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# HIGH GRADE LITHIUM RESULTS UP TO 3.70% Li<sub>2</sub>O FROM SPODUMENE SAMPLES AT PIONEER DOME

**Perth, Western Australia: 17 July 2019:** Pioneer Resources Limited (the "Company" or "Pioneer") (ASX: PIO) is pleased to provide a geological update for the 100%-held Pioneer Dome Project near Norseman in Western Australia.

On 25 June 2019 the Company provided details of the discovery of a spodumene-bearing pegmatite system at the Dome North area, located at the northern end of the Company's Pioneer Dome Project.

## MAPPING CONFIRMS HIGH GRADE LITHIUM PEGMATITES

Assays of rock chips taken during geological mapping have provided evidence of high grade spodumene mineralisation within two pegmatite exposures that together exceed 500m in strike length.

Drilling is scheduled to commence in August 2019, with up to 5,000m planned to follow up:

- Target 1 (currently 200m long): 7 rock chips returned between 1.40% and 1.99% Li<sub>2</sub>O;
- Target 2 (currently 300m long): 17 rock chips returned between 1.65% and 3.70% Li<sub>2</sub>O
- 2 Emerging Targets: rock chips returned 1.53 and 2.63% Li<sub>2</sub>O

The Pioneer Dome sits along an increasingly important 'lithium corridor' which includes three lithium mines that extract and concentrate spodumene: Mt Marion (Gangfeng, Mineral Resources), Bald Hill (Alliance Minerals) and Mt Cattlin (Galaxy Resources); as well as the emerging Buldania deposit (Liontown Resources).



**Figure 1:** (Left) Pioneer geologist at the discovery outcrop of Spodumene Target 2. (Right) elongate grey spodumene crystals in a Dome North pegmatite sample.



*Figure 2:* The Dome North Prospect is located approximately 110km south of Kalgoorlie, WA.



**Figure 3:** Spodumene Target 2 at Dome North: showing locations where high grade lithium samples were taken. Mineralised pegmatite is exposed over at least 300m of strike length.



**Figure 4:** Dome North prospect area showing SpodumeneTargets (1 and 2), and rock chip sample points with spodumene (green) and holmquistite (blue). Image is processed aeromagnetic data.

Table 1												
Significant Rock Chip Locations and Assays           Sample ID         East         North         RAMAN         Cs         Li <sub>2</sub> O         Rb         Ta         K												
Sample ID	East	North	RAMAN	Cs	Li <sub>2</sub> O	Rb	Та	К				
Spodumene	Target 1	r	Key Mineral	ppm	%	ppm	ppm	ppm				
ARC116357	365,506	6,486,529	Not analysed	343	1.40	3658	131	24,399				
ARC116358	365,495	6,486,510	Not analysed	94	1.73	2072	55	28,958				
ARC116362	365,519	6,486,540	Spodumene	129	1.21	1138	85	10,936				
ARC116364	365,560	6,486,569	Spodumene	215	0.57	3669	100	25,719				
ARC116365	365,578	6,486,608	Spodumene	118	1.90	1362	110	9,784				
ARC116366	365,588	6,486,625	Holmquistite	4	1.60	18	238	374				
ARC116367	365,587	6,486,601	Spodumene	34	1.99	309	96	3,850				
ARC119587	365,491	6,486,510	Spodumene	69	1.71	543	106	9,184				
Spodumene	Target 2											
ARC116389	367,676	6,485,816	Spodumene	62	1.98	836	42	19,124				
ARC116390	367,676	6,485,824	Spodumene	56	2.59	577	32	12,206				
ARC116391	367,676	6,485,842	Spodumene	27	2.61	310	31	6,474				
ARC116392	367,681	6,485,873	Spodumene	32	2.82	226	56	5,647				
ARC116393	367,680	6,485,857	Spodumene	39	2.28	294	46	5,054				
ARC116394	367,657	6,485,867	Spodumene	45	2.00	464	37	10,834				
ARC116395	367,679	6,485,925	Spodumene	80	1.65	857	32	17,306				
ARC116396	367,695	6,485,950	Spodumene	71	2.07	588	19	12,608				
ARC116397	367,728	6,486,013	Spodumene	37	3.61	260	62	4,159				
ARC116398	367,729	6,486,000	Spodumene	70	2.44	390	54	6,876				
ARC116399	367,730	6,486,059	Spodumene	37	2.84	434	42	7,340				
ARC116402	367,718	6,486,096	Spodumene	26	2.80	186	67	3,063				
ARC116403	367,680	6,486,046	Spodumene	42	2.74	299	42	4,188				
ARC116404	367,665	6,486,024	Spodumene	25	2.93	257	56	4,674				
ARC116410	367,715	6,485,993	Spodumene	28	3.70	292	45	5,837				
ARC116411	367,730	6,486,037	Spodumene	53	2.10	455	37	7,586				
ARC116412	367,688	6,486,078	Spodumene	23	2.65	233	59	3,723				
Spodumene	Samle 200m	West of Spo	dumene Target 2			•						
ARC116406	367,418	6,486,040	Quartz/Petalite	38	2.62	328	49	5,732				
Holmquistite	e Sample 1.5	km West of S	podumene Target	2								
ARC116384	366,195	6,485,987	Holmquistite	27	1.53	132	43	4,749				

Chemical assay results provided by Intertek Genalysis. RAMAN Analysis by Geochemical Services Pty Ltd. Coordinates in grid MGA94-51 determined by hand-held GPS. See additional notes in Appendix 1

## DRILLING APPROVAL IN PLACE

With mapping advancing and the completion of other preparatory work including environmental and aboriginal heritage surveys, drilling is scheduled to commence in August 2019.

Pioneer used a portable RAMAN spectrometer to identify the presence of spodumene (and other key minerals). This is the first application of a technology that the Company is developing as a mineral exploration tool through internal research and development in conjunction with Geochemical Services Pty Ltd (Dr Nigel Brand – Principal). The RAMAN spectrometer directly identified the presence of the mineral spodumene in rock chip samples before they were submitted to the laboratory for analysis, thus greatly accelerating the cycle time between when a sample is taken and when a result (minerology) is determined.

All elemental assay analysis of the rock chips is undertaken by Intertek Genalysis.

### SINCLAIR MINE EXTENSIONAL DRILLING

A drilling programme that commenced in May (ASX release 27 May 2019) has been completed. While assays are still pending, lithium mineralisation (lepidolite and petalite) was intersected along strike, running approximately 150 metres to the north of the northern pit wall and 80 metres to the south of the southern pit wall.

A further update will be provided once the assay results are received and analysed.

## POLLUCITE OFFTAKE

Pollucite sales to 30 June 2019 totalled A\$10.5 million (US\$7.5 million) with A\$3.8 million received in cash and A\$6.7 million (US\$4.8 million) applied to fully repay the loan from Cabot Specialty Fluids Limited (now named Sinomine Specialty Fluids Limited – refer below). Royalties payable to the Western Australian government totalled A\$0.8 million.

Sinomine Resource Group Co. Ltd. ("Sinomine"), took formal control of Cabot Specialty Fluids Limited on 28 June 2019, renaming it Sinomine Specialty Fluids Limited ("SinomineSF"). US\$700,000 from a pollucite sale made this month was remitted by Sinomine overnight.

Currently SinomineSF have US\$4.9 million worth of pollucite stored at the Sinclair Mine, co-mingled with Pioneer's inventory. Both parties have commenced planning for August's shipment, which will be a larger quantity than previously shipped due to its destination being Sinomine's facilities in China and not the access-restricted Tanco mine in Canada.

## ABOUT THE PIONEER DOME AND SINCLAIR MINE

The Company's namesake Pioneer Dome Project is proving to have great importance.

