Mountain States
ACCUTEST
LABORATORIES

01/07/16

Effective January 1, 2016, SGS has acquired all of the assets of Accutest Laboratories and will continue to operate as SGS-Accutest. SGS-Accutest is part of SGS, the world's leading inspection, verification, testing and certification company.

Technical Report for

K.P. Kauffman Company, Inc.

Wattenberg Tank

Accutest Job Number: D78563

Sampling Date: 12/30/15

Report to:

K.P. Kauffman Company, Inc.
1675 Broadway Suite 2800
Denver, CO 80202-4628
slaramesa@kpk.com; mhattel@msn.com

ATTN: Susana Lara-Mesa

Total number of pages in report: 29

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Lewis 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY
CO (CO00049), EPA 524.2 Provisional

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Test results relate only to samples analyzed.

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Sample Summary

K.P. Kauffman Company, Inc.

Job No: D78563

Wattenberg Tank

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D78563-1	12/30/15	11:00 MH	12/30/15	AQ	Water	TANK-I
D78563-1F	12/30/15	11:00 MH	12/30/15	AQ	Water Filtered	TANK-I

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CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	K.P. Kauffman Company, Inc.	**Job No**	D78563
Site:	Wattenberg Tank	**Report Date**	1/7/2016 4:03:15 PM

On 12/30/2015, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D78563 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method SW846 6010C

Matrix: AQ **Batch ID:** MP17789

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D78563-1FMS, D78563-1FMSD, D78563-1FSDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Potassium are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike (MS) recovery(s) of Calcium, Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Calcium, Sodium are outside control limits for sample MP17789-SD1. Probable cause due to sample homogeneity.
- MP17789-SD1 for Calcium, Sodium: Serial dilution indicates possible matrix interference.

Wet Chemistry By Method ASTM D287

Matrix: ALL **Batch ID:** GN32969

- The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method EPA 1664A

Matrix: AQ **Batch ID:** GP16984

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D78389-1MS were used as the QC samples for the HEM Oil and Grease analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix: AQ **Batch ID:** GP16986

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D78568-8MS, D78568-8MSD were used as the QC samples for the Chloride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Chloride analysis.
- D78563-1 for Nitrogen, Nitrate: Elevated detection limit due to matrix interference.
- D78563-1 for Sulfate: Elevated detection limit due to matrix interference.
- D78563-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Wet Chemistry By Method SM 2540C-2011

Matrix: AQ	Batch ID: GN32955

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D78553-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.
- D78563-1 for Solids, Total Dissolved: Maximum reference method residue requirement was exceeded using minimum sample volume. The constant weight requirement was met.

Wet Chemistry By Method SM 5310B-2011

Matrix: AQ	Batch ID: GP16998

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D78383-1ADUP, D78383-1AMS, D78383-1AMSD were used as the QC samples for the Total Organic Carbon analysis.

Wet Chemistry By Method SM4500HB+-2011/9040C

Matrix: AQ	Batch ID: GN32945

- D78563-1 for pH: Analysis performed past the required 15 minutes from collection time/holding time.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D78563
Account: K.P. Kauffman Company, Inc.
Project: Wattenberg Tank
Collected: 12/30/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D78563-1	TANK-I					
Chloride		13200	500		mg/l	EPA 300.0/SW846 9056
HEM Oil and Grease		1300	4.8		mg/l	EPA 1664A
Solids, Total Dissolved [a]		21000	10		mg/l	SM 2540C-2011
Specific Gravity by Hydrometer		1.0143				ASTM D287
Total Organic Carbon		164	8.6		mg/l	SM 5310B-2011
pH [b]		6.87			su	SM4500HB+-2011/9040C
D78563-1F	TANK-I					
Calcium		236000	20000		ug/l	SW846 6010C
Magnesium		33900	10000		ug/l	SW846 6010C
Potassium		92600	50000		ug/l	SW846 6010C
Sodium		9280000	20000		ug/l	SW846 6010C

(a) Maximum reference method residue requirement was exceeded using minimum sample volume. The constant weight requirement was met.
(b) Analysis performed past the required 15 minutes from collection time/holding time.

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Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	TANK-I		
Lab Sample ID:	D78563-1	Date Sampled:	12/30/15
Matrix:	AQ - Water	Date Received:	12/30/15
		Percent Solids:	n/a
Project:	Wattenberg Tank		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	13200	500	mg/l	1000	12/31/15 18:42	JB	EPA 300.0/SW846 9056
HEM Oil and Grease	1300	4.8	mg/l	1	01/05/16	SWT	EPA 1664A
Nitrogen, Nitrate [a]	< 1.0	1.0	mg/l	100	12/31/15 09:51	JB	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	< 4.0	4.0	mg/l	1000	12/31/15 18:42	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved [b]	21000	10	mg/l	1	01/04/16	JF	SM 2540C-2011
Specific Gravity by Hydromete	1.0143			1	01/05/16	MM	ASTM D287
Sulfate [a]	< 50	50	mg/l	100	12/31/15 09:51	JB	EPA 300.0/SW846 9056
Total Organic Carbon	164	8.6	mg/l	8.62	01/05/16 16:37	JB	SM 5310B-2011
pH [c]	6.87		su	1	12/31/15 13:00	TB	SM4500HB+-2011/9040C

(a) Elevated detection limit due to matrix interference.
(b) Maximum reference method residue requirement was exceeded using minimum sample volume. The constant weight requirement was met.
(c) Analysis performed past the required 15 minutes from collection time/holding time.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	TANK-I		
Lab Sample ID:	D78563-1F	Date Sampled:	12/30/15
Matrix:	AQ - Water Filtered	Date Received:	12/30/15
		Percent Solids:	n/a
Project:	Wattenberg Tank		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	236000	20000	ug/l	50	01/05/16	01/05/16	LH	SW846 6010C [1]	SW846 3010A [3]
Magnesium	33900	10000	ug/l	50	01/05/16	01/05/16	LH	SW846 6010C [1]	SW846 3010A [3]
Potassium	92600	50000	ug/l	50	01/05/16	01/05/16	LH	SW846 6010C [1]	SW846 3010A [3]
Sodium	9280000	20000	ug/l	50	01/05/16	01/06/16	LH	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA6914
(2) Instrument QC Batch: MA6917
(3) Prep QC Batch: MP17789

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX 303-425-6854

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D78563

Client / Reporting Information

Company Name	K.P. Kauffman Company, Inc.
Address	1675 Broadway, Suite 2800
City / State / Zip	Denver / CO / 80202-4628
Project Contact	Susana Lara-Mesa SLaraMesa@kpk.com
Phone #	303-825-4822
Samplers's Name	MICHAEL HATTEL (303-665-1400)

Project Information

Project Name:	WATTENBERG TANK
Street	
City / State	Fort Lupton / CO
Project #	
Fax #	
Client Purchase Order #	7591

Requested Analysis

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	OIL & GREASE 1664	ANIONS (NITRATE, NITRITE, SULFATE, CHLORIDE)	pH	CATIONS (Ca, K, Mg, NA)	SPECIFIC GRAVITY	TDS	TOC					LAB USE ONLY
	TANK - I		12/30/15	1100	MDH	LIQ	7	X			X					X	X	X	X	X	X	X					01
																										03
																										1

Matrix Codes: DW- Drinking Water; GW- Ground Water; WW- Water; SW- Surface Water; SO- Soil; SL-Sludge; OI-Oil; LIQ- Other Liquid; AIR- Air; SOL-Other Solid; WP-Wipe

Turnaround Time (Business days)

- [X] Std. 10 Business Days
- Approved By / Date:

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] NJ Reduced
- [ ] NJ Full
- [X] Hard Copy
- [ ] FULL CLP
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [X] PDF

Comments / Remarks

PDF copy to Mike Hattel with APEX at mhattel@msn.com

PDF copy to Susan Lara-Mesa with KPK at Slaramesa@kpk.com

Emergency T/A data available VIA Lablink

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	12/30/15 1140	1 [signature] 12-30-15 11:40			2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # TTO	Preserved where applicable	On Ice / Cooler Temp. 4.4

TO 80

5.1

5

D78563: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D78563 **Client:** KP KAUFFMAN **Project:** WATTENBERG TANK

Date / Time Received: 12/30/2015 11:40:00 AM **Delivery Method:** **Airbill #'s:** HD

Cooler Temps (Initial/Adjusted): #1: (4.4/4.4);

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	or N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun;	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	or N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Comments

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D78563: Chain of Custody
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Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	13		
Antimony	30	2.1	8.7		
Arsenic	25	3.8	12		
Barium	10	.2	.4		
Beryllium	10	.9	1.6		
Boron	50	.8	3.6		
Cadmium	10	.2	.8		
Calcium	400	2.4	10	23.1	<400
Chromium	10	.3	.7		
Cobalt	5.0	.5	1.2		
Copper	10	.8	3.8		
Iron	70	1.5	6.9		
Lead	50	2.1	4.9		
Lithium	5.0	.4	.7		
Magnesium	200	6.8	39	7.1	<200
Manganese	5.0	.5	.9		
Molybdenum	10	.4	3.6		
Nickel	30	.5	2.7		
Phosphorus	100	15	34		
Potassium	1000	99	71	109	<1000
Selenium	50	7.1	10		
Silicon	50	4.7	8.4		
Silver	30	.3	.6		
Sodium	400	7.3	14	-62	<400
Strontium	5.0	.01	.3		
Thallium	10	1.8	8		
Tin	50	12	12		
Titanium	10	.1	2.7		
Uranium	50	2.9	4.4		
Vanadium	10	.4	.6		
Zinc	30	.4	3.5		

Associated samples MP17789: D78563-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	D78563-1F Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	anr				
Calcium	236000	273000	25000	148.0(a)	75-125
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron					
Lead	anr				
Lithium					
Magnesium	33900	62700	25000	115.2	75-125
Manganese					
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	92600	125000	25000	129.6N(b	75-125
Selenium	anr				
Silicon					
Silver	anr				
Sodium	9280000	8350000	25000	-3720.0a	75-125
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	anr				

Associated samples MP17789: D78563-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	D78563-1F Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
(b) Spike recovery indicates possible matrix interference.

