



Wednesday, September 21, 2022

Jeremy Adams
Las Vegas Rock Inc.
Po Box 19118
Jean, NV 89019

Re: ALS Workorder: 2208293
Project Name: C2C - RENEWAL
Project Number: 2022

Dear Mr. Adams:

Fifteen solid samples were received from Las Vegas Rock Inc., on 8/11/2022. The samples were scheduled for the following analyses:

Gamma Spectroscopy

Inorganics

Isotopic Thorium

Metals

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Alannah R. Liebert
Project Manager

	Accreditations	Effective Sept. 22, 2022
	ALS Environmental – Fort Collins	

Accreditations: ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Arizona	AZ0828
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
Louisiana	197538
PJLA (DoD ELAP/ISO 170250)	95377
PJLA (DOE-AP/ISO 17025)	95377
Nebraska(NE)	NE-OS-24-13
New York (NY)	12036
North Dakota (ND)	R-057
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280
Virginia	460305

40 CFR Part 136: All analyses for Clean Water Act samples are analyzed using the 40 CFR Part 136 specified method and include all the QC requirements.



2208293

Metals:

The samples were analyzed following SW-846, 3rd Edition procedures. Analysis by ICPMS followed method 6020B and the current revision of SOP 827. Mercury analysis by CVAA followed method 7471B and the current revision of SOP 812.

All remaining acceptance criteria were met.

Inorganics:

The samples were analyzed following SW-846 procedures for the current revision of the following SOP and method:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Hexavalent chromium	7196A	1122

All acceptance criteria were met.

Gamma Spectroscopy:

The samples were analyzed for the presence of gamma emitting radionuclides according to the current revision of SOP 713.

These samples were prepared according to the current revision of SOP 739. The samples were sealed in steel cans and stored for at least 21 days prior to analysis.

ALS has found there to be a significant low bias to ²¹⁴Pb and ²¹⁴Bi results when using a mixed nuclide gamma source for efficiency calibrations. The magnitude of this bias has been determined to be approximately 32% for ²¹⁴Bi, and 23% for ²¹⁴Pb. Therefore, any reported results for ²¹⁴Pb and ²¹⁴Bi are flagged with a "J" qualifier, indicating the activity values to be an estimated value. Results are reported without further qualification.

All remaining acceptance criteria were met.

Isotopic Thorium:

The samples were analyzed for the presence of isotopic thorium according to the current revision of SOP 714.

All remaining acceptance criteria were met.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2208293

Client Name: Las Vegas Rock Inc.

Client Project Name: C2C - RENEWAL

Client Project Number: 2022

Client PO Number: 14023

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
DB-1	2208293-1		SOLID	09-Aug-22	9:10
DB-2	2208293-2		SOLID	09-Aug-22	9:11
DB-3	2208293-3		SOLID	09-Aug-22	9:12
DB-4	2208293-4		SOLID	09-Aug-22	9:13
DB-5	2208293-5		SOLID	09-Aug-22	9:16
SS-1	2208293-6		SOLID	09-Aug-22	9:20
SS-2	2208293-7		SOLID	09-Aug-22	9:20
SS-3	2208293-8		SOLID	09-Aug-22	9:21
SS-4	2208293-9		SOLID	09-Aug-22	9:22
SS-5	2208293-10		SOLID	09-Aug-22	9:22
TH-1	2208293-11		SOLID	09-Aug-22	9:24
TH-2	2208293-12		SOLID	09-Aug-22	9:24
TH-3	2208293-13		SOLID	09-Aug-22	9:25
TH-4	2208293-14		SOLID	09-Aug-22	9:25
TH-5	2208293-15		SOLID	09-Aug-22	9:26



ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Turnaround time for samples received after 2 p.m. will be calculated beginning from the next business day.
Turnaround time for samples received Saturday will be calculated beginning from the next business day.

