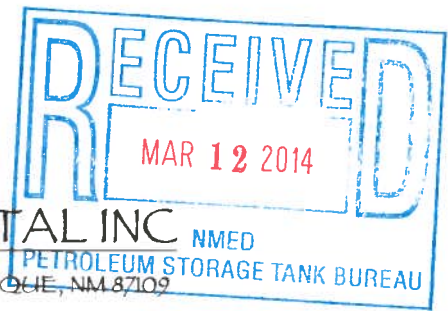




## BROWN ENVIRONMENTAL INC

6739 ACADEMY RD NE STE 254, ALBUQUERQUE, NM 87109

PH (505) 858-1818 FAX (505) 858-0707



March 10, 2014  
Priority Mail

Ms. Renee Romero  
NMED-PSTB  
1914 West 2<sup>nd</sup> Street  
Roswell, NM 88201

**RE: COMPLETION OF DID #16814-1 – INSTALLATION OF FOUR DEEP COMPLETION MONITOR WELLS AT THE ALLSUPS #320 FACILITY LOCATED IN CLOVIS, NEW MEXICO**

Dear Ms. Romero:

On behalf of Allsup Petroleum, Inc. (Allsup), Brown Environmental, Inc. (BEI) recently installed 4 deep completion wells at the above referenced facility in Clovis, New Mexico. Attached are the following documents:

- Explanation key to borehole lithologic logs/well completion diagrams
- Lithologic logs/well completion diagrams for deep wells BW-4, BW-5, BW-6, and BW-7
- Laboratory analytical data for 16 soil samples collected during the drilling event

We appreciate the opportunity to work for Allsup and the New Mexico Environment Department on this project. If you have any questions regarding the material contained herein, please contact us at (505) 858-1818.

Sincerely

**Brown Environmental, Inc.**

William Brown, PG  
Vice President

cc: BEI Allsup 320 file w/attachments

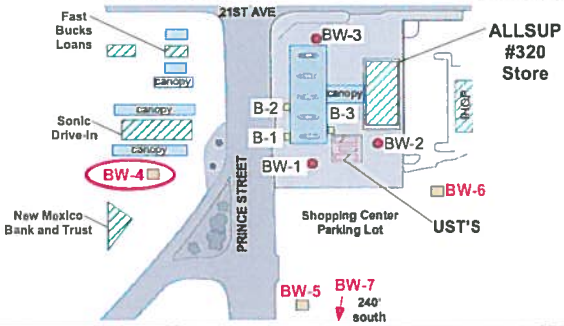
# ALLSUPS #320

CLIENT: Allsup's Petroleum, Inc.

Borehole ID: BW-4

page 1 of 5

DATE OF DRILLING: 2/15/14 - 2/19/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Spilt Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
 Screen: 0.01 slot from 275'-345'  
 w/ 5' blank sump at base to 350'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Information membrane TPH=TPH gas range PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
Concrete			±1.2 no	5	
			±1.1 no	10	
			±0.8 no	15	
			±1.2 no	20	
			±0.4 no	25	
			±1.0 no	30	
			±1.1 no	35	
			±0.4 no	40	
			±0.3 no	45	
			±1.2 no	50	
			±0.8 no	55	
			±0.3 na	60	
				65	
			±0.1 na	70	

Surface Conditions: 0.0'-0.4' Concrete.

**0.4'-5.0' Posthole (SM/SW)** Clayey silty very fine to medium sand, unconsolidated, brown (10YR) fill material.  
**1.0'-4.0' (SM/SC)** Dark brown (10YR) clayey silty very fine to fine sand, non-plastic, slightly moist, no apparent hydrocarbon odor.

**4.0'-14.0' Cuttings (SM/SC)** Clayey silty very fine sand with (SC) silty clayey interbeds, locally weakly plastic, light tan-brown, disseminated calcium carbonate, slightly moist, no apparent hydrocarbon odor.

**14.0'-19.0' Cuttings (SM/SC)** Clayey silty very fine sand, partially calcium carbonate cemented, light brown (10YR), slightly moist, no apparent hydrocarbon odor, sharp transition to:

**19.0'-55.0' Cuttings (SM/ML)** Tan-orange to light brown silt-very fine sand with Stage 2+ to 3 calcium carbonate, hard drilling, slightly moist, no apparent hydrocarbon odor, caliche present in beds/banding, slightly moist, no apparent hydrocarbon odor.

**50.0'** Driller having to add water to prevent damage to hammer seals.

**55.0'-67.0' Cuttings** Caliche, Stage 3-4 in beds with (SM/ML) to (SM) matrix, light tan brown (10YR), hard drilling.

**66.0'-75.0' Cuttings (SM/ML)** Silt-very fine sand with Stage 3 calcium carbonate, light tan-very light brown, no apparent hydrocarbon odor, minor calcium carbonate at top, easier drilling than above.



## BROWN ENVIRONMENTAL, INC

6759 ACADEMY ROAD, NE, SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 856-1818 FAX: (505) 856-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-4

page 2 of 5

DATE OF DRILLING: 2/15/14 - 2/19/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
 Screen: 0.01 slot from 275'-345'  
 w/ 5' blank sump at base to 350'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample benzene TPH+TPH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet) Sample Interval	Simplified Lithology
				75	
				±0.3 no	
				80	
				±0.2 no	
				85	
				±0.3 no	
				90	
				±0.2 no	
				95	
				±0.1 no	
				100	
				±0.2 no	
				105	
				±0.3 no	
				110	
				±0.7 no	
				115	
				±1.3 no	
				120	
				±1.2 no	
				125	
				±0.8 no	
				130	
				±1.6 no	
				135	
				±0.8 no	
				140	
				±1.3 no	
				145	

**75.0'-94.0' Cuttings (SM)** Light brown silty very fine sand, unconsolidated, no apparent hydrocarbon odor, minor calcium carbonate at top.

**94.0'-101.0' Cuttings (SM/SP)** Tan-brown (10YR) very fine to medium sand with trace silt, coarser grained than above, unconsolidated with localized calcium carbonate cemented nodules, no apparent hydrocarbon odor.

**101.0'-125.0' Cuttings (SM)** Tan-brown (10YR) silty very fine to fine sand - finer grained than above, unconsolidated with minor localized calcium carbonate cemented nodules ≤5mm across.

**121.0'-122.5' Split Spoon** 1.5' sample. 0.0'-1.5' (SM) (10YR) Tan-brown silty very fine to fine sand, unconsolidated, no apparent hydrocarbon odor, massive, some moisture.

End of drilling 2/15/14.

**125.0'-129.0' Cuttings (SM/ML)** Silty very fine sand, unconsolidated, no apparent hydrocarbon odor, minor calcium carbonate cemented small concretions, finer grained than surrounding.

**129.0'-154.0' Cuttings (SM)** Tan-brown silty very fine sand, unconsolidated, slightly moist, no apparent hydrocarbon odor.



## BROWN ENVIRONMENTAL, INC

6739 ACADEMY ROAD, NE, SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-4

page 3 of 5

DATE OF DRILLING: 2/15/14 - 2/19/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV.: na  
 DEPTH TO WATER: ~324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
 Screen: 0.01 slot from 275'-345'  
 w/ 5' blank sump at base to 350'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Description TPH=TPH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
	6% 94% Bentonite Cement Grout (2 lifts)			150		
				21.2 no	155	
				22.1 no	160	
				22.1 no	165	
				21.6 no	170	
				21.7 no	175	
				21.6 no	180	
	10% 90% Bentonite Cement Grout (2 lifts)			20.2 no	185	
				21.4 no	190	
				20.0 no	195	
				20.4 no	200	
		2/16/14 BW-4 202' (SM) 19.38 B=ND M=ND T=ND TPH=ND		20.8 no	205	
				20.9 no	205	
				21.2 no	210	
				21.1 no	220	
	6% 94% Bentonite Cement Grout (2 lifts)			20.0 no		

**154.0'-170.0' Cuttings (SM/ML)** Silty fine sand, greater silt than above or below, (10YR) tan-brown, localized calcium carbonate nodules, no apparent hydrocarbon odor.

**170.0'-203.0' Cuttings (SM)** Tan to brown (10YR) very fine to fine sand, unconsolidated, no apparent hydrocarbon odor, no calcium carbonate nodules, slightly moist.

Stopped adding water during drilling at 170'

**201.0'-202.5' Split Spoon** 1.5' sample. Entire core is (SM) tan-brown (10YR) silty very fine to fine sand, slightly moist, massive, unconsolidated, no apparent hydrocarbon odor.

**203.0'-206.0' Cuttings** Thin beds of (ML/SC) clayey silt-sand, light brown (10YR), soft, non plastic, cuttings in clumps to 2" across, also (SM) tan-brown silty very fine sand, unconsolidated, no apparent hydrocarbon odor, slightly moist to moist - more moisture than above.

< 206' Driller adding water again >

< 215' stopped adding water >

**215.0'-270.0' Cuttings** Fairly moist as in borehole BW-5, no water being added.

**206.0'-245.0' Cuttings (SM)** Tan-brown (10YR) silty very fine sand, unconsolidated, some moisture, no apparent hydrocarbon odor, portions border on (SM/ML) and are finer grained with greater silt content, gradational lower contact.



## BROWN ENVIRONMENTAL, INC

6799 ACADEMY ROAD, NE SUITE 234, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.  
Borehole ID: BW-4

page 4 of 5

DATE OF DRILLING: 2/15/14 - 2/19/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
 Screen: 0.01 slot from 275'-345'  
 w/ 5' blank sump at base to 350'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/ Monitor Well Construction	Laboratory Sample Parameters TPH:TPH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Simplified Lithology
10%/90% Bentonite Cement Grout (2 lifts)				225	
				230	
				235	
				240	
6%/94% Bentonite Cement Grout (2 lifts)				245	
				250	
				255	
3/8" Bentonite Pellets (Hydrated)				260	
				265	
				270	
				275	
10-20 Silica Sand				280	
				285	
0.01 Slot 5" Dia. Sched 80 PVC Screen				290	
				295	
				300	
				305	
				310	
				315	
				320	
				325	
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				900	
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				910	
				915	
				920	
				925	
				930	
				935	
				940	
				945	
				950	
				955	
				960	
				965	
				970	
				975	
				980	
				985	
				990	
				995	
				1000	

206.0'-245.0' **Cuttings** (SM) Tan-brown (10YR) silty very fine sand, unconsolidated, some moisture, no apparent hydrocarbon odor, portions border on (SM/ML) and are finer grained with greater silt content, gradational lower contact.

241'-242.5' **Split Spoon** 1.5' sample. Entire core is (SM/ML) tan-brown (10YR) silty very fine sand, well sorted, massive, almost moist, no apparent hydrocarbon odor.

245.0'-253.0' **Cuttings** (SM/ML) Tan-brown (10YR) silt very fine sand, finer grained than surrounding, some moisture, unconsolidated, no apparent hydrocarbon odor, trace calcium carbonate cemented nodules.

253.0'-307.0' **Cuttings** (SM) Silty very fine to fine sand as above, some moisture, no apparent hydrocarbon odor, localized calcium carbonate cemented, concretions below ~265'.

< Very windy on site >

281.0' -282.5' **Split Spoon** 1.5' sample. 0.0'-1.5' (SM) Light tan-brown (10YR) silty very fine sand, slightly moist, moderate hydrocarbon odor at top decreases with depth, unconsolidated, massive.

301' Let borehole equilibrate for 110 minutes before collecting split spoon, strong gasoline hydrocarbon odor in sample, borehole venting at 450 ppm/v.



**BROWN ENVIRONMENTAL, INC**  
 6799 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1616 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-4

page 5 of 5

DATE OF DRILLING: 2/15/14 - 2/19/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: ~324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
 Screen: 0.01 slot from 275'-345'  
 w/ 5' blank sump at base to 350'  
 SURFACE COMPLETION: 12"x12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Information Borezone TPH+TPH gas range PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Simplified Lithology
10-30 Silica Sand	0.01 Slot Screen 5" Dia. Sched 80 PVC	2/17/14 BW-4 322' (SM,ML) 8.50 B+ND M+ND T+ND TPH+ND	3387 so 339 mo 20.1 no 20.2 no 20.0 no 20.1 no 25.2 no 21.7 no 21.3 no 20.6 no 21.6 no 21.1 no 20.9 no	<p>301.0'-302.5' <b>Split Spoon</b> 1.5' sample. Entire core is (SM) tan to brown (10YR) silty very fine sand, some moisture, massive, moderate weathered hydrocarbon odor at top - decreases with depth.</p> <p>-321' Blowdown on hole = 327 ppm/v</p> <p>-307.0'-333.0' <b>Cuttings</b> (SM) Tan brown silty very fine with calcium carbonate cemented nodules, unconsolidated, some moisture increasing with depth.</p> <p>321' Stopped drilling for 2/16/14 @17:15</p> <p>321.0'-322.5' <b>Split Spoon</b> 1.5' sample. Entire core is (SM) tan-brown silty very fine to fine sand, unconsolidated, moist - especially at base, several 1" to 1.5" sized irregular calcium carbonate cemented (SAS) nodules, massive, no apparent hydrocarbon odor.</p> <p>&lt; 2/17/14 @ 9:14 Blowdown on hole @ 321' = 0.8 ppm/v &gt;</p> <p>Cuttings very moist to wet below 328'</p> <p>330.0'-342.0' <b>Cuttings</b> (SM) Silty very fine sand, with thin interbeds of calcium carbonate cemented fine sandstone (SAS), cuttings are moist to wet, no apparent hydrocarbon odor.</p> <p>342.0'-351.0' <b>Cuttings</b> (SM) and (SM/ML) Interbeds, finer grained than above, cuttings are soupy-water saturated, having trouble getting returns, (10YR) light tan to brown, no apparent hydrocarbon odor.</p> <p>351.0'-354.0' <b>Cuttings</b> (SAS) Very fine sandstone with some silt, calcium carbonate cemented, no apparent hydrocarbon odor.</p> <p>354.0'-355.0' <b>Cuttings</b> (SM) silty very fine sand. Cuttings are soupy-water saturated, having trouble getting returns, (10YR) light tan to brown, no apparent hydrocarbon odor.</p> <p>total depth = 355'</p>



