
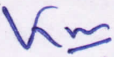



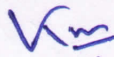
<div>  KIOCL Limited Mineral Exploration Laboratory Analysis Report </div>								
Worksheet Name		Samalpatti BRS						Pg.No. 1
Solution Label	Ba 455.403 nm ppm	Be 313.042 nm ppm	Ce 418.659 nm ppm	Co 238.892 nm ppm	Cu 327.395 nm ppm	Dy 353.171 nm ppm	Er 349.910 nm ppm	Eu 420.504 nm ppm
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard 1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Standard 2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard 3	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard 4	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Standard 5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standard 6	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Standard 7	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
S.No Standard 8	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1 57 BRS 1	626.00	<0.5	53.00	<0.5	8.88	2.74	1.00	1.00
2 57 BRS 2	1484.21	<0.5	113.22	11.00	9.85	3.50	1.80	2.26
3 57 BRS 3	1380.56	<0.5	52.72	<0.5	4.62	2.79	1.11	2.13
4 57 BRS 4	16929.04	<0.5	193.83	14.00	3.29	13.87	4.46	7.84
5 57 BRS 5	16434.88	<0.5	1548.37	13.00	6.70	92.72	27.96	66.72
6 57 BRS 6	33517.04	<0.5	3157.00	19.00	55.03	127.47	42.19	98.42
7 57 BRS 7	24598.14	<0.5	1480.92	12.00	8.23	88.89	28.10	64.84
8 57 BRS 8	12568.52	<0.5	776.48	13.00	13.54	60.17	17.73	42.37
9 57 BRS 9	113547.76	1.87	6552.21	12.00	8.89	63.73	25.67	62.69
10 57 BRS 10	19354.34	1.47	1367.56	12.00	49.20	36.13	13.83	28.15
11 57 BRS 11	15597.07	1.25	2351.97	63.00	16.81	40.79	15.21	33.45
12 57 BRS 12	13648.00	3.93	1688.00	119.00	365.66	34.00	19.00	32.00
13 57 BRS 13	543.23	1.31	74.30	62.00	4.71	2.00	1.03	1.19
14 57 BRS 14	498.80	<0.5	1575.63	27.00	6.98	60.63	21.00	45.86
15 57 BRS 15	518.81	0.83	96.69	<0.5	6.03	3.66	2.10	1.89
16 57 BRS 16	930.32	2.17	91.85	20.88	57.22	2.47	2.94	1.64
17 57 BRS 17	181.12	<0.5	16.78	63.82	3.70	1.00	1.00	2.00
18 57 BRS 18	245.92	<0.5	341.77	18.00	6.60	6.30	4.37	5.34
19 57 BRS 19	309.36	2.16	213.04	11.00	13.95	5.29	3.71	5.02
20 57 BRS 20	21000.28	4.05	4056.75	12.00	39.78	48.11	19.94	46.65
21 Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 57 BRS 21	17904.67	5.79	1063.34	14.00	61.71	21.30	8.67	16.81
23 57 BRS 22	21307.20	4.89	1030.33	53.00	36.30	24.92	9.04	18.37
24 57 BRS 23	10163.92	9.17	812.21	131.13	418.72	20.29	8.74	15.88
25 57 BRS 24	5925.28	2.92	557.00	28.37	671.22	36.77	18.30	23.40
26 57 BRS 25	7100.36	2.81	1229.80	10.45	259.78	23.18	9.11	19.88
27 57 BRS 26	12393.44	4.47	1367.56	4.19	67.04	23.58	10.18	21.18
28 57 BRS 27	26802.96	<0.5	100.68	16.64	87.60	6.13	4.03	2.76
29 57 BRS 28	22720.92	<0.5	210.80	33.83	160.06	7.00	6.46	5.62
30 57 BRS 29	20443.84	<0.5	5640.99	3.00	48.46	38.40	18.51	47.53
31 57 BRS 30	19282.68	<0.5	336.36	14.56	94.03	8.13	5.13	5.25
32 57 BRS 31	19163.20	<0.5	6226.47	16.00	26.71	47.89	22.21	52.13
33 57 BRS 32	19652.72	<0.5	4861.78	13.00	15.92	87.04	34.61	62.66
34 57 BRS 33	21234.96	<0.5	865.31	17.00	42.74	46.24	15.34	34.58
35 57 BRS 34	25298.44	<0.5	1122.17	6.76	39.69	62.54	21.28	47.05
36 57 BRS 35	11836.64	1.61	145.09	33.00	17.49	3.55	2.50	1.99
37 57 BRS 36	538.00	<0.5	42.00	55.00	20.19	1.83	1.44	0.94
38 57 BRS 37	13051.95	5.50	1328.81	145.69	373.36	30.30	11.13	25.20
39 57 BRS 38	15761.92	5.53	1450.79	49.00	59.43	30.69	13.04	24.66
40 57 BRS 39	7690.00	3.00	1526.00	68.00	85.34	35.00	19.00	34.00
41 57 BRS 40	7870.60	1.28	1618.68	55.79	89.52	36.79	14.09	28.14
42 Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43 57 BRS 41	6972.76	2.37	1377.60	33.39	100.14	32.40	13.12	24.86
44 57 BRS 42	4968.28	5.21	1361.82	68.83	271.08	31.82	12.36	24.48
45 57 BRS 43	9264.00	3.22	2089.00	52.00	19.88	34.00	14.00	25.00
46 57 BRS 44	8241.80	6.62	1380.47	11.00	13.23	27.26	10.25	23.82
47 57 BRS 45	7956.44	2.79	672.17	18.71	201.77	16.34	5.47	12.27
48 57 BRS 46	11127.88	0.82	2703.54	15.37	57.70	38.08	15.04	32.04
49 57 BRS 47	11413.24	3.97	1508.19	29.62	225.25	33.71	13.32	28.29
50 57 BRS 48	10805.40	0.61	1818.15	72.00	15.99	37.45	14.93	28.37
51 57 BRS 49	25556.00	0.91	3463.00	125.00	35.00	45.00	26.00	44.00
52 57 BRS 50	24671.07	3.46	1889.90	38.00	153.08	40.34	16.21	34.70
53 57 BRS 51	6958.87	4.17	1304.42	23.00	49.76	30.68	12.13	24.95
54 57 RG 01	15836.32	1.18	112.91	41.78	5.49	6.46	2.74	3.68
55 57 CH 01/01	18254.92	<0.5	1195.36	4.55	9.47	84.68	32.41	53.62
56 57 CH 01/02	17228.32	<0.5	2903.01	5.65	39.23	99.46	33.78	79.32
57 57 CH 01/03	23293.96	4.83	1911.42	12.35	80.33	18.24	9.15	17.82
58 57 CH 01/04	14501.16	5.47	2374.93	7.57	75.09	34.25	14.43	31.54
59 57 CH 01/05	12639.36	<0.5	2539.95	6.00	7.49	160.76	69.37	118.73
60 BCS CRM 176/4	32.22	2.22	11.10	52.10	43.10	56.56	3.22	0.80


Date : 17.04.2026


 (VK Moorthy)
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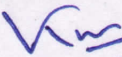

 KIOCL Limited Mineral Exploration Laboratory Analysis Report								
Worksheet Name Samalpatti BRS								Pg.No. 2
Solution Label	Ga 294.363 nm ppm	Gd 342.246 nm ppm	Hf 264.141 nm ppm	Ho 345.600 nm ppm	La 333.749 nm ppm	Lu 261.541 nm ppm	Mo 202.032 nm ppm	Nb 313.078 nm ppm
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard 1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Standard 2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard 3	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard 4	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Standard 5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standard 6	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Standard 7	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
S.No Standard 8	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1 57 BRS 1	1.96	5.00	<0.5	<0.5	23.00	<0.5	<0.5	1.00
2 57 BRS 2	2.46	8.17	0.50	<0.5	57.09	<0.5	5.14	4.21
3 57 BRS 3	2.08	7.88	0.56	<0.5	22.16	<0.5	12.30	2.79
4 57 BRS 4	1.87	25.26	5.97	1.52	55.01	0.93	2.38	1.23
5 57 BRS 5	6.93	187.19	5.23	15.75	531.96	2.64	81.87	2.74
6 57 BRS 6	11.06	273.94	8.43	23.52	1271.62	2.67	354.50	5.16
7 57 BRS 7	6.64	179.59	6.45	14.94	424.47	2.34	80.33	23.68
8 57 BRS 8	6.81	124.27	3.64	9.54	231.22	2.27	25.48	2.64
9 57 BRS 9	26.65	179.88	34.57	12.02	4128.18	1.57	1.13	1.58
10 57 BRS 10	6.44	85.97	4.90	4.43	659.44	1.37	0.58	5.42
11 57 BRS 11	9.55	99.52	4.19	6.93	1139.54	1.52	<0.5	6.95
12 57 BRS 12	9.00	124.00	2.00	5.00	978.00	2.01	7.00	13.00
13 57 BRS 13	1.63	4.87	0.45	<0.5	40.21	<0.5	5.13	1.82
14 57 BRS 14	7.41	127.05	5.09	10.32	569.26	2.24	102.96	21.10
15 57 BRS 15	1.55	7.06	0.86	<0.5	40.80	<0.5	3.16	4.16
16 57 BRS 16	6.79	10.37	0.34	<0.5	50.61	0.84	<0.5	21.08
17 57 BRS 17	2.96	6.16	0.02	<0.5	9.39	0.67	<0.5	1.08
18 57 BRS 18	6.41	16.77	1.53	<0.5	183.49	0.87	5.47	17.33
19 57 BRS 19	10.70	19.07	<0.5	<0.5	96.29	0.87	0.92	15.37
20 57 BRS 20	18.10	133.48	6.52	8.28	2354.95	1.58	1.61	7.30
21 Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 57 BRS 21	9.06	53.92	5.28	1.87	526.65	1.23	5.21	9.61
23 57 BRS 22	7.55	58.17	6.39	2.55	475.26	1.32	<0.5	4.03
24 57 BRS 23	12.05	58.60	4.04	1.72	388.62	2.09	<0.5	17.36
25 57 BRS 24	9.46	78.77	2.43	2.65	275.08	2.69	<0.5	26.72
26 57 BRS 25	9.63	65.03	5.57	1.01	627.25	1.74	6.14	10.17
27 57 BRS 26	10.32	67.24	4.68	<0.5	855.71	1.43	1.57	13.62
28 57 BRS 27	6.39	17.28	7.04	<0.5	45.48	1.52	7.45	28.43
29 57 BRS 28	17.26	33.07	2.44	<0.5	106.00	2.73	2.65	40.90
30 57 BRS 29	22.34	127.10	8.00	2.38	2512.32	1.59	148.53	52.19
31 57 BRS 30	9.11	23.59	7.39	<0.5	162.53	1.46	16.13	27.42
32 57 BRS 31	26.54	143.92	3.67	7.65	2953.52	2.13	130.72	20.70
33 57 BRS 32	20.06	179.92	4.65	15.58	2398.51	2.71	39.08	12.32
34 57 BRS 33	9.71	106.23	6.19	3.54	334.86	2.31	80.32	16.04
35 57 BRS 34	7.13	135.92	4.42	9.34	442.37	1.87	41.53	8.12
36 57 BRS 35	7.82	9.99	0.73	<0.5	79.85	0.59	1.80	8.82
37 57 BRS 36	4.00	4.00	1.00	<0.5	24.00	<0.5	<0.5	2.00
38 57 BRS 37	8.79	83.32	3.77	4.10	645.64	1.90	0.71	2.92
39 57 BRS 38	13.28	85.42	4.41	2.34	720.14	2.99	1.11	14.85
40 57 BRS 39	9.00	93.00	1.00	5.00	878.00	1.93	1.00	17.00
41 57 BRS 40	7.65	88.41	2.96	6.46	845.87	1.71	1.11	1.58
42 Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43 57 BRS 41	9.13	83.21	2.52	5.50	677.48	2.24	<0.5	6.91
44 57 BRS 42	10.20	81.87	3.39	4.22	649.35	2.26	<0.5	4.25
45 57 BRS 43	6.00	102.00	1.00	4.00	952.00	2.00	<0.5	1.00
46 57 BRS 44	11.83	81.60	1.89	1.87	662.48	2.00	<0.5	8.87
47 57 BRS 45	5.59	42.89	6.18	1.79	328.65	1.35	<0.5	1.72
48 57 BRS 46	11.01	93.49	4.32	6.56	1434.61	1.27	<0.5	2.51
49 57 BRS 47	12.51	98.13	4.13	5.36	717.23	2.91	<0.5	8.46
50 57 BRS 48	7.78	85.93	4.23	6.74	954.06	1.43	<0.5	1.81
51 57 BRS 49	9.98	192.00	2.00	6.00	1598.00	2.00	<0.5	1.00
52 57 BRS 50	13.64	112.25	7.34	3.07	970.92	2.62	0.87	12.15
53 57 BRS 51	7.99	81.01	2.00	5.09	624.08	1.61	<0.5	4.29
54 57 RG 01	5.15	16.48	7.23	<0.5	47.34	0.95	60.80	7.94
55 57 CH 01/01	6.74	154.33	4.57	16.22	405.61	2.76	220.60	3.96
56 57 CH 01/02	11.29	217.54	8.10	17.58	1381.21	2.30	247.45	4.19
57 57 CH 01/03	18.52	61.64	4.94	<0.5	916.13	2.26	20.04	15.05
58 57 CH 01/04	12.98	95.95	7.34	2.60	1386.83	1.66	0.52	10.67
59 57 CH 01/05	5.50	317.84	29.63	31.12	851.49	4.24	3448.00	10.35
60 BCS CRM 176/4	4.88	6.78	3.56	<0	66.92	0.81	59.90	<0


Date : 17.04.2026


 (VK Moorthy)
 DM(PC)

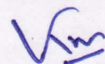

 KIOCL Limited Mineral Exploration Laboratory Analysis Report								
Worksheet Name Samalpatti BRS								Pg.No. 3
Solution Label	Nd 401.224 nm ppm	Ni 231.604 nm ppm	Pb 220.353 nm ppm	Pr 417.939 nm ppm	Rb 780.026 nm ppm	Sc 361.383 nm ppm	Sm 359.259 nm ppm	Sn 189.925 nm ppm
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard 1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Standard 2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard 3	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard 4	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Standard 5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standard 6	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Standard 7	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
S.No Standard 8	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1 57 BRS 1	26.00	1.16	3.34	5.00	7.00	<0.5	4.00	<0.5
2 57 BRS 2	45.22	1.86	2.59	21.90	2.92	0.99	8.84	<0.5
3 57 BRS 3	27.98	4.57	3.21	8.76	5.84	5.50	6.98	1.46
4 57 BRS 4	115.58	11.10	126.00	32.75	7.30	4.90	30.44	0.71
5 57 BRS 5	827.56	2.60	69.14	194.30	4.38	4.26	221.66	0.56
6 57 BRS 6	1384.41	17.98	19.40	341.33	10.21	4.90	337.20	1.10
7 57 BRS 7	784.33	3.85	14.27	183.35	10.21	2.74	215.34	0.67
8 57 BRS 8	470.36	8.08	30.76	118.05	11.67	4.29	138.39	<0.5
9 57 BRS 9	1834.21	2.24	31.95	549.50	7.30	27.00	275.97	3.90
10 57 BRS 10	551.70	<0.5	11.73	150.17	8.75	11.26	111.00	1.67
11 57 BRS 11	767.86	0.63	13.03	214.98	13.13	9.62	138.45	<0.5
12 57 BRS 12	567.00	1.55	10.00	166.00	7.30	27.00	113.00	2.93
13 57 BRS 13	24.21	3.17	8.39	7.19	4.51	<0.5	4.70	1.39
14 57 BRS 14	744.18	4.33	18.53	187.81	11.67	4.86	165.89	1.13
15 57 BRS 15	33.09	7.36	7.17	8.22	3.17	<0.5	7.27	1.80
16 57 BRS 16	41.78	45.11	2.54	20.83	3.57	6.19	6.67	<0.5
17 57 BRS 17	6.07	256.67	0.71	15.76	8.75	1.72	1.61	<0.5
18 57 BRS 18	127.05	1.34	6.90	36.56	5.11	1.80	20.81	1.06
19 57 BRS 19	107.93	7.18	3.10	32.22	14.59	7.94	22.86	1.22
20 57 BRS 20	1237.22	<0.5	20.54	357.61	13.70	21.30	202.45	1.22
21 Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 57 BRS 21	376.54	0.66	16.79	112.37	28.89	8.00	69.94	1.01
23 57 BRS 22	365.13	<0.5	8.41	108.64	14.55	13.95	73.11	<0.5
24 57 BRS 23	318.97	<0.5	5.57	93.26	63.76	9.39	65.29	<0.5
25 57 BRS 24	288.26	0.86	8.18	73.49	235.47	7.34	81.34	4.12
26 57 BRS 25	447.26	1.22	10.84	132.58	2.61	11.95	84.35	0.62
27 57 BRS 26	483.14	1.12	7.40	143.96	41.19	14.54	88.60	2.07
28 57 BRS 27	53.80	2.88	6.66	25.84	20.59	8.22	10.84	1.02
29 57 BRS 28	107.39	4.20	10.36	43.04	103.36	18.77	20.86	1.19
30 57 BRS 29	1770.40	1.26	251.00	519.70	5.38	3.69	239.97	2.14
31 57 BRS 30	133.04	2.63	5.07	45.61	92.19	4.08	22.66	0.74
32 57 BRS 31	1965.96	3.19	109.00	594.33	14.74	7.29	260.33	1.59
33 57 BRS 32	1591.30	1.65	60.40	460.50	0.80	4.91	257.99	1.03
34 57 BRS 33	428.72	1.47	11.71	114.59	52.91	16.51	116.11	1.68
35 57 BRS 34	555.25	1.66	9.99	143.57	8.08	4.86	154.93	0.63
36 57 BRS 35	51.89	1.88	3.83	25.77	26.26	6.05	9.20	0.96
37 57 BRS 36	22.25	1.86	1.61	5.00	49.20	2.00	4.11	<0.5
38 57 BRS 37	492.78	<0.5	7.86	141.83	14.59	24.96	101.83	<0.5
39 57 BRS 38	489.06	0.82	15.06	150.41	32.25	12.86	94.85	1.15
40 57 BRS 39	644.00	<0.5	10.00	214.00	3.10	8.00	103.00	0.71
41 57 BRS 40	561.89	<0.5	9.70	165.05	20.43	11.51	112.58	<0.5
42 Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43 57 BRS 41	488.12	<0.5	7.88	144.22	11.67	8.14	98.58	0.86
44 57 BRS 42	489.08	<0.5	8.13	144.66	13.13	5.85	100.02	0.55
45 57 BRS 43	540.00	<0.5	8.00	149.00	6.20	28.00	107.00	<0.5
46 57 BRS 44	500.12	<0.5	8.51	145.25	5.34	6.41	99.96	0.53
47 57 BRS 45	249.72	<0.5	6.26	78.95	11.67	20.02	50.73	<0.5
48 57 BRS 46	856.38	1.94	15.58	254.71	13.13	14.69	136.29	1.81
49 57 BRS 47	557.55	<0.5	13.42	164.52	8.75	9.37	114.88	1.01
50 57 BRS 48	612.43	0.71	12.33	178.13	13.13	8.34	113.55	<0.5
51 57 BRS 49	827.00	<0.5	19.00	423.00	6.70	10.00	144.00	0.90
52 57 BRS 50	711.25	<0.5	11.34	200.64	2.92	9.70	139.36	1.51
53 57 BRS 51	490.03	<0.5	6.15	141.32	4.38	5.76	100.79	<0.5
54 57 RG 01	55.19	52.74	7.64	26.74	7.30	5.29	13.71	<0.5
55 57 CH 01/01	628.90	10.50	38.57	152.26	8.75	10.51	175.95	1.31
56 57 CH 01/02	1182.67	16.41	18.59	312.95	10.21	7.53	272.92	1.22
57 57 CH 01/03	471.09	10.03	14.24	142.23	53.16	27.14	75.43	12.67
58 57 CH 01/04	745.21	1.97	14.59	215.37	33.44	25.99	131.95	2.85
59 57 CH 01/05	1437.93	0.83	20.46	334.63	21.89	3.37	415.43	1.13
60 BCS CRM 176/4	<0	242.88	36.11	8.88	<0	1.88	9.20	<0

Date : 17.04.2026


 (VK Moorthy)
 DM(PC)


 KIOCL Limited Mineral Exploration Laboratory Analysis Report								
Worksheet Name		Samalpatti BRS						Pg.No. 4
Solution Label	Sr 407.771 nm ppm	Ta 268.517 nm ppm	Tb 350.914 nm ppm	Tm 313.125 nm ppm	W 207.912 nm ppm	Y 371.029 nm ppm	Yb 328.937 nm ppm	Zr 343.823 nm ppm
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard 1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Standard 2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard 3	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard 4	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Standard 5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standard 6	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Standard 7	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
S.No Standard 8	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1 57 BRS 1	508.00	<0.5	1.37	<0.5	<0.5	8.00	<0.5	13.01
2 57 BRS 2	885.59	0.20	1.53	<0.5	<0.5	11.74	1.27	14.62
3 57 BRS 3	252.81	0.66	1.07	<0.5	3.18	7.85	1.15	16.66
4 57 BRS 4	2917.98	1.19	3.37	<0.5	<0.5	36.23	4.37	69.84
5 57 BRS 5	6975.38	2.67	23.83	1.82	<0.5	246.24	17.29	4.22
6 57 BRS 6	8640.10	2.26	34.42	2.61	<0.5	353.36	23.85	7.02
7 57 BRS 7	6154.09	2.41	23.21	1.48	<0.5	240.04	16.69	4.53
8 57 BRS 8	3146.47	2.58	16.12	0.85	<0.5	153.69	11.08	6.56
9 57 BRS 9	28391.98	1.75	22.42	<0.5	<0.5	194.60	14.18	24.67
10 57 BRS 10	21669.93	1.00	10.98	<0.5	<0.5	116.36	9.98	8.08
11 57 BRS 11	21605.61	1.35	12.60	<0.5	<0.5	123.45	10.66	5.59
12 57 BRS 12	9017.00	1.00	11.00	2.00	<0.5	112.00	9.00	4.00
13 57 BRS 13	124.11	0.36	0.68	1.00	1.25	7.37	1.49	107.65
14 57 BRS 14	129.55	2.07	16.79	1.14	0.81	171.42	13.11	5.93
15 57 BRS 15	126.34	0.19	1.13	<0.5	1.03	15.07	2.71	251.22
16 57 BRS 16	521.17	0.98	2.55	<0.5	<0.5	7.79	1.53	40.53
17 57 BRS 17	198.52	0.91	1.05	<0.5	<0.5	1.25	<0.5	4.19
18 57 BRS 18	314.98	1.37	2.90	<0.5	0.71	21.60	3.75	92.98
19 57 BRS 19	478.09	0.84	3.05	1.00	<0.5	17.46	2.71	69.56
20 57 BRS 20	13406.83	1.55	16.74	<0.5	<0.5	145.83	12.82	10.48
21 Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 57 BRS 21	5645.24	1.08	7.18	<0.5	<0.5	73.78	5.98	16.80
23 57 BRS 22	5912.38	1.18	7.59	<0.5	<0.5	73.59	6.94	7.32
24 57 BRS 23	3057.60	1.69	8.03	<0.5	0.52	65.26	6.21	48.25
25 57 BRS 24	2150.28	1.66	11.24	<0.5	<0.5	144.08	16.51	71.17
26 57 BRS 25	1536.82	1.56	8.61	<0.5	<0.5	68.58	6.16	34.96
27 57 BRS 26	1247.24	1.36	8.72	<0.5	<0.5	79.68	6.60	56.45
28 57 BRS 27	412.57	1.86	4.03	<0.5	0.56	15.49	3.44	12.94
29 57 BRS 28	1300.58	3.34	7.07	<0.5	0.56	22.66	5.22	14.69
30 57 BRS 29	2377.63	3.41	17.69	0.54	1.88	70.15	6.42	2.70
31 57 BRS 30	2970.76	1.85	4.65	<0.5	<0.5	21.03	3.43	7.44
32 57 BRS 31	2557.98	3.59	19.65	<0.5	1.35	105.43	9.49	5.97
33 57 BRS 32	2339.52	2.57	24.36	<0.5	<0.5	254.80	20.50	6.49
34 57 BRS 33	1193.89	2.38	14.11	<0.5	0.53	122.48	9.13	8.48
35 57 BRS 34	3157.47	2.03	17.47	0.87	<0.5	180.59	12.40	1.90
36 57 BRS 35	444.20	0.54	1.90	1.00	<0.5	13.26	2.10	43.85
37 57 BRS 36	406.00	<0.5	<0.5	<0.5	<0.5	7.00	1.12	27.00
38 57 BRS 37	9323.83	1.37	10.39	1.00	<0.5	97.39	7.70	6.28
39 57 BRS 38	9588.68	3.21	11.57	1.00	<0.5	105.52	11.32	5.93
40 57 BRS 39	12226.00	1.38	12.00	1.00	<0.5	115.00	8.00	7.00
41 57 BRS 40	11697.62	1.16	11.25	<0.5	<0.5	118.30	10.67	3.96
42 Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43 57 BRS 41	14275.92	1.75	10.75	1.00	<0.5	107.91	10.59	6.47
44 57 BRS 42	15877.52	1.43	10.56	<0.5	<0.5	98.52	9.85	5.14
45 57 BRS 43	17741.00	<0.5	11.00	1.00	<0.5	102.00	9.00	6.00
46 57 BRS 44	13065.52	1.45	10.40	<0.5	<0.5	81.34	6.58	5.81
47 57 BRS 45	9975.37	1.08	5.57	<0.5	<0.5	44.03	4.31	6.61
48 57 BRS 46	12513.03	1.28	12.11	<0.5	<0.5	107.88	9.96	8.03
49 57 BRS 47	10793.31	2.17	12.60	<0.5	<0.5	106.19	10.07	11.35
50 57 BRS 48	14434.69	1.02	11.13	0.59	<0.5	123.83	11.31	5.71
51 57 BRS 49	19716.00	1.09	15.00	2.00	<0.5	162.00	13.00	8.00
52 57 BRS 50	14806.50	2.39	14.43	<0.5	<0.5	126.24	11.60	7.25
53 57 BRS 51	13640.02	1.04	10.16	<0.5	<0.5	103.29	8.35	11.23
54 57 RG 01	328.66	0.88	2.70	<0.5	<0.5	17.42	2.06	16.66
55 57 CH 01/01	299.81	1.82	20.88	2.02	<0.5	277.52	22.58	8.70
56 57 CH 01/02	3792.52	2.12	27.96	1.98	<0.5	269.77	18.62	7.82
57 57 CH 01/03	4697.46	2.79	8.67	<0.5	<0.5	52.74	7.46	57.05
58 57 CH 01/04	6172.77	1.72	12.17	<0.5	<0.5	107.98	9.59	61.88
59 57 CH 01/05	8477.02	3.11	41.56	4.69	0.98	520.58	42.28	10.90
60 BCS CRM 176/4	24.31	192.08	7.45	0.02	7.34	5.44	0.42	2.99

Date : 17.04.2026

 (VK Moorthy)
DM(PC)




Annexure 02

Lithounit wise chemical analysis of Bedrock Samples (BRS) indicating REE and RM values


Sl	Sub Block	Sample No	Location		Lithology	Band No.	REE																				RM (ppm)			
			HREE (ppm)								LREE (ppm)								Total REE (ppm)	Total REE (%)	Sc	Nb	Ta	Mo						
			Dy	Er			Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H-REE	Eu	La	Ce	Nd							Pr	Sm	Total L-REE			
1	1	57 BRS 39	225511	1364930	Carbonatite	1	35	19	93	5	12	2	1	115	8	290	34	878	1526	644	214	103	3,399	3,689	3,996	0.37	3.10	17.00	1.38	1.00
2		57 BRS 40	225511	1364930	Carbonatite		37	14	88	6	11	2	<0.5	118	11	288	28	846	1619	562	165	113	3,332	3,620		0.36	20.43	1.58	1.16	1.11
3		57 BRS 41	225511	1364930	Carbonatite		32	13	83	5	11	2	1	108	11	267	25	677	1378	488	144	99	2,811	3,078		0.31	11.67	6.91	1.75	<0.5
4		57 BRS 47	225479	136038	Carbonatite		34	34	34	34	34	34	<0.5	106	10	319	28	717	1508	558	165	115	3,091	3,409		0.34	8.75	8.46	2.17	<0.5
5		57 BRS 48	225479	136038	Carbonatite		37	15	86	7	11	1	1	124	11	293	28	954	1818	612	178	114	3,705	3,998		0.40	13.13	1.81	1.02	<0.5
6		57 BRS 49	225480	1365038	Carbonatite		45	26	192	6	15	2	2	162	13	463	44	1598	3463	827	423	144	6,499	6,962		0.70	6.70	1.00	1.09	<0.5
7		57 BRS 50	225489	1365121	Carbonatite		40	16	112	3	14	3	<0.5	126	12	327	35	971	1890	711	201	139	3,947	4,274		0.43	2.92	12.15	2.39	0.87
8		57 BRS 51	225489	1365121	Carbonatite		31	12	81	5	10	2	<0.5	103	8	252	25	624	1304	490	141	101	2,686	2,938		0.29	4.38	4.29	1.04	<0.5
9		57 BRS 42	225438	1364898	Carbonatite	3	32	12	82	4	11	2	<0.5	99	10	251	24	649	1362	489	145	100	2,769	3,021	4,361	0.30	13.13	4.25	1.43	<0.5
10		57 BRS 46	225436	1364943	Carbonatite		38	15	93	7	12	1	<0.5	108	10	284	32	1435	2704	856	255	136	5,418	5,702		0.57	13.13	2.51	1.28	<0.5
11		57 RG 01	221378	1357395	Carbonatite	Regolith	6	3	16	<0.5	3	1	<0.5	17	2	49	4	47	113	55	27	14	260	308	308	0.03	7.30	7.94	0.88	60.80
12		57 BRS 14	224941	1366683	Carbonatite	15	61	21	127	10	17	2	1	171	13	424	46	569	1576	744	188	166	3,289	3,712	3,712	0.37	11.67	21.10	2.07	102.96
13	1	57 BRS 13	225586	1366833	Pegmatoidal Syenite		2	1	5	<0.5	1	<0.5	1	7	1	18	1	40	74	24	7	5	152	170	195	0.02	4.51	1.82	0.36	5.13
14		57 BRS 15	224800	1367084	Pegmatoidal Syenite		4	2	7	<0.5	1	<0.5	<0.5	15	3	32	2	41	97	33	8	7	188	220		0.02	3.17	4.16	0.19	3.16
15		57 CH 01/05	225769	1365443	Soil		161	69	318	31	42	4	5	521	42	1,192	119	851	2540	1438	335	415	5,698	6,891		0.69	21.89	10.35	3.11	3448.00
16	2	57 BRS 12	225483	1364487	Carbonatite	2	34	19	124	5	11	2	2	112	9	318	32	978	1688	567	166	113	3,544	3,862	3,121	0.39	7.30	13.00	1.00	7.00
17		57 BRS 37	225414	1364482	Carbonatite		30	11	83	4	10	2	1	97	8	247	25	646	1329	493	142	102	2,736	2,983		0.30	14.59	2.92	1.37	0.71
18		57 BRS 38	225370	1364473	Carbonatite		31	13	85	2	12	3	1	106	11	264	25	720	1451	489	150	95	2,930	3,194		0.32	32.25	14.85	3.21	1.11
19		57 BRS 43	225570	1364484	Carbonatite		34	14	102	4	11	2	1	102	9	279	25	952	2089	540	149	107	3,862	4,141		0.41	6.20	1.00	<0.5	<0.5
20		57 BRS 44	225610	1364483	Carbonatite		27	10	82	2	10	2	<0.5	81	7	221	24	662	1380	500	145	100	2,812	3,033		0.30	5.34	8.87	1.45	<0.5
21		57 BRS 45	225653	1364486	Carbonatite		16	5	43	2	6	1	<0.5	44	4	122	12	329	672	250	79	51	1,392	1,514		0.15	11.67	1.72	1.08	<0.5
22		57 BRS 23	225639	1364635	Carbonatite	4	20	9	59	2	8	2	<0.5	65	6	171	16	389	812	319	93	65	1,694	1,865	1,865	0.19	63.76	17.36	1.69	<0.5
23		57 BRS 20	225497	1634499	Carbonatite	5	48	20	133	8	17	2	<0.5	146	13	387	47	2355	4057	1237	358	202	8,256	8,642	4,412	0.86	13.70	7.30	1.55	1.61
24		57 BRS 21	225524	1364532	Carbonatite		21	9	54	2	7	1	<0.5	74	6	174	17	527	1063	377	112	70	2,166	2,340		0.23	28.89	9.61	1.08	5.21
25		57 BRS 22	225524	1364532	Carbonatite		25	9	58	3	8	1	<0.5	74	7	184	18	475	1030	365	109	73	2,071	2,255		0.23	14.55	4.03	1.18	<0.5
26		57 BRS 11	225634	1364549	Carbonatite	6	41	15	100	7	13	2	<0.5	123	11	311	33	1140	2352	767.9	215	138	4,646	4,957	4,057	0.50	13.13	6.95	1.35	<0.5
27		57 BRS 26	225634	1364546	Carbonatite		24	10	67	<0.5	9	1	<0.5	80	7	197	21	856	1368	483	144	89	2,960	3,158		0.32	41.19	13.62	1.36	1.57
28		57 BRS 10	225878	1364475	Carbonatite	7	36	14	86	4	11	1	<0.5	116	10	279	28	659	1368	552	150	111	2,868	3,147	2,494	0.31	8.75	5.42	1.00	0.58
29		57 BRS 24	225874	1364446	Carbonatite		37	18	79	3	11	3	<0.5	144	17	311	23	275	557	288	73	81	1,299	1,610		0.16	235.47	26.72	1.66	<0.5
30		57 BRS 25	225874	1364446	Carbonatite		23	9	65	1	9	2	<0.5	69	6	183	20	627	1230	447	133	84	2,541	2,725		0.27	2.61	10.17	1.56	6.14
31		57 BRS 9	225754	1364074	Carbonatite	8	64	26	180	12	22	2	<0.5	195	14	514	63	4128	6552	1834	549	276	13,403	13,917	13,917	1.39	7.30	1.58	1.75	1.13