ALS WORKORDER #
2208293

PROJECT NAME	C2C - RENEWAL	SAMPLER	JEREMY ADAMS
PROJECT No.	2022	PAGE	1 of 2
COMPANY NAME	LAS VEGAS ROCK INC.	DISPOSAL	BY LAB or RETURN
SEND REPORT TO	JEREMY ADAMS	PARAMETER/METHOD REQUEST FOR ANALYSIS	
ADDRESS	PO BOX 19118	A	Metals - As, cd, Pb
CITY / STATE / ZIP	JEAN, NV 89019	B	Mercury
PHONE	702-278-2972	C	Hexavalent Chromium
FAX	702-896-4533	D	Gamma - Rg226, Rg 228, K40
E-MAIL	JEREMY@VEGASROCK.COM	E	Isotopic Thorium
		F	
		G	
		H	
		I	
		J	

LAB ID	FIELD ID	MATRIX	SAMPLE DATE	SAMPLE TIME	# OF BOTTLES	PRESERVATIVE	QC	A	B	C	D	E	F	G	H	I	J	SEE NOTES SECTION
1	DB - 1	NS	8/9/22	9:10	1	NONE		X										
2	DB - 2	NS	8/9/22	9:11	1	NONE			X									
3	DB - 3	NS	8/9/22	9:13	1	NONE				X								
4	DB - 4	NS	8/9/22	9:13	1	NONE					X							
5	DB - 5	NS	8/9/22	9:16	1	NONE						X						
6	SS - 1	NS	8/9/22	9:20	1	NONE		X										
7	SS - 2	NS	8/9/22	9:20	1	NONE			X									
8	SS - 3	NS	8/9/22	9:21	1	NONE				X								
9	SS - 4	NS	8/9/22	9:22	1	NONE					X							
10	SS - 5	NS	8/9/22	9:22	1	NONE						X						
11	TH - 1	NS	8/9/22	9:24	1	NONE		X										
12	TH - 2	NS	8/9/22	9:24	1	NONE			X									

*Time Zone (Circle): EST CST MST PST Matrx: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

REPORT LEVEL / QC REQUIRED	Summary (Standard QC)	LEVEL II (Standard QC)	LEVEL III (Std QC + forms)	LEVEL IV (Std QC + forms + raw data)
RELINQUISHED BY	<i>[Signature]</i>	RELINQUISHED BY	<i>[Signature]</i>	RELINQUISHED BY
RECEIVED BY	<i>[Signature]</i>	RECEIVED BY	<i>[Signature]</i>	RECEIVED BY
RELINQUISHED BY	<i>[Signature]</i>	RECEIVED BY	<i>[Signature]</i>	RELINQUISHED BY
RELINQUISHED BY	<i>[Signature]</i>	RECEIVED BY	<i>[Signature]</i>	RELINQUISHED BY

Form 298

SIGNATURE	DATE	TIME
<i>[Signature]</i>	8/9/22	10:09 AM
<i>[Signature]</i>	8/9/22	10:09 AM
<i>[Signature]</i>	8/9/22	12:31 PM

PRINTED NAME: Jeremy Adams, Tanya Ruiz, Tanya Ruiz, Claire Rynnes

RELINQUISHED BY: to fed ex

PRESERVATION KEY: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaOH/ZnAcetate 6-NaHSO4 7-4°C 8-Other



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Chain-of-Custody

Turnaround time for samples received after 2 p.m. will be calculated beginning from the next business day.
Turnaround time for samples received Saturday will be calculated beginning from the next business day.