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	D78563-1F Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium	236000	272000	25000	144.0(a)	0.4	20
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron						
Lead	anr					
Lithium						
Magnesium	33900	63300	25000	117.6	1.0	20
Manganese						
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	92600	123000	25000	121.6	1.6	20
Selenium	anr					
Silicon						
Silver	anr					
Sodium	9280000	9170000	25000	-440.0(a	9.4	20
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	anr					

Associated samples MP17789: D78563-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	D78563-1F Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

6.1.2

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SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	26000	25000	104.0	80-120
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron				
Lead	anr			
Lithium				
Magnesium	25500	25000	102.0	80-120
Manganese				
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	25100	25000	100.4	80-120
Selenium	anr			
Silicon				
Silver	anr			
Sodium	24900	25000	99.6	80-120
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP17789: D78563-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

6.1.3

SERIAL DILUTION RESULTS SUMMARY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	D78563-1F Original	SDL 50:250	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	236000	197000	16.6*(a)	0-10
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron				
Lead	anr			
Lithium				
Magnesium	33900	31700	6.6	0-10
Manganese				
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	92600	87500	5.4	0-10
Selenium	anr			
Silicon				
Silver	anr			
Sodium	9280000	8050000	13.2*(a)	0-10
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP17789: D78563-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

QC Batch ID: MP17789
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 01/05/16

Metal	D78563-1F Original SDL 50:250%DIF	QC Limits

(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

6.1.4
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Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP16986/GN32956	0.050	0.0	mg/l	0.5	0.509	101.8	90-110%
Chloride	GP16986/GN32956	0.50	0.0	mg/l	5	4.97	99.4	90-110%
Fluoride	GP16986/GN32956	0.10	0.0	mg/l	1	1.00	100.0	90-110%
HEM Oil and Grease	GP16984/GN32953	5.0	0.0	mg/l	40	34.9	87.3	78-114%
Nitrogen, Nitrate	GP16986/GN32956	0.010	0.0	mg/l	0.1	0.101	101.0	90-110%
Nitrogen, Nitrite	GP16986/GN32956	0.0040	0.0	mg/l	0.05	0.0510	102.0	90-110%
Solids, Total Dissolved	GN32955	10	0.0	mg/l	400	401	100.3	90-110%
Solids, Total Dissolved	GN32955	10	0.0	mg/l				
Sulfate	GP16986/GN32956	0.50	0.0	mg/l	5	4.92	98.4	90-110%
Total Organic Carbon	GP16998/GN32988	1.0	0.0	mg/l	5	4.70	94.0	90-110%
pH	GN32945			su	8.00	8.01	100.1	99.1-100.9%

Associated Samples:
Batch GN32945: D78563-1
Batch GN32955: D78563-1
Batch GP16984: D78563-1
Batch GP16986: D78563-1
Batch GP16998: D78563-1
(*) Outside of QC limits

7.1.7

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
HEM Oil and Grease	GP16984/GN32953	mg/l	40	37.1	6.1	18%

Associated Samples:
Batch GP16984: D78563-1
(*) Outside of QC limits

7.2 7

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN32955	D78553-1	mg/l	12300	12400	0.8	0-20%
Total Organic Carbon	GP16998/GN32988	D78383-1A	mg/l	0.71	0.69	2.9	0-20%

Associated Samples:
Batch GN32955: D78563-1
Batch GP16998: D78563-1
(*) Outside of QC limits

7.3

7

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP16986/GN32956	D78568-8	mg/l	0.025 U	0.5	0.51	102.0	80-120%
Chloride	GP16986/GN32956	D78568-8	mg/l	1.1	5	6.0	98.0	80-120%
Fluoride	GP16986/GN32956	D78568-8	mg/l	0.14	1	1.1	96.0	80-120%
HEM Oil and Grease	GP16984/GN32953	D78389-1	mg/l	4.4	40	39.9	88.8	78-114%
Nitrogen, Nitrate	GP16986/GN32956	D78568-8	mg/l	0.078	0.1	0.18	102.0	80-120%
Nitrogen, Nitrite	GP16986/GN32956	D78568-8	mg/l	0.0030 U	0.05	0.051	102.0	80-120%
Sulfate	GP16986/GN32956	D78568-8	mg/l	3.1	5	7.9	96.0	80-120%
Total Organic Carbon	GP16998/GN32988	D78383-1A	mg/l	0.71	10	11.1	103.9	80-120%

Associated Samples:
Batch GP16984: D78563-1
Batch GP16986: D78563-1
Batch GP16998: D78563-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

7.4
7

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D78563
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Tank

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP16986/GN32956	D78568-8	mg/l	0.025 U	0.5	0.52	1.9	20%
Chloride	GP16986/GN32956	D78568-8	mg/l	1.1	5	6.0	0.0	20%
Fluoride	GP16986/GN32956	D78568-8	mg/l	0.14	1	1.1	0.0	20%
Nitrogen, Nitrate	GP16986/GN32956	D78568-8	mg/l	0.078	0.1	0.18	0.0	20%
Nitrogen, Nitrite	GP16986/GN32956	D78568-8	mg/l	0.0030 U	0.05	0.051	0.0	20%
Sulfate	GP16986/GN32956	D78568-8	mg/l	3.1	5	7.9	0.0	20%
Total Organic Carbon	GP16998/GN32988	D78383-1A	mg/l	0.71	10	10.9	1.8	20%

Associated Samples:
Batch GP16986: D78563-1
Batch GP16998: D78563-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

7.5

7

Suckla Farms #1 Well 4th Qtr. Waste Fluid Analysis Data - 2015
Baseline Comparison

	General Chemistry									Dissolved Metals			
Date	Chloride (mg/l)	HEM Oil & Grease (mg/l)	Nitrogen, Nitrate (mg/l)	Nitrogen, Nitrite (mg/l)	TDS (mg/l)	SG	Sulfate (mg/l)	Total Organic Carbon (mg/l)	pH	Calcium (ug/l)	Magnesium (ug/l)	Potassium (ug/l)	Sodium (ug/l)
10/26/2015	13100	47.6	<1.0	<4.0	21400	1.0064	<50	57.2	6.6	316000	41300	131000	8370000
11/16/2015	10300	35.2	<2.0	6.5	17100	1.0165	<100	64	6.9	173000	28100	200000	6600000
12/30/2015	13200	1300	<1.0	<4.0	21000	1.0143	<50	164	6.87	236000	33900	92600	9280000

Baseline data based on three (3) years of monitoring events (2014-2012)

	TDS (mg/l)	pH	SG
Average:	16778.571	7.374	1.011

Baseline Data Comparison

Date	pH	TDS	TDS Difference	SG	SG Difference
	<2 and/or <12.5	20% > Baseline	TDS/Baseline	10% > Baseline	SG/Baseline
10/26/2015	No	Yes	27.5%	No	-0.4%
11/16/2015	No	No	1.9%	No	0.6%
12/30/2015	No	Yes	25.2%	No	0.4%

APEX CONSULTING SERVICES, INC.
566 West Willow Court
Reply to: P.O. Box 369
Louisville, CO 80027-0369
Phone: 303-665-1400
Fax: 303-665-0620
email: mhattel@msn.com

December 14, 2015

Ms. Susana Lara-Mesa
K.P. Kauffman Company, Inc.
World Trade Center
1675 Broadway, Suite 2800
Denver, CO 80202-4825

Re: November 2015, Groundwater Monitoring, Wattenberg Disposal Facility, Weld County, Colorado

Dear Ms. Lara-Mesa:

Apex Consulting Services, Inc. (APEX) has completed the November 2015 (semi-annual) groundwater monitoring at the Wattenberg Disposal Facility (Facility) in Weld County, Colorado (Figure 1). This letter report presents a summary of the work performed, the results of the groundwater analysis, and our conclusions.

BACKGROUND

The Facility was originally constructed in 1972 by the Amoco Production Company to dispose of production water from oil and gas wells in the D-J Basin. Wright's Disposal, Inc. purchased the Facility from Amoco in June 1989 and K.P. Kaufman Company, Inc. (KPK) purchased the Facility in June 1998. KPK currently operates the Facility for deep injection disposal of non-hazardous Class I and Class II liquid waste as defined in 40 CFR 144.6. The Facility is operated under the U.S. EPA Underground Injection Control Program, Final Permit No. CO 1516-2115. Three groundwater observation wells (OW-1, OW-2, and OW-3) are located around the periphery of the Facility to monitor groundwater flow direction, gradient, and quality. A groundwater monitoring plan was prepared by Nationwide Environmental Services, Inc. on January 3, 2002. The monitoring plan was subsequently approved by the Solid Waste Unit of the Colorado Department of Public Health and Environment. The monitoring plan included semi-annual groundwater monitoring (OW-1, OW-2, and OW-3) for major cations (calcium, magnesium, potassium, and sodium), major anions (bicarbonate, carbonate, chloride, nitrate, nitrite, and sulfate), Total Organic Carbon (TOC), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and Total Petroleum Hydrocarbons (TPH). During the January 2007 sampling event, product was encountered on the groundwater in observation well OW-3. Contaminated soils in the vicinity of observation well OW-3 were excavated and replaced with clean fill. Observation well OW-3 was removed during the excavation of the contaminated soils. Following the removal of the contaminated soil, a new observation well (OW-3) was installed at the previous location. At the request of the Colorado Department of Public Health and Environment, an additional observation well (OW-4) was installed to the north of the Facility in June 2009. In July and October 2013, confirmation sampling for BTEX compounds confirmed the presence of benzene in observation well OW-1. In a September 2013 meeting with CDPHE, KPK noted that a release from an up-gradient facility occurred in 2008. In the meeting, KPK agreed to analyze laboratory data from OW-1 (from 2008 to the present) and to include STIFF diagrams in the December 2013 monitoring report. On March 4, 2014, an additional observation well (OW-5) was completed to the southeast of the Facility. The observation well was completed to a total depth of 24 feet. To date, groundwater has not been measured in the observation well. In a May 2014 meeting at the Facility with

CDPHE, KPK agreed to compare and contrast laboratory data from the observation wells to laboratory data from the production water. A report detailing the work will be submitted in a separate document.

GROUNDWATER SAMPLING

Groundwater samples were collected for laboratory analyses from observation wells OW-1, OW-2, OW-3 and OW-4 on November 16, 2015. Groundwater was not present in observation well OW-5. Prior to groundwater sampling, groundwater elevations were measured and recorded in each of the aforementioned observation wells located at the Property. The locations of the observation wells are illustrated on Figure 2. Each of the wells was surveyed to a local datum. Shallow groundwater was present in the wells at depths ranging from approximately 12.5 (OW-3) to 17.8 (OW-1) feet below the ground surface (bgs). The groundwater elevation for each well is illustrated on Table 1. Relative groundwater elevations are shown on Figure 2. Groundwater flow direction was determined to be to the north-northwest for this monitoring period. Free product was not present on the groundwater in any of the wells. The observation wells were prepared for sampling by purging three wet well volumes of groundwater from each well with a dedicated bailer. During purging of each observation well, pH, specific conductance, and temperature were measured. The probes were calibrated before (within 2 hours) taking the measurements. Specific conductance was measured using equivalent EPA standard method 9050. Temperature and pH were measured using a standard probe equivalent to EPA standard method 9040 or 150.1. Groundwater was sampled from the observation wells with a dedicated bailer when pH, specific conductance, and temperature parameters were stable. The pH, specific conductance, and temperature measurements recorded for each sample are summarized on Tables 1, 2, and 3.

GROUNDWATER LABORATORY ANALYSES

The groundwater samples were handled with clean, new, nitrile gloves and placed in laboratory supplied vials and bottles. The samples and a trip blank (distilled water) were stored on ice in a cooler and delivered to Accutest Laboratories (ACCUTEST) under chain-of-custody documentation. The groundwater samples collected from the observation wells were analyzed for calcium, magnesium, potassium, sodium, chloride, nitrate, nitrite, sulfate, TOC, bicarbonate, carbonate, BTEX, and TPH. Laboratory results are summarized on Tables 1, 2, and 3. Laboratory reports provided by ACCUTEST are included in Attachment I.

CONCLUSIONS

Groundwater samples were collected for laboratory analysis from the observation wells OW-1, OW-2, OW-3 and OW-4 on November 16, 2015. The analytical results for this monitoring event are consistent with the results from previous monitoring events except for calcium, magnesium, sodium, bicarbonate, sulfate and chloride. The calcium, magnesium, sodium, bicarbonate, sulfate and chloride concentrations detected in the sample from observation well OW-1 are slightly lower than historical values. Also, calcium, magnesium, sodium, sulfate and chloride concentrations detected in the sample from observation well OW-4 are slightly lower than historical values. Finally, the bicarbonate concentration detected in the sample collected from observation well OW-4 are slightly higher than historical values.