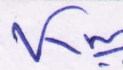
Annexure 02


Lithounit wise chemical analysis of Bedrock Samples (BRS) indicating REE and RM values

Sl	Sub Block	Sample No	Location		Lithology	Band No.	REE																				RM (ppm)			
			HREE (ppm)										LREE (ppm)										Total REE (ppm)	Total REE (%)	Sc	Nb	Ta	Mo		
			Dy	Er			Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H-REE	Eu	La	Ce	Nd	Pr	Sm	Total L-REE									
32	3	57 BRS 5	221373	1357360	Carbonatite	9	93	28	187	16	24	3	2	246	17	615	67	532	1548	827.6	194	222	3,391	4,006	5,064	0.401	4.38	2.74	2.67	81.87
33		57 BRS 6	221380	1357400	Carbonatite		127	42	274	24	34	3	3	353	24	884	98	1272	3157	1384	341	337	6,590	7,474		0.747	10.21	5.16	2.26	354.50
34		57 CH 01/01	221378	1357395	Carbonatite		85	32	154	16	21	3	2	278	23	613	54	406	1195	629	152	176	2,612	3,225		0.323	8.75	3.96	1.82	220.60
35		57 CH 01/02	221378	1357395	Carbonatite		99	34	218	18	28	2	2	270	19	689	79	1381	2903	1183	313	273	6,132	6,821		0.682	10.21	4.19	2.12	247.45
36		57 CH 01/03	221378	1357395	Carbonatite		18	9	62	<0.5	9	2	<0.5	53	7	160	18	916	1911	471	142	75	3,534	3,694		0.369	53.16	15.05	2.79	20.04
37		57 CH 01/04	221378	1357395	Carbonatite		34	14	96	3	12	2	<0.5	108	10	279	32	1387	2375	745	215	132	4,886	5,164		0.516	33.44	10.67	1.72	0.52
38		57 BRS 27	222057	1358764	Carbonatite	10	6	4	17	<0.5	4	2	<0.5	15	3	52	3	45	101	54	26	11	239	291	3,164	0.029	20.59	28.43	1.86	7.45
39		57 BRS 28	222045	1358759	Carbonatite		7	6	33	<0.5	7	3	<0.5	23	5	84	6	106	211	107	43	21	494	578		0.058	103.36	40.90	3.34	2.65
40		57 BRS 29	222045	1358759	Carbonatite		38	19	127	2	18	2	1	70	6	283	48	2512	5641	1770	520	240	10,731	11,014		1.101	5.38	52.19	3.41	148.53
41		57 BRS 30	222045	1358759	Carbonatite		8	5	24	<0.5	5	1	<0.5	21	3	67	5	163	336	133	46	23	705	773		0.077	92.19	27.42	1.85	16.13
42		57 BRS 31	222114	1358644	Carbonatite	11	48	22	144	8	20	2	<0.5	105	9	358	52	2954	6226	1966	594	260	12,053	12,411	6,946	1.241	14.74	20.70	3.59	130.72
43		57 BRS 32	222241	1358606	Carbonatite		87	35	180	16	24	3	<0.5	255	21	620	63	2399	4862	1591	461	258	9,633	10,252		1.025	0.80	12.32	2.57	39.08
44		57 BRS 33	222282	1358730	Carbonatite		46	15	106	4	14	2	<0.5	122	9	319	35	335	865	429	115	116	1,894	2,214		0.221	52.91	16.04	2.38	80.32
45		57 BRS 34	222282	1358730	Carbonatite		63	21	136	9	17	2	1	181	12	442	47	442	1122	555	144	155	2,465	2,908		0.291	8.08	8.12	2.03	41.53
46		57 BRS 8	220435	1357555	Carbonatite	12	60	18	124	10	16	2	1	154	11	396	42	231	776	470	118	138	1,777	2,173	2,173	0.217	11.67	2.64	2.58	25.48
47		57 BRS 19	223248	1359679	Carbonatite	13	5	4	19	<0.5	3	1	1	17	3	53	5	96	213	108	32	23	477	531	531	0.053	14.59	15.37	0.84	0.92
48		57 BRS 7	221118	1357348	Carbonatite	14	89	28	180	15	23	2	1	240	17	595	65	424	1481	784.3	183	215	3,153	3,749	3,749	0.375	10.21	23.68	2.41	80.33
49	3	57 BRS 1	222700	1358386	Crystalline Limestone		3	1	5	<0.5	1	<0.5	<0.5	8	<0.5	18	1	23	53	26	5	4	112	130	130	0.013	7.00	1.00	<0.5	<0.5
50		57 BRS 2	222629	1358374	Crystalline Limestone		3	2	8	<0.5	2	<0.5	<0.5	12	1	28	2	57	113	45	22	9	249	277	277	0.028	2.92	4.21	0.20	5.14
51		57 BRS 35	222973	1358658	Crystalline Limestone		4	3	10	<0.5	2	1	1	13	2	35	2	80	145	52	26	9	314	349	349	0.035	26.26	8.82	0.54	1.80
52		57 BRS 36	222197	1358242	Crystalline Limestone		2	1	4	<0.5	<0.5	<0.5	<0.5	7	1	15	1	24	42	22	5	4	98	114	114	0.011	49.20	2.00	<0.5	<0.5
53		57 BRS 3	222317	1357915	Pyroxenite		3	1	8	<0.5	1	<0.5	<0.5	8	1	22	2	22	53	28	9	7	121	143	143	0.014	5.84	2.79	0.66	12.30
54		57 BRS 4	222518	1357844	Pyroxenite		14	4	25	2	3	1	<0.5	36	4	90	8	55	194	116	33	30	435	525	525	0.053	7.30	1.23	1.19	2.38
55		57 BRS 16	224502	1357550	Dunite (Saprolite)		2	3	10	<0.5	3	1	<0.5	8	2	28	2	51	92	42	21	7	213	242	242	0.024	3.57	21.08	0.98	<0.5
56		57 BRS 17	223960	1357910	Dunite (Saprolite)		1	1	6	<0.5	1	1	<0.5	1	<0.5	11	2	9	17	6	16	2	52	63	63	0.006	8.75	1.08	0.91	<0.5
57	Outside sub blk	57 BRS 18	220003	1361430	Nephiline Syenite		6	4	17	<0.5	3	1	<0.5	22	4	57	5	183	342	127	37	21	715	772	772	0.077	5.11	17.33	1.37	5.47

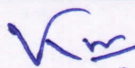
 KIOCL Limited Mineral Exploration Laboratory Analysis Report								
Worksheet Name		Samalpatti Trench						Pg.No. 1
Solution Label	Ba 455.403 nm ppm	Be 313.042 nm ppm	Ce 418.659 nm ppm	Co 238.892 nm ppm	Cu 327.395 nm ppm	Dy 353.171 nm ppm	Er 349.910 nm ppm	Eu 420.504 nm ppm
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard 1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Standard 2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard 3	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard 4	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Standard 5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standard 6	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Standard 7	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
SI No	Standard 8	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1	57 TR 01/01	15327.82	<0.5	3519.74	46.00	116.82	47.54	41.63
2	57 TR 01/02	23025.99	7.17	4947.48	30.01	509.27	48.21	24.76
3	57 TR 01/03	8793.00	12.00	3920.00	90.00	530.00	43.00	28.00
4	57 TR 01/04	8051.96	7.71	3058.72	19.58	144.88	49.92	14.37
5	57 TR 01/05	13554.63	6.51	3097.38	33.00	96.92	50.05	25.01
6	57 TR 01/06	27579.00	3.00	3370.00	148.00	71.00	53.00	21.00
7	57 TR 01/07	7018.50	8.16	2310.24	18.09	122.48	37.03	25.63
8	57 TR 01/08	10258.30	11.59	2252.46	17.38	65.01	37.30	15.23
9	57 TR 01/09	10498.40	9.69	2167.06	56.00	53.39	38.41	16.75
10	57 TR 01/10	7540.74	2.80	423.97	55.00	11.23	5.91	8.00
11	57 TR 01/11	7002.75	2.99	572.09	36.00	15.79	9.84	7.00
12	57 TR 02/12	8182.55	3.63	449.08	26.00	25.81	3.10	11.00
13	57 TR 02/13	10393.82	2.42	751.24	39.00	47.84	38.29	18.32
14	57 TR 02/14	11545.15	2.19	982.15	45.00	50.31	17.33	8.23
15	57 TR 02/15	10347.41	5.03	2466.18	21.00	85.26	36.53	26.71
16	57 TR 02/16	19085.66	7.84	1464.81	30.00	77.30	31.41	12.29
17	57 TR 02/17	11458.45	3.98	1546.22	39.21	150.56	30.11	13.21
18	57 TR 02/18	15034.28	11.16	1147.60	20.00	28.71	14.45	13.34
19	57 TR 02/19	7711.63	6.27	872.05	32.00	50.97	28.01	16.53
20	57 TR 02/20	35254.22	5.07	3221.15	22.00	88.49	45.71	23.42
21	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	57 TR 02/21	18309.84	5.44	1715.48	42.00	103.60	30.32	33.69
23	57 TR 02/22	9413.44	3.88	1888.73	18.53	78.12	35.41	27.15
24	57 TR 02/23	26230.53	4.81	2268.56	22.00	138.11	44.66	15.71
25	57 TR 02/24	15654.64	6.43	1786.51	52.40	355.02	28.12	22.91
26	57 TR 02/25	9138.39	5.14	236.01	32.00	42.85	7.62	12.89
27	57 TR 03/26	19937.09	10.51	2177.38	19.70	316.00	21.50	17.56
28	57 TR 03/27	8795.89	6.36	924.11	15.28	48.14	6.73	12.20
29	57 TR 03/28	11861.60	4.93	380.07	37.00	22.75	2.97	22.81
30	57 TR 03/29	2019.92	8.64	358.92	39.00	15.15	1.17	2.02
31	57 TR 03/30	11515.24	5.28	493.68	37.00	19.31	9.41	6.00
32	57 TR 03/31	11665.00	8.00	1604.00	78.00	38.00	32.00	14.00
33	57 TR 03/32	13387.00	10.00	4023.00	81.00	25.96	69.00	24.00
34	57 TR 03/33	24322.42	10.89	2398.40	32.00	17.32	39.24	18.26
35	57 TR 03/34	11473.17	8.32	1242.37	42.00	86.05	24.01	15.70
36	57 TR 03/35	6587.01	4.73	542.99	58.00	29.30	36.00	5.66
37	57 TR 03/35A	12575.12	6.33	274.30	67.00	21.22	33.00	6.01
38	57 TR 04/36	19712.85	7.56	5917.13	66.00	37.62	26.82	12.34
39	57 TR 04/37	31146.79	6.41	4804.51	44.00	96.33	54.04	40.94
40	57 TR 04/38	17532.92	15.16	1648.61	35.00	55.00	18.43	7.49
41	57 TR 04/39	10492.96	7.95	1834.32	38.00	66.17	33.17	11.06
42	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	57 TR 04/40	9823.70	21.86	3065.53	29.00	45.49	46.13	25.91
44	57 TR 04/41	13530.27	16.12	1231.80	33.00	39.21	22.58	22.79
45	57 TR 04/42	8832.51	8.37	2572.77	51.00	21.14	22.71	15.34
46	57 TR 04/43	40109.13	9.60	1904.46	30.00	57.87	26.27	12.47
47	57 TR 04/44	17054.00	8.00	1528.00	105.00	114.00	29.00	11.00
48	57 TR 04/45	19900.09	4.66	1575.44	45.00	86.95	31.39	14.74
49	57 TR 04/46	9236.00	6.00	1907.00	90.00	468.00	32.00	15.00
50	57 TR 04/47	10393.73	12.66	1055.52	26.00	161.83	26.04	17.19
51	57 TR 04/48	24682.35	8.87	2435.64	55.00	69.40	42.52	19.63
52	57 TR 04/49	23949.66	10.03	1789.71	37.00	94.44	36.86	15.82
53	57 TR 04/50	14274.66	14.18	1558.70	114.09	387.20	36.87	17.93
54	57 TR 04/51	22608.72	7.95	1725.27	29.00	139.87	32.34	17.84
55	57 TR 04/52	20825.84	12.74	2450.00	49.00	387.19	43.85	22.22
56	57 TR 04/53	15113.19	9.06	2241.32	46.00	97.28	44.44	22.05
57	57 TR 04/54	13257.04	9.19	1587.71	35.00	82.88	32.71	15.57
58	57 TR 04/55	9341.22	8.16	718.90	26.00	117.24	20.92	13.20
59	57 TR 04/56	7730.46	6.06	765.41	19.00	71.04	20.74	14.90
60	57 TR 04/57	6536.06	5.04	314.16	16.00	67.32	3.32	1.62
61	BCS CRM 176/4	32.31	2.65	16.11	46.30	43.22	53.58	0.92


Date: 17.04.2026

 (VK Moorthy)
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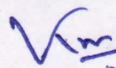

 KIOCL Limited Mineral Exploration Laboratory Analysis Report								
Worksheet Name		Samalpatti 57 Trench						Pg.No. 2
Solution Label	Ga 294.363 nm ppm	Gd 342.246 nm ppm	Hf 264.141 nm ppm	Ho 345.600 nm ppm	La 333.749 nm ppm	Lu 261.541 nm ppm	Mo 202.032 nm ppm	Nb 313.078 nm ppm
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard 1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Standard 2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard 3	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard 4	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Standard 5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standard 6	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Standard 7	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
SI No	Standard 8	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1	57 TR 01/01	10.48	120.73	1.85	14.34	2663.59	3.22	5.00
2	57 TR 01/02	27.90	148.35	1.15	2.38	2978.67	2.87	2.51
3	57 TR 01/03	15.00	236.00	1.51	8.00	2750.00	2.00	<0.5
4	57 TR 01/04	45.75	140.38	1.28	17.71	1477.53	3.98	13.00
5	57 TR 01/05	22.41	132.21	2.11	9.79	1504.21	3.02	8.25
6	57 TR 01/06	12.00	164.00	3.00	7.00	1797.00	2.00	<0.5
7	57 TR 01/07	12.00	120.85	1.37	14.77	1089.56	3.68	<0.5
8	57 TR 01/08	34.56	100.12	1.47	18.07	1212.24	2.45	<0.5
9	57 TR 01/09	14.19	94.30	1.62	4.00	1149.13	2.56	1.35
10	57 TR 01/10	14.00	11.72	1.20	5.52	278.36	1.59	<0.5
11	57 TR 01/11	14.83	12.85	1.29	4.68	290.40	1.48	<0.5
12	57 TR 02/12	22.15	14.92	1.33	5.70	213.73	1.41	<0.5
13	57 TR 02/13	18.36	66.55	1.46	9.12	334.42	3.65	<0.5
14	57 TR 02/14	24.66	49.74	1.69	5.82	523.31	3.05	<0.5
15	57 TR 02/15	17.27	106.46	1.72	3.94	1321.33	4.35	6.45
16	57 TR 02/16	21.31	92.18	2.73	7.65	670.71	3.92	1.92
17	57 TR 02/17	27.75	86.42	1.81	7.47	711.09	4.37	<0.5
18	57 TR 02/18	35.43	53.01	1.94	5.23	525.96	2.50	<0.5
19	57 TR 02/19	23.80	81.60	0.29	24.66	390.76	3.36	1.72
20	57 TR 02/20	13.29	107.14	4.83	30.45	1542.17	4.61	<0.5
21	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	57 TR 02/21	20.00	86.69	3.36	17.53	820.11	2.96	<0.5
23	57 TR 02/22	88.33	78.35	1.38	11.76	842.01	4.89	<0.5
24	57 TR 02/23	33.26	100.76	3.80	18.10	1090.79	2.52	<0.5
25	57 TR 02/24	11.82	96.83	2.39	14.79	804.81	5.12	<0.5
26	57 TR 02/25	42.83	7.42	1.49	21.78	80.11	3.00	<0.5
27	57 TR 03/26	39.33	84.43	2.53	25.25	1074.99	2.98	<0.5
28	57 TR 03/27	27.13	35.97	1.04	35.88	453.51	2.50	<0.5
29	57 TR 03/28	3.76	9.01	2.29	17.60	157.60	1.63	<0.5
30	57 TR 03/29	49.67	1.15	1.35	4.00	123.83	1.88	<0.5
31	57 TR 03/30	30.34	22.04	2.51	15.16	199.81	2.51	<0.5
32	57 TR 03/31	17.00	95.00	2.25	4.00	1000.00	1.00	<0.5
33	57 TR 03/32	16.00	217.00	3.00	11.00	1447.00	2.38	<0.5
34	57 TR 03/33	41.96	110.22	3.39	18.39	971.45	2.58	<0.5
35	57 TR 03/34	37.39	71.04	1.30	4.50	532.82	2.27	3.37
36	57 TR 03/35	22.00	7.67	1.52	10.36	247.12	1.43	<0.5
37	57 TR 03/35A	18.71	10.21	2.23	12.44	97.32	1.00	<0.5
38	57 TR 04/36	4.66	85.00	2.46	16.13	1255.94	1.18	<0.5
39	57 TR 04/37	30.00	150.23	3.94	29.32	2392.78	2.40	0.83
40	57 TR 04/38	31.94	82.81	2.53	3.23	749.54	4.90	<0.5
41	57 TR 04/39	28.00	73.70	1.68	27.78	833.40	3.72	<0.5
42	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	57 TR 04/40	21.00	159.69	1.55	21.81	1248.46	3.29	<0.5
44	57 TR 04/41	63.51	65.60	2.00	26.71	564.34	3.30	<0.5
45	57 TR 04/42	33.22	93.43	1.19	10.95	1216.35	1.60	<0.5
46	57 TR 04/43	22.82	72.48	5.62	20.95	1002.55	3.04	0.98
47	57 TR 04/44	9.00	84.00	1.00	4.00	726.00	1.00	2.00
48	57 TR 04/45	9.19	80.62	2.21	1.47	756.35	1.67	<0.5
49	57 TR 04/46	13.00	108.00	1.00	4.00	1080.00	2.00	<0.5
50	57 TR 04/47	14.81	78.99	1.14	3.53	517.12	2.99	<0.5
51	57 TR 04/48	11.55	109.18	2.75	7.15	1297.56	2.01	<0.5
52	57 TR 04/49	11.05	108.21	2.62	5.74	821.19	1.93	<0.5
53	57 TR 04/50	14.21	100.72	1.54	5.93	758.07	3.33	<0.5
54	57 TR 04/51	13.51	83.87	2.56	5.11	872.16	2.11	<0.5
55	57 TR 04/52	17.29	115.77	2.32	6.85	1230.19	3.04	<0.5
56	57 TR 04/53	13.39	111.39	1.67	7.15	1081.96	2.14	<0.5
57	57 TR 04/54	10.63	82.19	1.48	4.75	746.69	2.21	0.84
58	57 TR 04/55	12.05	57.39	1.04	2.51	316.28	2.21	<0.5
59	57 TR 04/56	10.22	55.08	1.01	2.99	349.11	1.78	<0.5
60	57 TR 04/57	8.15	9.60	1.19	1.00	167.11	1.00	<0.5
61	BCS CRM 176/4	2.76	5.31	6.21	<0	57.43	0.88	63.56


Date: 17.04.2026

 (VK Moorthy)
DM(PC)


<div>  KIOCL Limited Mineral Exploration Laboratory Analysis Report </div>								
Worksheet Name		Samalpatti 57 Trench						Pg.No. 3
Solution Label	Nd 401.224 nm ppm	Ni 231.604 nm ppm	Pb 220.353 nm ppm	Pr 417.939 nm ppm	Rb 780.026 nm ppm	Sc 361.383 nm ppm	Sm 359.259 nm ppm	Sn 189.925 nm ppm
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard 1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Standard 2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard 3	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard 4	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Standard 5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standard 6	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Standard 7	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Standard 8	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
SI No								
1	57 TR 01/01	1172.69	1.74	14.77	307.56	12.00	114.36	182.41
2	57 TR 01/02	1362.98	0.63	14.30	464.88	12.00	178.13	191.84
3	57 TR 01/03	1138.00	0.72	20.00	418.00	22.00	524.00	183.00
4	57 TR 01/04	931.41	11.10	13.82	246.90	29.12	58.71	171.22
5	57 TR 01/05	902.00	10.88	15.97	255.26	47.51	61.47	158.57
6	57 TR 01/06	886.00	2.06	12.04	352.00	12.00	59.00	172.00
7	57 TR 01/07	711.63	6.75	3.81	198.20	13.61	32.18	139.44
8	57 TR 01/08	695.32	4.42	9.15	177.13	35.13	29.29	121.92
9	57 TR 01/09	657.24	7.95	6.53	180.62	33.37	69.79	113.65
10	57 TR 01/10	114.94	7.87	16.74	17.12	31.16	10.06	8.28
11	57 TR 01/11	143.25	5.96	8.00	8.62	14.53	17.73	15.55
12	57 TR 02/12	113.06	2.61	7.00	11.84	36.51	26.00	4.66
13	57 TR 02/13	270.15	8.12	2.27	63.63	18.96	16.76	59.75
14	57 TR 02/14	286.33	9.26	3.03	77.42	29.35	20.07	46.39
15	57 TR 02/15	718.51	3.07	14.40	203.81	15.00	38.59	121.30
16	57 TR 02/16	517.49	5.11	6.00	116.67	52.20	14.85	100.43
17	57 TR 02/17	503.83	7.15	9.51	151.76	12.90	11.27	94.81
18	57 TR 02/18	374.45	7.67	7.00	119.78	32.47	12.72	58.13
19	57 TR 02/19	363.06	8.25	6.00	77.47	49.04	15.28	82.80
20	57 TR 02/20	935.00	13.92	3.26	217.85	52.88	35.09	150.36
21	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	57 TR 02/21	513.25	0.96	7.85	93.25	72.98	23.73	88.66
23	57 TR 02/22	639.12	7.58	7.00	159.63	10.19	15.80	131.60
24	57 TR 02/23	684.75	5.64	8.00	146.75	18.00	22.07	117.81
25	57 TR 02/24	601.85	8.68	9.00	156.73	19.00	12.49	99.34
26	57 TR 02/25	70.17	9.07	10.00	11.80	23.99	29.00	5.73
27	57 TR 03/26	674.88	3.57	8.47	174.98	60.40	56.78	106.20
28	57 TR 03/27	257.12	6.08	16.00	98.67	55.29	24.60	22.00
29	57 TR 03/28	96.77	15.95	1.93	31.73	58.22	8.27	1.96
30	57 TR 03/29	91.97	9.25	8.00	64.49	13.00	22.10	9.71
31	57 TR 03/30	139.07	18.25	9.00	29.08	30.72	11.58	12.37
32	57 TR 03/31	624.00	10.54	5.00	143.00	36.00	43.00	126.00
33	57 TR 03/32	1758.00	6.79	2.00	371.00	13.00	14.00	316.00
34	57 TR 03/33	878.09	2.14	8.00	206.67	25.00	12.92	171.49
35	57 TR 03/34	458.94	5.02	2.30	62.78	23.05	10.18	89.59
36	57 TR 03/35	155.35	13.35	2.00	49.87	26.61	26.00	1.34
37	57 TR 03/35A	76.44	13.04	6.00	13.22	22.36	16.00	6.08
38	57 TR 04/36	1384.36	8.00	5.00	339.17	17.72	224.00	135.08
39	57 TR 04/37	1269.08	9.67	4.00	296.62	25.70	40.24	201.54
40	57 TR 04/38	552.01	5.80	1.17	87.66	21.13	38.54	91.36
41	57 TR 04/39	561.96	10.65	3.00	139.24	20.60	34.88	98.50
42	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	57 TR 04/40	1095.06	18.90	2.78	284.71	11.28	25.30	207.43
44	57 TR 04/41	407.65	13.09	3.00	106.96	32.69	24.75	66.12
45	57 TR 04/42	756.44	46.52	1.53	215.41	20.06	28.12	126.53
46	57 TR 04/43	573.72	25.82	6.89	177.43	19.42	48.67	103.60
47	57 TR 04/44	664.00	3.17	1.00	178.00	14.00	32.00	121.00
48	57 TR 04/45	527.91	1.63	5.84	171.70	11.00	32.11	91.29
49	57 TR 04/46	732.00	1.91	2.00	250.00	30.00	35.00	139.00
50	57 TR 04/47	428.11	1.39	3.56	133.69	53.76	15.40	78.01
51	57 TR 04/48	760.56	1.20	8.12	244.19	12.00	35.90	124.84
52	57 TR 04/49	701.91	0.76	4.87	221.23	14.00	18.69	127.12
53	57 TR 04/50	565.33	1.29	7.69	188.81	22.00	46.42	102.25
54	57 TR 04/51	563.29	2.45	6.52	181.09	13.00	21.46	93.70
55	57 TR 04/52	784.51	2.90	8.00	248.06	23.00	32.89	130.84
56	57 TR 04/53	763.12	1.15	8.38	239.02	11.00	58.39	131.13
57	57 TR 04/54	523.30	1.22	7.00	163.85	14.00	53.03	89.35
58	57 TR 04/55	306.32	<0.5	4.07	96.44	23.61	12.58	57.60
59	57 TR 04/56	319.18	0.70	8.40	89.69	32.52	20.64	57.18
60	57 TR 04/57	89.52	<0.5	5.31	31.37	25.11	9.01	13.85
61	BCS CRM 176/4	<0	207.44	24.56	14.65	<0	1.89	7.34

Date: 17.04.2026


 V K Moorthy
 DM(PC)


 KIOCL Limited Mineral Exploration Laboratory Analysis Report									
Worksheet Name		Samalpatti 57 Trench							Pg.No. 4
Solution Label	Sr 407.771 nm ppm	Ta 268.517 nm ppm	Tb 350.914 nm ppm	Tm 313.125 nm ppm	W 207.912 nm ppm	Y 371.029 nm ppm	Yb 328.937 nm ppm	Zr 343.823 nm ppm	
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Standard 1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Standard 2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Standard 3	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
Standard 4	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Standard 5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Standard 6	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	
Standard 7	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	
SI No Standard 8	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	
1	57 TR 01/01	5605.65	7.34	38.64	1.00	<0.5	174.54	22.63	4.59
2	57 TR 01/02	7589.88	8.05	20.27	1.00	<0.5	121.19	8.85	10.10
3	57 TR 01/03	6310.00	2.00	19.00	2.00	<0.5	144.00	10.00	10.00
4	57 TR 01/04	9201.49	14.00	12.74	1.00	<0.5	156.43	12.35	<0.5
5	57 TR 01/05	12173.28	4.00	21.93	1.00	<0.5	160.11	12.09	0.53
6	57 TR 01/06	17728.00	3.00	18.00	2.00	<0.5	182.00	12.00	2.57
7	57 TR 01/07	8212.70	11.00	5.03	2.00	<0.5	131.29	11.59	<0.5
8	57 TR 01/08	9656.16	<0.5	12.58	1.00	<0.5	120.34	8.87	5.31
9	57 TR 01/09	8460.88	<0.5	4.27	<0.5	<0.5	116.34	8.42	3.94
10	57 TR 01/10	951.83	<0.5	4.30	<0.5	<0.5	16.61	2.02	12.64
11	57 TR 01/11	522.28	<0.5	13.59	<0.5	<0.5	21.33	2.63	<0.5
12	57 TR 02/12	288.59	13.00	5.51	<0.5	<0.5	16.40	2.08	5.85
13	57 TR 02/13	774.43	<0.5	10.93	<0.5	<0.5	143.47	17.11	2.88
14	57 TR 02/14	656.92	<0.5	15.98	<0.5	<0.5	70.94	7.99	3.86
15	57 TR 02/15	3033.92	<0.5	12.78	1.00	<0.5	124.91	11.37	3.68
16	57 TR 02/16	6873.93	<0.5	14.51	<0.5	11.80	103.36	9.06	<0.5
17	57 TR 02/17	12726.62	<0.5	12.79	1.00	<0.5	97.87	9.03	1.71
18	57 TR 02/18	2328.35	<0.5	13.48	<0.5	<0.5	57.38	6.32	0.95
19	57 TR 02/19	2507.69	<0.5	11.00	<0.5	<0.5	128.88	14.59	<0.5
20	57 TR 02/20	14141.40	<0.5	4.60	1.00	<0.5	143.76	12.37	1.85
21	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	57 TR 02/21	5521.63	4.53	1.74	<0.5	<0.5	95.66	7.72	1.81
23	57 TR 02/22	13162.35	5.00	23.04	<0.5	<0.5	108.81	9.11	<0.5
24	57 TR 02/23	8411.26	<0.5	34.87	1.00	<0.5	111.33	10.11	<0.5
25	57 TR 02/24	9468.51	<0.5	41.11	<0.5	<0.5	110.00	9.78	<0.5
26	57 TR 02/25	1137.61	<0.5	3.46	<0.5	<0.5	18.65	2.85	6.19
27	57 TR 03/26	846.06	<0.5	16.35	1.00	<0.5	101.21	9.67	15.00
28	57 TR 03/27	340.25	7.00	12.90	<0.5	<0.5	39.37	4.12	15.74
29	57 TR 03/28	209.08	<0.5	12.79	2.00	<0.5	21.59	2.97	13.95
30	57 TR 03/29	199.46	<0.5	22.94	<0.5	<0.5	17.14	2.36	11.07
31	57 TR 03/30	245.31	<0.5	12.00	<0.5	<0.5	21.23	3.46	12.27
32	57 TR 03/31	1415.00	<0.5	12.00	1.00	<0.5	87.00	7.00	9.00
33	57 TR 03/32	8832.00	1.38	27.00	2.00	<0.5	233.00	11.00	5.00
34	57 TR 03/33	5666.91	<0.5	19.75	<0.5	<0.5	108.43	8.22	<0.5
35	57 TR 03/34	2458.17	<0.5	16.30	<0.5	<0.5	83.24	6.33	8.69
36	57 TR 03/35	444.79	4.00	12.86	1.00	<0.5	19.76	2.88	16.40
37	57 TR 03/35	139.88	5.14	7.96	<0.5	<0.5	9.98	1.75	8.29
38	57 TR 04/36	2919.82	4.81	10.82	2.00	<0.5	60.75	3.61	4.59
39	57 TR 04/37	10881.96	2.39	27.03	<0.5	<0.5	181.70	13.52	<0.5
40	57 TR 04/38	2485.84	2.55	31.81	<0.5	<0.5	79.99	7.49	17.55
41	57 TR 04/39	3418.17	3.07	18.06	2.00	<0.5	91.78	8.42	<0.5
42	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	57 TR 04/40	6127.94	<0.5	32.97	<0.5	<0.5	137.05	8.65	2.41
44	57 TR 04/41	2092.35	<0.5	17.10	<0.5	<0.5	76.81	6.13	<0.5
45	57 TR 04/42	10267.85	<0.5	11.94	<0.5	<0.5	99.62	7.56	<0.5
46	57 TR 04/43	3041.89	<0.5	24.43	<0.5	<0.5	78.77	6.27	<0.5
47	57 TR 04/44	1878.00	<0.5	11.00	1.00	<0.5	84.00	8.00	5.00
48	57 TR 04/45	5453.76	<0.5	11.12	1.00	<0.5	77.83	5.83	10.03
49	57 TR 04/46	4027.20	<0.5	14.00	1.00	<0.5	97.00	9.00	3.00
50	57 TR 04/47	2994.01	6.41	12.83	<0.5	1.00	73.54	6.53	18.50
51	57 TR 04/48	7152.28	4.69	14.80	<0.5	<0.5	106.20	7.74	6.15
52	57 TR 04/49	5140.74	4.31	14.61	<0.5	<0.5	84.63	5.11	3.67
53	57 TR 04/50	6413.35	5.10	14.10	1.00	<0.5	101.27	8.52	5.40
54	57 TR 04/51	5174.60	4.55	12.30	<0.5	<0.5	90.44	7.31	17.11
55	57 TR 04/52	6576.53	6.30	16.72	1.00	<0.5	115.59	9.36	14.75
56	57 TR 04/53	7041.44	4.66	15.47	<0.5	<0.5	115.39	8.91	10.26
57	57 TR 04/54	1513.18	5.06	11.45	1.00	<0.5	74.91	6.29	13.49
58	57 TR 04/55	2076.67	5.56	9.25	2.00	<0.5	58.20	5.53	23.51
59	57 TR 04/56	2293.80	4.13	10.44	1.00	<0.5	60.83	5.37	26.72
60	57 TR 04/57	1868.89	2.88	1.15	<0.5	<0.5	8.10	2.00	17.51
61	BCS CRM 176/4	24.56	171.67	4.20	1.02	6.33	4.56	0.62	5.89

Date: 17.04.2026

V K Moorthy
V K Moorthy
DM(PC)





Trench Sample analysis report indicating REE & RM

Sl	Trench No	Sample No	HREE (ppm)										LREE (ppm)							Total REE(ppm)			Total REE %	RM(ppm)			
			Dy	Er	Gd	Ho	Tb	Lu	Tm	Y	Yb	Total HREE	Eu	La	Ce	Nd	Pr	Sm	Total LREE					Sc	Nb	Ta	Mo
1	01	57 TR 01/01	47.54	41.63	120.73	14.34	38.64	3.22	1.00	174.54	22.63	464.27	41.98	2,663.59	3,519.74	1,172.69	307.56	182.41	7,887.96	8,352.23	6,647.23	5,776.63	0.08	114.36	10.10	7.34	5.00
2		57 TR 01/02	48.21	24.76	148.35	2.38	20.27	2.87	1.00	121.19	8.85	377.89	48.50	2,978.67	4,947.48	1,362.98	464.88	191.84	9,994.33	10,372.22			0.10	178.13	12.17	8.05	2.51
3		57 TR 01/03	43.00	28.00	236.00	8.00	19.00	2.00	2.00	144.00	10.00	492.00	41.00	2,750.00	3,920.00	1,138.00	418.00	183.00	8,450.00	8,942.00			0.09	524.00	9.00	2.00	<0.5
4		57 TR 01/04	49.92	14.37	140.38	17.71	12.74	3.98	1.00	156.43	12.35	408.88	43.14	1,477.53	3,058.72	931.41	246.90	3.00	5,760.70	6,169.59			0.06	58.71	5.85	14.00	13.00
5		57 TR 01/05	50.05	25.01	132.21	9.79	21.93	3.02	1.00	160.11	12.09	415.21	41.12	1,504.21	3,097.38	902.00	255.26	158.57	5,958.53	6,373.74			0.06	61.47	7.62	4.00	8.25
6		57 TR 01/06	53.00	21.00	164.00	7.00	18.00	2.00	2.00	182.00	12.00	461.00	60.00	1,797.00	3,370.00	886.00	352.00	172.00	6,637.00	7,098.00			0.07	59.00	5.00	3.00	<0.5
7		57 TR 01/07	37.03	25.63	120.85	14.77	5.03	3.68	2.00	131.29	11.59	351.86	36.76	1,089.56	2,310.24	711.63	198.20	139.44	4,485.84	4,837.69			0.05	32.18	4.35	11.00	<0.5
8		57 TR 01/08	37.30	15.23	100.12	18.07	12.58	2.45	1.00	120.34	8.87	315.96	28.85	1,212.24	2,252.46	695.32	177.13	121.92	4,487.92	4,803.88			0.05	29.29	5.57	<0.5	<0.5
9		57 TR 01/09	38.41	16.75	94.30	4.00	4.27	2.56	<0.5	116.34	8.42	285.05	27.94	1,149.13	2,167.06	657.24	180.62	113.65	4,295.64	4,580.69			0.05	69.79	5.75	<0.5	1.35
10		57 TR 01/10	5.91	8.00	11.72	5.52	4.30	1.59	<0.5	16.61	2.02	55.68	5.47	278.36	423.97	114.94	17.12	8.28	848.14	903.82			0.01	10.06	1.67	<0.5	<0.5
11		57 TR 01/11	9.84	7.00	12.85	4.68	13.59	1.48	<0.5	21.33	2.63	73.40	5.80	290.40	572.09	143.25	8.62	15.55	1,035.70	1,109.10			0.01	17.73	1.79	<0.5	<0.5
12	02	57 TR 02/12	3.10	11.00	14.92	5.70	5.51	1.41	<0.5	16.40	2.08	60.12	5.51	213.73	449.08	113.06	11.84	4.66	797.87	857.99	3,864.52	3,135.88	0.01	26.00	4.04	13.00	<0.5
13		57 TR 02/13	38.29	18.32	66.55	9.12	10.93	3.65	<0.5	143.47	17.11	307.44	19.92	334.42	751.24	270.15	63.63	59.75	1,499.11	1,806.55			0.02	16.76	9.19	<0.5	<0.5
14		57 TR 02/14	17.33	8.23	49.74	5.82	15.98	3.05	<0.5	70.94	7.99	179.10	13.61	523.31	982.15	286.33	77.42	46.39	1,929.21	2,108.31			0.02	20.07	8.53	<0.5	<0.5
15		57 TR 02/15	36.53	26.71	106.46	3.94	12.78	4.35	1.00	124.91	11.37	328.05	30.40	1,321.33	2,466.18	718.51	203.81	121.30	4,861.53	5,189.58			0.05	38.59	8.81	<0.5	6.45
16		57 TR 02/16	31.41	12.29	92.18	7.65	14.51	3.92	<0.5	103.36	9.06	274.40	24.57	670.71	1,464.81	517.49	116.67	100.43	2,894.68	3,169.08			0.03	14.85	6.46	<0.5	1.92
17		57 TR 02/17	30.11	13.21	86.42	7.47	12.79	4.37	1.00	97.87	9.03	262.27	23.29	711.09	1,546.22	503.83	151.76	94.81	3,031.00	3,293.27			0.03	11.27	7.52	<0.5	<0.5
18		57 TR 02/18	14.45	13.34	53.01	5.23	13.48	2.50	<0.5	57.38	6.32	165.70	14.63	525.96	1,147.60	374.45	119.78	58.13	2,240.56	2,406.26			0.02	12.72	9.07	<0.5	<0.5
19		57 TR 02/19	28.01	16.53	81.60	24.66	11.00	3.36	<0.5	128.88	14.59	308.63	23.13	390.76	872.05	363.06	77.47	82.80	1,809.27	2,117.90			0.02	15.28	15.94	<0.5	1.72
20		57 TR 02/20	45.71	23.42	107.14	30.45	4.60	4.61	1.00	143.76	12.37	373.06	32.97	1,542.17	3,221.15	935.00	217.85	150.36	6,099.49	6,472.55			0.06	35.09	9.68	<0.5	<0.5
21		57 TR 02/21	30.32	33.69	86.69	17.53	1.74	2.96	<0.5	95.66	7.72	276.30	22.43	820.11	1,715.48	513.25	93.25	88.66	3,253.18	3,529.49			0.04	23.73	8.87	4.53	<0.5
22		57 TR 02/22	35.41	27.15	78.35	11.76	23.04	4.89	<0.5	108.81	9.11	298.52	26.48	842.01	1,888.73	639.12	159.63	131.60	3,687.57	3,986.09			0.04	15.80	7.85	5.00	<0.5
23		57 TR 02/23	44.66	15.71	100.76	18.10	34.87	2.52	1.00	111.33	10.11	339.06	30.18	1,090.79	2,268.56	684.75	146.75	117.81	4,338.82	4,677.88			0.05	22.07	7.50	<0.5	<0.5
24		57 TR 02/24	28.12	22.91	96.83	14.79	41.11	5.12	<0.5	110.00	9.78	328.66	25.25	804.81	1,786.51	601.85	156.73	99.34	3,474.49	3,803.15			0.04	12.49	12.71	<0.5	<0.5
25		57 TR 02/25	7.62	12.89	7.42	21.78	3.46	3.00	<0.5	18.65	2.85	77.67	2.69	80.11	236.01	70.17	11.80	5.73	406.52	484.19			0.00	29.00	23.00	<0.5	<0.5
26	03	57 TR 03/26	21.50	17.56	84.43	25.25	16.35	2.98	1.00	101.21	9.67	279.97	24.09	1,074.99	2,177.38	674.88	174.98	106.20	4,232.52	4,512.49	4,993.18	2,771.98	0.05	56.78	22.00	<0.5	<0.5
27		57 TR 03/27	6.73	12.20	35.97	35.88	12.90	2.50	<0.5	39.37	4.12	149.67	5.85	453.51	924.11	257.12	98.67	22.00	1,761.26	1,910.93			0.02	24.60	9.21	7.00	<0.5
28		57 TR 03/28	2.97	22.81	9.01	17.60	12.79	1.63	2.00	21.59	2.97	93.36	3.88	157.60	380.07	96.77	31.73	1.96	672.01	765.37			0.01	8.27	6.03	<0.5	<0.5
29		57 TR 03/29	1.17	2.02	1.15	4.00	22.94	1.88	<0.5	17.14	2.36	52.65	2.35	123.83	358.92	91.97	64.49	9.71	651.26	703.92			0.01	22.10	3.85	<0.5	<0.5
30		57 TR 03/30	9.41	6.00	22.04	15.16	12.00	2.51	<0.5	21.23	3.46	91.82	3.91	199.81	493.68	139.07	29.08	12.37	877.92	969.74			0.01	11.58	5.45	<0.5	<0.5
31		57 TR 03/31	32.00	14.00	95.00	4.00	12.00	1.00	1.00	87.00	7.00	253.00	29.00	1,000.00	1,604.00	624.00	143.00	126.00	3,526.00	3,779.00			0.04	43.00	12.00	<0.5	<0.5
32		57 TR 03/32	69.00	24.00	217.00	11.00	27.00	2.38	2.00	233.00	11.00	596.38	64.00	1,447.00	4,023.00	1,758.00	371.00	316.00	7,979.00	8,575.38			0.09	14.00	2.00	1.38	<0.5
33		57 TR 03/33	39.24	18.26	110.22	18.39	19.75	2.58	<0.5	108.43	8.22	325.08	37.49	971.45	2,398.40	878.09	206.67	171.49	4,663.58	4,988.66			0.05	12.92	8.17	<0.5	<0.5

34		57 TR 03/34	24.01	15.70	71.04	4.50	16.30	2.27	<0.5	83.24	6.33	223.40	19.78	532.82	1,242.37	458.94	62.78	89.59	2,406.27	2,629.68			0.03	10.18	14.86	<0.5	3.37
35		57 TR 03/35	36.00	5.66	7.67	10.36	12.86	1.43	1.00	19.76	2.88	97.63	3.62	247.12	542.99	155.35	49.87	1.34	1,000.28	1,097.91			0.01	26.00	5.62	4.00	<0.5
36		57 TR 03/35A	33.00	6.01	10.21	12.44	7.96	1.00	<0.5	9.98	1.75	82.36	9.00	97.32	274.30	76.44	13.22	6.08	476.36	558.72			0.01	16.00	2.23	5.14	<0.5
37	04	57 TR 04/36	26.82	12.34	85.00	16.13	10.82	1.18	2.00	60.75	3.61	218.64	29.63	1,255.94	5,917.13	1,384.36	339.17	135.08	9,061.30	9,279.94	4,339.03	4,171.20	0.09	224.00	6.26	4.81	<0.5
38		57 TR 04/37	54.04	40.94	150.23	29.32	27.03	2.40	<0.5	181.70	13.52	499.18	47.70	2,392.78	4,804.51	1,269.08	296.62	201.54	9,012.23	9,511.41			0.10	40.24	1.57	2.39	0.83
39		57 TR 04/38	18.43	7.49	82.81	3.23	31.81	4.90	<0.5	79.99	7.49	236.15	22.90	749.54	1,648.61	552.01	87.66	91.36	3,152.09	3,388.24			0.03	38.54	10.00	2.55	<0.5
40		57 TR 04/39	33.17	11.06	73.70	27.78	18.06	3.72	2.00	91.78	8.42	269.70	22.98	833.40	1,834.32	561.96	139.24	98.50	3,490.40	3,760.10			0.04	34.88	2.88	3.07	<0.5
41		57 TR 04/40	46.13	25.91	159.69	21.81	32.97	3.29	<0.5	137.05	8.65	435.49	47.03	1,248.46	3,065.53	1,095.06	284.71	207.43	5,948.22	6,383.71			0.06	25.30	9.69	<0.5	<0.5
42		57 TR 04/41	22.58	22.79	65.60	26.71	17.10	3.30	<0.5	76.81	6.13	241.00	17.87	564.34	1,231.80	407.65	106.96	66.12	2,394.75	2,635.75			0.03	24.75	6.25	<0.5	<0.5
43		57 TR 04/42	22.71	15.34	93.43	10.95	11.94	1.60	<0.5	99.62	7.56	263.15	23.64	1,216.35	2,572.77	756.44	215.41	126.53	4,911.14	5,174.30			0.05	28.12	3.47	<0.5	<0.5
44		57 TR 04/43	26.27	12.47	72.48	20.95	24.43	3.04	<0.5	78.77	6.27	244.70	20.74	1,002.55	1,904.46	573.72	177.43	103.60	3,782.50	4,027.20			0.04	48.67	3.30	<0.5	0.98
45		57 TR 04/44	29.00	11.00	84.00	4.00	11.00	1.00	1.00	84.00	8.00	233.00	28.00	726.00	1,528.00	664.00	178.00	121.00	3,245.00	3,478.00			0.03	32.00	1.00	<0.5	2.00
46		57 TR 04/45	31.39	14.74	80.62	1.47	11.12	1.67	1.00	77.83	5.83	225.67	25.24	756.35	1,575.44	527.91	171.70	91.29	3,147.93	3,373.60			0.03	32.11	6.57	<0.5	<0.5
47		57 TR 04/46	32.00	15.00	108.00	4.00	14.00	2.00	1.00	97.00	9.00	282.00	30.00	1,080.00	1,907.00	732.00	250.00	139.00	4,138.00	4,420.00			0.04	35.00	5.00	<0.5	<0.5
48		57 TR 04/47	26.04	17.19	78.99	3.53	12.83	2.99	<0.5	73.54	6.53	221.64	21.37	517.12	1,055.52	428.11	133.69	78.01	2,233.83	2,455.47			0.02	15.40	19.00	6.41	<0.5
49		57 TR 04/48	42.52	19.63	109.18	7.15	14.80	2.01	<0.5	106.20	7.74	309.24	34.44	1,297.56	2,435.64	760.56	244.19	124.84	4,897.22	5,206.46			0.05	35.90	5.46	4.69	<0.5
50		57 TR 04/49	36.86	15.82	108.21	5.74	14.61	1.93	<0.5	84.63	5.11	272.90	34.05	821.19	1,789.71	701.91	221.23	127.12	3,695.20	3,968.10			0.04	18.69	4.71	4.31	<0.5
51		57 TR 04/50	36.87	17.93	100.72	5.93	14.10	3.33	1.00	101.27	8.52	289.69	28.62	758.07	1,558.70	565.33	188.81	102.25	3,201.78	3,491.47			0.03	46.42	6.78	5.10	<0.5
52		57 TR 04/51	32.34	17.84	83.87	5.11	12.30	2.11	<0.5	90.44	7.31	251.31	25.92	872.16	1,725.27	563.29	181.09	93.70	3,461.41	3,712.73			0.04	21.46	13.74	4.55	<0.5
53		57 TR 04/52	43.85	22.22	115.77	6.85	16.72	3.04	1.00	115.59	9.36	334.40	36.05	1,230.19	2,450.00	784.51	248.06	130.84	4,879.65	5,214.06			0.05	32.89	13.09	6.30	<0.5
54		57 TR 04/53	44.44	22.05	111.39	7.15	15.47	2.14	<0.5	115.39	8.91	326.95	36.20	1,081.96	2,241.32	763.12	239.02	131.13	4,492.74	4,819.69			0.05	58.39	8.68	4.66	<0.5
55		57 TR 04/54	32.71	15.57	82.19	4.75	11.45	2.21	1.00	74.91	6.29	231.07	24.72	746.69	1,587.71	523.30	163.85	89.35	3,135.62	3,366.70			0.03	53.03	10.76	5.06	0.84
56		57 TR 04/55	20.92	13.20	57.39	2.51	9.25	2.21	2.00	58.20	5.53	171.21	15.95	316.28	718.90	306.32	96.44	57.60	1,511.49	1,682.69			0.02	12.58	20.93	5.56	<0.5
57		57 TR 04/56	20.74	14.90	55.08	2.99	10.44	1.78	1.00	60.83	5.37	173.12	16.30	349.11	765.41	319.18	89.69	57.18	1,596.87	1,769.99			0.02	20.64	18.00	4.13	<0.5
58		57 TR 04/57	3.32	1.62	9.60	1.00	1.15	1.00	<0.5	8.10	2.00	27.79	3.07	167.11	314.16	89.52	31.37	13.85	619.09	646.87			0.01	9.01	16.24	2.88	<0.5



Details of trench logging data

Annexure-5

Trench log of Samalpatti REE Block-57TR01

GPS Co-ordinates

Easting	Northing	Latitude	Longitude
225509	1364963	12°20'8.38"N	78°28'33.80"E
225517	1364967	12°20'8.51"N	78°28'34.06"E

Location: Samalpatti REE Block, Krishnagiri district.

Trench Direction: East- West

Dimension of the trench: 11 m X 1.00 m X 1.5.00 m= 16.5 cu.m

Distance from North to south		Lithological description	Σ TREE (PPM)
From (m)	To (m)		
0	1	Syenite	8,352
1	2	Carbonatite	10,372
2	3	Carbonatite	8,942
3	4	Carbonatite	6,170
4	5	Carbonatite	6,374
5	6	Carbonatite	7,098
6	7	Carbonatite	4,838
7	8	Carbonatite	4,804
8	9	Carbonatite	4,581
9	10	Syenite	904
10	11	Syenite	1,109

Trench log of Samalpatti REE Block-57TR02

Location: Samalpatti REE Block, Krishnagiri district.

GPS Co-ordinates

Easting	Northing	Latitude	Longitude
225482	1365007	12°20'9.80"N	78°28'32.89"E
225495	1365011	12°20'9.93"N	78°28'33.32"E

Trench Direction: East- West


Dimension of the trench: 14 m X 1.00 m X 1.00 m= 14 cu.m

Distance from North to		Lithological description	Σ TREE (PPM)
From (m)	To (m)		
0	1	Syenite	858
1	2	Syenite	1,807
2	3	Syenite	2,108
3	4	Carbonatite	5,190
4	5	Carbonatite	3,169

5	6	Carbonatite	3,293
6	7	Carbonatite	2,406
7	8	Carbonatite	2,118
8	9	Carbonatite	6,473
9	10	Carbonatite	3,529
10	11	Carbonatite	3,986
11	12	Carbonatite	4,678
12	13	Carbonatite	3,803
13	14	Syenite	484

Trench log of Samalpatti REE Block-57TR03			
Location: Samalpatti REE Block, Krishnagiri district.			
GPS Co-ordinates			
Easting	Northing	Latitude	Longitude
225583	1364492	12°19'53.08"N	78°28'36.39"E
225581	1364480	12°19'52.69"N	78°28'36.33"E
Trench Direction: North- South			
Dimension of the trench: 11 m X 1.00 m X 1.5 m= 16.5 cu.m			
Distance from North to		Lithological description	Σ TREE (PPM)
From (m)	To (m)		
0	1	Syenite	4,512
1	2	Syenite	1,911
2	3	Syenite	765
3	4	Syenite	704
4	5	Syenite	970
5	6	Carbonatite	3,779
6	7	Carbonatite	8,575
7	8	Carbonatite	4,989
8	9	Carbonatite	2,630
9	10	Syenite	1,098
10	11	Syenite	559

Trench log of Samalpatti REE Block-57TR04			
Location: Samalpatti REE Block, Krishnagiri district.			
GPS Co-ordinates			
Easting	Northing	Latitude	Longitude
225630	1364493	12°19'53.13"N	78°28'37.95"E
225631	1364474	12°19'52.51"N	78°28'37.98"E
Trench Direction : North -South			
Dimension of the trench: 22 m X 1.00 m X 1.5m= 33 cu.m			
Distance from North to		Lithological description	Σ TREE (PPM)
From (m)	To (m)		
0	1	Carbonatite	9,280
1	2	Carbonatite	9,511
2	3	Carbonatite	3,388
3	4	Carbonatite	3,760
4	5	Carbonatite	6,384
5	6	Carbonatite	2,636
6	7	Carbonatite	5,174
7	8	Carbonatite	4,027
8	9	Carbonatite	3,478
9	10	Carbonatite	3,374
10	11	Carbonatite	4,420
11	12	Carbonatite	2,455
12	13	Carbonatite	5,206
13	14	Carbonatite	3,968
14	15	Carbonatite	3,491
15	16	Carbonatite	3,713
16	17	Carbonatite	5,214
17	18	Carbonatite	4,820
18	19	Carbonatite	3,367
19	20	Carbonatite	1,683
20	21	Carbonatite	1,770
21	22	Syenite	647

<div>  KIOCL Limited Mineral Exploration Laboratory Analysis Report </div>								
Worksheet Name			Samalpatti BH-01					
			Page 01					
Solution Label	Ba 455.403 nm ppm	Be 313.042 nm ppm	Ce 418.659 nm ppm	Co 238.892 nm ppm	Cu 327.395 nm ppm	Dy 353.171 nm ppm	Er 349.910 nm ppm	Eu 420.504 nm ppm
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard 1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard 2	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Standard 3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standard 4	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Standard 5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Standard 6	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1 BH1 10-11	7639.75	36.51	1381.52	45.00	102.16	16.85	10.33	16.01
2 BH1 11-12	9577.31	40.80	1276.05	60.00	129.95	18.57	11.18	16.95
3 BH1 12-13	12824.72	22.64	1220.18	41.00	70.11	22.45	13.20	18.63
4 BH1 13-14	8502.69	24.95	1120.34	40.00	93.40	22.88	13.23	18.20
5 BH1 14-15	5313.75	27.03	1123.81	55.00	73.35	23.25	11.98	18.38
6 BH1 15-16	12610.41	7.00	1297.00	78.00	64.00	21.00	9.00	25.00
7 BH1 16-17	20247.83	2.42	2023.73	22.00	45.87	24.40	12.09	21.51
8 BH1 17-18	10622.84	5.20	1429.87	29.66	178.64	19.25	14.85	17.88
9 BH1 18-19	31640.71	2.63	3867.89	44.00	47.80	48.54	23.72	40.45
10 BH1 19-20	3820.46	20.21	1187.52	48.00	56.53	18.36	9.79	15.03
11 BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12 BH1 20-21	5061.75	16.70	1132.73	28.00	313.98	30.10	15.23	22.90
13 BH1 21-22	3619.26	8.24	1192.45	35.00	198.61	38.30	18.30	27.18
14 BH1 22-23	4569.43	7.53	621.69	30.00	17.98	10.11	5.67	8.26
15 BH1 23-24	3319.20	8.96	1825.01	18.37	57.71	34.06	17.46	26.32
16 BH1 24-25	10392.57	30.87	2083.21	26.00	20.07	23.20	12.57	21.14
17 BH1 25-26	15400.13	30.98	1680.71	12.00	17.58	13.84	8.39	14.06
18 BH1 26-27	12011.46	24.23	1710.18	18.00	37.26	14.74	10.56	14.64
19 BH1 27-28	15290.22	24.51	1982.95	15.00	95.94	17.37	17.27	15.72
20 BH1 28-29	10767.05	21.00	2983.27	22.00	15.70	22.58	12.23	22.69
21 BH1 29-30	11976.57	25.20	1772.50	17.00	19.68	14.68	8.99	15.14
22 BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 BH1 30-31	13080.26	31.90	2226.78	30.00	18.53	15.21	9.01	17.00
24 BH1 31-32	13121.75	38.01	1913.44	22.00	20.86	13.49	8.73	15.14
25 BH1 32-33	21280.57	5.49	2910.95	28.00	21.21	19.46	11.19	22.53
26 BH1 33-34	11010.12	2.99	1241.62	18.00	8.28	11.37	6.29	11.11
27 BH1 34-35	20093.15	5.30	4028.23	16.00	7.95	28.55	14.97	31.09
28 BH1 35-36	25798.83	3.11	2954.88	21.00	9.92	24.50	12.55	25.22
29 BH1 36-37	8031.88	2.18	1821.30	22.00	240.49	35.38	16.50	27.08
30 BH1 37-38	20734.73	6.93	3312.51	38.00	64.26	45.59	22.27	39.35
31 BH1 38-39	5320.73	4.69	767.06	19.00	10.32	10.73	6.66	9.58
32 BH1 39-40	3128.90	2.34	588.06	22.00	55.22	10.37	8.56	7.83
33 BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34 BH1 40-41	11384.61	3.09	1028.68	53.00	18.70	11.96	7.22	11.05
35 BH1 41-42	16922.00	7.00	1702.00	99.00	54.00	32.00	21.00	36.00
36 BH1 42-43	2444.21	2.90	476.33	58.00	6.26	7.41	4.81	6.19
37 BH1 43-44	6817.00	8.00	930.00	66.00	68.00	20.00	11.00	21.00
38 BH1 44-45	7297.83	2.36	916.46	48.00	37.46	25.25	20.65	17.40
39 BH1 45-46	16036.61	3.39	2015.59	39.00	6.50	21.37	10.75	20.36
40 BH1 46-47	9626.15	2.52	1083.70	29.00	11.39	10.19	5.24	10.04
41 BH1 47-48	9937.84	1.61	1235.28	44.00	9.30	10.15	5.63	10.04
42 BH1 48-49	14499.12	1.97	1609.26	27.00	7.58	13.87	6.82	13.93
43 BH1 49-50	11896.33	3.14	1348.81	32.00	13.69	12.71	6.77	12.45
44 BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45 BH1 50-51	11762.58	19.88	1179.03	12.00	2.16	9.13	5.03	9.49
46 BH1 51-52	41574.05	18.91	1068.70	18.00	15.44	10.79	6.94	10.11
47 BH1 52-53	12283.61	26.43	864.43	22.00	23.26	8.95	7.28	8.19
48 BH1 53-54	11439.27	20.80	1210.79	36.00	25.93	11.54	8.91	11.08
49 BH1 54-55	2802.83	22.50	564.58	33.00	41.68	9.28	7.63	7.19
50 BH1 55-56	3785.57	33.77	1988.92	45.00	3.09	16.93	8.97	16.62
51 BH1 56-57	11778.86	32.85	1641.48	44.00	4.79	13.18	7.42	13.72
52 BH1 57-58	25212.68	30.40	3780.85	28.00	12.42	28.01	15.17	28.48
53 BH1 58-59	14240.94	37.93	1104.17	21.00	60.64	23.25	14.63	20.35
54 BH1 59-60	12182.43	54.23	1904.38	9.68	74.43	25.40	15.82	23.50
55 BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56 BH1 60-61	11731.18	35.76	2340.42	7.37	47.25	25.81	15.64	25.00
57 BH1 61-62	13810.63	50.85	2233.19	9.79	75.08	28.40	16.01	27.18
58 BH1 62-63	14488.65	30.27	1478.49	11.19	89.62	24.37	18.44	20.42
59 BH1 63-64	15455.11	25.10	1881.72	12.00	6.21	18.00	10.35	18.43
60 BH1 64-65	10856.61	17.34	1158.21	7.22	21.89	11.37	8.70	10.48
61 BH1 65-66	2258.37	4.13	132.27	13.17	66.52	4.44	5.81	2.83
62 BH1 66-67	3620.42	13.39	473.20	12.00	75.60	15.98	13.51	12.09
63 BH1 67-68	5029.98	58.14	1968.50	13.75	161.34	46.02	23.87	37.65
64 BH1 68-69	3332.00	46.75	1411.50	17.00	16.04	22.47	12.63	19.25
65 BH1 69-70	7251.31	61.95	1531.78	19.00	76.32	37.46	20.45	29.05


(VK Moorthy)
DM(PC)



KIOCL Limited Mineral Exploration Laboratory Analysis Report									
Worksheet Name		Samalpatti BH-01				Page 02			
	Solution Label	Ga 294.363 nm ppm	Gd 342.246 nm ppm	Hf 264.141 nm ppm	Ho 345.600 nm ppm	La 333.749 nm ppm	Lu 261.541 nm ppm	Mo 202.032 nm ppm	Nb 313.078 nm ppm
	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standard 1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Standard 2	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	Standard 3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Standard 4	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
	Standard 5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
S.No	Standard 6	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1	BH1 10-11	14.43	52.92	5.16	2.26	777.43	1.61	1.59	9.24
2	BH1 11-12	16.70	56.73	6.18	2.37	699.39	1.93	1.27	9.49
3	BH1 12-13	11.13	60.58	6.05	3.06	629.09	1.81	1.10	10.24
4	BH1 13-14	12.30	60.89	4.81	2.95	573.56	1.98	1.24	9.37
5	BH1 14-15	10.96	61.53	4.87	2.95	552.77	1.83	0.55	4.78
6	BH1 15-16	12.17	65.17	2.00	4.00	637.00	1.00	<0.5	7.00
7	BH1 16-17	11.94	68.81	10.23	0.95	1128.96	1.35	<0.5	6.67
8	BH1 17-18	22.19	66.02	5.10	4.00	779.68	2.85	<0.5	22.00
9	BH1 18-19	16.42	120.97	16.67	7.85	2039.28	1.44	<0.5	6.14
10	BH1 19-20	7.42	48.19	4.97	2.48	646.48	1.02	0.59	3.45
11	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	BH1 20-21	12.91	79.51	2.68	2.56	515.24	2.91	<0	3.98
13	BH1 21-22	8.42	86.33	2.45	5.12	527.63	2.00	<0	1.75
14	BH1 22-23	5.12	25.48	2.65	1.47	327.67	0.42	1.84	2.51
15	BH1 23-24	9.91	80.58	6.85	3.93	954.05	1.31	<0	2.42
16	BH1 24-25	11.41	64.56	7.59	3.42	1205.02	0.87	23.50	5.59
17	BH1 25-26	10.75	43.33	8.32	1.92	1003.40	0.67	1.61	5.32
18	BH1 26-27	8.74	43.98	8.83	2.32	1012.54	0.68	2.17	4.05
19	BH1 27-28	9.66	48.15	10.14	5.19	1209.73	1.04	1.26	3.54
20	BH1 28-29	14.53	69.23	11.36	3.72	1886.46	0.52	1.02	3.10
21	BH1 29-30	9.78	45.32	8.37	2.27	1041.03	0.57	0.80	4.88
22	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	BH1 30-31	13.69	52.10	7.93	2.09	1349.15	0.65	2.02	6.22
24	BH1 31-32	13.45	46.92	8.30	1.77	1141.35	0.72	1.45	8.10
25	BH1 32-33	18.71	69.05	11.46	4.00	1703.43	0.98	1.29	11.86
26	BH1 33-34	10.37	36.61	5.53	1.68	729.93	0.70	1.20	7.31
27	BH1 34-35	21.19	93.39	10.67	4.37	2374.36	0.91	1.17	8.96
28	BH1 35-36	14.90	77.10	13.72	3.77	1730.18	0.81	1.62	6.64
29	BH1 36-37	10.86	86.37	4.03	4.00	890.48	1.80	<0.5	5.42
30	BH1 37-38	19.81	123.73	10.22	2.34	1759.73	2.24	<0.5	10.20
31	BH1 38-39	9.62	33.32	2.59	4.00	413.44	0.87	3.32	10.01
32	BH1 39-40	11.74	28.59	1.99	1.34	311.62	1.10	0.52	20.15
33	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	BH1 40-41	9.70	36.12	5.78	5.00	565.92	0.77	<0.5	9.87
35	BH1 41-42	18.00	93.00	9.00	6.00	886.00	1.63	1.00	20.00
36	BH1 42-43	6.95	21.11	1.28	7.00	254.30	1.00	2.00	8.50
37	BH1 43-44	17.00	48.00	5.00	5.00	495.00	1.00	2.00	9.00
38	BH1 44-45	11.32	57.63	3.94	5.00	500.45	1.94	0.71	30.00
39	BH1 45-46	14.14	64.16	8.14	3.19	1149.85	0.85	0.82	7.39
40	BH1 46-47	7.66	31.75	4.94	4.00	619.76	1.00	0.58	4.47
41	BH1 47-48	7.01	30.71	5.13	1.66	732.18	1.00	<0.5	4.66
42	BH1 48-49	8.45	42.51	7.53	0.84	959.66	1.00	<0.5	4.13
43	BH1 49-50	9.33	40.05	6.26	1.55	790.09	0.62	1.28	4.99
44	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	BH1 50-51	6.44	29.09	6.38	1.18	722.79	0.27	1.95	2.36
46	BH1 51-52	8.01	32.67	5.19	1.22	640.72	0.55	0.87	9.06
47	BH1 52-53	11.11	28.57	4.18	0.93	517.78	0.86	1.46	13.71
48	BH1 53-54	12.30	36.37	4.36	4.00	736.59	0.91	0.97	14.17
49	BH1 54-55	12.16	26.12	1.83	0.93	303.56	1.18	1.79	13.57
50	BH1 55-56	11.70	52.93	12.08	2.32	1225.57	0.68	0.68	5.10
51	BH1 56-57	11.07	43.81	10.00	1.56	986.18	0.70	1.90	6.45
52	BH1 57-58	20.81	88.03	13.97	1.11	2235.85	0.98	1.61	7.47
53	BH1 58-59	14.10	64.24	5.53	2.84	515.91	1.39	2.64	19.17
54	BH1 59-60	19.55	76.12	5.68	3.14	1061.55	1.92	0.68	17.79
55	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	BH1 60-61	17.30	76.65	7.28	3.00	1330.51	1.18	1.00	15.69
57	BH1 61-62	22.71	87.87	5.84	2.13	1213.87	2.04	0.63	10.20
58	BH1 62-63	14.69	64.54	5.16	2.56	810.96	1.60	0.41	29.69
59	BH1 63-64	11.94	55.58	7.62	2.05	1095.53	0.62	1.28	10.03
60	BH1 64-65	11.05	34.59	4.19	1.11	687.47	0.68	1.21	16.10
61	BH1 65-66	8.65	11.53	0.19	0.14	62.77	0.65	1.23	17.28
62	BH1 66-67	12.70	40.71	1.89	5.00	232.75	1.56	0.47	18.00
63	BH1 67-68	21.82	118.51	4.65	6.49	950.90	2.93	1.42	12.85
64	BH1 68-69	11.75	62.12	5.38	2.95	761.03	1.30	3.25	10.31
65	BH1 69-70	19.21	96.32	4.31	5.40	749.57	3.02	0.17	9.76


Vm (VK Moorthy)
DM(PC)



<div>  KIOCL Limited Mineral Exploration Laboratory Analysis Report </div>									
Worksheet Name Samalpatti BH-01					Page 03				
S.No	Solution Label	Nd 401.224 nm ppm	Ni 231.604 nm ppm	Pb 220.353 nm ppm	Pr 417.939 nm ppm	Rb 780.026 nm ppm	Sc 361.383 nm ppm	Sm 359.259 nm ppm	Sn 189.925 nm ppm
	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standard 1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Standard 2	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	Standard 3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Standard 4	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
	Standard 5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
	Standard 6	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1	BH1 10-11	404.35	7.00	9.00	136.67	82.46	32.66	71.51	<0.5
2	BH1 11-12	395.02	11.00	8.00	131.06	119.07	27.87	74.31	<0.5
3	BH1 12-13	395.13	<0	10.85	132.17	29.41	18.89	77.67	<0.5
4	BH1 13-14	377.41	1.00	10.00	125.35	47.29	14.09	76.37	<0.5
5	BH1 14-15	386.56	<0	9.00	129.37	9.15	25.42	77.85	<0.5
6	BH1 15-16	399.00	2.00	3.00	149.44	63.00	41.00	78.00	<0.5
7	BH1 16-17	578.99	0.71	6.94	199.42	20.05	36.23	96.67	<0.5
8	BH1 17-18	451.05	1.11	5.96	150.20	241.85	85.10	77.38	<0.5
9	BH1 18-19	1041.26	<0.5	14.42	353.61	18.55	31.07	177.20	<0.5
10	BH1 19-20	350.61	<0	9.66	122.04	19.68	15.51	64.83	<0.5
11	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	BH1 20-21	410.27	<0	14.67	141.97	<0	17.24	90.56	<0.5
13	BH1 21-22	442.44	<0	16.69	146.18	<0	13.56	104.12	<0.5
14	BH1 22-23	190.91	<0	8.39	64.56	26.40	3.09	35.88	<0.5
15	BH1 23-24	561.59	<0	12.00	197.83	12.84	10.18	110.16	<0.5
16	BH1 24-25	562.74	<0	11.00	199.48	80.16	35.65	96.30	<0.5
17	BH1 25-26	430.44	<0	11.78	152.32	68.89	43.32	68.25	<0.5
18	BH1 26-27	431.83	<0	24.44	139.53	25.24	30.80	70.29	<0.5
19	BH1 27-28	482.86	<0	51.00	130.16	30.04	21.98	77.96	<0.5
20	BH1 28-29	717.79	<0	16.00	261.27	18.51	13.16	111.50	<0.5
21	BH1 29-30	449.29	<0	12.00	156.98	55.29	30.75	72.11	<0.5
22	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	BH1 30-31	558.38	<0	9.17	203.57	55.88	60.83	85.13	<0.5
24	BH1 31-32	478.43	<0	10.45	170.43	111.95	36.15	74.71	<0.5
25	BH1 32-33	755.49	1.79	6.07	258.70	145.84	88.59	109.66	<0.5
26	BH1 33-34	334.74	3.92	3.16	113.63	164.11	9.80	52.19	<0.5
27	BH1 34-35	1024.26	0.79	7.61	357.67	112.93	50.41	149.88	<0.5
28	BH1 35-36	770.81	1.95	6.06	265.33	42.50	75.91	117.35	<0.5
29	BH1 36-37	586.82	0.69	8.38	198.59	28.36	22.83	111.79	<0.5
30	BH1 37-38	985.25	<0.5	16.43	330.78	126.76	32.56	172.81	<0.5
31	BH1 38-39	245.04	2.42	2.68	78.23	182.24	13.83	42.67	<0.5
32	BH1 39-40	192.37	3.42	4.29	57.84	163.53	9.40	32.90	<0.5
33	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	BH1 40-41	299.95	0.56	3.18	98.43	137.92	8.37	49.50	<0.5
35	BH1 41-42	441.00	1.00	1.00	158.12	103.00	36.00	104.00	<0.5
36	BH1 42-43	151.22	1.00	2.34	45.90	104.03	17.00	26.54	<0.5
37	BH1 43-44	255.00	1.00	1.00	89.32	142.00	29.00	51.00	<0.5
38	BH1 44-45	329.56	1.04	3.66	94.31	127.89	34.21	66.57	<0.5
39	BH1 45-46	565.38	0.99	5.12	193.36	161.89	37.27	92.64	<0.5
40	BH1 46-47	294.11	1.47	2.71	99.93	88.91	16.68	46.83	<0.5
41	BH1 47-48	314.03	1.32	3.73	110.44	36.46	17.80	46.95	<0.5
42	BH1 48-49	419.07	0.97	4.03	145.99	44.41	10.90	64.90	<0.5
43	BH1 49-50	361.92	1.62	3.97	123.43	122.12	26.67	58.25	<0.5
44	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	BH1 50-51	292.94	<0	5.27	106.75	43.13	13.13	46.69	<0.5
46	BH1 51-52	295.75	0.62	5.94	99.14	71.51	16.20	47.97	<0.5
47	BH1 52-53	240.76	3.19	6.08	79.47	194.42	15.40	38.30	<0.5
48	BH1 53-54	320.13	1.16	10.92	112.08	158.77	6.82	52.16	<0.5
49	BH1 54-55	176.45	2.47	13.71	55.64	113.95	20.57	30.64	<0.5
50	BH1 55-56	512.74	<0	11.32	182.76	132.18	13.00	80.55	<0.5
51	BH1 56-57	425.32	<0	7.54	149.34	149.11	9.80	66.02	<0.5
52	BH1 57-58	913.31	<0	17.36	328.26	132.41	37.03	138.98	<0.5
53	BH1 58-59	420.77	1.79	9.23	121.09	187.87	16.97	86.00	<0.5
54	BH1 59-60	562.36	<0	7.73	190.79	200.95	29.89	105.61	<0.5
55	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	BH1 60-61	645.31	<0	9.66	226.81	121.60	26.19	114.17	<0.5
57	BH1 61-62	666.29	<0	9.63	229.93	206.97	25.84	124.00	<0.5
58	BH1 62-63	458.14	<0	10.83	151.80	104.52	27.95	87.26	<0.5
59	BH1 63-64	501.86	<0	6.31	177.83	79.02	29.81	86.31	<0.5
60	BH1 64-65	302.36	5.19	7.69	105.89	99.90	19.61	49.42	<0.5
61	BH1 65-66	57.14	13.07	4.45	14.93	99.15	4.90	10.21	<0.5
62	BH1 66-67	204.83	8.31	5.31	56.78	131.53	15.69	45.80	<0.5
63	BH1 67-68	721.24	<0	12.98	226.52	185.70	25.68	155.10	<0.5
64	BH1 68-69	447.70	<0	8.91	147.69	124.72	8.34	84.52	<0.5
65	BH1 69-70	550.04	<0	12.48	173.59	177.35	10.50	119.41	<0.5

(VK Moorthy)
DM(PC)




<div>  KIOCL Limited Mineral Exploration Laboratory Analysis Report </div>									
Worksheet Name Samalpatti BH-01					Page 04				
S.No	Solution Label	Sr 407.771 nm ppm	Ta 268.517 nm ppm	Tb 350.914 nm ppm	Tm 313.125 nm ppm	W 207.912 nm ppm	Y 371.029 nm ppm	Yb 328.937 nm ppm	Zr 343.823 nm ppm
	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standard 1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Standard 2	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	Standard 3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Standard 4	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
	Standard 5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
	Standard 6	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1	BH1 10-11	5297.13	3.76	8.09	<0	15.00	54.61	5.23	44.18
2	BH1 11-12	5886.85	4.50	9.04	<0	14.00	62.14	6.20	37.24
3	BH1 12-13	7685.36	3.59	9.56	<0	8.00	77.00	7.26	51.39
4	BH1 13-14	5630.00	3.96	9.44	<0	10.00	81.74	7.94	51.48
5	BH1 14-15	8355.16	3.60	8.93	<0	4.00	77.69	7.02	24.19
6	BH1 15-16	6214.00	2.00	8.00	1.00	36.00	68.00	8.00	47.29
7	BH1 16-17	9850.19	2.80	9.74	<0.5	8.00	71.06	6.23	44.46
8	BH1 17-18	5010.33	7.68	12.44	<0.5	0.64	60.20	7.28	56.94
9	BH1 18-19	14242.01	2.34	16.89	<0.5	<0.5	158.45	12.27	93.90
10	BH1 19-20	8882.68	1.69	6.71	<0	1.82	62.41	5.23	19.26
11	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	BH1 20-21	12521.85	5.75	12.04	<0	<0	105.90	10.45	7.13
13	BH1 21-22	2831.12	2.39	12.35	0.32	<0	136.90	11.42	2.88
14	BH1 22-23	7533.92	0.52	3.59	<0	0.48	36.10	2.96	20.80
15	BH1 23-24	3697.28	1.55	11.18	<0	<0	120.81	9.66	18.86
16	BH1 24-25	3590.16	1.78	9.04	<0	1.44	72.42	5.46	53.02
17	BH1 25-26	5018.75	1.81	6.29	<0	0.78	38.64	3.37	71.15
18	BH1 26-27	3440.43	1.34	8.88	<0	0.36	39.41	3.19	80.88
19	BH1 27-28	5083.49	1.30	16.48	<0	<0	42.90	3.08	65.21
20	BH1 28-29	3821.67	1.39	9.02	<0	0.60	64.34	4.14	49.55
21	BH1 29-30	3313.73	1.10	6.99	<0	0.49	41.25	3.30	56.83
22	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	BH1 30-31	4258.20	1.98	7.03	<0	0.29	39.73	3.19	63.70
24	BH1 31-32	3836.74	1.78	6.77	<0	0.73	35.23	2.67	134.05
25	BH1 32-33	5753.24	2.81	10.44	<0.5	0.74	49.08	3.83	107.65
26	BH1 33-34	3971.61	0.92	5.22	<0.5	0.50	32.55	2.61	40.63
27	BH1 34-35	10583.89	2.08	12.94	<0.5	<0.5	78.01	5.38	117.80
28	BH1 35-36	9407.90	1.76	10.23	<0.5	0.56	68.48	5.28	122.70
29	BH1 36-37	15773.50	2.53	12.30	<0.5	<0.5	113.36	9.73	27.22
30	BH1 37-38	16705.98	3.71	17.58	<0.5	<0.5	138.08	11.38	30.52
31	BH1 38-39	3707.25	1.06	5.70	<0.5	1.02	32.83	2.93	16.06
32	BH1 39-40	2590.21	1.76	5.59	<0.5	<0.5	36.51	4.43	167.24
33	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	BH1 40-41	4140.86	0.72	5.53	<0.5	0.57	36.76	3.09	35.46
35	BH1 41-42	4747.00	5.00	15.00	1.00	<0.5	110.00	8.00	176.00
36	BH1 42-43	2393.03	<0.5	3.58	<0.5	<0.5	25.42	2.33	33.68
37	BH1 43-44	2402.00	1.00	8.00	1.00	<0.5	71.00	10.00	121.00
38	BH1 44-45	3549.95	3.88	12.34	<0.5	<0.5	95.12	11.71	99.20
39	BH1 45-46	7289.74	1.15	8.91	<0.5	0.51	63.44	4.54	31.61
40	BH1 46-47	4371.96	<0.5	4.57	<0.5	<0.5	30.29	2.29	31.32
41	BH1 47-48	4654.40	<0.5	4.32	<0.5	<0.5	30.61	2.46	31.02
42	BH1 48-49	5641.52	<0.5	5.77	<0.5	<0.5	39.80	2.69	24.16
43	BH1 49-50	4324.24	<0.5	5.93	<0.5	0.77	35.89	2.71	21.67
44	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	BH1 50-51	3325.25	0.82	3.56	<0	0.72	25.08	1.64	22.27
46	BH1 51-52	4904.36	1.41	4.87	<0	<0	32.80	2.72	56.62
47	BH1 52-53	3761.78	2.18	5.47	<0	1.14	28.26	2.71	48.62
48	BH1 53-54	4857.14	2.29	6.02	<0	0.96	35.80	3.29	97.64
49	BH1 54-55	2827.67	2.66	4.71	<0	0.53	33.59	4.19	150.18
50	BH1 55-56	2148.11	1.34	7.24	<0	<0	50.26	3.33	16.63
51	BH1 56-57	4938.92	1.57	6.16	<0	0.58	37.01	2.64	56.85
52	BH1 57-58	9733.84	2.85	11.52	<0	1.02	79.67	5.62	56.64
53	BH1 58-59	7588.06	3.57	11.61	<0	0.44	72.54	5.73	21.95
54	BH1 59-60	3707.64	4.30	12.42	<0	1.12	78.44	6.63	28.70
55	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	BH1 60-61	2288.63	3.20	11.51	<0	<0	77.17	5.80	34.22
57	BH1 61-62	4017.48	4.53	12.82	<0	0.43	84.52	7.09	10.40
58	BH1 62-63	7461.36	4.48	13.17	<0	<0	82.90	7.25	66.68
59	BH1 63-64	7654.86	2.21	7.88	<0	0.70	49.73	3.59	67.14
60	BH1 64-65	6074.59	2.18	5.99	<0	0.83	35.59	2.87	85.33
61	BH1 65-66	4915.88	1.52	4.62	<0	<0	18.40	2.08	28.60
62	BH1 66-67	6385.58	4.68	10.33	<0	0.67	57.93	5.96	42.07
63	BH1 67-68	6120.67	5.40	18.12	<0	0.90	152.70	12.87	10.07
64	BH1 68-69	8599.34	2.04	9.22	<0	0.33	72.00	5.68	21.90
65	BH1 69-70	2738.98	4.98	14.79	<0	<0	129.36	12.51	14.17

(VK Moorthy)

DM(PC)




<div>  KIOCL Limited Mineral Exploration Laboratory Analysis Report </div>								
Worksheet Name			Samalpatti BH-02					Page 01
Solution Label	Ba 455.403 nm ppm	Be 313.042 nm ppm	Ce 418.659 nm ppm	Co 238.892 nm ppm	Cu 327.395 nm ppm	Dy 353.171 nm ppm	Er 349.910 nm ppm	Eu 420.504 nm ppm
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard 1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard 2	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Standard 3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standard 4	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Standard 5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
S.No	Standard 6	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1	BH2 12-13	1497.94	150.66	944.86	13.27	241.25	20.36	10.04
2	BH2 13-14	4451.96	18.06	790.33	31.85	402.21	31.43	23.19
3	BH2 14-15	1401.43	2.57	163.83	18.00	27.40	4.75	4.17
4	BH2 15-16	2874.94	27.39	737.95	9.83	142.54	17.26	12.20
5	BH2 24-25	4171.26	1.30	979.69	33.66	468.54	31.57	29.34
6	BH2 25-26	1381.31		763.33	35.21	531.17	35.77	35.93
7	BH2 26-27	1889.42	0.64	1143.52	20.03	342.55	35.08	30.50
8	BH2 27-28	759.44		1073.16	26.44	397.64	33.32	31.95
9	BH2 28-29	997.76	0.71	529.62	16.00	114.93	24.97	24.49
10	BH2 29-30	857.13	1.01	584.26	9.66	202.40	22.84	21.20
11	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	BH2 30-31	689.02	0.68	706.54	20.68	349.71	35.24	33.17
13	BH2 31-32	9504.04	2.60	1360.77	22.00	100.97	16.42	11.80
14	BH2 32-33	7286.20	4.54	1160.69	28.00	57.55	13.65	9.47
15	BH2 33-34	4985.61	9.36	1110.65	19.20	218.28	23.51	15.88
16	BH2 34-35	2299.55	1.84	847.53	34.31	487.30	37.18	29.47
17	BH2 35-36	9293.53	2.36	1193.49	20.93	453.14	35.46	32.86
18	BH2 36-37	14118.82	10.28	1495.51	13.94	264.27	24.04	15.68
19	BH2 37-38	5945.26	6.78	874.38	14.04	219.40	23.36	16.92
20	BH2 38-39	3592.15	2.75	857.79	35.00	370.86	37.42	28.54
21	BH2 39-40	1337.26	1.80	665.45	49.00	192.03	29.60	25.38
22	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	BH2 40-41	7010.00	12.00	1232.00	60.00	5.00	20.00	10.00
24	BH2 41-42	4634.73	6.36	490.09	52.00	4.87	8.94	5.91
25	BH2 42-43	5889.43	15.30	846.90	46.00	8.35	14.29	10.08
26	BH2 43-44	11150.84	8.91	1310.99	28.00	6.77	18.04	10.18
27	BH2 44-45	13666.41	3.64	1664.23	38.00	10.14	28.61	13.71
28	BH2 45-46	18555.43	4.20	2416.28	37.00	2.98	46.66	21.99
29	BH2 46-47	13098.08	5.53	2437.69	44.00	60.38	46.18	21.62
30	BH2 47-48	11921.91	2.67	1178.20	48.00	13.32	10.51	5.89
31	BH2 48-49	4484.07	1.85	594.81	59.00	18.35	7.05	3.98
32	BH2 49-50	18887.12	3.88	2007.44	78.00	9.70	18.93	10.29
33	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	BH2 50-51	5235.83	1.95	938.23	109.00	13.46	13.81	7.17
35	BH2 51-52	20600.00	9.00	3578.00	121.00	2.00	34.00	18.00
36	BH2 52-53	12488.00	11.00	1829.00	78.00	7.00	33.00	12.00
37	BH2 53-54	24055.38	5.51	3286.10	34.00	168.69	51.11	25.18
38	BH2 54-55	30517.47	5.39	2798.62	32.00	204.54	40.45	19.18
39	BH2 55-56	21584.78	6.97	2897.27	48.00	790.13	28.18	19.25
40	BH2 56-57	14567.74	6.00	1993.18	8.00	40.10	14.35	10.95
41	BH2 57-58	31108.26	7.43	3461.71	20.00	50.47	36.18	20.62
42	BH2 58-59	35688.53	4.69	4138.17	12.00	57.91	36.07	19.85
43	BH2 59-60	38445.69	9.07	4589.87	24.00	231.04	48.81	27.82
44	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	BH2 60-61	41065.53	99.91	5210.20	12.00	6.49	47.12	27.96
46	BH2 61-62	24946.35	67.75	5258.69	8.00	10.13	45.13	24.95
47	BH2 62-63	5316.07	60.27	5975.34	8.00	7.21	63.21	32.80
48	BH2 63-64	3999.56	4.00	510.86	4.00	9.99	6.92	5.81
49	BH2 64-65	3788.37	14.77	549.77	4.00	9.56	7.63	6.57
50	BH2 65-66	3737.88	35.70	656.29	4.00	6.95	8.79	6.11
51	BH2 66-67	8906.25	35.04	1596.37	2.11	7.83	16.64	9.79
52	BH2 67-68	15419.21	91.99	2557.01	3.49	7.15	24.43	13.83
53	BH2 68-69	4121.67	50.46	2646.49	3.67	5.11	27.04	14.82
54	BH2 69-70	5659.16	75.36	1737.82	3.57	14.80	16.43	10.81
55	BCS CRM 176/4	32.89	2.68	19.58	90.35	43.63	68.49	0.90

Date: 17.04.2026.

(VK Moorthy)
DM(PC)

KIOCL Limited									
Mineral Exploration Laboratory									
Analysis Report									
Worksheet Name		Samalpatti BH-02						Page 02	
	Solution Label	Ga 294.363 nm ppm	Gd 342.246 nm ppm	Hf 264.141 nm ppm	Ho 345.600 nm ppm	La 333.749 nm ppm	Lu 261.541 nm ppm	Mo 202.032 nm ppm	Nb 313.078 nm ppm
	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standard 1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Standard 2	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	Standard 3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Standard 4	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
	Standard 5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
S.No	Standard 6	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1	BH2 12-13	20.52	68.40	3.47	2.46	397.34	2.65	< 0	2.62
2	BH2 13-14	14.72	78.57	2.39	4.27	322.31	2.93	< 0	24.90
3	BH2 14-15	2.29	11.79	0.98	4.00	74.45	0.35	0.45	9.94
4	BH2 15-16	11.15	47.96	3.24	2.08	345.90	1.66	1.35	14.30
5	BH2 24-25	17.15	85.67	1.89	6.00	430.19	3.51	1.44	50.00
6	BH2 25-26	22.94	99.67	0.39	4.00	285.70	5.05	2.24	71.00
7	BH2 26-27	17.86	91.64	0.64	3.00	498.55	3.35	<0.5	58.00
8	BH2 27-28	13.43	87.29	0.47	3.09	484.81	2.95	<0.5	66.00
9	BH2 28-29	15.10	66.46	0.69	3.11	203.52	3.11	1.20	41.00
10	BH2 29-30	12.21	60.03	0.81	3.00	236.53	2.56	1.10	45.00
11	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	BH2 30-31	17.54	88.98	0.25	4.00	267.50	3.89	0.54	61.00
13	BH2 31-32	12.20	48.80	4.93	2.16	745.91	1.02	1.59	11.00
14	BH2 32-33	12.99	40.94	3.75	4.00	639.16	1.05	0.74	8.00
15	BH2 33-34	16.65	61.94	2.61	4.00	514.50	1.90	<0.5	17.00
16	BH2 34-35	14.30	85.19	1.88	4.62	327.71	2.98	<0.5	49.00
17	BH2 35-36	22.08	92.95	5.84	4.82	582.02	4.23	<0.5	51.00
18	BH2 36-37	18.68	68.78	6.83	1.26	798.24	1.98	<0.5	17.00
19	BH2 37-38	13.89	59.45	3.03	2.95	401.35	2.01	<0.5	22.00
20	BH2 38-39	15.18	86.80	2.45	5.19	354.07	3.19	<0.5	41.00
21	BH2 39-40	15.02	71.91	1.50	3.79	256.83	3.05	1.11	48.00
22	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	BH2 40-41	23.00	64.00	1.00	3.00	599.00	1.00	<0.5	18.00
24	BH2 41-42	10.84	27.88	2.35	0.97	230.91	0.94	<0.5	11.79
25	BH2 42-43	16.55	46.11	2.87	1.34	402.54	1.67	<0.5	23.18
26	BH2 43-44	13.86	53.76	5.65	2.30	677.57	1.10	<0.5	12.21
27	BH2 44-45	10.15	76.37	6.98	4.11	794.36	0.88	<0.5	7.07
28	BH2 45-46	12.69	107.19	8.71	4.98	1156.30	1.51	<0.5	4.97
29	BH2 46-47	14.51	114.70	6.31	6.77	1149.65	1.51	<0.5	6.74
30	BH2 47-48	8.26	32.62	6.26	1.66	696.94	1.00	<0.5	6.29
31	BH2 48-49	5.45	21.24	2.39	0.90	326.05	1.00	0.77	5.77
32	BH2 49-50	13.40	58.24	9.91	2.77	1150.16	0.82	<0.5	9.15
33	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	BH2 50-51	6.26	38.00	2.69	0.85	480.17	1.00	<0.5	5.44
35	BH2 51-52	19.00	200.00	2.00	5.99	2419.00	2.00	<0.5	5.00
36	BH2 52-53	16.00	103.00	2.00	4.00	987.00	1.00	<0.5	5.00
37	BH2 53-54	17.41	121.21	11.95	4.90	1580.02	1.97	<0.5	6.45
38	BH2 54-55	21.29	92.53	15.38	2.11	1283.15	1.28	<0.5	9.18
39	BH2 55-56	26.90	109.21	10.89	5.45	1800.56	1.98	<0.5	6.00
40	BH2 56-57	18.49	53.28	7.60	1.64	1107.55	1.31	1.07	12.00
41	BH2 57-58	25.37	103.89	15.27	4.82	1736.96	1.73	<0.5	13.00
42	BH2 58-59	20.55	101.66	18.01	4.00	2238.03	1.39	<0.5	5.00
43	BH2 59-60	32.08	135.78	18.78	6.80	1998.56	2.57	<0.5	16.00
44	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	BH2 60-61	38.16	126.50	25.42	6.56	3011.78	2.49	0.43	8.00
46	BH2 61-62	36.57	127.18	22.99	6.22	3570.58	1.80	0.85	12.07
47	BH2 62-63	36.76	180.52	20.11	6.70	3879.98	1.81	0.90	9.67
48	BH2 63-64	6.93	17.97	2.56	0.81	298.63	0.67	0.69	9.04
49	BH2 64-65	10.48	20.91	2.29	0.85	341.03	0.85	0.26	10.84
50	BH2 65-66	11.28	28.30	2.18	3.00	348.99	0.81	1.07	8.71
51	BH2 66-67	13.94	49.34	5.82	1.97	896.43	0.93	0.47	7.87
52	BH2 67-68	24.67	78.84	10.11	2.93	1492.12	1.72	0.75	10.08
53	BH2 68-69	21.03	81.16	10.16	0.82	1503.44	1.40	0.49	8.66
54	BH2 69-70	17.71	52.11	7.98	3.00	1039.63	1.32	0.99	13.34
55	BCS CRM 176/4	2.91	4.25	0.64	3.11	87.23	0.56	6.76	0.00

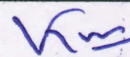
Date: 17.04.2026.


 (VK Moorthy)
 DM(PC)



KIOCL Limited									
Mineral Exploration Laboratory									
Analysis Report									
Worksheet Name		Samalpatti BH-02							
		Page 03							
	Solution Label	Nd 401.224 nm ppm	Ni 231.604 nm ppm	Pb 220.353 nm ppm	Pr 417.939 nm ppm	Rb 780.026 nm ppm	Sc 361.383 nm ppm	Sm 359.259 nm ppm	Sr 189.925 nm ppm
	Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standard 1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Standard 2	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	Standard 3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Standard 4	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
	Standard 5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
S.No	Standard 6	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1	BH2 12-13	373.38	<0	8.00	124.77	66.30	9.06	84.61	<0.5
2	BH2 13-14	431.70	<0	9.00	114.99	152.00	3.81	111.96	<0.5
3	BH2 14-15	74.55	<0	2.76	18.76	12.34	1.33	17.01	<0.5
4	BH2 15-16	287.89	<0	7.76	88.56	66.75	7.35	65.84	<0.5
5	BH2 24-25	520.85	1.70	5.27	133.87	55.15	8.42	114.94	<0.5
6	BH2 25-26	525.07	2.41	4.78	134.79	16.98	16.33	128.92	<0.5
7	BH2 26-27	570.09	0.68	6.31	150.50	62.85	6.69	124.11	<0.5
8	BH2 27-28	527.40	0.56	6.72	138.78	15.11	2.85	119.00	<0.5
9	BH2 28-29	353.07	1.28	4.18	83.45	18.71	9.17	83.25	<0.5
10	BH2 29-30	327.79	1.23	4.08	81.69	40.59	6.85	74.99	<0.5
11	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	BH2 30-31	462.13	1.15	5.25	111.44	37.75	9.40	112.12	<0.5
13	BH2 31-32	420.27	1.65	4.42	134.83	142.71	6.63	71.14	<0.5
14	BH2 32-33	339.58	0.72	4.48	109.63	193.04	6.77	56.21	<0.5
15	BH2 33-34	403.40	0.72	5.77	124.13	394.37	28.43	77.67	<0.5
16	BH2 34-35	465.62	1.57	6.23	116.79	96.83	4.18	109.22	<0.5
17	BH2 35-36	540.59	0.94	8.00	139.99	120.79	12.18	115.83	<0.5
18	BH2 36-37	478.27	<0.5	6.37	156.05	454.81	7.81	86.85	<0.5
19	BH2 37-38	349.07	0.63	4.65	102.44	301.63	6.87	72.68	<0.5
20	BH2 38-39	454.39	1.27	6.63	118.31	112.04	6.82	107.77	<0.5
21	BH2 39-40	376.90	3.09	3.91	96.08	71.08	6.69	88.49	<0.5
22	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	BH2 40-41	367.00	1.00	1.00	127.16	273.00	17.00	76.00	<0.5
24	BH2 41-42	175.37	1.07	1.61	52.48	229.77	22.11	33.27	<0.5
25	BH2 42-43	301.46	0.55	2.28	93.74	556.48	10.98	55.78	<0.5
26	BH2 43-44	412.74	<0.5	3.59	135.08	256.75	19.37	73.67	<0.5
27	BH2 44-45	560.09	<0.5	5.61	180.43	103.91	13.45	108.39	<0.5
28	BH2 45-46	778.73	<0.5	11.42	256.39	74.33	25.82	150.98	<0.5
29	BH2 46-47	820.50	<0.5	10.17	263.31	131.76	28.56	161.59	<0.5
30	BH2 47-48	310.07	1.77	3.34	107.47	95.82	24.03	47.95	<0.5
31	BH2 48-49	175.01	1.31	2.87	55.28	88.89	7.19	29.14	<0.5
32	BH2 49-50	539.11	0.68	4.60	187.27	131.12	52.19	87.08	<0.5
33	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	BH2 50-51	295.96	0.81	3.18	94.64	81.62	16.04	53.86	<0.5
35	BH2 51-52	1036.00	1.00	6.00	651.78	121.00	107.00	146.00	<0.5
36	BH2 52-53	624.00	1.00	4.00	234.63	173.00	97.00	124.00	<0.5
37	BH2 53-54	922.66	<0.5	9.00	312.94	97.47	47.64	169.28	<0.5
38	BH2 54-55	687.25	<0.5	9.47	298.65	140.59	53.95	140.26	<0.5
39	BH2 55-56	958.03	0.63	7.25	334.04	222.38	28.56	157.70	<0.5
40	BH2 56-57	544.33	0.91	2.99	186.66	327.32	12.52	79.88	<0.5
41	BH2 57-58	896.86	<0.5	5.62	305.46	326.86	14.95	151.48	<0.5
42	BH2 58-59	983.78	0.51	7.61	343.29	68.21	52.17	156.12	<0.5
43	BH2 59-60	1001.85	0.87	10.46	397.63	286.02	26.46	195.04	<0.5
44	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	BH2 60-61	1158.73	<0	18.00	507.95	307.80	25.23	212.43	<0.5
46	BH2 61-62	1185.96	<0	12.00	531.30	160.04	77.50	215.42	<0.5
47	BH2 62-63	1239.89	<0	11.00	639.12	117.62	52.78	290.02	<0.5
48	BH2 63-64	135.14	0.53	8.00	46.58	93.80	3.54	23.04	<0.5
49	BH2 64-65	144.86	0.40	7.00	51.00	137.41	9.01	25.48	<0.5
50	BH2 65-66	197.86	<0	4.37	65.79	207.23	25.95	37.47	<0.5
51	BH2 66-67	423.52	<0	8.13	154.41	185.68	23.55	73.55	<0.5
52	BH2 67-68	674.64	<0	8.00	250.81	349.11	43.99	117.84	<0.5
53	BH2 68-69	698.21	<0	9.00	257.37	279.90	21.85	122.30	<0.5
54	BH2 69-70	444.16	<0	7.97	165.12	225.25	41.94	75.92	<0.5
55	BCS CRM 176/4	0.00	224.19	20.22	12.78	0.00	4.22	4.12	<0.5

Date: 17.04.2026.


 (VK Moorthy)
 DM(PC)



KIOCL Limited									
Mineral Exploration Laboratory									
Analysis Report									
Worksheet Name			Samalpatti BH-02			Page 04			
	Sr	Ta	Tb	Tm	W	Y	Yb	Zr	
Solution Label	407.771 nm ppm	268.517 nm ppm	350.914 nm ppm	313.125 nm ppm	207.912 nm ppm	371.029 nm ppm	328.937 nm ppm	343.823 nm ppm	
Blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Standard 1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
Standard 2	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Standard 3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Standard 4	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	
Standard 5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	
S.No	Standard 6	10.00	10.00	10.00	10.00	10.00	10.00	10.00	
1	BH2 12-13	3329.85	4.13	9.89	< 0	0.79	65.46	6.25	17.88
2	BH2 13-14	2173.45	6.72	14.94	0.11	< 0	134.49	14.56	132.12
3	BH2 14-15	2037.53	1.01	2.92	< 0	< 0	20.60	2.17	72.23
4	BH2 15-16	2312.81	4.34	8.78	< 0	15.40	64.48	6.96	60.42
5	BH2 24-25	2034.77	9.00	21.55	<0.5	37.98	126.96	15.93	74.02
6	BH2 25-26	1207.67	11.00	28.36	0.84	5.58	150.26	21.77	74.89
7	BH2 26-27	3589.46	8.00	21.74	<0.5	<0.5	138.98	16.51	48.20
8	BH2 27-28	3820.74	9.00	21.08	0.73	<0.5	133.32	14.90	196.14
9	BH2 28-29	1073.56	7.00	16.71	<0.5	<0.5	106.51	14.91	207.82
10	BH2 29-30	1646.07	8.19	14.32	<0.5	1.03	92.69	12.11	249.70
11	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	BH2 30-31	1570.32	9.00	23.18	0.60	0.91	147.14	19.10	127.22
13	BH2 31-32	3241.73	1.85	8.30	<0.5	0.68	52.45	4.80	74.93
14	BH2 32-33	3032.84	1.24	7.08	<0.5	1.55	42.76	4.01	51.31
15	BH2 33-34	6488.09	3.08	10.82	<0.5	<0.5	81.85	8.13	98.64
16	BH2 34-35	3683.64	7.71	17.55	<0.5	<0.5	149.40	16.97	297.23
17	BH2 35-36	2785.13	8.00	23.25	<0.5	<0.5	139.94	18.49	209.76
18	BH2 36-37	7967.00	3.31	12.19	<0.5	1.08	76.76	6.99	29.15
19	BH2 37-38	5342.05	3.95	11.60	<0.5	0.63	83.57	8.74	74.73
20	BH2 38-39	5255.66	7.75	16.83	<0.5	<0.5	154.05	18.16	294.77
21	BH2 39-40	2006.77	8.52	15.29	<0.5	<0.5	122.24	15.36	356.19
22	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	BH2 40-41	4247.00	7.00	8.00	1.00	<0.5	59.00	6.51	56.00
24	BH2 41-42	1822.33	1.10	4.92	<0.5	<0.5	27.01	2.75	39.45
25	BH2 42-43	2848.85	2.89	8.70	<0.5	0.76	41.05	4.01	34.36
26	BH2 43-44	4917.03	1.39	8.14	<0.5	<0.5	53.23	4.32	33.11
27	BH2 44-45	7588.06	1.16	10.50	<0.5	<0.5	86.26	6.15	25.17
28	BH2 45-46	6587.14	1.20	15.17	<0.5	<0.5	156.32	12.80	11.84
29	BH2 46-47	4107.32	1.75	16.22	<0.5	<0.5	146.88	11.34	17.08
30	BH2 47-48	3641.98	<0.5	4.79	<0.5	<0.5	31.81	2.54	49.20
31	BH2 48-49	2333.70	<0.5	3.27	<0.5	<0.5	21.64	1.80	27.89
32	BH2 49-50	4925.86	1.39	7.90	<0.5	0.67	54.35	4.14	70.64
33	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	BH2 50-51	3352.01	<0.5	5.36	<0.5	<0.5	42.09	3.19	35.04
35	BH2 51-52	10629.00	<0.5	14.00	2.00	<0.5	107.00	8.84	32.00
36	BH2 52-53	11003.00	1.00	13.00	1.00	<0.5	104.00	8.16	31.00
37	BH2 53-54	22917.20	2.51	17.08	<0.5	<0.5	173.89	14.64	17.99
38	BH2 54-55	18249.37	3.04	13.86	<0.5	<0.5	122.85	8.52	39.00
39	BH2 55-56	14705.72	3.77	16.28	<0.5	<0.5	126.62	9.95	57.16
40	BH2 56-57	4383.23	2.60	9.21	<0.5	1.41	37.81	3.43	50.09
41	BH2 57-58	13236.09	2.95	16.23	<0.5	0.78	111.55	8.33	26.84
42	BH2 58-59	14655.12	3.00	14.75	<0.5	<0.5	113.85	8.94	121.90
43	BH2 59-60	17567.66	4.93	20.87	<0.5	<0.5	127.89	12.40	66.26
44	BLANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	BH2 60-61	13440.01	5.53	21.71	< 0	1.46	135.16	11.29	56.73
46	BH2 61-62	8199.66	4.72	18.38	< 0	0.66	120.58	9.74	46.17
47	BH2 62-63	3749.11	4.18	24.41	< 0	< 0	188.67	12.45	29.81
48	BH2 63-64	4754.63	1.13	3.40	< 0	0.74	26.26	3.04	116.10
49	BH2 64-65	2588.39	1.62	3.82	< 0	0.37	29.15	3.45	150.25
50	BH2 65-66	2084.76	1.77	4.86	< 0	0.59	27.00	2.30	51.83
51	BH2 66-67	3335.61	1.79	7.01	< 0	0.22	51.60	4.11	73.30
52	BH2 67-68	5097.75	4.27	11.64	< 0	0.90	69.65	5.39	25.45
53	BH2 68-69	6022.76	3.12	11.51	< 0	0.40	79.99	5.93	22.82
54	BH2 69-70	4608.35	3.39	8.30	< 0	0.66	49.20	4.27	52.28
55	BCS CRM 176/4	21.14	124.11	5.44	0.02	9.76	4.65	0.76	5.96

Date: 17.04.2026.

Vm.
(VK Moorthy)
DM(PC)





Borehole sample analysis report indicating total LREE & HREE values

Sl	Borehole No	Sample ID	HREE (ppm)										LREE (ppm)							Total REE (ppm)		TOTAL REE (%)	RM (ppm)			
			Dy	Er	Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H-REE	Eu	La	Ce	Nd	Pr	Sm	Total LREE				Sc	Nb	Ta	Mo
1		BH1 10-11	16.85	10.33	52.92	2.26	8.09	1.61	<0	54.61	5.23	151.90	16.01	777.43	1,381.52	404.35	136.67	71.51	2,787.49	2,939.40		0.29	32.66	9.24	3.76	1.59
2		BH1 11-12	18.57	11.18	56.73	2.37	9.04	1.93	<0	62.14	6.20	168.15	16.95	699.39	1,276.05	395.02	131.06	74.31	2,592.77	2,760.93		0.28	27.87	9.49	4.50	1.27
3		BH1 12-13	22.45	13.20	60.58	3.06	9.56	1.81	<0	77.00	7.26	194.94	18.63	629.09	1,220.18	395.13	132.17	77.67	2,472.87	2,667.81		0.27	18.89	10.24	3.59	1.10
4		BH1 13-14	22.88	13.23	60.89	2.95	9.44	1.98	<0	81.74	7.94	201.05	18.20	573.56	1,120.34	377.41	125.35	76.37	2,291.23	2,492.28		0.25	14.09	9.37	3.96	1.24
5		BH1 14-15	23.25	11.98	61.53	2.95	8.93	1.83	<0	77.69	7.02	195.18	18.38	552.77	1,123.81	386.56	129.37	77.85	2,288.75	2,483.93		0.25	25.42	4.78	3.60	0.55
6		BH1 15-16	21.00	9.00	65.17	4.00	8.00	1.00	1.00	68.00	8.00	185.17	25.00	637.00	1,297.00	399.00	149.44	78.00	2,585.44	2,770.61		0.28	41.00	7.00	2.00	<0.5
7		BH1 16-17	24.40	12.09	68.81	0.95	9.74	1.35	<0.5	71.06	6.23	194.65	21.51	1,128.96	2,023.73	578.99	199.42	96.67	4,049.29	4,243.93		0.42	36.23	6.67	2.80	<0.5
8		BH1 17-18	19.25	14.85	66.02	4.00	12.44	2.85	<0.5	60.20	7.28	186.89	17.88	779.68	1,429.87	451.05	150.20	77.38	2,906.05	3,092.94		0.31	85.10	22.00	7.68	<0.5
9		BH1 18-19	48.54	23.72	120.97	7.85	16.89	1.44	<0.5	158.45	12.27	390.13	40.45	2,039.28	3,867.89	1,041.26	353.61	177.20	7,519.69	7,909.82		0.79	31.07	6.14	2.34	<0.5
10		BH1 19-20	18.36	9.79	48.19	2.48	6.71	1.02	<0	62.41	5.23	154.20	15.03	646.48	1,187.52	350.61	122.04	64.83	2,386.51	2,540.71		0.25	15.51	3.45	1.69	0.59
11		BH1 20-21	30.10	15.23	79.51	2.56	12.04	2.91	<0	105.90	10.45	258.69	22.90	515.24	1,132.73	410.27	141.97	90.56	2,313.67	2,572.36		0.26	17.24	3.98	5.75	<0
12		BH1 21-22	38.30	18.30	86.33	5.12	12.35	2.00	0.32	136.90	11.42	311.05	27.18	527.63	1,192.45	442.44	146.18	104.12	2,439.99	2,751.04		0.28	13.56	1.75	2.39	<0
13		BH1 22-23	10.11	5.67	25.48	1.47	3.59	0.42	<0	36.10	2.96	85.80	8.26	327.67	621.69	190.91	64.56	35.88	1,248.97	1,334.77		0.13	3.09	2.51	0.52	1.84
14		BH1 23-24	34.06	17.46	80.58	3.93	11.18	1.31	<0	120.81	9.66	278.98	26.32	954.05	1,825.01	561.59	197.83	110.16	3,674.95	3,953.94		0.40	10.18	2.42	1.55	<0
15		BH1 24-25	23.20	12.57	64.56	3.42	9.04	0.87	<0	72.42	5.46	191.54	21.14	1,205.02	2,083.21	562.74	199.48	96.30	4,167.89	4,359.43		0.44	35.65	5.59	1.78	23.50
16		BH1 25-26	13.84	8.39	43.33	1.92	6.29	0.67	<0	38.64	3.37	116.43	14.06	1,003.40	1,680.71	430.44	152.32	68.25	3,349.18	3,465.62		0.35	43.32	5.32	1.81	1.61
17		BH1 26-27	14.74	10.56	43.98	2.32	8.88	0.68	<0	39.41	3.19	123.76	14.64	1,012.54	1,710.18	431.83	139.53	70.29	3,379.01	3,502.78		0.35	30.80	4.05	1.34	2.17
18		BH1 27-28	17.37	17.27	48.15	5.19	16.48	1.04	<0	42.90	3.08	151.48	15.72	1,209.73	1,982.95	482.86	130.16	77.96	3,899.37	4,050.85		0.41	21.98	3.54	1.30	1.26
19		BH1 28-29	22.58	12.23	69.23	3.72	9.02	0.52	<0	64.34	4.14	185.78	22.69	1,886.46	2,983.27	717.79	261.27	111.50	5,982.99	6,168.76		0.62	13.16	3.10	1.39	1.02
20		BH1 29-30	14.68	8.99	45.32	2.27	6.99	0.57	<0	41.25	3.30	123.36	15.14	1,041.03	1,772.50	449.29	156.98	72.11	3,507.04	3,630.41		0.36	30.75	4.88	1.10	0.80
21		BH1 30-31	15.21	9.01	52.10	2.09	7.03	0.65	<0	39.73	3.19	129.01	17.00	1,349.15	2,226.78	558.38	203.57	85.13	4,440.01	4,569.02		0.46	60.83	6.22	1.98	2.02
22		BH1 31-32	13.49	8.73	46.92	1.77	6.77	0.72	<0	35.23	2.67	116.31	15.14	1,141.35	1,913.44	478.43	170.43	74.71	3,793.49	3,909.80		0.39	36.15	8.10	1.78	1.45
23		BH1 32-33	19.46	11.19	69.05	4.00	10.44	0.98	<0.5	49.08	3.83	168.03	22.53	1,703.43	2,910.95	755.49	258.70	109.66	5,760.76	5,928.79		0.59	88.59	11.86	2.81	1.29
24		BH1 33-34	11.37	6.29	36.61	1.68	5.22	0.70	<0.5	32.55	2.61	97.02	11.11	729.93	1,241.62	334.74	113.63	52.19	2,483.22	2,580.25		0.26	9.80	7.31	0.92	1.20
25		BH1 34-35	28.55	14.97	93.39	4.37	12.94	0.91	<0.5	78.01	5.38	238.51	31.09	2,374.36	4,028.23	1,024.26	357.67	149.88	7,965.49	8,204.00		0.82	50.41	8.96	2.08	1.17
26		BH1 35-36	24.50	12.55	77.10	3.77	10.23	0.81	<0.5	68.48	5.28	202.73	25.22	1,730.18	2,954.88	770.81	265.33	117.35	5,863.79	6,066.52		0.61	75.91	6.64	1.76	1.62
27		BH1 36-37	35.38	16.50	86.37	4.00	12.30	1.80	<0.5	113.36	9.73	279.43	27.08	890.48	1,821.30	586.82	198.59	111.79	3,636.05	3,915.48		0.39	22.83	5.42	2.53	<0.5
28		BH1 37-38	45.59	22.27	123.73	2.34	17.58	2.24	<0.5	138.08	11.38	363.20	39.35	1,759.73	3,312.51	985.25	330.78	172.81	6,600.43	6,963.63		0.70	32.56	10.20	3.71	<0.5
29		BH1 38-39	10.73	6.66	33.32	4.00	5.70	0.87	<0.5	32.83	2.93	97.04	9.58	413.44	767.06	245.04	78.23	42.67	1,556.01	1,653.05		0.17	13.83	10.01	1.06	3.32
30		BH1 39-40	10.37	8.56	28.59	1.34	5.59	1.10	<0.5	36.51	4.43	96.48	7.83	311.62	588.06	192.37	57.84	32.90	1,190.62	1,287.10		0.13	9.40	20.15	1.76	0.52
31	BH01	BH1 40-41	11.96	7.22	36.12	5.00	5.53	0.77	<0.5	36.76	3.09	106.44	11.05	565.92	1,028.68	299.95	98.43	49.50	2,053.52	2,159.97	3,409.27	0.22	8.37	9.87	0.72	<0.5
32		BH1 41-42	32.00	21.00	93.00	6.00	15.00	1.63	1.00	110.00	8.00	287.63	36.00	886.00	1,702.00	441.00	158.12	104.00	3,327.12	3,614.74		0.36	36.00	20.00	5.00	1.00
33		BH1 42-43	7.41	4.81	21.11	7.00	3.58	1.00	<0.5	25.42	2.33	72.68	6.19	254.30	476.33	151.22	45.90	26.54	960.47	1,033.15		0.10	17.00	8.50	<0.5	2.00
34		BH1 43-44	20.00	11.00	48.00	5.00	8.00	1.00	1.00	71.00	10.00	175.00	21.00	495.00	930.00	255.00	89.32	51.00	1,841.32	2,016.32		0.20	29.00	9.00	1.00	2.00
35		BH1 44-45	25.25	20.65	57.63	5.00	12.34	1.94	<0.5	95.12	11.71	229.63	17.40	500.45	916.46	329.56	94.31	66.57	1,924.75	2,154.38		0.22	34.21	30.00	3.88	0.71
36		BH1 45-46	21.37	10.75	64.16	3.19	8.91	0.85	<0.5	63.44	4.54	177.20	20.36	1,149.85	2,015.59	565.38	193.36	92.64	4,037.19	4,214.39		0.42	37.27	7.39	1.15	0.82
37		BH1 46-47	10.19	5.24	31.75	4.00	4.57	1.00	<0.5	30.29	2.29	89.32	10.04	619.76	1,083.70	294.11	99.93	46.83	2,154.36	2,243.68		0.22	16.68	4.47	<0.5	0.58
38		BH1 47-48	10.15	5.63	30.71	1.66	4.32	1.00	<0.5	30.61	2.46	86.54	10.04	732.18	1,235.28	314.03	110.44	46.95	2,448.92	2,535.46		0.25	17.80	4.66	<0.5	<0.5
39		BH1 48-49	13.87	6.82	42.51	0.84	5.77	1.00	<0.5	39.80	2.69	113.30	13.93	959.66	1,609.26	419.07	145.99	64.90	3,212.81	3,326.11		0.33	10.90	4.13	<0.5	<0.5
40		BH1 49-50	12.71	6.77	40.05	1.55	5.93	0.62	<0.5	35.89	2.71	106.23	12.45	790.09	1,348.81	361.92	123.43	58.25	2,694.95	2,801.18		0.28	26.67	4.99	<0.5	1.28



Borehole sample analysis report indicating total LREE & HREE values

SI	Borehole No	Sample ID	HREE (ppm)									LREE (ppm)								Total REE (ppm)		TOTAL REE (%)	RM (ppm)			
			Dy	Er	Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H-REE	Eu	La	Ce	Nd	Pr	Sm	Total LREE				Sc	Nb	Ta	Mo
41		BH1 50-51	9.13	5.03	29.09	1.18	3.56	0.27	<0	25.08	1.64	74.97	9.49	722.79	1,179.03	292.94	106.75	46.69	2,357.68	2,432.65		0.24	13.13	2.36	0.82	1.95
42		BH1 51-52	10.79	6.94	32.67	1.22	4.87	0.55	<0	32.80	2.72	92.57	10.11	640.72	1,068.70	295.75	99.14	47.97	2,162.39	2,254.96		0.23	16.20	9.06	1.41	0.87
43		BH1 52-53	8.95	7.28	28.57	0.93	5.47	0.86	<0	28.26	2.71	83.02	8.19	517.78	864.43	240.76	79.47	38.30	1,748.93	1,831.95		0.18	15.40	13.71	2.18	1.46
44		BH1 53-54	11.54	8.91	36.37	4.00	6.02	0.91	<0	35.80	3.29	106.84	11.08	736.59	1,210.79	320.13	112.08	52.16	2,442.83	2,549.66		0.25	6.82	14.17	2.29	0.97
45		BH1 54-55	9.28	7.63	26.12	0.93	4.71	1.18	<0	33.59	4.19	87.63	7.19	303.56	564.58	176.45	55.64	30.64	1,138.06	1,225.69		0.12	20.57	13.57	2.66	1.79
46		BH1 55-56	16.93	8.97	52.93	2.32	7.24	0.68	<0	50.26	3.33	142.67	16.62	1,225.57	1,988.92	512.74	182.76	80.55	4,007.16	4,149.83		0.41	13.00	5.10	1.34	0.68
47		BH1 56-57	13.18	7.42	43.81	1.56	6.16	0.70	<0	37.01	2.64	112.46	13.72	986.18	1,641.48	425.32	149.34	66.02	3,282.06	3,394.52		0.34	9.80	6.45	1.57	1.90
48		BH1 57-58	28.01	15.17	88.03	1.11	11.52	0.98	<0	79.67	5.62	230.12	28.48	2,235.85	3,780.85	913.31	328.26	138.98	7,425.73	7,655.85		0.77	37.03	7.47	2.85	1.61
49		BH1 58-59	23.25	14.63	64.24	2.84	11.61	1.39	<0	72.54	5.73	196.23	20.35	515.91	1,104.17	420.77	121.09	86.00	2,268.29	2,464.53		0.25	16.97	19.17	3.57	2.64
50		BH1 59-60	25.40	15.82	76.12	3.14	12.42	1.92	<0	78.44	6.63	219.90	23.50	1,061.55	1,904.38	562.36	190.79	105.61	3,848.20	4,068.10		0.41	29.89	17.79	4.30	0.68
51		BH1 60-61	25.81	15.64	76.65	3.00	11.51	1.18	<0	77.17	5.80	216.74	25.00	1,330.51	2,340.42	645.31	226.81	114.17	4,682.22	4,898.96		0.49	26.19	15.69	3.20	1.00
52		BH1 61-62	28.40	16.01	87.87	2.13	12.82	2.04	<0	84.52	7.09	240.87	27.18	1,213.87	2,233.19	666.29	229.93	124.00	4,494.46	4,735.33		0.47	25.84	10.20	4.53	0.63
53		BH1 62-63	24.37	18.44	64.54	2.56	13.17	1.60	<0	82.90	7.25	214.82	20.42	810.96	1,478.49	458.14	151.80	87.26	3,007.08	3,221.90		0.32	27.95	29.69	4.48	0.41
54		BH1 63-64	18.00	10.35	55.58	2.05	7.88	0.62	<0	49.73	3.59	147.81	18.43	1,095.53	1,881.72	501.86	177.83	86.31	3,761.68	3,909.49		0.39	29.81	10.03	2.21	1.28
55		BH1 64-65	11.37	8.70	34.59	1.11	5.99	0.68	<0	35.59	2.87	100.90	10.48	687.47	1,158.21	302.36	105.89	49.42	2,313.83	2,414.73		0.24	19.61	16.10	2.18	1.21
56		BH1 65-66	4.44	5.81	11.53	0.14	4.62	0.65	<0	18.40	2.08	47.67	2.83	62.77	132.27	57.14	14.93	10.21	280.14	327.82		0.03	4.90	17.28	1.52	1.23
57		BH1 66-67	15.98	13.51	40.71	5.00	10.33	1.56	<0	57.93	5.96	150.97	12.09	232.75	473.20	204.83	56.78	45.80	1,025.45	1,176.42		0.12	15.69	18.00	4.68	0.47
58		BH1 67-68	46.02	23.87	118.51	6.49	18.12	2.93	<0	152.70	12.87	381.50	37.65	950.90	1,968.50	721.24	226.52	155.10	4,059.90	4,441.41		0.44	25.68	12.85	5.40	1.42
59		BH1 68-69	22.47	12.63	62.12	2.95	9.22	1.30	<0	72.00	5.68	188.37	19.25	761.03	1,411.50	447.70	147.69	84.52	2,871.68	3,060.06		0.31	8.34	10.31	2.04	3.25
60		BH1 69-70	37.46	20.45	96.32	5.40	14.79	3.02	<0	129.36	12.51	319.30	29.05	749.57	1,531.78	550.04	173.59	119.41	3,153.45	3,472.75		0.35	10.50	9.76	4.98	0.17
1		BH2 12-13	20.36	10.04	68.40	2.46	9.89	2.65	<0	65.46	6.25	185.51	19.29	397.34	944.86	373.38	124.77	84.61	1,944.24	2,129.74		0.21	9.06	2.62	4.13	<0
2		BH2 13-14	31.43	23.19	78.57	4.27	14.94	2.93	0.11	134.49	14.56	304.49	27.62	322.31	790.33	431.70	114.99	111.96	1,798.92	2,103.41		0.21	3.81	24.90	6.72	<0
3		BH2 14-15	4.75	4.52	11.79	4.00	2.92	0.35	<0	20.60	2.17	51.11	4.17	74.45	163.83	74.55	18.76	17.01	352.77	403.88		0.04	1.33	9.94	1.01	0.45
4		BH2 15-16	17.26	12.20	47.96	2.08	8.78	1.66	<0	64.48	6.96	161.37	15.89	345.90	737.95	287.89	88.56	65.84	1,542.04	1,703.41		0.17	7.35	14.30	4.34	1.35
5		BH2 24-25	31.57	29.34	85.67	6.00	21.55	3.51	<0.5	126.96	15.93	320.52	28.71	430.19	979.69	520.85	133.87	114.94	2,208.24	2,528.76		0.25	8.42	50.00	9.00	1.44
6		BH2 25-26	35.77	35.93	99.67	4.00	28.36	5.05	0.84	150.26	21.77	381.65	33.47	285.70	763.33	525.07	134.79	128.92	1,871.28	2,252.94		0.23	16.33	71.00	11.00	2.24
7		BH2 26-27	35.08	30.50	91.64	3.00	21.74	3.35	<0.5	138.98	16.51	340.79	30.87	498.55	1,143.52	570.09	150.50	124.11	2,517.64	2,858.44		0.29	6.69	58.00	8.00	<0.5
8		BH2 27-28	33.32	31.95	87.29	3.09	21.08	2.95	0.73	133.32	14.90	328.62	29.35	484.81	1,073.16	527.40	138.78	119.00	2,372.51	2,701.12		0.27	2.85	66.00	9.00	<0.5
9		BH2 28-29	24.97	24.49	66.46	3.11	16.71	3.11	<0.5	106.51	14.91	260.27	22.29	203.52	529.62	353.07	83.45	83.25	1,275.20	1,535.47		0.15	9.17	41.00	7.00	1.20
10		BH2 29-30	22.84	21.20	60.03	3.00	14.32	2.56	<0.5	92.69	12.11	228.76	19.63	236.53	584.26	327.79	81.69	74.99	1,324.89	1,553.64		0.16	6.85	45.00	8.19	1.10
11		BH2 30-31	35.24	33.17	88.98	4.00	23.18	3.89	0.60	147.14	19.10	355.29	29.48	267.50	706.54	462.13	111.44	112.12	1,689.21	2,044.51		0.20	9.40	61.00	9.00	0.54
12		BH2 31-32	16.42	11.80	48.80	2.16	8.30	1.02	<0.5	52.45	4.80	145.74	15.62	745.91	1,360.77	420.27	134.83	71.14	2,748.54	2,894.28		0.29	6.63	11.00	1.85	1.59
13		BH2 32-33	13.65	9.47	40.94	4.00	7.08	1.05	<0.5	42.76	4.01	122.96	12.41	639.16	1,160.69	339.58	109.63	56.21	2,317.67	2,440.63		0.24	6.77	8.00	1.24	0.74
14		BH2 33-34	23.51	15.88	61.94	4.00	10.82	1.90	<0.5	81.85	8.13	208.04	18.47	514.50	1,110.65	403.40	124.13	77.67	2,248.81	2,456.85		0.25	28.43	17.00	3.08	<0.5
15		BH2 34-35	37.18	29.47	85.19	4.62	17.55	2.98	<0.5	149.40	16.97	343.37	28.30	327.71	847.53	465.62	116.79	109.22	1,895.18	2,238.54		0.22	4.18	49.00	7.71	<0.5
16		BH2 35-36	35.46	32.86	92.95	4.82	23.25	4.23	<0.5	139.94	18.49	352.00	30.21	582.02	1,193.49	540.59	139.99	115.83	2,602.13	2,954.13		0.30	12.18	51.00	8.00	<0.5
17		BH2 36-37	24.04	15.68	68.78	1.26	12.19	1.98	<0.5	76.76	6.99	207.67	20.04	798.24	1,495.51	478.27	156.05	86.85	3,034.97	3,242.64		0.32	7.81	17.00	3.31	<0.5
18		BH2 37-38	23.36	16.92	59.45	2.95	11.60	2.01	<0.5	83.57	8.74	208.60	18.38	401.35	874.38	349.07	102.44	72.68	1,818.30	2,026.90		0.20	6.87	22.00	3.95	<0.5
19		BH2 38-39	37.42	28.54	86.80	5.19	16.83	3.19	<0.5	154.05	18.16	350.20	28.35	354.07	857.79	454.39	118.31	107.77	1,920.68	2,270.88		0.23	6.82	41.00	7.75	<0.5
20		BH2 39-40	29.60	25.38	71.91	3.79	15.29	3.05	<0.5	122.24	15.36	286.61	23.62	256.83	665.45	376.90	96.08	88.49	1,507.37	1,793.98		0.18	6.69	48.00	8.52	1.11



Borehole sample analysis report indicating total LREE & HREE values

Sl	Borehole No	Sample ID	HREE (ppm)										LREE (ppm)							Total REE (ppm)		TOTAL REE (%)	RM (ppm)			
			Dy	Er	Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H-REE	Eu	La	Ce	Nd	Pr	Sm	Total LREE				Sc	Nb	Ta	Mo
21	BH02	BH2 40-41	20.00	10.00	64.00	3.00	8.00	1.00	1.00	59.00	6.51	172.51	19.00	599.00	1,232.00	367.00	127.16	76.00	2,420.16	2,592.66	3,815.22	0.26	17.00	18.00	7.00	<0.5
22		BH2 41-42	8.94	5.91	27.88	0.97	4.92	0.94	<0.5	27.01	2.75	79.31	7.74	230.91	490.09	175.37	52.48	33.27	989.86	1,069.18		0.11	22.11	11.79	1.10	<0.5
23		BH2 42-43	14.29	10.08	46.11	1.34	8.70	1.67	<0.5	41.05	4.01	127.26	12.74	402.54	846.90	301.46	93.74	55.78	1,713.17	1,840.43		0.18	10.98	23.18	2.89	<0.5
24		BH2 43-44	18.04	10.18	53.76	2.30	8.14	1.10	<0.5	53.23	4.32	151.06	16.61	677.57	1,310.99	412.74	135.08	73.67	2,626.65	2,777.71		0.28	19.37	12.21	1.39	<0.5
25		BH2 44-45	28.61	13.71	76.37	4.11	10.50	0.88	<0.5	86.26	6.15	226.59	25.35	794.36	1,664.23	560.09	180.43	108.39	3,332.86	3,559.45		0.36	13.45	7.07	1.16	<0.5
26		BH2 45-46	46.66	21.99	107.19	4.98	15.17	1.51	<0.5	156.32	12.80	366.62	36.35	1,156.30	2,416.28	778.73	256.39	150.98	4,795.03	5,161.65		0.52	25.82	4.97	1.20	<0.5
27		BH2 46-47	46.18	21.62	114.70	6.77	16.22	1.51	<0.5	146.88	11.34	365.21	38.42	1,149.65	2,437.69	820.50	263.31	161.59	4,871.16	5,236.37		0.52	28.56	6.74	1.75	<0.5
28		BH2 47-48	10.51	5.89	32.62	1.66	4.79	1.00	<0.5	31.81	2.54	90.81	10.24	696.94	1,178.20	310.07	107.47	47.95	2,350.87	2,441.68		0.24	24.03	6.29	<0.5	<0.5
29		BH2 48-49	7.05	3.98	21.24	0.90	3.27	1.00	<0.5	21.64	1.80	60.88	6.47	326.05	594.81	175.01	55.28	29.14	1,186.76	1,247.63		0.12	7.19	5.77	<0.5	0.77
30		BH2 49-50	18.93	10.29	58.24	2.77	7.90	0.82	<0.5	54.35	4.14	157.45	18.68	1,150.16	2,007.44	539.11	187.27	87.08	3,989.73	4,147.17		0.41	52.19	9.15	1.39	<0.5
31		BH2 50-51	13.81	7.17	38.00	0.85	5.36	1.00	<0.5	42.09	3.19	111.48	12.30	480.17	938.23	295.96	94.64	53.86	1,875.18	1,986.65		0.20	16.04	5.44	<0.5	<0.5
32		BH2 51-52	34.00	18.00	200.00	5.99	14.00	2.00	2.00	107.00	8.84	391.83	42.00	2,419.00	3,578.00	1,036.00	651.78	146.00	7,872.78	8,264.61		0.83	107.00	5.00	<0.5	<0.5
33		BH2 52-53	33.00	12.00	103.00	4.00	13.00	1.00	1.00	104.00	8.16	279.16	29.00	987.00	1,829.00	624.00	234.63	124.00	3,827.63	4,106.79		0.41	97.00	5.00	1.00	<0.5
34		BH2 53-54	51.11	25.18	121.21	4.90	17.08	1.97	<0.5	173.89	14.64	409.97	40.34	1,580.02	3,286.10	922.66	312.94	169.28	6,311.34	6,721.32		0.67	47.64	6.45	2.51	<0.5
35		BH2 54-56	40.45	19.18	92.53	2.11	13.86	1.28	<0.5	122.85	8.52	300.78	26.15	1,283.15	2,798.62	687.25	298.65	140.26	5,234.08	5,534.86		0.55	53.95	9.18	3.04	<0.5
36		BH2 55-56	28.18	19.25	109.21	5.45	16.28	1.98	<0.5	126.62	9.95	316.92	35.26	1,800.56	2,897.27	958.03	334.04	157.70	6,182.86	6,499.77		0.65	28.56	6.00	3.77	<0.5
37		BH2 56-57	14.35	10.95	53.28	1.64	9.21	1.31	<0.5	37.81	3.43	131.97	16.03	1,107.55	1,993.18	544.33	186.66	79.88	3,927.63	4,059.60		0.41	12.52	12.00	2.60	1.07
38		BH2 57-58	36.18	20.62	103.89	4.82	16.23	1.73	<0.5	111.55	8.33	303.34	33.83	1,736.96	3,461.71	896.86	305.46	151.48	6,586.29	6,889.63		0.69	14.95	13.00	2.95	<0.5
39		BH2 58-59	36.07	19.85	101.66	4.00	14.75	1.39	<0.5	113.85	8.94	300.50	33.99	2,238.03	4,138.17	983.78	343.29	156.12	7,893.38	8,193.88		0.82	52.17	5.00	3.00	<0.5
40		BH2 59-60	48.81	27.82	135.78	6.80	20.87	2.57	<0.5	127.89	12.40	382.93	45.12	1,998.56	4,589.87	1,001.85	397.63	195.04	8,228.07	8,611.00		0.86	26.46	16.00	4.93	<0.5
41		BH2 60-61	47.12	27.96	126.50	6.56	21.71	2.49	<0	135.16	11.29	378.78	47.60	3,011.78	5,210.20	1,158.73	507.95	212.43	10,148.69	10,527.47		1.05	25.23	8.00	5.53	0.43
42		BH2 61-62	45.13	24.95	127.18	6.22	18.38	1.80	<0	120.58	9.74	353.98	44.50	3,570.58	5,258.69	1,185.96	531.30	215.42	10,806.45	11,160.43		1.12	77.50	12.07	4.72	0.85
43		BH2 62-63	63.21	32.80	180.52	6.70	24.41	1.81	<0	188.67	12.45	510.57	61.69	3,879.98	5,975.34	1,239.89	639.12	290.02	12,086.04	12,596.61		1.26	52.78	9.67	4.18	0.90
44		BH2 63-64	6.92	5.81	17.97	0.81	3.40	0.67	<0	26.26	3.04	64.89	5.38	298.63	510.86	135.14	46.58	23.04	1,019.62	1,084.52		0.11	3.54	9.04	1.13	0.69
45		BH2 64-65	7.63	6.57	20.91	0.85	3.82	0.85	<0	29.15	3.45	73.23	6.05	341.03	549.77	144.86	51.00	25.48	1,118.19	1,191.41		0.12	9.01	10.84	1.62	0.26
46		BH2 65-66	8.79	6.11	28.30	3.00	4.86	0.81	<0	27.00	2.30	81.17	8.40	348.99	656.29	197.86	65.79	37.47	1,314.81	1,395.98		0.14	25.95	8.71	1.77	1.07
47		BH2 66-67	16.64	9.79	49.34	1.97	7.01	0.93	<0	51.60	4.11	141.38	15.78	896.43	1,596.37	423.52	154.41	73.55	3,160.06	3,301.44		0.33	23.55	7.87	1.79	0.47
48		BH2 67-68	24.43	13.83	78.84	2.93	11.64	1.72	<0	69.65	5.39	208.43	24.79	1,492.12	2,557.01	674.64	250.81	117.84	5,117.21	5,325.64		0.53	43.99	10.08	4.27	0.75
49		BH2 68-69	27.04	14.82	81.16	0.82	11.51	1.40	<0	79.99	5.93	222.66	26.56	1,503.44	2,646.49	698.21	257.37	122.30	5,254.36	5,477.01		0.55	21.85	8.66	3.12	0.49
50		BH2 69-70	16.43	10.81	52.11	3.00	8.30	1.32	<0	49.20	4.27	145.44	16.21	1,039.63	1,737.82	444.16	165.12	75.92	3,478.86	3,624.29		0.36	41.94	13.34	3.39	0.99



Lab report of major oxides by XRF (Whole rock analysis)



KIOCL Limited,
Mineral Exploration Laboratory, BFU, Mangalore.
Samalpatti REE Block Samples: Spectrometric Oxide Analysis Report.



S.No	Description	LOI	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	Fe	FeO	CaO	MgO	Mn	MnO ₂	P	P ₂ O ₅	TiO ₂	Na ₂ O	K ₂ O
1	57 BRS 01	38.56	3.12	1.01	0.76	0.53	0	46.60	1.93	0.03	0.05	0.13	0.30	0.06	0.26	0.09
2	57 BRS 03	1.37	62.23	0.35	1.83	1.28	0.29	2.25	1.90	1.85	2.93	0.059	0.14	0.34	0.47	0.09
3	57 BRS 04	17.63	53.80	0.40	2.72	1.90	0.48	17.59	1.21	0.17	0.27	0.051	0.12	1.16	0.90	0.39
4	57 BRS 19	10.64	51.87	1.41	3.59	2.51	0.36	13.59	1.09	0.09	0.14	0.044	0.10	0.33	0.65	5.27
5	57 BRS 29	18.17	33.59	0.83	7.35	5.14	0.29	22.71	0.56	0.19	0.30	0.043	0.10	2.85	1.38	3.77
6	57 BRS 30	17.07	40.88	1.10	7.19	5.03	0.18	20.11	0.64	0.15	0.24	0.044	0.10	1.54	0.56	4.76
7	57 BRS 31	15.20	37.11	0.83	8.22	5.75	0.18	21.84	0.34	0.18	0.28	0.037	0.08	2.99	0.70	2.09
8	57 BRS 32	21.60	35.63	0.39	6.23	4.36	0.36	26.89	0.86	0.17	0.27	0.012	0.03	2.14	0.82	0.29
9	57 BRS 33	21.86	25.65	0.47	8.62	6.03	0.29	31.14	0.46	0.17	0.27	0.019	0.04	0.86	0.91	0.98
10	57 BRS 34	27.56	23.44	0.38	5.63	3.94	0.18	34.29	0.55	0.15	0.24	0.012	0.03	1.05	0.98	0.42
11	57 BRS 36	32.25	8.86	1.81	1.09	0.76	0	40.10	2.23	0.04	0.06	0.10	0.23	0.10	0.78	2.03
12	57 BRS 41	34.84	7.43	0.35	7.52	5.26	0.32	40.65	2.13	0.19	0.30	0.10	0.23	0.83	0.80	0.08
13	57 BRS 43	39.16	4.84	0.50	3.00	2.10	0	42.26	4.26	0.21	0.33	0.15	0.34	0.27	0.37	0.06
14	57 TR 01/03	11.90	33.84	1.50	10.52	7.36	0.28	14.80	4.84	0.16	0.25	0.06	0.13	4.33	1.14	1.94
15	57 TR 01/06	33.06	7.65	1.45	8.81	6.16	0.20	38.76	2.13	0.21	0.33	0.08	0.18	0.83	0.86	0.86
16	57 TR 4/40	38.62	4.54	0.3	3.03	2.12	0.18	46.19	0.82	0.26	0.41	0.029	0.07	0.28	1.23	0.10
17	57 TR 4/43	38.79	5.79	0.32	4.26	2.98	0.48	43.91	0.76	0.15	0.24	0.013	0.03	0.29	0.47	0.08
18	57 TR 4/44	6.28	64.78	1.62	6.88	4.81	0.64	8.07	1.55	0.47	0.74	0.09	0.21	2.11	0.44	0.85
19	57 TR 4/46	14.86	31.10	4.05	15.30	10.70	0.48	17.50	2.70	0.16	0.25	0.09	0.20	1.56	0.39	1.32
20	57 BH 01/15-16	13.86	29.50	1.80	6.88	4.81	1.41	16.15	5.81	0.17	0.27	0.08	0.18	0.68	0.65	7.90
21	57 BH01/17-18	2.81	62.33	1.11	10.12	7.08	0.29	5.14	0.70	0.21	0.33	0.046	0.11	1.16	0.71	2.37
22	57 BH01/25-26	1.65	54.90	0.92	16.43	11.49	0.36	2.00	0.36	0.09	0.14	0.044	0.10	1.88	0.50	1.04
23	57 BH 01/41-42	1.45	51.54	2.70	3.86	2.70	0	8.61	3.68	0.12	0.19	0.05	0.11	3.38	1.09	10.02
24	57 BH01/45-46	2.44	66.19	1.89	2.79	1.95	0.36	4.55	0.61	0.12	0.19	0.055	0.13	0.78	0.59	3.89
25	57 BH01/52-53	8.31	57.34	1.22	5.75	4.02	0.29	9.08	0.96	0.19	0.30	0.045	0.10	0.86	0.46	3.23
26	57 BH01/59-60	11.12	43.85	0.97	8.85	6.19	0.48	12.48	1.04	0.22	0.35	0.052	0.12	2.09	0.99	2.12
27	57 BH 02/51-52	7.70	38.92	7.49	3.68	2.57	0.64	12.38	4.74	0.14	0.22	0.05	0.12	0.31	0.93	8.97
28	57 BH 02/52-53	8.14	56.93	3.55	6.23	4.36	0.28	10.84	6.46	0.18	0.28	0.08	0.17	0.84	0.10	5.00
29	BCS-CRM 176/4	-	13.12	2.30	1.13	0.79	-	5.51	5.40	29.07	46.00	0.058	0.13	0.08	0.318	0.258

02.03.2025

(V K Moorthy)
DM(PC)

External check sample analysis report

Annexure 09

TEST REPORT

Shiva Assay(TREE)_G2981



SHIVA ANALYTICALS (INDIA) PRIVATE LIMITED

Plot No. 24D [P] & 34 D, KIADB Industrial Area, Hoskote
Bangalore – 562 114. Phone No: 080 – 2801 5333,
Website: www.shivaanalyticals.com

Customer Name	KIOCL LIMITED (A Govt of India Enterprise) Mineral Exploration Laboratory, BFU, Panambur, Mangaluru-575010
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Discipline & Group	Chemical & Ores and Minerals.
Customer Ref.	Samples Received by Courier.
Commodity	Ore/Mineral Samples
Lab ID	G2981
Sample Receipt Date	06-Nov-25
Analysis Completion Date	13-Nov-25
Date of Reporting	14-Nov-25
Sample Count	18

Sl. No.	Customer Code	Sample Description	Method	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052	SOP/OM/052
			Units	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)
			LOQ	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
			Lab ID	Be	Sc	Co	Ga	Ge	Rb	Y	Nb	Mo	In	Sn	La	Ce	Pr	Nd	Sm	Eu
1	OREAS-231	CRM	Cert.	NA	42.20	44.70	15.90	NA	8.08	20.70	3.50	0.86	NA	NA	4.47	11.00	1.66	7.98	2.49	NA
2	57BRS 43	Powder	G2981-1	3.02	26.81	47.94	7.11	1.23	6.00	107.22	0.87	0.67	<0.5	<0.5	955	1903	164	645	109	30.33
3	57BRS 49	Powder	G2981-2	1.44	11.59	119.26	11.48	1.73	4.96	172.48	1.42	0.57	<0.5	<0.5	1688	3255	333	995	162	52.53
4	57BRS 39	Powder	G2981-3	4.12	6.93	71.62	8.99	1.27	2.51	116.01	16.68	1.28	<0.5	<0.5	907	1846	171	677	118	32.58
5	57BRS 12	Powder	G2981-4	3.75	31.65	120.11	8.19	1.36	6.64	130.14	13.58	8.00	<0.5	<0.5	1031	1973	180	705	122	38.45
6	57BRS 36	Powder	G2981-5	<0.5	1.76	5.87	3.57	<0.5	44.28	8.26	1.62	<0.5	<0.5	<0.5	23	46.6	5.5	21.1	3.4	1.10
7	57BRS 01	Powder	G2981-6	<0.5	0.59	<5	1.85	<0.5	7.95	6.84	0.69	0.62	<0.5	<0.5	22	45.5	5.4	21.1	4.1	1.29
8	57 TR 01/03	Powder	G2981-7	12.45	506.19	85.32	17.74	2.38	24.87	142.06	7.66	<0.5	0.51	<0.5	2961	4880	480	1303	187	45.71
9	57 TR 01/06	Powder	G2981-8	3.22	66.11	137.26	12.92	1.84	13.63	171.64	4.56	0.80	<0.5	<0.5	1750	3289	354	1021	165	54.74
10	57 TR 04/44	Powder	G2981-9	6.66	30.95	103.00	8.07	1.16	16.77	80.09	0.95	1.85	<0.5	<0.5	870	1614	157	622	108	34.16
11	57 TR 04/46	Powder	G2981-10	6.19	32.15	95.81	10.62	1.34	32.59	103.35	3.81	0.67	<0.5	<0.5	1086	2117	201	768	134	37.66
12	57 TR 04/46	Powder	G2981-10	6.28	32.62	97.85	10.88	1.48	32.47	103.23	3.63	0.63	<0.5	<0.5	1075	2109	199	772	134	37.42
13	57 TR 03/31	Powder	G2981-11	9.90	37.54	67.74	15.41	1.33	40.30	91.80	14.09	1.39	<0.5	<0.5	957	1922	181	714	125	35.37
14	57 TR 03/32	Powder	G2981-12	10.36	16.96	84.32	17.01	2.68	12.37	190.72	2.32	<0.5	<0.5	<0.5	1727	3806	460	1979	257	67.56
15	BH-01 15-16	Powder	G2981-13	6.80	39.32	82.62	13.45	0.90	75.11	71.62	7.96	0.92	<0.5	<0.5	767	1407	121	460	78	24.99
16	BH-01 41-42	Powder	G2981-14	7.26	39.66	101.65	20.97	1.11	104.39	122.51	22.81	1.10	<0.5	<0.5	854	1578	143	572	116	39.55
17	BH-01 43-44	Powder	G2981-15	9.12	30.18	53.31	18.13	0.58	146.15	87.73	7.44	1.74	<0.5	<0.5	461	830	72	286	58	18.66
18	BH-02 40-41	Powder	G2981-16	12.42	18.94	61.38	17.76	0.94	285.56	65.59	20.96	1.07	<0.5	<0.5	581	1169	107	416	74	21.86
19	BH-02 51-52	Powder	G2981-17	8.42	105.95	123.30	23.00	2.16	124.02	126.80	4.19	0.67	<0.5	<0.5	2610	4404	438	1215	178	51.29
20	BH-02 52-53	Powder	G2981-18	11.01	89.29	83.80	17.57	1.28	178.84	97.59	9.55	0.53	<0.5	<0.5	1164	2201	191	716	122	34.90
21	OREAS-231	CRM	Meas.	-	42.24	44.74	16.01	-	7.97	20.66	3.44	0.89	-	-	4.52	10.97	1.68	7.95	2.47	-

Abbreviations

LOQ-Limit of Quantification

SOP/OM/052-- 4 Acid digestion followed by ICPLMS Finish

SOP/OM/051-- 4 Acid digestion followed by ICPOES Finish

Prepared by: Naveen
Verified by: Satyanarayana

TEST REPORT

Shiva Assay(TREE)_G2981



SHIVA ANALYTICALS (INDIA) PRIVATE LIMITED

Plot No. 24D [P] & 34 D, KIADB Industrial Area, Hoskote
Bangalore – 562 114. Phone No: 080 – 2801 5333,
Website: www.shivaanalytics.com

Customer Name	KIOCL LIMITED (A Govt of India Enterprise) Mineral Exploration Laboratory, BFU, Panambur, Mangaluru-575010
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Discipline & Group Chemical & Ores and Minerals.

Customer Ref. Samples Received by Courier.

Commodity Ore/Mineral Samples

Lab ID G2981

Sample Receipt Date 06-Nov-25

Analysis Completion Date 13-Nov-25

Date of Reporting 14-Nov-25

Sample Count 18

Sl. No.	Customer Code	Sample Description	Method	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 52	SOP/OM/0 51	SOP/OM/0 51	SOP/OM/0 51	SOP/OM/0 51	SOP/OM/0 51	SOP/OM/0 51
			Units	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)	ppm(mg/k g)
			LOQ	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5	5	5	5
			Lab ID	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Ba	Cu	Ni	Pb	Sr	Zr
1	OREAS-231	CRM	Cert.	3.23	0.58	3.71	0.82	2.35	NA	2.20	NA	1.63	NA	15.20	112	161	88	13	179	50
2	57BRS 43	Powder	G2981-1	111	11.26	31.85	4.74	15.79	1.25	8.38	1.26	1.21	0.69	<0.5	8999	23	<5	8	16062	<5
3	57BRS 49	Powder	G2981-2	173	17.42	48.84	7.69	24.55	1.87	13.08	2.01	1.89	1.11	3.77	23791	42	<5	22	18190	9
4	57BRS 39	Powder	G2981-3	115	12.15	35.44	5.32	16.81	1.34	9.17	1.45	1.29	1.45	1.27	8879	101	<5	11	14157	<5
5	57BRS 12	Powder	G2981-4	122	12.78	36.73	5.53	17.86	1.51	10.45	1.63	1.29	1.09	0.98	16252	426	<5	8	10320	<5
6	57BRS 36	Powder	G2981-5	3.88	<0.5	1.81	<0.5	1.07	<0.5	0.90	<0.5	<0.5	<0.5	<0.5	652	24	<5	<5	480	30
7	57BRS 01	Powder	G2981-6	3.98	<0.5	1.70	<0.5	0.96	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	739	8	<5	<5	417	15
8	57 TR 01/03	Powder	G2981-7	213	18.85	45.80	6.82	23.92	1.64	11.29	1.77	1.66	1.40	1.06	7557	533	<5	22	7249	9
9	57 TR 01/06	Powder	G2981-8	178	17.80	50.89	7.87	24.92	2.10	14.40	2.24	2.38	3.01	0.74	27602	77	<5	12	16579	27
10	57 TR 04/44	Powder	G2981-9	104	10.38	27.90	4.16	12.99	0.95	7.05	1.05	1.47	0.54	1.77	16600	93	6	<5	1898	<5
11	57 TR 04/46	Powder	G2981-10	133	12.62	34.95	5.17	16.54	1.17	8.10	1.30	1.38	0.72	<0.5	9730	460	<5	<5	5385	<5
12	57 TR 04/46	Powder	G2981-10	132	12.86	34.87	5.06	16.42	1.21	8.13	1.24	1.30	0.69	<0.5	9719	462	<5	<5	5356	<5
13	57 TR 03/31	Powder	G2981-11	116	12.01	32.22	4.77	15.24	1.14	7.97	1.26	1.71	0.68	<0.5	11572	31	<5	<5	1476	10
14	57 TR 03/32	Powder	G2981-12	244	24.87	64.75	9.37	30.01	2.08	13.69	2.23	2.43	1.18	0.82	16028	30	<5	9	7847	6
15	BH-01 15-16	Powder	G2981-13	78	7.71	22.36	3.54	11.15	0.89	6.22	1.01	1.74	1.83	30.40	14038	66	<5	<5	6695	51
16	BH-01 41-42	Powder	G2981-14	108	12.12	38.39	6.09	17.55	1.49	9.72	1.47	8.31	5.40	1.17	18352	55	<5	<5	5515	216
17	BH-01 43-44	Powder	G2981-15	56	6.54	23.08	3.99	11.59	1.30	8.63	1.33	5.15	1.50	0.54	7723	73	<5	<5	2636	135
18	BH-02 40-41	Powder	G2981-16	71	7.37	20.60	3.22	9.65	0.78	5.27	0.82	1.56	6.11	<0.5	8155	4	<5	<5	5149	52
19	BH-02 51-52	Powder	G2981-17	189	17.65	41.71	6.07	22.21	1.46	10.34	1.67	1.86	0.71	0.61	24478	2	<5	7	12770	26
20	BH-02 52-53	Powder	G2981-18	120	11.84	32.57	4.65	14.89	1.15	7.83	1.35	1.69	1.42	<0.5	14912	8	<5	<5	9484	37
21	OREAS-231	CRM	Meas.	3.25	0.60	3.74	0.79	2.37	-	2.19	-	1.61	-	15.23	111	161	87	13	180	49

Mr. SATYANARAYANA - Head - ORES & MINERALS - AUTHORIZED SIGNATORY.

** END OF THE REPORT **

1. The results listed above pertain only to the tested samples and applicable parameters. 2. Samples which are degradable will be disposed immediately after testing and others will be disposed after one month from the date of issue of test certificate unless otherwise specified. 3. Total liability of our laboratory is limited to the invoiced amount. 4. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the Court of Law and should not be used in any advertising media without prior written permission. 5. In case any reconfirmation of contents of this test certificate is required, please contact our office. 6. Sampling is not done by us unless otherwise specified. 7. Any discrepancy in the Test Certificate should be notified within 30 days.



Annexure 10

External check sample analysis report indicating LREE, HREE and TREE values in ppm

Sl	Sample ID	Lab ID	HREE (ppm)										LREE (ppm)							Total REE (ppm)	TOTAL REE (%)
			Dy	Er	Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H-REE	Eu	La	Ce	Nd	Pr	Sm	Total LREE		
1	57BRS 43	G2981-1	31.85	15.79	111	4.74	11.26	1.26	1.25	107.22	8.38	292.90	30.33	955	1903	645	164	109	3806.37	4099.27	0.410
2	57BRS 49	G2981-2	48.84	24.55	173	7.69	17.42	2.01	1.87	172.48	13.08	461.13	52.53	1688	3255	995	333	162	6485.66	6946.78	0.695
3	57BRS 39	G2981-3	35.44	16.81	115	5.32	12.15	1.45	1.34	116.01	9.17	312.91	32.58	907	1846	677	171	118	3751.71	4064.61	0.406
4	57BRS 12	G2981-4	36.73	17.86	122	5.53	12.78	1.63	1.51	130.14	10.45	338.88	38.45	1031	1973	705	180	122	4048.71	4387.60	0.439
5	57BRS 36	G2981-5	1.81	1.07	3.88	<0.5	<0.5	<0.5	<0.5	8.26	0.90	15.92	1.10	23	46.6	21.1	5.5	3.4	101.05	116.97	0.012
6	57BRS 01	G2981-6	1.70	0.96	3.98	<0.5	<0.5	<0.5	<0.5	6.84	0.51	13.99	1.29	22	45.5	21.1	5.4	4.1	99.46	113.46	0.011
7	57 TR 01/03	G2981-7	45.80	23.92	213	6.82	18.85	1.77	1.64	142.06	11.29	464.77	45.71	2961	4880	1303	480	187	9856.63	10321.40	1.032
8	57 TR 01/06	G2981-8	50.89	24.92	178	7.87	17.80	2.24	2.10	171.64	14.40	469.93	54.74	1750	3289	1021	354	165	6633.69	7103.62	0.710
9	57 TR 04/44	G2981-9	27.90	12.99	104	4.16	10.38	1.05	0.95	80.09	7.05	248.91	34.16	870	1614	622	157	108	3404.76	3653.67	0.365
10	57 TR 04/46	G2981-10	34.95	16.54	133	5.17	12.62	1.30	1.17	103.35	8.10	316.36	37.66	1086	2117	768	201	134	4345.40	4661.76	0.466
11	57 TR 04/46	G2981-10	34.87	16.42	132	5.06	12.86	1.24	1.21	103.23	8.13	315.24	37.42	1075	2109	772	199	134	4325.66	4640.90	0.464
12	57 TR 03/31	G2981-11	32.22	15.24	116	4.77	12.01	1.26	1.14	91.80	7.97	282.81	35.37	957	1922	714	181	125	3933.13	4215.94	0.422
13	57 TR 03/32	G2981-12	64.75	30.01	244	9.37	24.87	2.23	2.08	190.72	13.69	581.38	67.56	1727	3806	1979	460	257	8296.31	8877.69	0.888
14	BH-01 15-16	G2981-13	22.36	11.15	78	3.54	7.71	1.01	0.89	71.62	6.22	202.78	24.99	767	1407	460	121	78	2858.46	3061.24	0.306
15	BH-01 41-42	G2981-14	38.39	17.55	108	6.09	12.12	1.47	1.49	122.51	9.72	317.42	39.55	854	1578	572	143	116	3302.07	3619.48	0.362
16	BH-01 43-44	G2981-15	23.08	11.59	56	3.99	6.54	1.33	1.30	87.73	8.63	199.84	18.66	461	830	286	72	58	1725.49	1925.33	0.193
17	BH-02 40-41	G2981-16	20.60	9.65	71	3.22	7.37	0.82	0.78	65.59	5.27	184.65	21.86	581	1169	416	107	74	2369.72	2554.36	0.255
18	BH-02 51-52	G2981-17	41.71	22.21	189	6.07	17.65	1.67	1.46	126.80	10.34	417.17	51.29	2610	4404	1215	438	178	8896.88	9314.05	0.931
19	BH-02 52-53	G2981-18	32.57	14.89	120	4.65	11.84	1.35	1.15	97.59	7.83	292.21	34.90	1164	2201	716	191	122	4428.89	4721.10	0.472



Comparision of Primary and External check sample analysis (Bed Rock, Trench and Drill core) for HREE, LREE & TREE

SI	Sample ID	Total HREE (ppm)				Total LREE (ppm)				TREE (ppm)			
		Primary sample at KIOCL lab	External Check at Shiva Analyticals	Difference (ppm)	Difference %	Primary sample at KIOCL lab	External Check at Shiva Analyticals	Difference (ppm)	Difference %	Primary sample at KIOCL lab	External Check at Shiva Analyticals	Difference (ppm)	Difference %
1	57BRS 43	279.00	292.90	-13.90	-4.98	3,862.00	3806.37	55.63	1.44	4,141.00	4,099.27	41.73	1.01
2	57BRS 49	463.00	461.13	1.87	0.40	6,499.00	6485.66	13.34	0.21	6,962.00	6,946.78	15.22	0.22
3	57BRS 39	290.00	312.91	-22.91	-7.90	3,399.00	3751.71	-352.71	-10.38	3,689.00	4,064.61	-375.61	-10.18
4	57BRS 12	318.00	338.88	-20.88	-6.57	3,544.00	4048.71	-504.71	-14.24	3,862.00	4,387.60	-525.60	-13.61
5	57BRS 36	15.00	15.92	-0.92	-6.16	98.00	101.05	-3.05	-3.11	113.00	116.97	-3.97	-3.51
6	57BRS 01	18.00	13.99	4.01	22.25	112.00	99.46	12.54	11.19	130.00	113.46	16.54	12.73
7	57 TR 01/03	492.00	464.77	27.23	5.53	8,450.00	9856.63	-1,406.63	-16.65	8,942.00	10,321.40	-1,379.40	-15.43
8	57 TR 01/06	461.00	469.93	-8.93	-1.94	6,637.00	6633.69	3.31	0.05	7,098.00	7,103.62	-5.62	-0.08
9	57 TR 04/44	233.00	248.91	-15.91	-6.83	3,245.00	3404.76	-159.76	-4.92	3,478.00	3,653.67	-175.67	-5.05
10	57 TR 04/46	282.00	316.36	-34.36	-12.18	4,138.00	4345.40	-207.40	-5.01	4,420.00	4,661.76	-241.76	-5.47
12	57 TR 03/31	253.00	282.81	-29.81	-11.78	3,526.00	3933.13	-407.13	-11.55	3,779.00	4,215.94	-436.94	-11.56
13	57 TR 03/32	596.38	581.38	15.00	2.52	7,979.00	8296.31	-317.31	-3.98	8,575.38	8,877.69	-302.31	-3.53
14	BH-01 15-16	186.17	202.78	-16.61	-8.92	2,585.44	2858.46	-273.02	-10.56	2,771.61	3,061.24	-289.63	-10.45
15	BH-01 41-42	287.63	317.42	-29.79	-10.36	3,327.12	3302.07	25.05	0.75	3,614.75	3,619.48	-4.73	-0.13
16	BH-01 43-44	175.00	199.84	-24.84	-14.20	1,841.32	1725.49	115.83	6.29	2,016.32	1,925.33	90.99	4.51
17	BH-02 40-41	172.51	184.65	-12.14	-7.04	2,420.16	2369.72	50.44	2.08	2,592.67	2,554.36	38.31	1.48
18	BH-02 51-52	391.83	417.17	-25.34	-6.47	7,872.78	8896.88	-1,024.10	-13.01	8,264.61	9,314.05	-1,049.44	-12.70
19	BH-02 52-53	279.16	292.21	-13.05	-4.67	3,827.63	4428.89	-601.26	-15.71	4,106.79	4,721.10	-614.31	-14.96
Total/ Average										78,556.13	83,758.33	-5,202.20	-6.62



**National Accreditation Board for
Testing and Calibration Laboratories**

CERTIFICATE OF ACCREDITATION

SHIVA ANALYTICALS (INDIA) PRIVATE LIMITED

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

**"General Requirements for the Competence of Testing &
Calibration Laboratories"**

for its facilities at

Plot No. 24D (P) and 34D, KIADB Industrial Area, Bengaluru, Karnataka

in the field of

TESTING

Certificate Number

TC-12626

Issue Date

31/01/2024

Valid Until

30/01/2026

**This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to
continued satisfactory compliance to the above standard & the relevant requirements of NABL.**

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity : Shiva Analyticals (India) Private Limited

Signed for and on behalf of NABL



89076970100030002613

**N. Venkateswaran
Chief Executive Officer**



National Accreditation Board for Testing and Calibration Laboratories

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	PHARMACEUTICALS			
1205.	CHEMICAL/ ORES & MINERALS	Barite (Barium Ore)	Alumina as Al ₂ O ₃	SOP/OM/056: 2019
1206.	CHEMICAL/ ORES & MINERALS	Barite (Barium Ore)	Calcium as CaO	SOP/OM/056: 2019
1207.	CHEMICAL/ ORES & MINERALS	Barite (Barium Ore)	Iron as Fe ₂ O ₃	SOP/OM/056: 2019
1208.	CHEMICAL/ ORES & MINERALS	Barite (Barium Ore)	Matter Soluble in Water	IS 2881: 1984
1209.	CHEMICAL/ ORES & MINERALS	Barite (Barium Ore)	Purity as Barium Sulphate (BaSO ₄)	IS 7588: 1992
1210.	CHEMICAL/ ORES & MINERALS	Barite (Barium Ore)	Relative Density	IS 2881: 1984
1211.	CHEMICAL/ ORES & MINERALS	Barite (Barium Ore)	Silica As SiO ₂	SOP/OM/056: 2019
1212.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Alumina as Al ₂ O ₃	IS 2000 (P.3): 1985
1213.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Aluminum Oxide as Al ₂ O ₃	SOP/OM/105: 2021
1214.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Barium Oxide as BaO	SOP/OM/105: 2021
1215.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Calcium as CaO	SOP/OM/051: 2019
1216.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Calcium Oxide as CaO	SOP/OM/105: 2021
1217.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Chromium Oxide as Cr ₂ O ₃	SOP/OM/105: 2021
1218.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Iron as Fe ₂ O ₃	SOP/OM/051: 2019
1219.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Iron Oxide as Fe ₂ O ₃	SOP/OM/105: 2021
1220.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Loss On Ignition LOI	IS 2000 P.1: 1985
1221.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Magnesium as MgO	SOP/OM/051: 2019
1222.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Magnesium Oxide as MgO	SOP/OM/105: 2021
1223.	CHEMICAL/	Bauxite (Aluminium Ore)	Manganese Oxide as	SOP/OM/105: 2021

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	ORES & MINERALS		MnO	
1224.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Monohydroxyalumina	SOP/OM/078: 2019
1225.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/105: 2021
1226.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Potassium Oxide as K ₂ O	SOP/OM/105: 2021
1227.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Reactive Silica	SOP/OM/077: 2019
1228.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Silica As SiO ₂	IS 2000 P.2: 1985
1229.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Silica as SiO ₂	SOP/OM/105: 2021
1230.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Sodium Oxide as Na ₂ O	SOP/OM/105: 2021
1231.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Strontium Oxide as SrO	SOP/OM/105: 2021
1232.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Sulphur Oxide as SO ₃	SOP/OM/105: 2021
1233.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Titanium As TiO ₂	SOP/OM/051: 2019
1234.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Titanium Oxide as TiO ₂	SOP/OM/105: 2021
1235.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Trihydroxyalumina	SOP/OM/79: 2019
1236.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Vanadium Oxide as V ₂ O ₅	SOP/OM/105: 2021
1237.	CHEMICAL/ ORES & MINERALS	Bauxite (Aluminium Ore)	Zirconium Oxide as ZrO ₂	SOP/OM/105: 2021
1238.	CHEMICAL/ ORES & MINERALS	Chrome Ore	Alumina as Al ₂ O ₃	SOP/OM/056: 2019
1239.	CHEMICAL/ ORES & MINERALS	Chrome Ore	Calcium as CaO	SOP/OM/056: 2019
1240.	CHEMICAL/ ORES & MINERALS	Chrome Ore	Total Chromium as Cr or Cr ₂ O ₃	IS 4737: 1982
1241.	CHEMICAL/ ORES & MINERALS	Chrome Ore	Magnesium as MgO	SOP/OM/056: 2019

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1242.	CHEMICAL/ ORES & MINERALS	Chrome Ore	Silica as SiO ₂	SOP/OM/056: 2019
1243.	CHEMICAL/ ORES & MINERALS	Chrome Ore	Total Iron as Fe or Fe ₂ O ₃	IS 4737: 1982
1244.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Alumina as Al ₂ O ₃	SOP/OM/105: 2021
1245.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Barium Oxide as BaO	SOP/OM/105: 2021
1246.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Calcium Oxide as CaO	SOP/OM/105: 2021
1247.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Total Chromium as Cr or Cr ₂ O ₃	SOP/OM/105: 2021
1248.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Total Iron as Fe or Fe ₂ O ₃	SOP/OM/105: 2021
1249.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Magnesium Oxide as MgO	SOP/OM/105: 2021
1250.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Manganese Oxide as MnO	SOP/OM/105: 2021
1251.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/105: 2021
1252.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Potassium Oxide as K ₂ O	SOP/OM/105: 2021
1253.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Silica as SiO ₂	SOP/OM/105: 2021
1254.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Sodium Oxide as Na ₂ O	SOP/OM/105: 2021
1255.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Strontium Oxide as SrO	SOP/OM/105: 2021
1256.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Sulphur Oxide as SO ₃	SOP/OM/105: 2021
1257.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Titanium Oxide as TiO ₂	SOP/OM/105: 2021
1258.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Vanadium Oxide as V ₂ O ₅	SOP/OM/105: 2021
1259.	CHEMICAL/ ORES & MINERALS	Chromite Ore	Zirconium Oxide as ZrO ₂	SOP/OM/105: 2021
1260.	CHEMICAL/ ORES & MINERALS	Fluorspar	Alumina as Al ₂ O ₃	SOP/OM/056: 2019

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1261.	CHEMICAL/ ORES & MINERALS	Fluorspar	Calcium as CaCO ₃	IS 2411: 1963
1262.	CHEMICAL/ ORES & MINERALS	Fluorspar	Fluoride as CaF ₂	IS 2411: 1963
1263.	CHEMICAL/ ORES & MINERALS	Fluorspar	Iron as Fe ₂ O ₃	SOP/OM/056: 2019
1264.	CHEMICAL/ ORES & MINERALS	Fluorspar	Silica as SiO ₂	SOP/OM/056: 2019
1265.	CHEMICAL/ ORES & MINERALS	Geological Rock, Soil, Stream, Sediments, Drill Cores, Concentrates (Lead Ores and Concentrate), In process Samples	Lead as Pb	SOP/OM/066 (Issue no:01.03.2019): 2019
1266.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Sulfur (S)	SOP/OM/092: 2019
1267.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, (Copper Ores and Concentrates), Inprocess Samples	Copper (Cu)	SOP/OM/065: 2019
1268.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, (Graphite Ores and Concentrates), Inprocess Samples	Total Graphitic Carbon	SOP/OM/084: 2019
1269.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, (Nickel Ores and Concentrates), Inprocess Samples	Nickel as Ni	SOP/OM/069: 2019
1270.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores,	Arsenic (As)	SOP/OM/089: 2019

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		Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1271.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Arsenic (As)	SOP/OM/052: 2019
1272.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Barium (Ba)	SOP/OM/052: 2019
1273.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Beryllium (Be)	SOP/OM/052: 2019
1274.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Beryllium (Be)	SOP/OM/089: 2019
1275.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Boron (B)	SOP/OM/052: 2019
1276.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel	Cadmium (Cd)	SOP/OM/052: 2019

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1277.	CHEMICAL/ ORES & MINERALS	Ash/Fly Ash Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Caesium (Cs)	SOP/OM/052: 2019
1278.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cerium (Ce)	SOP/OM/052: 2019
1279.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Chromium as Cr or Cr2O3	SOP/OM/052: 2019
1280.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cobalt (Co)	SOP/OM/052: 2019
1281.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Copper (Cu)	SOP/OM/052: 2019
1282.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Dysprosium (Dy)	SOP/OM/052: 2019
1283.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores,	Erbium (Er)	SOP/OM/052: 2019

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		Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1284.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Europium (Eu)	SOP/OM/052: 2019
1285.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gadolinium (Gd)	SOP/OM/052: 2019
1286.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gallium (Ga)	SOP/OM/089: 2019
1287.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gallium (Ga)	SOP/OM/052: 2019
1288.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Germanium (Ge)	SOP/OM/052: 2019
1289.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel	Germanium (Ge)	SOP/OM/089: 2019

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1290.	CHEMICAL/ ORES & MINERALS	Ash/Fly Ash Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Hafnium (Hf)	SOP/OM/052: 2019
1291.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Holmium (Ho)	SOP/OM/052: 2019
1292.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Indium (In)	SOP/OM/052: 2019
1293.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lanthanum (La)	SOP/OM/052: 2019
1294.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lead (Pb)	SOP/OM/089: 2019
1295.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lithium (Li)	SOP/OM/089: 2019
1296.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores,	Rubidium (Rb)	SOP/OM/089: 2019

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		Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1297.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Thulium (Tm)	SOP/OM/089: 2019
1298.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tin (Sn)	SOP/OM/089: 2019
1299.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tungsten (W)	SOP/OM/089: 2019
1300.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Uranium (U)	SOP/OM/089: 2019
1301.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Vanadium (V)	SOP/OM/089: 2019
1302.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel	Ytterbium (Yb)	SOP/OM/089: 2019

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1303.	CHEMICAL/ ORES & MINERALS	Ash/Fly Ash Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Yttrium (Y)	SOP/OM/089: 2019
1304.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zinc (Zn)	SOP/OM/089: 2019
1305.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zirconium (Zr)	SOP/OM/089: 2019
1306.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Alumina as Al ₂ O ₃	SOP/OM/056: 2019
1307.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Alumina as Al ₂ O ₃	SOP/OM/049: 2019
1308.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Aluminium (Al)	SOP/OM/051: 2019
1309.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores,	Aluminum Oxide as Al ₂ O ₃	SOP/OM/105: 2021

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		Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1310.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Antimony (Sb)	SOP/OM/051: 2019
1311.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Antimony (Sb)	SOP/OM/059: 2019
1312.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Antimony (Sb)	SOP/OM/052: 2019
1313.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Antimony (Sb)	SOP/OM/056: 2019
1314.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Antimony (Sb)	SOP/OM/089: 2019
1315.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel	Antimony (Sb)	SOP/OM/085: 2019

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1316.	CHEMICAL/ ORES & MINERALS	Ash/Fly Ash Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Arsenic (As)	SOP/OM/085: 2019
1317.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Arsenic (As)	SOP/OM/091: 2019
1318.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Arsenic (As)	SOP/OM/051: 2019
1319.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Arsenic (As)	SOP/OM/059: 2019
1320.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Barium (Ba)	SOP/OM/051: 2019
1321.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Barium (Ba)	SOP/OM/089: 2019
1322.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores,	Barium (Ba)	SOP/OM/091: 2019

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		Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1323.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Barium as BaO	SOP/OM/105: 2021
1324.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Barium Oxide (BaO)	SOP/OM/056: 2019
1325.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Barium Oxide as BaO	SOP/OM/049: 2019
1326.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Beryllium (Be)	SOP/OM/091: 2019
1327.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Bismuth (Bi)	SOP/OM/085: 2019
1328.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Bismuth (Bi)	SOP/OM/059: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1329.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Bismuth (Bi)	SOP/OM/051: 2019
1330.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Bismuth (Bi)	SOP/OM/052: 2019
1331.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Bismuth (Bi)	SOP/OM/089: 2019
1332.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Boron (B)	SOP/OM/091: 2019
1333.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Bromide (Br)	SOP/OM/086: 2019
1334.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Bulk Density	IS 5842: 1986
1335.	CHEMICAL/	Geological Rocks, Soils, Stream	Cadmium (Cd)	SOP/OM/059: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1336.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cadmium (Cd)	SOP/OM/051: 2019
1337.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cadmium (Cd)	SOP/OM/089: 2019
1338.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cadmium (Cd)	SOP/OM/091: 2019
1339.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Caesium (Cs)	SOP/OM/091: 2019
1340.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Calcium (Ca)	SOP/OM/051: 2019
1341.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Calcium Oxide as CaO	SOP/OM/049: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1342.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Calcium Oxide as CaO	SOP/OM/056: 2019
1343.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Calcium Oxide as CaO	SOP/OM/105: 2021
1344.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cerium (Ce)	SOP/OM/089: 2019
1345.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cerium (Ce)	SOP/OM/091: 2019
1346.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cesium (Cs)	SOP/OM/089: 2019
1347.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Chloride as Cl	SOP/OM/086: 2019
1348.	CHEMICAL/	Geological Rocks, Soils, Stream	Total Chromium as Cr or	SOP/OM/091: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cr2O3	
1349.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Chromium as Cr or Cr2O3	SOP/OM/089: 2019
1350.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Chromium as Cr or Cr2O3	SOP/OM/059: 2019
1351.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Chromium as Cr or Cr2O3	SOP/OM/051: 2019
1352.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Chromium as Cr or Cr2O3	SOP/OM/056: 2019
1353.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Chromium as Cr or Cr2O3	SOP/OM/105: 2021
1354.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Total Chromium as Cr or Cr2O3	SOP/OM/049: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1355.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cobalt (Co)	SOP/OM/091: 2019
1356.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cobalt (Co)	SOP/OM/056: 2019
1357.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cobalt (Co)	SOP/OM/051: 2019
1358.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cobalt (Co)	SOP/OM/059: 2019
1359.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Cobalt (Co)	SOP/OM/089: 2019
1360.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Copper (Cu)	SOP/OM/089: 2019
1361.	CHEMICAL/	Geological Rocks, Soils, Stream	Copper (Cu)	SOP/OM/056: 2019

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S.No	Discipline / Group	Materials or Products tested	Component, parameter or characteristic tested / Specific Test Performed / Tests or type of tests Performed	Test Method Specification against which tests are performed and / or the techniques / equipment used
	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1362.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Copper (Cu)	SOP/OM/059: 2019
1363.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Copper (Cu)	SOP/OM/051: 2019
1364.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Copper (Cu)	SOP/OM/091: 2019
1365.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Copper Oxide as CuO	SOP/OM/105: 2021
1366.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Dysprosium (Dy)	SOP/OM/089: 2019
1367.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Dysprosium (Dy)	SOP/OM/091: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1368.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Erbium (Er)	SOP/OM/091: 2019
1369.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Erbium (Er)	SOP/OM/089: 2019
1370.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Europium (Eu)	SOP/OM/089: 2019
1371.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Europium (Eu)	SOP/OM/091: 2019
1372.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Fluoride as F	SOP/OM/085: 2019
1373.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gadolinium (Gd)	SOP/OM/091: 2019
1374.	CHEMICAL/	Geological Rocks, Soils, Stream	Gadolinium (Gd)	SOP/OM/089: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1375.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Galium (Ga)	SOP/OM/051: 2019
1376.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Galium (Ga)	SOP/OM/059: 2019
1377.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gallium (Ga)	SOP/OM/091: 2019
1378.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Germanium (Ge)	SOP/OM/091: 2019
1379.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gold (Au)	SOP/OM/095: 2019
1380.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Gold (Au)	SOP/OM/087: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1381.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gold (Au)	SOP/OM/104: 2021
1382.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gold as Au	SOP/OM/055: 2019
1383.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gold as Au	SOP/OM/057: 2019
1384.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gold as Au	SOP/OM/053: 2019
1385.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gold as Au	SOP/OM/054: 2019
1386.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Gold as Au	SOP/OM/058: 2019
1387.	CHEMICAL/	Geological Rocks, Soils, Stream	Hafnium (Hf)	SOP/OM/091: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1388.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Hafnium (Hf)	SOP/OM/089: 2019
1389.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Holmium (Ho)	SOP/OM/089: 2019
1390.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Holmium (Ho)	SOP/OM/091: 2019
1391.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Indium (In)	SOP/OM/091: 2019
1392.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Indium (In)	SOP/OM/089: 2019
1393.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Iodide as I	SOP/OM/086: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1394.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Iridium as Ir	SOP/OM/055: 2019
1395.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Iron as Fe or Fe ₂ O ₃	SOP/OM/051: 2019
1396.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Iron as Fe or Fe ₂ O ₃	SOP/OM/059: 2019
1397.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Iron as Fe or Fe ₂ O ₃	SOP/OM/049: 2019
1398.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Iron as Fe or Fe ₂ O ₃	SOP/OM/056: 2019
1399.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Iron as Fe or Fe ₂ O ₃	SOP/OM/105: 2021
1400.	CHEMICAL/	Geological Rocks, Soils, Stream	Lanthanum (La)	SOP/OM/089: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1401.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lanthanum (La)	SOP/OM/091: 2019
1402.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lead (Pb)	SOP/OM/091: 2019
1403.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lead (Pb)	SOP/OM/051: 2019
1404.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lead (Pb)	SOP/OM/059: 2019
1405.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lead (Pb)	SOP/OM/056: 2019
1406.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Lead (Pb)	SOP/OM/052: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1407.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lead (Pb)	SOP/OM/051: 2019
1408.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lead Oxide as PbO	SOP/OM/105: 2021
1409.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lithium (Li)	SOP/OM/052: 2019
1410.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lithium (Li)	SOP/OM/091: 2019
1411.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lutetium (Lu)	SOP/OM/091: 2019
1412.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Lutetium (Lu)	SOP/OM/052: 2019
1413.	CHEMICAL/	Geological Rocks, Soils, Stream	Lutetium (Lu)	SOP/OM/089: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1414.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Magnesium (Mg)	SOP/OM/051: 2019
1415.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Magnesium Oxide as MgO	SOP/OM/049: 2019
1416.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Magnesium Oxide as MgO	SOP/OM/056: 2019
1417.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Magnesium Oxide as MgO	SOP/OM/105: 2021
1418.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Manganese as Mn, MnO or Mn2O3	SOP/OM/059: 2019
1419.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Total Manganese as Mn, MnO or Mn2O3	SOP/OM/051: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1420.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Manganese as Mn, MnO or Mn2O3	SOP/OM/049: 2019
1421.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Manganese as Mn, MnO or Mn2O3	SOP/OM/056: 2019
1422.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Manganese as Mn, MnO or Mn2O3	SOP/OM/105: 2021
1423.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Mercury (Hg)	SOP/OM/059: 2019
1424.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Mercury as Hg	SOP/OM/085: 2019
1425.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Molybdenum (Mo)	SOP/OM/091: 2019
1426.	CHEMICAL/	Geological Rocks, Soils, Stream	Molybdenum (Mo)	SOP/OM/051: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1427.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Molybdenum (Mo)	SOP/OM/089: 2019
1428.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Molybdenum (Mo)	SOP/OM/052: 2019
1429.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Neodymium (Nd)	SOP/OM/052: 2019
1430.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Neodymium (Nd)	SOP/OM/089: 2019
1431.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Neodymium (Nd)	SOP/OM/091: 2019
1432.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Nickel (Ni)	SOP/OM/091: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1433.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Nickel (Ni)	SOP/OM/089: 2019
1434.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Nickel (Ni)	SOP/OM/052: 2019
1435.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Nickel (Ni)	SOP/OM/056: 2019
1436.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Nickel (Ni)	SOP/OM/059: 2019
1437.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Nickel (Ni)	SOP/OM/051: 2019
1438.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Nickel Oxide as NiO	SOP/OM/105: 2021
1439.	CHEMICAL/	Geological Rocks, Soils, Stream	Niobium (Nb)	SOP/OM/056: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1440.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Niobium (Nb)	SOP/OM/052: 2019
1441.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Niobium (Nb)	SOP/OM/089: 2019
1442.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Niobium (Nb)	SOP/OM/091: 2019
1443.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Osmium as Os	SOP/OM/055: 2019
1444.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Palladium as Pd	SOP/OM/055: 2019
1445.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Palladium as Pd	SOP/OM/053: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1446.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Palladium as Pd	SOP/OM/054: 2019
1447.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Palladium as Pd	SOP/OM/057: 2019
1448.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/056: 2019
1449.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/105: 2021
1450.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/049: 2019
1451.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Phosphorus (P)	IS 9386: 1979
1452.	CHEMICAL/	Geological Rocks, Soils, Stream	Phosphorus as P	SOP/OM/051: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1453.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Platinum as Pt	SOP/OM/055: 2019
1454.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Platinum as Pt	SOP/OM/057: 2019
1455.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Platinum as Pt	SOP/OM/053: 2019
1456.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Platinum as Pt	SOP/OM/054: 2019
1457.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Potassium Oxide as K ₂ O	SOP/OM/049: 2019
1458.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Potassium Oxide as K ₂ O	SOP/OM/056: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1459.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Potassium Oxide as K ₂ O	SOP/OM/105: 2021
1460.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Potassium (K)	SOP/OM/051: 2019
1461.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Praseodymium (Pr)	SOP/OM/091: 2019
1462.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Praseodymium (Pr)	SOP/OM/089: 2019
1463.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Praseodymium (Pr)	SOP/OM/052: 2019
1464.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Rhenium (Re)	SOP/OM/052: 2019
1465.	CHEMICAL/	Geological Rocks, Soils, Stream	Rhenium (Re)	SOP/OM/091: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1466.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Rhodium as Rh	SOP/OM/055: 2019
1467.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Rubidium (Rb)	SOP/OM/091: 2019
1468.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Rubidium (Rb)	SOP/OM/052: 2019
1469.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Ruthenium Ru	SOP/OM/055: 2019
1470.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Samarium (Sm)	SOP/OM/091: 2019
1471.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Samarium (Sm)	SOP/OM/052: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1472.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Samarium (Sm)	SOP/OM/089: 2019
1473.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Scandium (Sc)	SOP/OM/089: 2019
1474.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Scandium (Sc)	SOP/OM/052: 2019
1475.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Scandium (Sc)	SOP/OM/051: 2019
1476.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Scandium (Sc)	SOP/OM/091: 2019
1477.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Selenium (Se)	SOP/OM/091: 2019
1478.	CHEMICAL/	Geological Rocks, Soils, Stream	Selenium (Se)	SOP/OM/052: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1479.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Selenium (Se)	SOP/OM/089: 2019
1480.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Selenium as Se	SOP/OM/085: 2019
1481.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Silica (SiO ₂)	SOP/OM/056: 2019
1482.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Silica as SiO ₂	SOP/OM/105: 2021
1483.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Silica as SiO ₂	SOP/OM/049: 2019
1484.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Silver (Ag)	SOP/OM/091: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1485.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Silver (Ag)	SOP/OM/051: 2019
1486.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Silver (Ag)	SOP/OM/059: 2019
1487.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Silver (Ag)	SOP/OM/089: 2019
1488.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Silver (Ag)	SOP/OM/052: 2019
1489.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Silver as Ag	SOP/OM/080: 2019
1490.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Sodium (Na)	SOP/OM/051: 2019
1491.	CHEMICAL/	Geological Rocks, Soils, Stream	Sodium Oxide as Na ₂ O	SOP/OM/049: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1492.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Sodium Oxide as Na ₂ O	SOP/OM105: 2021
1493.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Strontium (Sr)	SOP/OM/051: 2019
1494.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Strontium (Sr)	SOP/OM/052: 2019
1495.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Strontium (Sr)	SOP/OM/089: 2019
1496.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Strontium (Sr)	SOP/OM/091: 2019
1497.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Strontium Oxide as SrO	SOP/OM/056: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1498.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Strontium Oxide as SrO	SOP/OM/105: 2021
1499.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Sulphate Sulphur	SOP/OM/076: 2019
1500.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Sulphur (S)	SOP/OM/056: 2019
1501.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Sulphur (S)	SOP/OM/059: 2019
1502.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Sulphur as S	SOP/OM/051: 2019
1503.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Sulphur Oxide as SO ₃	SOP/OM/105: 2021
1504.	CHEMICAL/	Geological Rocks, Soils, Stream	Tantalum (Ta)	SOP/OM/056: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1505.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tantalum (Ta)	SOP/OM/089: 2019
1506.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tantalum (Ta)	SOP/OM/052: 2019
1507.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tantalum (Ta)	SOP/OM/091: 2019
1508.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tellurium (Te)	SOP/OM/052: 2019
1509.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tellurium (Te)	SOP/OM/089: 2019
1510.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Tellurium (Te)	SOP/OM/091: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1511.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Telurium (Te)	SOP/OM/051: 2019
1512.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Telurium (Te)	SOP/OM/059: 2019
1513.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Terbium (Tb)	SOP/OM/091: 2019
1514.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Terbium (Tb)	SOP/OM/089: 2019
1515.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Terbium (Tb)	SOP/OM/052: 2019
1516.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Thallium (Tl)	SOP/OM/052: 2019
1517.	CHEMICAL/	Geological Rocks, Soils, Stream	Thallium (Tl)	SOP/OM/089: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1518.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Thallium (Tl)	SOP/OM/091: 2019
1519.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Thallium (Tl)	SOP/OM/059: 2019
1520.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Thallium (Tl)	SOP/OM/051: 2019
1521.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Thorium (Th)	SOP/OM/091: 2019
1522.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Thorium (Th)	SOP/OM/052: 2019
1523.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Thorium (Th)	SOP/OM/089: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1524.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Thulium (Tm)	SOP/OM/052: 2019
1525.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Thulium (Tm)	SOP/OM/091: 2019
1526.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tin (Sn)	SOP/OM/091: 2019
1527.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tin (Sn)	SOP/OM/051: 2019
1528.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tin (Sn)	SOP/OM/059: 2019
1529.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tin (Sn)	SOP/OM/052: 2019
1530.	CHEMICAL/	Geological Rocks, Soils, Stream	Tin (Sn)	SOP/OM/056: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1531.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tin as Sn	SOP/OM/072: 2019
1532.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Titanium (Ti)	SOP/OM/051: 2019
1533.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Titanium as TiO ₂	SOP/OM/073: 2019
1534.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Titanium Dioxide as TiO ₂	SOP/OM/056: 2019
1535.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Titanium Oxide as TiO ₂	SOP/OM/105: 2021
1536.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Titanium Oxide as TiO ₂	SOP/OM/049: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1537.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Total Moisture	IS 1493 Part 1: 1981
1538.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tungsten (W)	SOP/OM/052: 2019
1539.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tungsten (W)	SOP/OM/091: 2019
1540.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Tungsten (W)	SOP/OM/051: 2019
1541.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Uranium (U)	SOP/OM/091: 2019
1542.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Uranium (U)	SOP/OM/052: 2019
1543.	CHEMICAL/	Geological Rocks, Soils, Stream	Vanadium (V)	SOP/OM/052: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1544.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Vanadium (V)	SOP/OM/051: 2019
1545.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Vanadium (V)	SOP/OM/091: 2019
1546.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Vanadium Oxide as V2O5	SOP/OM/105: 2021
1547.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Ytterbium (Yb)	SOP/OM/052: 2019
1548.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Ytterbium (Yb)	SOP/OM/091: 2019
1549.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Yttrium (Y)	SOP/OM/091: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1550.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Yttrium (Y)	SOP/OM/052: 2019
1551.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zinc (Zn)	SOP/OM/052: 2019
1552.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zinc (Zn)	SOP/OM/059: 2019
1553.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zinc (Zn)	SOP/OM/056: 2019
1554.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zinc (Zn)	SOP/OM/051: 2019
1555.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zinc (Zn)	SOP/OM/051: 2019
1556.	CHEMICAL/	Geological Rocks, Soils, Stream	Zinc (Zn)	SOP/OM/091: 2019

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	ORES & MINERALS	Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash		
1557.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zinc as Zn	SOP/OM/067: 2019
1558.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zinc Oxide as ZnO	SOP/OM/105: 2021
1559.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zirconium (Zr)	SOP/OM/051: 2019
1560.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zirconium (Zr)	SOP/OM/052: 2019
1561.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zirconium (Zr)	SOP/OM/091: 2019
1562.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by	Zirconium Oxide as ZrO ₂	SOP/OM/049: 2019

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		Products, Slimes, Slags, Fuel Ash/Fly Ash		
1563.	CHEMICAL/ ORES & MINERALS	Geological Rocks, Soils, Stream Sediments, Drill Cores, Concentrates, Inprocess Samples, Mineral Process by Products, Slimes, Slags, Fuel Ash/Fly Ash	Zirconium Oxide as ZrO ₂	SOP/OM/105: 2021
1564.	CHEMICAL/ ORES & MINERALS	Graphite	Ash	IS 1350 P.1: 1984
1565.	CHEMICAL/ ORES & MINERALS	Graphite	Fixed Carbon/ Graphite Carbon	IS 1350 P.2: 2017
1566.	CHEMICAL/ ORES & MINERALS	Graphite	Moisture	IS 1350 P.1: 1984
1567.	CHEMICAL/ ORES & MINERALS	Graphite	Volatile Matter	IS 1350 P.1: 1984
1568.	CHEMICAL/ ORES & MINERALS	Gypsum	Aluminium as Al ₂ O ₃	SOP/OM/051: 2019
1569.	CHEMICAL/ ORES & MINERALS	Gypsum	Calcium as CaO	IS 1288: 1982
1570.	CHEMICAL/ ORES & MINERALS	Gypsum	Combined Water	IS 1288: 1982
1571.	CHEMICAL/ ORES & MINERALS	Gypsum	Free Water	IS 1288: 1982
1572.	CHEMICAL/ ORES & MINERALS	Gypsum	Iron as Fe ₂ O ₃	SOP/OM/051: 2019
1573.	CHEMICAL/ ORES & MINERALS	Gypsum	Magnesium as MgO	SOP/OM/051: 2019
1574.	CHEMICAL/ ORES & MINERALS	Gypsum	Purity as CaSO ₄ .2H ₂ O	IS 1288: 1982
1575.	CHEMICAL/ ORES & MINERALS	Gypsum	Silica as SiO ₂	IS 1288: 1982
1576.	CHEMICAL/ ORES & MINERALS	Gypsum	Sulphate Sulphur	SOP/OM/076: 2019
1577.	CHEMICAL/ ORES & MINERALS	Gypsum	Sulphur as SO ₃	IS 1288: 1982
1578.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Sulphur Oxide as SO ₃	SOP/OM/105: 2021

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1579.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Aluminum Oxide as Al ₂ O ₃	SOP/OM/105: 2021
1580.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Barium Oxide as BaO	SOP/OM/105: 2021
1581.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Calcium Oxide as CaO	SOP/OM/105: 2021
1582.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Chromium Oxide as Cr ₂ O ₃	SOP/OM/105: 2021
1583.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Iron Oxide as Fe ₂ O ₃	SOP/OM/105: 2021
1584.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Magnesium Oxide as MgO	SOP/OM/105: 2021
1585.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Manganese Oxide as MnO	SOP/OM/105: 2021
1586.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/105: 2021
1587.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Potassium Oxide as K ₂ O	SOP/OM/105: 2021
1588.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Silica as SiO ₂	SOP/OM/105: 2021
1589.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Sodium Oxide as Na ₂ O	SOP/OM/105: 2021
1590.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Strontium Oxide as SrO	SOP/OM/105: 2021
1591.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Titanium Oxide as TiO ₂	SOP/OM/105: 2021
1592.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Vanadium Oxide as V ₂ O ₅	SOP/OM/105: 2021
1593.	CHEMICAL/ ORES & MINERALS	Ilmenite, Rutile, and Titanite	Zirconium Oxide as ZrO ₂	SOP/OM/105: 2021
1594.	CHEMICAL/ ORES & MINERALS	Iron Ore	Alumina as Al ₂ O ₃	IS 1493 Part 1: 1981
1595.	CHEMICAL/ ORES & MINERALS	Iron Ore	Aluminum Oxide as Al ₂ O ₃	SOP/OM/105: 2021
1596.	CHEMICAL/ ORES & MINERALS	Iron Ore	Barium Oxide as BaO	SOP/OM/105: 2021
1597.	CHEMICAL/ ORES & MINERALS	Iron Ore	Calcium Oxide as CaO	SOP/OM/105: 2021

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1598.	CHEMICAL/ ORES & MINERALS	Iron Ore	Chromium Oxide as Cr ₂ O ₃	SOP/OM/105: 2021
1599.	CHEMICAL/ ORES & MINERALS	Iron Ore	Ferrous Iron as FeO	ASTM D3872: 1986
1600.	CHEMICAL/ ORES & MINERALS	Iron Ore	Total Iron as Fe or Fe ₂ O ₃	SOP/OM/105: 2021
1601.	CHEMICAL/ ORES & MINERALS	Iron Ore	Magnesium Oxide as MgO	SOP/OM/105: 2021
1602.	CHEMICAL/ ORES & MINERALS	Iron Ore	Total Manganese as Mn, MnO or Mn ₂ O ₃	IS 1493 Part 1: 1981
1603.	CHEMICAL/ ORES & MINERALS	Iron Ore	Total Manganese as Mn, MnO or Mn ₂ O ₃	SOP/OM/105: 2021
1604.	CHEMICAL/ ORES & MINERALS	Iron Ore	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/105: 2021
1605.	CHEMICAL/ ORES & MINERALS	Iron Ore	Phosphorus as P	IS 1493 Part 1: 1981
1606.	CHEMICAL/ ORES & MINERALS	Iron Ore	Potassium Oxide as K ₂ O	SOP/OM/105: 2021
1607.	CHEMICAL/ ORES & MINERALS	Iron Ore	Silica as SiO ₂	SOP/OM/105: 2021
1608.	CHEMICAL/ ORES & MINERALS	Iron Ore	Silica as SiO ₂	IS 1493 Part 1: 1981
1609.	CHEMICAL/ ORES & MINERALS	Iron Ore	Sodium Oxide as Na ₂ O	SOP/OM/105: 2021
1610.	CHEMICAL/ ORES & MINERALS	Iron Ore	Strontium Oxide as SrO	SOP/OM/105: 2021
1611.	CHEMICAL/ ORES & MINERALS	Iron Ore	Sulphur Oxide as SO ₃	SOP/OM/105: 2021
1612.	CHEMICAL/ ORES & MINERALS	Iron Ore	Titanium Oxide as TiO ₂	SOP/OM/105: 2021
1613.	CHEMICAL/ ORES & MINERALS	Iron Ore	Total Iron as Fe	IS 1493 Part 1: 1981
1614.	CHEMICAL/ ORES & MINERALS	Iron Ore	Total Moisture	IS 1493 P1: 1981
1615.	CHEMICAL/ ORES & MINERALS	Iron Ore	Total Sulfur (S)	IS 1493 Part 1: 1981
1616.	CHEMICAL/ ORES & MINERALS	Iron Ore	Vanadium Oxide as V ₂ O ₅	SOP/OM/105: 2021

