Initial

Application Part I

Received 8/14/20

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

ceived by OCD: 8/14/2020 9:50:32 AM		Page 1 of 4
WCIS7-200814-C-1080		Revised March 23, 2017
RECEIVED: REVIEWER:		^{PNO:} pDHR2023137001
- Geologic	ABOVE THIS TABLE FOR OCC DIVISION USE ONLY O OIL CONSERVATION DI al & Engineering Bureau ancis Drive, Santa Fe, NM	
	ATIVE APPLICATION CHEC	CKLIST
THIS CHECKLIST IS MANDATORY FOR ALL REGULATIONS WHICH REQ	ADMINISTRATIVE APPLICATIONS FOR EX QUIRE PROCESSING AT THE DIVISION LEVE	CEPTIONS TO DIVISION RULES AND EL IN SANTA FE
Applicant: Longfellow Energy, LP Well Name: Angus Federal 17 SWD 1		OGRID Number: <u>372210</u> API: 30-015-
Pool: SWD; Canyon		Pool Code: 96184
 1) TYPE OF APPLICATION: Check those w A. Location – Spacing Unit – Simulta NSL NSP(PRO. B. Check one only for [1] or [1] [1] Commingling – Storage – Me DHC CTB PLC [1] Injection – Disposal – Pressure WFX PMX SW 	aneous Dedication JECT AREA) NSP(PRORATION UN easurement C PC OLS C e Increase – Enhanced Oil	SWD-2390 PLM Recovery
 2) NOTIFICATION REQUIRED TO: Check the A. Offset operators or lease holder. B. Royalty, overriding royalty own C. Application requires published D. Notification and/or concurrent. E. Notification and/or concurrent. F. Surface owner. G. For all of the above, proof of r. H. No notice required. 	ers ners, revenue owners d notice nt approval by SLO nt approval by BLM	Notice Complete Application Content Complete
3) CERTIFICATION: I hereby certify that the administrative approval is accurate are understand that no action will be take	nd complete to the best of	my knowledge. I also

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 Wood

8-14-20 Date

505 466-8120

Phone Number

brian@permitswest.com e-mail Address

0	1	120	-	1.		
21	a	n	a	Ťι	Jr	е
~.	9	• •	-			~

Received by OCD: 8/14/2020 9:50:32 AM STATE OF NEW MEXICO EN RE

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

APPLICATION FOR AUTHORIZATION TO INJECT

I.	PURPOSE: Secondary Recovery Pressure Maintenance XXX Disposal Storage Application qualifies for administrative approval? XXX Yes No
II.	OPERATOR: LONGFELLOW ENERGY, LP
	ADDRESS: 16803 NORTH DALLAS PARKWAY, ADDISON TX 75001
	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: ANGUS FEDERAL 17 SWD 1
	 Proposed average and maximum daily rate and volume of fluids to be injected; Whether the system is open or closed; Proposed average and maximum injection pressure; Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, 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.
*Х.	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
	SIGNATURE: DATE: AUG. 12, 2020
*	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

FORM C-108

Revised June 10, 2003

ERGY, MINERALS AND NATURAL
SOURCES DEPARTMENT

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.

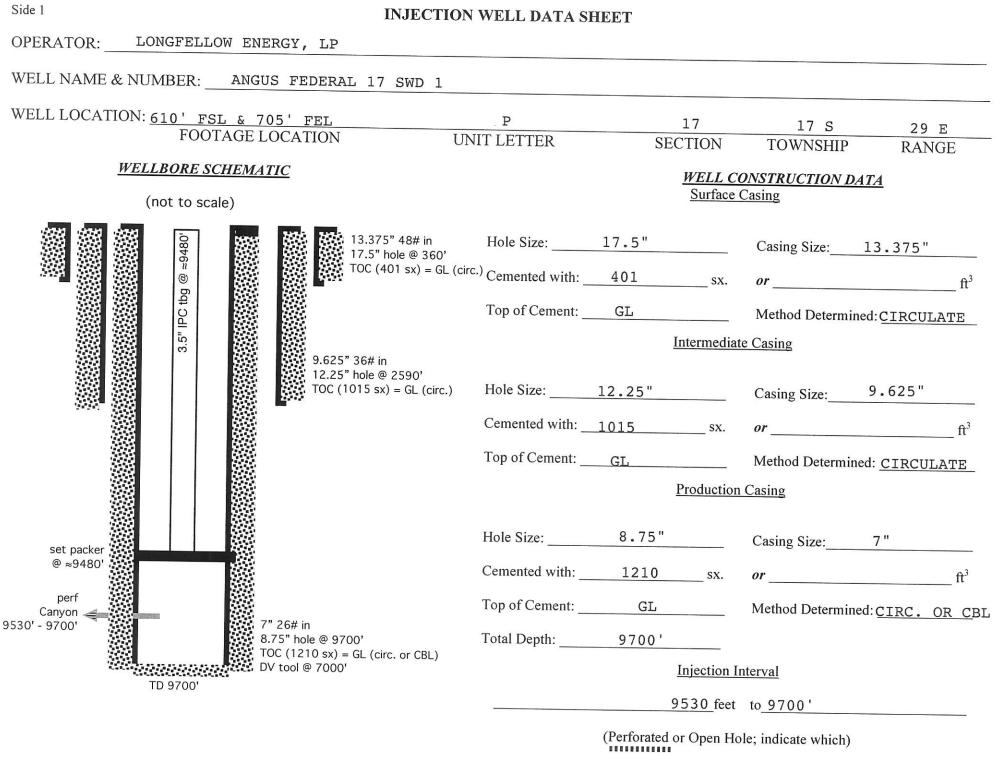
Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (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.



Page 4 of 44

INJECTION WELL DATA SHEET

Tul	bing Size: 3.5" J-55 9.3#	Lining Material:	INTERNAL	PLASTIC	COAT		
Ty	pe of Packer: ASI-X				2,22		
Pac	cker Setting Depth: _≈9480 '						
Otl	ner Type of Tubing/Casing Seal (if applicable	e):					
	Addi	tional Data					
1.	Is this a new well drilled for injection?	<u> </u>	No				
	If no, for what purpose was the well origina	lly drilled?					
2.	Name of the Injection Formation: _ CANYON	3					
3.	Name of Field or Pool (if applicable):	D; CANYON (9618	4)				
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. <u>NO</u>						
5.	Give the name and depths of any oil or gas z injection zone in this area:						
	OVER: SEVEN RIVERS (1145'), QU SAN ANDRES (2205'), GLORIETA (JEEN (1725'), G (3854'), YESO (RAYBURG (3913')	2100'),			
	UNDER: MORROW (10500')						

Page 5 of 44

.

.

I. Plan is to drill a 9700' deep SWD; Canyon (96184) saltwater disposal well. Disposal will be from 9530' to 9700' in the Canyon. Well is on BLM surface and minerals. See Exhibit A for a USGS map and C-102 form.

- II. Operator: Longfellow Energy, LP (OGRID 372210) Operator phone number: (972) 590-9900 Operator address: 16803 North Dallas Parkway, Addison TX 75001 Contact for Application: Brian Wood (Permits West, Inc.) Phone: (505) 466-8120
- III. A. (1) Lease: BLM NMNM-014847
 Lease Size: 1,054.42 acres
 Closest Lease Line: 610'
 Lease: S2SE4 Section 17, T. 17 S., R. 29 E. et al
 - A. (2) Surface casing (13.375", 48#, H-40, LT&C) will be set at 360' in a 17.5" hole and cemented to GL with 401 sacks (100% excess).

Intermediate casing (9.625", 36#, J-55, LT&C) will be set at 2590' in a 12.25" hole and cemented to GL with 1015 sacks (100% excess).

Production casing (7", 26#, L-80, BT&C) will be set at 9700' in an 8.75" hole and cemented to GL with 1210 sacks (30% excess). DV tool will be set at \approx 7000'. Bottom 320' of casing will be chrome lined.

- A. (3) IPC tubing (3.5", 9.3#, J-55, BT&C) will be set @ ≈9480'. (Disposal interval will be 9530' 9700' TVD.)
- A. (4) A 7" ASI-X packer will be set @ \approx 9480' (or in any event, \leq 100' above the top perforation (9530').



- B. (1) Disposal zone will be carbonates in the SWD; Canyon (NMOCD pool 96184). Estimated fracture gradient is ≈0.75 psi per foot.
- B. (2) Disposal interval (9530' to 9700') will be perforated.
- B. (3) This will be a new well drilled as a SWD well.
- B. (4) No perforated intervals are in the well.
- B. (5) Next higher oil or gas zone in the area of review is the Yeso. Yeso bottom is at ≈5347', or ≈4176' above the Canyon. Morrow is the only producing oil or gas zone in the area of review below the Canyon. Morrow top is at ≈10,500', or ≈642' below the bottom of the Canyon. Closest Canyon producer (30-015-30-15-44420) is ≈4-1/4 miles east. Closest existing SWD; Canyon well (Longfellow's 30-015-29260) is 2.28 miles north in I-5-17s-29e. Closest existing SWD; Cisco-Canyon well (30-015-39771) is 1.44 miles east-northeast in K-15-17s-29e. Longfellow is applying for a SWD; Canyon well (Ozzy State 18 SWD 1) that is 6757' northwest in J-18-17s-29e.