## BROWN ENVIRONMENTAL, INC

6799 ACADEMY ROAD, NE SUITE 234, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

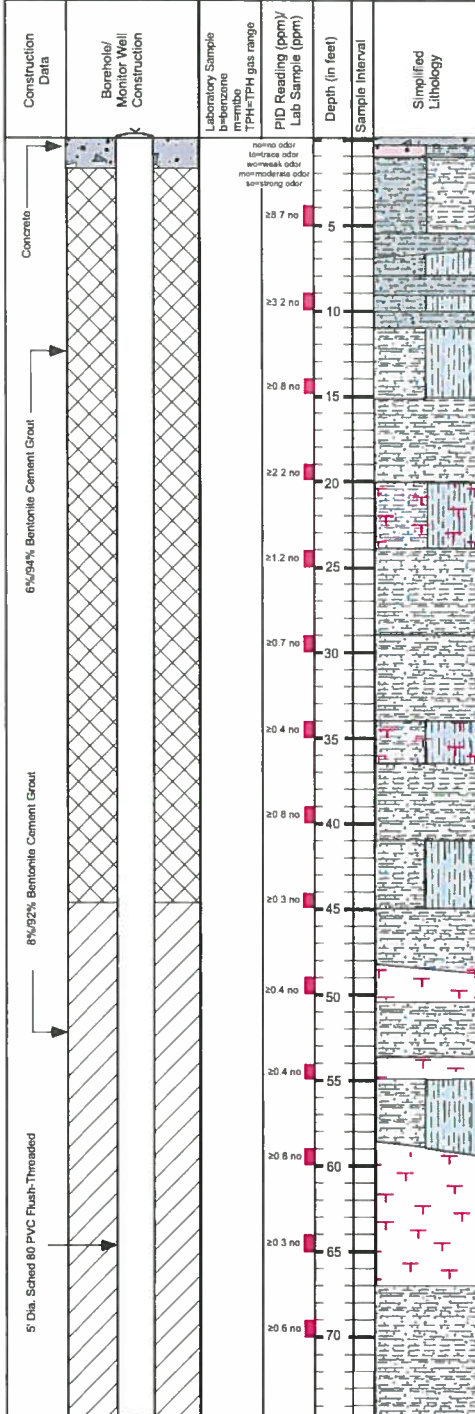
Borehole ID: BW-5

page 1 of 5

DATE OF DRILLING: 2/11/14 - 2/15/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV.: na  
 DEPTH TO WATER: ~324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-273.5'  
 Screen: 0.01 slot from 273.5'-348.5'  
 w/ 5' blank sump at base to 353.5'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION



**Surface Conditions:** 0.0'-0.3' Asphalt.

**0.3'-1.0' Cuttings (SW/SC)** Clayey silty sand, fill material.

**1.0'-5.5' Cuttings (SC/SM)** Dark brown clayey silty very fine to fine sand, moist to slightly moist, no apparent hydrocarbon odor.

**5.5'-11.0' Cuttings (SC)** silt-very fine sand-clay, weakly plastic, interbedded with (SC/ML) clayey silty very fine sand, moist to slightly moist, no apparent hydrocarbon odor.

**11.0'-16.0' Cuttings (SM/ML)** Silt - very fine sand (10YR) brown with trace clay coarsening with depth grading to (SM) silty very fine sand, unconsolidated.

**16.0'-20.0' Cuttings (SM)** Silty very fine sand (10YR), slightly moist, no apparent hydrocarbon odor.

**20.0'-24.0' Cuttings (SM/ML)** Tan-white (10YR) silt - very fine sand, with Stage 3 calcium carbonate cement **hard drilling**, no apparent hydrocarbon odor.

**24.0'-29.0' Cuttings (SM)** Light brown-tan (10YR) silty very fine sand with trace calcium carbonate, slightly moist, no apparent hydrocarbon odor, unconsolidated.

**29.0'-33.0' Cuttings (SM)** with Stage 2 calcium carbonate cement.

**33.0'-60.0' Cuttings (SM)** with (SM/ML) zones and interbeds to Stage 2+ to 3 calcium carbonate - color varies from brown (10YR) to light tan-white (10YR), slightly moist.

**60.0'-67.0' Cuttings (SM)** Caliche zone, dense Stage 4 calcium carbonate grading to Stage 3 at base with (SM/ML) silt - very fine sand matrix, no apparent hydrocarbon odor, light tan-white grades to:

**67.0'-72.0' Cuttings (SM)** Tan - brown, silty very fine sand with Stage 2 to 1+ calcium carbonate decreasing with depth, slightly moist, unconsolidated, no apparent hydrocarbon odor.



## BROWN ENVIRONMENTAL, INC

6739 ACADEMY ROAD, NE. SUITE 234, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 856-1818 FAX: (505) 856-0707

# ALLSUPS #320

CLIENT: Allsup's Petroleum, Inc.

Borehole ID: BW-5

page 2 of 5

DATE OF DRILLING: 2/11/14 - 2/15/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/ Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-273.5'  
 Screen: 0.01 slot from 273.5'-348.5'  
 w/ 5' blank sump at base to 353.5'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample b-benzene TPH-TPH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
				75		<p><b>72.0'-115.0' Cuttings (SM)</b> Tan-light brown silty very fine to fine sand, well sorted, fairly moist, unconsolidated, no apparent hydrocarbon odor, trace calcium carbonate nodules at top.</p> <p><b>121.0'-122.5' Split Spoon (SM/ML)</b> Tan-brown silt-very fine sand, finer grained than surrounding, some moisture, weak horizontal stratification, some calcium carbonate-cemented (SAS) sandstone nodules.</p> <p><b>Begin drilling @ 13:40 2/12/14 after rig repair</b></p> <p><b>115.0'-126.0' Cuttings (SM/ML)</b> Light brown (10YR) silt-very fine sand, unconsolidated, slightly moist, no apparent hydrocarbon odor, gradational boundaries.</p> <p><b>126.0'-143.0' Cuttings (SM)</b> Tan brown (10YR), silty very fine to fine sand, some moisture, unconsolidated, trace calcium carbonate cemented nodules, no apparent hydrocarbon odor.</p> <p><b>143.0'-149.0' Cuttings (SM/ML)</b> As above, slightly moist, unconsolidated, no apparent hydrocarbon odor, silt-very fine sand, well sorted.</p>
				80	±0.3 no	
				85	±0.2 no	
				90	±0.4 no	
				95	±0.1 no	
				100	±0.2 no	
				105	±0.1 no	
				110	±0.3 no	
				115	±0.4 no	
				120	±0.3 no	
				125	±0.2 no	
				130	±0.1 no	
				135	±1.1 no	
				140	±0.4 no	
				145	±0.6 no	

6%92% Bentonite Cement Grout (2 lbs)

6%94% Bentonite Cement Grout (2 lbs)

2/12/14  
 BW 5  
 122'  
 (S/M/ML)  
 13:40  
 B=ND  
 M=ND  
 T=ND  
 TPH=ND



**BROWN ENVIRONMENTAL, INC**  
 6739 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707



# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-5

page 3 of 5

DATE OF DRILLING: 2/11/14 - 2/15/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-273.5'  
 Screen: 0.01 slot from 273.5'-348.5'  
 w/ 5' blank sump at base to 353.5'

SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Parameters: Benzene, TPHs, PH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
				150		
				20.2 no		
				20.0 no		
				21.0 no		
				20.1 no		
				20.2 no		
				20.4 no		
				20.4 no		
				20.2 no		
				20.4 no		
				20.2 no		
				20.4 no		
				20.7 no		
				22.0 no		
				20.3 no		
				21.0 no		
				20.4 no		
				20.2 no		
				20.8 no		
6% 94% Bentonite Cement Grout (2 lifts)						
6% 82% Bentonite Cement Grout (2 lifts)						
6% 94% Bentonite Cement Grout						
						<p><b>149.0'-186.0' Cuttings (SM)</b> Tan brown (10YR) silty very fine to fine sand, unconsolidated, some moisture, no apparent hydrocarbon odor, several localized (SM/ML) intervals with greater silt content.</p> <p><b>161.0'-162.5' Split Spoon (SM)</b> Tan (10YR) silty very fine to fine sand, some moisture, unconsolidated, no apparent hydrocarbon odor.</p> <p><b>162' Blowdown on hole = 0.2 ppm/v</b></p> <p><b>186.0'-198.0' Cuttings (SM)</b> Silty very fine sand, tan to brown (10YR) as above, some moisture, no apparent hydrocarbon odor, grades to.</p> <p><b>198.0'-216.0' Cuttings (SM/ML)</b> As described below in split spoon.</p> <p><b>201.0'-202.5' Split Spoon</b> 1.5' sample. Entire core is (SM/ML) silty very fine sand, no clay, unconsolidated, massive, some moisture, no apparent hydrocarbon odor.</p> <p><b>&lt; 202.5' Blowdown on holes 0.0 ppm/v &gt;</b></p> <p><b>&lt; 204-255 Sediments with higher moisture content. &gt;</b></p> <p><b>216.0'-230.0' Cuttings (SM)</b> Silty very fine to fine sand, slightly coarser than above with less silt, fairly moist. No apparent hydrocarbon odor.</p>



## BROWN ENVIRONMENTAL, INC

6799 ACADEMY ROAD, NE, SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 838-1818 FAX: (505) 838-0707

# ALLSUPS #320

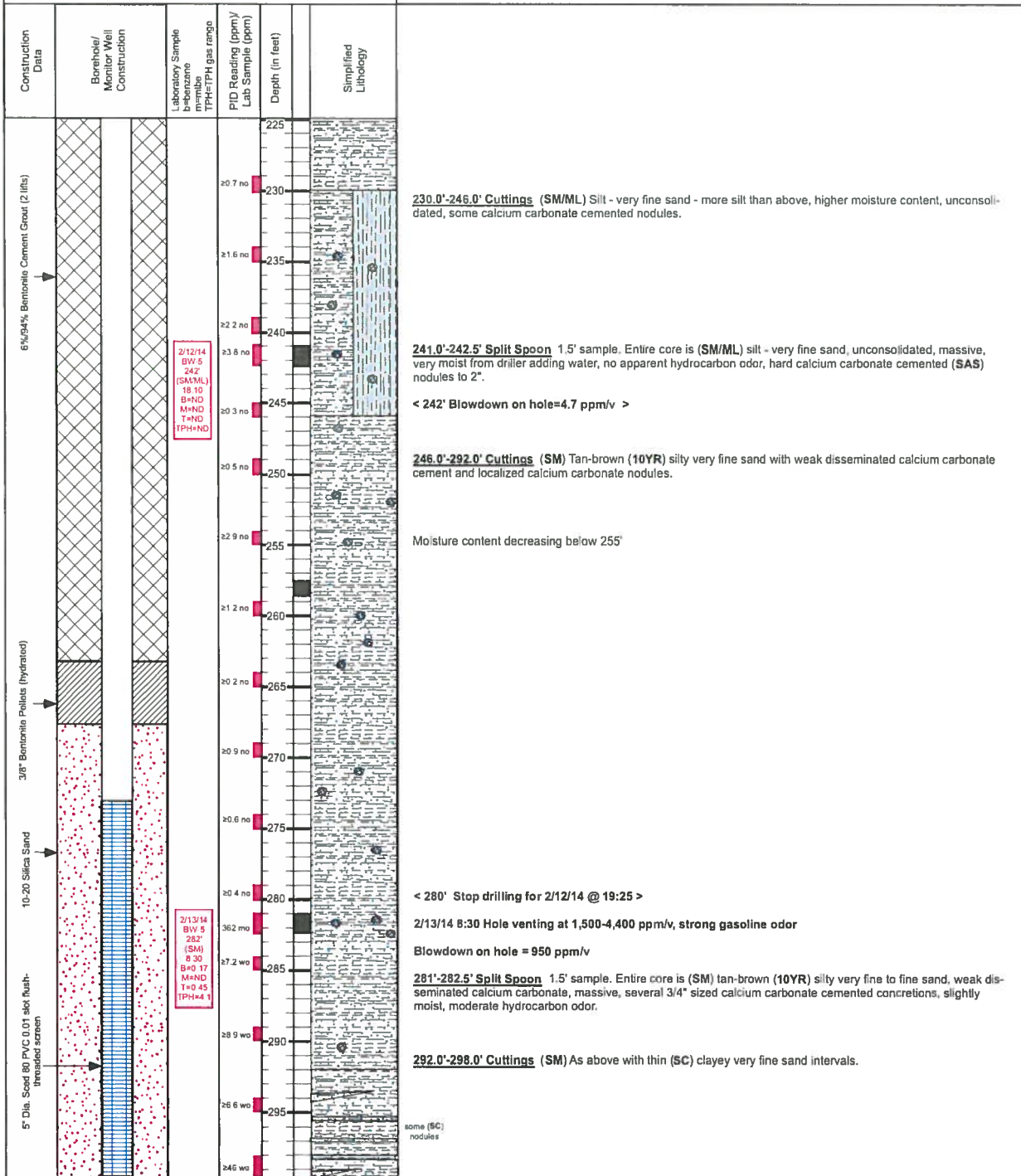
CLIENT: Allsup's Petroleum, Inc.  
Borehole ID: BW-5

page 4 of 5

DATE OF DRILLING: 2/11/14 - 2/15/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Spill Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-273.5'  
 Screen: 0.01 slot from 273.5'-348.5'  
 w/ 5' blank sump at base to 353.5'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION



**BROWN ENVIRONMENTAL, INC**  
 6799 ACADEMY ROAD, NE, SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.  
Borehole ID: BW-5

page 5 of 5

DATE OF DRILLING: 2/11/14 - 2/15/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/ Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 347'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-273.5'  
 Screen: 0.01 slot from 273.5'-348.5'  
 w/ 5' blank sump at base to 353.5'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Data Benzene TPH:TPH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Simplified Lithology
10-20 Silica Sand				28.2 wo	305
				29.5 mo	310
		2/13/14 BW 5 322 (SM)W1 11.55 B=ND M=ND T=ND X=ND TPH=ND		317.7 mo	315
				224.3 mo	320
				215.5 mo	320
5" Dia. Sched 80 PVC 0.01 slot flush-threaded screen		1st SPT: 277 mo 2nd SPT: 23,300 viso		148 ppm/v	325
		2/13/14 BW 5 322 (SM)W2 13.55 B=ND M=ND T=ND X=5.8 TPH=121		125 mo	325
Blank Sump 5' Long with end cap				26.4 wo	330
				25.7 wo	335
				22.8 wo	340
				21.7 no	345
				20.5 no	350
				20.9 no	355
					360 total depth = 358.0
					365
					370
					375
					380
					385
					390
					395
					400
					405
					410
					415
					420
					425
					430
					435
					440
					445
					450
					455
					460
					465
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					805
					810
					815
					820
					825
					830
					835
					840
					845
					850
					855
					860
					865
					870
					875
					880
					885
					890
					895
					900
					905
					910
					915
					920
					925
					930
					935
					940
					945
					950
					955
					960
					965
					970
					975
					980
					985
					990
					995
					1000

300.0'-345.0' Cuttings (SM) Silty very fine sand with localized calcium carbonate cemented concretions, hydrocarbon odor strong between -310' and 324' depth, decreases rapidly below water at -324', cuttings very moist below 328' depth, driller adding water below this zone to prevent plugging.