The Project includes the Sinclair Pegmatite, host to one of only three known pollucite deposits globally of a size to be commercially extracted, and now pegmatites at Dome North are known to contain the key lithium mineral, spodumene. The Company plans to advance the Pioneer Dome Project using proceeds received from the sale of Pollucite under the existing agreement with SinomineSF.

## OUTLOOK

- Shipments of pollucite to continue in accordance with the revised schedule;
- Results of drilling at the Sinclair Mine Pegmatite will be advised when received;
- Exploration crews continue the detailed appraisal of the (Pioneer) Dome North prospect located 18 km north of the Sinclair Mine, where spodumene pegmatites reported herein have been identified in outcrop; and
- Offtake discussions continue with potential customers for other saleable minerals from Sinclair including potassium feldspar, quartz and lithium minerals (petalite and lepidolite) which were stockpiled during mining and which would be extracted from a Sinclair Stage 2 Pit.

Yours faithfully

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**Managing Director** 

## ABOUT PIONEER RESOURCES LIMITED

Pioneer has completed its mining operation and has returned to being a well funded, active explorer focused on key global demand-driven commodities. The Company operates a portfolio of strategically located lithium, caesium, potassium ("alkali metals"), nickel, cobalt and gold projects in mining regions in Western Australia, plus a high-quality lithium asset in Canada. Drilling is in progress, or has been recently completed, at the Projects located in Australia.

**Pioneer Dome Project:** The Company's flagship Project. In late 2016 Pioneer reported the discovery of Australia's first caesium (in the mineral 'pollucite') deposit, which was brought into production within 2 years. Pollucite is currently being delivered to Cabot Specialty Fluids' Tanco Mine facility where it is converted into Caesium Formate brine, used in high temperature/high pressure oil and gas drilling.

In June 2019, the Company reported that spodumene, a major lithium ore, has been discovered at the Dome North Prospect. Drilling is scheduled for August this year.

**Nickel: Blair Dome/Golden Ridge Project:** The price for nickel is steadily improving. The Company owns the closed Blair Nickel Sulphide Mine located between Kalgoorlie and Kambalda, WA, where near-mine target generation is continuing. The Company announced a significant new disseminated nickel sulphide drilling intersection at the Leo's Dam Prospect in 2018, highlighting the prospectivity of the greater project area. A programme of RAB drilling has been undertaken, with assay results pending.

**Cobalt: Golden Ridge Project, WA:** Cobalt demand is expanding in response to its requirement in the manufacture of cobalt-based lithium batteries in certain electric vehicles and electricity stabilisation systems (power walls). Other uses include in super-alloys, including jet engine turbine blades, and for corrosion resistant metal applications.

Lithium: Mavis Lake Project, Canada & Pioneer Dome Project, WA: Lithium has been classed as a 'critical metal' meaning it has a number of important uses across various parts of the modern, globalised economy including communication, electronic, digital, mobile and battery technologies; and transportation, particularly aerospace and automotive emissions reduction. Critical metals seem likely to play an important role in the nascent green economy, particularly solar and wind power; electric vehicle and rechargeable batteries; and energy-efficient lighting.

**Gold:** Acra JV Project, Kangan JV Project. The Company has attracted well credentialled earn-in joint venture partners: Northern Star Resources limited for the Acra Gold Project near Kalgoorlie W.A., and Novo Resources Corp and Sumitomo corporation for the Kangan Gold Project in the West Pilbara W.A. The incoming parties will fully fund gold exploration programmes until a decision to mine is made, with Pioneer retaining a significant free-carried position.

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Upside for Battery Metals: Li, Ni, Co





Proven Explorer with Project delivery

#### REFERENCES

Pioneer Dome: Refer Company's announcements to ASX dated 19 May 2016, 27 July 2016, 28 August 2016, 1 September 2016, 4 October 2016, 17 October 2016, 14 November 2016, 2 December 2016, 13 December 2016, 13 January 2017, 24 January 2017, 23 February 2017, 20 March 2017, 22 March 2017, 20 May 2017, 21 February 2018, 19 April 2018, 20 May 2018, 25 July 2018, 26 July 2018, 30 July 2018, 30 August 2018, 8 November 2018 (Mineral Resource update), 28 November 2018, 12 December 2018, 22 January 2019, 1 February 2019, 26 March 2019, 17 April 2019, 27 May 2019, 25 June 2019.

#### GLOSSARY

Note 1: Information about the BRAVO Handheld Raman Spectrometer: see link (<u>https://www.bruker.com/products/infrared-near-infrared-and-raman-spectroscopy/raman/bravo/overview.html</u>)

For descriptions of any technical terms that are not described within the report, the reader is directed to various internet sources such as Wikipedia (www.wikipedia.org) or Mindat (www.mindat.org)

#### **Competent Person' Statement**

The information in this report that relates to Exploration Results is based on information supplied to and compiled by Mr David Crook. Mr Crook is a full time employee of Pioneer Resources Limited. Mr Crook is a member of The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists and has sufficient experience which is relevant to the exploration processes undertaken to qualify as a Competent Person as defined in the 2012 Editions of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

The reports listed in the References are available to review on the ASX website and on the Company's website at <u>www.PIOresources.com.au</u>. The Company confirms that it is not aware of any new information or data that materially effects the information included in the original market announcement, and, in the case of estimates of Mineral Resources, that all market assumptions and technical assumptions underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

#### **Caution Regarding Forward Looking Information**

This document may contain forward looking statements concerning the projects owned by the Company. Statements concerning mining reserves and resources may also be deemed to be forward looking statements in that they involve estimates based on specific assumptions.

Forward-looking statements are not statements of historical fact and actual events and results may differ materially from those described in the forward-looking statements as a result of a variety of risks, uncertainties and other factors. Forward-looking statements are inherently subject to business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause the Company's actual results to differ materially from those expressed or implied in any forward-looking information provided by the Company, or on behalf of, the Company. Such factors include, among other things, risks relating to additional funding requirements, metal prices, exploration, development and operating risks, competition, production risks, regulatory restrictions, including environmental regulation and liability and potential title disputes.

Forward looking statements in this document are based on the Company's beliefs, opinions and estimates of the Company as of the dates the forward-looking statements are made, and no obligation is assumed to update forward looking statements if these beliefs, opinions and estimates should change or to reflect other future developments.

There can be no assurance that the Company's plans for development of its mineral properties will proceed as currently expected. There can also be no assurance that the Company will be able to confirm the presence of additional mineral deposits, that any mineralisation will prove to be economic or that a mine will successfully be developed on any of the Company's mineral properties. Circumstances or management's estimates or opinions could change. The reader is cautioned not to place undue reliance on forward-looking statements.