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

V. Exhibit B shows and tabulates 48 wells (43 producers + 4 P&A + 1 injector) within a half-mile radius. Three of the 48 wells penetrate the Canyon, one of the three is P&A. Exhibit C shows 846 existing wells (656 oil or gas + 163 P&A + 23 water injectors or disposers + 3 gas storage + 1 water) within a 2-mile radius.

Exhibit D maps and tabulates all well operators (regardless of depth), leases, and lessors (only NMSLO & BLM) within a half-mile radius. Exhibit E shows all leases (NMSLO, fee, & BLM) within a 2-mile radius.

Page 7 of 44



VI. Three (Exhibit F) of the 48 wells within a half-mile penetrated the Canyon (9523' – 9857'). Two of the penetrators are active gas or oil wells. The third is P&A and a diagram of its wellbore is in Exhibit F.

VII. 1. Average injection rate will be $\approx 15,000$ bwpd.

Maximum injection rate will be 20,000 bwpd.

- 2. System will be closed and open.
- 3. Average injection pressure will be ≈1500 psi. Maximum injection pressure will be 1906 psi (= 0.2 psi/ft x 9530' (highest perforation)).
- 4. Water source will be produced water from Permian Basin wells. Exhibit G tabulates T. 17 S., R. 28 & 29 E. produced water analyses from New Mexico Produced Water Quality Database v.2. No compatibility problems have been reported from the closest (2.28 miles north) SWD; Canyon well (30-015-29260). A minimum 13,717,187 barrels have been disposed to date in 20 years of operation.
- 5. Canyon has not been found productive of oil and gas within a mile. Sample (Exhibit H) from a Canyon; SWD well (30-015-22146) 12 miles southwest in N-7-19s-28e showed chlorides at 32,000 mg/l.

VIII. The Canyon is a dolomite and is an estimated 335' thick in this well. Closest possible underground source of drinking water above the proposed disposal interval are the red beds from \approx 65' to \approx 225'. Deepest water well within 2-miles is 131'. The >1.5-mile thick interval between the bottom of the red beds and the top of the Canyon include multiple layers of shale, salt, and anhydrite.

State Engineer records (Exhibit I) show the only water well within 2-miles is 1.55 miles southeast in K-22-17s-29e. It was sampled (Exhibit I) January 7, 2020. Angus Federal 17 SWD 1 is 13 miles northwest of the Capitan and 15 miles southwest of the Ogallala.

No underground source of drinking water is below the proposed disposal zone. Produced water is currently being injected in 47 wells (Abo, Glorieta, Grayburg, Queen, San Andres, Seven Rivers, and Yeso) and disposed in 18 wells (Canyon, Cisco, Glorieta, Penn, Upper Penn, Strawn, and Yeso) within 17s-29e.

Page 8 of 44

Formation tops are:

Ouaternary = 0'Rustler = 225'Salado = 310'Yates = 895'Seven Rivers = 1073'Queen = 1650'Penrose = 1907'Grayburg = 2071'San Andres = 2205'Glorieta = 3854'Yeso = 3913'Tubb = 5347'Lower Abo = 7040'Wolfcamp = 7240'Cisco = 8750'Canyon 9523' Proposed Disposal Zone = 9530' - 9700' TD: 9700' Strawn = 9908'

IX. The well will be stimulated with acid to clean out scale or fill.

X. CBL will be run if cement does not circulate to surface on the long string.

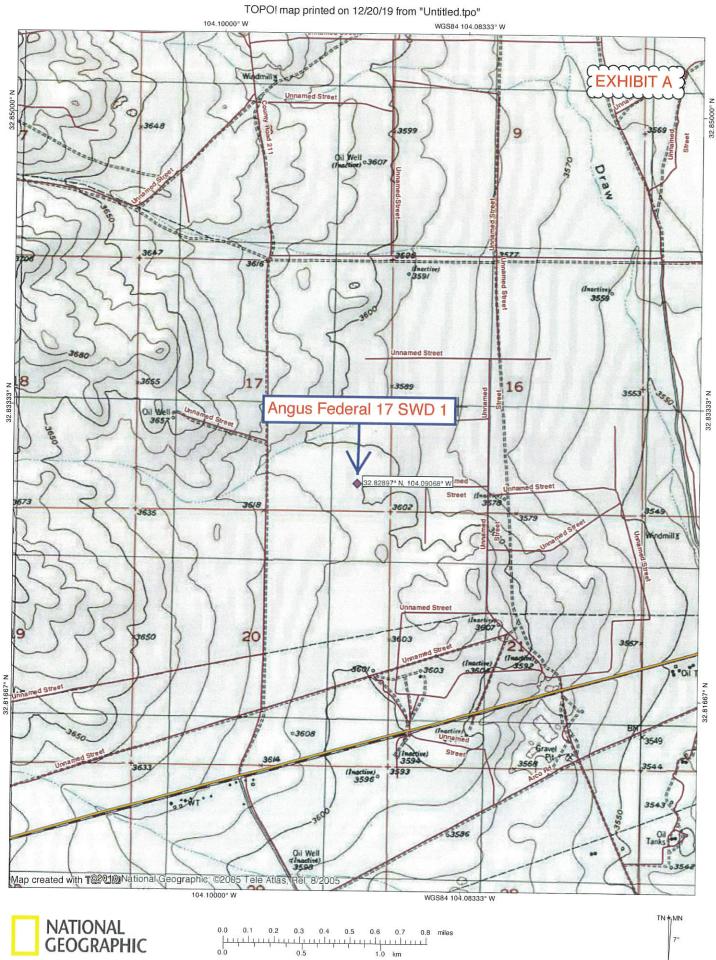
XI. No water well is within a mile. A water well 1.55 miles southeast was sampled (Exhibit I) on January 7, 2020.

XII. Longfellow Energy, LP is not aware of any geologic or engineering data (Exhibit J) that may indicate the Canyon is in hydrologic connection with any underground source of water. Twelve SWD; Canyon wells are active in New Mexico.



XIII. Legal ad (Exhibit K) was published in the Artesia newspaper on July 23, 2020. Notice (this application) is being sent (Exhibit L) to the surface owner (BLM), lessors, lessees of record, operating right holders, and well operators within a half-mile.





12/20/19

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, NM 87505

EXHIBIT A Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

mm

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

30-015-	API Numb	er		² Pool Cod 96184		³ Pool Name SWD; CANYON				
⁴ Property Code				A	³ Property NGUS FEDEF				° Well Number 1	
⁷ OGRID 37221				⁸ Operator Name LONGFELLOW ENERGY, LP					° Elevation 3602.5	
					Surface	e Location				
UL or lot no. P	Section 17	Township 17 S	Range 29 E	Lot Idn	Feet from the 610	North/South line SOUTH	Feet from the 705	East/West line EAST	County EDDY	
			" B	ottom He	ole Location	If Different Fr	om Surface	Annual Contractor Contractor		
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	L		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.

	N89'55'46"E	2643.28 FT N89'55'46'	"E 2643.28 FT		" OPERATOR CERTIFICATION
	NW CORNER SEC. 17	N/4 CORNER SEC. 17	NE CORNER SEC. 17		I hereby certify that the information contained herein is true and complete to the
	LAT. = 32.8418330'N LONG. = 104.1056015'W	SCALED	LAT. = 32.8418184'N		best of my knowledge and belief, and that this organization either owns a
	NMSP EAST (FT)		LONG. = 104.0883884'W	1	working interest or unleased mineral interest in the land including the proposed
L	N = 670067.31		NMSP EAST (FT) N = 670073.83		bottom hole location or has a right to drill this well at this location pursuant to
1	E = 611279.13		E = 616565.67	E	a contract with an owner of such a mineral or working interest, or to a
2641.3	-		1	.2.	voluntary pooling agreement or a computsory pooling order heretofore entered
26				640.	by the division.
52"W		NOTE: LATITUDE AND LONGITUDE COORDINATES ARE	+	12	Fulsol 7-19-20
52		SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NADB3). BASIS OF BEARING AND DISTANCES USED	5	12"	0
N00.06		ARE NEW MEXICO STATE PLANE FAST COORDINATES		. 80	Date
007		(GRID). ELEVATION VALUES ARE NAVD88.		S00.08	BRIAN WOOD
-				ŝ	Printed Name
	W/4 CORNER SEC. 17	1			brian@permitswest.com
	LAT. = 32.8345730'N LONG. = 104.1056028'W		E/4 CORNER SEC. 17 LAT. = 32.8345606'N		E-mail Address
	NMSP EAST (FT)		LONG. =104.0883879'W		505 466-8120
	N = 667426.00 E = 611284.41		NMSP EAST (FT) N = 667433.33		SURVEYOR CERTIFICATION
	c = 011204.41	ANGUS FEDROLL IS I OT	E = 616571.97		I hereby certify that the well location shown on this plat was
F	6	ANGUS FEDERAL 17-1 SWI ELEV. = 3602.5')		2 III 1000
7		LAT. = 32.8289720'N (NAD83	ś)	Ŀ	plotted from field notes of actual surveys made by me or under
2.2		LONG. — 104.0906830 W NMSP EAST (FT)		99	my supervision, and that the same is true and correct to the
2642.	3	N = 665398.46	SE CORNER SEC. 17 LAT. = 32.8273025'N	40.	best of my belief.
1255		E = 615871.70	LONG. = 104.0883884 W	0	NOVEMBER 18, 2019 F 14
06'53"W			NMSP EAST (FT)	Ш.0	Date of Survey
.90		_	N = 664792.68 E = 616577.93	7'4	A REAL
-	SW CORNER SEC. 17	S/4 CORNER SEC. 17 LOG	REACE	0.00	A AN DOCK ON THE
ž	LAT. = 32.8273104°N	LAT. = 32.8272772'N	705'	SO	
	LONG. = 104.1056041'W NMSP EAST (FT)	LONG. = 104.0969909'W			- AAR A IS
	N = 664783.74	NMSP EAST (FT) N = 664777.48	610		Signature and Seal of Adaptional Surveyor:
l	E = 611289.69	E = 613935.48			Certificate Number: DELAYON LABORING LABORING AS 12797
	N89'51'52"W	2645.79 FT \$89'40'14"W	2642.49 FT		PROFESSIONLY NO. 7754
0.01110100					