ALS WORKORDER #
2208207

PROJECT NAME	C2C - RENEWAL	TURNAROUND TIME	SAMPLER	JEREMY ADAMS	PAGE	2	of	2	DISPOSAL	BY LAB	or	RETURN														
PROJECT No.	2022	SITE ID		JEREMY ADAMS																						
COMPANY NAME	LAS VEGAS ROCK INC.	EDD FORMAT	14023	PARAMETER/METHOD REQUEST FOR ANALYSIS																						
SEND REPORT TO	JEREMY ADAMS	PURCHASE ORDER	LAS VEGAS ROCK INC	A	Metals - As, cd, Pb																					
ADDRESS	PO BOX 19118	BILL TO COMPANY	ACCOUNTING	B	Mercury																					
CITY / STATE / ZIP	JEAN, NV 89019	INVOICE ATTN TO	PO BOX 19118	C	Hexavalent Chromium																					
PHONE	702-278-2972	ADDRESS	JEAN, NV 89019	D	Gartima - Rg226, Rg 228, K40																					
FAX	702-896-4533	CITY / STATE / ZIP	702-791-7625	E	Isotopic Thorium																					
E-MAIL	JEREMY@VEGASROCK.COM	PHONE	702-896-4533	F																						
		FAX	ACCOUNTING@VEGASROCK.COM	G																						
		E-MAIL		H																						
				I																						
				J																						
LAB ID	13	FIELD ID		MATRIX	NS	SAMPLE DATE	8/9/22	SAMPLE TIME	9:25	# OF BOTTLES	1	PRESERVATIVE	NONE	QC		A	B	C	D	E	F	G	H	I	J	SEE NOTES SECTION
	14			NS	8/9/22	9:25	1	NONE										X								
	15			NS	8/9/22	9:26	1	NONE												X						

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

REPORT LEVEL / QC REQUIRED	RECEIVED BY	SIGNATURE	DATE	TIME
Summary (Standard QC)	RELINQUISHED BY			
LEVEL II (Standard QC)	RECEIVED BY	<i>Jeremy Adams</i>	8/11/22	09:00
LEVEL III (Std QC + forms)	RELINQUISHED BY			
LEVEL IV (Std QC + forms + raw data)	RECEIVED BY			

PRESERVATION KEY 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaOH/ZnAcetate 6-NH4SC4 7-4°C 8-Other



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: LAS VEGAS ROCK

Workorder No: 2208293

Project Manager: _____

Initials: CXT

Date: 8/11/2022

				N/A	YES	NO
1. Are airbills / shipping documents present and/or removable?					X	
Tracking number: 7776 1300 0224						
2. Are custody seals on shipping containers intact?					X	
3. Are custody seals on sample containers intact?				X		
4. Is there a COC (chain-of-custody) present?					X	
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)					X	
6. Are short-hold samples present?						X
7. Are all samples within holding times for the requested analyses?					X	
8. Were all sample containers received intact? (not broken or leaking)					X	
9. Is there sufficient sample for the requested analyses?					X	
10. Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)					X	
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)				X		
12. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)				X		
13. Were the samples shipped on ice?						X
14. Were cooler temperatures measured at 0.1-6.0°C?				IR gun used*:	#6	X
Cooler #: <u>1</u>						
Temperature (°C): <u>AMB</u>						
# of custody seals on cooler: <u>2</u>						
External µR/hr reading: <u>10</u>						
Background µR/hr reading: <u>11</u>						
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES						

*** Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.**

Were unpreserved bottles pH checked? NA

All client bottle ID's vs ALS lab ID's double-checked by: CT

If applicable, was the client contacted? NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: *Aunt* _____

8/15/22

2208293

ORIGIN ID:BLDA (702) 791-7625
TANYA RUIZ
LAS VEGAS ROCK
2 PRISON RD.

JEAN, NV 89019
UNITED STATES US

TO **ATTN: HOLLY TIGNAC OR TYLER MONROE**
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

BILL SENDER

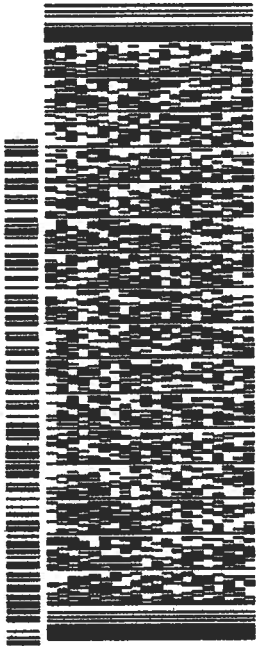
SHIP DATE: 08AUG22
ACTWGT: 18.00 LB
CAD: 1D2443978/INET4490
DIMS: 14x11x8 IN

*10-2
A m3*

FORT COLLINS CO 80524

(970) 558-2426 REF: CRC RENEWAL TESTING 2022

DEPT:

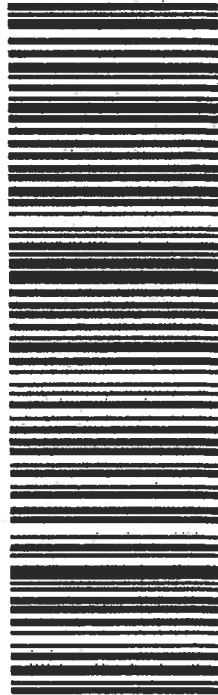


THU - 11 AUG 10:30A
MORNING 2DAY

TRK# 7776 1300 0224

80524
CO-US DEN

SA FTCA



After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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581J2F39DFFE4A

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: DB-1
Legal Location:
Collection Date: 8/9/2022 09:10

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-1
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICPMS Metals			SW6020		Prep Date: 8/24/2022	PrepBy: ETC
ARSENIC	3300		200	UG/KG	10	8/26/2022 15:19
CADMIUM	ND		200	UG/KG	10	8/26/2022 15:19
LEAD	7100		200	UG/KG	10	8/26/2022 15:19

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: DB-2
Legal Location:
Collection Date: 8/9/2022 09:11

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-2
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Mercury MERCURY	ND		SW7471	0.033 MG/KG	1	Prep Date: 8/31/2022 PrepBy: WJS 9/1/2022 14:13

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: DB-3
Legal Location:
Collection Date: 8/9/2022 09:12

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-3
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Hexavalent Chromium CHROMIUM VI	ND		SW7196	0.12 MG/KG	1	Prep Date: 8/23/2022 PrepBy: DMS 8/24/2022

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: DB-4
Legal Location:
Collection Date: 8/9/2022 09:13

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-4
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Gamma Spectroscopy Results			SOP 713		Prep Date: 8/26/2022	PrepBy: RYK
Ra-226	ND (+/- 0.26)	U	0.45	pCi/g	NA	9/16/2022 08:04
Ra-228	ND (+/- 0.37)	U	0.68	pCi/g	NA	9/16/2022 08:04
K-40	ND (+/- 1.6)	U	2.8	pCi/g	NA	9/16/2022 08:04

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: DB-5
Legal Location:
Collection Date: 8/9/2022 09:16

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-5
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Isotopic Thorium by Alpha Spectroscopy			SOP 714		Prep Date: 8/23/2022	PrepBy: ZAL
Tracer: Th-229	71.8		30-110	%REC	DL = NA	9/11/2022 11:05
Th-228	0.139 (+/- 0.077)	M3	0.106	pCi/g	NA	9/11/2022 11:05
Th-230	0.174 (+/- 0.08)	M3	0.101	pCi/g	NA	9/11/2022 11:05
Th-232	0.087 (+/- 0.042)		0.039	pCi/g	NA	9/11/2022 11:05

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: SS-1
Legal Location:
Collection Date: 8/9/2022 09:20

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-6
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICPMS Metals			SW6020		Prep Date: 8/24/2022	PrepBy: ETC
ARSENIC	ND		200	UG/KG	10	8/26/2022 15:22
CADMIUM	ND		200	UG/KG	10	8/26/2022 15:22
LEAD	2800		200	UG/KG	10	8/26/2022 15:22

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: SS-2
Legal Location:
Collection Date: 8/9/2022 09:20

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-7
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Mercury MERCURY	ND		SW7471	0.033 MG/KG	1	Prep Date: 8/31/2022 PrepBy: WJS 9/1/2022 14:15

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: SS-3
Legal Location:
Collection Date: 8/9/2022 09:21

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-8
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Hexavalent Chromium CHROMIUM VI	ND		SW7196	0.12 MG/KG	1	Prep Date: 8/23/2022 PrepBy: DMS 8/24/2022

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: SS-4
Legal Location:
Collection Date: 8/9/2022 09:22