310' Cyclone vapor levels to 400 ppm/v, strong weatherized gas odor, OBZ 55 ppm/v, wind coming up also.

314' Cyclone 128 ppm/v OBZ 54 ppm/v

321.0'-322.5' Split Spoon 1st spoon collected @ 11.55. Entire core is (SM) silty very fine to fine sand, massive with trace calcium carbonate cement, slightly moist, moderate hydrocarbon odor, turpene-like odor.

321.0'-322.5' Split Spoon 2nd spoon collected @ 13.55. Geology same as 1st sample, hydrocarbon odor much stronger after letting hole sit for 2 hours.

Collected two set of lab samples - one on each spoon.

325' Cyclone off gas = 2,200 ppm/v OBZ 54 ppm/v

330.0'-342.0' Blowdown - 320 ppm/v

345.0'-358.0' Cuttings (SM) Silty very fine sand, water saturated with thin (SAS) very fine sand stone/siltstone layers, possible (SM/SC) clayey silty very fine sand intervals also, cuttings soupy.



## BROWN ENVIRONMENTAL, INC

6799 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-6

page 1 of 5

DATE OF DRILLING: 2/8/14 - 2/11/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Spit Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 355'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
 Screen: 0.01 slot from 275'-345'  
 w/ 5' blank sump at base to 350'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Data TPH-TPH gas range PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet) Sample Interval	Simplified Lithology	Description
					<b>Surface Conditions:</b> 0.0'-0.3' Asphalt.
			0.3' no		<b>0.3'-1.0' Cuttings</b> (SW) silty fine to coarse sand.
			1.0' no		<b>1.0'-5.5' Cuttings</b> (SW/SM) Silty gravelly very fine to fine sand, light brown, slightly moist, no apparent hydrocarbon odor, ~10% coarse sand and gravel clasts.
			5.5' no		<b>5.5'-13.0' Cuttings</b> (ML/SC) Clayey silty very fine sand, weakly plastic, slightly moist, reddish-brown (7.5 YR), no apparent hydrocarbon odor, calcium carbonate stringers at base.
			13.0' no		<b>13.0'-17.0' Cuttings</b> (SM/ML) Reddish brown silty very fine sand, unconsolidated.
			17.0' no		<b>17.0'-23.0' Cuttings</b> (ML/SC) Silty clayey very fine sand mixture, slightly moist, plastic, some calcium carbonate, no apparent hydrocarbon odor.
			23.0' no		<b>23.0'-29.0' Cuttings</b> (SM) to (SM/ML) silty very fine sand with ~Stage 2+ calcium carbonate locally, cuttings are light reddish-white, grades to:
			29.0' no		<b>29.0'-36.0' Cuttings</b> (SM) Silty very fine sand, well sorted (7.5YR) reddish-brown, slightly moist, no apparent hydrocarbon odor, calcium carbonate.
			36.0' no		<b>36.0'-45.0' Cuttings</b> (SM/ML) with Stage 2+ to 3 calcium carbonate, light tan-white, hard drilling, no apparent hydrocarbon odor, sharp lower contact.
			45.0' no		<b>45.0'-60.0' Cuttings</b> (SM) Silty very fine to fine sand, reddish-brown (7.5YR) moist to slightly moist, occasional calcium carbonate nodules, no apparent hydrocarbon odor.
			60.0' no		<b>60.0'-66.0' Cuttings</b> (SM/ML) Silty very fine sand with Stage 1+ to 2+ calcium carbonate, tan-white brown, no apparent hydrocarbon odor, slightly moist, likely carbonate is variable.
			66.0' no		<b>66.0'-76.0' Cuttings</b> Caliche Stage 3 to 4 calcium carbonate, hard drilling, matrix is (SM/ML), white-tan, no apparent hydrocarbon odor, drillers adding water to keep dust down in this zone.

6% 94% Bentonite Cement Grout



## BROWN ENVIRONMENTAL, INC

6799 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-6

page 2 of 5

DATE OF DRILLING: 2/8/14 - 2/11/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 355'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
 Screen: 0.01 slot from 275'-345'  
 w/ 5' blank sump at base to 350'  
 SURFACE COMPLETION: 12"x12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Parameters Benzene TPH:TPH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
6%94% Bentonite Cement Grout (3 lifts)				75		
				±0.2 no		
				±0.7 no		
				±0.5 no		
				±1.2 no		
10%90% Bentonite Cement Grout (3 lifts)				±0.8 no		
				±1.2 no		
				±0.2 no		
				±0.3 no		
				±0.2 no		
				±0.1 no		
				±0.6 no		
				±0.1 no		
				±0.2 no		
				±0.1 no		
				±0.2 no		
				±0.1 no		
				±0.1 no		

2/8/14  
 BW-6  
 122'  
 (SM)  
 13.50  
 B=ND  
 M=ND  
 T=ND  
 TPH=ND

**76.0'-130.0' Cuttings (SM)** Silty very fine sand, unconsolidated, (10YR) brown, no apparent hydrocarbon odor, moist, occasional small calcium carbonate nodule, slightly moist to moist.

**121.0'-122.5' Split Spoon** 1.5' sample. (10YR) Silty very fine to fine sand, massive, weak calcium carbonate cement at base with localized calcium carbonate nodules, slightly moist, no apparent hydrocarbon odor.  
 < After hole sat 150 minutes blew out with air - 1.7 ppm/v on PID, no apparent hydrocarbon odor. >

**130.0'-146.0' Cuttings (SM)** Very fine to fine sand, well sorted with some silt (10YR) light tan-brown, slightly moist - less than above, no apparent hydrocarbon odor, finer grained than above, well sorted.



## BROWN ENVIRONMENTAL, INC

6799 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1888 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-6

page 3 of 5

DATE OF DRILLING: 2/8/14 - 2/11/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: ~324'  
 TOTAL DEPTH: 355'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
 Screen: 0.01 slot from 275'-345'  
 w/ 5' blank sump at base to 350'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Description TPH-%PH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Sample Interval	Simplified Lithology
				150		
				20.2 no	155	
				20.2 no	160	
				20.6 no	162	
				20.2 no	165	
				20.1 no	170	
				20.1 no	175	
				20.1 no	180	
				20.1 no	185	
				20.8 no	190	
				20.2 no	195	
				20.1 no	200	
				20.0 no	205	
				20.0 no	210	
				20.0 no	215	
				20.1 no	220	
				20.0 no		

146.0'-165.0' **Cuttings** (SM) Silty very fine to fine sand, slightly coarser than above with less silt, (10YR) light tan-brown, slightly moist to moist, no apparent hydrocarbon odor.

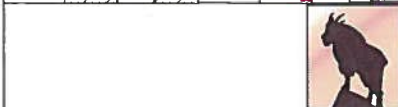
161.0'-162.5' **Split Spoon** 1.5' sample. 0.0'-1.5' (SM) Brown (10YR) silty very fine sand, well sorted, slightly moist, massive, no apparent hydrocarbon odor, trace calcium carbonate nodules.

162' **Blowdown** on hole after 30 minutes = 0.1 ppm/v, no apparent hydrocarbon odor

165.0'-241.0' **Cuttings** (SM) As above but more moisture, unconsolidated, no apparent hydrocarbon odor, light brown (10YR) little variation in cuttings throughout interval.

201.0'-202.5' **Split Spoon** 1.5' sample. 0.0'-1.5' (SM) Tan brown (10YR) silty very fine sand, unconsolidated with localized 3% ≤1 cm sized rounded calcium carbonate cemented nodules.

< Let hole sit 35 minutes-blowdown=PID = 0.2 ppm/v, no apparent hydrocarbon odor >



**BROWN ENVIRONMENTAL, INC**  
 6799 ACADEMY ROAD, NE SUITE 234, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-6

page 4 of 5

DATE OF DRILLING: 2/8/14 - 2/9/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 355'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
 Screen: 0.01 slot from 275'-345'  
 w/ 5' blank sump at base to 350'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Benzene TPH:TPH gas range PID Reading (ppm) Lab Sample (ppm)	Depth (in feet)	Simplified Lithology
6% 92% Bentonite Cement Grout (trimmed in place)			225	
			230	
			235	
			240	
		2/9/14 BW-6 242' (SM) 7.40 B=ND M=ND T=ND TPHHND	241.0	
6% 94% Bentonite Cement Grout (trimmed in place)			245	
			250	
			255	
			260	
			265	
3' Bentonite Chips (hydrated)			270	
			275	
			280	
		2/9/14 BW-6 281.5' (SM) 9.48 B=ND M=ND T=ND TPHHND	281.0	
10-20 Silica Sand			285	
			290	
			295	
0.01 Slot Screen 5" Dia. Sched 80 PVC				

241' Stop drilling for 2/8/14 @ 18:15

8:00 2/9/14 - Initial blowdown on hole after letting sit since 18:15 last night - PID = 6.5 ppm/v

241.0'-242.5' Split Spoon 1.5' sample. 0.0'-1.5' (SM) Silty very fine sand, unconsolidated, slightly moist, minor disseminated calcium carbonate, massive, occasional s5mm calcium carbonate cemented sand nodule.

241.0'-260.0' Cuttings (SM) Tan-brown, silty very fine to fine, some massive localized calcium carbonate cemented small sand nodules to 0.5 cm, no apparent hydrocarbon odor, cuttings uniform in nature with little variation.

260.0'-266.0' Cuttings (SM/ML) Silt to very fine sand mixture, finer grained and drier than above, unconsolidated.

266.0'-305.0' Cuttings (SM) Tan-brown (10YR) silty very fine sand, unconsolidated with increasing carbonate cemented nodules with depth, localized harder drilling zones, localized siltier zones also (SM/ML).

281.0'-282.5' Split Spoon 1.5' sample 0.0'-1.5' (SM) Silty very fine sand, tan-brown (10YR) some moisture, mostly unconsolidated with prominent dense calcium carbonate cemented (SAS) sandstone nodules to 2" across, sub-rounded white gray, 20% of interval, no apparent hydrocarbon odor.

Blowdown on hole 280' depth = 0.8 ppm/v



**BROWN ENVIRONMENTAL, INC**  
 6739 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 838-1868 FAX: (505) 838-0707

# ALLSUPS #320

CLIENT: Allsup's Petroleum, Inc.