SORTED BY DISTANCE FROM ANGUS FEDERAL 17 SWD 1

Page 1	30	of 4	4
--------	----	------	---

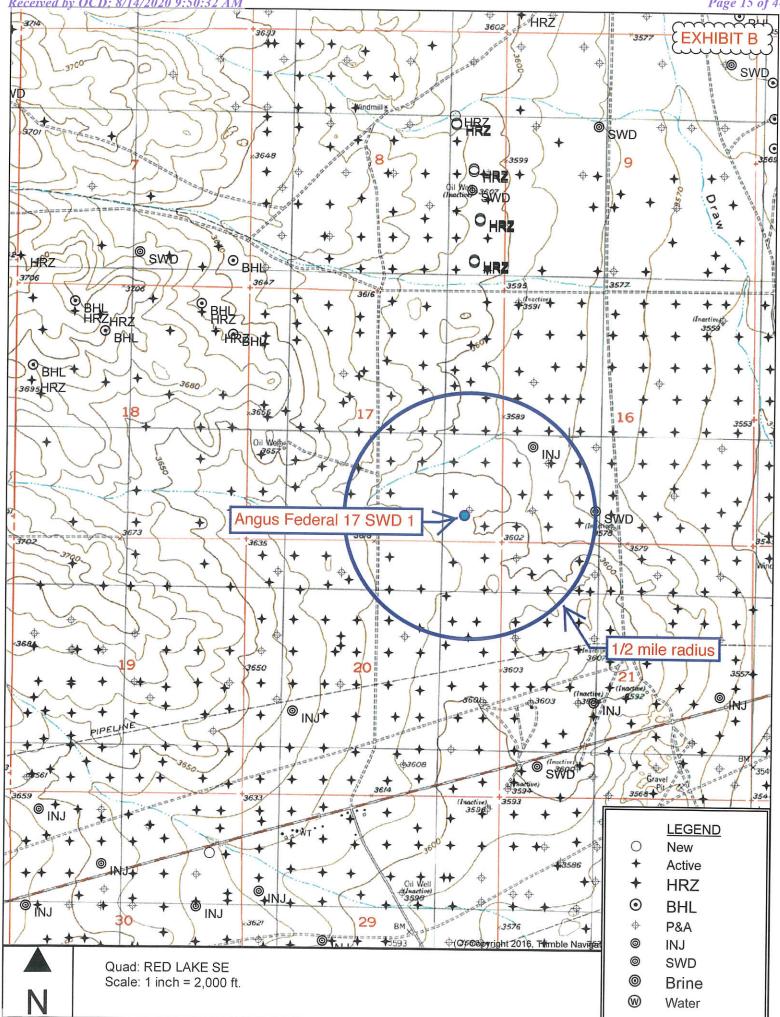
.

ΑΡΙ	OPERATOR	WELL	STATUS	UNIT- SECTION- T17S-R29E	TVD	ZONE @ TD	FEET FROM ANGUS FEDERAL 17 SWD 1
3001534283	Cimarex of CO	Muskegon 17 Federal 002	P&A	P-17	10915	Mississippian	115
3001531260	Longfellow	Phillips 17 Federal 001	0	P-17	4805	Yeso	430
3001531446	Longfellow	Phillips 17 Federal 003	0	P-17	4427	Yeso	530
3001533069	Longfellow	State 20 B 014	0	A-20	4327	Yeso	1051
3001537752	Spur	Folk State 006	0	I-17	5055	Yeso	1052
3001530920	Longfellow	State 20 B 003	0	A-20	4969	Yeso	1075
3001538091	Spur	Folk State 008	0	I-17	5128	Yeso	1117
3001535986	Spur	G J West Coop Unit 179	0	M-16	5494	Tubb	1143
3001537564	Spur	G J West Coop Unit 235	0	M-16	5522	Tubb	1278
3001538092	Spur	Folk State 012	0	J-17	5105	Yeso	1358
3001520126	Mack	G J West Coop Unit 049	P&A	M-16	2570	San Andres	1436
3001503020	Leonard & Levers	State B 1266 001	P&A	J-21	3507	San Andres	2134
3001536228	Spur	G J West Coop Unit 189	0	L-16	5446	Tubb	1507
3001531261	Longfellow	Phillips 17 Federal 002	0	0-17	4506	Yeso	1593
3001530918	Longfellow	State 20 B 001	0	A-20	5020	Yeso	1673
3001538090	Spur	Folk State 007	0	I-17	5463	Tubb	1703
3001537751	Spur	Folk State 005	0	I-17	5043	Yeso	1743
3001536938	Spur	G J West Coop Unit 236	0	M-16	5500	Tubb	1791
3001535576	Spur	G J West Coop Unit 154	0	M-16	5600	Tubb	1805
3001531052	Longfellow	State 20 B 007	0	B-20	5000	Yeso	1815
3001530922	Longfellow	State 20 B 005	0	B-20	4584	Yeso	1837
3001537753	Spur	Folk State 010	0	J-17	5167	Yeso	1861
3001537233	Spur	Folk State 009	0	J-17	5130	Yeso	1886
3001520124	Spur	G J West Coop Unit 048	0	D-21	4225	Yeso	1926
3001535456	Spur	G J West Coop Unit 152	0	D-21	5515	Tubb	1956
3001520199	Spur	G J West Coop Unit 058	I	L-16	2600	San Andres	1975

SORTED BY DISTANCE FROM ANGUS FEDERAL 17 SWD 1

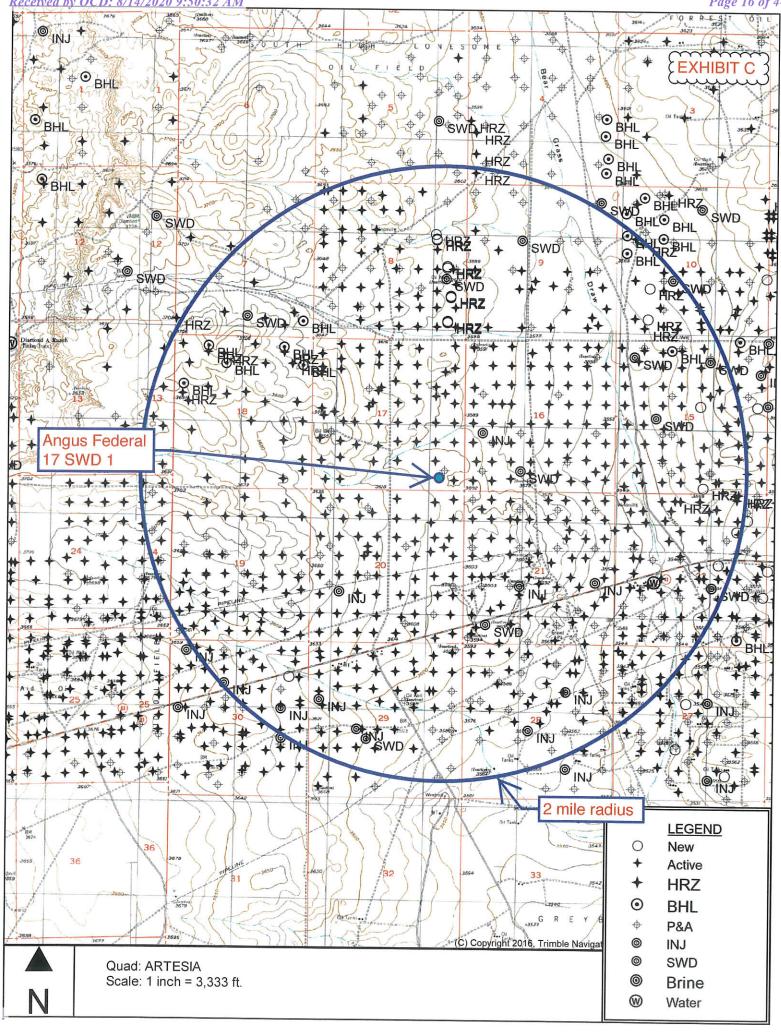
.

