



ALS USA Inc.  
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 www.alsglobal.com/geochemistry

To: LIBERTY STAR URANIUM & METALS  
 CORPORATION  
 2 E CONGRESS STREET  
 TUCSON AZ 85701

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 Plus Appendix Pages  
 Finalized Date: 19-MAY-2021  
 Account: LIBSTA

**CERTIFICATE TU21112329**

Project: Red Rock Canyon

This report is for 15 samples of Rock submitted to our lab in Tucson, AZ, USA on 4-MAY-2021.

The following have access to data associated with this certificate:

JAY CRAWFORD	PATRICIA MADARIS
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SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SND-ALS	Send samples to internal laboratory
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
CRU-31	Fine crushing - 70% <2mm
SPL-22Y	Split Sample - Boyd Rotary Splitter
PUL-31	Pulverize up to 250g 85% <75 um

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
Au-GRA21	Au 30g FA-GRAV finish	WST-SIM
ME-MS41	Ultra Trace Aqua Regia ICP-MS	

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

\*\*\*\*\* See Appendix Page for comments regarding this certificate \*\*\*\*\*

Signature:   
 Saa Traxler, General Manager, North Vancouver



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**CERTIFICATE OF ANALYSIS TU21112329**

Sample Description	Method Analyte Units LOD	WEI-21	Au-GRA21	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	
		Recvd Wt. kg	Au ppm	Ag ppm	Al %	As ppm	Au ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm
		0.02	0.05	0.01	0.01	0.1	0.02	10	10	0.05	0.01	0.01	0.01	0.02	0.1	1
314138		1.07	<0.05	0.02	0.12	8.8	<0.02	<10	10	0.14	0.02	>25.0	0.13	6.45	0.8	4
314139		2.14	<0.05	0.03	0.04	3.1	<0.02	<10	<10	<0.05	0.01	>25.0	0.06	1.99	0.5	2
314140		1.43	<0.05	0.01	0.05	2.8	<0.02	<10	<10	0.06	<0.01	>25.0	0.11	2.72	0.7	2
314141		1.75	<0.05	0.01	0.02	1.8	<0.02	<10	<10	<0.05	0.01	>25.0	0.11	1.05	0.5	3
314142		1.88	0.62	1.64	0.10	139.0	0.82	<10	30	0.43	0.06	1.82	0.21	0.71	0.7	22
314143		1.59	0.23	0.05	0.04	26.6	0.10	<10	<10	0.09	0.02	>25.0	0.22	1.84	0.6	6
314144		2.30	0.96	0.32	0.08	83.2	1.04	<10	30	0.21	0.04	10.75	0.66	2.11	0.9	18
314145		2.53	8.80	1.02	0.06	472	8.69	<10	120	0.11	0.02	4.44	0.52	2.56	0.5	25
314146		1.87	6.44	1.21	0.11	509	6.10	<10	20	0.23	0.24	6.31	0.37	2.19	1.0	15
314147		1.50	0.19	0.43	0.05	4.8	0.04	<10	10	0.15	0.01	0.42	0.04	0.20	0.4	24
314148		1.79	11.10	0.75	0.05	564	10.15	<10	20	0.08	0.04	1.27	0.16	0.70	0.4	21
314149		2.64	8.99	2.73	0.08	693	8.73	10	200	0.14	0.05	2.35	0.32	1.35	0.8	26
314150		2.02	67.7	2.05	0.04	3200	>25.0	10	40	0.05	0.07	0.81	0.16	0.79	0.6	26
314151		2.03	2.50	0.16	0.08	230	2.51	<10	10	0.14	0.04	7.12	1.10	1.53	0.7	16
314152		2.26	0.86	0.76	0.12	79.2	0.86	<10	20	0.14	0.04	2.34	1.44	12.30	0.8	19

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**CERTIFICATE OF ANALYSIS TU21112329**