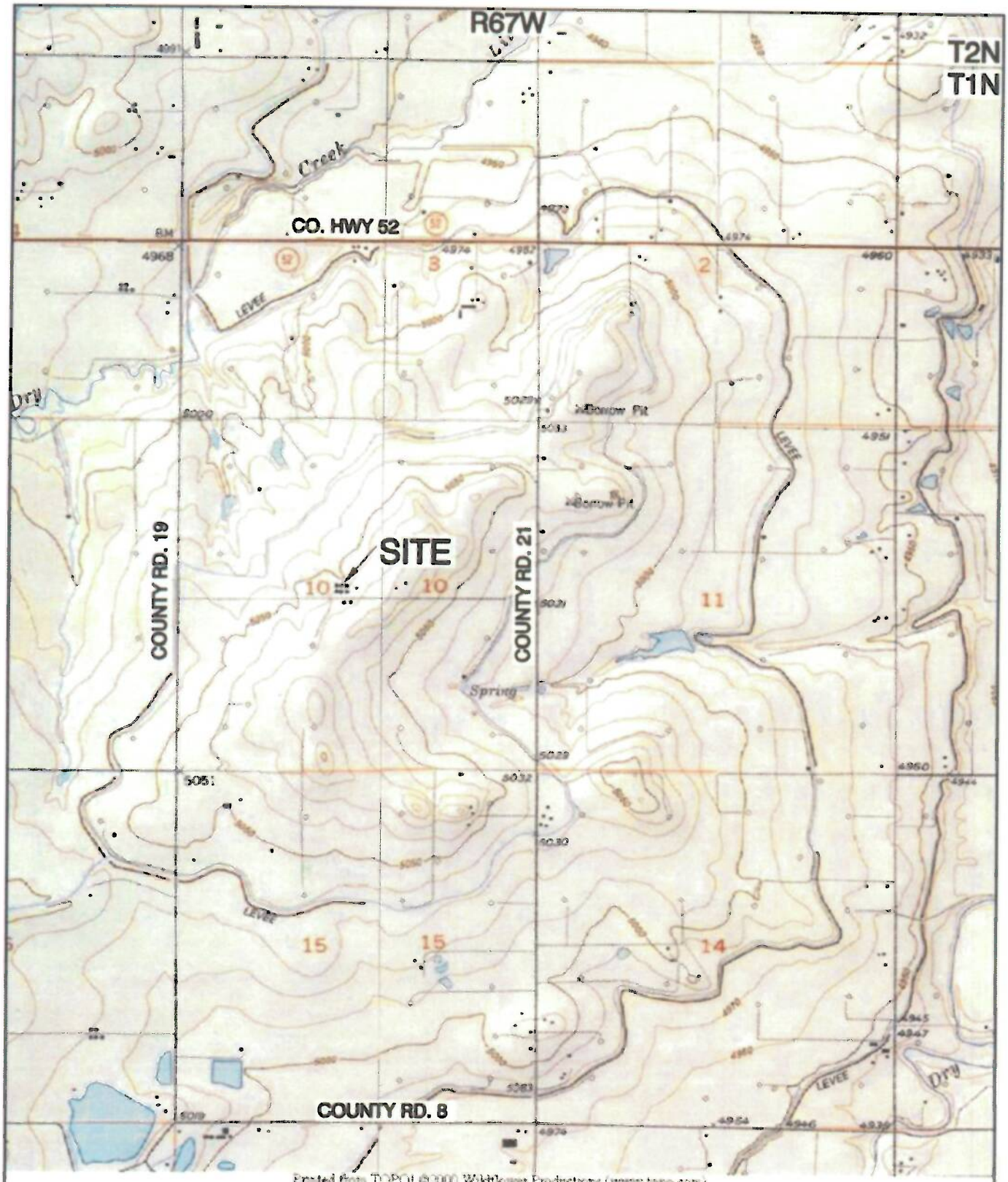
The next semi-annual groundwater monitoring event is scheduled for May 2016. Following the conclusion of the next semi-annual groundwater monitoring event, the data will be evaluated to determine if there is a significant change in groundwater elevation and/or quality.

If you have any questions or comments, please call.

Sincerely,

APEX CONSULTING SERVICES, INC.

Michael D. Hattel, P.G., P.E.S.
Attachments
C:\Users\Owner\Documents\KPK (025)\Wattenberg\Rpts\KPK.GW.RPT.1115.rtf



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NORTH

0 1000 2000

SCALE: 1" = 2000'

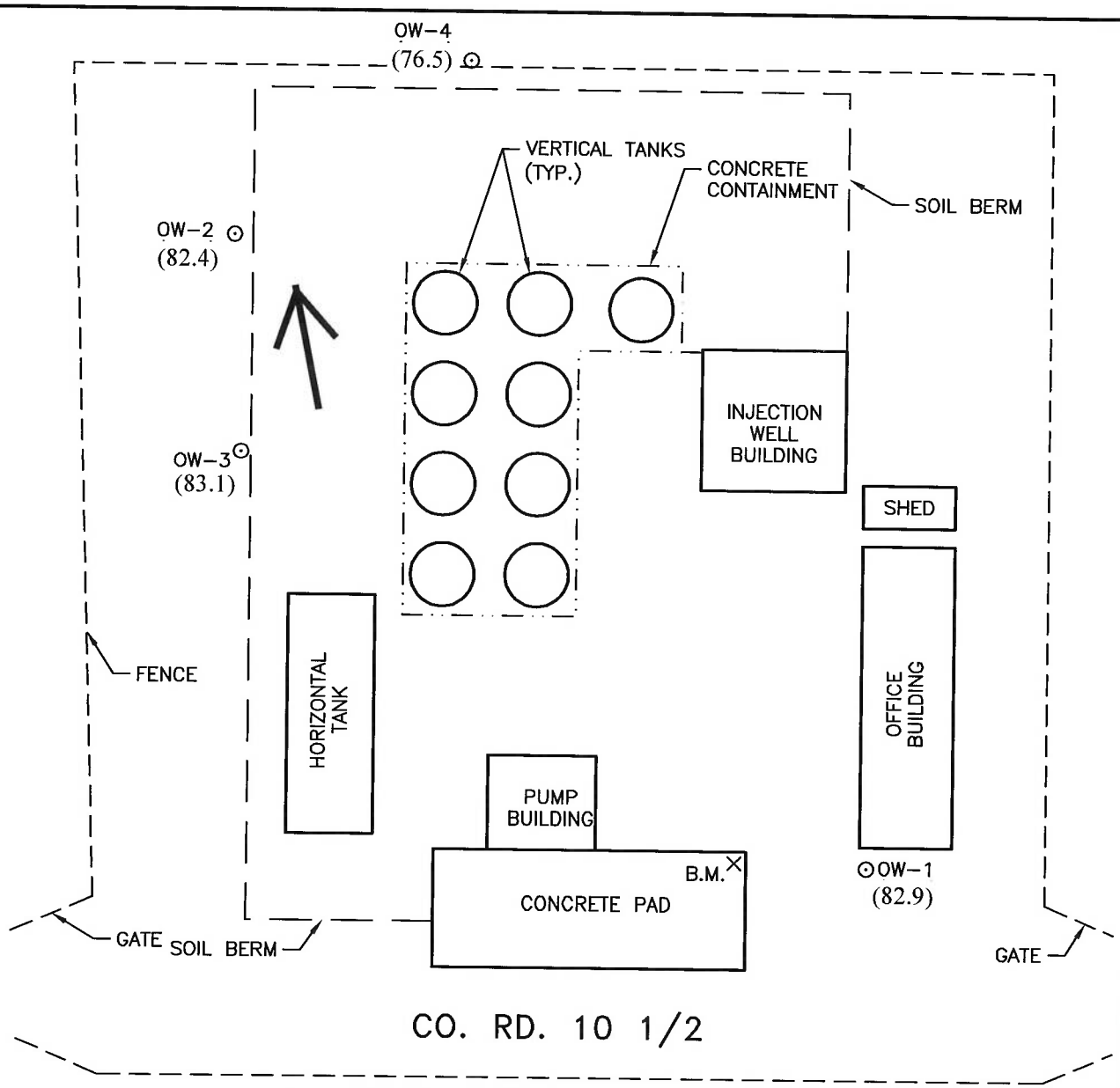
APEX JOB: 1-0025.001.00

WATTENBERG DISPOSAL FACILITY
VICINITY MAP

APEX

FIGURE:
1

MDS FILE: 01-054\VICINITY-WATTENBERG.DWG



NOTE: DATA COLLECTED ON DECEMBER 17, 2012.

LEGEND:

⊙ OW-2 (80.7)	OBSERVATION WELL, NUMBER, AND RELATIVE GROUNDWATER ELEVATION
↖	CURRENT GROUNDWATER FLOW DIRECTION
B.M.	BENCH MARK, ELEVATION 100.00 FEET
ND	NO DATA

NORTH

0 30 60

SCALE: 1" = 60'

APEX JOB: 1-0025.001.00

WATTENBERG DISPOSAL FACILITY
SITE MAP
NOVEMBER 16, 2016

APEX

FIGURE:
2

C:\MDS WORK FILES\files\01-054\SITEMAP-WATTENBERG_12-12

TABLE 1

Summary of BTEX[1], TPH[2] and TOC[3] Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	Depth to Water (ft.)	pH	Temperature (Celsius)	Specific Conductance[3]	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TPH (mg/L)	TOC[4] (mg/L)
OW-1	9/18/02	83.9	6.46	17.5	>4000	<.15	<.18	<.24	<.63	<1.6	79.0
	12/16/02	83.5	6.54	14.9	>4000	<.15	<.18	<.24	<.63	<1.6	29.0
	6/30/03	84.6	6.64	13.2	>4000	<1.5	<.18	<.24	<.63	<1.6	250.0
	12/30/03	83.7	6.54	14.1	>4000	<.15	<.18	<.24	<.63	<1.6	86.0
	6/30/04	83.7	6.19	13.2	>4000	<.18	<.21	<.17	<.96	<1.5	28.0
	12/29/04	83.8	6.30	12.9	>4000	<.18	<.21	<.17	<.96	<1.6	33.0
	6/30/05	84.4	6.60	13.2	>4000	<.07	<.07	<.07	<.20	<1.5	27.0
	12/28/05	83.9	6.85	15.5	>4000	<.07	<.07	<.08	<.20	<1.5	27.0
	6/29/06	83.7	6.54	13.5	>4000	1.00	<.07	1.1	5.00	<1.5	140.0
	7/27/06[5]	83.6	6.51	13.6	>4000	<.07	<.07	<.08	<.20	NA	NA
	1/25/07	82.3	6.81	13.3	>4000	<1.0	<2.0	<2.0	<4.0	5.3	28.7
	7/2/07	85.3	6.59	12.9	>4000	<1.0	<2.0	<2.0	<4.0	15.0	30.0
	1/31/08	83.8	6.69	12.9	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	30.3
	6/24/08	84.7	6.52	12.3	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	31.4
	12/29/08	84.1	6.50	14.7	>4000	<1.0	<2.0	<2.0	<4.0	6.2	30.1
	6/29/09	85.3	6.52	14.9	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	30.8
	12/15/09	84.4	6.51	13.3	>4000	<1.0	<2.0	<2.0	<4.0	5.9	30.6
	6/23/10	86.0	6.61	12.4	>4000	<1.0	<2.0	<2.0	<4.0	5.0	31.8
	12/13/10	84.9	6.80	14.6	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	31.7
	6/21/11	85.8	6.62	12.3	>4000	0.28	<1.0	<1.0	<2.0	7.1	29.2
	7/12/11	85.7	6.58	12.4	>4000	<1.0	<2.0	<2.0	<2.0	NA	NA
	12/21/11	85.0	6.56	13.8	>4000	1.00	<2.0	<2.0	<2.0	10.3	34.5
	1/13/12	86.2	6.55	14.0	>4000	<1.0	<2.0	<2.0	<2.0	NA	NA
	6/19/12	85.2	6.76	13.4	>4000	<2.0	<2.0	<2.0	<2.0	<4.9	33.3
	12/17/12	86.1	6.80	14.3	>4000	<0.2	<1.0	<1.0	<2.0	5.8	31.8
	06/13/13	86.2	6.65	12.6	>4000	1.70	<1.0	<1.0	<2.0	<5.2	26.2
	07/1/13	86.7	6.70	12.5	>4000	1.50	<1.0	<1.0	<2.0	NA	NA
	10/10/13	87.1	6.71	12.6	>4000	3.60	<1.0	<1.0	<2.0	NA	NA
	12/12/13	87.0	6.75	14.1	>4000	3.00	<1.0	<1.0	<2.0	<4.9	22.9
	6/23/14	87.0	6.68	12.7	>4000	45.50	<2.0	1.7J	<2.0	<4.8	42.8