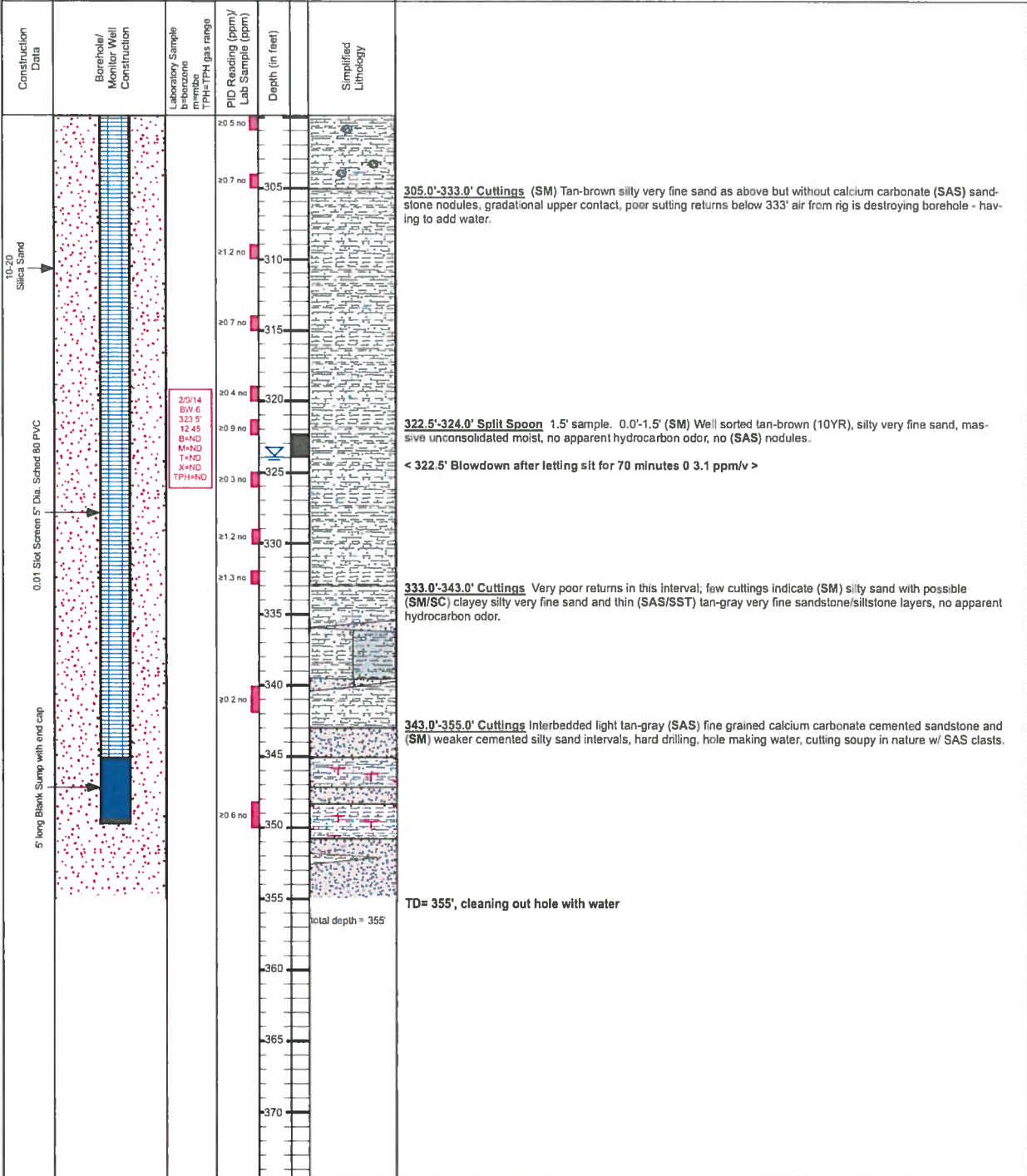
Borehole ID: BW-6

page 5 of 5

DATE OF DRILLING: 2/8/14 - 2/9/14  
LOGGED BY: WJB  
DRILLER: John Chavez-Yellow Jacket Drilling  
BOREHOLE DIAMETER: 9 5/8" Nominal  
DRILLING METHOD: ARCH  
SAMPLING METHOD: Cuttings/Split Spoon  
TOP OF CASING ELEV.: na  
DEPTH TO WATER: ~324'  
TOTAL DEPTH: 355'  
SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-275'  
Screen: 0.01 slot from 275'-345'  
w/ 5' blank sump at base to 350'  
SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION



**BROWN ENVIRONMENTAL, INC**

6759 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
PHONE: (505) 858-1818 FAX: (505) 858-0707



# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-7

page 1 of 5

DATE OF DRILLING: 2/25/14 - 3/2/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 354'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-284'  
 Screen: 0.01 s'/ot from 284'-349'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Information pH-TPH gas range	PID Reading (ppm) Lab Sample (ppm)	Depth (in feet) Sample Interval	Simplified Lithology
Concrete		no odor strong odor weak odor moderate odor strong odor		0-5'	
6%BA% Bentonite Cement Grout				5-10'	
				10-15'	
				15-20'	
				20-25'	
				25-30'	
				30-35'	
				35-40'	
				40-45'	
				45-50'	
				50-55'	
				55-60'	
				60-65'	
				65-70'	
				70-75'	
				75-80'	
				80-85'	
				85-90'	
				90-95'	
				95-100'	
				100-105'	
				105-110'	
				110-115'	
				115-120'	
				120-125'	
				125-130'	
				130-135'	
				135-140'	
				140-145'	
				145-150'	
				150-155'	
				155-160'	
				160-165'	
				165-170'	
				170-175'	
				175-180'	
				180-185'	
				185-190'	
				190-195'	
				195-200'	
				200-205'	
				205-210'	
				210-215'	
				215-220'	
				220-225'	
				225-230'	
				230-235'	
				235-240'	
				240-245'	
				245-250'	
				250-255'	
				255-260'	
				260-265'	
				265-270'	
				270-275'	
				275-280'	
				280-285'	
				285-290'	
				290-295'	
				295-300'	
				300-305'	
				305-310'	
				310-315'	
				315-320'	
				320-325'	
				325-330'	
				330-335'	
				335-340'	
				340-345'	
				345-350'	
				350-354'	
10%BA% Bentonite Cement Grout					

**Surface Conditions:** 0-0.3' Broken asphalt.

**0.3'-1.0' Cuttings (SM/SW)** Silty very fine - medium sand with minor coarse sand, fill.

**1.0'-5.5' Cuttings (SM/ML)** Silty very fine sand with minor clay, brown (10YR), slightly moist, no apparent hydrocarbon odor.

**5.5'-11.0' Cuttings (ML/CL)** Tan-brown (10YR), very fine sandy silt-clay, soft, plastic, moist with some calcium carbonate locally, no apparent hydrocarbon odor.

**11.0'-21.0' Cuttings (SM/ML)** Silt-very fine sand, (10YR) light brown-tan, several localized (SM/SC) clayey silty very fine sand, non plastic, minor disseminated calcium carbonate, slightly moist, no apparent hydrocarbon odor.

**21.0'-25.0' Cuttings (SM/ML)** Light brown tan silty very fine sand, unconsolidated, slightly moist, no clay, no apparent hydrocarbon odor, grades to:

**25.0'-37.0' Cuttings (SM)** Silty very fine sand (10YR) tan-brown with increasing calcium carbonate below 30', unconsolidated, slightly moist, no apparent hydrocarbon odor.

**37' Hard drilling**

**37.0'-58.0' Cuttings (SM)** Silty very fine sand with localized (SM/ML) siltier zones, localized and variable pedogenic carbonate in bands/layers, Stage 1+ to 3, slightly moist, locally unconsolidated.

**58.0'-65.0' Cuttings (SM/ML)** Caliche interval, hard laminar to massive Stage 3 to 3+ calcium carbonate, matrix (SM/ML), hard drilling.

**65.0'-73.0' Cuttings (SM)** Silty very fine with variable calcium carbonate cement but less than above, Stage 1+ to 2 calcium carbonate, slightly moist, no apparent hydrocarbon odor, mostly unconsolidated, light brown tan.



## BROWN ENVIRONMENTAL, INC

6799 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-7

page 2 of 5

DATE OF DRILLING: 2/25/14 - 3/2/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV.: na  
 DEPTH TO WATER: ~324'  
 TOTAL DEPTH: 354'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-284'  
 Screen: 0.01 slot from 284'-349'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample b-benzene m-methyl TPH+TPH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet) Sample Interval	Simplified Lithology
10%/90% Bentonite Cement Grout (3 lifts)				75	
10%/90% Bentonite Cement Grout (3 lifts)				±2.4 no	80
10%/90% Bentonite Cement Grout (3 lifts)				±0.2 no	85
10%/90% Bentonite Cement Grout (3 lifts)				±0.4 no	90
6%/94% Bentonite Cement Grout (3 lifts)				±0.5 no	95
6%/94% Bentonite Cement Grout (3 lifts)				±0.2 no	100
6%/94% Bentonite Cement Grout (3 lifts)				±0.9 no	105
6%/94% Bentonite Cement Grout (3 lifts)				±0.3 no	110
6%/94% Bentonite Cement Grout (3 lifts)				±0.5 no	115
6%/94% Bentonite Cement Grout (3 lifts)				±0.3 no	120
6%/94% Bentonite Cement Grout (3 lifts)				±0.1 no	121
6%/94% Bentonite Cement Grout (3 lifts)				±0.2 no	125
6%/94% Bentonite Cement Grout (3 lifts)				±0.5 no	130
6%/94% Bentonite Cement Grout (3 lifts)				±0.9 no	135
6%/94% Bentonite Cement Grout (3 lifts)				±1.3 no	140
6%/94% Bentonite Cement Grout (3 lifts)				±0.1 no	145

2/25/14  
 BW-7  
 122'  
 (SM)  
 15.00  
 B+ND  
 M+ND  
 T+ND  
 TPH+ND

**73.0'-151.0' Cuttings (SM) (10YR)** Brown-tan silty very fine to fine sand, unconsolidated, calcium carbonate absent, no apparent hydrocarbon odor, appears massive, fairly moist throughout interval, locally siltier or slightly coarse sand.

**105-150** Calcium carbonate cemented nodules present.

**121.0'-122.5' Split Spoon** 1.5' sample. Entire core is (SM) tan-brown (10YR) silty very fine to fine sand, massive, unconsolidated, moderate moisture, no apparent hydrocarbon odor.

**121'** Blowdown on hole after split spoon sampling - 0.4 ppm/v

**146.0'-165.0' Cuttings (SM)** Silty very fine to fine sand, slightly coarser than above with less silt, (10YR) light tan-brown, slightly moist to moist, no apparent hydrocarbon odor.



## BROWN ENVIRONMENTAL, INC

6799 ACADEMY ROAD, NE, SUITE 234, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.  
Borehole ID: BW-7

page 3 of 5

DATE OF DRILLING: 2/25/14 - 3/2/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV.: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 354'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-284'  
 Screen: 0.01 slot from 284'-349'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample Benzene TPH+PH gas range	PID Reading (ppm)/ Lab Sample	Depth (in feet)	Sample Interval	Simplified Lithology
10%/90% Bentonite Cement Grout (trimmed in place)				150		
				20.4 no	155	
				20.3 no	160	
				24.5 no	165	
				20.7 no	165	
				21.1 no	170	
				21.6 no	175	
				20.1 no	180	
				20.2 no	185	
				20.2 no	190	
				195		
				200		
				20.0 no	200	
				20.1 no	205	
				210		
				20.5 no	215	
				20.8 no	220	
				21.0 no		

**151.0'-156.0' Cuttings (SM/ML)** Silty very fine sand, unconsolidated (?), more silt than above or below with gradational contacts, slightly moist, no apparent hydrocarbon odor.

**156.0'-160.0' Cuttings (SM)** Same as above.

**160.0'-161.0' Cuttings (SM/ML)** As below.

**161.0'-162.5' Split Spoon** 1.5' sample. Entire core is (SM/ML) tan brown silty very fine sand, weakly unconsolidated with calcium carbonate disseminated cement, abundant calcium carbonate nodules in upper 2/3 to 1" across, some moisture, no apparent hydrocarbon odor.

< 161' Blowdown on hole - 0.2 ppm/v >

**162.5'-166.5' Cuttings (SM/ML)** As in split spoon, concretions present along with disseminated calcium carbonate.

**166.5'-198.0' Cuttings (SM)** Tan-brown (10YR) silty very fine sand as above, some moisture, unconsolidated (?), no apparent hydrocarbon odor, localized concretions.

**201' Stop drilling for 2/25/14 @ 18:30**

**201.0'-202.5' Split Spoon** Collected after letting hole sit overnight. 1.5' sample. 0.0'-1.5' Entire core is (SM/ML) Silty very fine sand, tan-brown (10YR) weakly consolidated with disseminated calcium carbonate cement, large 2" calcium carbonate nodules in shoe, moderate moisture.

**202.5'-208.0' Cuttings (SM/ML)** Silty very fine sand, greater silt than surrounding sediments, no apparent hydrocarbon odor.

**208.0'-324.0' Cuttings (SM)** Tan-brown (10YR), silty very fine to fine sand, moderate moisture, weakly consolidated to unconsolidated, no apparent hydrocarbon odor, moderate moisture, more localized zones with greater silt/very fine sand or with lesser silt. Localized calcium carbonate cemented nodules.

2/28/14  
BW-7  
202  
(SAZ/ML)  
S TO  
B=ND  
M=ND  
T=NO  
TPH=ND



## BROWN ENVIRONMENTAL, INC

6799 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup's Petroleum, Inc.  
Borehole ID: BW-7

page 4 of 5

DATE OF DRILLING: 2/25/14 - 3/2/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 354'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-284'  
 Screen: 0.01 slot from 284'-349'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/Monitor Well Construction	Laboratory Sample b-benzene TPH=TPH gas range	PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Simplified Lithology
				225	
				21.0 no	
				230	
				20.8 no	
				235	
				240	
				22.2 no	
				245	
				20.8 no	
				250	
				20.6 no	
				255	
				21.1 no	
				260	
				20.5 no	
				265	
				23.1 no	
				270	
				22.6 no	
				275	
				23.2 no	
				280	
				22.9 no	
				285	
				25.3 no	
				290	
				24.3 no	
				295	
				23.1 no	
				300	
				24.9 no	
				305	
				23.1 no	
				310	
				315	
				320	
				325	
				330	
				335	
				340	
				345	
				350	
				354	

206.0'-324.0' Cuttings (SM) Tan-brown (10YR), silty very fine to fine sand, moderate moisture, weakly consolidated to unconsolidated, no apparent hydrocarbon odor, moderate moisture, more localized zones with greater silt/very fine sand with lesser silt, localized calcium carbonate cemented concretions.

< 241.5' Blowdown on hole 5.3 ppm/v >

241.0'-242.5' Split Spoon 1.5' sample. Entire core is (SM) tan brown (10YR) silt very fine sand, unconsolidated, no concretions, moderate moisture, no apparent hydrocarbon odor.

~ 250'-260' Siltier, slightly finer grained.

250.0'-252.0' Cuttings Driller having to add water due to plugging of hammer/hoses with cuttings.

< 270'-285' Abundant calcium carbonate nodules.

281.0'-282.5' Split Spoon 1.5' sample. Entire core is (SM) tan-brown (10YR) silty very fine to fine sand, unconsolidated, moderate to slightly moist, some  $\leq 1$ " calcium carbonate cemented nodules, trace hydrocarbon odor.

281' Blowdown on hole after 140 minutes = 280 ppm/v moderate to strong hydrocarbon odor

Concretions decline below -285'.

