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ENVIRONMENTAL REMEDIATION



Ash Creek Associates, Inc.

Environmental and Geotechnical Consultants

July 9, 2012

Mr. Chris Carey
Kansas Department of Health and Environment
Bureau of Environmental Remediation
Remedial Section
1000 SW Jackson, Suite 410
Topeka, Kansas 66612-1367

Re: Initial Response Summary Report
Separate-Phase Hydrocarbons in Irrigation Well
2006 Colt Court, Quail Crossing Neighborhood
Andover, Kansas
1641-03

Dear Mr. Carey:

On behalf of NuStar Pipeline Operating Partnership L.P. (NuStar), and at the request of the Kansas Department of Health and Environment (KDHE), Ash Creek Associates, a Division of Apex Companies, LLC (Apex) prepared this letter to summarize activities that were performed in response to the June 9, 2012 discovery of separate-phase hydrocarbons (SPH) in an irrigation well at 2006 Colt Court, in the Quail Crossing neighborhood in Andover, Kansas. The neighborhood location is shown on Figure 1. As shown in Figure 2, NuStar owns a refined petroleum product pipeline located approximately 45 feet north of the impacted irrigation well. This report presents a summary of response activities completed through July 2, 2012. Assessment of the source(s), magnitude, and extent of soil and groundwater contamination is ongoing. NuStar will submit additional reports to KDHE in the future as necessary to plan for and document response activities.

BACKGROUND

This section discusses the Site setting, geology and hydrogeology, and background.

Site Description

The Site is located in the northern portion of the City of Andover, in Butler County, Kansas (Figure 1), approximately 1/3 mile southeast of the intersection of North 159th Street East and West 21st Street. Land use at the site and surrounding the site is residential.

Municipal water supply is available at the site; residents utilize the municipal water supply for domestic water use. However, most residents in the area appear to have separate irrigation water wells that are used for outdoor irrigation purposes. The irrigation wells range in total depth from 80 feet below ground surface (bgs) to 116 feet bgs, based on well logs filed with KDHE. In most wells, the screened interval extends from total well depth to approximately 40 feet bgs, and the gravel pack interval extends from the total well depth to approximately 20 feet bgs.

FINAL

Geology and Hydrogeology

The Site and surrounding area are generally flat. Based on information presented in irrigation well logs, included in Attachment A, subsurface lithology at the site generally consists of clay to a depth of approximately 15 feet bgs, which is underlain by shale and limestone from 15 feet bgs to the total depth of area well construction logs, at 116 feet bgs. Based on the well construction logs, groundwater is generally encountered in unconfined conditions in shale or limestone, at depths ranging from 20 to 40 feet bgs. The groundwater gradient at the Site is unknown; however, regional groundwater flow and surface topography suggest shallow groundwater flow is to the south/southeast.

Response Activities

On Saturday, June 9, 2012, NuStar received a report from the property owner at 2006 Colt Court that water from the irrigation well on that property exhibited a gasoline odor. The property owner reported that his domestic water supply was provided by a municipal source.

Initial response activities included the following:

- On Monday, June 11, 2012, NuStar representatives met with the homeowner of 2006 Colt Court and observed SPH in water from the irrigation well. NuStar representatives collected a water sample and SPH sample from the affected irrigation well.
 - The SPH was collected in a 30-milliliter (mL) VOA vial and submitted to a KDHE-certified laboratory (Analytical Laboratory Services; ALS) for analysis of diesel-range organics (DRO) by Iowa Method OA-1.
 - The water in contact with SPH was collected in 30-mL VOA vials and submitted to ALS for analysis of the following dissolved-phase hydrocarbon constituents: DRO by Iowa Method OA-2, and volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260B.
- On June 11, 2012, six nearby irrigation wells were inspected and screened with a photoionization detector (PID); no indications of petroleum impacts were measured.
- NuStar reviewed their pipeline pressure records for this pipeline segment, which revealed no pressure loss dating back to March 2012, the last time the line was run. Pressures were steady at 465 pounds per square inch (psi). Records did not identify evidence of a release in the vicinity of 2006 Colt Court.
- On June 13, 2012, NuStar excavated soil along a 45-foot section of the NuStar pipeline nearest to the impacted irrigation well and inspected for signs of a release. Indications of petroleum impacts were not observed in the excavated interval.
- On June 14, June 28, July 2, and July 3 SPH were removed with a bailer. In total, approximately 25 gallons of SPH were removed from the irrigation well. The SPH were transported to the NuStar El Dorado Facility and reclaimed through a sump system.
- On June 14, June 15, and July 3, 2012, a vacuum truck was mobilized to the site and utilized to removed SPH and water from the irrigation well at 2006 Colt Court. In total, approximately 50 gallons of SPH and approximately 200 gallons of water were removed from the irrigation well. The water was disposed by permitted deep well injection by Albert Hogoboom Oil Field Trucking, Inc. (Hogoboom), and the SPH were reclaimed by Hogoboom.
- NuStar provided analytical results of the sample analyses to Friedman and Bruya Laboratory for analysis of petroleum hydrocarbon constituents.
- NuStar performed a hydrotest of the pipeline in the vicinity of 2006 Colt Court during the weeks of June 17, June 25, and July 2, 2012. A loss of pressure was observed under specific test conditions. As of July 3,



2012, the affected pipeline interval was specifically identified as a 250-foot section underneath W Mountain Street, adjacent to and northwest of the property at 2006 Colt Court.

ANALYTICAL RESULTS

The analytical results are presented in Tables 1 and 2. Attachment B includes a compilation of laboratory reports.

The laboratory analysis of the water sample collected from the irrigation well at 2006 Colt Court indicates the presence of dissolved-phase DRO and VOCs. The sample contained SPH as gasoline; the DRO analysis was performed for hydrocarbon "fingerprinting" purposes. Fuel additives, including lead and manganese, were not present in the product samples. Forensic analysis indicates that the product sample from the irrigation well at 2006 Colt Court was released less than 2 years ago.

CONTINUING ACTIVITIES

Continuing activities include excavation, SPH recovery, collection and analyses of water samples, and preparation of an investigation work plan.

- As shown on Figure 2, additional excavation activities are ongoing to determine the exact location of the leak and replace the affected portion of the pipeline. Impacted soil will be removed to the extent practicable during the repair process. Soil samples will be collected from the excavation for laboratory analysis.
- SPH recovery activities will continue at the 2006 Colt Court irrigation well.
- Water samples will be collected from surrounding irrigation wells. Samples will be submitted to ALS for the following analyses: DRO by Iowa Method OA-2; GRO by Iowa Method OA-1; and VOCs by EPA Method 8260B.
- NuStar will prepare an Investigation Work Plan to evaluate the nature and extent of SPH and dissolved-phase hydrocarbon impacts in the vicinity of the affected portion of the pipeline. Anticipated investigation activities include advancing six soil borings in the vicinity of the release area. Soil and groundwater samples will be collected from the borings and submitted for laboratory analysis of constituents of interest (COI). COI and associated analytical methods include: DRO by Iowa Method OA-2; GRO by Iowa Method OA-1; and VOCs by EPA Method 8260B. Based upon the initial findings, approximately three of the soil borings will be completed as groundwater monitoring wells, for collection of groundwater quality data and evaluation of groundwater gradient(s). Additional investigation and/or remediation activities may be proposed following the proposed investigation and as ongoing pipeline repair activities are performed.

CLOSING

NuStar will continue to work closely with KDHE to help identify the source of recent impacts, resolve the issue, and help ensure that residents have a safe source of irrigation water.

Please feel free to contact me at sjackson@ashcreekassociates.com or (503) 924-4707 x111 or Renee Robinson of NuStar at renee.robinson@nustarenergy.com or (210) 918-2975 with any questions you have regarding this report.

Sincerely,



Sam Jackson
Senior Project Scientist

cc: Ms. Renee Robinson, NuStar (electronic deliverable)

ATTACHMENTS

Table 1 – Summary of Analytical Data for 2006 Colt Court Irrigation Well and Pipeline Product Sample - DRO, Lead, and Manganese

Table 2 – Summary of Analytical Data for 2006 Colt Court -VOCs

Figure 1 – Site Location

Figure 2 – Site Vicinity Plan

Attachment A –2006 Colt Court Irrigation Well Log and Area Well Logs

Attachment B – Laboratory Analytical Reports



Table 1

Summary of Analytical Data for 2006 Colt Court Irrigation Well and Pipeline Product Sample - DRO, Lead, and Manganese
Andover, Kansas

Sample ID	Date	DRO (ppm)	Lead (mg/kg)	Manganese(mg/kg)
2006 Colt Court - water	6/12/2012	2.7	--	--
2006 Colt Court - product	6/12/2012	120,000	<0.500	<0.500
NuStar pipeline sample - product	6/14/2012	110,000	--	--
KDHE Tier 2 RBCV		0.5	0.015	0.05

Notes:

1. ppm = parts per million (product samples are reported as mg/kg [milligram per kilogram]; water samples are reported as mg/L [milligram per liter])
2. Sample "2006 Colt Court - water" was analyzed from the water that was in contact with product in the VOA vial.
3. < = Not detected above the method reporting limit (MRL).
4. **Bold** indicates detected concentration above the KDHE screening value.
5. KDHE Tier 2 Screening Values from the *Risk-Based Standards for Kansas, 5th Edition*, October 2010.

Table 2
 Summary of Analytical Data for 2006 Colt Court -VOCs
 Andover, Kansas

Address	Date	Acetone	Benzene	Chloroform	Cyclohexane	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylcyclohexane	Naphthalene	o-Xylene	Toluene	Xylenes, Total	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene
		Concentrations in mg/L (ppm)																	
2006 Colt Court	6/12/2012	<1.0	17	<0.50	3.0	14	0.64	46	1.1	5.2	19	91	65	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	KDHE Tier 2 RBCV	11.5	0.005	0.08	NE	0.7	0.451	NE	NE	0.0011	NE	1	10	0.2	0.000694	3.94	0.005	0.025	0.007

Notes:

1. VOCs = Volatile organic compounds by EPA Method 8260B.
2. mg/L (ppm) = Milligrams per liter (parts per million).
3. Sample "2006 Colt Court - water" was analyzed from the water that was in contact with product in the VOA vial.
4. < = Not detected above the method reporting limit (MRL)
5. **Bold** indicates detected concentration above the KDHE screening value
6. KDHE Tier 2 Screening Values from the *Risk-Based Standards for Kansas, 5th Edition*, October 2010.
7. NE = Not established.

Table 2
 Summary of Analytical Data for 2006 Colt Court -VOCs
 Andover, Kansas

Address	Date	1,2,3-Trichlorobenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Butanone	2-Hexanone	4-Methyl-2-pentanone	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene
		Concentrations in mg/L (ppm)																
2006 Colt Court	1/12/2012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010
	KDHE Tier 2 RBCV	NE	0.0002	0.00005	0.6	0.005	0.005	NE	0.075	4.92	NE	1.02	0.08	0.08	0.007	0.716	0.005	0.1

Notes:

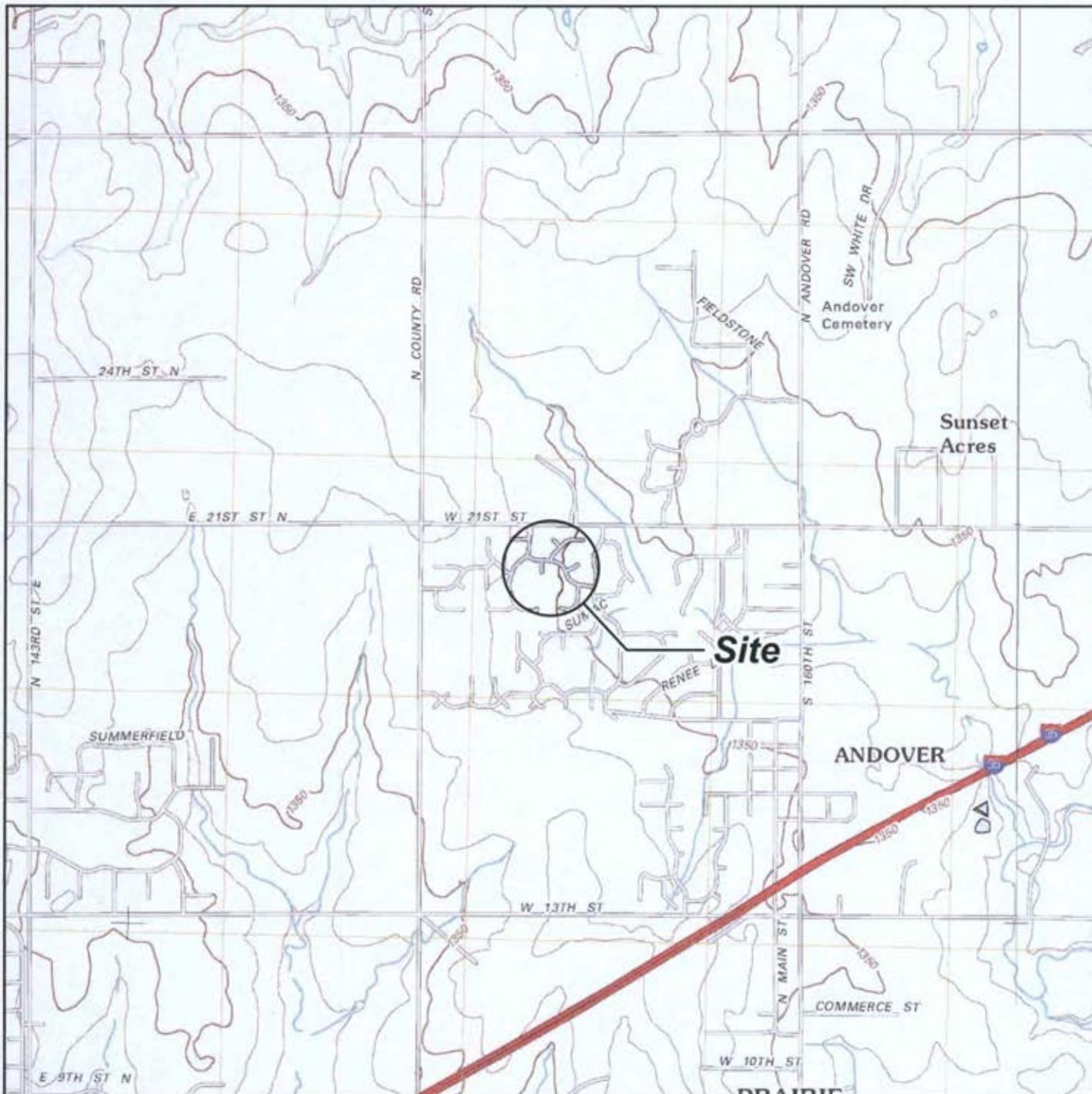
1. VOCs = Volatile organic compounds by EPA Method 8260B
2. mg/L (ppm) = Milligrams per liter (parts per million).
3. < = Not detected above the method reporting limit (MRL)
4. **Bold** indicates detected concentration above the KDHE screening value
6. KDHE Tier 2 Screening Values from the *Risk-Based Standards for Kansas, 5th Edition*, October 2010.
7. NE = Not evaluated.