TABLE 1

Summary of BTEX[1], TPH[2] and TOC[3] Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	Depth to Water (ft.)	pH	Temperature (Celsius)	Specific Conductance[3]	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TPH (mg/L)	TOC[4] (mg/L)
OW-1	7/9/14	90.2	6.60	12.5	>4000	12.00	<1.0	<1.0	<2.0	NS	NS
(Cont.)	12/9/14	87.0	6.73	12.5	>4000	0.96	<1.0	<1.0	<2.0	6.4	18.8
	1/2/15	86.9	6.70	12.3	>4000	<1.0	<2.0	<2.0	<2.0	NS	NS
	5/28/15	88.1	6.71	12.7	>4000	<1.0	<2.0	<2.0.	<2.0.	<4.8	17.2
	11/16/15	82.9	6.69	12.4	>4000	<1.0	<2.0	<2.0	<2.0	<5.3	13.0
OW-2	9/18/02	80.3	7.05	14.8	>4000	<.15	<.18	<.24	<.63	<1.6	230.0
	12/16/02	79.8	7.09	14.0	>4000	<.15	<.18	<.24	<.63	<1.6	60.0
	6/30/03	80.1	7.28	12.9	>4000	<.15	<.18	<.24	<.63	<1.7	150.0
	12/30/03	80.1	7.23	13.3	>4000	<.15	<.18	<.24	<.63	<1.7	58.0
	6/30/04	80.1	6.86	13.0	>4000	<.18	<.21	<.17	<.96	<1.5	37.0
	12/29/04	80.0	6.80	12.3	>4000	<.18	<.21	<.17	<.96	<1.4	54.0
	6/30/05	80.1	7.18	12.5	>4000	<.07	<.07	<.07	<.20	<1.5	48.0
	12/28/05	79.4	7.23	14.5	>4000	<.07	<.07	<.07	<.20	<1.5	48.0
	6/29/06	79.5	7.22	12.9	>4000	<.07	<.07	<.08	<.20	<1.5	59.0
	1/25/07	80.2	7.37	12.8	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	44.4
	7/2/07	79.6	7.18	13.3	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	36.7
	1/31/08	79.6	7.27	12.6	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	43.0
	6/24/08	80.3	7.18	12.1	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	47.1
	12/29/08	80.4	7.13	14.0	>4000	<1.0	<2.0	<2.0	<4.0	<4.0	45.4
	6/29/09	80.4	7.15	14.2	>4000	<1.0	<2.0	<2.0	<4.0	5.7	43.9
	12/15/09	80.6	7.11	13.0	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	43.1
	6/23/10	80.5	7.30	12.4	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	43.5
	12/13/10	80.9	7.14	13.6	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	44.5
	6/21/11	80.8	7.19	12.5	>4000	<0.2	<1.0	<1.0	<2.0	4.9	37.2
	12/21/11	80.8	7.21	12.5	>4000	0.25	<2.0	<2.0	<2.0	12.8	46.4
	1/13/12	80.6	7.20	13.0	>4000	<1.0	<2.0	<2.0	<2.0	NA	NA
	6/19/12	80.7	7.30	12.4	>4000	<1.0	<2.0	<2.0	<2.0	<4.8	45.4
	12/17/12	80.6	7.34	13.2	>4000	<0.2	<1.0	<1.0	<2.0	<4.8	46.2
	6/13/13	81.8	7.15	12.5	>4000	<0.2	<1.0	<1.0	<2.0	<4.9	46.2
	12/12/13	83.6	7.35	13.8	>4000	<0.2	<1.0	<1.0	<2.0	<4.9	42.6
	6/23/14	84.9	7.10	12.5	>4000	<0.2	<1.0	<1.0	<2.0	<4.9	33.6

TABLE 1

Summary of BTEX[1], TPH[2] and TOC[3] Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	Depth to Water (ft.)	pH	Temperature (Celsius)	Specific Conductance[3]	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TPH (mg/L)	TOC[4] (mg/L)
OW-2	12/9/14	85.0	7.21	12.2	>4000	1.60	<1.0	<1.0	<2.0	<5.1	33.6
(Cont.)	1/2/15	84.9	7.20	12.3	>4000	<1.0	<2.0.	<2.0	<2.0	NS	NS
	5/28/15	82.7	7.15	12.4	>4000	<1.0	<2.0	<2.0	<2.0	<5.0	44.1
	11/16/15	82.4	7.20	12.3	>4000	<1.0	<2.0	<2.0	<2.0	<4.8	46.3
OW-3	9/18/02	78.2	6.88	15.4	>4000	<.15	<.18	<.24	<.63	<5.1	95.0
	12/16/02	77.8	7.08	15.3	>4000	<.15	<.18	<.24	<.63	<1.6	63.0
	6/30/03	78.5	7.05	14.6	>4000	<.15	<.18	<.24	<.63	<1.6	200.0
	12/30/03	78.6	7.27	13.4	>4000	<.15	<.18	<.24	<.63	<1.8	85.0
	6/30/04	77.4	6.89	12.4	>4000	3.5	1.3	<.17	<.96	<2.0	68.0
	9/9/04[5]	77.9	6.86	13.5	>4000	<.18	<.17	<.17	<.96	NA	NA
	12/29/04	77.4	6.65	12.3	>4000	<.18	<.21	<.17	<.96	<1.5	78.0
	6/30/05	78.0	6.90	12.5	>4000	<.07	<.07	<.09	<.20	<1.6	80.0
	12/28/05	77.2	7.12	15.2	>4000	<.07	<.07	<.09	<.20	<1.5	92.0
	6/29/06	77.3	7.59	15.8	>4000	<.07	<.07	<.09	<.20	<1.5	82.0
	1/25/07	77.6	7.47	12.7	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	62.9
	7/2/07	77.6	6.90	13.7	>4000	1500	71000	19000	178000	NA	NA
	1/31/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/24/08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/05/09	75.9	7.05	14.0	>4000	<1.0	<2.0	<2.0	<4.0	<5.0	53.0
	6/29/09	78.0	7.15	14.1	>4000	1.0	<2.0	<2.0	<4.0	5.0	43.5
	7/27/09	78.1	7.11	14.2	>4000	NA	NA	NA	NA	NA	NA
	12/15/09	79.0	7.17	13.0	>4000	1.6	<2.0	<2.0	<4.0	<6.33	46.4
	1/04/10	79.2	7.15	13.2	>4000	<1.0	<2.0	<2.0	<4.0	NA	NA
	6/23/10	80.3	7.35	12.3	>4000	<1.0	<2.0	<2.0	<4.0	<13.0	44.8
	12/13/10	79.4	7.05	13.2	>4000	<1.0	<2.0	<2.0	<4.0	7.6	45.0
	6/21/11	79.9	7.19	12.3	>4000	1.4	<1.0	<1.0	<2.0	<6.2	40.1
	7/12/11	79.9	7.15	12.4	>4000	<1.0	<1.0	<1.0	<1.0	NA	NA
	12/21/11	81.7	7.20	12.0	>4000	1.3	<2.0	<2.0	<2.0	7.3	45.9
	1/13/12	81.7	7.15	11.9	>4000	<1.0	<2.0	<2.0	<2.0	NA	NA
	6/19/12	81.6	7.41	13.3	>4000	<1.0	<2.0	<2.0	<2.0	<5.0	40.5

TABLE 1

Summary of BTEX[1], TPH[2] and TOC[3] Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	Depth to Water (ft.)	pH	Temperature (Celsius)	Specific Conductance[3]	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TPH (mg/L)	TOC[4] (mg/L)
OW-3	12/17/12	81.4	7.33	13.5	>4000	<0.2	<1.0	<1.0	<2.0	<5.0	37.3
(Cont.)	6/13/13	81.7	7.20	12.3	>4000	2.70	<1.0	<1.0	<2.0	<5.4	37.3
	7/01/13	81.7	7.15	12.3	>4000	<0.2	<1.0	<1.0	<2.0	NA	NA
	12/12/13	83.1	7.03	13.3	>4000	<0.2	<1.0.	<1.0	<2.0	<5.0	36.0
	6/23/14	86.0	7.19	12.4	>4000	2.60	<1.0	<1.0	<2.0	<5.0	32.8
	7/17/14	85.9	7.11	12.5	>4000	<0.20	<1.0	<1.0	<2.0	NS	NS
	12/9/14	82.8	7.07	12.2	>4000	<0.20	<1.0	<1.0	<2.0	<5.1	43.0
	5/28/15	83.7	7.10	12.3	>4000	<1.0	<2.0	<2.0	<2.0	<5.0	33.9
	11/16/15	83.1	7.11	12.4	>4000	<1.0	<2.0	<2.0	<2.0	<5.1	33.8
OW-4	12/15/09	71.7	7.14	12.9	>4000	<1.0	<2.0	<2.0	<4.0	NA	68.9
	6/23/10	73.8	7.17	13.5	>4000	<1.0	<2.0	<2.0	<4.0	<7.4	78.4
	12/13/10	74.3	7.18	13.1	>4000	<1.0	<2.0	<2.0	<4.0	<11	69.9
	6/21/11	72.7	7.23	12.2	>4000	<0.2	<1.0	<1.0	<2.0	<6.4	68.1
	12/21/11	73.9	7.12	11.7	>4000	<0.2	<2.0	<2.0	<2.0	8.1	73.8
	6/19/12	72.3	7.41	14.0	>4000	<1.0	<2.0	<2.0	<2.0	<5.2	71.3
	12/17/12	73.1	7.33	12.7	>4000	<0.2	<1.0	<1.0	<2.0	<6.3	70.5
	6/13/13	72.4	7.25	12.3	>4000	<0.2	<1.0	<1.0	<2.0	<7.4	68.3
	12/12/13	74.6	7.29	12.9	>4000	<0.2	<1.0	<1.0	<2.0	<5.3	64.8
	6/23/14	74.2	7.21	12.4	>4000	<0.2	<1.0	<1.0	<2.0	<6.8	65.8
	12/9/14	74.7	7.28	12.4	>4000	<0.2	<1.0	<1.0	<2.0	<5.4	66.1
	5/28/15	74.4	7.25	12.3	>4000	<1.0	<2.0	<2.0	<2.0	<5.0	23.8
	11/16/15	76.5	7.29	12.3	>4000	<1.0	<2.0	<2.0	<2.0	<7.5	39.2

1 Benzene, toluene, ethylbenzene, and total xylenes by Method 8021B.
2 Total petroleum hydrocarbons by Method 1664.
3 Specific conductance in micro-siemens at 25 degrees Celsius.
4 Total organic carbon by Method 415.1.
5 Second sample collected in accordance with ground water monitoring plan.

