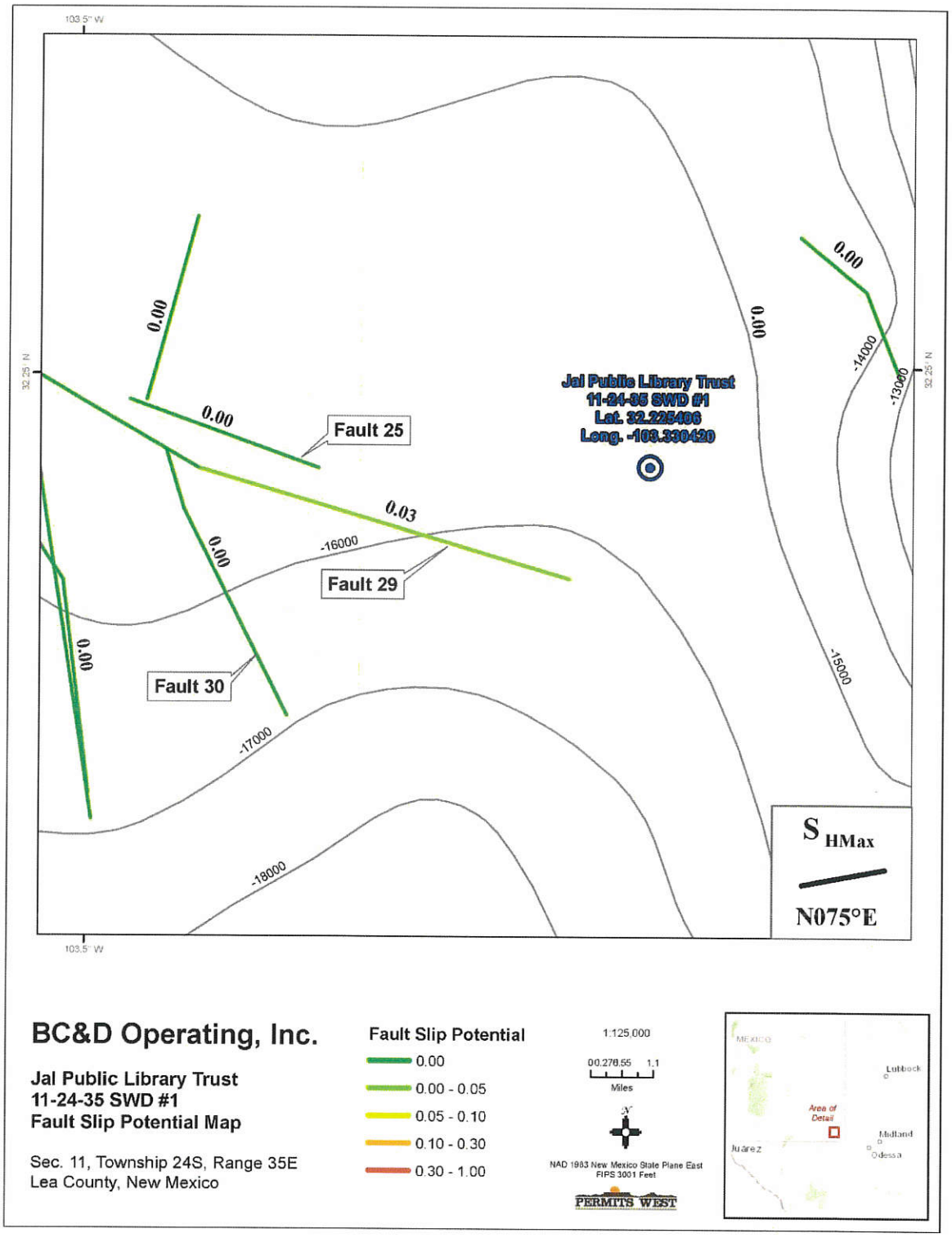


Figure 2. Precambrian fault map of Jal, NM. Faults are colored based on probability of fault slip as modeled using Fault Slip Potential software (Walsh and Zoback, 2016). Labeled values represent the calculated fault slip potential using the parameters indicated in Table 2. Contours show the top of the Precambrian basement in feet below sea level.

