



November 19, 2014

Mr. Bob Koehler, PhD
UIC Lead
Colorado Oil & Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, Colorado 80203

Re: Water Salinity in the Iles Formation as related to the Proposed Injection Well PWD Federal 21-6-91 (API#05-045-21277-00; SWSE, Section 21, T6S, R91W, 6th PM)

Dear Bob,

This letter is to document our previous presentation on the Iles water salinity and the two members within the Iles Formation. The presentation is attached for reference.

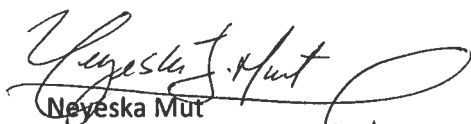
The transgressive nature of the Cretaceous-age Western Inland Seaway resulted in various higher and lower porosity intervals. The higher porosity intervals at the top of the two members show essentially the same apparent water resistivity (Rwa), which is consistent with the entire Iles Formation being deposited as part of a single inland Cretaceous seaway. The Rwa values are calculated by Baker Hughes from the Spontaneous Potential measurement of the open hole logs, utilizing standard industry practices.

The Rwa values suggest a water salinity on the order of 10,000 ppm to 12,000 ppm Total Dissolved Solids (TDS). This is consistent with the bottom hole water samples recently analyzed for the PWD well, which an average water salinity of 11,175 ppm TDS (average of the four samples taken on November 4, 2014). The complete Halliburton water analysis data sheet is also attached.

The open log data, the actual water analysis, and the geologic depositional model are consistent and all indicate the Iles Formation has a common brine with the salinity just over 11,000 TDS.

If you have any additional questions or comments, please contact me.

Best regards,


Neveska Mut
Managing Director

Coachman Energy Operating Company (Operator Number 10500)

PWD Federal 21-6-91

Section 21, T6S, R91W, 6th PM

Garfield County, Colorado

Date	Sample Number	Barrels Recovered	TDS, ppm
November 3, 2014	W425*	73	9,580
November 3, 2014	W426*	77.5	10,100
November 4, 2014	W423	86.5	10,600
November 4, 2014	W424	94.25	11,000
November 4, 2014	W427	101	11,300
November 4, 2014	W428	103.25	11,800
Total:	6	103.25	64,380 Average: 10,730 11/4 Average: 11,175

*Sample was taken while casing was being flushed free of fresh water fracking fluid.

HALLIBURTON

Rockies, Grand Junction

Lab Results-PE

Job Information

Request ID	2010395/1	Rig Name	Monument W.S.	Date	05/NOV/2014
Submitted By	Ryan Barker	Job Type	Fracturing/Stimulation	Well	PWD Federal 21-6-91
Customer	Coachman Energy	Location	21-T65-R91W		

Well Information

Formation	Corcoran	Depth MD	8810-8898'
Pressure	Unknown		

Request Comments

Testing is for Cynosure, Coachman Federal 21-6:
W423 - 11/4/2014 86.5 bbl, 8810-8898.
W424 - 11/4/2014 94.25 bbls, 8810-8898 Recovered.
W425 - 11/3/2014 73 bbls, 8810-8898 Recovered.
W426 - 11/3/2014 77.5 bbls, 8810-8898 1650 hrs.
W427 - 11/4/2014 101 bbls, 8810-8898 recovered.
W428 - 11/4/2014 103.25 bbls, 8810-8898 recovered.

Fluid Results Request ID 2010395/ 1

Water Analysis

Tank Number/Source	Specific Gravity	pH	Chlorides (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Dissolved Iron (mg/L)	Potassium (mg/L)
W423	1.006	7.17	3795	70	40	29.5	66
W424	1.006	7.93	4347	70	10	9.2	56
W425	1.006	7.41	4863	30	50	32.8	64
W426	1.006	7.47	3486	70	10	24.8	71
W427	1.007	7.49	4128	60	20	21.7	72
W428	1.007	7.59	4482	20	50	24.5	80

Bicarbonates (mg/L)	Carbonates (mg/L)	Hydroxides (mg/L)	Sulfates (mg/L)	TDS (mg/L)	Rw Resistivity (Ohms-Meter)	Temperature (°F)
1210	0	0	70	10600	0.879	67
1140	0	0	0	11000	0.825	67
1110	0	0	150	9580	0.928	67
1150	0	0	190	10100	0.905	67
1380	0	0	60	11300	0.812	66
1310	0	0	10	11800	0.792	66

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