

Oilfield Labs of America

3302 Pilot Avenue

Midland, Texas 79706

Toll Free - 855-OIL-LAB1

Report Date: 10/18/2017

Adenosine Triphosphate (ATP) Report

OLA Client:	Ecotechnology	Log Out Date:	10/18/17
Sales Rep:	<i>Army Disregard</i>	Analyst:	RWS



Sample ID	Sample Date	Operator	Region	Lease	Location	cATP (pg/ml)
1171018007	1/0/00	Eco Tech Field	Not Provided	Ecotech Field Test	Before	28421
1171018008	1/0/00	Eco Tech Field	Not Provided	Ecotech Field Test	After	3037

QMG-M cATP Interpretation Guidelines

Application	Good Control	Preventative Action	Corrective Action
	(pg cATP/mg)		
Finished Fuels Conventional Lubricants *	< 10	10 to 100	> 100
Polymers, Admixes, Personal Care, Home Care	< 100	100 to 1,000	> 1,000
Crude Oil, Fuel Associated Water, Oily Brines, Chemical Products, Oilfield Waters	< 100	100 to 1,000	>1,000
Metal Working Fluids, Fire Retardant Lubricants	< 1,000	1,000 to 10,000	> 10,000
<p>* The interpretation guidelines provided above are based on samples that meet defined standards (from ASTM, ISO or otherwise) for water content. For example, diesel fuels should contain ≤ 500 ppm water and sediment (per ASTM D 975 and D 7467) while jet fuels should contain ≤ 30 ppm, (per ASTM D 1655). If the sample has greater water content than defined as acceptable by the standard, interpretation guidelines may vary. Contact LuminUltra for interpretation advice.</p> <p>Note: These interpretation guidelines are designed for generic risk management guidance only. Users are encouraged to establish their own control ranges on which to base process decisions. LuminUltra and its affiliates do not accept any liability for any decision or assessment taken or made as a consequence of using this test kit.</p>			

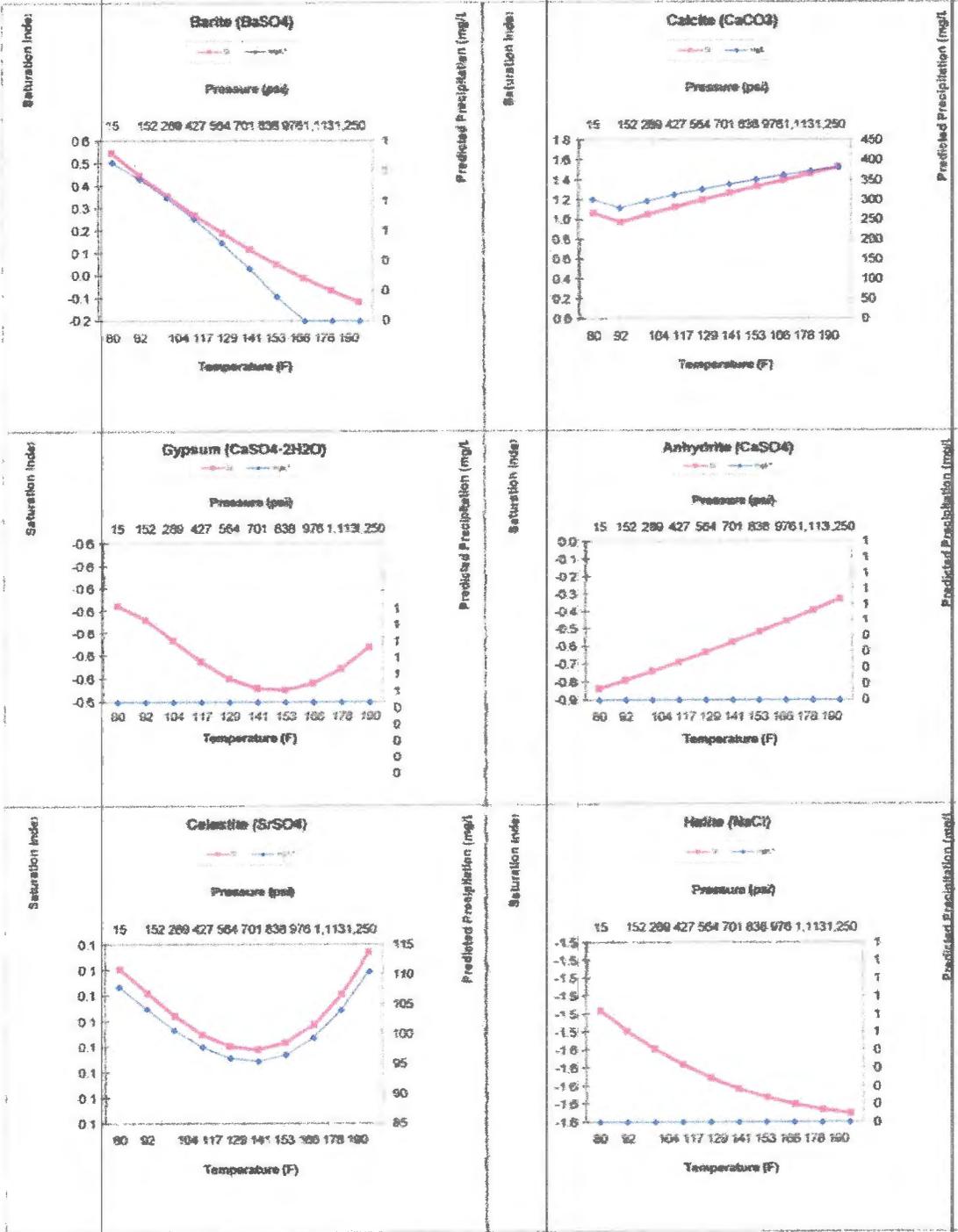
141°F	701 psi	0.11	33.417	-1.57	0.000	1.49	3.782	0.66	4.639
153°F	838 psi	0.11	33.793	-1.58	0.000	1.51	3.801	0.73	4.875
166°F	976 psi	0.11	34.775	-1.58	0.000	1.53	3.822	0.80	5.056
178°F	1113 psi	0.12	36.392	-1.58	0.000	1.55	3.845	0.87	5.197
190°F	1250 psi	0.13	38.647	-1.59	0.000	1.57	3.870	0.93	5.388

Note 1: When separating the severity of the scale problem, both the saturation index (SI) and amount of scale need to be considered.
 Note 2: Precipitation of each scale is considered separately. Total scales will be less than the sum of the amounts of the right (SI) scales.
 Note 3: Saturation index predictions on the sheet use pH and alkalinity. HCO_3^- is NOT included in the calculations.



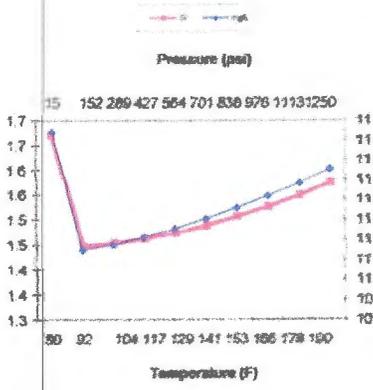
Comments:

Sample ID: Ecotechnology, Eco Tech Field, Ecotech Field
 Test Before



Saturation Index

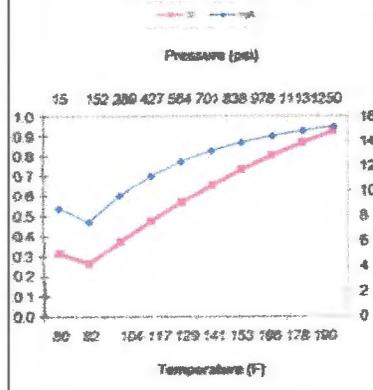
Iron Sulfide (FeS)



Predicted Precipitation (mg/L)

Saturation Index

Iron Carbonate (FeCO₃)



Predicted Precipitation (mg/L)

178°F	1113 psi	0.08	25.003	1.66	0.000	0.15	0.103	0.16	0.275
190°F	1250 psi	0.09	28.828	-1.57	0.000	0.16	0.105	0.20	0.340

Note 1: When assessing the accuracy of the above analysis, both the saturation index (SI) and amount of scale must be considered.

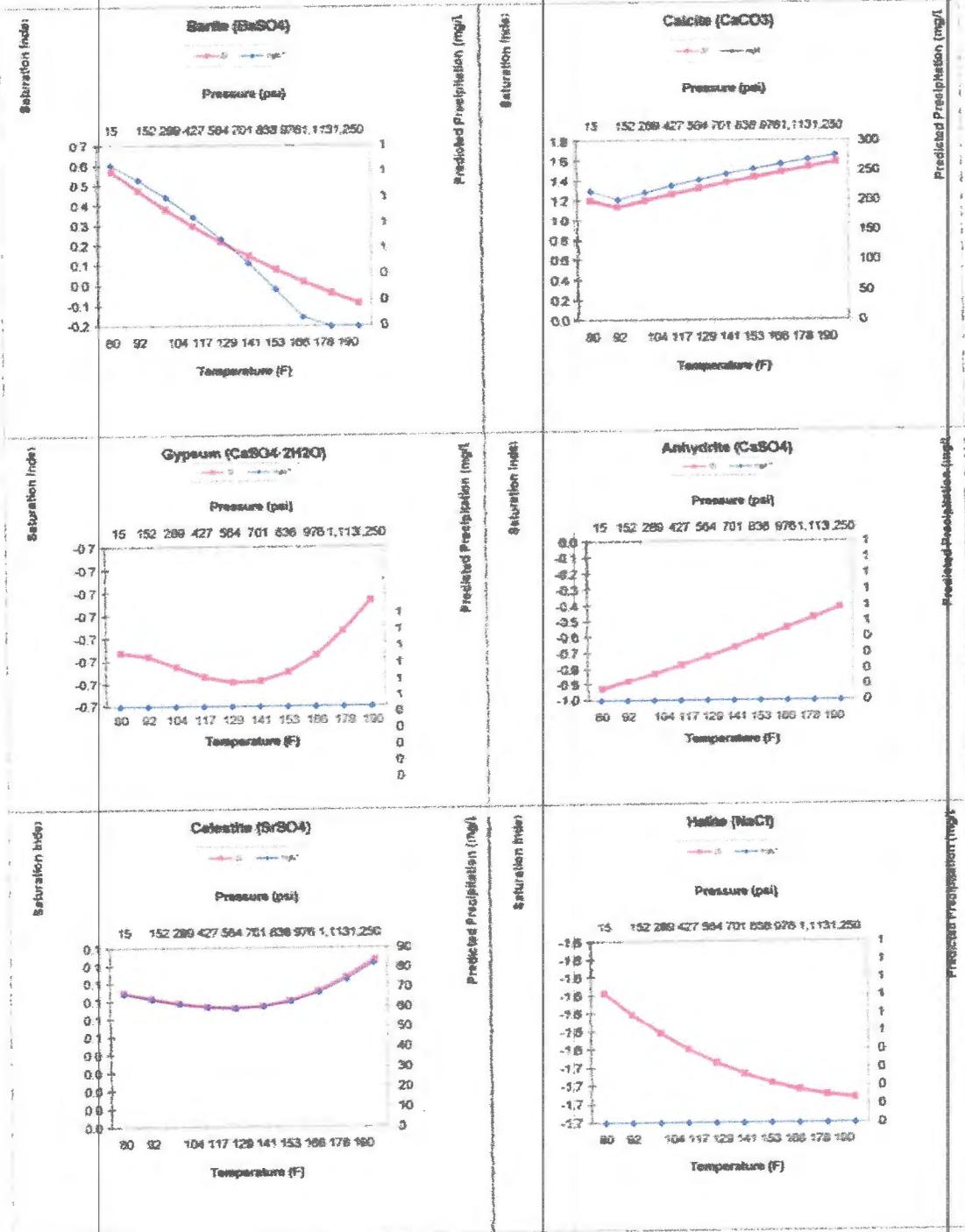
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the separate scales.

Note 3: Saturation index predictions do not show calcium and alkalinity. CaCO_3 is not included in SI calculations.



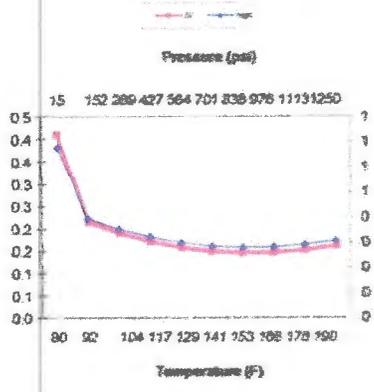
Comments:

Sample ID: 43027 Ecotechology, Eco Tech Field, Eco_Tech_Field_Test,Treated Filtered Water



Saturation Index

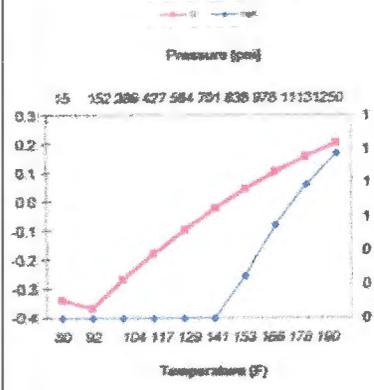
Iron Sulfide (FeS)



Predicted Precipitation (mg/L)

Saturation Index

Iron Carbonate (FeCO₃)



Predicted Precipitation (mg/L)

Contract

Dry Weight

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Membrane Filter Analysis

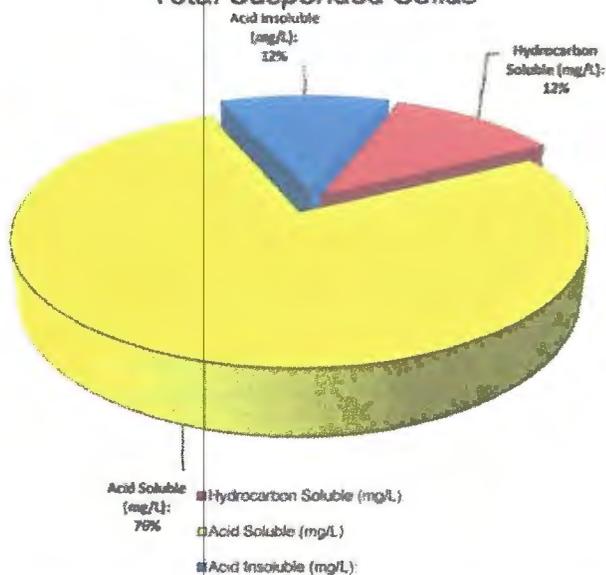
Midland, Texas 79706



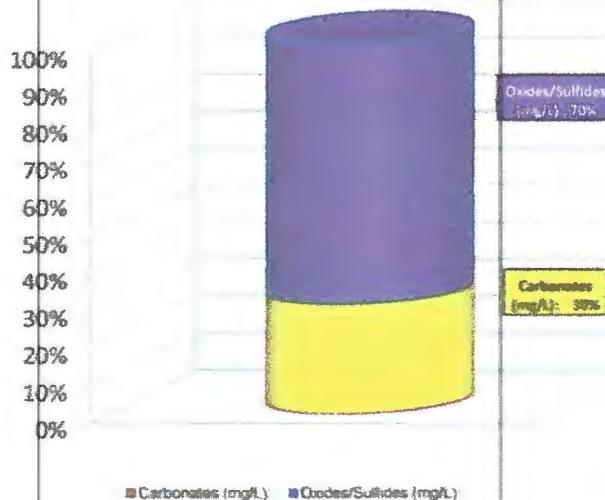
OLA Client:	Ecotechnology	Test Requested:	Membrane
Operator:	Eco Tech Field	Sample ID:	107701000
Requested By:	Scott Johnson	Sample Date:	1/0/1900
Lease:	Ecotech Field Test	Received Date:	10/18/2017
Location:	Before	Logout Date:	10/20/2017
Region:	Not Provided	Analyst:	RWS