J Estimated value.
mg/L milligrams per liter.
NA Not Analyzed
ug/L micrograms per liter.
NS No Sample

TABLE 2

Summary of Major Cation[1] Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	pH	Temperature (Celsius)	Specific Conductance[2]	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)
OW-1	9/18/02	6.46	17.5	>4000	330	310	11	2300
	12/16/02	6.54	14.9	>4000	370	320	15	2500
	6/30/03	6.64	13.2	>4000	370	350	12	2600
	12/30/03	6.54	14.1	>4000	500	340	12	2600
	6/30/04	6.19	13.2	>4000	300	300	11	2000
	12/29/04	6.30	12.9	>4000	420	360	14	2600
	6/30/05	6.73	13.2	>4000	410	370	12	2500
	12/28/05	6.85	15.5	>4000	420	380	18	2700
	6/29/06	6.54	13.5	>4000	440	410	26	2700
	1/25/07	6.81	13.3	>4000	380	350	14	2300
	7/2/07	6.59	12.9	>4000	450	400	21	2700
	1/31/08	6.69	12.9	>4000	460	420	14	2900B
	6/24/08	6.52	12.3	>4000	410	380	11	2800
	12/29/08	6.50	14.7	>4000	460	420	12	2700
	6/29/09	6.52	14.9	>4000	440	410	11	2800
	12/15/09	6.51	13.3	>4000	470	470	15	2400
	6/23/10	6.61	12.4	>4000	554	501	<50	2810
	12/13/10	6.80	14.6	>4000	472	450	13	2540
	6/21/11	6.62	12.3	>4000	457	415	11.7	2400
	12/21/11	6.56	13.8	>4000	427	407	11.9	2530
	6/19/12	6.76	13.4	>4000	510	463	12.6	2720
	12/17/12	6.80	14.3	>4000	437	417	13.5	2300
	6/13/13	6.65	12.6	>4000	273	253	9.65	1990
	12/12/13	6.75	12.5	>4000	260	210	9.51	1830
	6/23/14	6.68	12.7	>4000	116	144	4.32	1170
	12/9/14	6.73	12.5	>4000	138	127	4.26	1410
	5/28/15	6.71	12.7	>4000	160	123	<50	1240
	11/16/15	6.69	12.4	>4000	108	80.2	5.94	752

TABLE 2 (continued)

Summary of Major Cation[1] Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	pH	Temperature (Celsius)	Specific Conductance[2]	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)
OW-2	9/18/02	7.05	14.8	>4000	600	680	18	3800
	12/16/02	7.09	14.0	>4000	690	700	23	3700
	6/30/03	7.28	12.9	>4000	600	660	21	4200
	12/30/03	7.23	13.3	>4000	770	640	21	4300
	6/30/04	6.86	13.0	>4000	480	610	18	3500
	12/29/04	6.80	12.3	>4000	600	630	19	4000
	6/30/05	7.18	12.5	>4000	640	670	19	3800
	12/28/05	7.23	14.5	>4000	550	640	22	4000
	6/29/06	7.22	12.9	>4000	580	670	24	4700
	1/25/07	7.37	12.8	>4000	550	620	25	3600
	7/2/07	7.18	13.3	>4000	620	660	38	4300
	1/31/08	7.27	12.6	>4000	600	640	20	4100B
	6/24/08	7.18	12.1	>4000	530	580	18	4000
	12/29/08	7.13	14.0	>4000	570	630	19	4100
	6/29/09	7.15	14.2	>4000	510	560	17	4000
	12/15/0	7.11	13.0	>4000	560	670	22	3300
	6/23/10	7.30	12.4	>4000	648	698	<50	4000
	12/13/10	7.14	13.6	>4000	573	669	17.7	3730
	6/21/11	7.19	12.5	>4000	536	606	17.3	3470
	12/21/11	7.21	12.5	>4000	568	682	19.9	4050
	6/19/12	7.30	12.4	>4000	405	425	10.4	2400
	12/17/12	7.34	13.2	>4000	593	760	20.1	3920
	6/13/13	7.15	12.5	>4000	504	621	22.1	3770
	12/12/13	7.35	13.8	>4000	538	534	20.7	3840
	6/23/14	7.10	12.5	>4000	476	535	15.9	3030
	12/9/14	7.21	12.2	>4000	441	460	15.4	3080
	5/28/15	7.15	12.4	>4000	534	547	<50	3520
	11/16/15	7.20	12.3	>4000	531	550	21.5	2150
OW-3	9/18/02	6.88	15.4	>4000	480	690	16	3900
	12/16/02	7.08	15.3	>4000	530	720	20	4100
	6/30/03	7.13	14.6	>4000	490	670	17	4200

TABLE 2 (continued)

Summary of Major Cation[1] Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	pH	Temperature (Celsius)	Specific Conductance[2]	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)
OW-3	12/30/03	7.27	13.4	>4000	640	650	17	4300
(Cont.)	6/30/04	6.89	12.4	>4000	490	610	18	3500
	12/29/04	6.65	12.3	>4000	530	660	18	4100
	6/30/05	6.90	12.5	>4000	530	710	18	4100
	12/28/05	7.12	15.2	>4000	520	730	20	4200
	6/29/06	7.29	15.8	>4000	510	730	22	4400
	1/25/07	7.47	12.7	>4000	510	640	24	3700
	7/2/07	6.90	13.7	>4000	NA	NA	NA	NA
	1/31/08	NS	NS	NS	NS	NS	NS	NS
	6/24/08	NS	NS	NS	NS	NS	NS	NS
	1/05/09	7.05	14.0	>4000	500	630	20	4400
	6/29/09	7.15	14.1	>4000	520	570	17	4200
	12/15/09	7.17	13.0	>4000	460	630	26	3900
	6/23/10	7.35	12.3	>4000	564	695	<50	4310
	12/13/10	7.05	13.2	>4000	512	639	18.9	4030
	6/21/11	7.19	12.3	>4000	422	511	15.5	3130
	12/11/11	7.20	12.0	>4000	455	596	18.0	3960
	6/19/12	7.41	13.3	>4000	447	528	16.8	3530
	12/17/12	7.33	13.5	>4000	466	596	18.9	3520
	6/13/13	7.20	12.3	>4000	412	491	23.8	3790
	12/12/13	7.03	13.3	>4000	426	419	15.9	3030
	6/23/14	7.19	12.4	>4000	411	442	15.1	2590
	12/9/14	7.07	12.2	>4000	541	607	17.4	3910
	5/28/15	7.10	12.3	>4000	472	407	<50	2380
	11/16/15	7.11	12.4	>4000	514	365	13.8	2880
OW-4	12/15/09	7.14	12.9	>4000	500	600	29	3800
	6/23/10	7.17	13.5	>4000	602	617	<50	4610
	12/13/10	7.18	13.1	>4000	497	583	21.4	3800
	6/21/11	7.23	12.2	>4000	501	559	21	3890
	12/21/11	7.12	11.7	>4000	507	578	22	3910
	6/19/12	7.41	14.0	>4000	504	539	17.9	3740

TABLE 2 (continued)

Summary of Major Cation[1] Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	pH	Temperature (Celsius)	Specific Conductance[2]	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)
OW-4	12/17/12	7.33	12.7	>4000	519	632	21.5	3950
(Cont.)	6/13/13	7.25	12.3	>4000	475	508	26.8	4100
	12/12/13	7.29	12.9	>4000	510	532	22.4	3700
	6/23/14	7.21	12.4	>4000	510	537	20.8	3310
	12/9/14	7.28	12.4	>4000	538	576	20.3	4220
	5/28/15	7.25	12.3	>4000	992	1210	<50	1510
	11/16/15	7.29	12.3	>4000	329	301	20.1	648

1 By Method 6010B.
B Analyte detected in blank
2 Specific conductance in micro-siemens at 25 degrees Celsius.

NS No Sample
mg/L milligrams per liter.

TABLE 3

Summary of Major Anion Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	pH	Temperature (Celsius)	Specific Conductance[1]	Bicarbonate (mg/L)	Carbonate (mg/L)	Nitrate as N[3] (mg/L)	Nitrite as N[3] (mg/L)	Sulfate[3] (mg/L)	Chloride[3] (mg/L)
OW-1	9/18/02	6.46	17.5	>4000	890	<1	<.36	<.34	2500	3300
	12/16/02	6.54	14.9	>4000	880	<1	<1.4	<1.3	2400	3800
	6/303/03	6.64	13.2	>4000	NS	NS	<1.8	<2.5	1900	3400
	12/30/03	6.54	14.1	>4000	880	<1.2	<0.01	<0.02	2300	1000
	6/30/04	6.19	13.2	>4000	780	<1.2	<0.02	<0.02	2100	3800
	12/29/04	6.30	12.9	>4000	840	<3.4	<0.07	<0.04	2100	3400
	6/30/05	6.73	13.2	>4000	850	<1.2	<0.02	<0.02	2400	3900
	12/28/05	6.85	15.5	>4000	860	<1.2	<0.02	<0.02	2600	4500
	6/29/06	6.54	13.5	>4000	850	<1.2	<0.02	<0.02	2700	4800
	1/25/07	6.81	13.3	>4000	1000	<5.0	<0.56	<0.76	2030	3880
	7/2/07	6.59	12.9	>4000	976	<5.0	<0.10	<0.40	1970	3940
	1/31/08	6.69	12.9	>4000	977	<5.0	<0.25	<0.40	1870	4210
	6/24/08	6.52	12.3	>4000	936	<5.0	<2.3	<6.1	1830	4400
	12/29/08	6.50	14.7	>4000	754	<5.0	<.45	<15	1730	9070
	6/29/09	6.52	14.9	>4000	763	<5.0	<.90	<3.1	1690	4690
	12/15/09	6.51	13.3	>4000	742	<5.0	<1.5	<1.5	1640	4880
	6/23/10	6.61	12.4	>4000	707	<5.0	<0.90	<6.1	1650	4780
	12/13/10	6.80	14.6	>4000	740	<5.0	<0.90	<15	1740	5080
	6/21/11	6.62	12.3	>4000	705	<5.0	<0.45	<15	1680	4650
	12/21/11	6.56	13.8	>4000	803	<5.0	<0.90	<6.1	1660	4150
	6/19/12	6.76	13.4	>4000	822	<5.0	<0.90	<2.5	1790	4170
	12/17/12	6.80	14.3	>4000	792	<5.0	<0.20	<0.4	1890	4120
	6/13/13	6.65	12.6	>4000	972	<5.0	<0.50	<0.2	2260	2480
	12/12/13	6.75	12.5	>4000	888	<5.0	<0.10	<0.04	2000	2090
	6/23/14	6.68	12.7	>4000	1070	<5.0	<0.10	<0.04	281	1600
	12/9/14	6.73	12.5	>4000	1020	<5.0	<0.20	0.90	1150	1330
	5/28/15	6.71	12.7	>4000	858	<5.0	<0.10	<0.40	1580	981
	11/16/15	6.69	12.4	>4000	588	<5.0	<0.05	0.09	933	548
OW-2	9/18/02	7.05	14.8	>4000	1100	<1	13	<.84	5200	5300
	12/16/02	7.09	14.0	>4000	1100	<1	5	<1.7	4700	5800

TABLE 3 (continued)