Table 2
 Summary of Analytical Data for 2006 Colt Court -VOCs
 Andover, Kansas

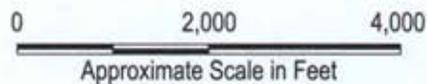
Address	Date	Chloroethane	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dichlorodifluoromethane	Methyl acetate	Methyl tert-butyl ether	Methylene chloride	Styrene	Tetrachloroethene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl chloride
		Concentrations in mg/L (ppm)															
2006 Colt Court	1/12/2012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	KDHE Tier 2 RBCV	14	0.127	0.07	NE	0.08	0.366	NE	0.133	0.005	0.1	0.005	0.1	NE	0.005	1.09	0.002

Notes:

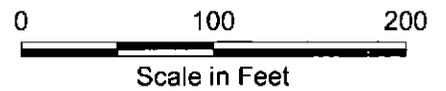
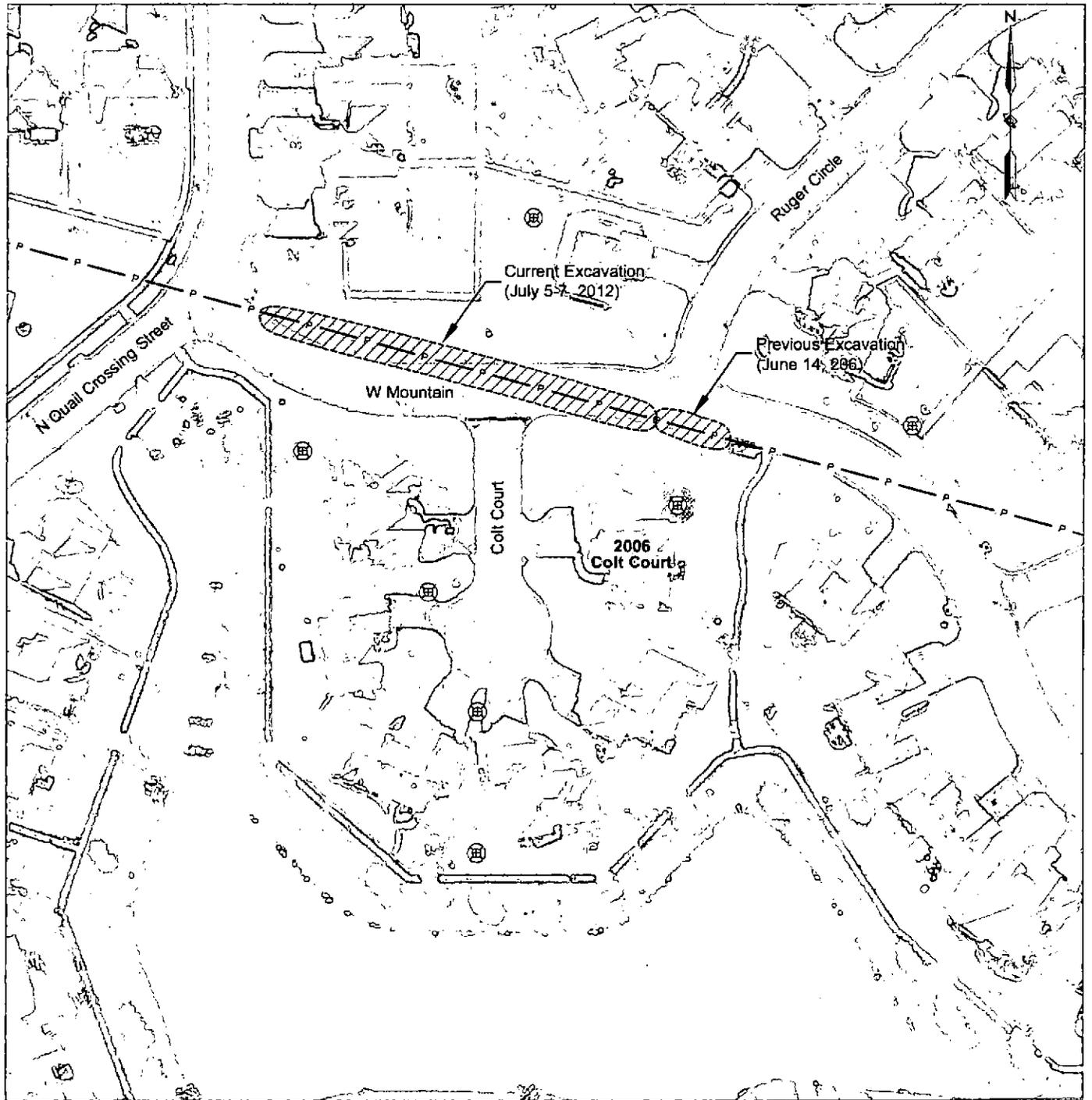
1. VOCs = Volatile organic compounds by EPA Method 8260B.
2. mg/L (ppm) = Milligrams per liter (parts per million).
3. < = Not detected above the method reporting limit (MRL)
4. **Bold** indicates detected concentration above the KDHE screening value
6. KDHE Tier 2 Screening Values from the *Risk-Based Standards for Kansas, 5th Edition*, October 2010.
7. NE = Not evaluated.



Note: Base map prepared from USGS 7.5-minute quadrangles of Andover and Santa Fe Lake, KS, dated 2009 as provided by USGS.gov.



<h2>Site Location Map</h2> <p>Initial Response Report NuStar Pipeline Operating Partnership L.P. Andover, Kansas</p>		
 <p>Ash Creek Associates A Division of Apex Companies, LLC</p>		Project Number 1641-00
	July 2012	



Legend:



Irrigation Well Impacted by Separate Phase Hydrocarbons



Irrigation Well Location (Approximate)



P Pipeline

Note: Aerial photograph provided by Google.maps.com (dated February 25, 2012).

Site Vicinity Plan

Initial Response Report
NuStar Pipeline Operating Partnership L.P.
Andover, Kansas



Ash Creek Associates
A Division of Apex Chemicals, LLC



Project Number 1641-00

July 2012

Figure

2

Attachment A

2006 Colt Court Irrigation Well Log and Area Well Logs

Sample Descriptions

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, and grain size, and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.

Soil descriptions consist of the following:

MAJOR CONSTITUENT with additional remarks; color, moisture, minor constituents, density/consistency.

Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and push probe explorations is estimated based on visual observation and is presented parenthetically on test pit and push probe exploration logs.

SAND and GRAVEL	Standard Penetration Resistance in Blows/Foot	SILT or CLAY	Standard Penetration Resistance in Blows/Foot	Approximate Shear Strength in TSF
<u>Density</u>		<u>Density</u>		
Very loose	0 - 4	Very soft	0 - 2	<0.125
Loose	4 - 10	Soft	2 - 4	0.125 - 0.25
Medium dense	10 - 30	Medium stiff	4 - 8	0.25 - 0.5
Dense	30 - 50	Stiff	8 - 15	0.5 - 1.0
Very dense	>50	Very Stiff	15 - 30	1.0 - 2.0
		Hard	>30	>2.0

Moisture

Dry	Little perceptible moisture.
Sl. Moist	Some perceptible moisture, probably below optimum.
Moist	Probably near optimum moisture content.
Wet	Much perceptible moisture, probably above optimum.

Minor Constituents

Minor Constituents	Estimated Percentage
Not identified in description	0 - 5
Slightly (clayey, silty, etc.)	5 - 12
Clayey, silty, sandy, gravelly	12 - 30
Very (clayey, silty, etc.)	30 - 50

Sampling Symbols

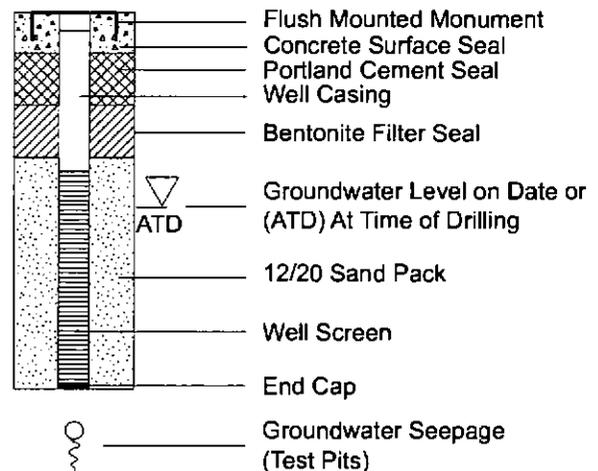
BORING AND PUSH-PROBE SYMBOLS

	Recovery
	No Recovery
	Temporarily Screened Interval
PID	Photoionization Detector Reading
W	Water Sample
	Sample Submitted for Chemical Analysis
NS	No Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
BF	Biogenic Film

TEST PIT SOIL SAMPLES

	Grab (Jar)
	Bag
	Shelby Tube

Groundwater Observations and Monitoring Well Construction



Key to Exploration Logs

Groundwater Investigation Report
NuStar Terminals Operations Partnership L.P.
Andover, Kansas



Project Number 1641-00

April 2012

Figure
Key



Ash Creek Associates
A Division of Apex Companies, LLC



Andover Pipeline Release Site
NuStar Terminals Operations Partnership L.P.
Andover, Kansas

Boring Number: **MW-ACA-1S**

Project Number: **1641-00**

Logged By: **M. Whitson**

Date: **March 8-11, 2012**

Site Conditions: **Overcast, 30s (°F)**

Drilling Contractor: **MDE**

Drilling Equipment: **Track Sonic**

Sampler Type: **10' Core Barrel**

Depth to Water (ATD): **28'**

Surface Elevation: **Not Measured**

Well Construction Details and Notes:

Depth, feet

Core Interval/Recovery

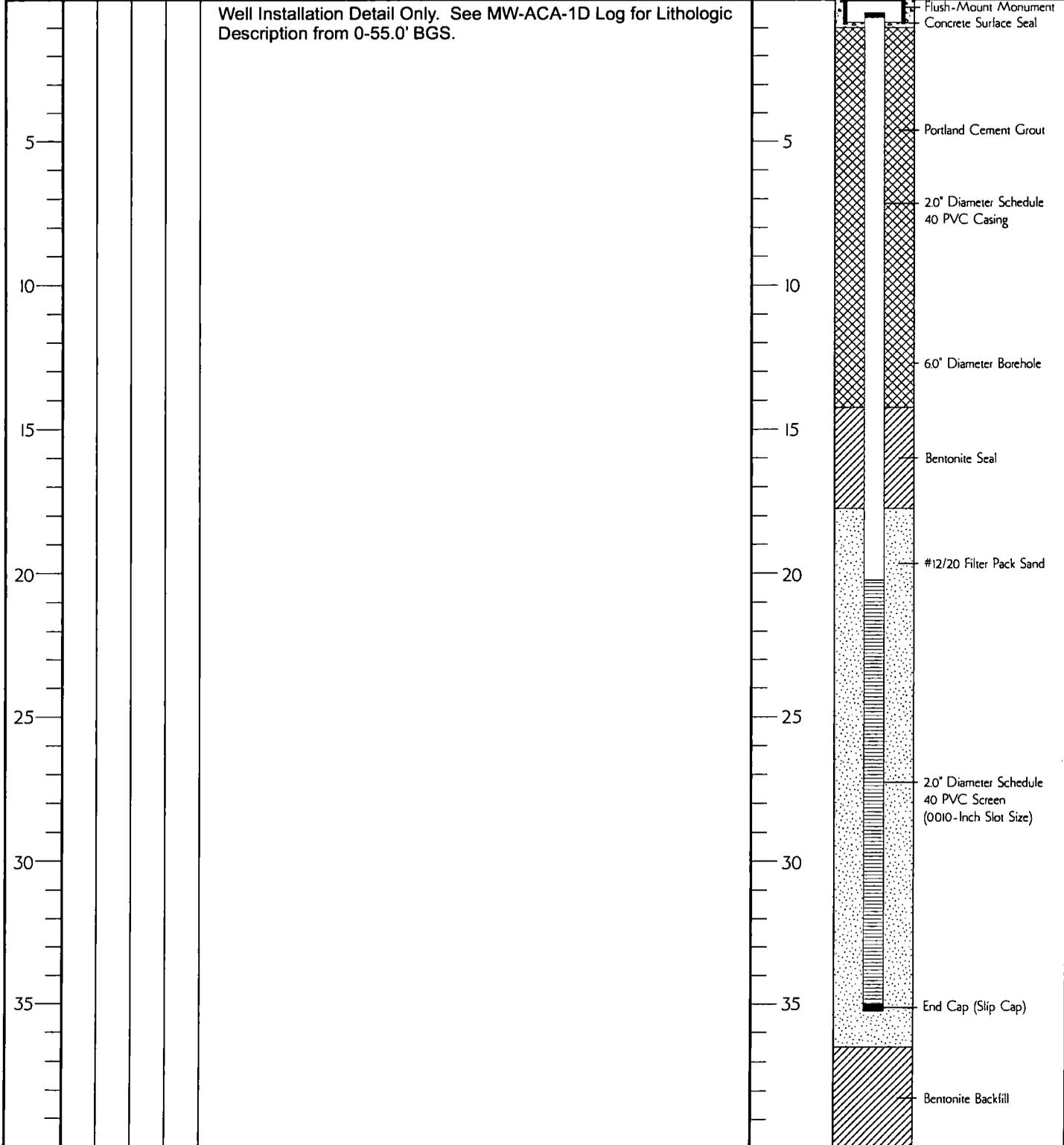
Laboratory Sample ID

PID

Sheen

Lithologic Description

Well Installation Detail Only. See MW-ACA-1D Log for Lithologic Description from 0-55.0' BGS.





Andover Pipeline Release Site
NuStar Terminals Operations Partnership L.P.
 Andover, Kansas

Boring Number: **MW-ACA-1S**

Project Number: **1641-00**

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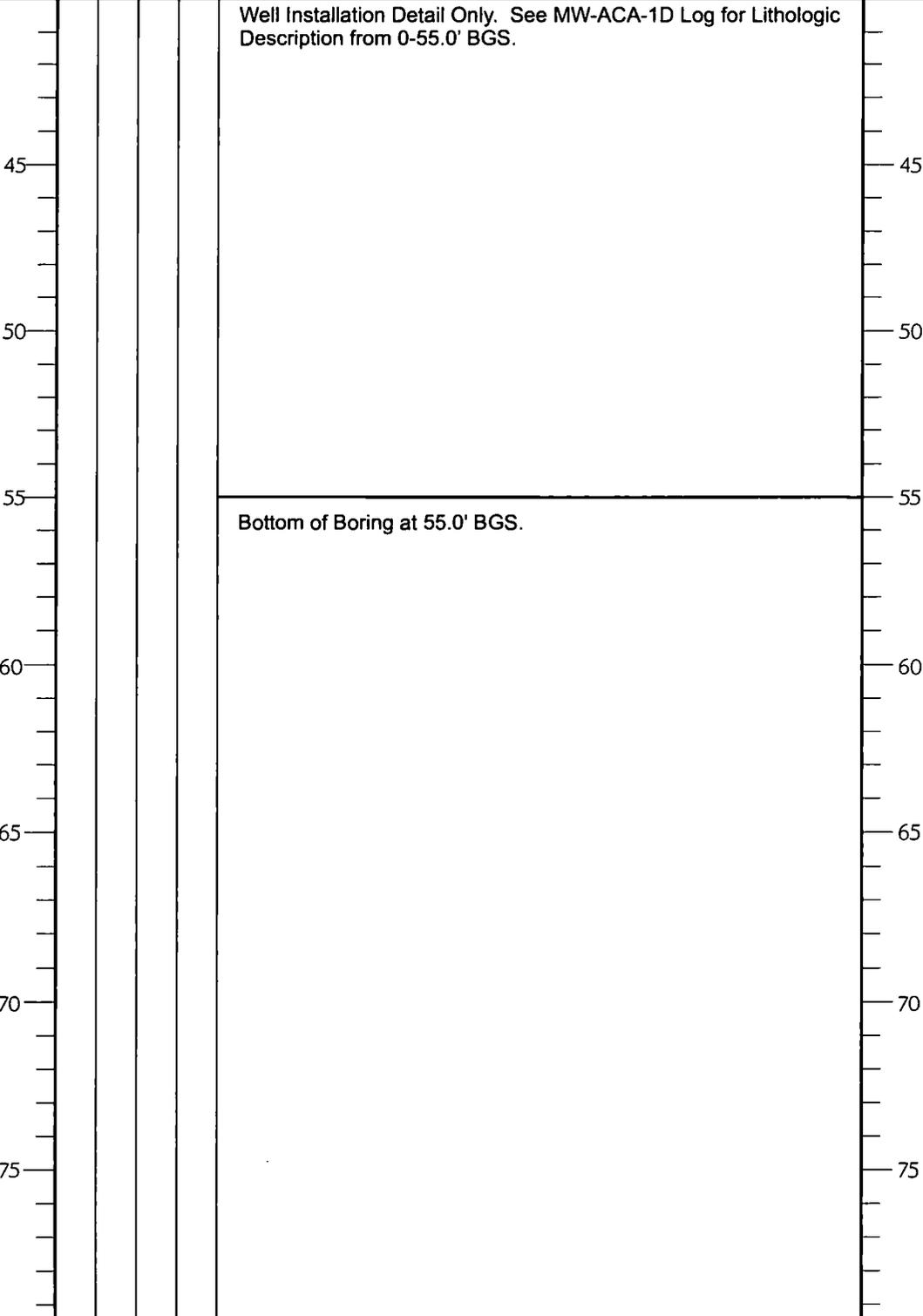
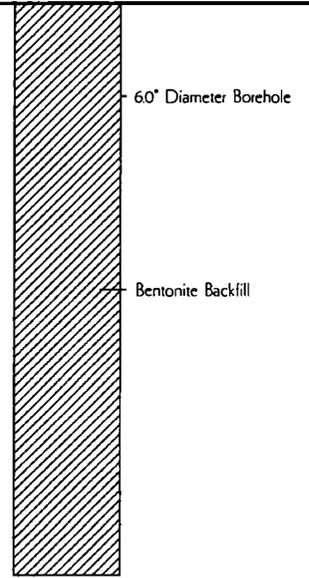
Well Construction Details and Notes:

