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May 4, 2015

Florene Davidson  
Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Re: Commission Case 15284  
Linn Operating, Inc.

Dear Florene:

Enclosed are six sets of replacement exhibits in the above case. The exhibits I filed last Thursday had the hearing date for the original April hearing. These have the May hearing date. That is the only change to the exhibits.

Very truly yours,



James Bruce

Attorney for Linn Operating, Inc.

# East Hobbs San Andres Unit

## Waterflood Performance

### Total Unit Production

Monthly Rates

100,000

Oil BOPM - Left  
Well Count - Right

10,000

100

10

1

1,000

51 55 59 63 67 71 75 79 83 87 91 95 99 03 07 11 15

Increased  
Production and  
Well Count

Waterflood  
Redevelopment  
800,000 barrels recovered

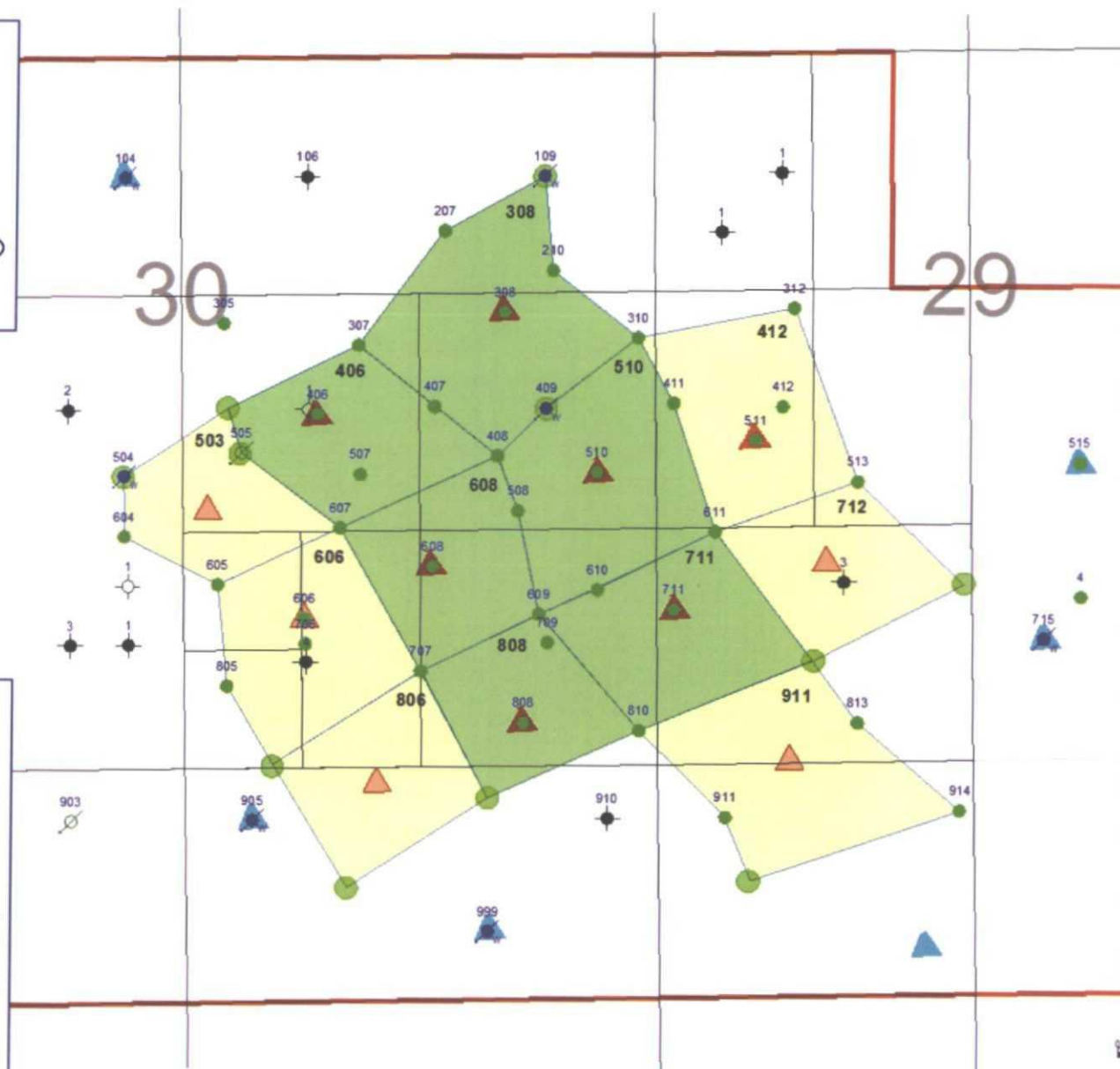
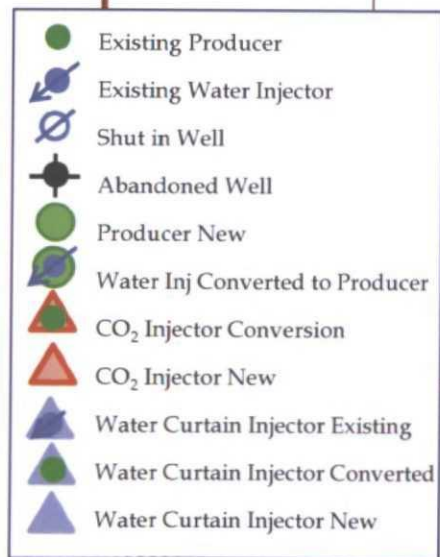
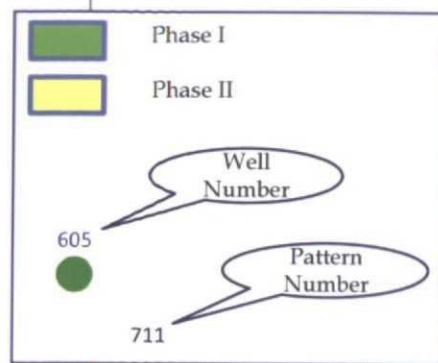
BEFORE THE OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