Summary of Major Anion Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	pH	Temperature (Celsius)	Specific Conductance[1]	Bicarbonate (mg/L)	Carbonate (mg/L)	Nitrate as N[3] (mg/L)	Nitrite as N[3] (mg/L)	Sulfate[3] (mg/L)	Chloride[3] (mg/L)
OW-2	6/30/03	7.28	12.9	>4000	NS	NS	16	<2.5	5300	4200
(cont)	12/30/03	7.23	13.3	>4000	1100	<1.2	16	<0.099	5200	4500
	6/30/04	6.86	13.0	>4000	960	<1.2	16	<0.25	5700	5000
	12/29/04	6.80	12.3	>4000	1000	<3.4	13	<0.04	5000	4300
	6/30/05	7.18	12.5	>4000	1100	<1.2	12	<0.25	5800	4500
	12/28/05	7.23	14.5	>4000	1000	<1.2	14		5600	5400
	6/29/06	7.22	12.9	>4000	970	<1.2	9	<0.25	5600	6100
	1/25/07	7.37	12.8	>4000	1210	<5.0	7.1	<1.9	4930	5000
	7/2/07	7.18	13.3	>4000	1190	<5.0	9	<1.0	5270	4790
	1/31/08	7.27	12.6	>4000	1200	<5.0	6.6	<.40	4640	4500
	6/24/08	7.18	12.1	>4000	1170	<5.0	4.26	<6.1	4400	5200
	12/29/08	7.13	14.0	>4000	950	<5.0	7.8	<15	4830	4940
	6/29/09	7.15	14.2	>4000	931	<5.0	7.2	<6.1	4900	5070
	12/15/09	7.11	13.0	>4000	930	<5.0	12.2	<1.5	6240	4230
	6/23/10	7.30	12.4	>4000	904	<5.0	6.4	<15.0	4960	5160
	12/13/10	7.14	13.6	>4000	930	<5.0	7.9	<15.0	6160	5750
	6/21/11	7.19	12.5	>4000	948	<5.0	5.7	<15.0	4740	4870
	12/21/11	7.21	12.5	>4000	986	<5.0	8.8	<6.1	5270	4740
	6/19/12	7.30	12.4	>4000	951	<5.0	4.3	<2.5	4730	4890
	12/17/12	7.34	13.2	>4000	950	<5.0	7.1	<1.0	5520	5060
	6/13/13	7.15	12.5	>4000	982	<5.0	5.9	<0.8	5170	4840
	12/12/13	7.35	13.8	>4000	944	<5.0	9.5	<0.08	5500	4320
	6/23/14	7.10	12.5	>4000	937	<5.0	7.9	<0.20	4700	4000
	12/9/14	7.21	12.2	>4000	1060	<5.0	3.6	1.600	4460	2690
	5/28/15	7.15	12.4	>4000	1040	<5.0	8.1	<2.0	5140	3740
	11/16/15	7.2	12.3	>4000	992	<5.0	7.7	<2.0	5290	3370
OW-3	9/18/02	6.88	15.4	>4000	NS	NS	NS	NS	NS	NS
	12/16/02	7.08	15.3	>4000	1100	<1	<1.8	<1.7	8400	3800
	6/30/03	7.13	14.6	>4000	NS	NS	2.0J	<2.5	6100	3800
	12/30/03	7.27	13.4	>4000	1200	<1.2	0.24	<0.099	6300	1200

TABLE 3 (continued)

Summary of Major Anion Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	pH	Temperature (Celsius)	Specific Conductance[1]	Bicarbonate (mg/L)	Carbonate (mg/L)	Nitrate as N[3] (mg/L)	Nitrite as N[3] (mg/L)	Sulfate[3] (mg/L)	Chloride[3] (mg/L)
OW-3	6/30/04	6.89	12.4	>4000	920	<1.2	0.20	<0.025	5400	4900
(Cont.)	12/29/04	6.65	12.3	>4000	1100	<3.4	<0.07	<0.07	6700	3200
	6/30/05	6.90	12.5	>4000	1100	<1.2	<0.28	<0.25	8000	3800
	12/28/05	7.12	15.2	>4000	1100	<1.2	6.2	11.000	6800	3800
	6/29/06	6.54	13.5	>4000	1100	<1.2	2.7	<0.25	680	4800
	1/25/07	7.47	12.7	>4000	1100	<5.0	<1.4	<1.9	5900	4750
	7/2/07	6.9	13.7	>4000	NA	NA	NA	NA	NA	NA
	1/31/08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/24/08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/05/09	7.05	14.0	>4000	1200	<5.0	4.3	1.900	6100	4390
	6/29/09	7.15	14.1	>4000	919	<5.0	7.4	<6.1	5010	4970
	12/15/09	7.17	13.0	>4000	920	<5.0	6.2	<1.5	4740	5050
	6/23/10	7.35	12.3	>4000	960	<5.0	8.0	<6.1	5960	3920
	12/13/10	7.05	13.2	>4000	960	<5.0	9.5	<15.0	5960	4690
	6/21/11	7.19	12.3	>4000	973	<5.0	4.0	<15.0	5100	3490
	12/21/11	7.20	12.0	>4000	988	<5.0	4.1	<6.1	5620	3650
	6/19/12	7.40	13.3	>4000	959	<5.0	8.8	<2.5	5690	3560
	12/17/12	7.33	13.5	>4000	1030	<5.0	0.57	0.210	5810	3440
	6/13/13	7.20	12.3	>4000	973	<5.0	11.2	1.100	5820	3490
	12/12/13	7.03	13.3	>4000	908	<5.0	0.7	0.090	4550	2770
	6/23/14	7.19	12.4	>4000	919	<5.0	9.6	2.900	4990	2960
	12/9/14	7.07	12.2	>4000	994	<5.0	9.8	<.20	5520	3860
	5/28/15	7.10	12.3	>4000	950	<5.0	0.41	<.80	4250	2560
	11/16/15	7.11	12.4	>4000	885	<5.0	0.95	<2.0	3970	2200
OW-4	12/15/09	7.14	12.9	>4000	276	<5.0	89.3	<1.5	6450	4350
	6/23/10	7.17	13.5	>4000	257	<5.0	80.2	<6.1	6650	3580
	12/13/10	7.18	13.1	>4000	300	<5.0	69.1	<15.0	7880	3840
	6/21/11	7.23	12.2	>4000	262	<5.0	71.0	<15.0	6880	3690
	12/21/11	7.12	11.7	>4000	322	<5.0	69.9	<6.1	7210	3430
	6/19/12	7.41	14.0	>4000	261	<5.0	87.5	<2.5	6990	3920

TABLE 3 (continued)

Summary of Major Anion Analytical Results for Groundwater Samples Collected from Wattenberg Disposal Facility, Weld County, Colorado

Sample	Date	pH	Temperature (Celsius)	Specific Conductance[1]	Bicarbonate (mg/L)	Carbonate (mg/L)	Nitrate as N[3] (mg/L)	Nitrite as N[3] (mg/L)	Sulfate[3] (mg/L)	Chloride[3] (mg/L)
OW-4	12/17/12	7.33	12.7	>4000	262	<5.0	78.7	<0.08	7390	3780
(Cont.)	6/13/13	7.25	12.3	>4000	248	<5.0	97.0	<0.8	6980	4120
	12/12/13	7.29	12.9	>4000	348	<5.0	49.3	<0.08	7560	2810
	6/23/14	7.21	12.4	>4000	284	<5.0	75.4	<0.20	6920	3270
	12/9/14	7.28	12.4	>4000	306	<5.0	71.3	1.100	7410	3250
	5/28/15	7.28	12.3	>4000	1180	<5.0	2.0	<.40	2070	1000
	11/16/15	7.29	12.3	>4000	844	<5.0	18.6	0.370	5530	1730

1 Specific conductance in micro-siemens at 25 degrees Celsius.
2 By Method 310.1.
3 By Method 300.
J Analyte was detected above the Reporting Limit but below the Quantitation Limit.

mg/L milligrams per liter.
NS No sample.

ATTACHMENT I

Mountain States
ACCUTEST
LABORATORIES

11/23/15

Technical Report for

K.P. Kauffman Company, Inc.

Wattenberg Groundwater

7591

Accutest Job Number: D77313

Sampling Date: 11/16/15

Report to:

Apex Consulting Services
PO Box 369
Louisville, CO 80027-0369
slaramesa@kpk.com

ATTN: Susana Lara-Mesa

Total number of pages in report: 43

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Lewis 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY
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Sample Summary

K.P. Kauffman Company, Inc.

Job No: D77313

Wattenberg Groundwater
Project No: 7591

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D77313-1	11/16/15	09:00 MDH	11/16/15	AQ	Ground Water	OW-1
D77313-1F	11/16/15	09:00 MDH	11/16/15	AQ	Groundwater Filtered	OW-1
D77313-2	11/16/15	12:00 MDH	11/16/15	AQ	Ground Water	OW-2
D77313-2F	11/16/15	12:00 MDH	11/16/15	AQ	Groundwater Filtered	OW-2
D77313-3	11/16/15	11:00 MDH	11/16/15	AQ	Ground Water	OW-3
D77313-3F	11/16/15	11:00 MDH	11/16/15	AQ	Groundwater Filtered	OW-3
D77313-4	11/16/15	12:20 MDH	11/16/15	AQ	Ground Water	OW-4
D77313-4F	11/16/15	12:20 MDH	11/16/15	AQ	Groundwater Filtered	OW-4

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2

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	K.P. Kauffman Company, Inc.	**Job No**	D77313
Site:	Wattenberg Groundwater	**Report Date**	11/23/2015 4:04:17 P

On 11/16/2015, 4 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.6 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D77313 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GC By Method SW846 8021B

Matrix: AQ	**Batch ID:** GTB1754

- All samples were analyzed within the recommended method holding time.
- Sample(s) D77141-25MS, D77141-25MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- D77313-1 thru -4: The pH of the sample was >2 at time of analysis.

Metals By Method SW846 6010C

Matrix: AQ	**Batch ID:** MP17482

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D77313-1FMS, D77313-1FMSD, D77313-1FSDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- MP17482-SD1 for Sodium: Serial dilution indicates possible matrix interference.