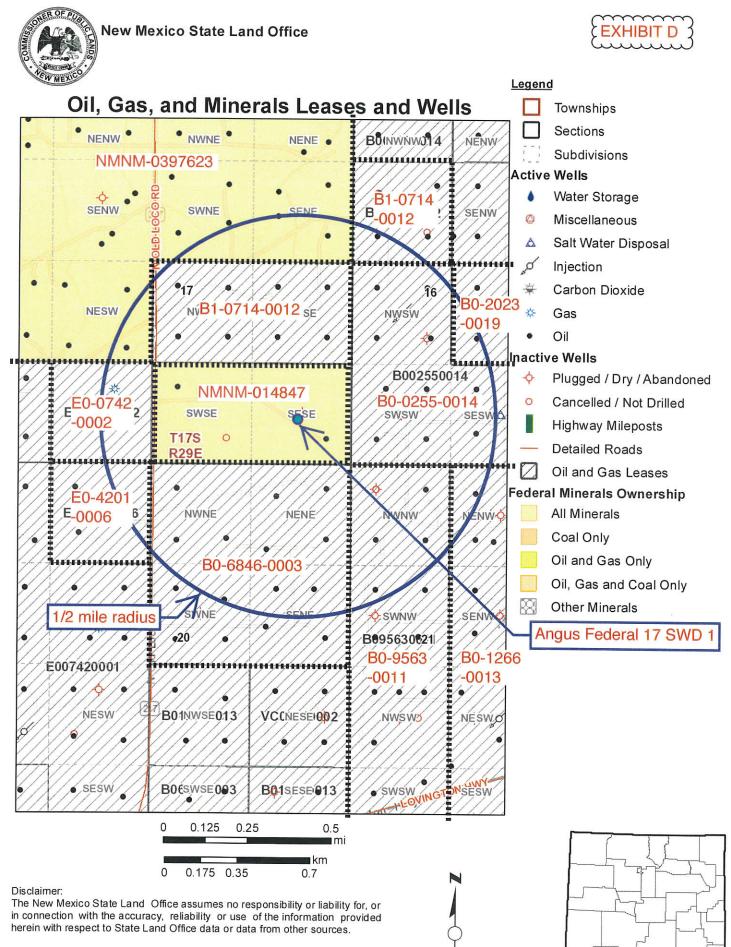
ΑΡΙ	OPERATOR	WELL	STATUS	UNIT- SECTION- T17S-R29E	TVD	ZONE @ TD	FEET FROM ANGUS FEDERAL 17 SWD 1
3001537436	Spur	G J West Coop Unit 250	0	D-21	5545	Tubb	2008
3001537565	Spur	G J West Coop Unit 234	0	L-16	5588	Tubb	2015
3001527345	Mack	G J West Coop Unit 112	P&A	B-16	4353	Yeso	2044
3001540265	Spur	G J West Coop Unit 325	0	L-16	5724	Tubb	2087
3001533215	Longfellow	State 20 B 019	0	B-20	4550	Yeso	2247
3001530921	Longfellow	State 20 B 004	0	H-20	4916	Yeso	2283
3001533097	Longfellow	State 20 B 015	0	H-20	4312	Yeso	2292
3001537397	Spur	Folk State 011	0	J-17	5150	Yeso	2295
3001537516	Spur	Folk Federal 038	0	K-17	5070	Yeso	2368
3001526750	Conoco Phillips	Muskegon 17 State 001	G	N-17	10880	Chester	2378
3001527360	Spur	G J West Coop Unit 115	ο	D-21	4758	Yeso	2393
3001536170	Spur	Folk Federal 008	0	H-17	5462	Tubb	2400
3001536309	Spur	G J West Coop Unit 198	0	N-16	5476	Tubb	2440
3001536052	Spur	G J West Coop Unit 181	0	L-16	5454	Tubb	2443
3001536994	Spur	G J West Coop Unit 237	ο	N-16	5500	Tubb	2458
3001527359	Spur	G J West Coop Unit 114	о	E-21	5518	Tubb	2528
3001533205	Longfellow	State 20 B 020	0	G-20	4325	Yeso	2574
3001536702	Spur	G J West Coop Unit 217	0	E-16	5464	Tubb	2605
3001526397	Mack	Muskegon 20 State 001	G	H-20	10957	Mississippian	2605
3001536862	Spur	Folk Federal 010	0	H-17	5550	Tubb	2616
3001527362	Spur	G J West Coop Unit 117	0	C-21	4920	Yeso	2629
3001536240	Spur	G J West Coop Unit 195	0	K-16	5456	Tubb	2639
3001527295	Spur	Folk Federal 003	0	G-17	5050	Yeso	2664



Page 15 of 44

Page 16 of 44





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.

•

.

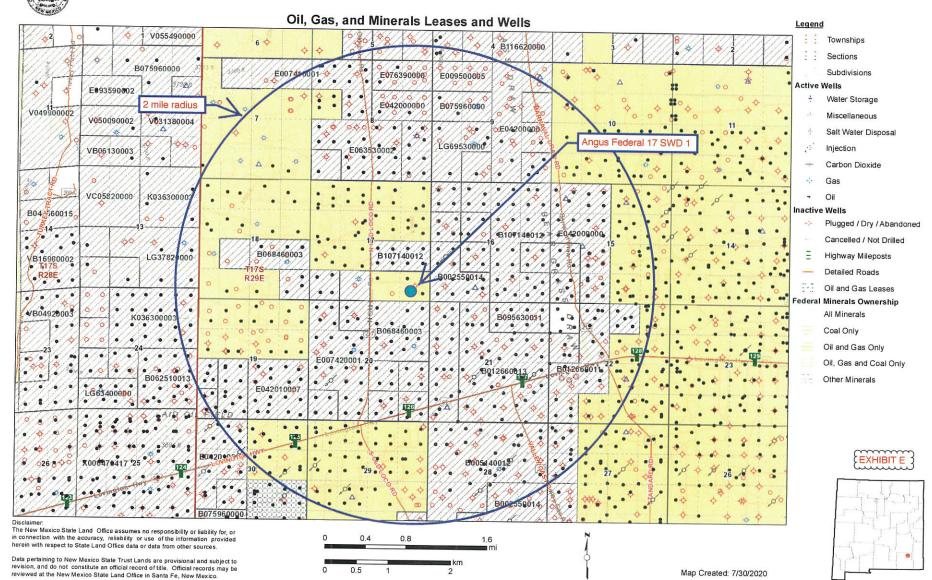
ANGUS FEDERAL 17 SWD 1 AREA OF REVIEW LEASES

	1	T		
Aliquot Parts in Area of Review	Lessor	Lease	Lessee of	Well Operators
T 17 S., R. 29 E.	203501	Lease	Record	(none Canyon)
SWNW Sec. 16	NMSLO	B1-0714-0012	COG	Spur
NESW Sec. 16	NMSLO	B0-2023-0019	ZPZ	Spur
NWSW & S2SW4 Sec. 16	NMSLO	B0-0255-0014	SEP	Spur & ConocoPhilips
S2NE4 & NESW Sec. 17	BLM	NMNM-0397623	SEP	Spur & ConocoPhilips
N2SE4 Sec. 17	NMSLO	B1-0714-0012	COG	Spur & ConocoPhilips
SESW Sec. 17	NMSLO	E0-0742-0002	ХТО	ConocoPhillips
S2SE4 Sec. 17	BLM	NMNM-014847	ConocoPhillips	Longfellow & ConocoPhillips
NE4 Sec. 20	NMSLO	B0-6846-0003	Longfellow	Longfellow & Mack
NENW Sec. 20	NMSLO	E0-4201-0006	Longfellow	Longfellow & Mewbourne
NENW Sec. 21	NMSLO	B0-1266-0013	SEP	Spur
W2NW4 Sec. 21	NMSLO	B0-9563-0011	SEP	Spur

•

New

New Mexico State Land Office



Page 19 of 44

WELL	SPUD	TVD	ZONE @ TD	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	тос	HOW TOC DETERMINED
Muskegon 17 Federal 002	3/26/06	10915	Mississippian	P & A	17.5	13.375	254	520 sx	Surface	Circ 8 sx
30-015-34283					12.25	9.625	4515	2430 sx	no report	N/A
P-17-17S-29E					8.75	5.5	10915	1430 sx	3769	CBL
Muskegon 17 State Com 001	9/29/91	10880	Chester	Gas	17.5	13.375	468	475 sx	Surface	Circ 75 sx
30-015-26750					12.25	9.925	2588	1725 sx	Surface	Circ 350 sx
N-17-17S-29E					8.75	5.5	10880	2554 sx	1198	no report
Muskegon 20 State Com 001	8/28/90	10957	Mississippian	Gas	17.5	13.375	445	1055 sx	Surface	Circ 20 sx
30-015-26397					12.25	8.625	2594	1450 sx	Surface	Circ 159 sx
H-20-17S-29E					7.875	5.5	10957	700 sx	8140	Temp Survey