6% 94% Bentonite Cement Grout

3/8" Bentonite Chips (hydrated)

10-20 Silica Sand

0.01 Slot Screen 5" Dia. Sched 80 PVC

2/27/14  
BW-7  
282'  
(SM)  
13.40  
B=0.037  
M=ND  
I=0.040  
TPH=ND



**BROWN ENVIRONMENTAL, INC**

6759 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
PHONE: (505) 858-1818 FAX: (505) 858-0707

# ALLSUPS #320

CLIENT: Allsup Petroleum, Inc.

Borehole ID: BW-7

page 5 of 5

DATE OF DRILLING: 2/25/14 - 3/2/14  
 LOGGED BY: WJB  
 DRILLER: John Chavez-Yellow Jacket Drilling  
 BOREHOLE DIAMETER: 9 5/8" Nominal  
 DRILLING METHOD: ARCH  
 SAMPLING METHOD: Cuttings/ Split Spoon  
 TOP OF CASING ELEV: na  
 DEPTH TO WATER: -324'  
 TOTAL DEPTH: 354'  
 SCREEN INTERVAL: Casing: 5" Sched 80 PVC from 0-284'  
 Screen: 0.01 slot from 284'-349'  
 SURFACE COMPLETION: 12"X12" Manway w/Concrete Pad



## USCS - LITHOLOGIC DESCRIPTION

Construction Data	Borehole/ Monitor Well Construction	Laboratory Sample number TPH: TPH gas range PID Reading (ppm)/ Lab Sample (ppm)	Depth (in feet)	Simplified Lithology
10-20 Silica Sand			23.1 no -305	
			23.8 no -310	
			22.9 no -315	
			23.2 no -320	
			22.1 no -325	
			22.2 no -330	
			21.6 no -335	
			20.8 no -340	
			20.4 no -345	
			20.4 no -350	
			20.1 no -355	
			total depth = 354'	
0.01 Slot Screen 5" Dia. Sched 80 PVC		2/28/14 BW-7 322 (GM) 7.40 B=0.13 M=ND T=0.16 X=0.082 TPH+ND		<p><b>321.0'-322.5' Split Spoon</b> 1.5' sample. Entire core is (SM) tan brown (10YR) silty very fine to fine sand, moderate moisture, unconsolidated, moderate to strong degraded hydrocarbon odor-variable in nature, some calcium carbonate nodules at top of drive.                      Note: bottom of drive has greater hydrocarbon odor.</p> <p>15:38 depth = 321' Stop drilling for today, let hole equilibrate.</p> <p>16:07 Hole Venting at 130 ppm/v                      17:10 Hole venting at 290 ppm/v                      19:10 Hole venting at 402 ppm/v</p> <p>321' Blowdown on hole next morning at 9:32 = 397 ppm/v</p> <p>325' Cuttings are very moist, weak hydrocarbon odor from cyclone.</p> <p><b>324.0'-336.0' Cuttings (SM)</b> Tan-brown as above but with thin (SC/SM) clayey zones and abundant calcium carbonate concretions, moist to wet.</p> <p><b>336.0'-346.0' Cuttings (SM)</b> Tan-brown (10YR) silty very fine to fine sand, water saturated, no apparent hydrocarbon odor with interbeds of weakly cemented (SM/ML) with trace clay, also minor calcium carbonate concretions.</p> <p><b>346.0'-349.5' Cuttings (SAS)</b> Light tan-gray very fine sandstone, hard drilling, broken at base.</p> <p><b>349.5'-354.0' Cuttings (SM/ML)</b> Silty very fine sand intervals with (SM/SC) clayey very fine sand intervals, water saturated, (10YR) Tan-light brown.</p>
End Cap				



## BROWN ENVIRONMENTAL, INC

6739 ACADEMY ROAD, NE SUITE 254, ALBUQUERQUE, NEW MEXICO 87109  
 PHONE: (505) 858-1818 FAX: (505) 858-0707



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

February 14, 2014

Bill Brown

Brown Environmental Inc.  
6739 Academy Road NE Suite 254  
Albuquerque, NM 87109  
TEL: (505) 934-7707  
FAX (505) 858-0707

RE: Allsups #320

OrderNo.: 1402464

Dear Bill Brown:

Hall Environmental Analysis Laboratory received 5 sample(s) on 2/12/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc.  
**Project:** Allsups #320  
**Lab ID:** 1402464-001

**Client Sample ID:** BW-6-122' (SM)  
**Collection Date:** 2/8/2014 1:50:00 PM  
**Received Date:** 2/12/2014 4:02:00 PM

**Matrix:** MEOH (SOIL)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	3.4		mg/Kg	1	2/13/2014 10:39:01 PM	R16746
Surr: BFB	82.9	74.5-129		%REC	1	2/13/2014 10:39:01 PM	R16746
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.069		mg/Kg	1	2/13/2014 10:39:01 PM	R16746
Benzene	ND	0.034		mg/Kg	1	2/13/2014 10:39:01 PM	R16746
Toluene	ND	0.034		mg/Kg	1	2/13/2014 10:39:01 PM	R16746
Ethylbenzene	ND	0.034		mg/Kg	1	2/13/2014 10:39:01 PM	R16746
Xylenes, Total	ND	0.069		mg/Kg	1	2/13/2014 10:39:01 PM	R16746
Surr: 4-Bromofluorobenzene	91.4	80-120		%REC	1	2/13/2014 10:39:01 PM	R16746

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Brown Environmental Inc.

Client Sample ID: BW-6-242' (SM)

Project: Allsups #320

Collection Date: 2/9/2014 7:40:00 AM

Lab ID: 1402464-002

Matrix: MEOH (SOIL)

Received Date: 2/12/2014 4:02:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	3.3		mg/Kg	1	2/13/2014 11:07:35 PM	R16746
Surr: BFB	83.0	74.5-129		%REC	1	2/13/2014 11:07:35 PM	R16746
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.067		mg/Kg	1	2/13/2014 11:07:35 PM	R16746
Benzene	ND	0.033		mg/Kg	1	2/13/2014 11:07:35 PM	R16746
Toluene	ND	0.033		mg/Kg	1	2/13/2014 11:07:35 PM	R16746
Ethylbenzene	ND	0.033		mg/Kg	1	2/13/2014 11:07:35 PM	R16746
Xylenes, Total	ND	0.067		mg/Kg	1	2/13/2014 11:07:35 PM	R16746
Surr: 4-Bromofluorobenzene	90.8	80-120		%REC	1	2/13/2014 11:07:35 PM	R16746

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		



**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc.  
**Project:** Allsups #320  
**Lab ID:** 1402464-003

**Client Sample ID:** BW-6-281.5' (SM)  
**Collection Date:** 2/9/2014 9:48:00 AM  
**Received Date:** 2/12/2014 4:02:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	2/13/2014 11:36:08 PM	R16746
Surr: BFB	82.5	74.5-129		%REC	1	2/13/2014 11:36:08 PM	R16746
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.071		mg/Kg	1	2/13/2014 11:36:08 PM	R16746
Benzene	ND	0.036		mg/Kg	1	2/13/2014 11:36:08 PM	R16746
Toluene	ND	0.036		mg/Kg	1	2/13/2014 11:36:08 PM	R16746
Ethylbenzene	ND	0.036		mg/Kg	1	2/13/2014 11:36:08 PM	R16746
Xylenes, Total	ND	0.071		mg/Kg	1	2/13/2014 11:36:08 PM	R16746
Surr: 4-Bromofluorobenzene	89.9	80-120		%REC	1	2/13/2014 11:36:08 PM	R16746

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc.  
**Project:** Allsups #320  
**Lab ID:** 1402464-004

**Client Sample ID:** BW-6-323.5' (SM)  
**Collection Date:** 2/9/2014 12:45:00 PM  
**Received Date:** 2/12/2014 4:02:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	2.9		mg/Kg	1	2/14/2014 12:04:38 AM	R16746
Surr: BFB	82.0	74.5-129		%REC	1	2/14/2014 12:04:38 AM	R16746
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.058		mg/Kg	1	2/14/2014 12:04:38 AM	R16746
Benzene	ND	0.029		mg/Kg	1	2/14/2014 12:04:38 AM	R16746
Toluene	ND	0.029		mg/Kg	1	2/14/2014 12:04:38 AM	R16746
Ethylbenzene	ND	0.029		mg/Kg	1	2/14/2014 12:04:38 AM	R16746
Xylenes, Total	ND	0.058		mg/Kg	1	2/14/2014 12:04:38 AM	R16746
Surr: 4-Bromofluorobenzene	88.8	80-120		%REC	1	2/14/2014 12:04:38 AM	R16746

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc.  
**Project:** Allsups #320  
**Lab ID:** 1402464-005

**Client Sample ID:** MEOH BLANK  
**Collection Date:**  
**Received Date:** 2/12/2014 4:02:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/14/2014 12:33:09 AM	R16746
Surr: BFB	83.6	74.5-129		%REC	1	2/14/2014 12:33:09 AM	R16746
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	2/14/2014 12:33:09 AM	R16746
Benzene	ND	0.050		mg/Kg	1	2/14/2014 12:33:09 AM	R16746
Toluene	ND	0.050		mg/Kg	1	2/14/2014 12:33:09 AM	R16746
Ethylbenzene	ND	0.050		mg/Kg	1	2/14/2014 12:33:09 AM	R16746
Xylenes, Total	ND	0.10		mg/Kg	1	2/14/2014 12:33:09 AM	R16746
Surr: 4-Bromofluorobenzene	91.4	80-120		%REC	1	2/14/2014 12:33:09 AM	R16746

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1402464

14-Feb-14

Client: Brown Environmental Inc.

Project: Allsups #320

Sample ID	MB-11696 MK	SampType	MBLK	TestCode	EPA Method 8015D: Gasoline Range					
Client ID	PBS	Batch ID	R16746	RunNo	16746					
Prep Date	2/12/2014	Analysis Date	2/13/2014	SeqNo	482053	Units	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	800		1000		79.8	74.5	129			

Sample ID	LCS-11696 MK	SampType	LCS	TestCode	EPA Method 8015D: Gasoline Range					
Client ID	LCSS	Batch ID	R16746	RunNo	16746					
Prep Date	2/12/2014	Analysis Date	2/13/2014	SeqNo	482054	Units	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	71.7	134			
Surr: BFB	850		1000		85.5	74.5	129			

## Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1402464

14-Feb-14

**Client:** Brown Environmental Inc.

**Project:** Allsup #320

Sample ID	MB-11696 MK	SampType	MBLK	TestCode	EPA Method 8021B: Volatiles					
Client ID	PBS	Batch ID	R16746	RunNo	16746					
Prep Date		Analysis Date	2/13/2014	SeqNo	482085	Units	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.86		1.000		86.0	80	120			

Sample ID	LCS-11696 MK	SampType	LCS	TestCode	EPA Method 8021B: Volatiles					
Client ID	LCSS	Batch ID	R16746	RunNo	16746					
Prep Date		Analysis Date	2/13/2014	SeqNo	482086	Units	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.78	0.10	1.000	0	78.3	64.5	131			
Benzene	1.0	0.050	1.000	0	101	80	120			
Toluene	1.0	0.050	1.000	0	105	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.0	0.10	3.000	0	101	80	120			
Surr: 4-Bromofluorobenzene	0.92		1.000		92.4	80	120			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

**Sample Log-In Check List**

Client Name: Brown Env

Work Order Number: 1402464

RcptNo: 1

Received by/date: AG 02/12/14

Logged By: Lindsay Mangin 2/12/2014 4:02:00 PM *Lindsay Mangin*

Completed By: Lindsay Mangin 2/13/2014 8:09:06 AM *Lindsay Mangin*

Reviewed By: TO 02/13/2014

**Chain of Custody**

1. Custody seals intact on sample bottles? Yes  No  Not Present
2. Is Chain of Custody complete? Yes  No  Not Present
3. How was the sample delivered? Client

**Log In**

4. Was an attempt made to cool the samples? Yes  No  NA
5. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA
6. Sample(s) in proper container(s)? Yes  No
7. Sufficient sample volume for indicated test(s)? Yes  No
8. Are samples (except VOA and ONG) properly preserved? Yes  No
9. Was preservative added to bottles? Yes  No  NA
10. VOA vials have zero headspace? Yes  No  No VOA Vials
11. Were any sample containers received broken? Yes  No
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes  No
13. Are matrices correctly identified on Chain of Custody? Yes  No
14. Is it clear what analyses were requested? Yes  No
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes  No

# of preserved bottles checked for pH: \_\_\_\_\_  
 (<2 or >12 unless noted)  
 Adjusted? \_\_\_\_\_  
 Checked by: \_\_\_\_\_

**Special Handling (if applicable)**

16. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified: \_\_\_\_\_ Date: \_\_\_\_\_  
 By Whom: \_\_\_\_\_ Via:  eMail  Phone  Fax  In Person  
 Regarding: \_\_\_\_\_  
 Client Instructions: \_\_\_\_\_

17. Additional remarks:

**18. Cooler Information**

Cooler No.	Temp. C.	Condition	Seal Intact	Seal No.	Seal Date	Signed By
1	2.1	Good	Not Present			

Client: BROWN ENVIRONMENTAL INC  
6239 TRADITION RD NE  
 Mailing Address: SUITE 259  
ALBUQUERQUE, NM 87109

Phone #: 505 858-1818  
 email or Fax#: 505 858-0707

QA/QC Package:  Level 4 (Full Validation)  
 Standard  
 Accreditation  NELAP  Other  
 EDD (Type)

Project Manager: WILLIAM BROWN  
 Project #: 1077  
 Sampler: W. BROWN

On Ice:  Yes  No  
 Sample Temperature: 2-1

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
2/8/14	13:50	SOIL	BW-6-122 (5m)	2 202 MESH AND L + 1 502 MR		1402404
2/9/14	7:40	"	BW-6-242 (5m)	"	"	-001
2/9/14	9:48	"	BW-6-281.5 (5m)	"	"	-002
2/9/14	12:45	"	BW-6-323.5 (5m)	"	"	-003
						-004