Depth, feet
 Core Interval/Recovery
 Laboratory Sample ID
 PID
 Sheen

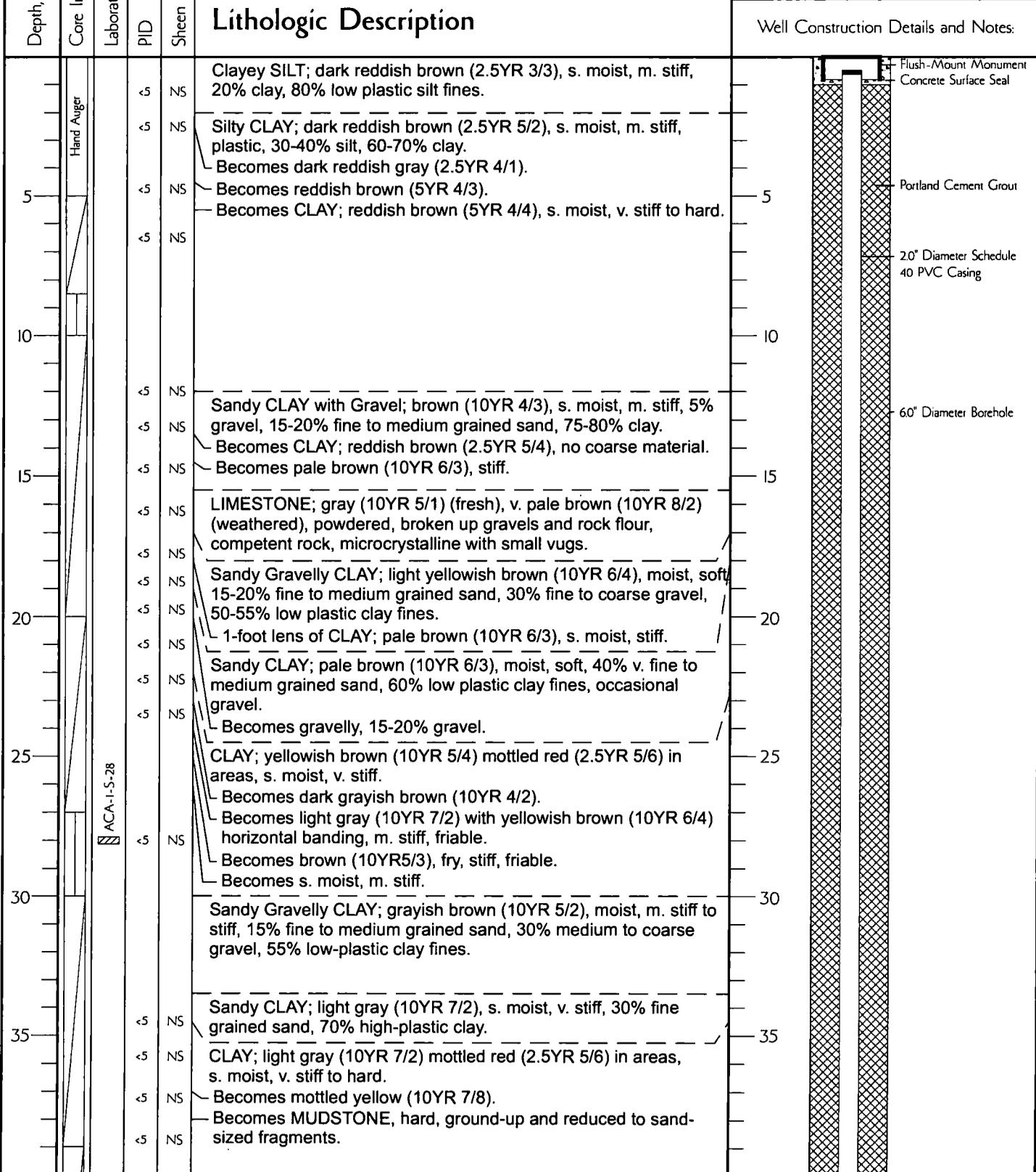
Lithologic Description

Well Installation Detail Only. See MW-ACA-1D Log for Lithologic Description from 0-55.0' BGS.

Bottom of Boring at 55.0' BGS.



Well Construction Details and Notes:



Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	Well Construction Details and Notes
45			<5	NS	CLAY; brown (10YR 4/3), moist, m. stiff, <5% coarse materials. MUDSTONE; dark grayish brown (10YR 4/2), hard. Becomes light brownish gray (2.5Y 6/2).	<p>Portland Cement Grout</p> <p>2.0" Diameter Schedule 40 PVC Casing</p> <p>6.0" Diameter Borehole</p> <p>Bentonite Seal</p> <p>#12/20 Filter Pack Sand</p> <p>2.0" Diameter Schedule 40 PVC Screen (0.010-Inch Slot Size)</p>
			<5	NS	CLAY with Sand; grayish brown (10YR 5/2), s. moist, stiff, 5-10% fine grained sand, 90-95% low-plastic clay.	
			<5	NS	MUDSTONE; grayish brown (10YR 5/2), s. moist, hard.	
			<5	NS	CLAY; light brownish gray (10YR 6/2), s. moist, stiff, <5% coarse. Becomes grayish brown (10YR 5/2). Becomes light gray (10YR 7/1). Becomes dark gray (10YR 4/1).	
50			<5	NS	MUDSTONE; light gray (2.5Y 7/1), dry, hard. Becomes gray (2.5Y 5/1).	
			<5	NS	Becomes gray (GLEY 1 5/N).	
			<5	NS	Becomes dark gray (10YR 4/1). Becomes very dark gray (10YR 3/1).	
			<5	NS	SHALE; white (10YR 8/1), dry, hard, angular fragments, broken-up.	
60			<5	NS	CLAY; black (10YR 2/1), s. moist, v. stiff to hard, <5% coarse material. MUDSTONE; gray (10YR 5/1), dry, hard, broken up into angular fragments.	
			<5	NS	6-inch vein of pink crystalline material.	
			<5	NS	CLAY; gray (10YR 5/1), s. moist, soft to m. stiff, crystal growth in pore space and cavities. 2-inch vein of crystalline material.	
			<5	NS	SHALE; very dark gray (10YR 3/1), s. moist, soft to m. stiff, partially lithified, <5% coarse material.	
70			<5	NS	CLAY; gray (10YR 5/1), s. moist, m. stiff, with crystal growth.	
			<5	NS	MUDSTONE; dark gray (10YR 4/1), s. moist, hard, fragmented into coarse angular gravel. Becomes light gray (10YR 7/1), dry, powdered.	
75			<5	NS	SHALE; gray (10YR 6/1), dry, hard, broken up and fragmented into fine to medium angular gravels, bedding planes, ripple marks. 2-inch lens of CLAY; dark grayish brown (10YR 4/2), s. moist to moist, soft. 3-inch lens of CLAY; s. moist to moist, same as above. 1-inch lens of CLAY; s. moist to moist, same as above. 2-inch lens of CLAY; same as above.	



Well Construction Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	Well Construction Details and Notes
			<5	NS	Gravelly CLAY; light gray (2.5Y 7/1), wet, soft, 30% medium to very coarse fragmented angular gravel, 70% low-plastic clay fines.	<p>#12/20 Filter Pack Sand</p> <p>20" Diameter Schedule 40 PVC Screen (0.010-Inch Slot Size)</p> <p>End Cap (Slip Cap)</p> <p>60" Diameter Borehole</p> <p>Bentonite Seal</p>
			<5	NS	CLAY with Gravel; gray (10YR 5/1), moist, m. stiff, 5-10% very coarse mudstone gravel, 90-95% low-plastic to plastic clay.	
			28	NS	CLAY; dark gray (10YR 4/1), dry, hard, <5% coarse material, 1-inch veins of white fibrous gypsum, very soft.	
85			10	NS	Becomes gray (10YR 5/1).	
			8	NS	MUDSTONE; dark gray (10YR 4/1), dry, hard, broken up, fragmented, <5% coarse material.	
			8	NS	1-inch vein of white fibrous gypsum.	
			<5	NS	CLAY with Mudstone/Shale Gravel; gray (10YR 5/1), moist to wet, 5-10% broken up mudstone/shale gravel in clay matrix, 90-95% high-plastic clay.	
90			<5	NS	6-inch lens of SHALE; dry, broken up.	
			<5	NS	1-inch lens of white gypsum.	
			<5	NS	MUDSTONE; gray (10YR 5/1), moist, v. stiff to hard.	
95			<5	NS	CLAY; dark gray (10YR 3/1), moist, m. stiff to stiff, <5% coarse material.	
			<5	NS	1-inch vein of acicular white gypsum.	
			<5	NS	1-inch lens of pink mineral.	
			<5	NS	Gravelly CLAY; greenish gray (GLEY 1 6/10Y), s. moist, stiff.	
			<5	NS	CLAY; greenish gray (GLEY 1 6/10Y), s. moist, stiff.	
100			<5	NS	LIMESTONE; light greenish gray (GLEY 1 8/10Y), dry, hard, broken up, powdered, fragmented.	
			<5	NS	2- to 3-inch lens Gravelly CLAY; greenish gray (GLEY 1 6/10Y), moist.	
105			<5	NS	LIMESTONE (MICRITIC); greenish gray (GLEY 1 5/10Y) (weathered), s. moist, hard, friable.	
			<5	NS	Becomes reddish gray (5YR 5/2), dry, powdered, fragmented.	
			<5	NS	Becomes light greenish gray (GLEY 2 7/5BG).	
			<5	NS	6-inch lens of reddish gray (5YR 5/2).	
			<5	NS	Becomes hard, competent rock.	
110					Bottom of Boring at 115.0' BGS.	
115						

Well Construction Details and Notes:

Depth, feet

Core Interval/Recovery

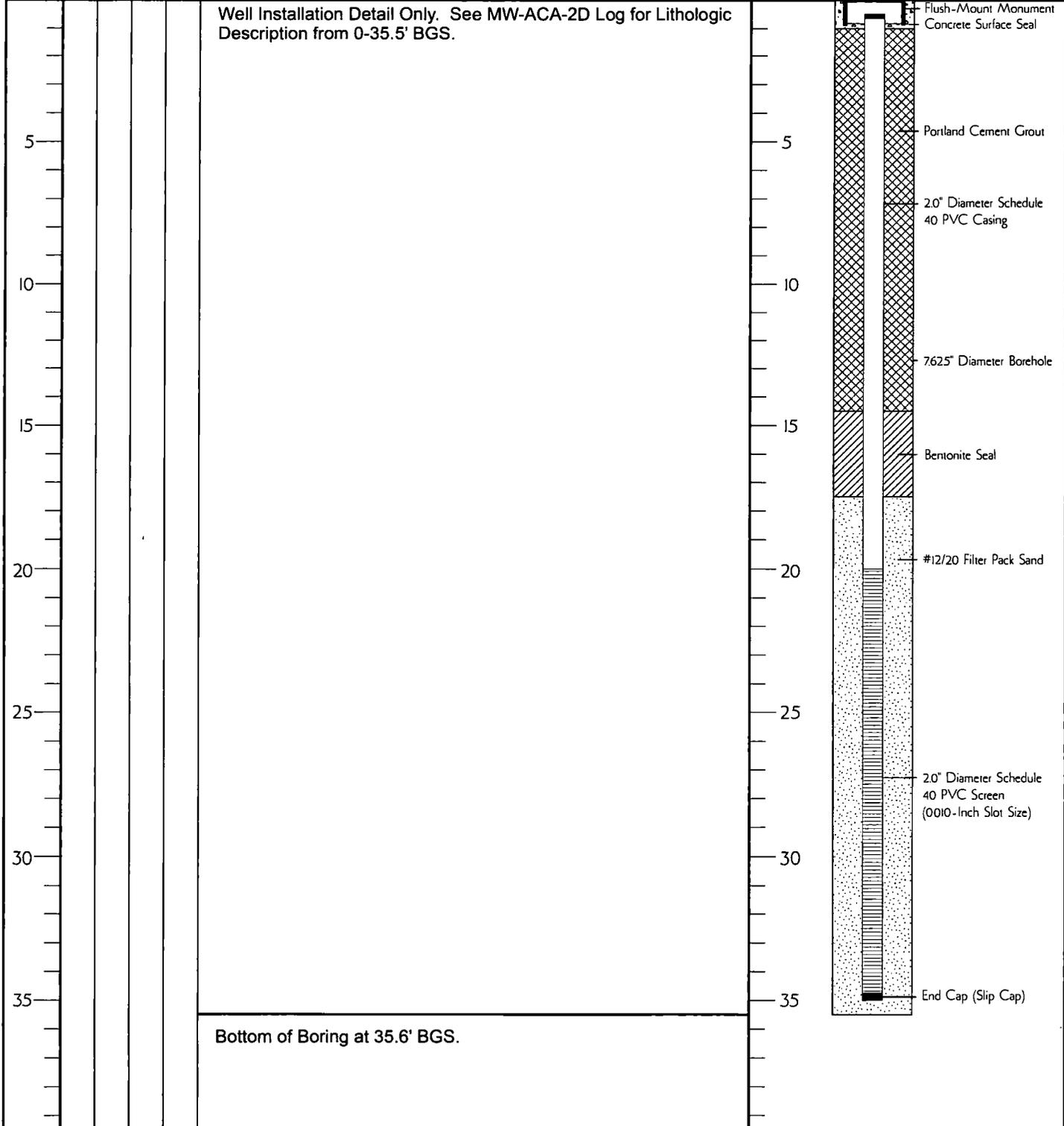
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PID

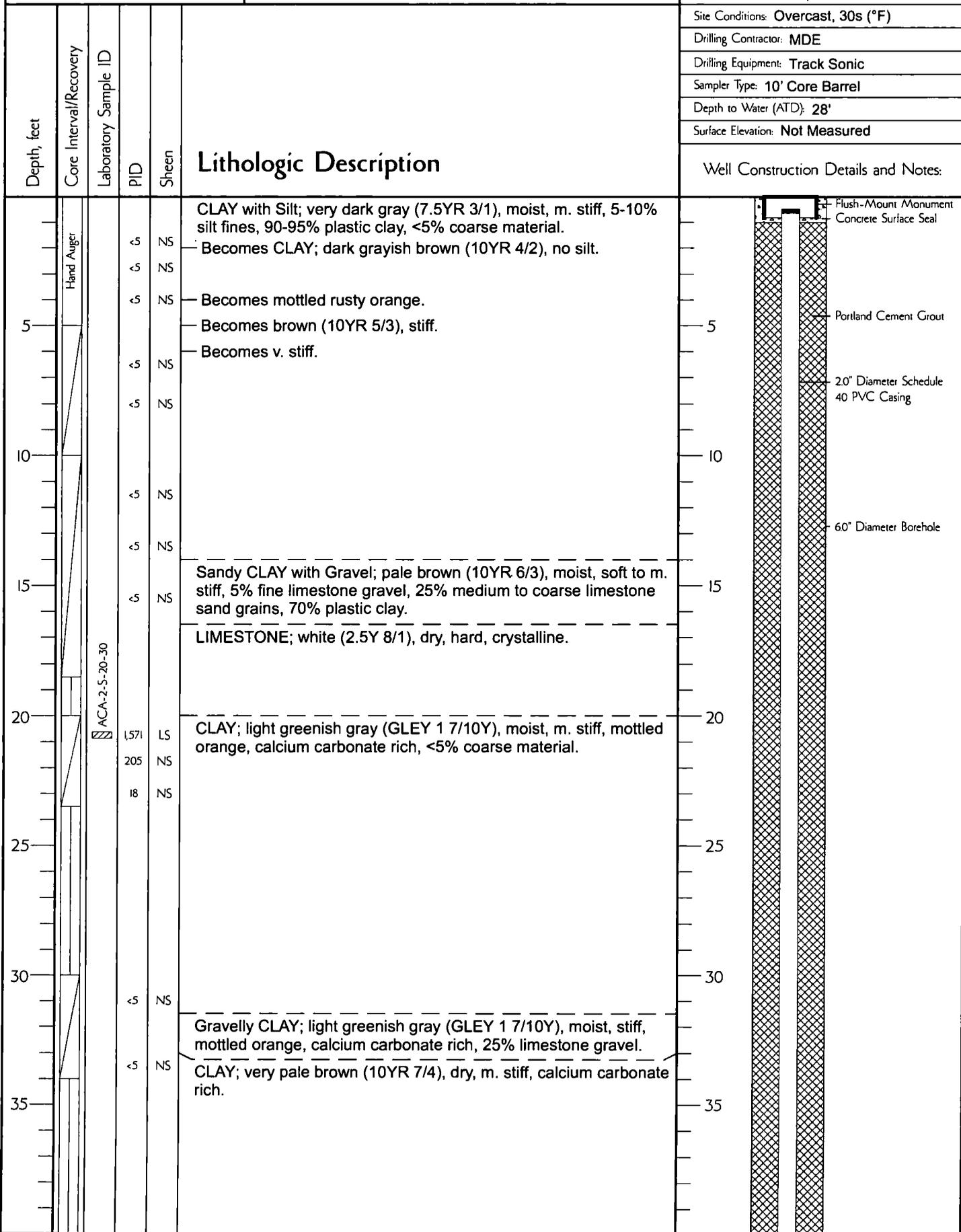
Screen

Lithologic Description

Well Installation Detail Only. See MW-ACA-2D Log for Lithologic Description from 0-35.5' BGS.

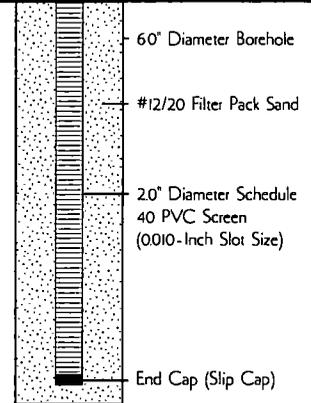


Bottom of Boring at 35.6' BGS.



Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	Well Construction Details and Notes
			7	NS	Becomes light yellowish brown (2.5Y 6/4) mottled orange, moist.	<p>Portland Cement Grout</p> <p>2.0' Diameter Schedule 40 PVC Casing</p> <p>6.0' Diameter Borehole</p> <p>Bentonite Seal</p> <p>#12/20 Filter Pack Sand</p> <p>2.0' Diameter Schedule 40 PVC Screen (0010-Inch Slot Size)</p>
			<5	NS	Becomes light yellowish brown (2.5Y 6/3).	
45						
					Becomes grayish brown (2.5Y 5/2).	
50			<5	NS	Becomes gray (2.5Y 5/1), moist.	
			<5	NS	MUDSTONE; light greenish gray (GLEY 1 7/10Y), dry, hard.	
			<5	NS	LIMESTONE; light gray (GLEY 1 7/N), dry, hard, fragmented, broken up.	
55					Becomes pinkish white (2.5Y 8/2).	
					Becomes white (10YR 8/1).	
					CLAY; gray (10YR 5/1), s. moist, m. stiff, broken up, friable.	
60			<5	NS	Gravelly Sandy CLAY; gray (10YR 5/1), moist, m. stiff, 15% medium to coarse gravel, 25% fine to medium sand, 60% plastic clay.	
			<5	NS	CLAY; greenish gray (GLEY 1 5/10Y), dry to s. moist, m. stiff, friable.	
65					Becomes very dark gray (2.5Y 3/1), inclusions of white mineral.	
			9	NS		
			5	NS	Becomes very dark gray (GLEY 1 3/N), moist.	
			15	NS	Vein of white gypsum.	
70			<5	NS	Becomes gray (2.5Y 5/1).	
			<5	NS	MUDSTONE; gray (2.5Y 6/1), dry, hard, powdered and fragmented by drilling, <5% coarse material.	
			<5	NS	Becomes s. moist.	
			<5	NS	LIMESTONE; white (GLEY 1 8/N), hard, microcrystalline, powdered and fragmented.	
75					MUDSTONE; gray (2.5Y 6/1), dry, hard.	
					1-inch vein of white acicular gypsum.	
					6-inches of CLAY; dark gray (2.5Y 4/1), moist, m. stiff, with white gypsum.	
			<5	NS	6-inches of CLAY; dark gray (2.5Y 4/1), moist, m. stiff, with white gypsum.	

Well Construction Details and Notes:



Lithologic Description

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
85			<5	NS	CLAY; gray (10YR 5/1), moist, m. stiff, plastic.
			<5	NS	1-inch vein of white gypsum.
			<5	NS	MUDSTONE; gray (2.5Y 6/1), s. moist, hard.
			<5	NS	LIMESTONE; white (2.5Y 8/1), dry, hard.
90			<5	NS	1-inch vein of white gypsum.
			<5	NS	CLAY/ MUDSTONE; very dark gray (2.5Y 3/1) to gray (10YR 5/1), moist to wet, m. stiff to hard, interbedded.
					Bottom of Boring at 90.5' BGS.

Well Construction Details and Notes:

Depth, feet

Core Interval/Recovery

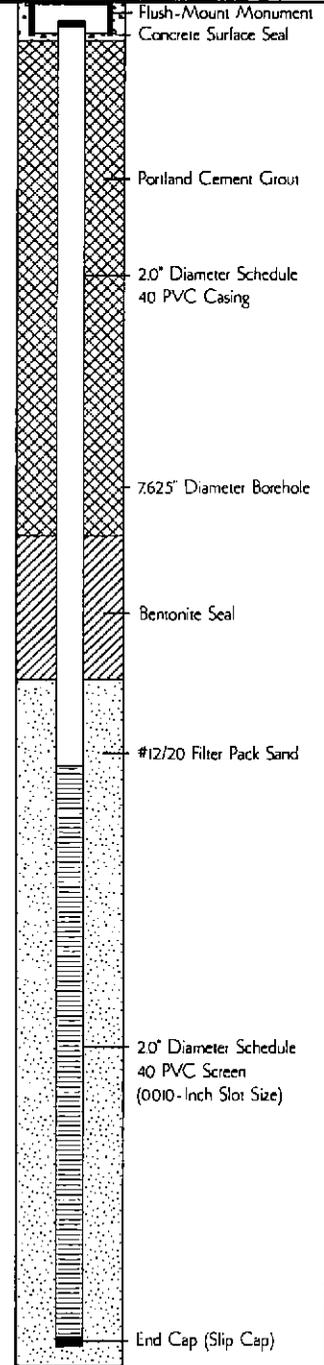
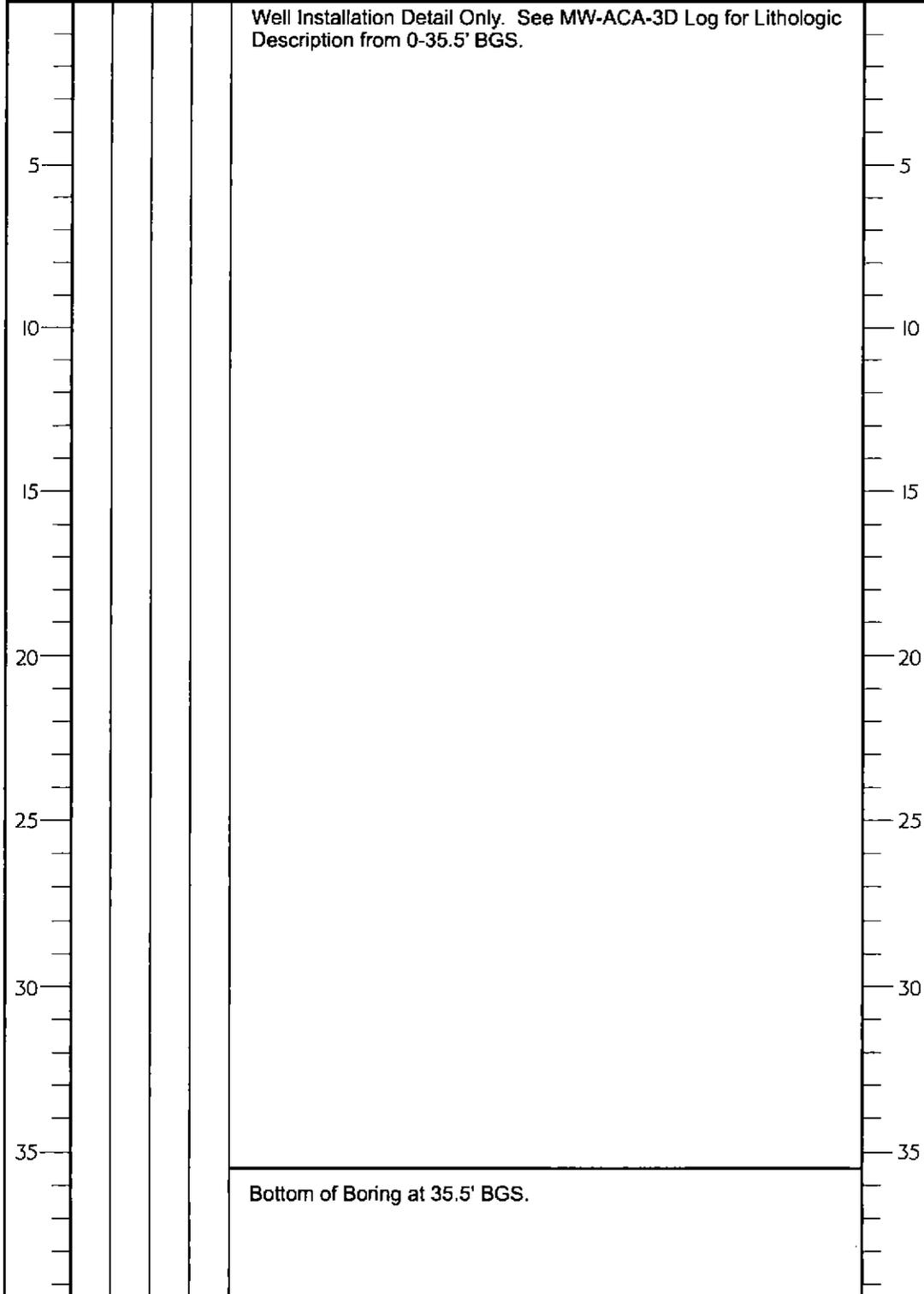
Laboratory Sample ID

PID

Sheen

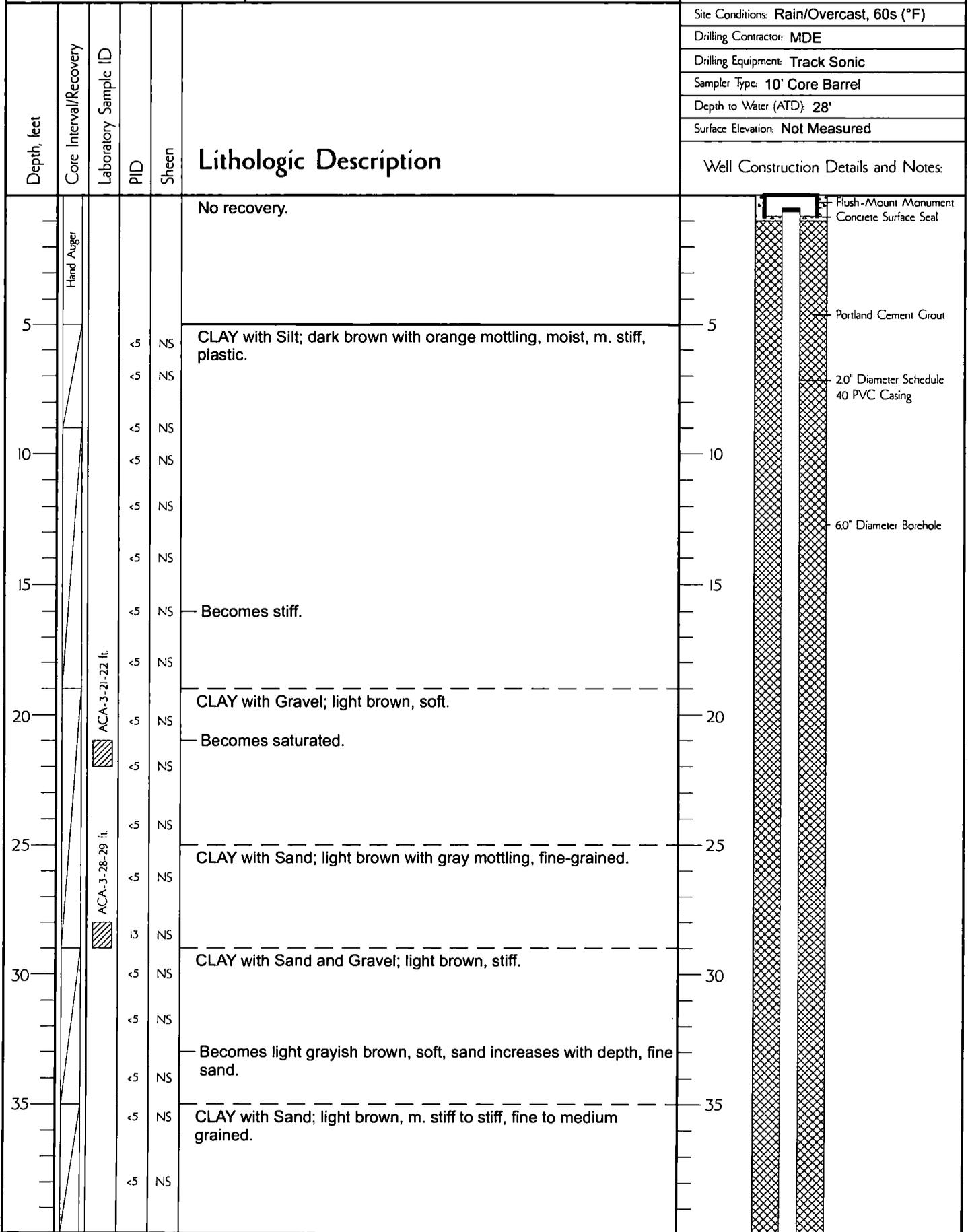
Lithologic Description

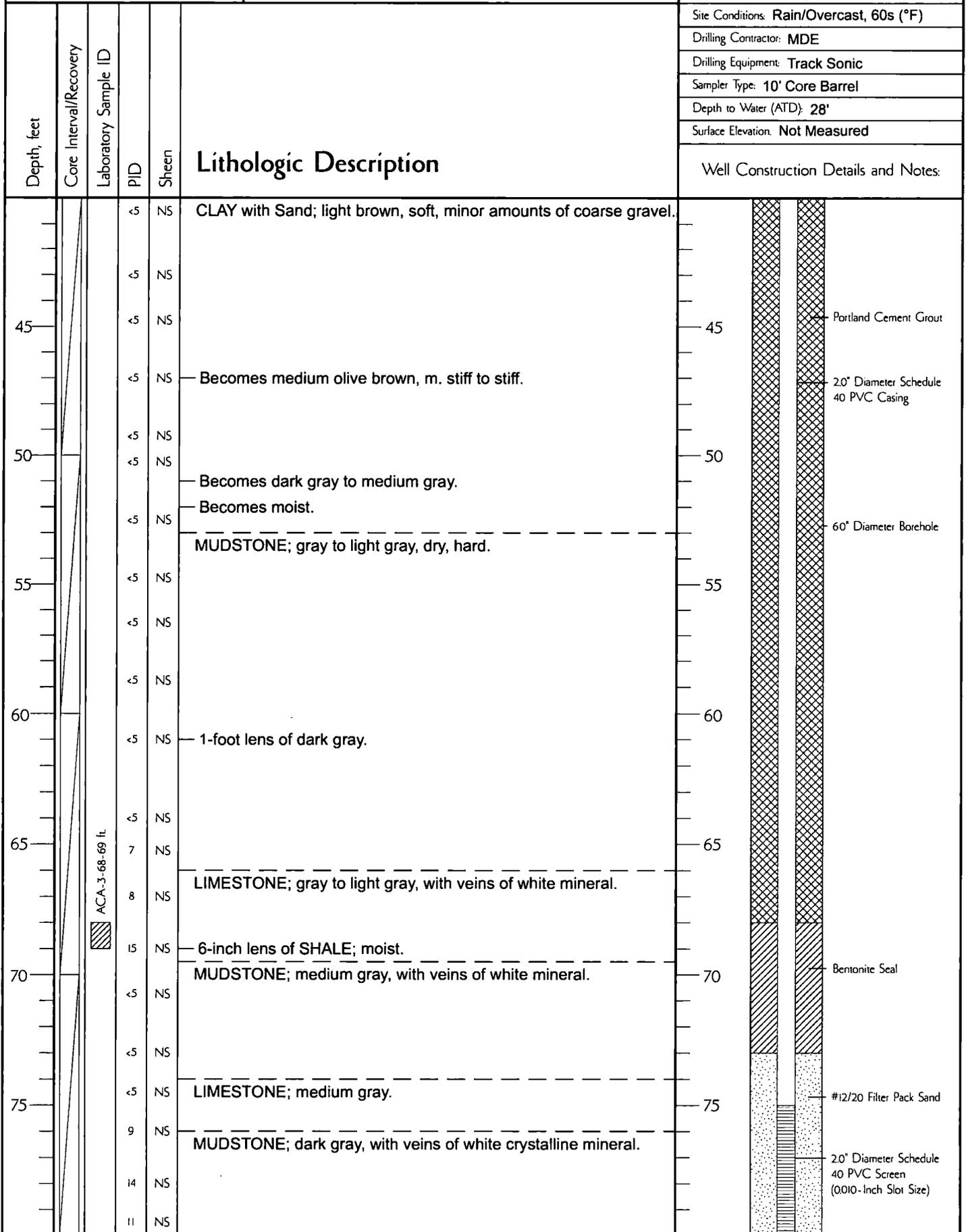
Well Installation Detail Only. See MW-ACA-3D Log for Lithologic Description from 0-35.5' BGS.



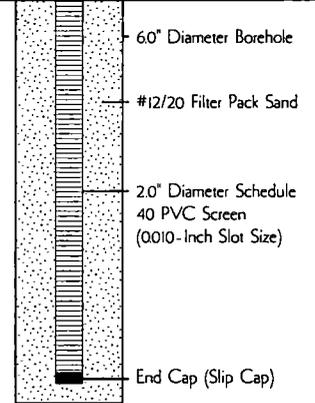
Bottom of Boring at 35.5' BGS.

Well Construction Details and Notes:





Well Construction Details and Notes:



Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
85	ACA-3-84-85 ft.		<5	NS	Becomes medium dark gray.
			7	NS	6-inch lens of LIMESTONE; medium light gray.
			20	NS	6-inch lens of CLAY with Sand; dark gray, m. stiff.
			<5	NS	
			6	NS	
90			6	NS	Becomes CLAY with Sand; dark gray, moist, m. stiff.
					Bottom of Boring at 90.5' BGS.
95					
100					
105					
110					
115					

WATER WELL RECORD

Form WWC-5

Division of Water Resources; App. No.