Received by OCD: 8/14/2020 9:50:32 AM Page 21 of 44 EXHIBIT F 3 SALT SECTIONS TOP 405 HOLE SIZE 17.5" BASE 990 40 - Suit RILLP 95 sx plug 3' - 225' CAVE / KARST SPEC. WATER 4-40 GL - circ 8 sx TOC SURF CASING SIZE 133/8 48 GL - no report INT 60 sx plug 3769' - CBL 225' - 320' PROD 254 TD 75 sx plug HOLESIZE . 918' - 1130 25 sx 1940' - 2140' FORMATIONS Jates 895 25 sx 2140' - 2195' 2205 25 sx 2195' - 2305' 35 sx plug 3518' - 4615' Glorida 5325 TOC. 3769 Abo 7040 J-55 NC 7240 5+ 9908 CASING SIZE_ At 10110 TD ____ 10 500 MR HOLE SIZE 25 sx plug 5225' - 5425' Mics 10740 50 sx plug 6778' - 7101' 25 sx plug 7101' - 7101' 40 sx plug 7101' - 7290' 30 sx plug 9393' - 9755' ABO 1000 ZOO' plug Strown CIBA+35 cmt e 10180 CIBR 10320 + 35'cmt P-110 CIBA 10500 ŧ CASING SIZE 5/2 PERFORATIONS 10545. 10597 TD 10915 10 350-10425 fished out 1074' 5-1/2" csa Muskegon 17 Federal Com 2 10 222- 10 226 30-015-34283 7040-7238 660 FSL & 660 FEL 17-17s-29e Spud 3-26-06 P&A 4-21-09

API	Section	Township	Range	Formation	TDS	Chloride	Bicarbonate	Sulfate
3001501583	27	17S	28E	Abo	224062	135900	378	699
3001501673	32	17S	28E	Abo	34958	19380	2217	1980
3001503083	25	17S	29E	Abo	59305	28980	1677	6934
3001503083	25	17S	29E	Abo	65091	38030	995	2069
3001503183	29	17S	29E	Abo	29400	13700	2520	2800
3001501595	28	17S	28E	Artesia	237482	147300	46	1044
3001501595	28	17S	28E	Artesia	230189	143300	35	925
3001501595	28	17S	28E	Artesia	217219	133800	137	1030
3001501595	28	17S	28E	Artesia	241926	149300	35	1162
3001501595	28	17S	28E	Artesia	30400	12800	2320	4500
3001501595	28	17S	28E	Artesia	222174	137000	109	922
3001501652	31	17S	28E	Artesia	187566	109300	575	4910
3001530889	32	17S	28E	Artesia	163842	111692	836	44
3001530889	32	17S	28E	Artesia	97568	61161	245	2111
3001530299	33	17S	28E	Artesia	194617	129205	674	4405
3001502886	4	17S	29E	Artesia	38560	21670	668	2157
3001502891	4	17S	29E	Artesia	227185	140700	47	900
3001502912	7	17S	29E	Artesia	267895	166300	47	625
3001502996	16	17S	29E	Artesia	102782	57400	450	5600
3001502996	16	17S	29E	Artesia	120438	71800	989	653
3001502996	16	17S	29E	Artesia	1751	799	200	210
3001502996	16	17S	29E	Artesia	138560	75600	1200	9000
3001503019	21	17S	29E	Artesia	237424			
3001503019	21	17S	29E	Artesia	68550	39100	850	2500
3001503019	21	17S	29E	Artesia	69875	41200	485	1800
3001503019	21	17S	29E	Artesia	132353	78840	332	2628
3001503019	21	17S	29E	Artesia	37260	17200	1610	4800
3001503042	22	17S	29E	Artesia	178711	104425	402	4600
3001503034	22	17S	29E	Artesia	56179	31824	716	2350
3001503042	22	17S	29E	Artesia	146796	88400	69	2030
3001503170	28	17S	29E	Artesia	195904	129855	587	4825
3001531125	28	17S	29E	Artesia	240561	176450	91	1054
3001531125	28	17S	29E	Artesia	174045	120583	433	2087
3001503172	28	17S	29E	Artesia	29210	12500	2370	3950
3001503172	28	17S	29E	Artesia	29961	13360	1387	4284
3001503196	33	17S	29E	Artesia	277375	172900	194	1384
3001530334	33	17S	28E	Glorieta/Yeso	206471	137940	504	4742
3001502866	2	175	29E	Grayburg/San Andres	1406	780	10	550
3001502873	3	17S	29E	Grayburg/San Andres	109000	63070	339	3538

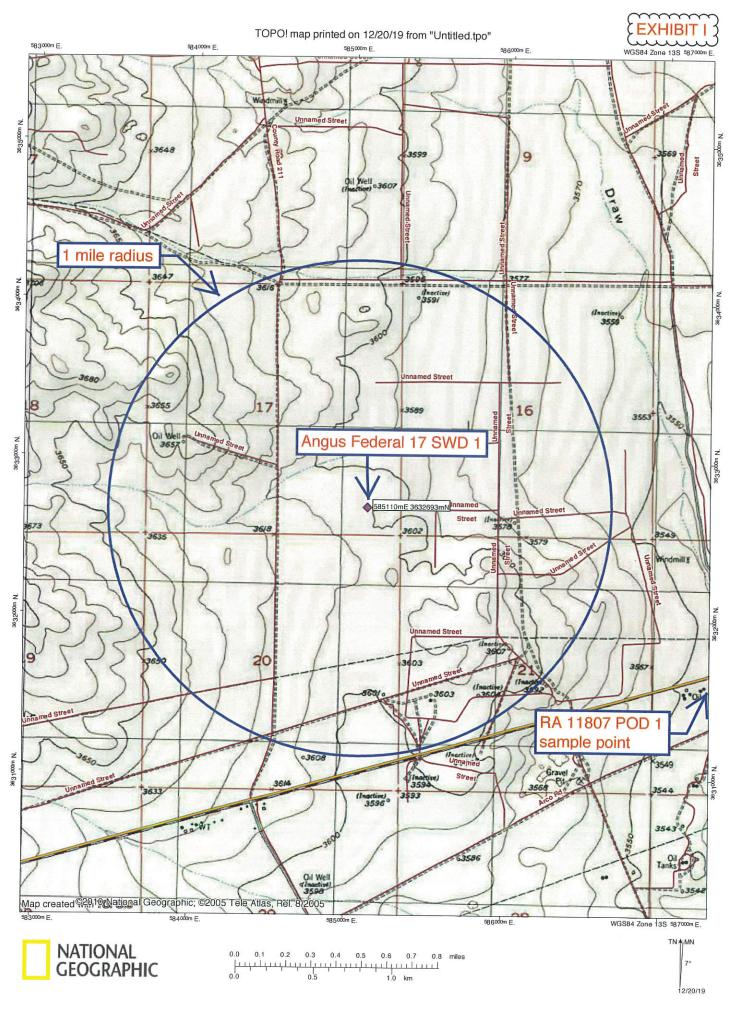
Page	<i>23</i>	of 44	
------	-----------	-------	--

API	Section	Township	Range	Formation	TDS	Chloride	Bicarbonate	Sulfate
3001521279	31	17S	29E	Morrow	35148	19800	1510	450
3001521279	31	17S	29E	Morrow	33627	19300	900	540
3001502933	9	17S	29E	Permo-Penn	310744	192950	179	1259
3001537329	5	17S	28E	Wolfcamp	92636	54800	207	0
3001537429	5	17S	28E	Wolfcamp	84981	50400	171	0
3001538084	5	17S	28E	Wolfcamp	84923	49800	635	0
3001537429	5	17S	28E	Wolfcamp	91974	55168	439	0
3001538084	5	17S	28E	Wolfcamp	93671	54565	427	0
3001538084	5	17S	28E	Wolfcamp	67849	39804	98	2172
3001530915	19	17S	29E	Yeso	192637	130436	822	2724
3001530916	19	17S	29E	Yeso	212361	142111	945	4613
3001530944	19	17S	29E	Yeso	215197	144157	409	4785
3001530917	19	17S	29E	Yeso	213384	142829	448	4903
3001530307	29	17S	29E	Yeso	208172	140286	612	3456
3001530451	29	17S	29E	Yeso	182240	121966	933	3445
3001530307	29	17S	29E	Yeso	200501	133638	822	4560
3001530931	29	17S	29E	Yeso	207695	138951	495	4750
3001530305	29	17S	29E	Yeso	207078	137913	660	5163
3001530694	29	17S	29E	Yeso	194357	152244	1112	5958
3001530575	30	17S	29E	Yeso	9557	3819	806	1616
3001530575	30	17S	29E	Yeso	8483	3308	448	1711