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-9
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Gamma Spectroscopy Results			SOP 713		Prep Date: 8/26/2022	PrepBy: RYK
Ra-226	ND (+/- 0.19)	U	0.35	pCi/g	NA	9/16/2022 08:04
Ra-228	ND (+/- 0.31)	U	0.53	pCi/g	NA	9/16/2022 08:04
K-40	1.5 (+/- 1)	NQ	1.3	pCi/g	NA	9/16/2022 08:04

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: SS-5
Legal Location:
Collection Date: 8/9/2022 09:22

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-10
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Isotopic Thorium by Alpha Spectroscopy			SOP 714		Prep Date: 8/23/2022	PrepBy: ZAL
<i>Tracer: Th-229</i>	75.3		30-110	%REC	DL = NA	9/11/2022 11:05
Th-228	0.16 (+/- 0.074)		0.092	pCi/g	NA	9/11/2022 11:05
Th-230	0.137 (+/- 0.075)	M3	0.103	pCi/g	NA	9/11/2022 11:05
Th-232	0.123 (+/- 0.047)		0.026	pCi/g	NA	9/11/2022 11:05

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: TH-1
Legal Location:
Collection Date: 8/9/2022 09:24

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-11
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICPMS Metals			SW6020		Prep Date: 8/24/2022	PrepBy: ETC
ARSENIC	370		200	UG/KG	10	8/26/2022 15:25
CADMIUM	ND		200	UG/KG	10	8/26/2022 15:25
LEAD	1800		200	UG/KG	10	8/26/2022 15:25

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: TH-2
Legal Location:
Collection Date: 8/9/2022 09:24

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-12
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Mercury MERCURY	ND		SW7471	0.033 MG/KG	1	Prep Date: 8/31/2022 PrepBy: WJS 9/1/2022 14:17

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: TH-3
Legal Location:
Collection Date: 8/9/2022 09:25

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-13
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Hexavalent Chromium CHROMIUM VI	ND		SW7196	0.11 MG/KG	1	Prep Date: 8/23/2022 PrepBy: DMS 8/24/2022

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: TH-4
Legal Location:
Collection Date: 8/9/2022 09:25

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-14
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Gamma Spectroscopy Results						
			SOP 713		Prep Date: 8/26/2022	PrepBy: RYK
Ra-226	ND (+/- 0.23)	U	0.4	pCi/g	NA	9/16/2022 08:04
Ra-228	ND (+/- 0.3)	U	0.41	pCi/g	NA	9/16/2022 08:04
K-40	ND (+/- 1.2)	U	1.9	pCi/g	NA	9/16/2022 08:04

Client: Las Vegas Rock Inc.
 Project: 2022 C2C - RENEWAL
 Sample ID: TH-5
 Legal Location:
 Collection Date: 8/9/2022 09:26

Date: 21-Sep-22
 Work Order: 2208293
 Lab ID: 2208293-15
 Matrix: SOLID
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Isotopic Thorium by Alpha Spectroscopy			SOP 714		Prep Date: 8/23/2022	PrepBy: ZAL
<i>Tracer: Th-229</i>	64.8		30-110	%REC	DL = NA	9/11/2022 11:05
Th-228	0.138 (+/- 0.089)	M3	0.13	pCi/g	NA	9/11/2022 11:05
Th-230	0.141 (+/- 0.078)	M3	0.107	pCi/g	NA	9/11/2022 11:05
Th-232	0.149 (+/- 0.055)		0.029	pCi/g	NA	9/11/2022 11:05

Client: Las Vegas Rock Inc.
Project: 2022 C2C - RENEWAL
Sample ID: TH-5
Legal Location:
Collection Date: 8/9/2022 09:26

Date: 21-Sep-22
Work Order: 2208293
Lab ID: 2208293-15
Matrix: SOLID
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

- "Report Limit" is the MDC
- U or ND - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- W - DER is greater than Warning Limit of 1.42
- * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
- # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
- G - Sample density differs by more than 15% of LCS density.
- D - DER is greater than Control Limit
- M - Requested MDC not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS, Matrix Spike Recovery within control limits.
- N - Matrix Spike Recovery outside control limits
- NC - Not Calculated for duplicate results less than 5 times MDC
- B - Analyte concentration greater than MDC.
- B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

