



12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
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Tax I.D. 62-0814289

Est. 1970

Mr Jared Black  
Quicksilver Resources, Inc.  
801 Cherry Street, Suite 3700  
Fort Worth, TX 76102

### Report Summary

Thursday August 04, 2011

Report Number: L528403

Samples Received: 07/29/11

Client Project:

Description: Walker 3-1

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Craig Cothron , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487  
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140  
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233  
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,  
TX - T104704245, OK-9915

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# REPORT OF ANALYSIS

Mr Jared Black  
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801 Cherry Street, Suite 3700  
Fort Worth, TX 76102

August 04,2011

Date Received : July 29, 2011  
Description : Walker 3-1

Sample ID : WALKER 3-1 PIT

Collected By : Todd Hutson  
Collection Date : 07/28/11 11:07

ESC Sample # : L528403-01

Site ID :

Project # :

Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chromium,Hexavalent	U	0.71	2.0	mg/kg		3060A/71	07/30/11	1
Chromium,Trivalent	8.3	0.17	0.50	mg/kg		Calc.	08/01/11	1
ORP	77.			mV		2580	08/01/11	1
pH	9.1			su		9045D	07/29/11	1
Sodium Adsorption Ratio	60.					Calc.	08/03/11	1
Specific Conductance	1800			umhos/cm		9050AMod	08/02/11	1
Mercury	0.012	0.0015	0.020	mg/kg	J	7471	08/01/11	1
Arsenic	3.7	0.33	1.0	mg/kg		6010B	08/01/11	1
Barium	6300	0.25	1.2	mg/kg		6010B	08/02/11	5
Cadmium	U	0.040	0.25	mg/kg		6010B	08/01/11	1
Chromium	8.3	0.085	0.50	mg/kg		6010B	08/01/11	1
Copper	7.4	0.21	1.0	mg/kg		6010B	08/01/11	1
Lead	12.	0.090	0.25	mg/kg		6010B	08/01/11	1
Nickel	3.7	0.27	1.0	mg/kg		6010B	08/01/11	1
Selenium	U	0.32	1.0	mg/kg		6010B	08/01/11	1
Silver	U	0.17	0.50	mg/kg		6010B	08/01/11	1
Zinc	71.	0.34	1.5	mg/kg		6010B	08/01/11	1
TPH (GC/FID) Low Fraction	U	0.14	0.50	mg/kg		8015D/GR	08/01/11	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	98.0			% Rec.		602/8015	08/01/11	5
Benzene	U	0.0017	0.0050	mg/kg		8260B	07/29/11	5
Toluene	U	0.0016	0.025	mg/kg		8260B	07/29/11	5
Ethylbenzene	U	0.0019	0.0050	mg/kg		8260B	07/29/11	5
Total Xylenes	U	0.0023	0.015	mg/kg		8260B	07/29/11	5
Surrogate Recovery								
Toluene-d8	99.4			% Rec.		8260B	07/29/11	5
Dibromofluoromethane	101.			% Rec.		8260B	07/29/11	5
a,a,a-Trifluorotoluene	98.0			% Rec.		8260B	07/29/11	5
4-Bromofluorobenzene	103.			% Rec.		8260B	07/29/11	5
TPH (GC/FID) High Fraction	120	0.77	4.0	mg/kg		3546/DRO	07/30/11	1
Surrogate recovery(%) o-Terphenyl	59.3			% Rec.		3546/DRO	07/30/11	1

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

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The reported analytical results relate only to the sample submitted

Reported: 08/03/11 17:04 Revised: 08/04/11 09:10

L528403-01 (PH) - 9.1@21.5c



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Parameter	Dry Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Polynuclear Aromatic Hydrocarbons								
Anthracene	U	0.00076	0.0060	mg/kg		8270C-SI	08/02/11	1
Acenaphthene	U	0.00071	0.0060	mg/kg		8270C-SI	08/02/11	1
Benzo(a)anthracene	U	0.00093	0.0060	mg/kg		8270C-SI	08/02/11	1
Benzo(a)pyrene	U	0.00062	0.0060	mg/kg		8270C-SI	08/02/11	1
Benzo(b)fluoranthene	U	0.00083	0.0060	mg/kg		8270C-SI	08/02/11	1
Benzo(k)fluoranthene	U	0.0013	0.0060	mg/kg		8270C-SI	08/02/11	1
Chrysene	U	0.0011	0.0060	mg/kg		8270C-SI	08/02/11	1
Dibenz(a,h)anthracene	U	0.0011	0.0060	mg/kg		8270C-SI	08/02/11	1
Fluoranthene	U	0.0010	0.0060	mg/kg		8270C-SI	08/02/11	1
Fluorene	0.0068	0.00055	0.0060	mg/kg		8270C-SI	08/02/11	1
Indeno(1,2,3-cd)pyrene	U	0.0012	0.0060	mg/kg		8270C-SI	08/02/11	1
Naphthalene	0.023	0.00065	0.0060	mg/kg		8270C-SI	08/02/11	1
Pyrene	0.018	0.00059	0.0060	mg/kg		8270C-SI	08/02/11	1
Surrogate Recovery								
Nitrobenzene-d5	41.7			% Rec.		8270C-SI	08/02/11	1
2-Fluorobiphenyl	58.9			% Rec.		8270C-SI	08/02/11	1
p-Terphenyl-d14	81.2			% Rec.		8270C-SI	08/02/11	1

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L528403-01 (PH) - 9.1@21.5c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L528403-01	WG548363	SAMP	Mercury	R1799250	J

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.