Wet Chemistry By Method EPA 1664A

Matrix: AQ	**Batch ID:** GP16735

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix: AQ	**Batch ID:** GP16682

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D77338-1MS, D77338-1MSD were used as the QC samples for the Nitrogen, Nitrate, Sulfate, Chloride, Nitrogen, Nitrite analysis.
- The matrix spike (MS) recovery(s) of Nitrogen, Nitrite are outside control limits. Spike recovery indicates possible matrix interference.
- D77313-1 for Nitrogen, Nitrate: Elevated detection limit due to matrix interference.
- D77313-2 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.
- D77313-3 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Wet Chemistry By Method SM 2320B-2011

Matrix: AQ	Batch ID: GN32482

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D77322-1DUP, D77322-1MS, D77322-1MSD were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

Matrix: AQ	Batch ID: GN32483

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix: AQ	Batch ID: GN32484

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM 2540C-2011

Matrix: AQ	Batch ID: GN32435

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D77224-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Matrix: AQ	Batch ID: GN32465

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D77313-2DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM 5310B-2011

Matrix: AQ	Batch ID: GP16686

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D77322-1DUP, D77322-1MS, D77322-1MSD were used as the QC samples for the Total Organic Carbon analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D77313
Account: K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater
Collected: 11/16/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D77313-1	OW-1					
Alkalinity, Bicarbonate as CaCO3		588	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		588	5.0		mg/l	SM 2320B-2011
Chloride		548	25		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrite		0.093	0.040		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		3580	10		mg/l	SM 2540C-2011
Sulfate		933	25		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon		13.0	1.0		mg/l	SM 5310B-2011
D77313-1F	OW-1					
Calcium		108000	400		ug/l	SW846 6010C
Magnesium		80200	200		ug/l	SW846 6010C
Potassium		5940	1000		ug/l	SW846 6010C
Sodium		752000	400		ug/l	SW846 6010C
D77313-2	OW-2					
Alkalinity, Bicarbonate as CaCO3		992	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		992	5.0		mg/l	SM 2320B-2011
Chloride		3770	250		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate		7.7	0.25		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		15400	10		mg/l	SM 2540C-2011
Sulfate		5290	250		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon		46.3	2.4		mg/l	SM 5310B-2011
D77313-2F	OW-2					
Calcium		531000	400		ug/l	SW846 6010C
Magnesium		550000	200		ug/l	SW846 6010C
Potassium		21500	1000		ug/l	SW846 6010C
Sodium		2150000	4000		ug/l	SW846 6010C
D77313-3	OW-3					
Alkalinity, Bicarbonate as CaCO3		885	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		885	5.0		mg/l	SM 2320B-2011
Chloride		2200	250		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate		0.95	0.25		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		9660	10		mg/l	SM 2540C-2011
Sulfate		3970	250		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon		33.8	1.7		mg/l	SM 5310B-2011

Summary of Hits

Job Number: D77313
Account: K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater
Collected: 11/16/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D77313-3F	OW-3					
Calcium		514000	400		ug/l	SW846 6010C
Magnesium		365000	200		ug/l	SW846 6010C
Potassium		13800	1000		ug/l	SW846 6010C
Sodium		2880000	4000		ug/l	SW846 6010C
D77313-4	OW-4					
Alkalinity, Bicarbonate as CaCO3		844	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		844	5.0		mg/l	SM 2320B-2011
Chloride		1730	250		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrate		18.6	0.50		mg/l	EPA 300.0/SW846 9056
Nitrogen, Nitrite		0.37	0.20		mg/l	EPA 300.0/SW846 9056
Sulfate		5530	250		mg/l	EPA 300.0/SW846 9056
Total Organic Carbon		39.2	2.0		mg/l	SM 5310B-2011
D77313-4F	OW-4					
Calcium		329000	400		ug/l	SW846 6010C
Magnesium		301000	200		ug/l	SW846 6010C
Potassium		20100	1000		ug/l	SW846 6010C
Sodium		648000	4000		ug/l	SW846 6010C

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-1		
Lab Sample ID:	D77313-1	Date Sampled:	11/16/15
Matrix:	AQ - Ground Water	Date Received:	11/16/15
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Wattenberg Groundwater		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	TB33212.D	1	11/16/15	KN	n/a	n/a	GTB1754
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	98%		60-140%

(a) The pH of the sample was > 2 at time of analysis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-1		
Lab Sample ID:	D77313-1	Date Sampled:	11/16/15
Matrix:	AQ - Ground Water	Date Received:	11/16/15
		Percent Solids:	n/a
Project:	Wattenberg Groundwater		

4.1

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	588	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Alkalinity, Total as CaCO3	588	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Chloride	548	25	mg/l	50	11/17/15 16:37	BF	EPA 300.0/SW846 9056
HEM Oil and Grease	< 5.3	5.3	mg/l	1	11/23/15	SWT	EPA 1664A
Nitrogen, Nitrate [a]	< 0.050	0.050	mg/l	5	11/17/15 10:30	BF	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.093	0.040	mg/l	10	11/17/15 16:24	BF	EPA 300.0/SW846 9056
Solids, Total Dissolved	3580	10	mg/l	1	11/18/15	MR	SM 2540C-2011
Sulfate	933	25	mg/l	50	11/17/15 16:37	BF	EPA 300.0/SW846 9056
Total Organic Carbon	13.0	1.0	mg/l	1	11/17/15 16:07	JB	SM 5310B-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	OW-1		
Lab Sample ID:	D77313-1F	Date Sampled:	11/16/15
Matrix:	AQ - Groundwater Filtered	Date Received:	11/16/15
		Percent Solids:	n/a
Project:	Wattenberg Groundwater		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	108000	400	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Magnesium	80200	200	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Potassium	5940	1000	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Sodium	752000	400	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA6758
(2) Prep QC Batch: MP17482

RL = Reporting Limit

Report of Analysis

Client Sample ID:	OW-2		
Lab Sample ID:	D77313-2	Date Sampled:	11/16/15
Matrix:	AQ - Ground Water	Date Received:	11/16/15
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Wattenberg Groundwater		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	TB33213.D	1	11/16/15	KN	n/a	n/a	GTB1754
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	96%		60-140%

(a) The pH of the sample was > 2 at time of analysis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-2		
Lab Sample ID:	D77313-2	Date Sampled:	11/16/15
Matrix:	AQ - Ground Water	Date Received:	11/16/15
		Percent Solids:	n/a
Project:	Wattenberg Groundwater		

4.3

4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	992	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Alkalinity, Total as CaCO3	992	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Chloride	3770	250	mg/l	500	11/17/15 16:50	BF	EPA 300.0/SW846 9056
HEM Oil and Grease	< 4.8	4.8	mg/l	1	11/23/15	SWT	EPA 1664A
Nitrogen, Nitrate	7.7	0.25	mg/l	25	11/17/15 10:43	BF	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	< 2.0	2.0	mg/l	500	11/17/15 16:50	BF	EPA 300.0/SW846 9056
Solids, Total Dissolved	15400	10	mg/l	1	11/19/15	MR	SM 2540C-2011
Sulfate	5290	250	mg/l	500	11/17/15 16:50	BF	EPA 300.0/SW846 9056
Total Organic Carbon	46.3	2.4	mg/l	2.38	11/17/15 16:18	JB	SM 5310B-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-2		
Lab Sample ID:	D77313-2F	Date Sampled:	11/16/15
Matrix:	AQ - Groundwater Filtered	Date Received:	11/16/15
		Percent Solids:	n/a
Project:	Wattenberg Groundwater		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	531000	400	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Magnesium	550000	200	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Potassium	21500	1000	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Sodium	2150000	4000	ug/l	10	11/17/15	11/18/15	LH	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA6758
(2) Prep QC Batch: MP17482

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-3		
Lab Sample ID:	D77313-3	Date Sampled:	11/16/15
Matrix:	AQ - Ground Water	Date Received:	11/16/15
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Wattenberg Groundwater		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	TB33214.D	1	11/16/15	KN	n/a	n/a	GTB1754
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	101%		60-140%

(a) The pH of the sample was > 2 at time of analysis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-3		
Lab Sample ID:	D77313-3	Date Sampled:	11/16/15
Matrix:	AQ - Ground Water	Date Received:	11/16/15
		Percent Solids:	n/a
Project:	Wattenberg Groundwater		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	885	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Alkalinity, Total as CaCO3	885	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Chloride	2200	250	mg/l	500	11/17/15 17:04	BF	EPA 300.0/SW846 9056
HEM Oil and Grease	< 5.1	5.1	mg/l	1	11/23/15	SWT	EPA 1664A
Nitrogen, Nitrate	0.95	0.25	mg/l	25	11/17/15 10:56	BF	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	< 2.0	2.0	mg/l	500	11/17/15 17:04	BF	EPA 300.0/SW846 9056
Solids, Total Dissolved	9660	10	mg/l	1	11/18/15	MR	SM 2540C-2011
Sulfate	3970	250	mg/l	500	11/17/15 17:04	BF	EPA 300.0/SW846 9056
Total Organic Carbon	33.8	1.7	mg/l	1.67	11/17/15 16:56	JB	SM 5310B-2011

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-3		
Lab Sample ID:	D77313-3F	Date Sampled:	11/16/15
Matrix:	AQ - Groundwater Filtered	Date Received:	11/16/15
		Percent Solids:	n/a
Project:	Wattenberg Groundwater		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	514000	400	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Magnesium	365000	200	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Potassium	13800	1000	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Sodium	2880000	4000	ug/l	10	11/17/15	11/18/15	LH	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA6758
(2) Prep QC Batch: MP17482

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-4		
Lab Sample ID:	D77313-4	Date Sampled:	11/16/15
Matrix:	AQ - Ground Water	Date Received:	11/16/15
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Wattenberg Groundwater		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	TB33215.D	1	11/16/15	KN	n/a	n/a	GTB1754
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	94%		60-140%

(a) The pH of the sample was > 2 at time of analysis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-4		
Lab Sample ID:	D77313-4	Date Sampled:	11/16/15
Matrix:	AQ - Ground Water	Date Received:	11/16/15
		Percent Solids:	n/a
Project:	Wattenberg Groundwater		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	844	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Alkalinity, Total as CaCO3	844	5.0	mg/l	1	11/19/15	TJ	SM 2320B-2011
Chloride	1730	250	mg/l	500	11/17/15 17:43	BF	EPA 300.0/SW846 9056
HEM Oil and Grease	< 7.5	7.5	mg/l	1	11/23/15	SWT	EPA 1664A
Nitrogen, Nitrate	18.6	0.50	mg/l	50	11/17/15 18:48	BF	EPA 300.0/SW846 9056
Nitrogen, Nitrite	0.37	0.20	mg/l	50	11/17/15 18:48	BF	EPA 300.0/SW846 9056
Sulfate	5530	250	mg/l	500	11/17/15 17:43	BF	EPA 300.0/SW846 9056
Total Organic Carbon	39.2	2.0	mg/l	2	11/17/15 17:09	JB	SM 5310B-2011

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	OW-4		
Lab Sample ID:	D77313-4F	Date Sampled:	11/16/15
Matrix:	AQ - Groundwater Filtered	Date Received:	11/16/15
		Percent Solids:	n/a
Project:	Wattenberg Groundwater		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	329000	400	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Magnesium	301000	200	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Potassium	20100	1000	ug/l	1	11/17/15	11/17/15	LH	SW846 6010C [1]	SW846 3010A [2]
Sodium	648000	4000	ug/l	10	11/17/15	11/18/15	LH	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA6758
(2) Prep QC Batch: MP17482

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D77313

Client / Reporting Information

Company Name: K.P. Kauffman Company, Inc.	Project Name: WATTENBERG GROUNDWATER
Address: 1675 Broadway, Suite 2800	Street:
City: Denver State: CO Zip: 80202-4628	City: Fort Lupton State: CO
Project Contact: Susana Lara-Mesa SLaraMesa@kpk.com	Project #:
Phone #: 303-665-1400	Fax #:
Samplers's Name: MICHAEL HATTEL (303-665-1400)	Client Purchase Order #: 7591

Project Information

Requested Analysis

Matrix Codes: DW- Drinking Water; GW- Ground Water; WW- Water; SW- Surface Water; SO- Soil; SL-Sludge; OI-Oil; LIQ- Other Liquid; AIR- Air; SOL-Other Solid; WP-Wipe

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	OIL & GREASE 1664	ANIONS (NITRATE, NITRITE, SULFATE, CHLORIDE)	TOC	CATIONS (Ca, K, Mg, NA)	BTEX 8021	ALKALINITY (CARB/BICARB)	TDS	LAB USE ONLY
	OW-1		11/16/05	0900	MDH	GW	9	X			X					X	X	X	X	X	X	X	01
	OW-2		↓	1200	MDH	GW	9	X			X					X	X	X	X	X	X	X	02
	OW-3		↓	1100	MDH	GW	9	X			X					X	X	X	X	X	X	X	03
	OW-4		↓	~~1200~~ 1220	MDH	GW	~~9~~ 8	X			X					X	X	X	X	X	X	X	04
	↑ limited sample volume due to very slow recovery																						TB-05

No TDS bottle sent, willing to get out of Alkalinity.