ceived by OCD: 8/1 06/18/02	4/2020 9:50 09:08	:32 AM 2505 748 458	35	YATES	PET ENG			Page 24 of 4
		HALL	IBURTON		LABORATO	OV		Ø 002
·}		е, <i>г</i> – са ед		URTON SE		- 10	Ę	
				ESLA DISTR			٤	
			LABO	RATORY RE	PORT	1	No W3	8-92
TO	<u>Mr. Har</u>	vey Apple			-	Date		ary 14, 1992
Name and Address of the Owner, or other	Yates P	etroleum Corp	oration			24.		
		th Fourth Stre			The apprending	copy intract, is to be indian approval at t	buckshed or the	and nonliner is nor any part losed unifical brill securing imant, is may however, be
	Artesia	<u>NM 88210</u>		*1 .	rando er tuá CO	ereal receiving such ereal receiving such	all a book blook by	Max Barra Ad at adde and bart
Submitted b	y				Date	Rec. Fel	Tuery 1	4, 1992
		u #1 from SWE						per Penn
Field		30-105-22	2146	County		Sourc		
Carrier and a contract						00010	E <u>Sw</u>	<u>ap</u>
Resistivity						and an and a second		anaha <u>aaanaa ay aanaha gara</u> ga garag
				1000				gan Mangaran ang mangaran manan di Sandawat
		7.5			وي مورك الكموني محمد المالي معروف الكموني محمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد			annan ann an
		3,643				ereningen degree	an the second	944444
				anata Gaussiana and Anna and A			- Sheddarman (San Talan (Maddard)	and the state of the
Magnesium .		•						
Chlorides .					99499999999999999999999999999999999999		- Continue of the Continue of	
Sulfates					•			
Bicarbonates		-	90009 - ¹ 00000 (1907) - 1907	· · · · · · · · · · · · · · · · · ·				
Soluble Iron	1	0	997-9949-000-000-000-000-000-000-000-000-00	49 (Janellanan (Janellana)				
4000 Ern 400 gan aus 200	. حملته العلم الإسما العلم	ĨĦŦŧĸŎĨ ^{ĸŎ} ĸĊŎŔŎĸĊŎŎŎŢŎĊŎĬŎŎĬŎŎŎŎŎŎŎŎŎ	<u> </u>					
ويبينه وبسوا فتعلو والموا ويوالا والم	, بے میں ایم						يري 	Martine and the second seco
Remarks;		Disposa	1 Zon	e Form	nation V	Vater	$\Big)$	
		E	Respects	Andra Ully subm	itted		VII	. 5.
Analyst:	Eric Jaco	bson - Operat	ions Eng	ineer		HAL	LIBURTON	SERVICES
					lite.			

ан м. шан а Ац (PO) "

•



Page 26 of 44

.

Interstate Streen Commission								Ju	ge De	puru	J vva	ICI	
(A CLW##### in the POD suffix indicates the POD has been replaced	(R=POD replaced	,	i										
& no longer serves a	O=orpha												
vater right file.)	C=the fil	e is						=SW 4=SE					
	closed)			(quar	ters are	e smalle	est to larg	est) (N	AD83 UTM in n	neters)	(In fe	eet)	
		POD		0.0	~								
OD Number	Code	Sub- basin	County	Q Q Q 0 64 16		Tws	Rng	X	Y	DistanceDer	othWellDeptl		ater
<u>RA 11807 POD1</u>		RA	ED	1 2 .	3 22	17S	29E	587360	3631585 🌍	2507	131	76	5
									Avera	ge Depth to Wat	er:	76 feet	;
										Minimum De	pth:	76 feet	;
										Maximum De	pth:	76 feet	0
Record Count: 1		* * * * * * * *	n - n n n n n n						19 19 19 19 19 19 19 19 19 19 19 19 19		*******		
UTMNAD83 Radius	<u>Search (in</u>	<u>meters):</u>											
Easting (X): 585	110		North	ing (Y):	3632	693			Radius: 3220				

12/20/19 4:35 PM

•

WATER COLUMN/ AVERAGE DEPTH TO WATER

Hall Environmental Analysis Laboratory, Inc.

\dots
Analytical Rep EXHIBIT I
Lab Order 2001236
Date Reported: 1/16/2020

CLIENT: Permits West		Client Sample I	D: RA-11807 Loco GSF						
Project: Angus Federal 17 SWD1	Collection Date: 1/7/2020 10:45:00 AM								
Lab ID: 2001236-001	Matrix: AQUEOUS Received Date: 1/8/2020 9:35:00 AM								
Analyses	Result	RL Qual Units	DF Date Analyzed	Batch					
EPA METHOD 1664B			Analys	t: KMN					
N-Hexane Extractable Material	ND	10.4 mg/L	1 1/15/2020 11:43:00 AN	49757					

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

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank E Value above quantitation range

J Analyte detected below quantitation limits

Sample pH Not In Range Р

RL Reporting Limit

В

Page 1 of 6

.

Hall Environmental Analysis Laboratory, Inc.

Analytical Ref EXHIBIT | u Lab Order 2001236

Date Reported: 1/16/2020

CLIENT:	Permits West		CI	ient Sa	ample I	D: RA	-08233 Bogle			
Project:	Angus Federal 17 SWD1	Collection Date: 1/7/2020 11:50:00 AM								
Lab ID:	2001236-002									
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch		
EPA MET	HOD 1664B						Analyst	KMN		
N-Hexane	e Extractable Material	ND	9.55		mg/L	1	1/15/2020 11:43:00 AM	49757		
EPA MET	HOD 300.0: ANIONS						Analyst	CJS		
Chloride		4200	250	*	mg/L	500		R65669		
SM2540C	MOD: TOTAL DISSOLVED SOL	.IDS					Analyst	JMT		
Total Dise	solved Solids	12100	200	*D	mg/L	1	1/13/2020 7:58:00 AM	49723		

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

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank E Value above quantitation range

- I
- Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit Page 2 of 6

Hall Environmental Analysis Laboratory, Inc.

Analytical Rep EXHIBIT Lab Order 2001236 Date Reported: 1/16/2020

EPA METHOD 300.0: ANIONS Analyst: CJS			A CONTRACTOR					020		
Lab ID: 2001236-003 Matrix: AQUEOUS Received Date: 1/8/2020 9:35:00 AM Analyses Result RL Qual Units DF Date Analyzed Batch EPA METHOD 300.0: ANIONS Analyst: CJS Chloride 19000 1000 * mg/L 2E+ 1/10/2020 4:14:32 AM R6566 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: JMT	CLIENT: Permits West		C	lient Sa	ample I	D: RA	-11807 Loco GSF			
Analyses Result RL Qual Units DF Date Analyzed Batch EPA METHOD 300.0: ANIONS Analyst: CJS Chloride 19000 1000 * mg/L 2E+ 1/10/2020 4:14:32 AM R6566 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: JMT	Project: Angus Federal 17 SWD1	Collection Date: 1/7/2020 4:35:00 PM								
EPA METHOD 300.0: ANIONS Analyst: CJS Chloride 19000 1000 * mg/L 2E+ 1/10/2020 4:14:32 AM R6566 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: JMT	Lab ID: 2001236-003	Matrix: AQUEOUS		Recei	ved Dat	te: 1/8/	/2020 9:35:00 AM			
Chloride 19000 1000 * mg/L 2E+ 1/10/2020 4:14:32 AM R6566 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: JMT	Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch		
SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: JMT	EPA METHOD 300.0: ANIONS						Analy	st: CJS		
	Chloride	19000	1000	*	mg/L	2E+	1/10/2020 4:14:32 AM	A R65669		
Total Dissolved Solids 38100 200 *D mg/L 1 1/13/2020 7:58:00 AM 49723	SM2540C MOD: TOTAL DISSOLVED SOL	IDS					Analy	st: JMT		
	Total Dissolved Solids	38100	200	*D	mg/L	1	1/13/2020 7:58:00 AM	49723		

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Value above quantitation range E

I Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 3 of 6

.

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Permits West **Project:** Angus Federal 17 SWD1

Sample ID: MB-49757	SampT	ype: MI	BLK	Tes	tCode: E	PA Method	1664B			
Client ID: PBW	Batch	n ID: 49	757	F	RunNo: 6	5794				
Prep Date: 1/13/2020	Analysis D	ate: 1/	15/2020	S	SeqNo: 2	259838	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	ND	10.0								
Sample ID: LCS-49757	SampT	ype: LC	S	Tes	tCode: El	PA Method	1664B			
Sample ID: LCS-49757 Client ID: LCSW	•	ype: LC			tCode: El		1664B			
•	•	n ID: 49		R		5794	1664B Units: mg/L			
Client ID: LCSW	Batch	n ID: 49	757 15/2020	R	RunNo: 6	5794		%RPD	RPDLimit	Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded Not Detected at the Reporting Limit

ND PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits Р
- Sample pH Not In Range
- RL Reporting Limit

Page 4 of 6

EXHIBIT I WO#: 2001236 16-Jan-20 Permits West

Client:

QC SUMMARY REPORT

Qualifiers:

* Value exceeds Maximum Contaminant Level.

- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range J
- Analyte detected below quantitation limits Р Sample pH Not In Range
- RL Reporting Limit

Hall	Environmental	Analysis	Laboratory,	Inc.

Project:	Angus Federal 17 SW	D1							
Sample ID: MB	SampTyp	e: mblk	Tes	tCode: E	PA Method	300.0: Anion	5		
Client ID: PBW	Batch I	C: R65669		RunNo: 6					
Prep Date:	Analysis Date	e: 1/9/2020	S	SeqNo: 2	256403	Units: mg/L			
Analyte Chloride		PQL SPK value 0.50	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: LCS	SampType	e: Ics	Tes	tCode: El	PA Method	300.0: Anions	3		
Client ID: LCSW	Batch ID	R65669		RunNo: 6					
Prep Date:	Analysis Date	1/9/2020	S	SeqNo: 2	256404	Units: mg/L			
Analyte	Result F	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50 5.000	0	97.3	90	110			

Page 31 of 44

EXHIBIT 1 WO#: 2001236

16-Jan-20

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Permits West **Project:** Angus Federal 17 SWD1 Sample ID: MB-49723 TestCode: SM2540C MOD: Total Dissolved Solids SampType: MBLK Client ID: PBW Batch ID: 49723 RunNo: 65715 Prep Date: 1/9/2020 Analysis Date: 1/13/2020 SeqNo: 2257238 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-49723 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids Client ID: LCSW Batch ID: 49723 RunNo: 65715

Prep Date: 1/9/2020	Analysis D	ate: 1/	13/2020	S	SeqNo: 2	257239	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

Value exceeds Maximum Contaminant Level.

- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded Not Detected at the Reporting Limit
- ND POL Practical Quanitative Limit
- S
- % Recovery outside of range due to dilution or matrix

- В Analyte detected in the associated Method Blank E
- Value above quantitation range I
- Analyte detected below quantitation limits Р Sample pH Not In Range
- RL
- Reporting Limit

Page 6 of 6

FXHIBI WO#: 2001236 16-Jan-20

EXHIBIT J

Geologic Assessment Longfellow Energy L.P. Angus Federal 17 SWD No. 1 Section 17, Township 17 South, Range 29 East Eddy County, New Mexico

Cory Walk

Cory Walk

B.S., M.S.

Geologist

Permits West Inc.

December 18, 2019



General Information

Longfellow Energy proposes to drill a salt water disposal (SWD) well in the SE 1/4, section 17, T17S, R29E, about 17 miles east of Artesia, NM in the Permian Basin. The proposed injection zone is within the Canyon formation from 9,530'-9,700' below ground surface. This report assesses any potential concerns relating to the connection between the injection zone and known underground potable water sources.

Groundwater Sources

Quaternary Alluvium acts as the principal aquifer used for potable ground water near the Angus Federal 17 SWD #1 location (Hendrickson and Jones, 1952). 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 Angus Federal 17 SWD #1, the Rustler Formation lies at a depth of ~350 feet bgs.

Faults and Fractures

The Geologic Map of New Mexico (2003) shows the nearest fault to the SWD location is found 18 miles to the northwest (Figure 1). A large accumulation of northwest trending Basin and Range style normal faults lie ~65 miles from the proposed water injection well. This fault zone is interpreted to be a southeastern extension of the Rio Grande Rift zone (Muehlberger et al., 1978) and is the only area in which deeply penetrating faults exist throughout the region.

A structure contour map of the Precambrian Basement shows the Angus Federal 17 SWD well is approximately 11 miles to the nearest Precambrian basement fault (Figure 1; Modified from Ruppel et al., 2009). However, Montgomery (1997) shows that these faults remain deep below the surface and do not act as conduits between the Pennsylvanian Canyon formation and aquifers near the surface (Figure 2).

Stratigraphy

Well data indicates ~9,180 ft of rock separating the top of the injection zone within the Canyon formation from the previously stated lower limit of potable water at the top of the Rustler anhydrite formation. Within the separating ~9,180 feet of strata include several horizons of impermeable formations including the Rustler anhydrite and Salado halite formations.

Concluding Statement

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

.



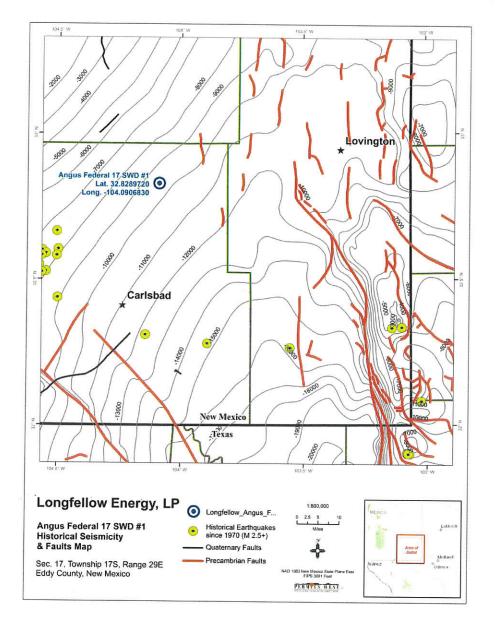


Figure 1. Structural contour map of the Precambrian Basement. Thick red lines represent the locations of deep Precambrian basement faults and black lines represent Quaternary surface faults.



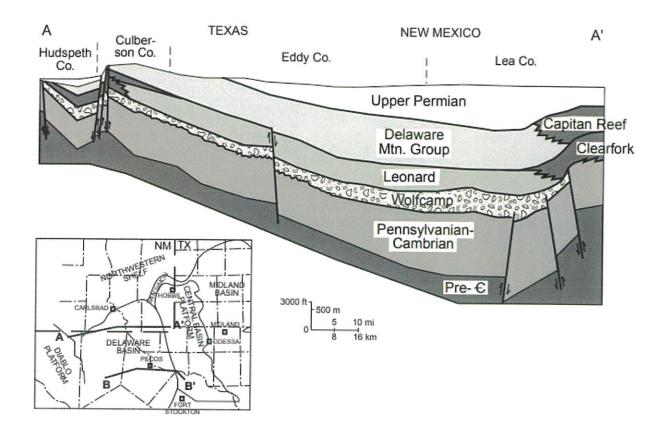


Figure 2. Cross section of the Permian Basin from Montomery (1997). Notice the basement faults within the basin do not reach the surface and therefore do not act as conduits to near surface aquifers.



References Cited

- Geologic Map of New Mexico, New Mexico Bureau of Geology and Mineral Resources, 2003, Scale 1:500,000.
- Hendrickson, G. E., and Jones, R. S., 1952, Geology and Ground-Water Resources of Eddy County, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Ground-Water Report 3, 179 pp., 6 plates.
- Montgomery, S. L., 1997, Permian Bone Spring Formation: Sandstone play in the Delaware basin: Part I. Slope: AAPG Bulletin, v. 81, p. 1239–1258.
- Muehlberger, W.R., Belcher, R.C., and Goetz, L.K., 1978, Quaternary faulting in Trans-Pecos Texas: Geology, v. 6, p. 337–340.
- Nicholson, A., Jr., and Clebsch, A., Jr., 1961, Geology and ground-water conditions in southern Lea County, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Ground-Water Report 6, 123 pp., 2 plates.
- Ruppel, S.C., 2009, Integrated synthesis of the Permian basin: data and models for recovering existing and undiscovered oil resources from the largest oil-bearing basin: U.S. Oil & Natural Gas Technology, Bureau Economic Geology, The University of Texas at Austin, p. 1-959.

Affidavit of Publication
No. 25501
State of New Mexico Publisher
County of Eddy:
Danny Scott Dance ACar
being duly syorn sayes that he is the Publisher
of the Artesia Daily Press, a daily newspaper of General
circulation, published in English at Artesia, said county
and state, and that the hereto attached
Legal Ad
was published in a regular and entire issue of the said
Artesia Daily Press, a daily newspaper duly qualified
for that purpose within the meaning of Chapter 167 of
the 1937 Session Laws of the state of New Mexico for
l Consecutive weeks/day on the same
day as follows:
First Publication July 23, 2020
Second Publication
Third Publication
Fourth Publication
Fifth Publication
Sixth Publication
Seventh Publication
Subscribed and sworn before me this
23rd day of July 2020
OFFICIAL SEAL Latisha Romine NOTARY PUBLIC-STATE OF NEW MEXICO My commission expires: 511212023
Latisho Remine

Latisha Romine Notary Public, Eddy County, New Mexico

Copy of Publication: EXHIBIT K

Legal Notice

Page 38 of 44

Longfellow Energy, LP will apply to drill the Angus Federal 17 SWD 1 as a saltwater disposal well. The well will dispose into the Canyon formation from 9,530' to 9,700'. It is staked 6 miles west of Loco Hills and 17 miles east of Artesia, NM at 610 FSL & 705 FEL Sec. 17, T. 17 S., R. 29 E., Eddy County, NM. Maximum disposal rate will be 20,000 bwpd. Maximum injection pressure will be 1,906 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.

Published in the Artesia Daily Press, Artesia, N.M., July 23, 2020 Legal No. 25501.

1





August 12, 2020

BLM 620 E. Greene Carlsbad NM 88220

Longfellow Energy, LP is applying (see attached application) to drill the Angus Federal 17 SWD 1 as a saltwater disposal well. As required by NM Oil Conservation Division (NMOCD) rules, I am notifying you of the following proposal. This letter is a notice only. No action is needed unless you have questions or objections.