Analysis Request	BTEX + MTBE + TMBs (8021)	BTEX + MTBE + TPH (Gas-only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F <sup>-</sup> , Cl <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>-</sup> , SO <sub>4</sub> <sup>-</sup> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)
	X	X									
	X	X									
	X	X									
	X	X									

Date: 2/14 Time: 10:30 Requisitioned by: [Signature]  
 Date: 2/14 Time: 16:00 Requisitioned by: [Signature]  
 Received by: [Signature] Date: 2/14 Time: 10:30  
 Received by: [Signature] Date: 2/12/14 Time: 16:02

If necessary, samples submitted to Hall Environmental may be re-analyzed at other accredited laboratories. This service is subject to the availability of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

March 06, 2014

Bill Brown

Brown Environmental Inc.  
6739 Academy Road NE Suite 254  
Albuquerque, NM 87109  
TEL: (505) 934-7707  
FAX (505) 858-0707

RE: Allsups #320

OrderNo.: 1403004

Dear Bill Brown:

Hall Environmental Analysis Laboratory received 5 sample(s) on 3/3/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', written in a cursive style.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc.  
**Project:** Allsups #320  
**Lab ID:** 1403004-001

**Client Sample ID:** BW-7-122' (SM)  
**Collection Date:** 2/25/2014 4:15:00 PM  
**Received Date:** 3/3/2014 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	3.0		mg/Kg	1	3/4/2014 10:05:55 PM	R17094
Surr: BFB	93.5	74.5-129		%REC	1	3/4/2014 10:05:55 PM	R17094
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.060		mg/Kg	1	3/4/2014 10:05:55 PM	R17094
Benzene	ND	0.030		mg/Kg	1	3/4/2014 10:05:55 PM	R17094
Toluene	ND	0.030		mg/Kg	1	3/4/2014 10:05:55 PM	R17094
Ethylbenzene	ND	0.030		mg/Kg	1	3/4/2014 10:05:55 PM	R17094
Xylenes, Total	ND	0.060		mg/Kg	1	3/4/2014 10:05:55 PM	R17094
Surr: 4-Bromofluorobenzene	106	80-120		%REC	1	3/4/2014 10:05:55 PM	R17094

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc. **Client Sample ID:** BW-7-202' (SM/ML)  
**Project:** Allsups #320 **Collection Date:** 2/26/2014 8:10:00 AM  
**Lab ID:** 1403004-002 **Matrix:** MEOH (SOIL) **Received Date:** 3/3/2014 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	2.8		mg/Kg	1	3/4/2014 10:36:11 PM	R17094
Surr: BFB	91.3	74.5-129		%REC	1	3/4/2014 10:36:11 PM	R17094
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.055		mg/Kg	1	3/4/2014 10:36:11 PM	R17094
Benzene	ND	0.028		mg/Kg	1	3/4/2014 10:36:11 PM	R17094
Toluene	ND	0.028		mg/Kg	1	3/4/2014 10:36:11 PM	R17094
Ethylbenzene	ND	0.028		mg/Kg	1	3/4/2014 10:36:11 PM	R17094
Xylenes, Total	ND	0.055		mg/Kg	1	3/4/2014 10:36:11 PM	R17094
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	3/4/2014 10:36:11 PM	R17094

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:		
*	Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
E	Value above quantitation range	H Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc.  
**Project:** Allsups #320  
**Lab ID:** 1403004-003

**Client Sample ID:** BW-7-282' (SM)  
**Collection Date:** 2/27/2014 1:40:00 PM  
**Received Date:** 3/3/2014 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	2.7		mg/Kg	1	3/4/2014 11:06:23 PM	R17094
Surr: BFB	92.4	74.5-129		%REC	1	3/4/2014 11:06:23 PM	R17094
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.055		mg/Kg	1	3/4/2014 11:06:23 PM	R17094
Benzene	0.037	0.027		mg/Kg	1	3/4/2014 11:06:23 PM	R17094
Toluene	0.040	0.027		mg/Kg	1	3/4/2014 11:06:23 PM	R17094
Ethylbenzene	ND	0.027		mg/Kg	1	3/4/2014 11:06:23 PM	R17094
Xylenes, Total	ND	0.055		mg/Kg	1	3/4/2014 11:06:23 PM	R17094
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	3/4/2014 11:06:23 PM	R17094

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1403004

Date Reported: 3/6/2014

**CLIENT:** Brown Environmental Inc.

**Client Sample ID:** MW-7-322' (SM)

**Project:** Allsups #320

**Collection Date:** 2/28/2014 7:40:00 AM

**Lab ID:** 1403004-004

**Matrix:** MEOH (SOIL)

**Received Date:** 3/3/2014 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	2.8		mg/Kg	1	3/4/2014 11:36:36 PM	R17094
Surr: BFB	91.6	74.5-129		%REC	1	3/4/2014 11:36:36 PM	R17094
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.057		mg/Kg	1	3/4/2014 11:36:36 PM	R17094
Benzene	0.13	0.028		mg/Kg	1	3/4/2014 11:36:36 PM	R17094
Toluene	0.16	0.028		mg/Kg	1	3/4/2014 11:36:36 PM	R17094
Ethylbenzene	ND	0.028		mg/Kg	1	3/4/2014 11:36:36 PM	R17094
Xylenes, Total	0.082	0.057		mg/Kg	1	3/4/2014 11:36:36 PM	R17094
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	3/4/2014 11:36:36 PM	R17094

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:		
*	Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
E	Value above quantitation range	H Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1403004

Date Reported: 3/6/2014

**CLIENT:** Brown Environmental Inc.

**Client Sample ID:** MeOH Blank

**Project:** Allsups #320

**Collection Date:**

**Lab ID:** 1403004-005

**Matrix:** MEOH BLAN

**Received Date:** 3/3/2014 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	3/5/2014 12:06:48 AM	R17094
Benzene	ND	0.050		mg/Kg	1	3/5/2014 12:06:48 AM	R17094
Toluene	ND	0.050		mg/Kg	1	3/5/2014 12:06:48 AM	R17094
Ethylbenzene	ND	0.050		mg/Kg	1	3/5/2014 12:06:48 AM	R17094
Xylenes, Total	ND	0.10		mg/Kg	1	3/5/2014 12:06:48 AM	R17094
Surr: 4-Bromofluorobenzene	104	80-120		%REC	1	3/5/2014 12:06:48 AM	R17094

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit	Page 5 of 8
	O RSD is greater than RSDlimit	P Sample pH greater than 2.	
	R RPD outside accepted recovery limits	RL Reporting Detection Limit	
	S Spike Recovery outside accepted recovery limits		

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1403004

06-Mar-14

**Client:** Brown Environmental Inc.  
**Project:** Allsup #320

Sample ID	5ML RB		SampType:	MBLK		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	PBS		Batch ID:	R17094		RunNo:	17094				
Prep Date:			Analysis Date:	3/4/2014		SeqNo:	491583		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	5.0									
Surr: BFB	960		1000		96.0	74.5	129				

Sample ID	2.5UG GRO LCS		SampType:	LCS		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	LCSS		Batch ID:	R17094		RunNo:	17094				
Prep Date:			Analysis Date:	3/4/2014		SeqNo:	491584		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.7	71.7	134				
Surr: BFB	1000		1000		102	74.5	129				

Sample ID	1403004-001AMS		SampType:	MS		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	BW-7-122' (SM)		Batch ID:	R17094		RunNo:	17094				
Prep Date:			Analysis Date:	3/5/2014		SeqNo:	491589		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	12	3.0	15.00	0	83.2	69.5	145				
Surr: BFB	540		600.2		90.2	74.5	129				

Sample ID	1403004-001AMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	BW-7-122' (SM)		Batch ID:	R17094		RunNo:	17094				
Prep Date:			Analysis Date:	3/5/2014		SeqNo:	491590		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	12	3.0	15.00	0	81.9	69.5	145	1.60	20		
Surr: BFB	590		600.2		99.0	74.5	129	0	0		

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403004

06-Mar-14

**Client:** Brown Environmental Inc.

**Project:** Allsup #320

Sample ID	5ML RB		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles				
Client ID:	PBS		Batch ID:	R17094		RunNo:	17094				
Prep Date:			Analysis Date:	3/4/2014		SeqNo:	491611		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Methyl tert-butyl ether (MTBE)	ND	0.10									
Benzene	ND	0.050									
Toluene	ND	0.050									
Ethylbenzene	ND	0.050									
Xylenes, Total	ND	0.10									
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120				

Sample ID	100NG BTEX LCS2		SampType:	LCS		TestCode:	EPA Method 8021B: Volatiles				
Client ID:	LCSS		Batch ID:	R17094		RunNo:	17094				
Prep Date:			Analysis Date:	3/4/2014		SeqNo:	491612		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Methyl tert-butyl ether (MTBE)	0.77	0.10	1.000	0	77.4	64.5	131				
Benzene	0.96	0.050	1.000	0	96.3	80	120				
Toluene	0.96	0.050	1.000	0	96.3	80	120				
Ethylbenzene	0.98	0.050	1.000	0	98.0	80	120				
Xylenes, Total	3.0	0.10	3.000	0	99.9	80	120				
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120				

Sample ID	1403004-002AMS		SampType:	MS		TestCode:	EPA Method 8021B: Volatiles				
Client ID:	BW-7-202' (SM/ML)		Batch ID:	R17094		RunNo:	17094				
Prep Date:			Analysis Date:	3/5/2014		SeqNo:	491618		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Methyl tert-butyl ether (MTBE)	0.49	0.055	0.5501	0	89.3	58.5	163				
Benzene	0.48	0.028	0.5501	0	87.9	67.4	135				
Toluene	0.48	0.028	0.5501	0	88.0	72.6	135				
Ethylbenzene	0.50	0.028	0.5501	0	91.0	69.4	143				
Xylenes, Total	1.5	0.055	1.650	0.01326	91.3	70.8	144				
Surr: 4-Bromofluorobenzene	0.61		0.5501		111	80	120				

Sample ID	1403004-002AMSD		SampType:	MSD		TestCode:	EPA Method 8021B: Volatiles				
Client ID:	BW-7-202' (SM/ML)		Batch ID:	R17094		RunNo:	17094				
Prep Date:			Analysis Date:	3/5/2014		SeqNo:	491619		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Methyl tert-butyl ether (MTBE)	0.49	0.055	0.5501	0	88.3	58.5	163	1.10	20		
Benzene	0.48	0.028	0.5501	0	86.6	67.4	135	1.47	20		
Toluene	0.48	0.028	0.5501	0	86.5	72.6	135	1.73	20		
Ethylbenzene	0.49	0.028	0.5501	0	89.5	69.4	143	1.66	20		

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403004

06-Mar-14

Client: Brown Environmental Inc.

Project: Allsups #320

Sample ID	1403004-002AMSD	SampType:	MSD	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	BW-7-202' (SM/ML)	Batch ID:	R17094	RunNo:	17094					
Prep Date:		Analysis Date:	3/5/2014	SeqNo:	491619	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	1.5	0.055	1.650	0.01326	91.4	70.8	144	0.181	20	
Surr: 4-Bromofluorobenzene	0.60		0.5501		108	80	120	0	0	

## Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit



# Sample Log-In Check List

Client Name: Brown Env

Work Order Number: 1403004

RcptNo: 1

Received by/date: [Signature] 03/02/14

Logged By: Lindsay Mangin 3/3/2014 8:40:00 AM [Signature]

Completed By: Lindsay Mangin 3/3/2014 8:42:19 AM [Signature]

Reviewed By: mg 03/03/14

**Chain of Custody**

- 1. Custody seals intact on sample bottles? Yes  No  Not Present
- 2. Is Chain of Custody complete? Yes  No  Not Present
- 3. How was the sample delivered? Client

**Log In**

- 4. Was an attempt made to cool the samples? Yes  No  NA
- 5. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA
- 6. Sample(s) in proper container(s)? Yes  No
- 7. Sufficient sample volume for indicated test(s)? Yes  No
- 8. Are samples (except VOA and ONG) properly preserved? Yes  No
- 9. Was preservative added to bottles? Yes  No  NA
- 10. VOA vials have zero headspace? Yes  No  No VOA Vials
- 11. Were any sample containers received broken? Yes  No
- 12. Does paperwork match bottle labels? Yes  No   
(Note discrepancies on chain of custody)
- 13. Are matrices correctly identified on Chain of Custody? Yes  No
- 14. Is it clear what analyses were requested? Yes  No
- 15. Were all holding times able to be met? Yes  No   
(If no, notify customer for authorization.)