Sample Description	Method Analyte Units LOD	ME-MS41 Cs ppm 0.05	ME-MS41 Cu ppm 0.2	ME-MS41 Fe % 0.01	ME-MS41 Ga ppm 0.05	ME-MS41 Ge ppm 0.05	ME-MS41 Hf ppm 0.02	ME-MS41 Hg ppm 0.01	ME-MS41 In ppm 0.005	ME-MS41 K % 0.01	ME-MS41 La ppm 0.2	ME-MS41 Li ppm 0.1	ME-MS41 Mg % 0.01	ME-MS41 Mn ppm 5	ME-MS41 Mo ppm 0.05	ME-MS41 Na % 0.01
314138		0.43	2.9	0.42	0.36	<0.05	0.02	0.02	0.005	0.05	3.2	1.6	0.88	47	2.23	0.01
314139		0.08	1.9	0.05	0.14	<0.05	<0.02	0.01	<0.005	0.01	1.1	1.7	0.24	24	0.50	0.01
314140		0.20	2.2	0.08	0.15	0.05	0.02	0.02	<0.005	0.02	1.4	1.9	0.89	39	0.46	0.01
314141		0.05	3.5	0.03	0.07	0.05	<0.02	0.01	<0.005	0.01	0.6	1.2	0.27	32	0.38	0.01
314142		2.04	7.4	1.03	0.83	<0.05	0.02	0.07	0.005	0.06	0.3	9.5	0.06	59	577	<0.01
314143		0.08	4.0	0.17	0.14	<0.05	<0.02	<0.01	<0.005	0.01	0.9	3.0	2.55	46	6.65	0.01
314144		0.46	5.1	0.88	0.51	<0.05	0.02	0.04	<0.005	0.01	1.1	7.4	2.81	149	194.5	<0.01
314145		1.44	4.5	1.80	0.44	<0.05	0.03	0.29	0.006	0.02	1.0	3.5	0.43	94	533	<0.01
314146		0.87	5.7	1.81	0.70	<0.05	0.02	0.12	0.007	0.02	1.1	8.6	0.84	124	329	<0.01
314147		0.32	2.6	1.17	0.83	<0.05	<0.02	0.01	<0.005	<0.01	<0.2	3.1	0.06	124	17.15	<0.01
314148		0.58	2.9	1.74	0.29	<0.05	<0.02	0.28	<0.005	0.01	0.3	4.6	0.27	73	680	<0.01
314149		1.08	4.9	2.41	0.55	<0.05	0.02	0.31	<0.005	0.02	0.5	5.7	0.53	148	1255	<0.01
314150		0.19	5.6	6.11	0.86	0.10	<0.02	0.80	0.005	0.03	0.3	1.6	0.03	46	1350	<0.01
314151		0.59	3.7	1.12	0.40	<0.05	0.02	0.10	<0.005	0.02	0.6	4.2	3.27	158	40.3	<0.01
314152		0.51	3.3	0.73	0.77	<0.05	0.03	0.14	<0.005	0.02	7.4	12.0	1.03	135	104.5	<0.01

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**CERTIFICATE OF ANALYSIS TU21112329**