Exhibit No. 1

Submitted by: Linn Operating

Hearing Date: 5/7/2015



**CO<sub>2</sub> Flood Development Plan**  
 37 million barrels developed  
 4.6 million barrels recoverable by CO<sub>2</sub>  
 12.5% Incremental Recovery

BEFORE THE OIL CONSERVATION COMMISSION  
 Santa Fe, New Mexico  
 Exhibit No. 2  
 Submitted by: Linn Operating  
 Hearing Date: 5/7/2015



## East Hobbs San Andres Unit

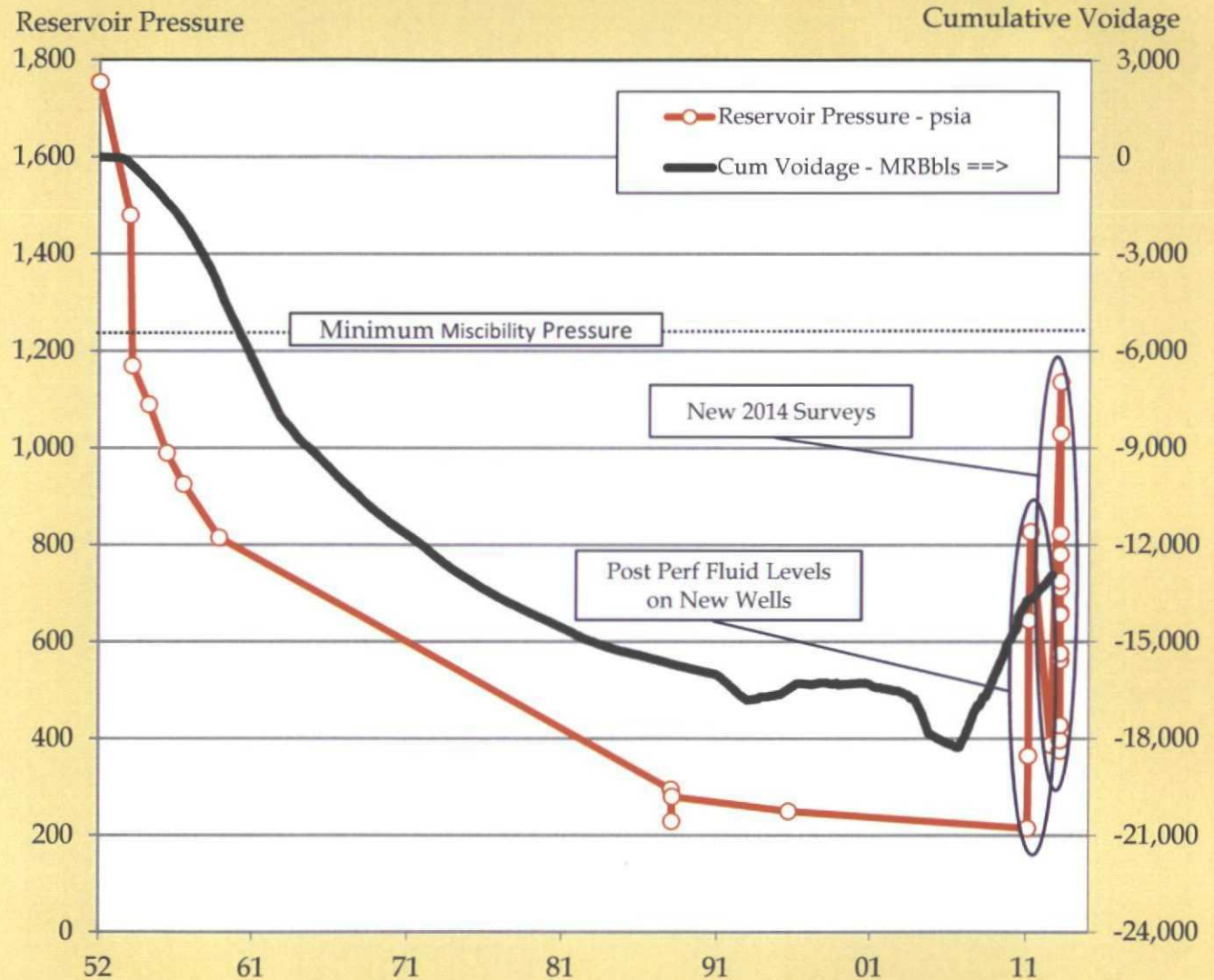
### Reservoir Pressure and Reservoir Voidage