Turnaround Time (Business days)

- [X] Std. 10 Business Days
- Approved By:/ Date:

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] NJ Reduced
- [ ] NJ Full
- [X] Hard Copy
- [ ] FULL CLP
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [X] PDF

Comments / Remarks

PDF copy to Susana Lara-Mesa with KPK at SLaraMesa@kpk.com

PDF copy also to Mike Hattel with APEX at mhattel@msn.com

Hard copy ONLY to Mike Hattel with APEX, P.O. Box 369, Louisville, CO 80027-0369

Emergency T/A data available VIA Lablink

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	11/16/05 1340	1 [signature]	2		2
Relinquished By: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # HD	Preserved where applicable ☑	On Ice ☑ Cooler Temp. 3.6 T/2 L

5.1

5

D77313: Chain of Custody
Page 1 of 1

Mountain States ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D77313
Account: KPKCOD K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTB1754-MB	TB33202.D	1	11/16/15	KN	n/a	n/a	GTB1754

The QC reported here applies to the following samples: Method: SW846 8021B

D77313-1, D77313-2, D77313-3, D77313-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	87%	60-140%

Blank Spike Summary

Job Number: D77313
Account: KPKCOD K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTB1754-BS	TB33203.D	1	11/16/15	KN	n/a	n/a	GTB1754

The QC reported here applies to the following samples: Method: SW846 8021B

D77313-1, D77313-2, D77313-3, D77313-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	27.2	28.5	105	70-130
100-41-4	Ethylbenzene	45.6	46.1	101	70-130
108-88-3	Toluene	212	199	94	70-130
1330-20-7	Xylenes (total)	216	225	104	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	91%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D77313
Account: KPKCOD K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D77141-25MS	TB33204.D	1	11/16/15	KN	n/a	n/a	GTB1754
D77141-25MSD	TB33205.D	1	11/16/15	KN	n/a	n/a	GTB1754
D77141-25	TB33207.D	1	11/16/15	KN	n/a	n/a	GTB1754

The QC reported here applies to the following samples: Method: SW846 8021B

D77313-1, D77313-2, D77313-3, D77313-4

CAS No.	Compound	D77141-25 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		27.2	28.3	104	27.2	27.3	100	4	70-130/30
100-41-4	Ethylbenzene	ND		45.6	46.8	103	45.6	44.6	98	5	70-130/30
108-88-3	Toluene	ND		212	199	94	212	191	90	4	70-130/30
1330-20-7	Xylenes (total)	ND		216	229	106	216	218	101	5	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D77141-25	Limits
120-82-1	1,2,4-Trichlorobenzene	90%	91%	91%	60-140%

* = Outside of Control Limits.

6.3.1

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Mountain States ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	13		
Antimony	30	2.1	8.7		
Arsenic	25	3.8	12		
Barium	10	.2	.4		
Beryllium	10	.9	1.6		
Boron	50	.8	3.6		
Cadmium	10	.2	.8		
Calcium	400	2.4	10	27.3	<400
Chromium	10	.3	.7		
Cobalt	5.0	.5	1.2		
Copper	10	.8	3.8		
Iron	70	1.5	6.9		
Lead	50	2.1	4.9		
Lithium	5.0	.4	.7		
Magnesium	200	6.8	39	16.3	<200
Manganese	5.0	.5	.9		
Molybdenum	10	.4	3.6		
Nickel	30	.5	2.7		
Phosphorus	100	15	34		
Potassium	1000	99	71	61.3	<1000
Selenium	50	7.1	10		
Silicon	50	4.7	8.4		
Silver	30	.3	.6		
Sodium	400	7.3	14	-5.6	<400
Strontium	5.0	.01	.3		
Thallium	10	1.8	8		
Tin	50	12	12		
Titanium	10	.1	2.7		
Uranium	50	2.9	4.4		
Vanadium	10	.4	.6		
Zinc	30	.4	3.5		

Associated samples MP17482: D77313-1F, D77313-2F, D77313-3F, D77313-4F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

7.1.1

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	D77313-1F Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	anr				
Calcium	108000	133000	25000	100.0	75-125
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron	anr				
Lead	anr				
Lithium					
Magnesium	80200	106000	25000	103.2	75-125
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium	5940	34200	25000	113.0	75-125
Selenium	anr				
Silicon					
Silver	anr				
Sodium	752000	788000	25000	144.0(a)	75-125
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	anr				

Associated samples MP17482: D77313-1F, D77313-2F, D77313-3F, D77313-4F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	D77313-1F Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

7.1.2

7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	D77313-1F Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium	108000	132000	25000	96.0	0.8	20
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	anr					
Lithium						
Magnesium	80200	107000	25000	107.2	0.9	20
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	5940	34700	25000	115.0	1.5	20
Selenium	anr					
Silicon						
Silver	anr					
Sodium	752000	794000	25000	168.0(a)	0.8	20
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	anr					

Associated samples MP17482: D77313-1F, D77313-2F, D77313-3F, D77313-4F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	D77313-1F Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

7.1.2

7

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	25800	25000	103.2	80-120
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Lithium				
Magnesium	25800	25000	103.2	80-120
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	26000	25000	104.0	80-120
Selenium	anr			
Silicon				
Silver	anr			
Sodium	25500	25000	102.0	80-120
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP17482: D77313-1F, D77313-2F, D77313-3F, D77313-4F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

7.1.3

7

SERIAL DILUTION RESULTS SUMMARY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	D77313-1F Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	108000	113000	5.3	0-10
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Lithium				
Magnesium	80200	85800	7.0	0-10
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	5940	5930	0.2	0-10
Selenium	anr			
Silicon				
Silver	anr			
Sodium	752000	855000	13.6*(a)	0-10
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	anr			

Associated samples MP17482: D77313-1F, D77313-2F, D77313-3F, D77313-4F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

QC Batch ID: MP17482
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 11/17/15

Metal	D77313-1F Original	SDL 1:5	%DIF	QC Limits

(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

7.1.4

7

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN32483	5.0	0.0	mg/l	100	94.6	94.6	90-110%
Alkalinity, Carbonate	GN32484	5.0	0.0	mg/l	100	94.6	94.6	80-120%
Alkalinity, Total as CaCO3	GN32482	5.0	0.0	mg/l	100	94.6	94.6	90-110%
Bromide	GP16682/GN32437	0.050	0.0	mg/l	0.5	0.478	95.6	90-110%
Chloride	GP16682/GN32437	0.50	0.0	mg/l	5	4.72	94.4	90-110%
Fluoride	GP16682/GN32437	0.10	0.0	mg/l	1	0.931	93.1	90-110%
HEM Oil and Grease	GP16735/GN32509	5.0	0.0	mg/l	40	35.0	87.5	78-114%
Nitrogen, Nitrate	GP16682/GN32437	0.010	0.0	mg/l	0.1	0.0974	97.4	90-110%
Nitrogen, Nitrite	GP16682/GN32437	0.0040	0.0	mg/l	0.05	0.0498	99.6	90-110%
Solids, Total Dissolved	GN32435	10	0.0	mg/l				
Solids, Total Dissolved	GN32435	10	0.0	mg/l	400	394	98.5	90-110%
Solids, Total Dissolved	GN32465	10	0.0	mg/l	400	389	97.3	90-110%
Sulfate	GP16682/GN32437	0.50	0.0	mg/l	5	4.75	95.0	90-110%
Total Organic Carbon	GP16686/GN32440	1.0	0.0	mg/l	5	4.70	94.0	90-110%

Associated Samples:
Batch GN32435: D77313-1, D77313-3
Batch GN32465: D77313-2
Batch GN32482: D77313-1, D77313-2, D77313-3, D77313-4
Batch GN32483: D77313-1, D77313-2, D77313-3, D77313-4
Batch GN32484: D77313-1, D77313-2, D77313-3, D77313-4
Batch GP16682: D77313-1, D77313-2, D77313-3, D77313-4
Batch GP16686: D77313-1, D77313-2, D77313-3, D77313-4
Batch GP16735: D77313-1, D77313-2, D77313-3, D77313-4
(*) Outside of QC limits

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
HEM Oil and Grease	GP16735/GN32509	mg/l	40	33.0	5.9	18%

Associated Samples:
Batch GP16735: D77313-1, D77313-2, D77313-3, D77313-4
(*) Outside of QC limits

8.2
8

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN32482	D77322-1	mg/l	162	176	8.5	0-20%
Solids, Total Dissolved	GN32435	D77224-1	mg/l	639	623	2.5	0-20%
Solids, Total Dissolved	GN32465	D77313-2	mg/l	15400	15100	2.0	0-20%
Total Organic Carbon	GP16686/GN32440	D77322-1	mg/l	5.1	5.1	0.0	0-20%

Associated Samples:
Batch GN32435: D77313-1, D77313-3
Batch GN32465: D77313-2
Batch GN32482: D77313-1, D77313-2, D77313-3, D77313-4
Batch GP16686: D77313-1, D77313-2, D77313-3, D77313-4
(*) Outside of QC limits

8.3
8

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN32482	D77322-1	mg/l	162	100	254	92.2	80-120%
Bromide	GP16682/GN32437	D77338-1	mg/l	0.047	0.5	0.54	98.6	80-120%
Chloride	GP16682/GN32437	D77338-1	mg/l	2.7	5	7.7	100.0	80-120%
Fluoride	GP16682/GN32437	D77338-1	mg/l	0.25	1	1.3	105.0	80-120%
Nitrogen, Nitrate	GP16682/GN32437	D77338-1	mg/l	0.094	0.1	0.20	106.0	80-120%
Nitrogen, Nitrite	GP16682/GN32437	D77338-1	mg/l	0.0	0.05	0.062	124.0N(a)	80-120%
Sulfate	GP16682/GN32437	D77338-1	mg/l	20.2	5	25.4	104.0	80-120%
Total Organic Carbon	GP16686/GN32440	D77322-1	mg/l	5.1	10	15.5	104.0	80-120%

Associated Samples:
Batch GN32482: D77313-1, D77313-2, D77313-3, D77313-4
Batch GP16682: D77313-1, D77313-2, D77313-3, D77313-4
Batch GP16686: D77313-1, D77313-2, D77313-3, D77313-4
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.

8.4
8

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D77313
Account: KPKCOD - K.P. Kauffman Company, Inc.
Project: Wattenberg Groundwater

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN32482	D77322-1	mg/l	162	100	251	1.1	20%
Bromide	GP16682/GN32437	D77338-1	mg/l	0.047	0.5	0.55	1.8	20%
Chloride	GP16682/GN32437	D77338-1	mg/l	2.7	5	7.7	0.0	20%
Fluoride	GP16682/GN32437	D77338-1	mg/l	0.25	1	1.2	8.0	20%
Nitrogen, Nitrate	GP16682/GN32437	D77338-1	mg/l	0.094	0.1	0.20	0.0	20%
Nitrogen, Nitrite	GP16682/GN32437	D77338-1	mg/l	0.0	0.05	0.059	5.0	20%
Sulfate	GP16682/GN32437	D77338-1	mg/l	20.2	5	25.3	0.4	20%
Total Organic Carbon	GP16686/GN32440	D77322-1	mg/l	5.1	10	14.7	5.3	20%

Associated Samples:
Batch GN32482: D77313-1, D77313-2, D77313-3, D77313-4
Batch GP16682: D77313-1, D77313-2, D77313-3, D77313-4
Batch GP16686: D77313-1, D77313-2, D77313-3, D77313-4
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

8.5
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