JUL 16 1996

DEVON ENERGY CORPORATION

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Oklahoma City, Oklahoma 73102

405/235-3611
Fax 405/552-4550

July 12, 1996

New Mexico Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, New Mexico 87505

Attention: Ben Stone

Dear Mr. Stone:

Recently the New Mexico OCD issued Administrative Order No. WFX-687 granting permission for the expansion of the Keel - West Waterflood Project. As we discussed by telephone on July 3, 1996 there has been a misunderstanding of the requested injection interval. For example, the Well Data Sheet for the Keel "A" 28 states the following:

III Well Data:

B. (2) The injection interval will be through perforations @ 2770' - 3550' (OA). The injection interval is 2700' - 3650'.

The OCD interpreted the above statement as a requested to inject exclusively into the interval 2770' - 3550'. **Devon was actually requesting authorization to inject into the interval 2700' - 3650'**. The interval 2770' - 3550' reflects only the interval where perforations currently exist; however, prior to converting to water injection additional perforations will be added through the 2700' - 3650' interval. The interval 2700' - 3650' is still contained within the Grayburg/San Andres formations.

Devon request the injection intervals for the wells listed in Administrative Order No. WFX-687 be modified as listed in the attached Table I. The tubing size will remain unchanged and the packer setting depth will be 50' above the top perforation.

The second matter discussed in our telephone conversation was the limiting of the wellhead pressure of the injection wells to no more than .2 psi per foot of depth to the uppermost injection perforation. Previous Administrative Orders established wellhead pressures at .65 psi per foot for wells located in the same general area. This increase in wellhead injection pressure was based on data demonstrating that injection could be contained within the Grayburg/San Andres.

Table II presents the frac gradient for the Grayburg/San Andres formation at the proposed injection wells. These injection wells are grouped by area (see attached plat). The frac gradients utilized in Table II are averages of the gradients obtained during recent stimulation treatments at wells offsetting the proposed injection wells. Comparing the average frac gradient of the Grayburg and San Andres formations and utilizing the lowest gradient an average injection wellhead pressure gradient was calculated for each area of review. This gradient is used to calculate the maximum

surface injection pressure (Injection wellhead pressure gradient x depth to uppermost perforation = maximum surface injection pressure) that can be attained without fracturing the formation. Provided the calculated surface pressure and/or wellhead pressure gradient is not exceeded the formation cannot be fractured and injection fluids will be contained in the formation. This has been confirmed through temperature and tracer logs performed at existing injection wells within the field. The wellhead pressure gradient that can be attained without fracturing the formation is presented in the final column of Table II.

Based on this information Devon respectfully request that the wellhead pressure gradient for the wells listed in Administrative Order No. WFX-687 be modified to conform with the gradients illustrated in Table II. As wells are converted to injection supplementary logs may be run resulting in perforations being added to the Grayburg formation. For this reason only the surface gradients are presented in Table II. Injection wellhead pressures will correspond with the gradients listed in the Table and will be adjusted if the uppermost perforation changes.

Finally, the well schematic for the C. A. Russell 6 proposed completion is now obsolete. Due to the poor condition of the 7" production casing Devon has elected to run a string of 4 1/2", 11.6#, J-55 casing inside the 7" casing and cement this string back to surface prior to commencing injection operations. Injection intervals will remain unchanged.

If you require an additional information regarding the matters discussed above please feel free to notify me at 405-552-4560.