Field cumulative voidage history suggested low reservoir pressure

Low reservoir pressures (400 to 1100 psi) were confirmed in January 2014

Simple Black Oil model study concluded, an additional 8,600 BWPD for 2 years is required to increase the reservoir pressure above the MMP of 1,225 psi.

The most timely and practical source of makeup water is from the City of Hobbs.



BEFORE THE OIL CONSERVATION COMMISSION  
 Santa Fe, New Mexico  
 Exhibit No. 3  
 Submitted by: Linn Operating  
 Hearing Date: 5/7/2015

# East Hobbs San Andres Unit

## Water Compatibility Testing

Unit Produced Water is 11850 City Water is 57773

### Mixed Water Analysis Report

Mixes at 100°F and 0 psi

Mixes of 11859 and 57773.		Predictions of Saturation Index and Amount of Scale in lb/1000bbl										CO <sub>2</sub> Fugacity
		Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> •2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>		
11859	57773	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
	100%	0.09	1.8	-1.56		-1.57		N/A		N/A		0.21
1%	99%	-0.05		-1.51		-1.52		-2.35		-1.27		0.33
2%	98%	-0.13		-1.47		-1.47		-2.03		-0.95		0.45
3%	97%	-0.18		-1.43		-1.43		-1.84		-0.77		0.57
5%	95%	-0.24		-1.35		-1.36		-1.60		-0.52		0.81
10%	90%	-0.28		-1.21		-1.21		-1.27		-0.18		1.42
15%	85%	-0.26		-1.09		-1.10		-1.07		0.02	0.00	2.04
20%	80%	-0.23		-1.00		-1.01		-0.92		0.17	0.01	2.66
25%	75%	-0.19		-0.93		-0.93		-0.81		0.28	0.02	3.28
30%	70%	-0.16		-0.86		-0.86		-0.72		0.38	0.03	3.91
40%	60%	-0.09		-0.75		-0.75		-0.57		0.52	0.05	5.17
50%	50%	-0.02		-0.66		-0.67		-0.46		0.64	0.07	6.44
60%	40%	0.04	7.8	-0.59		-0.59		-0.37		0.73	0.09	7.72
70%	30%	0.09	20.8	-0.53		-0.53		-0.30		0.81	0.11	9.01
75%	25%	0.12	27.8	-0.50		-0.50		-0.26		0.84	0.11	9.66
80%	20%	0.14	35.2	-0.47		-0.47		-0.23		0.88	0.12	10.3
85%	15%	0.16	42.8	-0.45		-0.44		-0.20		0.91	0.13	11.0
90%	10%	0.18	50.7	-0.42		-0.42		-0.17		0.94	0.14	11.6
95%	5%	0.21	58.8	-0.40		-0.40		-0.14		0.96	0.15	12.3
97%	3%	0.21	62.1	-0.39		-0.39		-0.13		0.97	0.15	12.6
98%	2%	0.22	63.8	-0.39		-0.38		-0.13		0.98	0.16	12.7
99%	1%	0.22	65.5	-0.38		-0.38		-0.12		0.98	0.16	12.8
100%		0.23	67.1	-0.38		-0.37		-0.12		0.99	0.16	13.0

Precipitation of each scale is considered separately; total scale will be less than the sum of the amounts of the five scales.

The amount of scale indicates the severity of the problem; the index (equivalent to Stiff Davis SI) indicates how difficult it is to control the problem.

The CO<sub>2</sub> fugacity is calculated. Under usual conditions it is essentially the same as the CO<sub>2</sub> partial pressure.

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BEFORE THE OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

Exhibit No. 4

Submitted by: Linn Operating

Hearing Date: 5/7/2015