# of preserved bottles checked for pH: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

**Special Handling (if applicable)**

- 16. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

17. Additional remarks:

**18. Cooler Information**

Cooler No.	Temp °C	Condition	Seal Intact	Seal No.	Seal Date	Signed By
1	1.5	Good	Not Present			



# HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: BROWN ENVIRONMENTAL INC.

Mailing Address: 675 HEALING RD NW STE 54  
ALBUQUERQUE, NM 87109

Phone #: 505 858-1818

email or Fax#: 505 858-0707

QA/QC Package:  Standard  Level 4 (Full Validation)

Accreditation  NELAP  Other

EDD (Type)

Project Manager: WILLYN BROWN

Sampler: W. Brown

On Ice:  Yes  No

Sample Temperature: 15

Container Type and # 1402-PCR VIALS

Preservative Type 200ML VIALS 4/METH

HEAL No 1403004

Date 2/23/14 Time 16:15 Matrix SOIL Sample Request ID BW-7-122'(5m)

Date 2/24/14 Time 8:10 Matrix " Sample Request ID BW-7-202'(5m/m2)

Date 2/27/14 Time 13:40 Matrix " Sample Request ID BW-7-282'(5m)

Date 2/29/14 Time 7:40 Matrix " Sample Request ID BW-7-322'(5m)

Matrix METH BLANK

Date: 2/23/14 Time: 8:40 Requisitioned by: [Signature]

Date: 2/23/14 Time: 0840 Received by: [Signature]

## Analysis Request










<input checked="" type="checkbox"/>	BTEX + MTBE + TMB's (8021)	<input checked="" type="checkbox"/>	BTEX + MTBE + TPH (Gas only)	<input checked="" type="checkbox"/>	TPH 8015B (GRO / DRO / MRO)	<input checked="" type="checkbox"/>	TPH (Method 418.1)	<input checked="" type="checkbox"/>	EDB (Method 504.1)	<input checked="" type="checkbox"/>	PAH's (8310 or 8270 SIMS)	<input checked="" type="checkbox"/>	RCRA 8 Metals	<input checked="" type="checkbox"/>	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	<input checked="" type="checkbox"/>	8081 Pesticides / 8082 PCB's	<input checked="" type="checkbox"/>	8260B (VOA)	<input checked="" type="checkbox"/>	8270 (Semi-VOA)
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

Remarks: H/C RANGES PLEASE

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

# Key to Borehole Logs/Monitor Well Diagrams

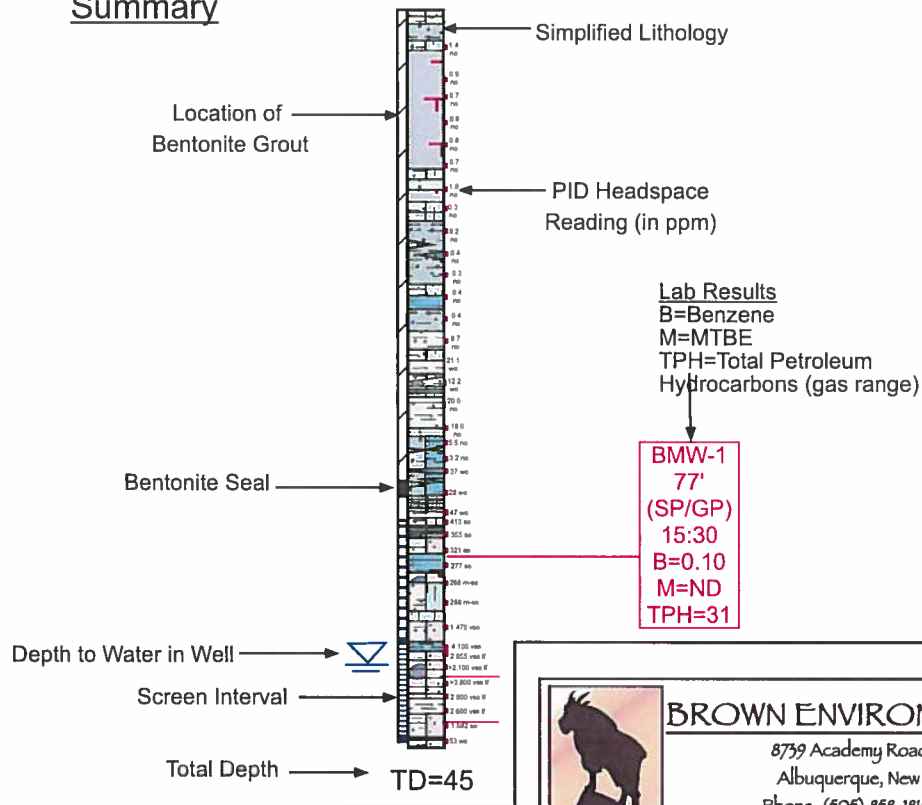
## Lithologic Description

- Unconsolidated Sediments**
- CL  Clay - plastic, dense
  - GC  Gravelly clay
  - ML  Silt
  - SW  Poorly Sorted Sand
  - SP  Well Sorted Sand
  - SM  Silty Sand
  - SC  Clayey Sand
  - GM  Silty Gravel
  - GW  Sandy Gravel

- Consolidated Formations**
- SAS  Sandstone
  - SST  Siltstone
  - MSS  Mudstone
  - SH  Shale
  -  Pedogenic Carbonate (caliche)

## Well Completion Summary

BMW-1 (s & i) ← Well Designation



**BROWN ENVIRONMENTAL, INC**

8739 Academy Road NE, Suite 254  
 Albuquerque, New Mexico 87109  
 Phone: (505) 858-1818 Fax: 858-0707



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

February 26, 2014

Bill Brown

Brown Environmental Inc.  
6739 Academy Road NE Suite 254  
Albuquerque, NM 87109  
TEL: (505) 934-7707  
FAX (505) 858-0707

RE: Allsup #320

OrderNo.: 1402734

Dear Bill Brown:

Hall Environmental Analysis Laboratory received 8 sample(s) on 2/19/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc. **Client Sample ID:** BW-5-122 '(SM/ML)  
**Project:** Allsups #320 **Collection Date:** 2/12/2014 1:40:00 PM  
**Lab ID:** 1402734-001 **Matrix:** MEOH (SOIL) **Received Date:** 2/19/2014 11:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	3.5		mg/Kg	1	2/21/2014 12:42:28 AM	R16860
Surr: BFB	80.0	74.5-129		%REC	1	2/21/2014 12:42:28 AM	R16860
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.070		mg/Kg	1	2/21/2014 12:42:28 AM	R16860
Benzene	ND	0.035		mg/Kg	1	2/21/2014 12:42:28 AM	R16860
Toluene	ND	0.035		mg/Kg	1	2/21/2014 12:42:28 AM	R16860
Ethylbenzene	ND	0.035		mg/Kg	1	2/21/2014 12:42:28 AM	R16860
Xylenes, Total	ND	0.070		mg/Kg	1	2/21/2014 12:42:28 AM	R16860
Surr: 4-Bromofluorobenzene	87.9	80-120		%REC	1	2/21/2014 12:42:28 AM	R16860

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:		
*	Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
E	Value above quantitation range	H Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Brown Environmental Inc.

Client Sample ID: BW-5-242 (SM/ML)

Project: Allsups #320

Collection Date: 2/12/2014 6:10:00 PM

Lab ID: 1402734-002

Matrix: MEOH (SOIL)

Received Date: 2/19/2014 11:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: JMP
Gasoline Range Organics (GRO)	ND	2.4		mg/Kg	1	2/21/2014 1:10:55 AM	R16860
Surr: BFB	80.5	74.5-129		%REC	1	2/21/2014 1:10:55 AM	R16860
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: JMP
Methyl tert-butyl ether (MTBE)	ND	0.048		mg/Kg	1	2/21/2014 1:10:55 AM	R16860
Benzene	ND	0.024		mg/Kg	1	2/21/2014 1:10:55 AM	R16860
Toluene	ND	0.024		mg/Kg	1	2/21/2014 1:10:55 AM	R16860
Ethylbenzene	ND	0.024		mg/Kg	1	2/21/2014 1:10:55 AM	R16860
Xylenes, Total	ND	0.048		mg/Kg	1	2/21/2014 1:10:55 AM	R16860
Surr: 4-Bromofluorobenzene	89.6	80-120		%REC	1	2/21/2014 1:10:55 AM	R16860

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1402734

Date Reported: 2/26/2014

CLIENT: Brown Environmental Inc.

Client Sample ID: BW-5-282 (SM)

Project: Allsups #320

Collection Date: 2/13/2014 8:30:00 AM

Lab ID: 1402734-003

Matrix: MEOH (SOIL) Received Date: 2/19/2014 11:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: JMP
Gasoline Range Organics (GRO)	4.08	2.31		mg/Kg	1	2/21/2014 1:39:28 AM	R16860
% GRO Hydrocarbons: <C6	0.900	0		%	1	2/21/2014 1:39:28 AM	R16860
% GRO Hydrocarbons: C06-C7	6.50	0		%	1	2/21/2014 1:39:28 AM	R16860
% GRO Hydrocarbons: C07-C8	18.6	0		%	1	2/21/2014 1:39:28 AM	R16860
% GRO Hydrocarbons: C08-C9	12.6	0		%	1	2/21/2014 1:39:28 AM	R16860
% GRO Hydrocarbons: C09-C10	19.3	0		%	1	2/21/2014 1:39:28 AM	R16860
% GRO Hydrocarbons: C10-C11	26.7	0		%	1	2/21/2014 1:39:28 AM	R16860
% GRO Hydrocarbons: C11-C12	12.2	0		%	1	2/21/2014 1:39:28 AM	R16860
% GRO Hydrocarbons: C12-C14	3.20	0		%	1	2/21/2014 1:39:28 AM	R16860
% GRO Hydrocarbons: C14+	ND	0		%	1	2/21/2014 1:39:28 AM	R16860
Surr: BFB	88.5	74.5-129		%REC	1	2/21/2014 1:39:28 AM	R16860
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: JMP
Methyl tert-butyl ether (MTBE)	ND	0.046		mg/Kg	1	2/21/2014 1:39:28 AM	R16860
Benzene	0.17	0.023		mg/Kg	1	2/21/2014 1:39:28 AM	R16860
Toluene	0.45	0.023		mg/Kg	1	2/21/2014 1:39:28 AM	R16860
Ethylbenzene	0.072	0.023		mg/Kg	1	2/21/2014 1:39:28 AM	R16860
Xylenes, Total	0.50	0.046		mg/Kg	1	2/21/2014 1:39:28 AM	R16860
Surr: 4-Bromofluorobenzene	94.0	80-120		%REC	1	2/21/2014 1:39:28 AM	R16860

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc.  
**Project:** Allsups #320  
**Lab ID:** 1402734-004

**Client Sample ID:** BW-5-322 '(SM) #1  
**Collection Date:** 2/13/2014 11:55:00 AM  
**Received Date:** 2/19/2014 11:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	2.9		mg/Kg	1	2/21/2014 11:18:41 AM	R16892
Surr: BFB	79.5	74.5-129		%REC	1	2/21/2014 11:18:41 AM	R16892
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.058		mg/Kg	1	2/21/2014 11:18:41 AM	R16892
Benzene	ND	0.029		mg/Kg	1	2/21/2014 11:18:41 AM	R16892
Toluene	ND	0.029		mg/Kg	1	2/21/2014 11:18:41 AM	R16892
Ethylbenzene	ND	0.029		mg/Kg	1	2/21/2014 11:18:41 AM	R16892
Xylenes, Total	ND	0.058		mg/Kg	1	2/21/2014 11:18:41 AM	R16892
Surr: 4-Bromofluorobenzene	87.3	80-120		%REC	1	2/21/2014 11:18:41 AM	R16892

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	



**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Brown Environmental Inc.

Client Sample ID: BW-5-322 (SM) #2

Project: Allsups #320

Collection Date: 2/13/2014 1:55:00 PM

Lab ID: 1402734-005

Matrix: MEOH (SOIL)

Received Date: 2/19/2014 11:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: JMP
Gasoline Range Organics (GRO)	121	32.6		mg/Kg	10	2/21/2014 11:47:16 AM	R16892
% GRO Hydrocarbons: <C6	ND	0		%	10	2/21/2014 11:47:16 AM	R16892
% GRO Hydrocarbons: C06-C7	0.200	0		%	10	2/21/2014 11:47:16 AM	R16892
% GRO Hydrocarbons: C07-C8	2.40	0		%	10	2/21/2014 11:47:16 AM	R16892
% GRO Hydrocarbons: C08-C9	4.20	0		%	10	2/21/2014 11:47:16 AM	R16892
% GRO Hydrocarbons: C09-C10	37.0	0		%	10	2/21/2014 11:47:16 AM	R16892
% GRO Hydrocarbons: C10-C11	41.4	0		%	10	2/21/2014 11:47:16 AM	R16892
% GRO Hydrocarbons: C11-C12	13.8	0		%	10	2/21/2014 11:47:16 AM	R16892
% GRO Hydrocarbons: C12-C14	1.00	0		%	10	2/21/2014 11:47:16 AM	R16892
% GRO Hydrocarbons: C14+	ND	0		%	10	2/21/2014 11:47:16 AM	R16892
Surr: BFB	103	74.5-129		%REC	10	2/21/2014 11:47:16 AM	R16892
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: JMP
Methyl tert-butyl ether (MTBE)	ND	0.65		mg/Kg	10	2/21/2014 11:47:16 AM	R16892
Benzene	ND	0.33		mg/Kg	10	2/21/2014 11:47:16 AM	R16892
Toluene	ND	0.33		mg/Kg	10	2/21/2014 11:47:16 AM	R16892
Ethylbenzene	0.42	0.33		mg/Kg	10	2/21/2014 11:47:16 AM	R16892
Xylenes, Total	5.8	0.65		mg/Kg	10	2/21/2014 11:47:16 AM	R16892
Surr: 4-Bromofluorobenzene	96.2	80-120		%REC	10	2/21/2014 11:47:16 AM	R16892

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Brown Environmental Inc. **Client Sample ID:** BW-4-202 (SM)  
**Project:** Allsups #320 **Collection Date:** 2/16/2014 10:38:00 AM  
**Lab ID:** 1402734-006 **Matrix:** MEOH (SOIL) **Received Date:** 2/19/2014 11:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>JMP</b>
Gasoline Range Organics (GRO)	ND	3.2		mg/Kg	1	2/21/2014 2:36:33 AM	R16860
Surr: BFB	76.5	74.5-129		%REC	1	2/21/2014 2:36:33 AM	R16860
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>JMP</b>
Methyl tert-butyl ether (MTBE)	ND	0.064		mg/Kg	1	2/21/2014 2:36:33 AM	R16860
Benzene	ND	0.032		mg/Kg	1	2/21/2014 2:36:33 AM	R16860
Toluene	ND	0.032		mg/Kg	1	2/21/2014 2:36:33 AM	R16860
Ethylbenzene	ND	0.032		mg/Kg	1	2/21/2014 2:36:33 AM	R16860
Xylenes, Total	ND	0.064		mg/Kg	1	2/21/2014 2:36:33 AM	R16860
Surr: 4-Bromofluorobenzene	83.5	80-120		%REC	1	2/21/2014 2:36:33 AM	R16860

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:		
*	Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
E	Value above quantitation range	H Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Brown Environmental Inc.