- B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
- U or ND - Indicates that the compound was analyzed for but not detected.
- E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
- M - Duplicate injection precision was not met.
- N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
- Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
- * - Duplicate analysis (relative percent difference) not within control limits.
- S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

- U or ND - Indicates that the compound was analyzed for but not detected.
- B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
- E - Analyte concentration exceeds the upper level of the calibration range.
- J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
- A - A tentatively identified compound is a suspected aldol-condensation product.
- X - The analyte was diluted below an accurate quantitation level.
- * - The spike recovery is equal to or outside the control criteria used.
- + - The relative percent difference (RPD) equals or exceeds the control criteria.
- G - A pattern resembling gasoline was detected in this sample.
- D - A pattern resembling diesel was detected in this sample.
- M - A pattern resembling motor oil was detected in this sample.
- C - A pattern resembling crude oil was detected in this sample.
- 4 - A pattern resembling JP-4 was detected in this sample.
- 5 - A pattern resembling JP-5 was detected in this sample.
- H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
- Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

ALS -- Fort Collins

Date: 9/21/2022 2:55:1

Client: Las Vegas Rock Inc.
 Work Order: 2208293
 Project: 2022 C2C - RENEWAL

QC BATCH REPORT

Batch ID: **AS220823-4-2** Instrument ID: **AlphaSpec2** Method: **Isotopic Thorium by Alpha Spec**

LCS Sample ID: **AS220823-4** Units: **pCi/g** Analysis Date: **9/12/2022 14:06**
 Client ID: Run ID: **AS220823-4TH** Prep Date: **8/23/2022** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Th-230	1.38 (+/- 0.23)	0.03	1.232		112	85-121					P
Tracer: Th-229	0.78	0.01	1.15		67.4	30-110					

MB Sample ID: **AS220823-4** Units: **pCi/g** Analysis Date: **9/12/2022 14:06**
 Client ID: Run ID: **AS220823-4TH** Prep Date: **8/23/2022** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Th-228	ND	0.028									U
Th-230	ND	0.033									U
Th-232	ND	0.0087									U
Tracer: Th-229	0.65	0	1.15		56.4	30-110					

The following samples were analyzed in this batch:

2208293-5	2208293-10	2208390-14
2208293-15		

Client: Las Vegas Rock Inc.
 Work Order: 2208293
 Project: 2022 C2C - RENEWAL

QC BATCH REPORT

Batch ID: **GS220826-2-1** Instrument ID: **GAMMA** Method: **Gamma Spectroscopy Results**

DUP		Sample ID: 2208293-4		Units: pCi/g			Analysis Date: 9/16/2022 08:50				
Client ID: DB-4		Run ID: GS220826-2B			Prep Date: 8/26/2022			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.39						0.09	0.33	2.13	U
Ra-228	ND	0.45						0.1	0.51	2.13	U
K-40	ND	2.6						0.7	0.31	2.13	U

LCS		Sample ID: GS220826-2A		Units: pCi/g			Analysis Date: 9/16/2022 08:51				
Client ID:		Run ID: GS220826-2B			Prep Date: 8/26/2022			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Ra-226	463 (+/- 54)	3	467.4		99	85-115					P,M3

LCS		Sample ID: GS220826-2		Units: pCi/g			Analysis Date: 9/16/2022 08:09				
Client ID:		Run ID: GS220826-2B			Prep Date: 8/26/2022			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Am-241	427 (+/- 55)	28	478.7		89.3	85-115					P
Co-60	208 (+/- 24)	1	210.3		99	85-115					P
Cs-137	177 (+/- 21)	1	177.8		99.6	85-115					P

MB		Sample ID: GS220826-2A		Units: pCi/g			Analysis Date: 9/16/2022 12:19				
Client ID:		Run ID: GS220826-2B			Prep Date: 8/26/2022			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.38									U
K-40	1.22 (+/- 0.79)	1.05									NQ

MB		Sample ID: GS220826-2		Units: pCi/g			Analysis Date: 9/16/2022 12:19				
Client ID:		Run ID: GS220826-2B			Prep Date: 8/26/2022			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.3									U