Sincerely,

Randy Jackson
District Engineer

TABLE I
PROPOSED INJECTION INTERVALS

WELL	LOCATION	S-T-R	ADMINISTRATIVE ORDER NO. WFX-687 INJECTION INTERVAL	PROPOSED MODIFIED INJECTION INTERVAL	REMARKS
KEEL "A" 3	330' FNL & 1650' FWL	7-17S-31E	2801' - 3575'	2700' - 3567'	
KEEL "A" 6	660' FSL & 660' FEL	7-17S-31E	2483' - 3485'	2710' - 3485'	
KEEL "A" 10	1980' FSL & 660' FEL	7-17S-31E	2834' - 3571'	2750' - 3580'	
KEEL "A" 28	1989' FSL & 2001' FEL	7-17S-31E	2770' - 3550'	2700' - 3650'	
KEEL "A" 30	430' FSL & 2013' FEL	7-17S-31E	2754' - 3619'	2700' - 3680'	
KEEL "B" 5	1980' FSL & 660' FEL	8-17S-31E	2802' - 3504'	2750' - 3651'	
KEEL "B" 9	1980' FNL & 660' FEL	5-17S-31E	3082' - 3950'	3000' - 3950'	
KEEL 'B" 10	660' FNL & 1980' FEL	8-17S-31E	3019' - 3813'	2950' - 3800'	
KEEL "B" 13	660' FSL & 1980' FEL	5-17S-31E	2992' - 3731'	2950' - 3737'	
KEEL "B" 14	660' FSL & 660 FEL	5-17S-31E	3059' - 3728'	3000' - 3728'	
KEEL "B" 19	1980' FSL & 1980' FEL	5-17S-31E	3006' - 3700'	2950' - 3950'	
KEEL "B" 31	1980' FNL & 1980' FEL	6-17S-31E	2853' - 3700'	2800' - 3700'	
KEEL "B" 34	1880' FNL & 660' FEL	6-17S-31E	2866' - 3657'	2800' - 3664'	
KEEL 'B" 36	1980' FNL & 1980' FWL	5-17S-31E	2977' - 3709'	2900' - 3760'	
KEEL "B" 37	1780' FNL & 660' FWL	5-17S-31E	2945' - 3711'	2850' - 3707'	
KEEL "B" 45	1930' FNL & 1830' FEL	5-17S-31E	3048' - 3856'	3000' - 3900'	
KEEL "B" 72	2230' FSL & 760' FEL	5-17S-31E	3082' - 3858'	3000' - 3900'	
HUDSON FEDERAL 1	660' FNL & 660' FEL	18-17S-31E	2795' - 3533'	2700' - 3500'	
HUDSON FEDERAL 6	2310' FNL & 990' FEL	18-17S-31E	2782' - 3469'	2670' - 3500'	
C. A. RUSSELL 6	990' FNL & 1384' FWL	18-17S-31E	3209' - 3650'	2710' - 3650'	4 1/2" CASING STRING TO BE RUN INSIDE EXSITING 7" AND CEMENTED BACK TO SURFACE
C. A. RUSSELL 7	1650' FNL & 1384' FWL	18-17S-31E	3176' - 3535'	2700' - 3535'	
C. A. RUSSELL 8	1650' FNL & 1650' FEL	18-17S-31E	2880' - 3497'	2700' - 3497'	
C. A. RUSSELL 9	660' FNL & 1980' FEL	18-17S-31E	2941' - 3465'	2665' - 3520'	
C. A. RUSSELL 10	2200' FNL & 2665' FEL	18-17S-31E	2896' - 2948'	2700' - 3506	EXISTING PERF 2896' - 2948'; EXISTING OPEN HOLE 3280' - 3510'
C. A. RUSSELL 11	1000' FNL & 2350' FWL	18-17S-31E	3402' - 3511'	2700' - 3511'	
TURNER "A" 3	2220' FSL & 1760' FWL	18-17S-31E	3045' - 3509'	2705' - 3511'	
TURNER "A" 9	330' FNL & 1980' FEL	19-17S-31E	3348' - 3530'	2650' - 3530'	
TURNER "A" 10	1980' FSL & 1830' FEL	18-17S-31E	3342' - 3453'	2650' - 3465'	
TURNER "A" 11	660' FSL & 660' FEL	18-17S-31E	3330' - 3437'	2650' - 3451'	
TURNER "A" 12	330' FNL & 660' FEL	19-17S-31E	2960' - 3370'	2610' - 3381'	
TURNER "A" 13	1980' FSL & 660' FEL	19-17S-31E	2910' - 3600'	2700' - 3600'	
TURNER "A" 15	1650' FNL & 1980' FWL	19-17S-31E	2910' - 3444'	2600' - 3433'	
TURNER "A" 35	1800' FNL & 660' FEL	19-17S-31E	2930' - 3380'	2570' - 3635'	
TURNER "A" 36	1800' FNL & 1980' FEL	19-17S-31E	2934' - 3418'	2580' - 3450'	
TURNER "A" 56	585' FSL & 1800' FWL	18-17S-31E	2700' - 3770'	2700' - 3770'	
TURNER "A" 57	580' FNL & 1905' FWL	19-17S-31E	2650' - 3700'	2650' - 3700'	
TURNER "A" 58	560' FSL & 1880' FEL	18-17S-31E	2650' - 3600'	2650' - 3600'	