# Table 2: Key Element Assay Results.

Sample_ID	East	North	Genalysis#	Al	Cr	Cs	Cu	К	Li	Li2O	Mg	Mn	Na	Nb	Ni	Р	Rb	Sn	Та	Ti
	(m)	(m)		(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
ARC116351	365,349	6,486,730	1043.0/1908503	67591	26	10.44	8.4	32451	34.3	0.01	1203	129	25344	7.36	16.8	185	280.42	1.1	1.11	595
ARC116352	365,315	6,486,758	1043.0/1908503	78996	17	8.61	9.6	40431	20.7	0.00	1420	115	28471	8.77	6.4	267	289.68	1	1.59	750
ARC116353	365,292	6,486,768	1043.0/1908503	76677	22	9.79	11	38337	9.5	0.00	674	118	28648	18.26	13.3	50	315.42	1	3.27	552
ARC116354	365,298	6,486,777	1043.0/1908503	72586	25	10.97	14	37413	6.8	0.00	383	104	30374	8.01	2.1	77	332.64	0.8	2.57	395
ARC116355	365,427	6,486,619	1043.0/1908503	80111	20	15.78	16.8	32475	22.5	0.00	419	133	27778	37.66	1.9	187	444.66	3.9	7.05	928
ARC116356	365,447	6,486,583	1043.0/1908503	85792	22	83.53	3.4	29522	11.3	0.00	497	313	48535	76.45	1.8	176	1645.04	9.1	65.77	34
ARC116357	365,506	6,486,529	1043.0/1908503	70004	16	342.98	4.6	24399	6483.7	1.40	248	826	30975	53.75	14.7	617	3658.4	38.4	130.72	25
ARC116358	365,495	6,486,510	1043.0/1908503	70685	16	94.46	4.3	28958	8054.3	1.73	334	1306	16923	103.22	12	866	2071.68	26.3	55.36	37
ARC116359	365,289	6,486,566	1043.0/1908503	82004	35	71.19	7.1	12247	205.9	0.04	119	1721	48817	65.3	8.5	106	1072.81	28.6	35.01	35
ARC116360	365,363	6,486,698	1043.0/1908503	83006	14	7.91	12.8	42984	58.4	0.01	1935	149	29544	10.86	7.1	260	253.69	2.2	1.72	980
ARC116361	365,475	6,486,495	1043.0/1910074	87268	16	72.76	9.9	11687	372.1	0.08	1419	918	47639	55.54	18.2	218	854.53	23.1	45.5	66
ARC116362	365,519	6,486,540	1043.0/1910074	31693	7	128.97	4.6	10936	5597.7	1.21	59	1175	34361	52.83	7.9	179	1137.75	37.6	85.45	26
ARC116363	365,542	6,486,555	1043.0/1910074	79521	16	451.33	6	41304	156	0.03	962	284	36178	41.53	56.6	456	6443.3	11.7	145.4	26
ARC116364	365,560	6,486,569	1043.0/1910074	58523	4	214.51	2.3	25719	2635.8	0.57	612	1018	32864	60.35	19.6	458	3669.2	36.5	100.28	26
ARC116365	365,578	6,486,608	1043.0/1910074	57707	11	117.74	2.9	9784	8831.6	1.90	639	1064	18114	84.15	38.8	101	1361.88	64.6	109.83	49
ARC116366	365,588	6,486,625	1043.0/1910074	78011	15	4.18	7.9	374	7446.2	1.60	47284	949	25819	33.09	57.1	1460	17.77	45.9	238.16	68
ARC116367	365,587	6,486,601	1043.0/1910074	46648	6	34.03	3.4	3850	9263.7	1.99	401	2120	28473	67.22	19.6	135	308.58	62.2	96.2	46
ARC116368	365,601	6,486,641	1043.0/1910074	42583	7	56.67	3.3	13757	3257.9	0.70	560	1142	39345	74.84	30.1	371	1016.79	52.9	76.59	24
ARC116369	365,618	6,486,664	1043.0/1910074	74813	5	29.52	4.2	21879	208.5	0.04	387	1408	48969	72.48	32.6	286	1415.15	10.4	101.17	73
ARC116370	365,620	6,486,686	1043.0/1910074	80957	5	168.01	2.5	29012	298.1	0.06	422	681	46259	63.07	50.1	322	3078.2	50.1	47.89	21
ARC116371	365,645	6,486,705	1043.0/1910074	81666	12	9.48	6.9	923	37.7	0.01	489	726	67350	57.21	110.9	425	28.5	4.5	97.14	25
ARC116372	365,657	6,486,731	1043.0/1910074	78301	5	26.16	24.3	10343	158.6	0.03	1112	740	55550	40.54	167	358	725.37	15	57.35	34
ARC116373	365,691	6,486,773	1043.0/1910074	72359	12	7.09	26.4	30294	129.6	0.03	1850	198	31446	8.95	65.3	132	258	2.5	1.68	522
ARC116374	365,731	6,486,762	1043.0/1910074	71153	25	9.29	44.3	16032	46.3	0.01	3514	596	39959	17.34	173.9	Х	130.59	1.4	5.03	484
ARC116375	365,858	6,486,943	1043.0/1910074	76902	6	2.97	9.4	919	11.8	0.00	2624	188	57441	30.68	69.8	Х	7.26	1.2	5.37	305
ARC116376	365,802	6,486,918	1043.0/1910074	65051	19	0.94	4.8	2026	8.2	0.00	892	232	46961	9.23	33	Х	11.92	0.5	6.76	165
ARC116377	365,698	6,486,825	1043.0/1910074	74380	24	8.09	8.7	34839	131.4	0.03	2522	317	30195	16.44	124	138	252.01	4.2	1.68	1045

Sample_ID	East	North	Genalysis#	Al	Cr	Cs	Cu	К	Li	Li2O	Mg	Mn	Na	Nb	Ni	Р	Rb	Sn	Та	Ti
	(m)	(m)		(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
ARC116378	365,551	6,486,333	1043.0/1910074	31646	1684	5.83	173.1	1785	8.2	0.00	2066	430	298	3.48	1062.4	1117	55.45	2.7	1.75	400
ARC116379	365,433	6,486,732	1043.0/1910074	68219	12	2.47	5	4587	48.4	0.01	3651	186	41634	24.59	57.8	100	53.06	1.1	4.41	679
ARC116380	365,436	6,486,683	1043.0/1910074	62769	54	5.15	8.1	7601	37.5	0.01	1805	192	35907	27.52	139.9	107	114.32	2.7	8.34	614
ARC116381	365,335	6,486,790	1043.0/1910074	68692	8	5.53	10.7	34999	62.2	0.01	1732	127	30648	7.46	51.1	119	281.55	0.7	2.2	619
ARC116382	365,391	6,486,524	1043.0/1910074	75799	14	44.63	4.9	15591	112.1	0.02	340	298	46168	105.9	5.9	102	763.57	16.3	22.47	49
ARC116383	366,155	6,485,963	1043.0/1910074	85254	4	102.86	1.7	4756	505.8	0.11	1142	800	62233	77.24	6.1	247	398.38	7.8	46.82	34
ARC116384	366,195	6,485,987	1043.0/1910074	64899	7	26.63	7.3	4749	7125	1.53	1790	237	31190	78.01	36.2	90	131.94	6.8	42.7	88
ARC116385	366,207	6,485,930	1043.0/1910074	91209	6	658.69	2.1	86411	1355.6	0.29	2159	144	13503	14.7	10.8	372	6256.2	5.9	15.96	11
ARC116386	366,182	6,486,097	1043.0/1910074	71757	7	218.89	1.9	34616	134.5	0.03	510	115	32992	48.76	3.2	260	2810.8	36.2	30.87	32
ARC116387	365,951	6,486,263	1043.0/1910074	89469	6	55.19	3.3	34453	24.4	0.01	794	287	52661	33.09	47.9	167	1841.05	4.9	15.52	11
ARC116388	365,837	6,486,463	1043.0/1910074	98149	12	201.73	2.4	87806	105.8	0.02	364	130	16583	7.01	25.2	333	3765.4	2.7	5.14	18
ARC116389	367,676	6,485,816	1043.0/1910076	63928	5	61.69	3.5	19124	9215.1	1.98	464	940	22790	104.88	4.5	130	835.86	19.1	41.74	
ARC116390	367,676	6,485,824	1043.0/1910076	44434	5	56.2	3.7	12206	>10000.0	2.59	243	974	17111	78.2	9	128	576.79	22.9	32.22	
ARC116391	367,676	6,485,842	1043.0/1910076	47187	3	27.42	4.1	6474	>10000.0	2.61	78	785	17533	77.78	7.2	102	309.63	16.4	30.78	
ARC116392	367,681	6,485,873	1043.0/1910076	54809	6	31.67	5.2	5647	>10000.0	2.82	495	921	16666	100.11	1.7	126	226.29	22.8	55.85	
ARC116393	367,680	6,485,857	1043.0/1910076	26383	3	38.64	3.2	5054	>10000.0	2.28	74	803	21047	89.52	7.9	112	294.06	20.9	46.47	
ARC116394	367,657	6,485,867	1043.0/1910076	52386	4	44.83	2.3	10834	9304.2	2.00	304	935	22310	98.65	1.3	126	464.33	21.7	36.9	
ARC116395	367,679	6,485,925	1043.0/1910076	66303	5	80.39	2.2	17306	7646.4	1.65	458	827	25490	80.64	2.4	123	857.04	29.3	32.18	
ARC116396	367,695	6,485,950	1043.0/1910076	47559	6	70.75	2.4	12608	9595.4	2.07	237	701	21351	40.14	1.6	106	588.28	19	18.89	
ARC116397	367,728	6,486,013	1043.0/1910076	78749	6	36.74	3.5	4159	>10000.0	3.61	103	755	11335	80.48	10	150	259.58	23.2	61.84	
ARC116398	367,729	6,486,000	1043.0/1910076	44028	7	70.15	2.5	6876	>10000.0	2.44	57	961	21419	115.84	3.7	379	389.9	16.9	54.05	
ARC116399	367,730	6,486,059	1043.0/1910076	55259	4	36.7	2.4	7340	>10000.0	2.84	72	1601	15799	66.05	3.5	427	434.36	27.7	42.12	
ARC116400	367,968	6,485,868	1043.0/1910076	37246	1813	0.85	140.7	1264	54.7	0.01	4166	490	238	3.42	141.7	929	9.7	0.9	0.59	
ARC116401	368,098	6,486,001	1043.0/1910076	57089	131	0.66	5.7	521	59.9	0.01	458	121	345	9.42	22.6	Х	3.48	2.4	2.71	
ARC116402	367,718	6,486,096	1043.0/1910076	62305	40	26.04	6.9	3063	>10000.0	2.80	363	1493	19274	87.64	10.1	892	186.31	32.4	66.63	
ARC116403	367,680	6,486,046	1043.0/1910076	41930	6	42.35	2	4188	>10000.0	2.74	72	1042	18283	84.67	2.1	100	298.87	21.3	41.67	
ARC116404	367,665	6,486,024	1043.0/1910076	57594	6	25.41	3.4	4674	>10000.0	2.93	202	1669	15780	112.23	6	217	256.74	18.4	55.71	
ARC116405	367,650	6,485,948	1043.0/1910076	85072	4	29.82	3.6	8951	236.3	0.05	366	157	57071	58.63	9.2	178	510.51	15.1	40.57	
ARC116406	367,418	6,486,040	1043.0/1910076	59649	8	37.7	2.6	5732	>10000.0	2.62	95	726	16571	58.07	3.7	159	328.13	25.4	49.31	
ARC116407	367,479	6,485,415	1043.0/1910076	28127	5982	0.28	31.8	180	45.1	0.01	823	499	264	20.33	200.1	100	2.54	33.2	17.71	
ARC116408	367,504	6,485,283	1043.0/1910076	77705	15	79.43	1.1	9792	689.6	0.15	451	1432	49211	102.37	3.6	178	682.99	24.7	31.01	