The following samples were analyzed in this batch: 2208293-4 2208293-9 2208293-14

Client: Las Vegas Rock Inc.
Work Order: 2208293
Project: 2022 C2C - RENEWAL

QC BATCH REPORT

Batch ID: **HG220831-2-1** Instrument ID: **CETAC7600** Method: **SW7471**

LCS		Sample ID: HG220831-2			Units: MG/KG		Analysis Date: 9/1/2022 14:02				
Client ID:		Run ID: HG220901-2A2			Prep Date: 8/31/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
MERCURY	0.168	0.0333	0.167		101	80-120				20	

LCSD		Sample ID: HG220831-2			Units: MG/KG		Analysis Date: 9/1/2022 14:04				
Client ID:		Run ID: HG220901-2A2			Prep Date: 8/31/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
MERCURY	0.173	0.0333	0.167		104	80-120		0.168	3	20	

MB		Sample ID: HG220831-2			Units: MG/KG		Analysis Date: 9/1/2022 14:00				
Client ID:		Run ID: HG220901-2A2			Prep Date: 8/31/2022		DF: 1				
Analyte	Result	ReportLimit	Qual								
MERCURY	ND	0.033									

The following samples were analyzed in this batch:

2208293-2	2208293-7	2208293-12
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Client: Las Vegas Rock Inc.
 Work Order: 2208293
 Project: 2022 C2C - RENEWAL

QC BATCH REPORT

Batch ID: **IP220824-1-3** Instrument ID: **ICPMS2** Method: **SW6020**

LCS		Sample ID: IM220824-1		Units: UG/KG		Analysis Date: 8/26/2022 15:07					
Client ID:		Run ID: IM220826-10A8			Prep Date: 8/24/2022		DF: 10				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
ARSENIC	9450	200	10000		95	80-120				20	
CADMIUM	2940	200	3000		98	80-120				20	
LEAD	5400	200	5000		108	80-120				20	

LCSD		Sample ID: IM220824-1		Units: UG/KG		Analysis Date: 8/26/2022 15:13					
Client ID:		Run ID: IM220826-10A8			Prep Date: 8/24/2022		DF: 10				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
ARSENIC	9530	200	10000		95	80-120		9450	1	20	
CADMIUM	2930	200	3000		98	80-120		2940	0	20	
LEAD	5370	200	5000		107	80-120		5400	1	20	

MB		Sample ID: IP220824-1		Units: UG/KG		Analysis Date: 8/26/2022 15:04						
Client ID:		Run ID: IM220826-10A8			Prep Date: 8/24/2022		DF: 10					
Analyte	Result	ReportLimit										Qual
ARSENIC	ND	200										
CADMIUM	ND	200										
LEAD	ND	200										

The following samples were analyzed in this batch: 2208293-1 2208293-6 2208293-11

Client: Las Vegas Rock Inc.
Work Order: 2208293
Project: 2022 C2C - RENEWAL

QC BATCH REPORT

Batch ID: **CR082322-1-1** Instrument ID: **Spec** Method: **SW7196**

LCS		Sample ID: CR082322-1			Units: MG/KG		Analysis Date: 8/24/2022				
Client ID:		Run ID: CR220824-1A1			Prep Date: 8/23/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHROMIUM VI	1.07	0.12	1		107	80-120				20	

LCSD		Sample ID: CR082322-1			Units: MG/KG		Analysis Date: 8/24/2022				
Client ID:		Run ID: CR220824-1A1			Prep Date: 8/23/2022		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CHROMIUM VI	1.08	0.12	1		109	80-120		1.07	1	20	

MB		Sample ID: CR082322-1			Units: MG/KG		Analysis Date: 8/24/2022				
Client ID:		Run ID: CR220824-1A1			Prep Date: 8/23/2022		DF: 1				
Analyte	Result	ReportLimit	Qual								
CHROMIUM VI	ND	0.12									

The following samples were analyzed in this batch:

2208293-3	2208293-8	2208293-13
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