TABLE II
AVERAGE INJECTION WELLHEAD PRESSURE GRADIENTS

	WELL	AVERAGE GRAYBURG TOP PERF (FT)	AVERAGE GRAYBURG F. G. (PSI/FT)	AVERAGE SAN ANDRES TOP PERF (FT)	AVERAGE SAN ANDRES F. G. (PSI/FT)	AVERAGE WELLHEAD PRESSURE GRADIENT (PSI/FT)
REVIEW	KEEL "B" 31					
AREA	KEEL "B" 34					
	KEEL "B" 37	3028	1.099	3287	1.077	**0.609**
1	KEEL "B" 36					
	KEEL "B" 45					
	KEEL "B" 9					
REVIEW	KEEL "B" 72					
AREA	KEEL "B" 19					
	KEEL "B" 13	3046	1.165	3487	1.067	**0.612**
2	KEEL "B" 14					
	KEEL "B" 10					
REVIEW						
AREA	KEEL "B" 5					
	KEEL "B" 10	2828	1.118	3365	1.118	**0.65**
3	KEEL "B" 28					
REVIEW						
AREA	KEEL "A" 3					
	KEEL "A" 6	2799	1.091	3317	0.974	**0.518**
4	KEEL "A" 30					
REVIEW	RUSSELL 6					
AREA	RUSSELL 11					
	RUSSELL 9					
5	HUDSON 1	2815	1.052	3285	1.026	**0.561**
	HUDSON 6					
	RUSSELL 8					
	RUSSELL 10					
	RUSSELL 7					
REVIEW	TURNER "A" 3					
AREA	TURNER "A" 10					
	TURNER "A" 13					
6	TURNER "A" 11	2760	1.063	3302	1.009	**0.548**
	TURNER "A" 58					
	TURNER "A" 56					
	TURNER "A" 57					
REVIEW	TURNER "A" 9					
AREA	TURNER "A" 12					
	TURNER "A" 35	2709	1.085	3244	1.064	**0.608**
7	TURNER "A" 36					
	TURNER "A" 15					

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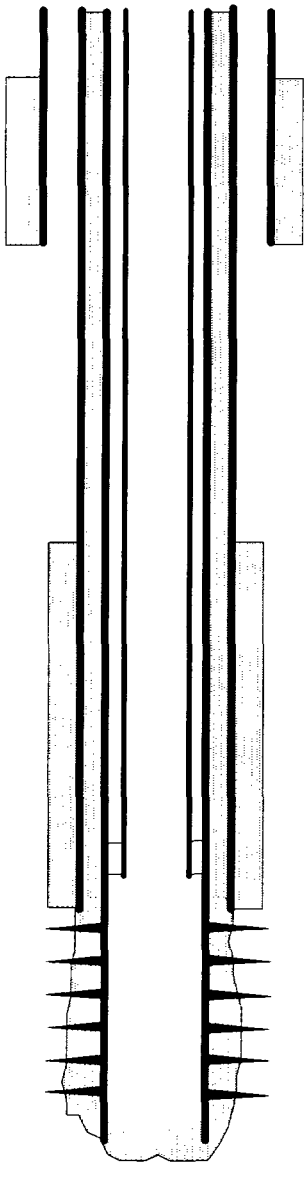
DEVON ENERGY OPERATING CORPORATION
WELLBORE SCHEMATIC

WELL NAME: C.A. RUSSELL #6		FIELD: GRAYBURG-JACKSON	
LOCATION: 990'FNL & 1384'FWL, SEC 18-T17S-R31E		COUNTY: EDDY	STATE: NM
ELEVATION: GL=3763'; KB=UNK		SPUD DATE: 08/08/36	COMP DATE: 11/26/36
API#: 30-015-05219	PREPARED BY: C.H. CARLETON		DATE: 07/12/96

	DEPTH	SIZE	WEIGHT	GRADE	THREAD	HOLE SIZE
CASING:	0' - 534'	10 3/4"				12 1/2"
CASING:	0' - 3209'	7"				8"
CASING:	0' - 3650'	4 1/2"	11.6#	J-55	LT&C	6 1/4"
TUBING:	0' - 2650'	2 3/8"	4.7#	J-55	EUE 8rd	
TUBING:						



☐ CURRENT ▒ PROPOSED

OPERATOR: DEVON ENERGY OPERATING CORPORATION

10 3/4" CASING, SET W/50 SXS. TOC @ 385'(CALC)

INJECTION INTERVAL: 2710'- 3650'

BAKER AD-1 PACKER @ +/-100' FROM TOP PERFORATION
7" CASING SET W/100 SXS. TOC @ 2402'(CALC)

PERFORATIONS THROUGHOUT INJECTION INTERVAL

4 1/2" CASING SET W/300 SXS. TOC @ SURFACE
TD @ 3650'

NOTE: FOR CALCULATED CEMENT TOPS A YIELD OF 1.32 CU FT/SX AND 50% FILLUP WERE ASSUMED.

LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE