Grand Junction District Laboratory
2403 River Road
Grand Junction Colorado
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Baker Hughes

Prepared for

Knowles Enterprise

Axia

0

Mesa County, Colorado

Formation

Water Analysis

Source

Testing Results
Prepared for

Steve Searcy

Laboratory Project No. W04262012 KE
Prepared By:
Tina Reese
Grand Junction District Laboratory
Grand Junction Colorado
4/26/2012

Baker Hughes Inc.
Grand Junction District Laboratory
Water Analysis Report

Project # W04262012 KE

Customer/Well Information

Company:	Knowles Enterprise	**Date:**	4/26/2012
Well Name:	Axia	**Prepared for:**	Steve Searcy
Location:	00-000-00000	**Submitted by:**	0
State:	Mesa County, Colorado	**Prepared by:**	Tina Reese
Formation:		**Water Type:**	Source
Depth:	0		

Background Information

Reason for Testing: Potential Fracturing Water (Slick Water)
Completion type:
Well History:
Comments:

Sample Characteristics

Sample Temp:	74 (°F)	**Viscosity:**	N/D
pH:	7.88	**Color:**	Lt Brown
Specific Gravity:	1.022	**Odor:**	N/D
S.G. (Corrected):	1.025 @ 60 °F	**Turbidity:**	N/D
Resistivity (Calc):	0.15 Ω-m	**Filtrates:**	N/D

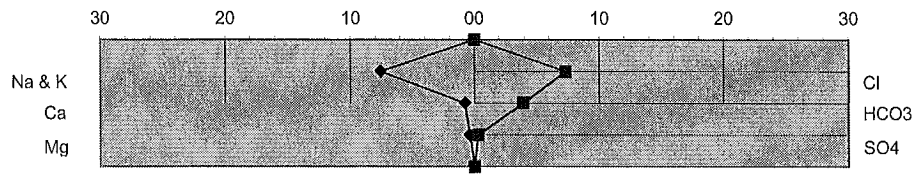
Sample Composition

		mg/l	me/l	ppm
CATIONS	Sodium (calc.)	17858	776.8	17473
	Calcium	160	8.0	157
	Magnesium	49	4.0	48
	Barium		0.0	0
	Potassium		0.0	0
	Iron	7.00	0.3	6.85
ANIONS	Chloride	26550	748.9	25978
	Sulfate	150	3.1	147
	Hydroxide	0	0.0	0
	Carbonate	< 1	----	----
	Bicarbonate	2440	40.0	2387
SUMMARY	Total Dissolved Solids(calc.)	47214		46197
	Total Hardness as CaCO3	601	12.0	588

Scaling Tendencies

CaCO3 Factor	391376	Calcium Carbonate Scale Probability --> REMOTE
CaSO4 Factor	24060	Calcium Sulfate Scale Probability -------> REMOTE

Stiff Plot



CONDITIONS OF APPROVAL
Axia Energy, LLC Location ID: 421047
Encana Location IDs 323905, 383216 and
423633
Axia Energy, LLC and Encana Oil and Gas (USA) Inc Transfer and Receiving Water Reuse Plans

COA- APPROVAL OF THIS PLAN IS CONTINGENT UPON ANALYTICAL LABORATORY RESULTS FOR REPRESENTATIVE SAMPLES OF AXIA ENERGY, LLC PRODUCED AND FLOWBACK WATER FROM LOCATION ID 421047, RESULTS SHALL BE SUBMITTED TO THE COGCC WITHIN 45 DAYS OF APPROVAL OF THIS PLAN. ANALYTICAL LABORATORYANALYSIS SHALL INCLUDE:

• VOLATILE ORGANIC COMPOUNDS	EPA METHOD 624 (GC/MS)
• SEMI-VOLATILE ORGANIC COMPOUNDS	EPA METHOD 625 (GC/MS)
• DISSOLVED METALS	EPA METHOD 200.7 (ICP)
• DISSOLVED INORGANICS (NON-METALS)	EPA METHOD 300.0 (IC)
o Br,Cl,F,Nitrate/Nitrite, Sulfate	
• GENERAL WATER QUALITY PARAMETERS	
o SPECIFIC CONDUCTANCE	EPA METHOD 300.0 (IC)
o HARDNESS	EPA METHOD 130.1
o TOTAL DISSOLVED SOLIDS	EPA METHOD 160.1
o pH	EPA METHOD 150.2
o ALKALINITY	EPA METHOD 310.1
• GROSS ALPHA AND BETA RADIOACTIVITY	EPA METHOD 900.1

COA – IF LOCATIONS ARE IN A SENSITIVE AREA BECAUSE OF ITS PROXIMITY TO SURFACE WATER OPERATOR MUST ENSURE 110 PERCENT SECONDARY CONTAINMENT FOR ANY VOLUME OF FLUIDS CONTAINED AT THE WATER HANDLING FACILITY SITE DURING NATURAL GAS DEVELOPMENT ACTIVITIES AND OPERATIONS; INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION OF A BERM OR DIVERSION DIKE, DIVERSION/COLLECTION TRENCHES WITHIN AND/OR OUTSIDE OF BERMS/DIKES, SITE GRADING, OR OTHER COMPARABLE MEASURES (I.E., BEST MANAGEMENT PRACTICES (BMPS) ASSOCIATED WITH STORMWATER MANAGEMENT) SUFFICIENTLY PROTECTIVE OF NEARBY SURFACE WATER. ANY BERM CONSTRUCTED AT THE WELL PAD LOCATION WILL BE STABILIZED, INSPECTED AT REGULAR INTERVALS (AT LEAST EVERY 14 DAYS), AND MAINTAINED IN GOOD CONDITION.

COA - OPERATOR MUST IMPLEMENT BEST MANAGEMENT PRACTICES TO CONTAIN ANY UNINTENTIONAL RELEASE OF FLUIDS, INCLUDING ANY FLUIDS CONVEYED VIA TEMPORARY SURFACE PIPELINES.

COA - OPERATOR SHALL PROVIDE OVERFLOW PROTECTION FOR EACH TANK PROPOSED IN THE FACILITY PLANS, IF TANKS ARE USED.

COA - OPERATOR PROPOSES THAT THIS FACILITY WILL BE IN OPERATION FOR A PERIOD OF LESS THAN ONE YEAR. SHOULD THE OPERATION OF THIS FACILITY CONTINUE MORE THAN ONE YEAR, A FORM 28 SHALL BE SUBMITTED AND APPROVED BEFORE THE ONE-YEAR ANNIVERSARY DATE OF THE FIRST USE OF THE TRANSFER FACIITY/LOCATION.

COA-TERMINATION OF ACITIVITES: BOTH AXIA AND ENCANA SHALL NOTIFY THE COGCC VIA SUNDRY IMMEDIATELY UPON TERMINATION OF ACTIVITIES.

COA-AXIA AND ENCANA WILL EACH SEPERATELY SUBMIT AN ANNUAL REPORT TO THE COGCC SUMMARIXZING THE TRANSFER OF PRODUCTION WATER (BOTH AS TRANSFER AND RECEIVING OPERATOR) DURING THE CALENDAR YEAR AND INCUDING LABORATORY ANALYTICAL RESULTS FOR REPRESENTATIVE SAMPLES(S) OF THE PRODUCTION WATER PROVIDED AS THE TRANSFER/RECIEVER. THE ANNUAL REPORT SHALL BE SUBMITTED ON OR BEFORE THE ANNIVERSAY OF THE FIRST DATE OF TRANSFER.