Sample_ID	East	North	Genalysis#	Al	Cr	Cs	Cu	К	Li	Li2O	Mg	Mn	Na	Nb	Ni	Р	Rb	Sn	Та	Ti
	(m)	(m)		(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
ARC116409	368,193	6,486,874	1043.0/1910076	11186	372	0.46	74.5	202	34.3	0.01	1308	257	361	1.6	71.8	5133	4.07	0.5	0.52	
ARC116410	367,715	6,485,993	1043.0/1910076	88878	8	27.58	2	5837	>10000.0	3.70	59	1372	31622	70.88	1.7	152	291.76	12.2	44.56	
ARC116411	367,730	6,486,037	1043.0/1910076	44116	19	53.11	3.8	7586	9732	2.10	99	1142	23596	43.92	6.8	363	455.33	21.3	36.84	
ARC116412	367,688	6,486,078	1043.0/1910076	31368	6	22.85	2.9	3723	>10000.0	2.65	79	985	18608	77.7	7.4	955	232.91	30.2	59.12	
ARC116413	367,738	6,486,153	1043.0/1910076	58254	5	63.3	2.3	6851	658.3	0.14	326	321	36466	37.93	2	191	510.22	14.9	201.98	
ARC119519	361,823	6,482,784	1043.0/1905455	34850	1974	0.89	24.8	969	28.8	0.01	120259	1850	3033	0.13	292.5	85	10.77	0.4	0.03	788
ARC119520	361,766	6,482,755	1043.0/1905455	102474	33	8.84	2.8	103900	4.1	0.00	1318	67	20221	0.39	10.5	87	848.11	1	0.04	46
ARC119521	361,735	6,482,857	1043.0/1905455	63683	23	2.32	5.2	15553	2.1	0.00	632	55	34632	7.48	7.3	х	108.59	1.4	0.88	79
ARC119522	366,438	6,484,090	1043.0/1905455	81019	11	19.1	4.1	31765	21.9	0.00	293	486	45020	28.33	5	71	263.1	0.5	5.4	72
ARC119523	366,566	6,484,018	1043.0/1905455	83770	21	9.89	5	46801	7.3	0.00	285	89	35380	5.93	7.3	х	235.42	1	1.34	226
ARC119524	366,718	6,483,895	1043.0/1905455	103967	7	51.62	2.6	100400	23.7	0.01	189	77	19883	29.33	1.4	231	826.32	1.2	9.15	71
ARC119525	366,813	6,483,869	1043.0/1905455	83591	10	10.94	4.8	34758	83.8	0.02	1841	288	35859	6.33	2.5	234	189.91	2	0.71	1131
ARC119526	366,562	6,484,108	1043.0/1905455	46485	3224	1.02	70.7	1175	54.9	0.01	132078	1409	4610	1.11	1208.8	х	8.92	0.7	1.07	2584
ARC119527	366,552	6,484,084	1043.0/1905455	77432	16	11.56	4.4	5509	56.4	0.01	938	330	52062	14.89	4.7	152	50.98	2.2	2.85	215
ARC119528	366,354	6,484,133	1043.0/1905455	81312	225	8.77	30.8	3127	39.2	0.01	14666	631	24608	3.69	46.9	138	21.28	1.1	0.35	8849
ARC119529	369,878	6,483,625	1043.0/1905455	5933	28	3.32	5.6	3751	16.6	0.00	448	50	789	0.67	4.6	х	22.1	0.2	0.28	130
ARC119530	369,829	6,483,624	1043.0/1905455	84053	12	27.33	19.4	63224	36.3	0.01	1128	130	28653	4.74	4.8	96	339.44	1.5	0.36	617
ARC119531	369,888	6,483,686	1043.0/1905455	108016	5	23.1	9.7	70796	39.2	0.01	670	41	42961	4.74	2.9	373	362.78	1.7	0.86	573
ARC119532	370,251	6,482,472	1043.0/1905455	34709	14	21.19	53	22796	21.4	0.00	196	226	13087	43.2	2.9	х	201.73	2.3	12.35	350
Standard				13131	2152	2.04	909.6	1014	10.9	0.00	198700	1071	1063	0.99	14511	78	9.47	1.3	0.14	720
ARC119534	370,476	6,482,492	1043.0/1905455	33642	6595	0.25	109	292	4.1	0.00	812	184	220	3.3	174.3	80	1.67	1.2	0.29	3534
ARC119535	370,478	6,482,503	1043.0/1905455	74452	2171	831.32	70	62207	2128.3	0.46	105369	1712	3991	6.77	753.7	х	1281.43	11.5	0.86	2100
ARC119536	370,494	6,482,531	1043.0/1905455	19254	874	3.7	106.8	592	11.2	0.00	1359	466	197	2.03	1053.5	2085	7.78	1	0.36	895
ARC119537	370,574	6,482,155	1043.0/1905455	130278	247	12.65	25.8	3375	56.7	0.01	1900	430	496	31.47	49.2	116	64.84	3.2	19.36	362
ARC119538	367,927	6,485,184	1043.0/1905455	103987	383	0.8	15.1	885	36.9	0.01	491	87	234	9.32	109.2	65	6.33	2.2	1.08	5543
ARC119539	367,676	6,485,826	1043.0/1905455	87925	43	216.77	6	74629	646.4	0.14	353	363	24039	40.27	40.9	381	3428.8	10.3	18.31	98
ARC119540	367,357	6,485,508	1043.0/1905455	>150000	9296	0.94	105.9	446	5.8	0.00	1343	486	202	2.82	985.9	125	14.28	8.6	0.64	5469
ARC119541	365,988	6,485,884	1043.0/1905455	26331	3208	0.2	160.2	114	6.5	0.00	2982	472	95	0.18	1944.5	739	1.33	0.2	0.08	435
ARC119542	366,043	6,485,872	1043.0/1905455	47615	3263	0.56	42.9	230	16.3	0.00	120328	1550	672	0.58	1221.4	х	1.3	0.5	0.07	2669
ARC119543	366,109	6,485,904	1043.0/1905455	35854	3088	0.7	145.1	560	10.6	0.00	127991	1332	347	0.38	628.2	х	2.92	1.6	0.05	1814
ARC119544	366,116	6,485,900	1043.0/1905455	1153	83	0.23	114.7	77	6.4	0.00	1348	63	35	0.06	47.9	Х	0.8	0.2	0.01	33