Eco Tech Field, Ecotech Field Test, Before

Total Suspended Solids



Acid Soluble



Results

Pore Size (microns):	0.45	Time (mins):	5
Volume Used (mls):	39	Pressure (psi):	20
Total Suspended Solids (mg/L):	238		

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PROCESS

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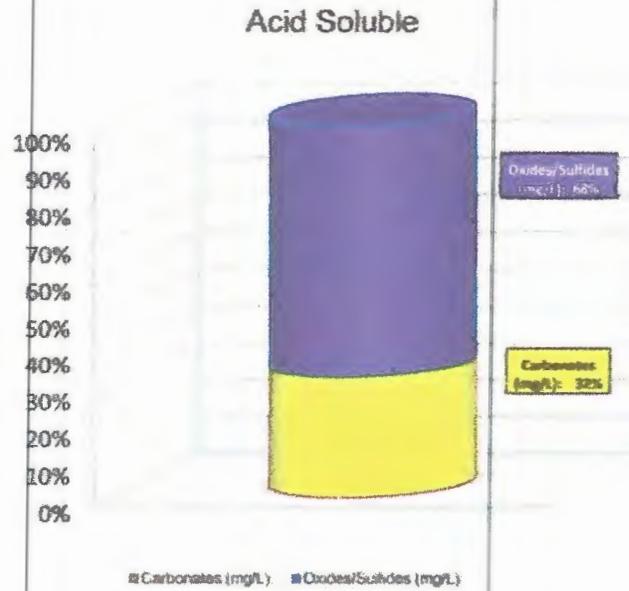
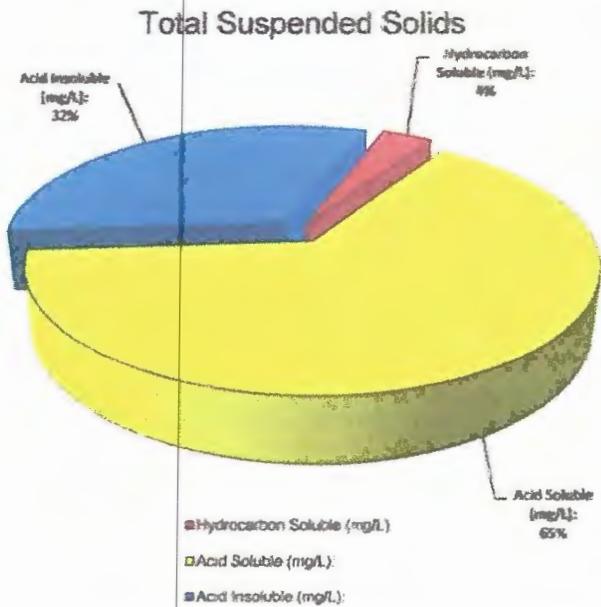
Membrane Filter Analysis

Midland, Texas 79706



OLA Client:	Ecotechnology	Test Requested:	10/18/2017
Operator:	Eco Tech Field	Sample ID:	10/18/2017
Requested By:	John Ward	Sample Date:	1/0/1900
Lease:	Ecotech Field Test	Received Date:	10/18/2017
Location:	Filtered After	Logout Date:	10/20/2017
Region:	Not Provided	Analyst:	RWS

Eco Tech Field, Ecotech Field Test, Filtered After



Results			
Pore Size (microns):	0.45	Time (mins):	5
Volume Used (mls):	42	Pressure (psi):	20
Total Suspended Solids (mg/L):	136		

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Hydrocarbon Soluble	5	4%
(mg/L): Acid Soluble	88	65%
(mg/L): Acid Insoluble	43	32%
Total:		100%

Comments:

Acid Soluble (mg/L):	88	
Oxides/Sulfides (mg/L):	60	68%
Carbonates (mg/L):	29	32%
Total:		100%