EXHIBIT I

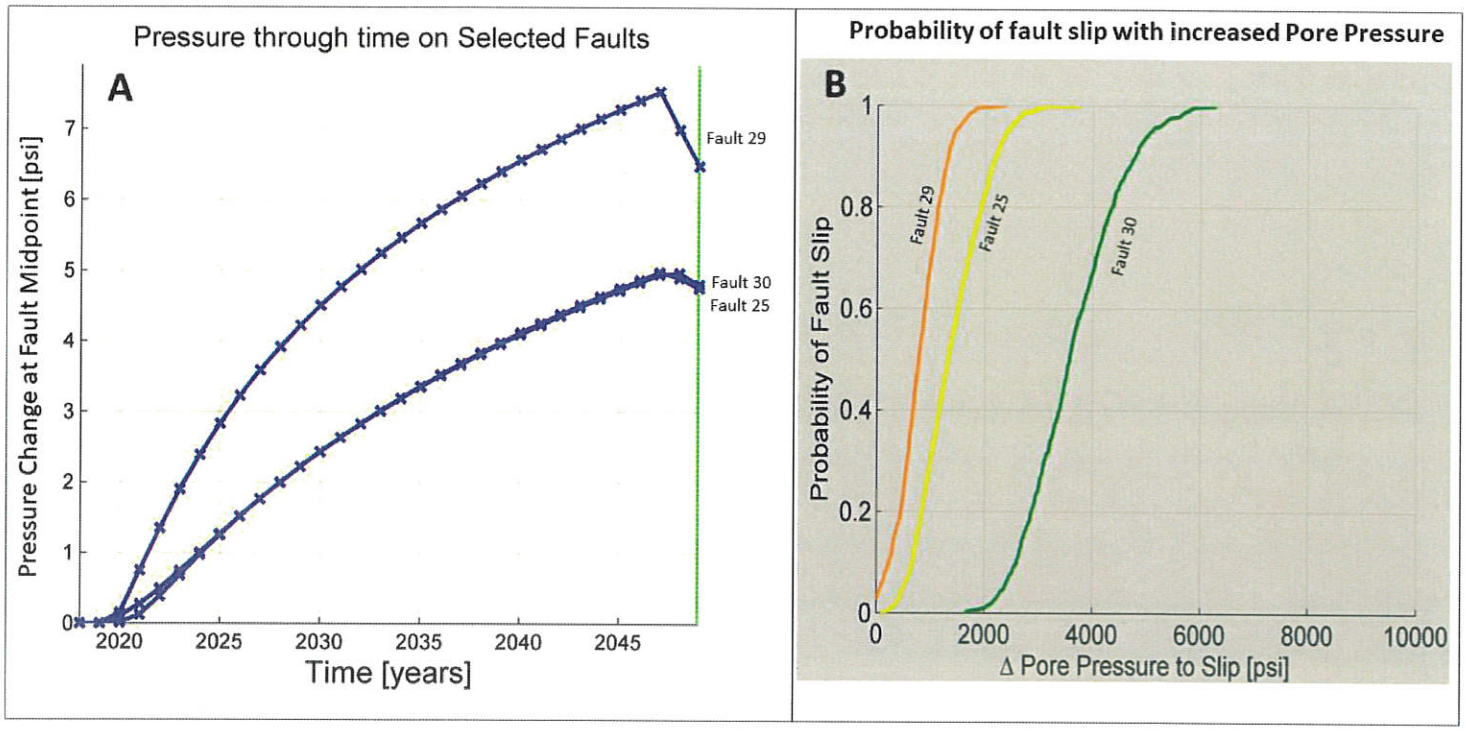


Figure 3. A) Plot showing the modeled change of pore pressure on nearby faults through time as a response to the proposed SWD well. B) Plot showing the required pore pressure increase needed to produce specific probabilities of fault slip on nearby faults.

EXHIBIT I

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Affidavit of Publication

EXHIBIT J

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
July 31, 2020
and ending with the issue dated
July 31, 2020.

Publisher

Sworn and subscribed to before me this 31st day of July 2020.

Business Manager

My commission expires
January 29, 2023
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-23

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGALS

LEGAL NOTICE
July 31, 2020

BC & D Operating, Inc. is applying to drill the Jal Public Library Trust 11-24-35 SWD 1 as a saltwater disposal well. The well is staked at 200 FSL & 200 FEL Sec. 11, T. 24 S., R. 35 E., Lea County and is 11 miles northwest of Jal, NM. Disposal will be in the Devonian and Silurian from 15,246' to 17,433'. Maximum injection pressure will be 3,049 psi. Maximum disposal rate will be 25,000 bwpd. 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.
#35698

02108485 00244953

BRIAN WOOD
PERMITS WEST
37 VERANO LOOP
SANTA FE, NM 87508

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

EXHIBIT K

September 18, 2020

BLM
620 E. Greene
Carlsbad NM 88220

BC & D Operating Inc. is applying (see attached application) to drill its Jal Public Library Trust 11-24-35 SWD 1 well as a saltwater disposal well. As required by NM Oil Conservation Division (NMOCD) rules, I am notifying you of the following proposed saltwater disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Well Name: Jal Public Library Trust 11-24-35 SWD 1 (fee lease) TD = 17,433'
Proposed Disposal Zone: Devonian & Silurian (15,246' – 17,433')
Location: 200' FSL & 200' FEL Sec. 11, T. 24 S., R. 35 E., Lea County, NM
Approximate Location: ≈11 air miles NW of Jal, NM
Applicant Name: BC & D Operating Inc. (405) 837-8147
Applicant's Address: P. O. Box 302, Hobbs NM 88241

Submittal Information: Application for a saltwater disposal well will be filed with the 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. NMOCD address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

B. Wood

Brian Wood

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