m         m	Sample_ID	East	North	Genalysis#	Al	Cr	Cs	Cu	К	Li	Li2O	Mg	Mn	Na	Nb	Ni	Р	Rb	Sn	Та	Ti
Akc1         B		(m)	(m)		(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
ARC11986     1601     1601     1601     1701 <td>ARC119545</td> <td>366,118</td> <td>6,485,905</td> <td>1043.0/1905455</td> <td>1190</td> <td>102</td> <td>0.17</td> <td>179.5</td> <td>144</td> <td>9.3</td> <td>0.00</td> <td>989</td> <td>99</td> <td>160</td> <td>0.11</td> <td>134.3</td> <td>х</td> <td>0.66</td> <td>4.3</td> <td>Х</td> <td>48</td>	ARC119545	366,118	6,485,905	1043.0/1905455	1190	102	0.17	179.5	144	9.3	0.00	989	99	160	0.11	134.3	х	0.66	4.3	Х	48
Arc10     Sect	ARC119546	366,204	6,485,925	1043.0/1905455	73301	20	128.66	3.9	7063	152.3	0.03	884	179	69782	93.1	16	252	262.03	11.4	72.81	46
Anchase     Anchase     Biole	ARC119547	366,267	6,485,970	1043.0/1905455	29430	1934	0.7	161.6	168	13.4	0.00	133627	1349	1054	0.47	1272.8	х	2.06	0.2	0.41	1287
Arc1     Sec.     Sec.   <	ARC119548	366,325	6,486,085	1043.0/1905455	90002	408	0.87	36.9	825	14.7	0.00	45122	1860	24013	2.49	136.4	114	4.52	0.5	0.36	3694
ARC10550     ARC3454     Verta          ACCOVert	ARC119549	366,278	6,486,165	1043.0/1905455	32369	2885	0.58	14.1	241	57.6	0.01	137620	1828	890	1.06	580.3	104	1.68	0.4	0.15	1694
ARC1050     AGM07     Kessor M     Maddomestion Matrix	ARC119550	366,295	6,487,341	1043.0/1905455	24513	295	0.58	53.3	771	3.1	0.00	3060	373	164	1.79	147.2	4146	5.15	0.4	0.18	1050
ARC13555     AGA015     Guade March     Mode March     Mode March     Mode March     March <td>ARC119551</td> <td>363,987</td> <td>6,485,947</td> <td>1043.0/1905455</td> <td>79050</td> <td>242</td> <td>0.74</td> <td>45.6</td> <td>6431</td> <td>11.5</td> <td>0.00</td> <td>5740</td> <td>158</td> <td>780</td> <td>2.65</td> <td>29.8</td> <td>68</td> <td>20.12</td> <td>1.7</td> <td>0.24</td> <td>3101</td>	ARC119551	363,987	6,485,947	1043.0/1905455	79050	242	0.74	45.6	6431	11.5	0.00	5740	158	780	2.65	29.8	68	20.12	1.7	0.24	3101
ARC1055     BG3.72     G48.74     D43.040965     D120     D14     D420     D120     D	ARC119552	364,019	6,485,919	1043.0/1905455	90045	22	10.18	5	96302	2.5	0.00	521	79	18673	7.66	8.2	202	980.86	3.3	1.53	76
ARC11995       64.08       64.85.85       64.03/190545       7105       12.4       12.4       72.0 <t< td=""><td>ARC119553</td><td>363,729</td><td>6,485,217</td><td>1043.0/1905455</td><td>102163</td><td>8</td><td>14.39</td><td>1.8</td><td>98500</td><td>2.2</td><td>0.00</td><td>142</td><td>40</td><td>21625</td><td>0.21</td><td>2.9</td><td>292</td><td>1133.49</td><td>4.4</td><td>0.07</td><td>45</td></t<>	ARC119553	363,729	6,485,217	1043.0/1905455	102163	8	14.39	1.8	98500	2.2	0.00	142	40	21625	0.21	2.9	292	1133.49	4.4	0.07	45
ARC11955       548.7.7       648.7.74       1043.0190845       9080       9.7       7.8       7.8       7.8       7.6      <	ARC119554	364,075	6,485,825	1043.0/1905455	76158	19	12.4	3.7	36841	16	0.00	338	596	30190	26.63	5.4	237	603.72	7.8	6.87	50
ARC11950       G48.00       IGA0/190545       G400       G40       G400       G800       G400       G40	ARC119555	364,237	6,485,734	1043.0/1905455	90680	9	40.85	2.4	78202	11	0.00	318	240	18317	3.8	2.6	313	976.07	7.6	1.68	76
ARC11950       948.0       948.0       94.0	ARC119556	364,273	6,485,603	1043.0/1905455	30176	51	0.25	5	393	3.1	0.00	860	167	213	18.55	6.1	х	4.4	0.7	6.01	1984
ARC11958       B46.       G48.04       IO43.0100055       P320       I.2       P320       P3	ARC119557	364,279	6,485,529	1043.0/1905455	34050	1145	0.36	94.2	592	3.6	0.00	854	439	362	7.43	32.2	81	5.46	3.8	0.75	4353
ARC119559       364,267       6,485,044       1043.0/1905455       78713       23       12.99       4.3       26817       25       0.01       110       185       4.80       3.4       131       485.13       18.3       15.75       165         ARC119561       363,710       6485,285       1043.0/1905455       8727       289       9.26       80.5       22351       290       0.01       7876       345       56.6       6.45       47.5       140       122.66       4.6       0.59       4100         ARC119562       363,35       6485,39       1043.0/1905455       9273       444       3.2       10.7       37622       11.4       0.00       21.43       89       255       1.43       6.6       X       154.4       4.9       0.12       4200         ARC119563       363,02       6485,03       1043.0/1905455       1040       1.6       1.5      1.1       1.3       861       21.2       1.00       400       3.3       1.8.7       1.8.7       1.8.7       1.9.9       1.0.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1	ARC119558	364,266	6,485,044	1043.0/1905455	98290	12	37.29	3	99822	1.7	0.00	190	28	23827	0.72	1.8	329	1446.5	3	0.22	55
ARC119501363.7106485.281043.0/1905455872472899.280.522351290.17876345564564547.514012.64.60.594100ARC119563363.856485.47104.0/1905455927774943.421107376211.40.021438925651.436.6X154.464.90.122400ARC119563363.626485,39103.0/1905455945621016.62.397003.20.0863417390.772.7X87.781.90.1358ARC119563363.626486,10103.0/19054551041081.818.02.8108001.30.0049033188718.4718.16.6X154.61.90.13158ARC11956363.19648,601103.0/1905455904182.111.8816721.20.0040033188718.4718.16.6X1.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.11.51.51.51.51.51.51.51.51.51.51.51.51.5	ARC119559	364,267	6,485,044	1043.0/1905455	78713	23	12.99	4.3	26817	25	0.01	410	116	18542	48.01	3.4	131	485.13	18.3	15.75	165
ARC119562       363.815       6.485,427       1043.0/1905455       92737       494       3.42       110.7       37622       114       0.00       2143       89       2565       1.43       6.6       X       154.6       4.9       0.12       2490         ARC119563       363.362       6.485,390       1043.0/1905455       94562       10       16.06       2.3       97200       3.2       0.00       86       34       1739       0.77       2.7       X       877.87       1.9       0.13       58         ARC119564       363.222       6.485,159       1043.0/1905455       10410       8       13.9       2.8       10800       1.3       0.00       490       33       1887       18.4       18.1       67       100.3       45       2.41       183         ARC119567       363.16       6.484,061       1043.0/1905455       104       7       36.32       2.2       97800       3.5       0.00       400       32       1887       18.47       18.1       67       100.3       45       2.41       183         Standard       C       C       74985       2.66       0.88       7.6       0.0       104       123       2.55 <td>ARC119561</td> <td>363,710</td> <td>6,485,285</td> <td>1043.0/1905455</td> <td>87247</td> <td>289</td> <td>9.26</td> <td>80.5</td> <td>22351</td> <td>29</td> <td>0.01</td> <td>7876</td> <td>345</td> <td>5645</td> <td>6.45</td> <td>47.5</td> <td>140</td> <td>123.66</td> <td>4.6</td> <td>0.59</td> <td>4100</td>	ARC119561	363,710	6,485,285	1043.0/1905455	87247	289	9.26	80.5	22351	29	0.01	7876	345	5645	6.45	47.5	140	123.66	4.6	0.59	4100
ARC11953       363,322       6,485,390       1043.0/1905455       94562       10       1.60       2.3       97200       3.2       0.00       86       34       17399       0.77       2.7       X       877.87       1.9       0.13       58         ARC119564       363,222       6,485,159       1043.0/1905455       10410       8       13.9       2.8       10800       1.3       0.00       49       1999       0.77       2.7       X       877.87       1.9       0.13       58         ARC119565       363,60       6,484,601       1043.0/1905455       90418       2.4       2.13       11.8       8617       21.2       0.00       490       33       1887       18.47       18.1       67       100.23       4.5       2.41       18.3         Standard       T       5.484,984       1043.0/1905455       10480       7       36.32       2.2       97800       3.5       0.00       104       41       25383       0.32       6       556       1235.79       7.7       0.07       3.63         ARC119568       363,401       6484,984       1043.0/1905455       1780       3.15       0.01       380       3.18       0.11       4.5<	ARC119562	363,815	6,485,427	1043.0/1905455	92737	494	3.42	110.7	37622	11.4	0.00	2143	89	2565	1.43	6.6	х	154.46	4.9	0.12	2490
ARC11964363.226.485.19104.01/0545104.0181.31.21.001.30.01.0	ARC119563	363,362	6,485,390	1043.0/1905455	94562	10	16.06	2.3	97200	3.2	0.00	86	34	17399	0.77	2.7	х	877.87	1.9	0.13	58
ARC119669634.099644.099644.09904.01904.091.091.0191.00	ARC119564	363,222	6,485,159	1043.0/1905455	104101	8	13.9	2.8	108000	1.3	0.00	190	49	19998	0.27	2.5	197	897.45	3	0.04	31
StanderImage </td <td>ARC119565</td> <td>363,169</td> <td>6,484,601</td> <td>1043.0/1905455</td> <td>90418</td> <td>24</td> <td>2.13</td> <td>11.8</td> <td>8617</td> <td>21.2</td> <td>0.00</td> <td>490</td> <td>33</td> <td>1887</td> <td>18.47</td> <td>18.1</td> <td>67</td> <td>100.23</td> <td>4.5</td> <td>2.41</td> <td>183</td>	ARC119565	363,169	6,484,601	1043.0/1905455	90418	24	2.13	11.8	8617	21.2	0.00	490	33	1887	18.47	18.1	67	100.23	4.5	2.41	183
ARC119567963.91648.9481043.019055510480736.3297803.510010125380.206.5125.7123.70.70.07343ARC119568363.01648.9481043.01905557890510763.51.53.57.57 <td>Standard</td> <td></td> <td></td> <td></td> <td>74985</td> <td>266</td> <td>0.88</td> <td>326.6</td> <td>6388</td> <td>7.6</td> <td>0.00</td> <td>40045</td> <td>1220</td> <td>22554</td> <td>18.37</td> <td>7115.3</td> <td>1337</td> <td>19.41</td> <td>1.5</td> <td>1.11</td> <td>10369</td>	Standard				74985	266	0.88	326.6	6388	7.6	0.00	40045	1220	22554	18.37	7115.3	1337	19.41	1.5	1.11	10369
ARC119568       363,401       6,484,986       1043.0/1905455       78905       10       18.59       1.4       38930       31.8       0.01       380       95       27.69       2.9       1.62       418.24       7.7       3.05       162         ARC119569       363,477       6,485,036       1043.0/1905455       115768       351       3.05       32.5       5877       238.5       0.05       15314       762       12334       88       127.2       363       50.43       0.8       0.79       4984         ARC119587       365,491       043.0/1905455       48080       59       69.66       6       9184       7962.5       1.71       536       871       29608       9.31       25.9       58.33       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       54.36       25.8       106.1       25.8       25.8       54.36       25.8       104.5       25.8       104.5       25.8       104.5 <t< td=""><td>ARC119567</td><td>363,351</td><td>6,484,984</td><td>1043.0/1905455</td><td>104804</td><td>7</td><td>36.32</td><td>2.2</td><td>97800</td><td>3.5</td><td>0.00</td><td>104</td><td>41</td><td>25383</td><td>0.32</td><td>6</td><td>556</td><td>1235.79</td><td>7.7</td><td>0.07</td><td>34</td></t<>	ARC119567	363,351	6,484,984	1043.0/1905455	104804	7	36.32	2.2	97800	3.5	0.00	104	41	25383	0.32	6	556	1235.79	7.7	0.07	34
ARC11959363.4776.485,0361043.0/190545511576835135032.55877238.50.051531476212338.112.7.236350.40.80.7.94984ARC119587365,0416.486,5021043.0/1905455480805969.06691847962.517.1536871296890.1125.854.3625.854.3625.810.614.2ARC11958365,6266.486,6221043.0/1905455128.28.8913.1621.161.527.40.0119.9355.119.110.6551.211.45.90.64.9ARC11950365,6186.486,6221043.0/1905455128.28.6813.1621.161.527.40.0119.9355.119.10.463.41.45.90.623.4ARC11950365,6186.487,0731043.0/1905455128.28.6813.1621.161.527.40.119.935.5119.10.4614.15.90.623.4ARC11950365,6186.487,0131043.0/190545531.68721.97.27.66.4811.482.40.4119.12.40.41.40.42.40.42.41.4	ARC119568	363,401	6,484,986	1043.0/1905455	78905	10	18.59	1.4	38930	31.8	0.01	380	95	27699	22.97	2.9	162	418.24	7.7	3.05	162
ARC119587 $365,491$ $6486,510$ $1043.0/1905455$ $48080$ $59$ $69.0$ $6$ $9184$ $7962.5$ $1.7$ $536$ $871$ $29608$ $90.31$ $25.9$ $258$ $543.36$ $25.8$ $106.16$ $142$ ARC119588 $365,526$ $6486,598$ $1043.0/1905455$ $9287$ $1333$ $8.39$ $6.9$ $215$ $18.1$ $0.00$ $21562$ $1072$ $445$ $0.41$ $1463.8$ $X$ $3.44$ $0.4$ $0.23$ $566$ ARC119599 $365,618$ $6486,622$ $1043.0/1905455$ $12832$ $868$ $13.16$ $21.1$ $615$ $27.4$ $0.01$ $1993$ $551$ $191$ $0.66$ $553.2$ $1145$ $1.414$ $5.9$ $0.62$ $459$ ARC119590 $365,849$ $6487,173$ $1043.0/1905455$ $35289$ $2932$ $4.94$ $661$ $608$ $188$ $0.00$ $10981$ $514$ $0.16$ $563.2$ $1045$ $1.414$ $5.9$ $0.69$ $236$ ARC119591 $365,849$ $6487,173$ $1043.0/1905455$ $36291$ $27.2$ $664$ $20.9$ $1049$ $1549$ $1549$ $6149$ $0.78$ $1640.6$ $X$ $2.94$ $0.69$ $236$ ARC119592 $365,946$ $6487,08$ $1043.0/1905455$ $31687$ $2739$ $645$ $24.5$ $1065$ $14184$ $274$ $1418$ $274$ $274$ $1418$ $274$ $274$ $1418$ $274$ $1418$ $274$ $1418$ $274$ $1416$ $1414$ <td>ARC119569</td> <td>363,477</td> <td>6,485,036</td> <td>1043.0/1905455</td> <td>115768</td> <td>351</td> <td>3.05</td> <td>32.5</td> <td>5877</td> <td>238.5</td> <td>0.05</td> <td>15314</td> <td>762</td> <td>12334</td> <td>8</td> <td>127.2</td> <td>363</td> <td>50.43</td> <td>0.8</td> <td>0.79</td> <td>4984</td>	ARC119569	363,477	6,485,036	1043.0/1905455	115768	351	3.05	32.5	5877	238.5	0.05	15314	762	12334	8	127.2	363	50.43	0.8	0.79	4984
ARC119588       365,526       6,486,598       1043.0/1905455       9287       1333       8.39       6.9       215       18.1       0.00       21562       1072       445       0.41       146.38       X       3.44       0.4       0.23       5566         ARC119589       365,618       6,486,642       1043.0/1905455       12832       868       13.16       21.1       615       27.4       0.01       1993       551       191       0.96       55.2       1145       11.41       5.9       0.62       459         ARC119590       365,849       6,487,173       1043.0/1905455       35289       2932       4.94       66.1       608       18       0.00       109819       1549       6419       0.78       1694.2       X       2.91       0.50       0.92       2.93	ARC119587	365,491	6,486,510	1043.0/1905455	48080	59	69.06	6	9184	7962.5	1.71	536	871	29608	90.31	25.9	258	543.36	25.8	106.16	142
ARC119589       365,618       6,486,462       1043.0/1905455       12832       868       13.16       21.1       615       27.4       0.01       1993       551       191       0.96       553.2       1145       11.41       5.9       0.62       459         ARC119590       365,849       6,487,173       1043.0/1905455       35289       2932       4.94       66.1       608       18       0.00       109819       1549       6419       0.78       1694.2       X       2.91       0.5       0.09       2369         ARC119591       365,849       6,487,173       1043.0/1905455       36291       2919       7.2       72.7       684       20.9       0.00       111843       2279       6461       0.78       1640.6       X       3.44       0.7       0.07       2369         ARC119592       365,946       6,487,088       1043.0/1905455       31687       27.3       9.82       54.5       1065       24.5       0.01       106233       1413       77.43       0.77       170.06       X       5.58       0.3       0.1       1890         ARC119592       365,946       6,487,088       1043.0/1905455       32090       2317       6.95       1916 <td>ARC119588</td> <td>365,526</td> <td>6,486,598</td> <td>1043.0/1905455</td> <td>9287</td> <td>1333</td> <td>8.39</td> <td>6.9</td> <td>215</td> <td>18.1</td> <td>0.00</td> <td>21562</td> <td>1072</td> <td>445</td> <td>0.41</td> <td>1463.8</td> <td>х</td> <td>3.44</td> <td>0.4</td> <td>0.23</td> <td>566</td>	ARC119588	365,526	6,486,598	1043.0/1905455	9287	1333	8.39	6.9	215	18.1	0.00	21562	1072	445	0.41	1463.8	х	3.44	0.4	0.23	566
ARC119590       365,849       6,487,173       1043.0/1905455       35289       2932       4.94       66.1       608       18       0.00       109819       1549       6419       0.78       1694.2       X       2.91       0.5       0.09       2369         ARC119591       365,849       6,487,173       1043.0/1905455       36291       2919       7.2       72.7       684       20.9       0.00       111843       2279       6461       0.78       1640.6       X       3.44       0.7       0.07       2326         ARC119592       365,946       6,487,088       1043.0/1905455       31687       273       9.82       54.5       1065       24.5       0.01       106233       1413       7743       0.77       1700.6       X       5.58       0.3       0.1       1850         ARC119593       365,946       6,487,088       1043.0/1905455       32090       2317       6.96       63.3       910       19.8       0.00       121546       1339       5841       0.65       1298.1       X       3.63       0.4       0.1       1969         ARC119593       365,946       6,487,088       1043.0/1905455       32090       2317       6.96       63.3 <td>ARC119589</td> <td>365,618</td> <td>6,486,462</td> <td>1043.0/1905455</td> <td>12832</td> <td>868</td> <td>13.16</td> <td>211.1</td> <td>615</td> <td>27.4</td> <td>0.01</td> <td>1993</td> <td>551</td> <td>191</td> <td>0.96</td> <td>553.2</td> <td>1145</td> <td>11.41</td> <td>5.9</td> <td>0.62</td> <td>459</td>	ARC119589	365,618	6,486,462	1043.0/1905455	12832	868	13.16	211.1	615	27.4	0.01	1993	551	191	0.96	553.2	1145	11.41	5.9	0.62	459
ARC119591       365,849       6,487,173       1043.0/1905455       36291       2919       7.2       72.7       684       20.9       0.00       111843       2279       6461       0.78       1640.6       X       3.44       0.7       0.07       2326         ARC119592       365,946       6,487,088       1043.0/1905455       31687       2733       9.82       54.5       1065       24.5       0.01       106233       1413       7743       0.77       1700.6       X       5.58       0.3       0.1       1850         ARC119593       365,946       6,487,088       1043.0/1905455       32090       2317       6.96       63.3       910       19.8       0.00       121546       1339       5841       0.65       1298.1       X       3.63       0.4       0.1       1969	ARC119590	365,849	6,487,173	1043.0/1905455	35289	2932	4.94	66.1	608	18	0.00	109819	1549	6419	0.78	1694.2	х	2.91	0.5	0.09	2369
ARC119592       365,946       6,487,088       1043.0/1905455       31687       2733       9.82       54.5       1065       24.5       0.01       106233       1413       7743       0.77       1700.6       X       5.58       0.3       0.1       1850         ARC119593       365,946       6,487,088       1043.0/1905455       32090       2317       6.96       63.3       910       19.8       0.00       121546       1339       5841       0.65       1298.1       X       3.63       0.4       0.1       1969	ARC119591	365,849	6,487,173	1043.0/1905455	36291	2919	7.2	72.7	684	20.9	0.00	111843	2279	6461	0.78	1640.6	х	3.44	0.7	0.07	2326
ARC119593       365,946       6,487,088       1043.0/1905455       32090       2317       6.96       63.3       910       19.8       0.00       121546       1339       5841       0.65       1298.1       X       3.63       0.4       0.1       1969	ARC119592	365,946	6,487,088	1043.0/1905455	31687	2733	9.82	54.5	1065	24.5	0.01	106233	1413	7743	0.77	1700.6	Х	5.58	0.3	0.1	1850
	ARC119593	365,946	6,487,088	1043.0/1905455	32090	2317	6.96	63.3	910	19.8	0.00	121546	1339	5841	0.65	1298.1	Х	3.63	0.4	0.1	1969

Sample_ID	East	North	Genalysis#	Al	Cr	Cs	Cu	К	Li	Li2O	Mg	Mn	Na	Nb	Ni	Р	Rb	Sn	Та	Ti
	(m)	(m)		(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
ARC119594	365,946	6,487,088	1043.0/1905455	32737	2668	9.05	48.2	774	17.5	0.00	115912	1222	7167	0.49	1440.9	Х	4.44	0.3	0.06	1801
ARC119595	365,901	6,487,064	1043.0/1905455	2152	355	2.28	10.4	203	5.4	0.00	3847	149	561	0.15	166.7	Х	1.59	0.1	0.04	165
ARC119596	365,821	6,487,030	1043.0/1905455	587	65	1.95	11.9	88	2.4	0.00	2612	132	89	Х	44	х	2.21	Х	Х	29
ARC119597	365,811	6,487,031	1043.0/1905455	574	94	2.41	15.6	86	2.9	0.00	2912	194	46	Х	62.1	Х	2.39	Х	Х	27
ARC119598	365,811	6,487,031	1043.0/1905455	1535	124	2.9	10.8	154	2.5	0.00	3890	480	192	0.08	116.5	Х	1.89	Х	0.01	90

NB Elements not relevant to LCT Pegmatite Exploration are omitted.