Sample Description	Method Analyte Units LOD	ME-MS41 Nb ppm 0.05	ME-MS41 Ni ppm 0.2	ME-MS41 P ppm 10	ME-MS41 Pb ppm 0.2	ME-MS41 Rb ppm 0.1	ME-MS41 Re ppm 0.001	ME-MS41 S % 0.01	ME-MS41 Sb ppm 0.05	ME-MS41 Sc ppm 0.1	ME-MS41 Se ppm 0.2	ME-MS41 Sn ppm 0.2	ME-MS41 Sr ppm 0.2	ME-MS41 Ta ppm 0.01	ME-MS41 Te ppm 0.01	ME-MS41 Th ppm 0.2
314138		0.05	3.1	40	2.3	3.8	0.001	0.04	0.18	0.7	0.5	<0.2	335	<0.01	0.01	0.4
314139		<0.05	0.5	20	0.6	0.7	<0.001	0.03	0.22	0.2	0.2	<0.2	407	<0.01	0.01	<0.2
314140		<0.05	1.2	20	1.8	1.0	0.001	0.02	0.12	0.2	0.5	<0.2	321	<0.01	0.01	<0.2
314141		<0.05	0.4	10	2.7	0.5	0.001	0.03	0.24	0.1	0.3	<0.2	275	<0.01	0.01	<0.2
314142		<0.05	3.8	50	5.2	7.8	0.001	0.03	5.53	0.2	3.0	<0.2	38.3	<0.01	0.03	0.2
314143		<0.05	1.7	90	2.9	0.6	<0.001	0.02	0.53	0.2	1.2	<0.2	185.5	<0.01	<0.01	<0.2
314144		<0.05	5.1	120	3.0	1.5	<0.001	0.02	4.08	0.4	1.2	<0.2	56.5	<0.01	0.02	0.3
314145		<0.05	3.4	390	2.4	3.0	<0.001	0.03	15.95	0.2	5.5	<0.2	63.7	<0.01	0.01	0.4
314146		<0.05	5.7	120	5.8	2.4	<0.001	0.02	15.90	0.4	7.6	<0.2	59.0	<0.01	0.03	0.3
314147		<0.05	2.5	20	2.3	0.6	0.002	0.01	0.59	0.1	0.2	<0.2	2.3	<0.01	0.01	<0.2
314148		<0.05	2.2	40	2.8	0.9	<0.001	0.05	14.20	0.1	7.0	<0.2	30.4	<0.01	0.01	<0.2
314149		<0.05	4.2	130	3.6	2.6	<0.001	0.27	14.95	0.2	14.1	<0.2	26.9	<0.01	0.02	0.2
314150		0.06	2.8	80	4.5	0.4	<0.001	0.09	54.3	0.1	29.6	<0.2	88.5	<0.01	0.02	0.2
314151		<0.05	3.6	80	3.7	2.0	0.001	0.02	3.37	0.3	0.8	<0.2	26.3	<0.01	0.01	0.2
314152		<0.05	4.9	190	8.2	1.9	<0.001	0.02	4.22	0.4	0.8	<0.2	10.1	<0.01	0.02	0.4



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Sample Description	Method Analyte Units LOD	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41
		Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
		0.005	0.02	0.05	1	0.05	0.05	2	0.5
314138		<0.005	0.06	1.49	9	0.15	2.30	7	1.0
314139		<0.005	0.02	0.89	2	<0.05	0.70	4	<0.5
314140		<0.005	<0.02	0.91	2	<0.05	1.13	6	0.5
314141		<0.005	<0.02	1.29	1	0.05	0.40	4	<0.5
314142		<0.005	0.46	3.12	42	0.25	0.33	15	0.7
314143		<0.005	0.07	1.03	5	0.11	1.13	7	<0.5
314144		<0.005	1.78	0.66	14	0.23	1.35	17	0.7
314145		<0.005	0.53	1.35	26	0.44	1.43	22	0.9
314146		<0.005	2.20	2.78	32	0.68	1.14	18	0.8
314147		<0.005	0.03	0.10	2	0.05	0.08	4	<0.5
314148		<0.005	0.76	1.39	18	0.31	0.33	32	0.5
314149		<0.005	0.70	0.94	24	0.40	0.64	29	0.8
314150		<0.005	2.52	2.53	76	1.45	0.23	5	0.5
314151		<0.005	2.05	0.70	11	0.20	0.99	27	0.8
314152		<0.005	0.30	0.45	10	0.17	1.07	27	0.9



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**CERTIFICATE OF ANALYSIS TU21112329**

**CERTIFICATE COMMENTS**

**ANALYTICAL COMMENTS**

Applies to Method: Gold determinations by this method are semi-quantitative due to the small sample weight used (0.5g).  
ME-MS41

**LABORATORY ADDRESSES**

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.  
Au-GRA21 ME-MS41

Applies to Method: Processed at ALS Tucson, Arizona, USA  
CRU-31 CRU-QC LOG-22 PUL-31  
PUL-QC SND-ALS SPL-22Y WEI-21