1 LOCATION OF WATER WELL: County: <u>Butler</u>	Fraction <u>SW 1/4 NE 1/4 NW 1/4</u>	Section Number <u>7</u>	Township Number <u>T 27 S</u>	Range Number <u>R 3 E W</u>
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Distance and direction from nearest town or city street address of well if located within city: 1812 Black Locas Ct. Ardmore

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: _____
Longitude: _____

2 WATER WELL OWNER:
RR#, St. Address, Box # : seanking
City, State, ZIP Code : _____

Elevation: _____
Datum: _____
Data Collection Method: _____

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N

-- NW --	-- NE --
-- SW --	-- SE --

S

4 DEPTH OF COMPLETED WELL 95 ft.

Depth(s) Groundwater Encountered (1) _____ ft. (2) _____ ft. (3) _____ ft.
WELL'S STATIC WATER LEVEL 30 ft. below land surface measured on mo/day/yr _____

Pump test data: Well water was _____ ft. after _____ hours pumping _____ gpm
Est. Yield 25 gpm: Well water was _____ ft. after _____ hours pumping _____ gpm

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) 10 Monitoring well _____

Was a chemical/bacteriological sample submitted to Department? Yes _____ No X; If yes, mo/day/yr Sample was submitted _____
Water well disinfected? Yes X No _____

5 TYPE OF CASING USED:

1 Steel	3 RMP (SR)	6 Asbestos-Cement	9 Other (specify below)	CASING JOINTS: Glued... <u>X</u> Clamped... _____
<u>2</u> PVC	4 ABS	5 Fiberglass		Welded... _____
				Threaded... _____

Blank casing diameter 5 in. to 40 ft., Diameter _____ in. to _____ ft., Diameter _____ in. to _____ ft.
Casing height above land surface 12 in., Weight 240 lbs./ft. Wall thickness or guage No. 160RS

TYPE OF SCREEN OR PERFORATION MATERIAL:

1 Steel	3 Stainless Steel	5 Fiberglass	<u>7</u> PVC	9 ABS	11 Other (Specify) _____
2 Brass	4 Galvanized Steel	6 Concrete tile	8 RM (SR)	10 Asbestos-Cement	12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:

1 Continuous slot	<u>3</u> Mill slot	5 Guazed wrapped	7 Torch cut	9 Drilled holes	11 None (open hole)
2 Louvered shutter	4 Key punched	6 Wire wrapped	8 Saw Cut	10 Other (specify) _____	

SCREEN-PERFORATED INTERVALS: From 40 ft. to 95 ft., From _____ ft. to _____ ft.
From _____ ft. to _____ ft., From _____ ft. to _____ ft.

GRAVEL PACK INTERVALS: From 30 ft. to 95 ft., From _____ ft. to _____ ft.
From _____ ft. to _____ ft., From _____ ft. to _____ ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other _____

Grout Intervals: From 1 ft. to 30 ft., From _____ ft. to _____ ft., From _____ ft. to _____ ft.

What is the nearest source of possible contamination:

1 Septic tank	4 Lateral lines	7 Pit privy	10 Livestock pens	13 Insecticide Storage	16 Other (specify below)
2 Sewer lines	5 Cess pool	8 Sewage lagoon	11 Fuel storage	14 Abandoned water well	
<u>3</u> Watertight sewer lines	6 Seepage pit	9 Feedyard	12 Fertilizer Storage	15 Oil well/gas well	

Direction from well? East How many feet? 12'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
<u>0</u>	<u>3</u>	<u>Top Soil</u>			
<u>3</u>	<u>18</u>	<u>clay</u>			
<u>18</u>	<u>44</u>	<u>limestone</u>			
<u>44</u>	<u>95</u>	<u>Blue shale</u>			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 2/28/08 and this record is true to the best of my knowledge and belief.
Kansas Water Well Contractor's License No. 7102 This Water Well Record was completed on (mo/day/year) 2/28/08
under the business name of Wenger Drilling Inc by (signature) Michelle Gooch

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well. Visit us at <http://www.kdhe.state.ks.us/geo/waterwells>.

WATER WELL RECORD

Form WWC-5

Division of Water Resources; App. No. 1

1 LOCATION OF WATER WELL: County: <u>Sedgewick</u>	Fraction: <u>NW 1/4 NE 1/4 NW 1/4</u>	Section Number: <u>7</u>	Township Number: <u>T 27 S</u>	Range Number: <u>R 3 E W</u>
Distance and direction from nearest town or city street address of well if located within city? <u>2021 Rugev St</u>		Global Positioning Systems (decimal degrees, min. of 4 digits) Latitude: _____ Longitude: _____ Elevation: _____ Datum: _____ Data Collection Method: _____		
2 WATER WELL OWNER: <u>Craig Hamman</u> RR#, St. Address, Box #: <u>2021 Rugev St</u> City, State, ZIP Code: <u>Andover, KS</u>				

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:	4 DEPTH OF COMPLETED WELL <u>80</u> ft.															
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr><td style="text-align: center;">N</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">W</td><td style="text-align: center;">NW</td><td style="text-align: center;">NE</td><td style="text-align: center;">E</td><td></td></tr> <tr><td></td><td style="text-align: center;">SW</td><td style="text-align: center;">SE</td><td></td><td style="text-align: center;">S</td></tr> </table>	N					W	NW	NE	E			SW	SE		S	Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL..... <u>14</u> ft. below land surface measured on mo/day/yr. <u>4-4-08</u> Pump test data: Well water was.....ft. after..... hours pumping..... gpm Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below) 2 Irrigation 4 Industrial <u>7 Domestic (lawn & garden)</u> 10 Monitoring well
N																
W	NW	NE	E													
	SW	SE		S												
Was a chemical/bacteriological sample submitted to Department? Yes No <u>X</u>; If yes, mo/day/yr Sample was submitted..... Water well disinfected? Yes <u>X</u> No																

5 TYPE OF CASING USED:

1 Steel	3 RMP (SR)	5 Wrought Iron	8 Concrete tile	CASING JOINTS: Glued <u>X</u> ... Clamped.....		
<u>2 PVC</u>	4 ABS	6 Asbestos-Cement	9 Other (specify below)	Welded.....		
		7 Fiberglass	Threaded.....			

Blank casing diameter 5 in. to 80 ft., Diameter..... in. to ft., Diameter in. to ft.
 Casing height above land surface..... 16 in., Weight 1600 lbs./ft. Wall thickness or guage No. 24

TYPE OF SCREEN OR PERFORATION MATERIAL:

1 Steel	3 Stainless Steel	5 Fiberglass	<u>7 PVC</u>	9 ABS	11 Other (Specify)
2 Brass	4 Galvanized Steel	6 Concrete tile	8 RM (SR)	10 Asbestos-Cement	12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:

1 Continuous slot	<u>3 Mill slot</u>	5 Gauzed wrapped	7 Torch cut	9 Drilled holes	11 None (open hole)
2 Louvered shutter	4 Key punched	6 Wire wrapped	8 Saw Cut	10 Other (specify)	

SCREEN-PERFORATED INTERVALS: From..... 60 ft. to 80 ft., From ft. to ft.
 From..... ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From..... 24 ft. to 80 ft., From ft. to ft.
 From..... ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 4 ft. to 24 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination:

1 Septic tank	4 Lateral lines	7 Pit privy	10 Livestock pens	13 Insecticide Storage	16 Other (specify below)
2 Sewer lines	5 Cess pool	8 Sewage lagoon	11 Fuel storage	14 Abandoned water well	
<u>Watertight sewer lines</u>	6 Seepage pit	9 Feedyard	12 Fertilizer Storage	15 Oil well/gas well	

Direction from well? West How many feet? 21

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Topsoil			
2	14	Green Clay			
14	56	tan shale			
56	80	Blue Shale - limestone			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4-4-08 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 60111. This Water Well Record was completed on (mo/day/year) 4-18-08 under the business name of Chase Drilling by (signature) [Signature]

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well. Visit us at <http://www.kdheks.gov/waterwell/index.html>.

WATER WELL RECORD

Form WWC-5

Division of Water Resources, App. No.

1 LOCATION OF WATER WELL: County: Bulter Fraction: NE 1/4 NW 1/4 NW 1/4 Section Number: 7 Township Number: T 27 S Range Number: R 3 E/W

Distance and direction from nearest town or city street address of well if located within city? 1422 W Browning **Global Positioning Systems** (decimal degrees, min. of 4 digits)
 Latitude: _____
 Longitude: _____
 Elevation: _____
 Datum: _____
 Data Collection Method: _____

2 WATER WELL OWNER: Carolyn McDaniel
 RR#, St. Address, Box # : 1422 W Browning
 City, State, ZIP Code : Andover, KS

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N

NW	NE
SW	SE

S

4 DEPTH OF COMPLETED WELL 100 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
 WELL'S STATIC WATER LEVEL..... 3.1 ft. below land surface measured on mo/day/yr. 5-26-07
 Pump test data: Well water was..... ft. after..... hours pumping..... gpm
 Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
 WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
 2 Irrigation 4 Industrial 7 Domestic (lawn & garden) 10 Monitoring well

Was a chemical/bacteriological sample submitted to Department? Yes No X.....; If yes, mo/day/yr Sample was submitted..... Water well disinfected? Yes X No

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued X Clamped.....
 1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
2 PVC 4 ABS 7 Fiberglass Threaded.....
 Blank casing diameter in. to 1.00 ft., Diameter..... in. to ft., Diameter in. to ft.
 Casing height above land surface..... 1.6 in., Weight 1.62 lbs./ft. Wall thickness or guage No. 2.6

TYPE OF SCREEN OR PERFORATION MATERIAL:
 1 Steel 3 Stainless Steel 5 Fiberglass 7 PVC 9 ABS 11 Other (Specify)
 2 Brass 4 Galvanized Steel 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:
 1 Continuous slot 3 Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
 2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify)

SCREEN-PERFORATED INTERVALS: From..... 55 ft. to 100 ft., From ft. to ft.
 From..... ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From..... 24 ft. to 100 ft., From ft. to ft.
 From..... ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 4 ft. to 24 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination:
 1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
 2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well

Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Topsoil			
2	17	Clay			
17	46	Blue Shale			
46	59	Green Shale			
59	100	Blue Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 5-26-07, and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 641 This Water Well Record was completed on (mo/day/year) 5-14-07 under the business name of Chase Drilling by (signature) W Chase

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well. Visit us at <http://www.kdheks.gov/waterwell/index.html>.

WATER WELL RECORD

Form WWC-5

Division of Water Resources; App. No. [redacted]

1 LOCATION OF WATER WELL: County: <u>Butler</u>		Fraction <u>NE 1/4 NW 1/4 NW 1/4</u>	Section Number <u>7</u>	Township Number <u>T 27 S</u>	Range Number <u>R 3 E</u>										
Distance and direction from nearest town or city street address of well if located within city? <u>1731 N. Juniper Ct.</u>			Global Positioning Systems (decimal degrees, min. of 4 digits) Latitude: _____ Longitude: _____ Elevation: _____ Datum: _____ Data Collection Method: _____												
2 WATER WELL OWNER: RR#, St. Address, Box # : <u>Manolito Munoz</u> City, State, ZIP Code : <u>1731 N. Juniper Ct.</u> <u>Andover, KS 67002</u>		4 DEPTH OF COMPLETED WELL <u>92</u> ft.													
3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N <table border="1" style="width:100%; text-align:center; border-collapse: collapse;"><tr><td style="width:25px;">K</td><td style="width:25px;"> </td></tr><tr><td>--NW--</td><td>--NE--</td></tr><tr><td style="width:25px;"> </td><td style="width:25px;"> </td></tr><tr><td>--SW--</td><td>--SE--</td></tr><tr><td style="width:25px;"> </td><td style="width:25px;"> </td></tr></table> S		K		--NW--	--NE--			--SW--	--SE--			Depth(s) Groundwater Encountered (1) <u>31</u> ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL..... <u>31</u> ft. below land surface measured on mo/day/yr. <u>9/23/05</u> Pump test data: Well water was.....ft. after..... hours pumping..... gpm Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below) 2 Irrigation 4 Industrial 7 Domestic (lawn & garden) 10 Monitoring well Was a chemical/bacteriological sample submitted to Department? Yes..... No <u>X</u>; If yes, mo/day/yr Sample was submitted..... Water well disinfected? Yes <u>X</u> No.....			
K															
--NW--	--NE--														
--SW--	--SE--														
5 TYPE OF CASING USED: 1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) <u>7 PVC</u> 4 ABS 7 Fiberglass Blank casing diameter <u>5</u> in. to <u>92</u> ft., Diameter..... in. to..... ft., Diameter..... in. to..... ft. Casing height above land surface..... <u>16</u> in., weight..... <u>160</u> lbs./ft. Wall thickness or gauge No. <u>26</u>		CASING JOINTS: Glued <u>X</u> Clamped..... Welded..... Threaded.....													
TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 3 Stainless Steel 5 Fiberglass <u>7 PVC</u> 9 ABS 11 Other (Specify)..... 2 Brass 4 Galvanized Steel 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)		SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot <u>3 Mill slot</u> 5 Guazed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole) 2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify).....													
SCREEN-PERFORATED INTERVALS: From..... <u>52</u> ft. to..... <u>92</u> ft., From..... ft. to..... ft. From..... ft. to..... ft., From..... ft. to..... ft.		GRAVEL PACK INTERVALS: From..... <u>24</u> ft. to..... <u>92</u> ft., From..... ft. to..... ft. From..... ft. to..... ft., From..... ft. to..... ft.													
6 GROUT MATERIAL: 1 Neat cement 2 Cement grout <u>3 Bentonite</u> 4 Other..... Grout Intervals: From..... <u>4</u> ft. to..... <u>24</u> ft., From..... ft. to..... ft., From..... ft. to..... ft.		What is the nearest source of possible contamination: 1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below) <u>2 Sewer lines</u> 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well <u>3 Watertight sewer lines</u> 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil wll/gas well Direction from well? <u>Southwest</u> How many feet? <u>25</u>													
FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS										
0	2	topsoil													
2	6	Clay													
6	31	green shale													
31	63	blue shale													
63	71	limestone													
71	91	blue shale													
	91	limestone													
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) <u>constructed</u> , (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) <u>9/23/05</u> and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. <u>cell</u> This Water Well Recorded was completed on (mo/day/year) <u>9/25/05</u> Under the business name of <u>Chase Drilling</u> by (signature) <u>K. Chase</u>															
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well.															

WATER WELL RECORD

Form WWC-5

Division of Water Resources; App. No.

1 LOCATION OF WATER WELL: County: <u>Bulter</u>	Fraction: <u>NE 1/4 NW 1/4 NW 1/4</u>	Section Number: <u>7</u>	Township Number: <u>T 27 S</u>	Range Number: <u>R 3 E</u>
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Distance and direction from nearest town or city street address of well if located within city? 1402 Gambels

Global Positioning Systems (decimal degrees, min. of 4 digits)
 Latitude: _____
 Longitude: _____
 Elevation: _____
 Datum: _____
 Data Collection Method: _____

2 WATER WELL OWNER: David Yeager
 RR#, St. Address, Box #: 1402 Gambels
 City, State, ZIP Code: Andover Ks

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:	4 DEPTH OF COMPLETED WELL <u>9.8</u> ft.
---	---

N

NW	NE
SW	SE

S

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.

WELL'S STATIC WATER LEVEL..... 3.0 ft. below land surface measured on mo/day/yr. 5-26-07

Pump test data: Well water was..... ft. after..... hours pumping..... gpm

Est. Yield..... gpm: Well water was..... ft. after..... hours pumping..... gpm

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well

1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)

2 Irrigation 4 Industrial 7 Domestic (lawn & garden) 10 Monitoring well

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yrs
 Sample was submitted..... Water well disinfected? Yes X No

5 TYPE OF CASING USED:

1 Steel	3 RMP (SR)	6 Asbestos-Cement	9 Other (specify below)
<u>2 PVC</u>	4 ABS	7 Fiberglass	

Blank casing diameter 5 in. to 9.8 ft., Diameter: in. to ft., Diameter in. to ft.

Casing height above land surface..... 1.6 in., Weight 1.60 lbs./ft. Wall thickness or gauge No. 2.4

TYPE OF SCREEN OR PERFORATION MATERIAL:

1 Steel	3 Stainless Steel	5 Fiberglass	<u>7 PVC</u>	9 ABS	11 Other (Specify)
2 Brass	4 Galvanized Steel	6 Concrete tile	8 RM (SR)	10 Asbestos-Cement	12 Nonc used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:

1 Continuous slot	<u>3 Mill slot</u>	5 Gauzed wrapped	7 Torch cut	9 Drilled holes	11 None (open hole)
2 Louvered shutter	4 Key punched	6 Wire wrapped	8 Saw Cut	10 Other (specify)	

SCREEN-PERFORATED INTERVALS: From..... 5.5 ft. to 9.8 ft., From ft. to ft.