## Appendix: Section 1 - Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

# Dome North Project – Rock Chips:

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut Faces, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down-hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	Rock chip sampling.
	• Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	• Certified Reference Material were inserted at regular intervals to provide assay quality checks. The standards reported within acceptable limits.
	<ul> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>All rock chip sample assays reported have been assayed by Intertek Genalysis Laboratories using a 4 acid digest and ICP-MS finish</li> <li>Spodumene mineralisation has been identified by pXRF Services using a BRAVO Handheld Raman Spectrometer. This work has been in collaboration with Geochemical Services Pty Ltd and is the subject of a company Research and Development project.</li> </ul>
Drilling techniques	<ul> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	No drilling involved.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed.	Recovery not relevant.
	• Measures taken to maximise sample recovery and ensure representative nature of the samples.	Recovery not relevant.
	• Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Recovery not relevant

Criteria	JORC Code explanation	Commentary
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Rock chip samples: photographed and lithology logged.
	• Whether logging is qualitative or quantitative in nature. Core (or costean, Face, etc) photography.	Logging is qualitative.
	• The total length and percentage of the relevant intersections logged.	All sample sites were described.
Sub-sampling	• If core, whether cut or sawn and whether quarter, half or all core taken.	Rock chips were presented to the laboratory 'as-is'.
techniques and	• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet	
sample preparation	or dry.	
	• For all sample types, the nature, quality and appropriateness of the sample	
	preparation technique.	No subcompling undertaken
	representivity of samples.	
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.	• Rock chips: appropriate standard samples were used for the style of mineralisation.
	• Whether sample sizes are appropriate to the grain size of the material being sampled.	• Rock chip samples: 500g -1 kg are considered fit for purpose.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	• Rock chips assayed for a range of elements by 4 acid digest, ICP-MS finish.
	• For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	<ul> <li>Spodumene mineralisation has been identified by pXRF Services using a BRAVO Handheld Raman Spectrometer. This work has been in collaboration with Geochemical Services Pty Ltd and is the subject of a company Research and Development project. The company has developed its own reference mineral library for the Bravo Raman of minerals including spodumene.</li> </ul>
	• Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• Standards and laboratory checks have been assessed. Most of the standards show results within acceptable limits of accuracy, with good precision in most cases. Internal laboratory checks indicate very high levels of precision.
Verification of	• The verification of significant intersections by either independent or alternative	Not at this stage of the project development.
sampling and	company personnel.	No duplicate rock chip samples were taken.
assaying	The use of twinned holes.	The Common has a distant COL database where information is stored
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	<ul> <li>The Company has a digital SQL database where information is stored.</li> <li>The Company uses a range of consultants to load and validate data, and approise</li> </ul>
	storuge (physical and electronic) protocols.	quality control samples.
	Discuss any adjustment to assay data.	<ul> <li>The Company has not adjusted any assay data, other than to convert Lithium (ppm) to Li<sub>2</sub>O (%)</li> </ul>
Location of data	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole	No drilling was undertaken.
points	surveys), trenches, mine workings and other locations used in Mineral Resource	Rock chip locations via handheld GPS units.
	estimation.	CD404.7emp.51
	Specification of the grid system used.	GDA94 Zone 51.
Data spacing and	Quality and adequacy of topographic control.	FIL IOL PULPUSE.      Pock ching: Pandom at selected outgrap locations dependent on geology
distribution	• Data spacing for reporting of exploration results.	Kock chips. Kandom at selected outcrop locations dependent on geology.

Criteria	JORC Code explanation	Commentary
	• Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	• No.
	Whether sample compositing has been applied.	• No.
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	Rock chip geochemistry: Possibly gives an indication of the strike direction of individual anomalies.
Sample security	The measures taken to ensure sample security.	<ul> <li>The Company uses standard industry practices when collecting, transporting and storing samples for analysis.</li> <li>Rock chip samples: Lab pulps are kept on site and stored in a designated pulp storage container.</li> </ul>
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• Rock chip samples are taken using standard industry practice used in exploration for Li, Cs & Ta in pegmatites.

# Appendix: Section 2 - Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites</li> </ul>	<ul> <li>The sampling reported herein is within E15/1515, which is a granted exploration licence.</li> <li>The tenements are located approximately 120km S of Kalgoorlie, WA.</li> <li>Title is currently registered in the name of Pindan Resources Pty Ltd (80%) and Pioneer Resources Limited (20%); however, Pioneer holds a 100% beneficial interest in the tenement.</li> <li>The exploration licence is within an area of land determined as having non-exclusive Native Title in favour of the Ngadju People.</li> </ul>
	• The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• At the time of this Statement the exploration licence is in Good Standing. To the best of the Company's knowledge, other than industry standard permits to operate there are no impediments to Pioneer's operations within the tenement.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	This report refers to data generated by Pioneer Resources Limited.
Geology	Deposit type, geological setting and style of mineralisation.	• Zoned pegmatites that are prospective for lithium, caesium, tin, tantalum and rare pegmatite minerals and gemstones.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes, including easting and northing of the drill hole collar, elevation or RL (Reduced Level –	No drilling was undertaken.

Criteria	JORC Code explanation	Commentary
	<ul> <li>elevation above sea level in metres) of the drill hole collar, dip and azimuth of the hole, down hole length and interception depth plus hole length.</li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>Rockchip results: Individual assays have been reported for each sample, chemical elements have been reported in <i>Table 1</i> Li ppm and converted to Li<sub>2</sub>O % and other key elements associated with this style of mineralisation.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	Rock chip sampling provides a point at surface and does not relate to any drilling widths or intersections.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	In this report.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Not relevant to rock chip sampling.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	All meaningful and material exploration data has been reported.
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Fences of drill holes, on a nominal 80 x 80m grid are planned to test geochemical and geological targets.</li> </ul>