

HALLIBURTON

Rockies Lab Water Analysis Report

District: Grand Junction

Tested By

Jason Martinez

Reported By

Jason Martinez

Customer and Well Information

Company	WPX	Well/Sample Name	PA Injection Field W358
Report To	Mark Mayo	Date Received	12/22/2013
		Date Tested	12/22/2013

Sample Physical Characteristics

Sample 1	W358			
Temperature	68.3	°F	Resistivity	0.5 Ω m
Specific Gravity	1.012		Conductivity	26.0 mS/cm
pH	7.4		TDS	14900.0 mg/L
Turbidity	322.0	FNU	Color (observation)	Light Yellow

Sample Chemical Characteristics

Anions

Chloride	8973	mg/L	Total Iron	1.76	mg/L
Sulfate	2	mg/L	Ferrous Iron	0	mg/L
Carbonate	0	mg/L	Potassium	400	mg/L
Bicarbonate	650	mg/L	Calcium	595	mg/L
Hydroxide	0	mg/L	Magnesium	395	mg/L
			Sodium (calculated)	4399	mg/L

Cations

General Comments

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This water sample was collected from the Parachute Centralized E&P Waste Management Facility (COGCC Facility # 149015). This analysis represents the quality of water that will be injected into the SG 922-32D injection well.

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Job Information

Request ID	2004477	Rig Name		Date	25/MAR/2014
Submitted By	Nathan Barnum	Job Type	Fracturing/Stimulation	Well	
Customer	WPX Energy, Inc.	Location			

Well Information

Formation	Unknown	Depth MD		BHST	
Pressure		Depth TVD		Cool Down Temperature	

Results For Request ID 2004477

Water Analysis						
Tank Number/Source	W136	W137	W138	W139	W140	W141
Specific Gravity	1.0065	1.0095	1.0095	1.012	1.006	1.011
pH	7.54	7.59	7.76	8.12	7.92	7.59
Chlorides (mg/L)	4479	5250	6180	8187	4206	8187
Calcium (mg/L)	120	150	380	920	150	690
Magnesium (mg/L)	60	10	60	200	50	90
Dissolved Iron (mg/L)	4.2	1.6	8.1	6.8	4.3	11.6
Potassium (mg/L)	39	58	58	94	37	77
Bicarbonates (mg/L)	1380	2070	1870	1000	1400	760
Carbonates (mg/L)	0	0	0	0	0	0
Hydroxides (mg/L)	0	0	0	0	0	0
Sulfates (mg/L)	0	20	0	10	0	10
Sodium (mg/L)	3150	3967	4118	4192	2961	4578
TDS (mg/L)	9850	12600	12000	14500	9300	13400
Rw Resistivity (Ohms-Meter)	0.798	0.654	0.617	0.464	0.782	0.519
Temperature (°F)	64	62	62	62	62	62

W136 - 27-5 Injection W137 - Fed 299-26-1 W138 - Kokopelli Field W139 - Rulison Field W140 - Ryan's Gulch W141 - Parachute Field

The W141 sample was collected from the Parachute Centralized E&P Waste Management Facility (COGCC Facility # 149015). This analysis represents the quality of water that will be injected into the SG 922-32D injection well.

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Job Information

Request ID	2006512	Rig Name		Date	12/JUN/2014
Submitted By	Nathan Barnum	Job Type	Fracturing/Stimulation	Well	Parachute
Customer	WPX Energy, Inc.	Location			

Well Information

Formation	Unknown	Depth MD		BHST	
Pressure		Depth TVD		Cool Down Temperature	

Results For Request ID 2006512

Water Analysis

Tank Number/Source	Specific Gravity	pH	Chlorides (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Dissolved Iron (mg/L)	Potassium (mg/L)
W260	1.011	7.45	7728	490	500	9.8	92

Bicarbonates (mg/L)	Carbonates (mg/L)	Hydroxides (mg/L)	Sulfates (mg/L)	Sodium (mg/L)	TDS (mg/L)	Rw Resistivity (Ohms-Meter)	Temperature (°F)
680	0	0	10	3698	13000	0.502	65

Conductivity - 23.0 mS

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