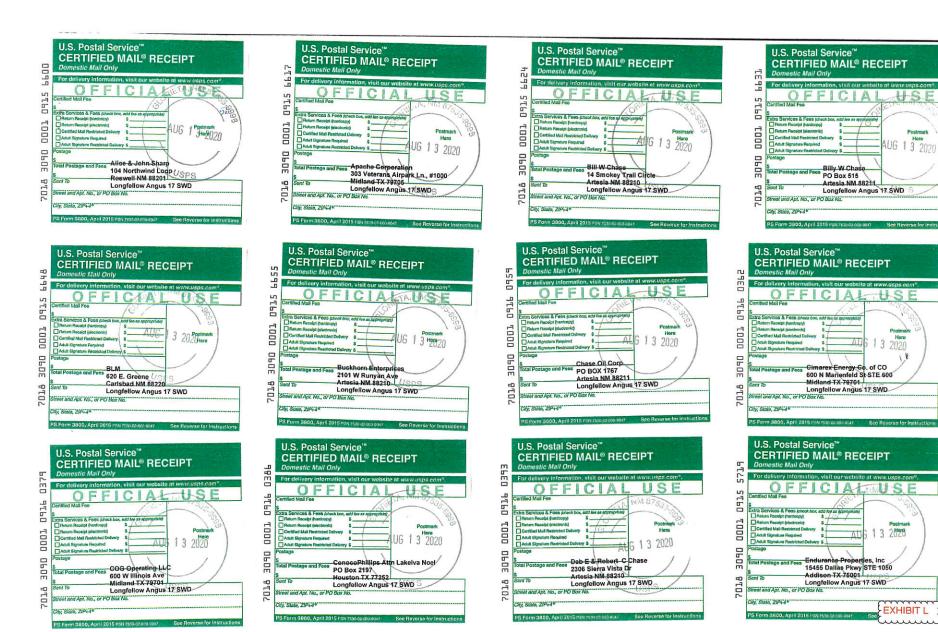
<u>Well:</u> Angus Federal 17 SWD 1 <u>TD</u> = 9700' <u>Proposed Disposal Zone:</u> Canyon (9530' – 9700') <u>Location:</u> 610' FSL & 705' FEL Sec. 17, T. 17 S., R. 29 E., Eddy County, NM <u>Approximate Location:</u> 17 miles east of Artesia, NM <u>Applicant Name:</u> Longfellow Energy, LP (972) 242-8851 <u>Applicant's Address:</u> 16803 North Dallas Parkway, Addison TX 75001

<u>Submittal Information</u>: 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. The New Mexico Oil Conservation Division address is 1220 South St. Francis Dr. Santa Fe, NM 87505. Their phone number is (505) 476-3440.

Please call me if you have any questions.

Sincerely,

Brian Wood







U.S. Postal Service"

For delivery information, visit our

Domestic Mail Only

5726

CERTIFIED MAIL® RECEIPT

OFFICIAL USE











U.S. Postal Service"

Domestic Mail Only

Cartillad Mail East

For delivery information, visit

0472

CERTIFIED MAIL® RECEIPT

USE

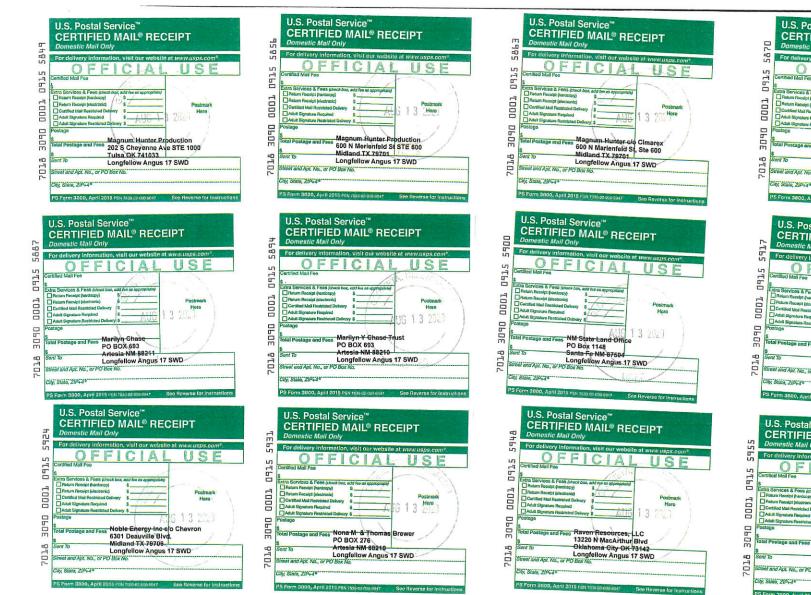
OFFICIA





U.S. Postal Service"







U.S. Postal Service" **CERTIFIED MAIL® RECEIPT** 6993 Domestic Mail Only For delivery information, visit our v OFFICIA S un Certified Mail Fee TH0 Services & Fees (check box, add fee as approp Hatum Receipt (hardcopy) 1000 Return Racelpt (elactronic) Postmark Certilied Mail Restricted Delivery Horo Adult Signature Required Adult Signature Restricted D 3040 Total Postage and Fens Rover Operating, LLC 17304 Preston Rd STE 740 Dallas TX 75252 01.6 Longfellow Angus 17 SWD Street and Apt. No., or PO Box No. City, State, 219+44 PS Form 3800, April 2015 PBN /850 02 000 0047 Soo Bollorda U.S. Postal Service" **CERTIFIED MAIL® RECEIPT** Fm Domostic Mall Only 60 For delivery information, visit our well OFFICIA 15 S 5 Extra Services & Fees (check box, add see as appropriate Return Receipt (hard TOOD Raturn Receipt (electronic) Certified Mail Restricted Delivery Postmark Here







U.S. Postal Service[™] **CERTIFIED MAIL® RECEIPT** Domestic Mail Only -601 For delivery information OFFICIA ы ertified Mail Fee TFD ixtra Services & Fees (check box, add fee as e Return Receipt (hardcopy) \$_____ Return Receipt (electronic) \$_____ 1000 Certified Mail Restricted Della Adult Signature Required Adult Signature Restricted Delivery \$_ 20 DE Total Postage and Fees Rover Operating, LLC 201.6 Street and Apl. No., or PO Box No. City, State, 21P+4*

U.S. Postal Service"

For delivery information, visit our webs

S Extra Services & Fess (check box, add fee as appropriate || Raturn Rucelpt (hardcopy) \$ || Raturn Racelpt (electronic) \$

Total Postage and Fees Richard L Chase

Domestic Mail Only

Certified Mail Restricted Daily

Aduit Signature Restricted Delivery \$

Street and Apt. No., or PO Box No.

City, State, ZIP+4ª

Adult Signature Required

Certified Mail Fee

5962

041°S

1000

060E

PLD7 Sent Tr

CERTIFIED MAIL® RECEIPT

FICIA

505 S Bolton Road

Artesia NM 88210

PS Form 3800, April 2015 PSN 7510-02 C00-0047 See Revenue for Instruc

Longfellow Angus 17 SWD



17304 Preston Rd Suite 300

Longfellow Angus 17 SWD

Delles TX 75252



U.S. Postal Service"

9792

0915

2

E

-0

701

USE

Postmark

Hore

VUEDE COM

USE

Postmort

Here

G 1 3 21

1 3 2020

Adult Signature Required Adult Signature Restricted De Total Postage and Fees Sou est Royalties, Inc 6 Desta Dr STE 3700 Midland TX 79705 Sont T Longfellow Angus 17 SWD Street and Apt. No., or PO Box No. City, State, 21P+4 PS Form 3800, April 2015 FEN 7530-02-000-0047 See Rev



060E

2018

U.S. Postal Service™

OFFICIA

PO BOX 297

OFFICI

5

Houston TX 77024

A

920 Memorial City Way STE 1000

Artesia NM 88211

US

AUG 1 Here,

Sed Revene for las

US 1

19 21

Postmark

Hora

Postmark

-
aSn
40
g
- 4

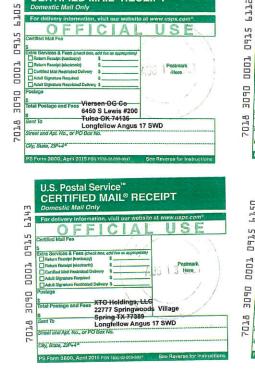


Domestic N	fail Only	RECEIP	
For delivery	information, visit o	ur website at ww	wusps.com*.
O	FFICI	ALI	ISE
Certilled Mail Fee			W Name Hauss
Extra Services & F	ees (check box, add fee ap	and the second second	
Return Receipt (): Return Receipt (al		about changed	
Cortilied Mail Res	trictori Deliveru è		Postmark
Adult Signature R	coulted s		Here
Adult Signature Re	estricted Delivory 8	1111 1 0	
Postage		133	
otal Postage and	Fees Tritex Ener		and f
ious Postage and	15455 Dalta	S Pkwy STE 60	
Sant To	Addison TX	75001	0.
	Longfellow	Angus 17 SWD	/
	or PO Box No.		1



For delive	ry information	, visit our w	bsite at www	usps.comª.
0	FFI	CIA	8 1	SE
Cartified Mail	Foo		a Lary	Read Gram
\$			the second	
Return Rece	& Fees (check box	add fee as epprop	ulate)	
Return Rece	lot (electronic)			Postmark
Contilled Ma	Restricted Dalivery	5	/	Hore
Adult Signal		8		1
Postage	are Restricted Deliver	y \$	ALIG 1	3 2020 1
roomyo		1	, 00	
Total Postage		tall Oil and	Gas, LLC	1 1
•	POI	Box 4	1	/ /
Sent To		o Hills NM I		- for the second
	No., or PO Box	gfellow And	us 17 SWD	1 - A

1



U.S. Postal Service"

Domestic Mail Only

CERTIFIED MAIL® RECEIPT



Postmark

Hore

11

See Reverse for In



Adult Signature Required

Street and Apt. No., or PO Box No.

PS Form 3800, April 2015 Post 7600 08:000-0047

ostane

City, State, 210-44

rery S

Sent To Sent T

Longfellow Angus 17 SWD