Client Sample ID: BW-4-282 '(SM)

Project: Allsups #320

Collection Date: 2/16/2014 3:25:00 PM

Lab ID: 1402734-007

Matrix: MEOH (SOIL)

Received Date: 2/19/2014 11:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: JMP
Gasoline Range Organics (GRO)	ND	2.9		mg/Kg	1	2/21/2014 3:05:03 AM	R16860
Surr: BFB	81.0	74.5-129		%REC	1	2/21/2014 3:05:03 AM	R16860
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: JMP
Methyl tert-butyl ether (MTBE)	ND	0.058		mg/Kg	1	2/21/2014 3:05:03 AM	R16860
Benzene	ND	0.029		mg/Kg	1	2/21/2014 3:05:03 AM	R16860
Toluene	0.046	0.029		mg/Kg	1	2/21/2014 3:05:03 AM	R16860
Ethylbenzene	ND	0.029		mg/Kg	1	2/21/2014 3:05:03 AM	R16860
Xylenes, Total	ND	0.058		mg/Kg	1	2/21/2014 3:05:03 AM	R16860
Surr: 4-Bromofluorobenzene	89.9	80-120		%REC	1	2/21/2014 3:05:03 AM	R16860

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:		
*	Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
E	Value above quantitation range	H Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Brown Environmental Inc.

Client Sample ID: BW-4-322 (SM)

Project: Allsups #320

Collection Date: 2/17/2014 8:50:00 AM

Lab ID: 1402734-008

Matrix: MEOH (SOIL)

Received Date: 2/19/2014 11:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: JMP
Gasoline Range Organics (GRO)	ND	2.8		mg/Kg	1	2/20/2014 10:38:16 PM	R16869
Surr: BFB	90.6	74.5-129		%REC	1	2/20/2014 10:38:16 PM	R16869
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: JMP
Methyl tert-butyl ether (MTBE)	ND	0.055		mg/Kg	1	2/20/2014 10:38:16 PM	R16869
Benzene	ND	0.028		mg/Kg	1	2/20/2014 10:38:16 PM	R16869
Toluene	ND	0.028		mg/Kg	1	2/20/2014 10:38:16 PM	R16869
Ethylbenzene	ND	0.028		mg/Kg	1	2/20/2014 10:38:16 PM	R16869
Xylenes, Total	ND	0.055		mg/Kg	1	2/20/2014 10:38:16 PM	R16869
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	2/20/2014 10:38:16 PM	R16869

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1402734

26-Feb-14

Client: Brown Environmental Inc.

Project: Allsups #320

Sample ID	B1		SampType:	MBLK		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	PBS		Batch ID:	R16860		RunNo:	16860				
Prep Date:			Analysis Date:	2/20/2014		SeqNo:	485659		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	5.0									
Surr: BFB	830		1000		83.1	74.5	129				

Sample ID	2.5UG GRO LCS		SampType:	LCS		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	LCSS		Batch ID:	R16860		RunNo:	16860				
Prep Date:			Analysis Date:	2/20/2014		SeqNo:	485660		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.9	71.7	134				
Surr: BFB	880		1000		87.7	74.5	129				

Sample ID	1402734-001AMS		SampType:	MS		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	BW-5-122 '(SM/ML)		Batch ID:	R16860		RunNo:	16860				
Prep Date:			Analysis Date:	2/20/2014		SeqNo:	485663		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	20	3.5	17.52	0	112	69.5	145				
Surr: BFB	630		700.8		90.4	74.5	129				

Sample ID	1402734-001AMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	BW-5-122 '(SM/ML)		Batch ID:	R16860		RunNo:	16860				
Prep Date:			Analysis Date:	2/20/2014		SeqNo:	485664		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	19	3.5	17.52	0	110	69.5	145	1.12	20		
Surr: BFB	640		700.8		91.1	74.5	129	0	0		

Sample ID	5ML RB		SampType:	MBLK		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	PBS		Batch ID:	R16869		RunNo:	16869				
Prep Date:			Analysis Date:	2/20/2014		SeqNo:	485731		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	5.0									
Surr: BFB	940		1000		93.6	74.5	129				

Sample ID	2.5UG GRO LCS		SampType:	LCS		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	LCSS		Batch ID:	R16869		RunNo:	16869				
Prep Date:			Analysis Date:	2/20/2014		SeqNo:	485732		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1402734

26-Feb-14

Client: Brown Environmental Inc.

Project: Allsups #320

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	R16869	RunNo:	16869					
Prep Date:		Analysis Date:	2/20/2014	SeqNo:	485732	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.3	71.7	134			
Surr: BFB	980		1000		97.8	74.5	129			

Sample ID	MB-11836 MK	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	R16892	RunNo:	16892					
Prep Date:	2/20/2014	Analysis Date:	2/21/2014	SeqNo:	486483	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	780		1000		78.1	74.5	129			

Sample ID	LCS-11836 MK	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	R16892	RunNo:	16892					
Prep Date:	2/20/2014	Analysis Date:	2/21/2014	SeqNo:	486484	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	71.7	134			
Surr: BFB	890		1000		89.3	74.5	129			

Sample ID	MB-11836	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	11836	RunNo:	16892					
Prep Date:	2/20/2014	Analysis Date:	2/21/2014	SeqNo:	486487	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	780		1000		78.1	74.5	129			

Sample ID	LCS-11836	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	11836	RunNo:	16892					
Prep Date:	2/20/2014	Analysis Date:	2/21/2014	SeqNo:	486488	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	890		1000		89.3	74.5	129			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1402734

26-Feb-14

**Client:** Brown Environmental Inc.

**Project:** Allsups #320

Sample ID	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: R16860		RunNo: 16860							
Prep Date:	Analysis Date: 2/20/2014		SeqNo: 485688		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.94		1.000		93.9	80	120			

Sample ID	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: R16860		RunNo: 16860							
Prep Date:	Analysis Date: 2/20/2014		SeqNo: 485689		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.87	0.10	1.000	0	86.7	64.5	131			
Benzene	1.0	0.050	1.000	0	104	80	120			
Toluene	1.1	0.050	1.000	0	108	80	120			
Ethylbenzene	1.1	0.050	1.000	0	107	80	120			
Xylenes, Total	3.3	0.10	3.000	0	109	80	120			
Surr: 4-Bromofluorobenzene	0.94		1.000		94.3	80	120			

Sample ID	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: BW-5-122 (SM/ML)	Batch ID: R16860		RunNo: 16860							
Prep Date:	Analysis Date: 2/20/2014		SeqNo: 485692		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.68	0.070	0.7008	0	96.7	58.5	163			
Benzene	0.81	0.035	0.7008	0	115	67.4	135			
Toluene	0.81	0.035	0.7008	0.003875	116	72.6	135			
Ethylbenzene	0.81	0.035	0.7008	0	115	69.4	143			
Xylenes, Total	2.5	0.070	2.102	0	117	70.8	144			
Surr: 4-Bromofluorobenzene	0.70		0.7008		100	80	120			

Sample ID	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: BW-5-122 (SM/ML)	Batch ID: R16860		RunNo: 16860							
Prep Date:	Analysis Date: 2/20/2014		SeqNo: 485693		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.70	0.070	0.7008	0	100	58.5	163	3.83	20	
Benzene	0.80	0.035	0.7008	0	114	67.4	135	1.11	20	
Toluene	0.79	0.035	0.7008	0.003875	112	72.6	135	3.14	20	
Ethylbenzene	0.81	0.035	0.7008	0	115	69.4	143	0.133	20	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1402734

26-Feb-14

**Client:** Brown Environmental Inc.

**Project:** Allsups #320

Sample ID	1402734-001AMSD	SampType:	MSD	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	BW-5-122 (SM/ML)	Batch ID:	R16860	RunNo:	16860					
Prep Date:		Analysis Date:	2/20/2014	SeqNo:	485693	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	2.5	0.070	2.102	0	117	70.8	144	0.0839	20	
Surr: 4-Bromofluorobenzene	0.69		0.7008		98.7	80	120	0	0	

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	R16869	RunNo:	16869					
Prep Date:		Analysis Date:	2/20/2014	SeqNo:	485761	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	R16869	RunNo:	16869					
Prep Date:		Analysis Date:	2/20/2014	SeqNo:	485762	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.98	0.10	1.000	0	97.5	64.5	131			
Benzene	0.99	0.050	1.000	0	99.2	80	120			
Toluene	0.99	0.050	1.000	0	99.5	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.1	0.10	3.000	0	102	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Sample ID	MB-11836 MK	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	R16892	RunNo:	16892					
Prep Date:	2/20/2014	Analysis Date:	2/21/2014	SeqNo:	486498	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.87		1.000		86.7	80	120			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1402734

26-Feb-14

Client: Brown Environmental Inc.

Project: Allsup #320

Sample ID	LCS-11836 MK	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	R16892	RunNo:	16892					
Prep Date:	2/20/2014	Analysis Date:	2/21/2014	SeqNo:	486499	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.86	0.10	1.000	0	86.0	64.5	131			
Benzene	1.1	0.050	1.000	0	108	80	120			
Toluene	1.1	0.050	1.000	0	111	80	120			
Ethylbenzene	1.1	0.050	1.000	0	112	80	120			
Xylenes, Total	3.4	0.10	3.000	0	112	80	120			
Surr: 4-Bromofluorobenzene	0.93		1.000		93.3	80	120			

Sample ID	MB-11836	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	11836	RunNo:	16892					
Prep Date:	2/20/2014	Analysis Date:	2/21/2014	SeqNo:	486502	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		86.7	80	120			

Sample ID	LCS-11836	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	11836	RunNo:	16892					
Prep Date:	2/20/2014	Analysis Date:	2/21/2014	SeqNo:	486503	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.93		1.000		93.3	80	120			

## Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

**Sample Log-In Check List**

Client Name: Brown Env

Work Order Number: 1402734

RcptNo: 1

Received by/date: MG 02/19/14

Logged By: Lindsay Mangin 2/19/2014 11:43:00 AM *[Signature]*

Completed By: Lindsay Mangin 2/19/2014 2:47:06 PM *[Signature]*

Reviewed By: *[Signature]* 02/19/14

**Chain of Custody**

- 1. Custody seals intact on sample bottles? Yes  No  Not Present
- 2. Is Chain of Custody complete? Yes  No  Not Present
- 3. How was the sample delivered? Client

**Log In**

- 4. Was an attempt made to cool the samples? Yes  No  NA
- 5. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA
- 6. Sample(s) in proper container(s)? Yes  No
- 7. Sufficient sample volume for indicated test(s)? Yes  No
- 8. Are samples (except VOA and ONG) properly preserved? Yes  No
- 9. Was preservative added to bottles? Yes  No  NA
- 10. VOA vials have zero headspace? Yes  No  No VOA Vials
- 11. Were any sample containers received broken? Yes  No
- 12. Does paperwork match bottle labels? Yes  No   
(Note discrepancies on chain of custody)
- 13. Are matrices correctly identified on Chain of Custody? Yes  No
- 14. Is it clear what analyses were requested? Yes  No
- 15. Were all holding times able to be met? Yes  No   
(If no, notify customer for authorization.)

# of preserved bottles checked for pH: 2 or 12 unless noted

Adjusted? NO

Checked by: *[Signature]*

**Special Handling (If applicable)**

- 16. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:  Date:

By Whom:  Via:  eMail  Phone  Fax  In Person

Regarding:

Client Instructions:

17. Additional remarks:

**18. Cooler Information**

Cooler No.	Temp. (C)	Condition	Seal Intact	Seal No.	Seal Date	Sealed By
1	2.5	Good	Not Present			

**Chain-of-Custody Record**

Client: Brown Environmental Inc.  
 Mailing Address: 6737 Jenson Rd NE, Suite 234 Albuquerque, NM 87109  
 Phone #: 505 858-1818

email or Fax#: \_\_\_\_\_  
 QA/QC Package:  Level 4 (Full Validation)  
 Accreditation:  Standard  Other  
 NELAP  Other  
 EDD (Type) \_\_\_\_\_

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEALING No.
12/14	13:40	Soil	BW-5-122 (5m/ml)	2 M ETHANOL 2000 1, 402	"	102734
12/14	18:10	"	BW-5-242 (5m/ml)	"	"	-001
13/14	8:30	"	BW-5-282 (5m)	"	"	-002
13/14	11:55	"	BW-5-322 (5m) #1	"	"	-003
13/14	13:55	"	BW-5-322 (5m) #2	"	"	-004
16/14	10:38	"	BW-4-202 (5m)	"	"	-005
16/14	15:25	"	BW-4-282 (5m)	"	"	-006
17/14	8:50	"	BW-4-322 (5m)	"	"	-007
						-008

Date: 19/14 Time: 11:43 Received by: [Signature]  
 Date: 19/14 Time: 11:43 Received by: [Signature]

Turn-Around Time: \_\_\_\_\_  
 Standard  Rush  
 Project Name: MUSIPS #320  
 Project #: 1077  
 Project Manager: William Brown  
 Sampler: W. Brown

Office:  Yes  No  
 Sample Temperature: 25

Analysis Request	Remarks:
BTEX + MTBE + TPH (Gas only)	X
BTEX + MTBE + TPH (Gas/Diesel)	X
TPH (Method 418.1)	X
EDB (Method 504.1)	X
8310 (PNA or PAH)	X
RCRA 8 Metals	X
Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	X
8081 Pesticides / 8082 PCB's	X
8260B (VOA)	X
8270 (Semi-VOA)	X
Air Bubbles (Y or N)	

Remarks: 14C ANIONS PURSUE TAX