GRAVEL PACK INTERVALS: From..... 2.4 ft. to 9.8 ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 4 ft. to 2.4 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination:

1 Septic tank	4 Lateral lines	7 Pit privy	10 Livestock pens	13 Insecticide Storage	16 Other (specify below)
2 Sewer lines	5 Cess pool	8 Sewage lagoon	11 Fuel storage	14 Abandoned water well	
<u>3 Watertight sewer lines</u>	6 Seepage pit	9 Feedyard	12 Fertilizer Storage	15 Oil well/gas well	

Direction from well? North How many feet? 2.8

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Top soil			
2	9	Brown clay			
9	77	yellow shale			
77	88	blue shale			
88	98	yellow shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1 constructed) (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 5-26-07 and this record is true to the best of my knowledge and belief.

Kansas Water Well Contractor's License No. 611 This Water Well Record was completed on (mo/day/year) 6-12-07 under the business name of Cham Drilling by (signature) W. Cham

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420. Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well. Visit us at <http://www.kdheks.gov/waterwell/index.html>.

WATER WELL RECORD

Form WWC-5

Division of Water Resources; App. No.

1 LOCATION OF WATER WELL: County: <u>Buena Vista</u>	Fraction <u>SE 1/4 NW 1/4 W 1/4</u>	Section Number <u>7</u>	Township Number <u>T 27</u>	Range Number <u>R 3 E</u>
Distance and direction from nearest town or city street address of well if located within city? <u>1956 N Marlin</u>		Global Positioning Systems (decimal degrees, min. of 4 digits) Latitude: _____ Longitude: _____ Elevation: _____ Datum: _____ Data Collection Method: _____		

2 WATER WELL OWNER: Vu Nguyen
RR#, St. Address, Box # : _____
City, State, ZIP Code : 1956 N Marlin Ct
Andover, KS

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"><tr><td style="width: 25%;">NW</td><td style="width: 25%;">NE</td></tr><tr><td>SW</td><td>SE</td></tr></table> S	NW	NE	SW	SE	4 DEPTH OF COMPLETED WELL <u>110</u> ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL..... <u>3.7</u> ft. below land surface measured on mo/day/yr. <u>4-16-07</u> Pump test data: Well water was.....ft. after..... hours pumping..... gpm Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below) 2 Irrigation 4 Industrial 7 Domestic (lawn & garden) 10 Monitoring well Was a chemical/bacteriological sample submitted to Department? Yes No <u>X</u> ; If yes, mo/day/yr Sample was submitted..... Water well disinfected? Yes <u>X</u> No
NW	NE				
SW	SE				

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued X Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
2 PVC 4 ABS 7 Fiberglass Threaded.....

Blank casing diameter 5 in. to 110 ft., Diameter in. to ft., Diameter in. to ft.
Casing height above land surface 16 in., Weight 160 lbs./ft. Wall thickness or gauge No. 24

TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass 7 PVC 9 ABS 11 Other (Specify)
2 Brass 4 Galvanized Steel 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot 3 Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify)

SCREEN-PERFORATED INTERVALS: From..... 50 ft. to 110 ft., From ft. to ft.
From..... ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From..... 24 ft. to 110 ft., From ft. to ft.
From..... ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From..... 4 ft. to 24 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well

Direction from well? East How many feet? 42

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	top soil			
2	10	clay			
10	27	gray shale			
27	71	blue shale			
71	73	green clay			
73	110	blue shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4-16-07 and this record is true to the best of my knowledge and belief.
Kansas Water Well Contractor's License No. 6011 This Water Well Record was completed on (mo/day/year) 5-8-07
under the business name of Chad Drilling by (signature) W. Chan

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well. Visit us at <http://www.kdheks.gov/waterwell/index.html>.

WATER WELL RECORD

Form WWC-5

Division of Water Resources; App. No.

1 LOCATION OF WATER WELL: County: <u>Butler</u>	Fraction <u>NE 1/4 NE 1/4 NW 1/4</u>	Section Number <u>7</u>	Township Number T <u>27S</u>	Range Number R <u>30</u> EW
Distance and direction from nearest town or city street address of well if located within city?		Global Positioning Systems (decimal degrees, min. of 4 digits) Latitude: _____ Longitude: _____ Elevation: _____ Datum: _____ Data Collection Method: _____		
2 WATER WELL OWNER: <u>Darris Drumsley</u> RR#, St. Address, Box # : <u>2020 Ruger Cir</u> City, State, ZIP Code : <u>Andover</u>				

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N E S	4 DEPTH OF COMPLETED WELL <u>95</u> ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL..... <u>31</u> ft. below land surface measured on mo/day/yr..... Pump test data: Well water was.....ft. after..... hours pumping..... gpm Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well 1 Domestic 3 Feedlot 6 <u>Oil field water supply</u> 9 Dewatering 12 Other (Specify below) 2 Irrigation 4 Industrial <u>Domestic (lawn & garden)</u> 10 Monitoring well Was a chemical/bacteriological sample submitted to Department? Yes No <input checked="" type="checkbox"/> ; If yes, mo/day/yr Sample was submitted..... Water well disinfected? Yes <input checked="" type="checkbox"/> No
--	---

5 TYPE OF CASING USED: 1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) <u>2 PVC</u> 4 ABS 7 Fiberglass Blank casing diameter <u>5</u> in. to <u>9.5</u> ft., Diameter in. to ft., Diameter in. to ft. Casing height above land surface..... <u>1.6</u> in., Weight <u>160</u> lbs./ft. Wall thickness or gauge No. <u>26</u> TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 3 Stainless Steel 5 Fiberglass <u>7 PVC</u> 9 ABS 11 Other (Specify) 2 Brass 4 Galvanized Steel 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot <u>3 Mill slot</u> 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole) 2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify)	CASING JOINTS: Glued... <input checked="" type="checkbox"/> Clamped..... Welded..... Threaded.....
SCREEN-PERFORATED INTERVALS: From... <u>55</u> ft. to <u>95</u> ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From... <u>25</u> ft. to <u>95</u> ft., From ft. to ft. From ft. to ft., From ft. to ft.	

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 4 ft. to 24 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well
Direction from well? north How many feet? 181

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Top Soil			
2	11	Green Shale			
11	39	Blue Shale			
39	46	Limestone			
46	95	Blue Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10.14.06 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 1261 This Water Well Record was completed on (mo/day/year) 11.10.06 under the business name of Chase Drilling by (signature) D. Chase

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well. Visit us at <http://www.kdheks.gov/waterwell/index.html>.

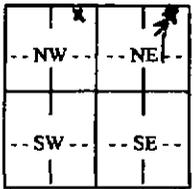
WATER WELL RECORD

Form WWC-5

Division of Water Resources; App. No.

1 LOCATION OF WATER WELL: County: <u>Butler</u>	Fraction <u>NE 1/4 NE 1/4 NW 1/4</u>	Section Number <u>7</u>	Township Number <u>T 27S</u>	Range Number <u>R 30 EW</u>
Distance and direction from nearest town or city street address of well if located within city?		Global Positioning Systems (decimal degrees, min. of 4 digits) Latitude: _____ Longitude: _____ Elevation: _____ Datum: _____ Data Collection Method: _____		

2 WATER WELL OWNER: Darris Shumley
RR#, St. Address, Box # : 2020 Ruger Cir
City, State, ZIP Code : Andover

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N  E S	4 DEPTH OF COMPLETED WELL <u>95</u> ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL..... <u>31</u> ft. below land surface measured on mo/day/yr..... Pump test data: Well water was..... ft. after..... hours pumping..... gpm Est. Yield..... gpm: Well water was..... ft. after..... hours pumping..... gpm WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below) 2 Irrigation 4 Industrial <u>Domestic (lawn & garden)</u> 10 Monitoring well Was a chemical/bacteriological sample submitted to Department? Yes No <input checked="" type="checkbox"/> ; If yes, mo/day/yr Sample was submitted..... Water well disinfected? Yes <input checked="" type="checkbox"/> No
---	---

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
2 PVC 4 ABS 7 Fiberglass Threaded.....
Blank casing diameter 5 in. to 9.5 ft., Diameter in. to ft., Diameter in. to ft.
Casing height above land surface..... 1.6 in., Weight 160 lbs./ft. Wall thickness or gauge No. 26
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass 7 PVC 9 ABS 11 Other (Specify)
2 Brass 4 Galvanized Steel 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot 3 Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From..... 55 ft. to 95 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From..... 25 ft. to 95 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 4 ft. to 24 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well
Direction from well? North How many feet? 181

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Top Soil			
2	11	Green Shale			
11	39	Blue Shale			
39	46	Limestone			
46	95	Blue Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10.14.06 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 16.11 This Water Well Record was completed on (mo/day/year) 11.10.06 under the business name of Chase Drilling by (signature) D. Chase

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well. Visit us at <http://www.kdheks.gov/waterwell/index.html>.

WATER WELL RECORD

Form WWC-5

Division of Water Resources; App. No.

1 LOCATION OF WATER WELL: County: <u>Butler</u>	Fraction <u>NE 1/4 NE 1/4 NW 1/4</u>	Section Number <u>7</u>	Township Number T <u>27S</u>	Range Number R <u>30E</u>
Distance and direction from nearest town or city street address of well if located within city?		Global Positioning Systems (decimal degrees, min. of 4 digits) Latitude: _____ Longitude: _____ Elevation: _____ Datum: _____ Data Collection Method: _____		

2 WATER WELL OWNER: Darris Arimsley
RR#, St. Address, Box # : 2020 Ruger Cir
City, State, ZIP Code : Andover

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table> W E S																	4 DEPTH OF COMPLETED WELL <u>95</u> ft. Depth(s) Groundwater Encountered (1) _____ ft. (2) _____ ft. (3) _____ ft. WELL'S STATIC WATER LEVEL <u>31</u> ft. below land surface measured on mo/day/yr. _____ Pump test data: Well water was _____ ft. after _____ hours pumping. _____ gpm Est. Yield _____ gpm: Well water was _____ ft. after _____ hours pumping. _____ gpm WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well 1 Domestic 3 Feedlot 6 <u>Oil field water supply</u> 9 Dewatering 12 Other (Specify below) 2 Irrigation 4 Industrial <u>Domestic (lawn & garden)</u> 10 Monitoring well _____ Was a chemical/bacteriological sample submitted to Department? Yes _____ No <input checked="" type="checkbox"/> ; If yes, mo/day/yr Sample was submitted _____ Water well disinfected? Yes <input checked="" type="checkbox"/> No _____

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued Clamped _____
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded _____
2 PVC 4 ABS 7 Fiberglass _____ Threaded _____
Blank casing diameter 5 in. to 9.5 ft., Diameter _____ in. to _____ ft., Diameter _____ in. to _____ ft.
Casing height above land surface 16 in., Weight 160 lbs./ft. Wall thickness or gauge No. 26
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass 7 PVC 9 ABS 11 Other (Specify) _____
2 Brass 4 Galvanized Steel 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot 3 Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) _____
SCREEN-PERFORATED INTERVALS: From 55 ft. to 95 ft., From _____ ft. to _____ ft.
From _____ ft. to _____ ft., From _____ ft. to _____ ft.
GRAVEL PACK INTERVALS: From 25 ft. to 95 ft., From _____ ft. to _____ ft.
From _____ ft. to _____ ft., From _____ ft. to _____ ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other _____
Grout Intervals: From 4 ft. to 24 ft., From _____ ft. to _____ ft., From _____ ft. to _____ ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well
Direction from well? north How many feet? 181

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Top Soil			
2	11	Green Shale			
11	39	Blue Shale			
39	46	Limestone			
46	95	Blue Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10.14.06 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 1661 This Water Well Record was completed on (mo/day/year) 11.10.06 under the business name of Chase Drilling by (signature) D. Chase

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well. Visit us at <http://www.kdheks.gov/waterwell/index.html>.

Attachment B

Laboratory Analytical Reports



18-Jun-2012

Sam Jackson
Ash Creek Associates
3015 SW 1st Ave.
Portland, OR 97201

Tel: (503) 924-4704
Fax: (503) 943-6357

Re: Andover Release Site

Work Order: **1206608**

Dear Sam,

ALS Environmental received 1 sample on 15-Jun-2012 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 9.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Kelsey N. Brown

Bethany Agarwal
Project Manager



Certificate No: KS: E-10352

ADDRESS: 10400 State F Rd, Suite 210, Houston, Texas 77039-4936 PHONE: (281) 550-6356 FAX: (281) 551-5607

FOR A COMPLETE LIST OF SERVICES AND LOCATIONS VISIT US AT www.alsglobal.com

Environmental

www.alsglobal.com

RIGHT SOLUTIONS. EVERY TIME. EVERYWHERE.

Client: Ash Creek Associates
Project: Andover Release Site
Work Order: 1206608

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1206608-01	Pipe Product	Liquid		6/14/2012 11:30	6/15/2012 09:20	<input type="checkbox"/>

ALS Environmental

Date: 18-Jun-12

Client: Ash Creek Associates
Project: Andover Release Site
Work Order: 1206608

Case Narrative

Batch 61913, DRO, LCS/LCSD performed as batch quality control.

ALS Environmental

Date: 18-Jun-12

Client: Ash Creek Associates
Project: Andover Release Site
Sample ID: Pipe Product
Collection Date: 6/14/2012 11:30 AM

Work Order: 1206608
Lab ID: 1206608-01
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
EPH - IOWA OA-2			IA OA-2		Prep Date: 6/15/2012	Analyst: KMB
EPH - Diesel Range	110,000		150	mg/Kg	10	6/18/2012 11:11 AM
Surr: 2-Fluorobiphenyl	122		60-135	%REC	10	6/18/2012 11:11 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 18-Jun-12

Client: Ash Creek Associates
 Work Order: 1206608
 Project: Andover Release Site

QC BATCH REPORT

Batch ID: 61913 Instrument ID FID-8 Method: IA OA-2

MBLK		Sample ID: FBLKS1-120615-61913				Units: mg/Kg		Analysis Date: 6/18/2012 10:07 AM			
Client ID:		Run ID: FID-8_120618A				SeqNo: 2823197		Prep Date: 6/15/2012		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
EPH - Diesel Range	ND	510									
<i>Surr: 2-Fluorobiphenyl</i>	89.34	30	99.9	0	89.4	60-135	0				

LCS		Sample ID: FLCSS1-120615-61913				Units: mg/Kg		Analysis Date: 6/18/2012 10:28 AM			
Client ID:		Run ID: FID-8_120618A				SeqNo: 2823199		Prep Date: 6/15/2012		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
EPH - Diesel Range	1060	510	999	0	106	70-130	0				
<i>Surr: 2-Fluorobiphenyl</i>	115.8	30	99.9	0	116	60-135	0				

LCSD		Sample ID: FLCSDS1-120615-61913				Units: mg/Kg		Analysis Date: 6/18/2012 10:50 AM			
Client ID:		Run ID: FID-8_120618A				SeqNo: 2823201		Prep Date: 6/15/2012		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
EPH - Diesel Range	985.8	510	999	0	98.7	70-130	1060	7.22	30		
<i>Surr: 2-Fluorobiphenyl</i>	111.1	30	99.9	0	111	60-135	115.8	4.13	30		

The following samples were analyzed in this batch: 1206608-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
Project: Andover Release Site
WorkOrder: 1206608

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

Sample Receipt Checklist

Client Name: **ASH CREEK -NUSTAR**

Date/Time Received: **15-Jun-12 09:20**

Work Order: **1206608**

Received by: **RNG**

Checklist completed by Raymond N Gamboa 15-Jun-12
eSignature Date

Reviewed by: Bethany Agarwal 15-Jun-12
eSignature Date

Matrices: Liquid

Carrier name: FedEx

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container/Temp Blank temperature in compliance? Yes No
- Temperature(s)/Thermometer(s):
- Cooler(s)/Kit(s):
- Date/Time sample(s) sent to storage:
- Water - VOA vials have zero headspace? Yes No No VOA vials submitted
- Water - pH acceptable upon receipt? Yes No N/A
- pH adjusted? Yes No N/A
- pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Environmental

Chain of Custody Form

Page 1 of 1

COC ID: 48626

- Clin +1
- Evl +1
- For +1

1206608

ASH CREEK -NUSTAR: Ash Creek Associates

Project: Andover Release Site

ALS Project Manager:



Customer Information		Project Information		
Purchase Order		Project Name	Andover Release Site	A
Work Order		Project Number	E3CE-0085	B
Company Name	Ash Creek Associates	Bill To Company	NuStar Energy, L.P.	C
Send Report To	Chris Sheridan <i>San Antonio</i>	Invoice Attn	Renee Robinson	D
Address	3015SW 1st Ave.	Address	2330 North Loop 1604 West	E
City/State/Zip	Portland, OR 97201	City/State/Zip	San Antonio, TX 78278	F
Phone	(503)924-4704	Phone	(210) 918-2723	G
Fax	(503)943-6357	Fax		H
e-Mail Address		e-Mail Address		I
				J

~~8-2-08~~
 GRO (IOWA-OA-1) - Hold
 VOCs - 8260
 DRO - OA-2
 Hold

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Pipe Product	6-14-12	1130	Fuel		8		3	3	2							
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Lab - Pure Fuel product
 no-water

Sampler(s) Please Print & Sign <i>Jeff Wilson</i>		Shipment Method		Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> Std. 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour				Results Due Date <i>Call San Antonio</i>			
Relinquished by: <i>[Signature]</i>	Date: 6-14-12	Time: 1345	Received by:	Notes: 10 Day							
Relinquished by: <i>[Signature]</i>	Date:	Time:	Received by (Laboratory): <i>[Signature]</i> 6/15/12 8:20	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)					
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			<input checked="" type="checkbox"/> Level II Std QC	<input type="checkbox"/> TRRP Checklist				
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₅ 6-NaHSO ₄ 7-Other 8-4°C 9-5035						<input type="checkbox"/> Level III Std QC/Raw Data	<input type="checkbox"/> TRRP Level IV				
						<input type="checkbox"/> Level IV SW846/CLP					
						<input type="checkbox"/> Other / EDD					

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

VIA 1706608

This portion can be removed for Recipient's records.

