

# East Hobbs San Andres Unit

## Water Compatability 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

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