6-14-12 FedEx Tracking Number 875882544244

Sender's Name: Jeff Wilson Phone: 214 202-5698

Company: Allied Environmental (see Hubs)

Address: 1109 N Taptop Dept./Floor/Room

City: Wichita State: KS ZIP: 67201

or Internal Billing Reference

	ALS Environmental
	10450 Stancliff Rd., Suite 210
	Houston, Texas 77099
	Tel. +1 281 530 5656 Fax. +1 281 530 5887

CUSTODY SEAL		Seal Broken By:
Date: 6-14-12	Time: 1345	AKG
Name: Jeff Wilson	Signature: [Signature]	Date: 6/14/12
Company: ACE		



26-Jun-2012

Sam Jackson
Ash Creek Associates
3015 SW 1st Ave.
Portland, OR 97201

Tel: (503) 924-4704
Fax: (503) 943-6357

Re: Andover Release Site

Work Order: **1206468**

Dear Sam,

ALS Environmental received 2 samples on 13-Jun-2012 09:15 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 21.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Kelsey N. Brown

Bethany Agarwal
Project Manager



Certificate No: KS: E-10352

ADDRESS 10450 Standl.# Rd. Suite 210 Houston, Texas 77099-4666 PHONE 281-550-5156 FAX 281-550-5587

Environmental

www.alsglobal.com

RIGHT SOLUTIONS JOIN TOGETHER

Client: Ash Creek Associates
Project: Andover Release Site
Work Order: 1206468

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1206468-01	2006 Colt	Water		6/12/2012 11:30	6/13/2012 09:15	<input type="checkbox"/>
1206468-02	2006 Colt Product/Water	Liquid		6/12/2012 11:30	6/13/2012 09:15	<input type="checkbox"/>

ALS Environmental

Date: 28-Jun-12

Client: Ash Creek Associates
Project: Andover Release Site
Work Order: 1206468

Case Narrative

Batch 61838, Method EPH OA-2_S, Sample 2006 Colt Product/Water: Surrogate failed to recover due to dilution.

ALS Environmental

Date: 26-Jun-12

Client: Ash Creek Associates

Project: Andover Release Site

Work Order: 1206468

Sample ID: 2006 Colt

Lab ID: 1206468-01

Collection Date: 6/12/2012 11:30 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
EPH - IOWA OA-2			IA OA-2		Prep Date: 6/13/2012	Analyst: KMB
EPH - Diesel Range	2.7		0.10	mg/L	2	6/13/2012 03:00 PM
EPH - Oil Range	ND		0.20	mg/L	2	6/13/2012 03:00 PM
Surr: 2-Fluorobiphenyl	99.9		60-135	%REC	2	6/13/2012 03:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Jun-12

Client: Ash Creek Associates
 Project: Andover Release Site
 Sample ID: 2006 Colt Product/Water
 Collection Date: 6/12/2012 11:30 AM

Work Order: 1206468
 Lab ID: 1206468-02
 Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
EPH - IOWA OA-2			IA OA-2			Prep Date: 6/13/2012 Analyst: KMB
EPH - Diesel Range	120,000		5,100	mg/Kg	10	6/13/2012 07:59 PM
EPH - Oil Range	ND		10,000	mg/Kg	10	6/13/2012 07:59 PM
Surr: 2-Fluorobiphenyl	0	S	60-135	%REC	10	6/13/2012 07:59 PM
METALS			SW6020			Prep Date: 6/19/2012 Analyst: IGF
Lead	ND		0.500	mg/Kg	1	6/21/2012 03:07 AM
Manganese	ND		0.500	mg/Kg	1	6/21/2012 03:07 AM
LOW LEVEL VOLATILES - SW8260C			SW8260			Analyst: AKP
1,1,1-Trichloroethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,1,2,2-Tetrachloroethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,1,2-Trichlor-1,2,2-trifluoroethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,1,2-Trichloroethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,1-Dichloroethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,1-Dichloroethene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,2,3-Trichlorobenzene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,2-Dibromo-3-chloropropane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,2-Dibromoethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,2-Dichlorobenzene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,2-Dichloroethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,2-Dichloropropane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,3-Dichlorobenzene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
1,4-Dichlorobenzene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
2-Butanone	ND		1.0	mg/L	500	6/13/2012 03:14 PM
2-Hexanone	ND		1.0	mg/L	500	6/13/2012 03:14 PM
4-Methyl-2-pentanone	ND		1.0	mg/L	500	6/13/2012 03:14 PM
Acetone	ND		1.0	mg/L	500	6/13/2012 03:14 PM
Benzene	17		0.50	mg/L	500	6/13/2012 03:14 PM
Bromodichloromethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Bromoform	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Bromomethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Carbon disulfide	ND		1.0	mg/L	500	6/13/2012 03:14 PM
Carbon tetrachloride	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Chlorobenzene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Chloroethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Chloroform	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Chloromethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
cis-1,2-Dichloroethene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
cis-1,3-Dichloropropene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Cyclohexane	3.0		0.50	mg/L	500	6/13/2012 03:14 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Jun-12

Client: Ash Creek Associates
Project: Andover Release Site
Sample ID: 2006 Colt Product/Water
Collection Date: 6/12/2012 11:30 AM

Work Order: 1206468
Lab ID: 1206468-02
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibromochloromethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Dichlorodifluoromethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Ethylbenzene	14		0.50	mg/L	500	6/13/2012 03:14 PM
Isopropylbenzene	0.64		0.50	mg/L	500	6/13/2012 03:14 PM
m,p-Xylene	46		1.0	mg/L	500	6/13/2012 03:14 PM
Methyl acetate	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Methyl tert-butyl ether	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Methylcyclohexane	1.1		0.50	mg/L	500	6/13/2012 03:14 PM
Methylene chloride	ND		1.0	mg/L	500	6/13/2012 03:14 PM
Naphthalene	5.2		0.50	mg/L	500	6/13/2012 03:14 PM
o-Xylene	19		0.50	mg/L	500	6/13/2012 03:14 PM
Styrene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Tetrachloroethene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Toluene	91		0.50	mg/L	500	6/13/2012 03:14 PM
trans-1,2-Dichloroethene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
trans-1,3-Dichloropropene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Trichloroethene	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Trichlorofluoromethane	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Vinyl chloride	ND		0.50	mg/L	500	6/13/2012 03:14 PM
Xylenes, Total	65		1.5	mg/L	500	6/13/2012 03:14 PM
<i>Surr: 1,2-Dichloroethane-d4</i>	107		71-125	%REC	500	6/13/2012 03:14 PM
<i>Surr: 4-Bromofluorobenzene</i>	97.9		70-125	%REC	500	6/13/2012 03:14 PM
<i>Surr: Dibromofluoromethane</i>	97.3		74-125	%REC	500	6/13/2012 03:14 PM
<i>Surr: Toluene-d8</i>	95.2		78-123	%REC	500	6/13/2012 03:14 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Jun-12

Client: Ash Creek Associates
 Work Order: 1206468
 Project: Andover Release Site

QC BATCH REPORT

Batch ID: 61816 Instrument ID FID-7 Method: IA OA-2

MBLK Sample ID: FBLKW1-120613-61816 Units: mg/L Analysis Date: 6/13/2012 12:42 PM

Client ID: Run ID: FID-7_120613A SeqNo: 2819258 Prep Date: 6/13/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
EPH - Diesel Range	ND	0.050								
EPH - Oil Range	ND	0.10								
Surr: 2-Fluorobiphenyl	0.1015	0.0050	0.1	0	102	60-135	0			

LCS Sample ID: FLCSW1-120613-61816 Units: mg/L Analysis Date: 6/13/2012 01:13 PM

Client ID: Run ID: FID-7_120613A SeqNo: 2819259 Prep Date: 6/13/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
EPH - Diesel Range	1.091	0.050	1	0	109	70-130	0			
EPH - Oil Range	0.8989	0.10	1	0	89.9	70-130	0			
Surr: 2-Fluorobiphenyl	0.1235	0.0050	0.1	0	124	60-135	0			

LCSD Sample ID: FLCSDW1-120613-61816 Units: mg/L Analysis Date: 6/13/2012 01:34 PM

Client ID: Run ID: FID-7_120613A SeqNo: 2819260 Prep Date: 6/13/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
EPH - Diesel Range	1.253	0.050	1	0	125	70-130	1.091	13.9	20	
EPH - Oil Range	1.034	0.10	1	0	103	70-130	0.8989	14	20	
Surr: 2-Fluorobiphenyl	0.1264	0.0050	0.1	0	126	60-135	0.1235	2.3	20	

MS Sample ID: 1206437-01CMS Units: mg/L Analysis Date: 6/13/2012 06:12 PM

Client ID: Run ID: FID-7_120613A SeqNo: 2819649 Prep Date: 6/13/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
EPH - Diesel Range	1.023	0.050	1	0.002621	102	70-130	0			
EPH - Oil Range	0.9025	0.10	1	0.01184	89.1	70-130	0			
Surr: 2-Fluorobiphenyl	0.1151	0.0050	0.1	0	115	60-135	0			

MSD Sample ID: 1206437-01CMSD Units: mg/L Analysis Date: 6/13/2012 06:33 PM

Client ID: Run ID: FID-7_120613A SeqNo: 2819650 Prep Date: 6/13/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
EPH - Diesel Range	1.099	0.050	1	0.002621	110	70-130	1.023	7.19	20	
EPH - Oil Range	0.9558	0.10	1	0.01184	94.4	70-130	0.9025	5.74	20	
Surr: 2-Fluorobiphenyl	0.1274	0.0050	0.1	0	127	60-135	0.1151	10.1	20	

The following samples were analyzed in this batch: 1206468-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
 Work Order: 1206468
 Project: Andover Release Site

QC BATCH REPORT

Batch ID: 61838 Instrument ID FID-7 Method: IA OA-2

MBLK	Sample ID: FBLKS1-120613-61838	Units: mg/Kg				Analysis Date: 6/13/2012 06:55 PM				
Client ID:	Run ID: FID-7_120613B	SeqNo: 2819651	Prep Date: 6/13/2012	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
EPH - Diesel Range	ND	510								
EPH - Oil Range	ND	1,000								
<i>Surr: 2-Fluorobiphenyl</i>	102.3	30	99.9	0	102	60-135	0			

LCS	Sample ID: FLCSS1-120613-61838	Units: mg/Kg				Analysis Date: 6/13/2012 07:16 PM				
Client ID:	Run ID: FID-7_120613B	SeqNo: 2819652	Prep Date: 6/13/2012	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
EPH - Diesel Range	952	510	999	0	95.3	70-130	0			
EPH - Oil Range	821	1,000	999	0	82.2	70-130	0			J
<i>Surr: 2-Fluorobiphenyl</i>	103	30	99.9	0	103	60-135	0			

LCSD	Sample ID: FLCSDS1-120613-61838	Units: mg/Kg				Analysis Date: 6/13/2012 07:37 PM				
Client ID:	Run ID: FID-7_120613B	SeqNo: 2819653	Prep Date: 6/13/2012	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
EPH - Diesel Range	901.5	510	999	0	90.2	70-130	952	5.45	30	
EPH - Oil Range	773.3	1,000	999	0	77.4	70-130	821	0	30	J
<i>Surr: 2-Fluorobiphenyl</i>	115.4	30	99.9	0	116	60-135	103	11.4	30	

The following samples were analyzed in this batch: 1206468-02B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
 Work Order: 1206468
 Project: Andover Release Site

QC BATCH REPORT

Batch ID: 61975 Instrument ID ICPMS03 Method: SW6020

MBLK		Sample ID: MBLKS2-061912-61975				Units: mg/Kg		Analysis Date: 6/19/2012 06:52 PM		
Client ID:		Run ID: ICPMS03_120619A				SeqNo: 2826013		Prep Date: 6/19/2012		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.05112	0.50								J

LCS		Sample ID: MLCSS2-061912-61975				Units: mg/Kg		Analysis Date: 6/19/2012 06:57 PM		
Client ID:		Run ID: ICPMS03_120619A				SeqNo: 2826014		Prep Date: 6/19/2012		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	9.144	0.50	10	0	91.4	80-120	0			

MS		Sample ID: 1206678-01AMS				Units: mg/Kg		Analysis Date: 6/19/2012 07:23 PM		
Client ID:		Run ID: ICPMS03_120619A				SeqNo: 2826217		Prep Date: 6/19/2012		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	19.76	0.47	9.463	11.25	89.9	75-125	0			

MSD		Sample ID: 1206678-01AMSD				Units: mg/Kg		Analysis Date: 6/19/2012 07:27 PM		
Client ID:		Run ID: ICPMS03_120619A				SeqNo: 2826218		Prep Date: 6/19/2012		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	18.69	0.47	9.359	11.25	79.5	75-125	19.76	5.57	25	

DUP		Sample ID: 1206678-01ADUP				Units: mg/Kg		Analysis Date: 6/19/2012 07:05 PM		
Client ID:		Run ID: ICPMS03_120619A				SeqNo: 2826213		Prep Date: 6/19/2012		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	8.877	0.48	0	0	0	0-0	11.25	23.6	25	

The following samples were analyzed in this batch: 1206468-02B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
 Work Order: 1206468
 Project: Andover Release Site

QC BATCH REPORT

Batch ID: R129430 Instrument ID VOA4 Method: SW8260

MBLK Sample ID: VBLKW-120613-R129430 Units: µg/L Analysis Date: 6/13/2012 10:40 AM

Client ID: Run ID: VOA4_120613A SeqNo: 2818211 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichlor-1,2,2-trifluoroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
2-Butanone	ND	2.0								
2-Hexanone	ND	2.0								
4-Methyl-2-pentanone	ND	2.0								
Acetone	ND	2.0								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	1.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
Methyl acetate	ND	1.0								
Methyl tert-butyl ether	ND	1.0								
Methylcyclohexane	ND	1.0								
Methylene chloride	ND	2.0								
Naphthalene	ND	1.0								
o-Xylene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
Work Order: 1206468
Project: Andover Release Site

QC BATCH REPORT

Batch ID: R129430	Instrument ID VOA4	Method: SW8260						
Styrene	ND	1.0						
Tetrachloroethene	ND	1.0						
Toluene	ND	1.0						
trans-1,2-Dichloroethene	ND	1.0						
trans-1,3-Dichloropropene	ND	1.0						
Trichloroethene	ND	1.0						
Trichlorofluoromethane	ND	1.0						
Vinyl chloride	ND	1.0						
Xylenes, Total	ND	3.0						
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>53.88</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>108</i>	<i>71-125</i>	<i>0</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>47.74</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>95.5</i>	<i>70-125</i>	<i>0</i>	
<i>Surr: Dibromofluoromethane</i>	<i>49.22</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>98.4</i>	<i>74-125</i>	<i>0</i>	
<i>Surr: Toluene-d8</i>	<i>47.86</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>95.7</i>	<i>78-123</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
 Work Order: 1206468
 Project: Andover Release Site

QC BATCH REPORT

Batch ID: R129430 Instrument ID VOA4 Method: SW8260

LCS Sample ID: VLCSW-120613-R129430 Units: µg/L Analysis Date: 6/13/2012 09:51 AM

Client ID: Run ID: VOA4_120613A SeqNo: 2818210 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	56.23	1.0	50	0	112	80-120	0			
1,1,2,2-Tetrachloroethane	47.39	1.0	50	0	94.8	74-123	0			
1,1,2-Trichlor-1,2,2-trifluoroethane	49.42	1.0	50	0	98.8	76-120	0			
1,1,2-Trichloroethane	48.71	1.0	50	0	97.4	80-120	0			
1,1-Dichloroethane	52.04	1.0	50	0	104	80-120	0			
1,1-Dichloroethene	51.39	1.0	50	0	103	80-120	0			
1,2,3-Trichlorobenzene	47.62	1.0	50	0	95.2	79-120	0			
1,2-Dibromo-3-chloropropane	49.28	1.0	50	0	98.6	68-120	0			
1,2-Dibromoethane	51.26	1.0	50	0	103	80-120	0			
1,2-Dichlorobenzene	48.36	1.0	50	0	96.7	80-120	0			
1,2-Dichloroethane	52.95	1.0	50	0	106	79-120	0			
1,2-Dichloropropane	53.46	1.0	50	0	107	80-120	0			
1,3-Dichlorobenzene	47.98	1.0	50	0	96	80-120	0			
1,4-Dichlorobenzene	46.13	1.0	50	0	92.3	80-120	0			
2-Butanone	104.8	2.0	100	0	105	70-133	0			
2-Hexanone	116.1	2.0	100	0	116	66-131	0			
4-Methyl-2-pentanone	113.8	2.0	100	0	114	67-132	0			
Acetone	114.5	2.0	100	0	115	65-135	0			
Benzene	47.89	1.0	50	0	95.8	80-120	0			
Bromodichloromethane	52.37	1.0	50	0	105	80-120	0			
Bromoform	53.12	1.0	50	0	106	70-120	0			
Bromomethane	47.1	1.0	50	0	94.2	63-139	0			
Carbon disulfide	104.5	2.0	100	0	105	80-120	0			
Carbon tetrachloride	54.89	1.0	50	0	110	79-120	0			
Chlorobenzene	46.38	1.0	50	0	92.8	80-120	0			
Chloroethane	50.73	1.0	50	0	101	80-120	0			
Chloroform	49.92	1.0	50	0	99.8	80-120	0			
Chloromethane	49.75	1.0	50	0	99.5	72-127	0			
cis-1,2-Dichloroethene	49.29	1.0	50	0	98.6	80-120	0			
cis-1,3-Dichloropropene	56.27	1.0	50	0	113	79-120	0			
Cyclohexane	53.05	1.0	50	0	106	75-125	0			
Dibromochloromethane	51.81	1.0	50	0	104	74-120	0			
Dichlorodifluoromethane	49.21	1.0	50	0	98.4	72-125	0			
Ethylbenzene	48.42	1.0	50	0	96.8	80-120	0			
Isopropylbenzene	53.74	1.0	50	0	107	80-120	0			
m,p-Xylene	98.78	2.0	100	0	98.8	80-120	0			
Methyl acetate	57.65	1.0	50	0	115	76-122	0			
Methyl tert-butyl ether	53.73	1.0	50	0	107	79-120	0			
Methylcyclohexane	50.08	1.0	50	0	100	79-123	0			
Methylene chloride	50.13	2.0	50	0	100	75-125	0			
Naphthalene	47.91	1.0	50	0	95.8	74-125	0			
o-Xylene	49.45	1.0	50	0	98.9	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
Work Order: 1206468
Project: Andover Release Site

QC BATCH REPORT

Batch ID: R129430	Instrument ID VOA4	Method: SW8260					
Styrene	49.83	1.0	50	0	99.7	78-122	0
Tetrachloroethene	52.18	1.0	50	0	104	80-120	0
Toluene	46.51	1.0	50	0	93	80-121	0
trans-1,2-Dichloroethene	49.78	1.0	50	0	99.6	80-120	0
trans-1,3-Dichloropropene	47.58	1.0	50	0	95.2	76-120	0
Trichloroethene	49.48	1.0	50	0	99	80-120	0
Trichlorofluoromethane	57.09	1.0	50	0	114	72-130	0
Vinyl chloride	55.42	1.0	50	0	111	75-125	0
Xylenes, Total	148.2	3.0	150	0	98.8	80-124	0
<i>Surr: 1,2-Dichloroethane-d4</i>	52.01	1.0	50	0	104	71-125	0
<i>Surr: 4-Bromofluorobenzene</i>	50.42	1.0	50	0	101	70-125	0
<i>Surr: Dibromofluoromethane</i>	50.44	1.0	50	0	101	74-125	0
<i>Surr: Toluene-d8</i>	47.44	1.0	50	0	94.9	78-123	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
 Work Order: 1206468
 Project: Andover Release Site

QC BATCH REPORT

Batch ID: R129430 Instrument ID VOA4 Method: SW8260

MS Sample ID: 1206414-01AMS Units: µg/L Analysis Date: 6/13/2012 03:40 PM

Client ID: Run ID: VOA4_120613A SeqNo: 2819204 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	56.64	1.0	50	0	113	80-120	0			
1,1,2,2-Tetrachloroethane	46.24	1.0	50	0	92.5	74-123	0			
1,1,2-Trichlor-1,2,2-trifluoroethane	52.91	1.0	50	0	106	76-120	0			
1,1,2-Trichloroethane	49.36	1.0	50	0	98.7	80-120	0			
1,1-Dichloroethane	52.44	1.0	50	0	105	80-120	0			
1,1-Dichloroethene	53.33	1.0	50	0	107	80-120	0			
1,2,3-Trichlorobenzene	45.47	1.0	50	0	90.9	79-120	0			
1,2-Dibromo-3-chloropropane	48.06	1.0	50	0	96.1	68-120	0			
1,2-Dibromoethane	51.92	1.0	50	0	104	80-120	0			
1,2-Dichlorobenzene	47.6	1.0	50	0	95.2	80-120	0			
1,2-Dichloroethane	53.85	1.0	50	0	108	79-120	0			
1,2-Dichloropropane	53.96	1.0	50	0	108	80-120	0			
1,3-Dichlorobenzene	47.37	1.0	50	0	94.7	80-120	0			
1,4-Dichlorobenzene	45.6	1.0	50	0	91.2	80-120	0			
2-Butanone	104.4	2.0	100	0	104	70-133	0			
2-Hexanone	120.2	2.0	100	0	120	66-131	0			
4-Methyl-2-pentanone	116.5	2.0	100	0	116	67-132	0			
Acetone	112.3	2.0	100	0	112	65-135	0			
Benzene	48.59	1.0	50	0	97.2	80-120	0			
Bromodichloromethane	52.7	1.0	50	0	105	80-120	0			
Bromoform	52.76	1.0	50	0	106	70-120	0			
Bromomethane	37.35	1.0	50	0	74.7	63-139	0			
Carbon disulfide	106.7	2.0	100	0	107	80-120	0			
Carbon tetrachloride	56.28	1.0	50	0	113	79-120	0			
Chlorobenzene	47.26	1.0	50	0	94.5	80-120	0			
Chloroethane	46.82	1.0	50	0	93.6	80-120	0			
Chloroform	50.56	1.0	50	0	101	80-120	0			
Chloromethane	45.1	1.0	50	0	90.2	72-127	0			
cis-1,2-Dichloroethene	49.43	1.0	50	0	98.9	80-120	0			
cis-1,3-Dichloropropene	54.97	1.0	50	0	110	79-120	0			
Cyclohexane	54.87	1.0	50	0	110	75-125	0			
Dibromochloromethane	51.44	1.0	50	0	103	74-120	0			
Dichlorodifluoromethane	47.08	1.0	50	0	94.2	72-125	0			
Ethylbenzene	49.3	1.0	50	0	98.6	80-120	0			
Isopropylbenzene	55	1.0	50	0	110	80-120	0			
m,p-Xylene	100.9	2.0	100	0	101	80-120	0			
Methyl acetate	56.58	1.0	50	0	113	76-122	0			
Methyl tert-butyl ether	51.79	1.0	50	0	104	79-120	0			
Methylcyclohexane	51.56	1.0	50	0	103	79-123	0			
Methylene chloride	51.03	2.0	50	0	102	75-125	0			
Naphthalene	46.05	1.0	50	0	92.1	74-125	0			
o-Xylene	50.07	1.0	50	0	100	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
Work Order: 1206468
Project: Andover Release Site

QC BATCH REPORT

Batch ID: R129430	Instrument ID VOA4	Method: SW8260						
Styrene	50.15	1.0	50	0	100	78-122	0	
Tetrachloroethene	53.62	1.0	50	0	107	80-120	0	
Toluene	47.98	1.0	50	0	96	80-121	0	
trans-1,2-Dichloroethene	50.37	1.0	50	0	101	80-120	0	
trans-1,3-Dichloropropene	46.09	1.0	50	0	92.2	76-120	0	
Trichloroethene	50.59	1.0	50	0	101	80-120	0	
Trichlorofluoromethane	52.53	1.0	50	0	105	72-130	0	
Vinyl chloride	52.06	1.0	50	0	104	75-125	0	
Xylenes, Total	151	3.0	150	0	101	80-124	0	
<i>Surr: 1,2-Dichloroethane-d4</i>	53	1.0	50	0	106	71-125	0	
<i>Surr: 4-Bromofluorobenzene</i>	51.09	1.0	50	0	102	70-125	0	
<i>Surr: Dibromofluoromethane</i>	50.08	1.0	50	0	100	74-125	0	
<i>Surr: Toluene-d8</i>	47.44	1.0	50	0	94.9	78-123	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
 Work Order: 1206468
 Project: Andover Release Site

QC BATCH REPORT

Batch ID: R129430 Instrument ID VOA4 Method: SW8260

MSD Sample ID: 1206414-01AMSD Units: µg/L Analysis Date: 6/13/2012 04:05 PM

Client ID: Run ID: VOA4_120613A SeqNo: 2819206 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.69	1.0	50	0	107	80-120	56.64	5.34	20	
1,1,2,2-Tetrachloroethane	47.69	1.0	50	0	95.4	74-123	46.24	3.1	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	52.01	1.0	50	0	104	76-120	52.91	1.71	20	
1,1,2-Trichloroethane	48.15	1.0	50	0	96.3	80-120	49.36	2.49	20	
1,1-Dichloroethane	50.2	1.0	50	0	100	80-120	52.44	4.35	20	
1,1-Dichloroethene	52.48	1.0	50	0	105	80-120	53.33	1.61	20	
1,2,3-Trichlorobenzene	46.57	1.0	50	0	93.1	79-120	45.47	2.39	20	
1,2-Dibromo-3-chloropropane	48.71	1.0	50	0	97.4	68-120	48.06	1.35	20	
1,2-Dibromoethane	51.05	1.0	50	0	102	80-120	51.92	1.69	20	
1,2-Dichlorobenzene	47.46	1.0	50	0	94.9	80-120	47.6	0.292	20	
1,2-Dichloroethane	50.65	1.0	50	0	101	79-120	53.85	6.12	20	
1,2-Dichloropropane	51.75	1.0	50	0	103	80-120	53.96	4.18	20	
1,3-Dichlorobenzene	47.11	1.0	50	0	94.2	80-120	47.37	0.543	20	
1,4-Dichlorobenzene	45.97	1.0	50	0	91.9	80-120	45.6	0.806	20	
2-Butanone	103.6	2.0	100	0	104	70-133	104.4	0.802	20	
2-Hexanone	114	2.0	100	0	114	66-131	120.2	5.29	20	
4-Methyl-2-pentanone	109.8	2.0	100	0	110	67-132	116.5	5.87	20	
Acetone	102.9	2.0	100	0	103	65-135	112.3	8.67	20	
Benzene	47.78	1.0	50	0	95.6	80-120	48.59	1.68	20	
Bromodichloromethane	50.85	1.0	50	0	102	80-120	52.7	3.58	20	
Bromoform	51.89	1.0	50	0	104	70-120	52.76	1.65	20	
Bromomethane	42.46	1.0	50	0	84.9	63-139	37.35	12.8	20	
Carbon disulfide	103.6	2.0	100	0	104	80-120	106.7	2.86	20	
Carbon tetrachloride	52.28	1.0	50	0	105	79-120	56.28	7.37	20	
Chlorobenzene	45.19	1.0	50	0	90.4	80-120	47.26	4.48	20	
Chloroethane	48.47	1.0	50	0	96.9	80-120	46.82	3.45	20	
Chloroform	49.14	1.0	50	0	98.3	80-120	50.56	2.87	20	
Chloromethane	47.85	1.0	50	0	95.7	72-127	45.1	5.9	20	
cis-1,2-Dichloroethene	48.34	1.0	50	0	96.7	80-120	49.43	2.24	20	
cis-1,3-Dichloropropene	55.08	1.0	50	0	110	79-120	54.97	0.197	20	
Cyclohexane	52.07	1.0	50	0	104	75-125	54.87	5.23	20	
Dibromochloromethane	50.1	1.0	50	0	100	74-120	51.44	2.62	20	
Dichlorodifluoromethane	48.81	1.0	50	0	97.6	72-125	47.08	3.61	20	
Ethylbenzene	47.88	1.0	50	0	95.8	80-120	49.3	2.93	20	
Isopropylbenzene	52.11	1.0	50	0	104	80-120	55	5.39	20	
m,p-Xylene	97.01	2.0	100	0	97	80-120	100.9	3.91	20	
Methyl acetate	56.59	1.0	50	0	113	76-122	56.58	0.0247	20	
Methyl tert-butyl ether	51.99	1.0	50	0	104	79-120	51.79	0.392	20	
Methylcyclohexane	50.38	1.0	50	0	101	79-123	51.56	2.33	20	
Methylene chloride	50.72	2.0	50	0	101	75-125	51.03	0.612	20	
Naphthalene	47.1	1.0	50	0	94.2	74-125	46.05	2.25	20	
o-Xylene	47.92	1.0	50	0	95.8	80-120	50.07	4.4	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Ash Creek Associates
 Work Order: 1206468
 Project: Andover Release Site

QC BATCH REPORT

Batch ID: R129430	Instrument ID VOA4		Method: SW8260							
Styrene	48.51	1.0	50	0	97	78-122	50.15	3.32	20	
Tetrachloroethene	51.14	1.0	50	0	102	80-120	53.62	4.74	20	
Toluene	46.28	1.0	50	0	92.6	80-121	47.98	3.6	20	
trans-1,2-Dichloroethene	49.37	1.0	50	0	98.7	80-120	50.37	2	20	
trans-1,3-Dichloropropene	45.97	1.0	50	0	91.9	76-120	46.09	0.247	20	
Trichloroethene	49.25	1.0	50	0	98.5	80-120	50.59	2.68	20	
Trichlorofluoromethane	54.62	1.0	50	0	109	72-130	52.53	3.91	20	
Vinyl chloride	53.65	1.0	50	0	107	75-125	52.06	2.99	20	
Xylenes, Total	144.9	3.0	150	0	96.6	80-124	151	4.07	20	
<i>Surr: 1,2-Dichloroethane-d4</i>	50.28	1.0	50	0	101	71-125	53	5.26	20	
<i>Surr: 4-Bromofluorobenzene</i>	48.84	1.0	50	0	97.7	70-125	51.09	4.51	20	
<i>Surr: Dibromofluoromethane</i>	50.06	1.0	50	0	100	74-125	50.08	0.0402	20	
<i>Surr: Toluene-d8</i>	46.81	1.0	50	0	93.6	78-123	47.44	1.33	20	

The following samples were analyzed in this batch:

1206468-02A

Client: Ash Creek Associates
Project: Andover Release Site
WorkOrder: 1206468

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter



Environmental

Chain of Custody Form

Page ___ of ___

COC ID: 48887

- Clr +1
- Evl +1
- For +1

1206468

ASH CREEK -NUSTAR: Ash Creek Associates

Project: Andover Release Site

ALS Project Manager:



Customer Information		Project Information			
Purchase Order		Project Name	Andover Release Site	A	BTEX (IOWA-0A-1)
Work Order		Project Number	E3CE-0065	B	GRO (IOWA-0A-1)
Company Name	Ash Creek Associates	Bill To Company	NuStar Energy, L.P.	C	VOC 8260
Send Report To	Chris Sheridan Sam Jackson	Invoice Attn	Renee Robinson	D	DRO (0A-2)
Address	3015 SW 1st Ave.	Address	2330 North Loop 1804 West	E	SVOC 8270
			PO Box 781609	F	1-extra liter provided
City/State/Zip	Portland, OR 97201	City/State/Zip	San Antonio, TX 78278	G	
Phone	(503) 924-4704	Phone	(210) 918-2723	H	
Fax	(503) 843-6357	Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	#Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	2006 Colt	6-12-12	1130	Water		16		3	3	1	2	1					
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: *Jeff Wilson* Shipment Method: *FedEx PO* Required Turnaround Time: (Check Box) Other 10 WK Days 5 WK Days 2 WK Days 24 Hour Results Due Date: _____

Relinquished by: *John* Date: *6-12-12* Time: *1500* Received by: *John* Date: *6/12/12* Time: *0716* Notes: *Call Sam Jackson for TAT*

Relinquished by: _____ Date: _____ Time: _____ Received by (Laboratory): _____ Cooler ID: _____ Cooler Temp: _____

Logged by (Laboratory): _____ Date: _____ Time: _____ Checked by (Laboratory): _____

QC Package: (Check One Box Below) Level II Std QC TRRP CheckList Level III Std QC/Raw Data TRRP Level IV Level IV SW846/CLP Other / EDD _____

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₃ 7-Other 8-4°C 9-5035

This portion can be removed for Recipient's Records

6-12-12

FedEx Tracking Number

875882544656

W. Off 1206468

Order's name: JEFF Wilson

Phone: 316 262-5698

Company: Allied Environmental Control

Address: 1109 N. Topoka

Dept./Floor/Suite/Room

City: Wichita

State: KS ZIP: 67201

or Internal Billing Reference

CUSTODY SEAL

Seal Broken By:

Date: 6/12/12 Time: 1:50

Name: Jeff Wilson

Date: 6/13/12

Company: AEC



ALS Environmental

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