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S.No	Discipline / Group	Materials or Products tested	Component, parameter or characteristic tested / Specific Test Performed / Tests or type of tests Performed	Test Method Specification against which tests are performed and / or the techniques / equipment used
1617.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite and Allied Materials	Alumina as Al_2O_3	SOP/OM/051: 2019
1618.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite and Allied Materials	Calcium as CaO	IS 1760 P3: 1992
1619.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite and Allied Materials	Free Silica as SiO_2	IS 1760 P6: 2001
1620.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite and Allied Materials	Iron as Fe_2O_3	SOP/OM/051: 2019
1621.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite and Allied Materials	Loss On Ignition LOI	IS 1760 P1: 1991
1622.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite and Allied Materials	Magnesium as MgO	SOP/OM/051: 2019
1623.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite and Allied Materials	Silica as SiO_2	IS 1760 P2: 1991
1624.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Aluminum Oxide as Al_2O_3	SOP/OM/105: 2021
1625.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Barium Oxide as BaO	SOP/OM/105: 2021
1626.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Calcium Oxide as CaO	SOP/OM/105: 2021
1627.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Chromium Oxide as Cr_2O_3	SOP/OM/105: 2021
1628.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Iron Oxide as Fe_2O_3	SOP/OM/105: 2021
1629.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Magnesium Oxide as MgO	SOP/OM/105: 2021
1630.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Manganese Oxide as MnO	SOP/OM/105: 2021
1631.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Phosphorous Pentoxide as P_2O_5	SOP/OM/105: 2021
1632.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Potassium Oxide as K_2O	SOP/OM/105: 2021
1633.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Silica as SiO_2	SOP/OM/105: 2021
1634.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Sodium Oxide as Na ₂ O	SOP/OM/105: 2021
1635.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Strontium Oxide as SrO	SOP/OM/105: 2021

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National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name Shiva Analyticals (India) Private Limited, Plot No. 24D (P) and 34D, KIADB Industrial Area, Bengaluru, Karnataka

Accreditation Standard ISO/IEC 17025: 2017

Certificate No. TC-12626

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Validity 31.01.2024 to 30.01.2026

Last Amended on 18.04.2024

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1636.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Sulphur Oxide as SO ₃	SOP/OM/105: 2021
1637.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Titanium Oxide as TiO ₂	SOP/OM/105: 2021
1638.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Vanadium Oxide as V ₂ O ₅	SOP/OM/105: 2021
1639.	CHEMICAL/ ORES & MINERALS	Limestone, Dolomite, Magnesite and Allied materials	Zirconium Oxide as ZrO ₂	SOP/OM/105: 2021
1640.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Aluminum Oxide as Al ₂ O ₃	SOP/OM/105: 2021
1641.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Barium Oxide as BaO	SOP/OM/105: 2021
1642.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Calcium Oxide as CaO	SOP/OM/105: 2021
1643.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Total Chromium as Cr or Cr ₂ O ₃	SOP/OM/105: 2021
1644.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Total Iron as Fe or Fe ₂ O ₃	IS 1473: 2004
1645.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Manganese DiOxide as MnO ₂	IS 1473: 2004
1646.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Total Iron as Fe or Fe ₂ O ₃	SOP/OM/105: 2021
1647.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Magnesium as MgO	SOP/OM/105: 2021
1648.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Total Manganese as Mn, MnO or Mn ₂ O ₃	IS 1473: 2004
1649.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Total Manganese as Mn, MnO or Mn ₂ O ₃	SOP/OM/105: 2021
1650.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Phosphorous as P	SOP/OM/051: 2019
1651.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/105: 2021
1652.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Potassium Oxide as K ₂ O	SOP/OM/105: 2021
1653.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Silica as SiO ₂	SOP/OM/105: 2021
1654.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Silica as SiO ₂	IS 1473: 2004

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1655.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Sodium Oxide as Na ₂ O	SOP/OM/105: 2021
1656.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Sulphur Oxide as SO ₃	SOP/OM/105: 2021
1657.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Titanium Oxide as TiO ₂	SOP/OM/105: 2021
1658.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Vanadium Oxide as V ₂ O ₅	SOP/OM/105: 2021
1659.	CHEMICAL/ ORES & MINERALS	Manganese Ore	Zirconium Oxide as ZrO ₂	SOP/OM/105: 2021
1660.	CHEMICAL/ ORES & MINERALS	Niobium Ore	Niobium (Nb)	SOP/OM/071: 2019
1661.	CHEMICAL/ ORES & MINERALS	Ores & Minerals Sample Preparation	Drying Crushing Pulverizing	ASTM-E877-13: 2017
1662.	CHEMICAL/ ORES & MINERALS	Quartzite, Barite, Clay, Laterite, Feldspar, Ilmenite, Syenite, Rutile, Titanite	Silica as SiO ₂	IS 1917 P.3: 1992
1663.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Aluminum Oxide as Al ₂ O ₃	SOP/OM/105: 2021
1664.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Barium Oxide as BaO	SOP/OM/105: 2021
1665.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Calcium Oxide as CaO	SOP/OM/105: 2021
1666.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Chromium Oxide as Cr ₂ O ₃	SOP/OM/105: 2021
1667.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Iron Oxide as Fe ₂ O ₃	SOP/OM/105: 2021
1668.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Magnesium Oxide as MgO	SOP/OM/105: 2021
1669.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Manganese Oxide as MnO	SOP/OM/105: 2021
1670.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/105: 2021
1671.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Potassium Oxide as K ₂ O	SOP/OM/105: 2021
1672.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Silica as SiO ₂	SOP/OM/105: 2021
1673.	CHEMICAL/	Rock Phosphate	Sodium Oxide as Na ₂ O	SOP/OM/105: 2021

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	ORES & MINERALS			
1674.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Strontium Oxide as SrO	SOP/OM/105: 2021
1675.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Sulphur Oxide as SO ₃	SOP/OM/105: 2021
1676.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Titanium Oxide as TiO ₂	SOP/OM/105: 2021
1677.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Vanadium Oxide as V ₂ O ₅	SOP/OM/105: 2021
1678.	CHEMICAL/ ORES & MINERALS	Rock Phosphate	Zirconium Oxide as ZrO ₂	SOP/OM/105: 2021
1679.	CHEMICAL/ ORES & MINERALS	Rock Soil Stream Sediments	Chloride as Cl	SOP/OM/050: 2019
1680.	CHEMICAL/ ORES & MINERALS	Rock Soil Stream Sediments	Fluoride	SOP/OM/074: 2019
1681.	CHEMICAL/ ORES & MINERALS	Rock Soil Stream Sediments	Specific Gravity	SOP/OM/075: 2019
1682.	CHEMICAL/ ORES & MINERALS	Rock Soil Stream Sediments Samples	Loss on Ignition	SOP/OM/103: 2021
1683.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Silica as SiO ₂	SOP/OM/105: 2021
1684.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Aluminum Oxide as Al ₂ O ₃	SOP/OM/105: 2021
1685.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Barium Oxide as BaO	SOP/OM/105: 2021
1686.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Calcium Oxide as CaO	SOP/OM/105: 2021
1687.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Chromium Oxide as Cr ₂ O ₃	SOP/OM/105: 2021
1688.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Iron Oxide as Fe ₂ O ₃	SOP/OM/105: 2021
1689.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Magnesium Oxide as MgO	SOP/OM/105: 2021
1690.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Manganese Oxide as MnO	SOP/OM/105: 2021
1691.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Phosphorous Pentoxide as P ₂ O ₅	SOP/OM/105: 2021
1692.	CHEMICAL/	Syenite, Quartzite, Barite, Clay,	Potassium Oxide as	SOP/OM/105: 2021

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	ORES & MINERALS	Laterite and Feldspar	K ₂ O	
1693.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Sodium Oxide as Na ₂ O	SOP/OM/105: 2021
1694.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Sulphur Oxide as SO ₃	SOP/OM/105: 2021
1695.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Titanium Oxide as TiO ₂	SOP/OM/105: 2021
1696.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Vanadium Oxide as V ₂ O ₅	SOP/OM/105: 2021
1697.	CHEMICAL/ ORES & MINERALS	Syenite, Quartzite, Barite, Clay, Laterite and Feldspar	Zirconium Oxide as ZrO ₂	SOP/OM/105: 2021
1698.	CHEMICAL/ ORES & MINERALS	Tantalum Ore	Tantalum (Ta)	SOP/OM/070: 2019
1699.	CHEMICAL/ ANIMAL FOOD & FEEDS	Animal Feed including Fish and Shrimp Feed, Cattle Feed, Poultry & Bird Feed, Pet Feed Products	Acid Insoluble Ash	IS 2052
1700.	CHEMICAL/ ANIMAL FOOD & FEEDS	Animal Feed including Fish and Shrimp Feed, Cattle Feed, Poultry & Bird Feed, Pet Feed Products	Ash	IS 7874 (Part-1)
1701.	CHEMICAL/ ANIMAL FOOD & FEEDS	Animal Feed including Fish and Shrimp Feed, Cattle Feed, Poultry & Bird Feed, Pet Feed Products	Carbohydrates	IS 1656: 2007
1702.	CHEMICAL/ ANIMAL FOOD & FEEDS	Animal Feed including Fish and Shrimp Feed, Cattle Feed, Poultry & Bird Feed, Pet Feed Products	Chlorides as Cl	Clause 4 of IS 7874 (Part 2)
1703.	CHEMICAL/ ANIMAL FOOD & FEEDS	Animal Feed including Fish and Shrimp Feed, Cattle Feed, Poultry & Bird Feed, Pet Feed Products	Crude Fiber	IS 2052
1704.	CHEMICAL/ ANIMAL FOOD & FEEDS	Animal Feed including Fish and Shrimp Feed, Cattle Feed, Poultry & Bird Feed, Pet Feed Products	Energy	SAIL/FOOD/MQA/F001
1705.	CHEMICAL/ ANIMAL FOOD &	Animal Feed including Fish and Shrimp Feed, Cattle Feed,	Fat	IS 2052

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Certificate

This Certificate is issued to

KIOCL Limited
2nd Block, Koramangala
Sarjapura Road
Bengaluru 560 034
Karnataka
INDIA

Pellet Plant Unit, Panambur, Mangaluru - 575 010, Karnataka, India
Blast Furnace Unit, Panambur, Mangaluru - 575 010, Karnataka, India

who have implemented an Integrated Management System (Consisting of Quality Management Systems as per ISO 9001:2015, Environmental Management Systems as per ISO 14001:2015 and Occupational Health & Safety Management Systems as per ISO 45001:2018), with the following scope:

Production and Dispatch of Iron Ore Pellets & Pig Iron

Certificate No. : IMS9100263
Original Issue : 09 November 2024
Latest Issue : 09 November 2024
Valid Till : 08 November 2027

The continuing validity of this certificate is subject to timely conduct of surveillance audits

Surveillance 1 due before : 28 October 2025
Surveillance 2 due on : 28 October 2026



for Vexil Business Process Services Private Limited
109 D, Kamla Nagar, Delhi 110 007



Integrated Management System
(ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018)

To check the validity of the certificate, please email to info@vexilbps.com
The validity of the certificate can also be verified at <http://www.vexilbps.com>
Coloured reproduction of this certificate is not permitted.
Upon request, the Certificate shall be returned to Vexil Business Process Services Private Limited.

F0824C02

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Certificate

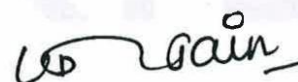
The location-wise activities included in Certificate No. IMS9100263 are:

S. No.	Location	Certified activities
1.	KIOCL Limited PPU Unit, Panambur Mangalore 575 010 India	Unit Management Production (Pellets), Operation, Process Control, Mechanical Maintenance, Electrical Maintenance, Instrumentation, Environmental Monitoring, Safety & Training, OHC, Stores, Dispatch, HR and Contracts
2.	KIOCL Limited BFU Unit, Panambur Mangalore 575 010 India	Unit Management Production (Pig Iron), Operation, Process Control, Mechanical Maintenance, Electrical Maintenance, Instrumentation, Environmental Monitoring, Safety & Training, OHC, Stores, Dispatch, HR and Contracts
3.	KIOCL Limited 2 nd Block, Koramangala Sarjapura Road Bengaluru 560 034 India	Top Management, MR Functions, Purchase, Commercial and Technical Services

Valid Till : 08 November 2027

*The continuing validity of this certificate is subject to
timely conduct of surveillance audits*

Surveillance 1 due before : 28 October 2025
Surveillance 2 due on : 28 October 2026



for Vexil Business Process Services Private Limited
109 D, Kamla Nagar, Delhi 110 007



Integrated Management System
(ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018)

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GEOTECHNICAL LOGGING DATA

SRB-01

DATE OF STARTING						9/30/2025		NAME OF PROSPECT										SRB	
DATE OF CLOSING						10/8/2025		BH ID										SRB-01	
AZIMUTH						N2700													
ANGLE						50°		EASTING										0225486 E	
PROPOSED DEPTH						70.00 m		NORTHING										1364951 N	
AVG RQD%						51.23%		RL_m										433 m	
Recovery%						93.78%		FINAL Depth										70.00 m	
RUN NO	FROM	TO	RUN LENGTH (m)	RECOVERY (cm)	RECOVERY %	LENGTH OF PIECES > 10 cm										TOTAL LENGTH OF PIECES >10cm	RQD %	Lithology	
1	0.00	1.00	1.00	90.00	90											0.00	0.00	Red Soil	
2	1.00	2.00	1.00	90.00	90											0.00	0.00	Red Soil	
3	2.00	3.00	1.00	90.00	90											0.00	0.00	Red Soil	
4	3.00	4.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.(weartherd syenite)	
5	4.00	5.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places. (weartherd syenite)	
6	5.00	6.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places. (weartherd syenite)	
7	6.00	7.00	1.00	90.00	90	10										10.00	10.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.(weartherd syenite)	
8	7.00	8.00	1.00	90.00	90											0.00	0.00	Pyroxenite with calcite veins, medium granied	
9	8.00	9.00	1.00	90.00	90											0.00	0.00	weatherd pyroxenite and fully crushed	
10	9.00	10.00	1.00	90.00	90											0.00	0.00	weatherd pyroxenite and fully crushed	
11	10.00	11.00	1.00	90.00	90											0.00	0.00	weatherd pyroxenite and fully crushed	
12	11.00	12.00	1.00	90.00	90											0.00	0.00	weatherd pyroxenite and fully crushed	
13	12.00	13.00	1.00	90.00	90											0.00	0.00	Syenite boluders and weatherd pyroxenite and fully crushed	
14	13.00	14.00	1.00	90.00	90											0.00	0.00	weathered pyroxenite with calcite veins	
15	14.00	15.00	1.00	90.00	90											0.00	0.00	pyroxenite boulders but fully crushed	
16	15.00	16.00	1.00	90.00	90											0.00	0.00	Weathered pyroxenite and at places calcite injections.	
17	16.00	17.00	1.00	90.00	90	10	17									27.00	27.00	From run length 16.00 - 16.30 (30 cm) syenite boluders and remaining part pyroxenite . From 16.83 -17.00 (17 cm) carbonatite is observed	
18	17.00	18.00	1.00	90.00	90	50										50.00	50.00	Greyish white medium grained rock containing quartz, occasional feldspar and green colour radiating amphibole minerals (aegirine) also vein of apatite with calcitic (4cm), fractures are filled with sulphides (pyrite and chalcopyrite)	
19	18.00	19.00	1.00	90.00	90	47	22	24								93.00	93.00	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
20	19.00	20.00	1.00	98.00	98	82	15									97.00	97.00	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
21	20.00	21.00	1.00	95.00	95	60	15									75.00	75.00	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/richterite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
22	21.00	24.00	3.00	282.00	94	32	68	11	40	40	20	52	10			273.00	91.00	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	



GEOTECHNICAL LOGGING DATA

SRB-01

DATE OF STARTING						9/30/2025		NAME OF PROSPECT										SRB	
DATE OF CLOSING						10/8/2025		BH ID										SRB-01	
AZIMUTH						N2700												SRB-01	
ANGLE						50°		EASTING										0225486 E	
PROPOSED DEPTH						70.00 m		NORTHING										1364951 N	
AVG RQD%						51.23%		RL_m										433 m	
Recovery%						93.78%		FINAL Depth										70.00 m	
RUN NO	FROM	TO	RUN LENGTH (m)	RECOVERY (cm)	RECOVERY %	LENGTH OF PIECES > 10 cm										TOTAL LENGTH OF PIECES >10cm	RQD %	Lithology	
23	24.00	27.00	3.00	282.00	94	48	43	35	27	27	31	15	39	14	20	299.00	99.67	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
24	27.00	30.00	3.00	295.00	98	53	15	30	13	33	23	10	41	30	10	268.00	89.33	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
25	30.00	33.00	3.00	295.00	98	38	50	10	20	22	57	72	23			292.00	97.33	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
26	33.00	36.00	3.00	295.00	98	82	15	12	12	24	50	54	43			292.00	97.33	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. apatite is also observed buff yellow colour also occasionl sulphides (pyrite and chalcopyrite).	
27	36.00	39.00	3.00	295.00	98	86	56	20	18	66	33	10				289.00	96.33	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/richterite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasional magnetite and sulphides (pyrite and chalcopyrite) are present.	
28	39.00	42.00	3.00	295.00	98	62	36	37	40	12	30	67				284.00	94.67	From 39.00 to 39.75 runlength fine grained rock containing minor quartz, feldspar and pyroxene with fresh pyrites. from 39.75 to 42.00- Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/richterite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
29	42.00	45.00	3.00	295.00	98	71	20	96	26	49	10					272.00	90.67	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/richterite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
30	45.00	48.00	3.00	295.00	98	68	26	67	18	52	34					265.00	88.33	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
31	48.00	51.00	3.00	290.00	96	91	44	45	63	35						278.00	92.67	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
32	51.00	54.00	3.00	296.00	98	61	26	57	43	56	30					273.00	91.00	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
33	54.00	57.00	3.00	296.00	98	48	44	66	30	60	36					284.00	94.67	fine grained rock from run length 54.00 - 54.80m , from 54.80- 57.00m :Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/richterite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	



GEOTECHNICAL LOGGING DATA

SRB-01

DATE OF STARTING						9/30/2025		NAME OF PROSPECT										SRB	
DATE OF CLOSING						10/8/2025		BH ID										SRB-01	
AZIMUTH						N2700												SRB-01	
ANGLE						50°		EASTING										0225486 E	
PROPOSED DEPTH						70.00 m		NORTHING										1364951 N	
AVG RQD%						51.23%		RL_m										433 m	
Recovery%						93.78%		FINAL Depth										70.00 m	
RUN NO	FROM	TO	RUN LENGTH (m)	RECOVERY (cm)	RECOVERY %	LENGTH OF PIECES > 10 cm										TOTAL LENGTH OF PIECES >10cm	RQD %	Lithology	
34	57.00	60.00	3.00	298.00	99	95	20	38	34	72	33					292.00	97.33	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine /richterite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
35	60.00	63.00	3.00	294.00	98	44	54	22	51	12	41	41				265.00	88.33	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (richterite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
36	63.00	66.00	3.00	299.00	99	24	63	10	22	25	33	12	87			276.00	92.00	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
37	66.00	67.00	1.00	99.00	99	10	38	46								94.00	94.00	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	
38	67.00	70.00	3.00	300.00	100	41	59	37	61	35	30	20	17			300.00	100.00	Greyish white, medium-grained rock showing mixed nature. Mainly composed of quartz and biotite, with occasional feldspar. Green coloured radiating amphibole minerals (richterite) are present at places, fenitisation is observed.carbonate (calcite) veins observed. occasionl sulphides (pyrite and chalcopyrite).	



GEOTECHNICAL LOGGING DATA

SRB-02																						
DATE OF STARTING						9/29/2025				NAME OF PROSPECT				SRB								
DATE OF CLOSING						10/8/2025				BH ID				SRB-02								
AZIMUTH						N 180 ^o																
ANGLE						50 ^o				EASTING				0225623 E								
PROPOSED DEPTH						70 m				NORTHING				1364511 N								
AVG RQD%						48.29%				RL_m				434 m								
Recovery%						94.00%				FINAL Depth				70.00 m								
RUN NO	FROM	TO	RUN LENGTH (m)	RECOVERY (cm)	RECOVERY %													TOTAL LENGTH OF PIECES >10cm	RQD %	Lithology		
1	0.00	1.00	1.00	90.00	90											0.00	0.00	Red Soil				
2	1.00	2.00	1.00	90.00	90											0.00	0.00	Red Soil				
3	2.00	3.00	1.00	90.00	90											0.00	0.00	Red Soil				
4	3.00	4.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
5	4.00	5.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
6	5.00	6.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
7	6.00	7.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
8	7.00	8.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
9	8.00	9.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
10	9.00	10.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
11	10.00	11.00	1.00	90.00	90	12	17									29.00	29.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
12	11.00	12.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
13	12.00	13.00	1.00	90.00	90	12	30									42.00	42.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
14	13.00	14.00	1.00	90.00	90	15	15									30.00	30.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
15	14.00	15.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
16	15.00	16.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
17	16.00	17.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
18	17.00	18.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
19	18.00	19.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
20	19.00	20.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				
21	20.00	21.00	1.00	90.00	90											0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.				



GEOTECHNICAL LOGGING DATA

SRB-02																			
DATE OF STARTING					9/29/2025					NAME OF PROSPECT					SRB				
DATE OF CLOSING					10/8/2025					BH ID					SRB-02				
AZIMUTH					N 180°					EASTING					0225623 E				
ANGLE					50°					NORTHING					1364511 N				
PROPOSED DEPTH					70 m					RL_m					434 m				
AVG RQD%					48.29%					FINAL Depth					70.00 m				
Recovery%					94.00%														
RUN NO	FROM	TO	RUN LENGTH (m)	RECOVERY (cm)	RECOVERY %										TOTAL LENGTH OF PIECES >10cm	RQD %	Lithology		
22	21.00	22.00	1.00	90.00	90										0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.		
23	22.00	23.00	1.00	90.00	90										0.00	0.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.		
24	23.00	24.00	1.00	90.00	90	35									35.00	35.00	Weathered pale brown to yellowish brown in colour. Medium to coarse grained rock, Feldspars show alteration to clay (kaolinization), chips of pyroxenite also observed at places.		
25	24.00	25.00	1.00	90.00	90										0.00	0.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , at places pyroxenite, at places syenitic, and carbonate patches. Core is fractured, and fractures are filled with sulphides (pyrite and chalcopyrite).		
26	25.00	26.00	1.00	90.00	90	29									29.00	29.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , at places pyroxenite, at places syenitic, and carbonate patches.		
27	26.00	27.00	1.00	98.00	98	40	48								88.00	88.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , at places pyroxenite, at places syenitic, and carbonate patches.		
28	27.00	28.00	1.00	99.00	99	87	10								97.00	97.00	Intermixed with pyroxenite and syenite. Amphiboles, pyroxenes and feldspars are clearly visible. Pyrite is noticed. Vein of calcite.		
29	28.00	31.00	3.00	293.00	98	84	10	24	52	10	37	37	21		275.00	91.67	Intermixed with pyroxenite and syenite. Amphiboles, pyroxenes and feldspar are clearly visible. Pyrite is noticed. Vein of calcite.		
30	31.00	32.00	1.00	98.00	98	25	15	40							80.00	80.00	pyroxenite with intercalation of Syenite and quartz at places		
31	32.00	33.00	1.00	99.00	99	42	32	10							84.00	84.00	pyroxenite with intercalation of Syenite and quartz at places		
32	33.00	34.00	1.00	97.00	97	66	30								96.00	96.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (richterite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , pyroxenite rich (bands upto 30cm width), at places syenitic, and carbonate patches. , barite is also observed at places. Core is fractured, and fractures are filled with sulphides (pyrite and chalcopyrite).		
33	34.00	35.00	1.00	97.00	97	10	37	48							95.00	95.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , pyroxenite rich (bands upto 30cm width), at places syenitic, and carbonate patches. , barite is also observed at places. Core is fractured, and fractures are filled with sulphides (pyrite and chalcopyrite).		
34	35.00	36.00	1.00	97.00	97	58	12	18							88.00	88.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , pyroxenite rich (bands upto 30cm width), at places syenitic, and carbonate patches. , barite is also observed at places. Core is fractured, and fractures are filled with sulphides (pyrite and chalcopyrite).		



GEOTECHNICAL LOGGING DATA

SRB-02																			
DATE OF STARTING						9/29/2025				NAME OF PROSPECT				SRB					
DATE OF CLOSING						10/8/2025				BH ID				SRB-02					
AZIMUTH						N 180 ^o													
ANGLE						50 ^o				EASTING				0225623 E					
PROPOSED DEPTH						70 m				NORTHING				1364511 N					
AVG RQD%						48.29%				RL_m				434 m					
Recovery%						94.00%				FINAL Depth				70.00 m					
RUN NO	FROM	TO	RUN LENGT H (m)	RECOVERY (cm)	RECOVER Y %											TOTAL LENGT H OF PIECES >10cm	RQD %	Lithology	
35	36.00	37.00	1.00	98.00	98	79	18									97.00	97.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (richterite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , pyroxenite rich (bands upto 30cm width), at places syenitic, and carbonate patches. , barite is also observed at places.Core is fractured, and fractures are filled with sulphides (pyrite and chalcopyrite).	
36	37.00	40.00	3.00	294.00	98	13	17	38	40	40	28	29	86			291.00	97.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (richterite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , pyroxenite rich (bands 1-20 cm width), at places syenitic, and carbonate patches. , barite is also observed at places.Core is fractured, and fractures are filled with sulphides (pyrite and chalcopyrite).	
37	40.00	41.00	1.00	99.00	99	23	42	32								97.00	97.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , pyroxenite rich (bands 1-20 cm width), at places syenitic, and carbonate patches. , barite is also observed at places.Core is fractured, and fractures are filled with sulphides (pyrite and chalcopyrite).	
38	41.00	42.00	1.00	100.00	100	30	13	30	26							99.00	99.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (aegirine/riebeckite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , pyroxenite rich (bands 1-20 cm width), at places syenitic, and carbonate patches. , barite is also observed at places.Core is fractured, and fractures are filled with sulphides (pyrite and chalcopyrite).	
39	42.00	43.00	1.00	98.00	98	13	26	58								97.00	97.00	Greenish black , medium-grained rock Mainly composed of biotite, with occasional feldspar. Green coloured radiating amphibole minerals (richterite) are present at places, fenitisation is observed. thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. Rock shows variation , pyroxenite rich (bands 1-20 cm width), at places syenitic, and carbonate patches. , barite is also observed at places.Core is fractured, and fractures are filled with sulphides (pyrite and chalcopyrite).	
40	43.00	44.00	1.00	98.00	98	10	20	15	38							83.00	83.00	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (aegirine/riebeckite) , thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.	
41	44.00	45.00	1.00	98.00	98	15	15	40	27							97.00	97.00	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (aegirine/riebeckite) , thin quartz veins and carbonate (calcite) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.	
42	45.00	46.00	1.00	98.00	98	50	18	20								88.00	88.00	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (aegirine/riebeckite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.	
43	46.00	49.00	3.00	290.00	96	20	28	28	32	59	34	17	40	10		268.00	89.33	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (aegirine/riebeckite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.	
44	49.00	52.00	3.00	296.00	98	66	15	49	19	17	56	36				258.00	86.00	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (aegirine/riebeckite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.	



GEOTECHNICAL LOGGING DATA

SRB-02

DATE OF STARTING						9/29/2025					NAME OF PROSPECT				SRB			
DATE OF CLOSING						10/8/2025					BH ID				SRB-02			
AZIMUTH						N 180 ^o												
ANGLE						50 ^o					EASTING				0225623 E			
PROPOSED DEPTH						70 m					NORTHING				1364511 N			
AVG RQD%						48.29%					RL_m				434 m			
Recovery%						94.00%					FINAL Depth				70.00 m			
RUN NO	FROM	TO	RUN LENGT H (m)	RECOVERY (cm)	RECOVER Y %											TOTAL LENGT H OF PIECES >10cm	RQD %	Lithology
45	52.00	55.00	3.00	297.00	97	76	98	46	38	10						268.00	89.33	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals richterite (aegirine/riebeckite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.
46	55.00	58.00	3.00	296.00	98	92	22	77	64	35						290.00	96.67	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (aegirine/riebeckite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.
47	58.00	61.00	3.00	295.00	98	92	22	77	64	35						290.00	96.67	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (richterite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.
48	61.00	64.00	3.00	298.00	99	32	67	14	54	30	70	27				294.00	98.00	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (richterite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places. at run depth 63.10- 64.00m : fine grained greyish white rock observed containing some pyroxene may be dacite?
49	64.00	66.00	2.00	198.00	99	59	18	13	55	23						168.00	84.00	at run depth 66.00- 64.80 m: fine grained greyish white rock observed containing some pyroxene may be dacite? , from run depth 64.80 - 66.00m: Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (aegirine/riebeckite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.
50	66.00	69.00	3.00	295.00	98	16	16	20	30	19	19	38	19	82		259.00	86.33	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (richterite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.
51	69.00	70.00	1.00	100.00	100	36	42	19								97.00	97.00	Greyish white , medium-grained rock Mainly composed of quartz and biotite, occasional Green coloured radiating amphibole minerals (richterite) , thin quartz veins and carbonate (calcite/ carbonatite?) veins observed. Apatite also seen in some sections. pyroxenite bands (bands 1-20 cm width), barite is also observed at places.





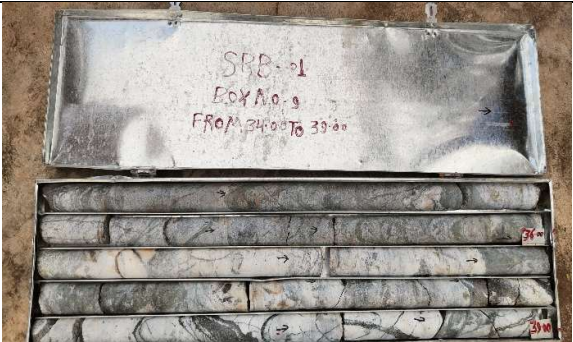



**Core Photograph of Borehole
(SRB-01)**





Annexure -15

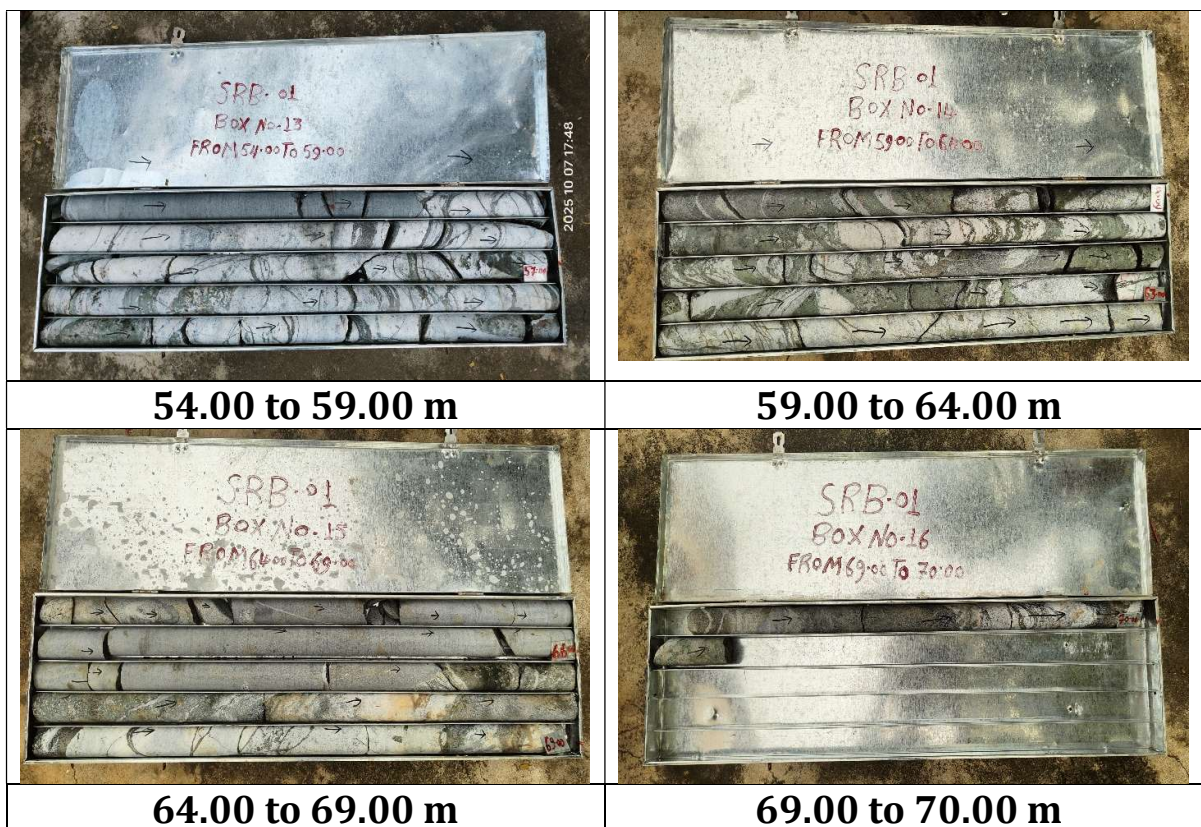
Core Photograph of Boreholes SRB-01 (BH-01)

	
24.00 to 29.00 m	29.00 to 34.00 m
	
34.00 to 39.00m	39.00 to 44.00 m
	
44.00 to 49.00 m	49.00 to 55.00 m



Annexure -15

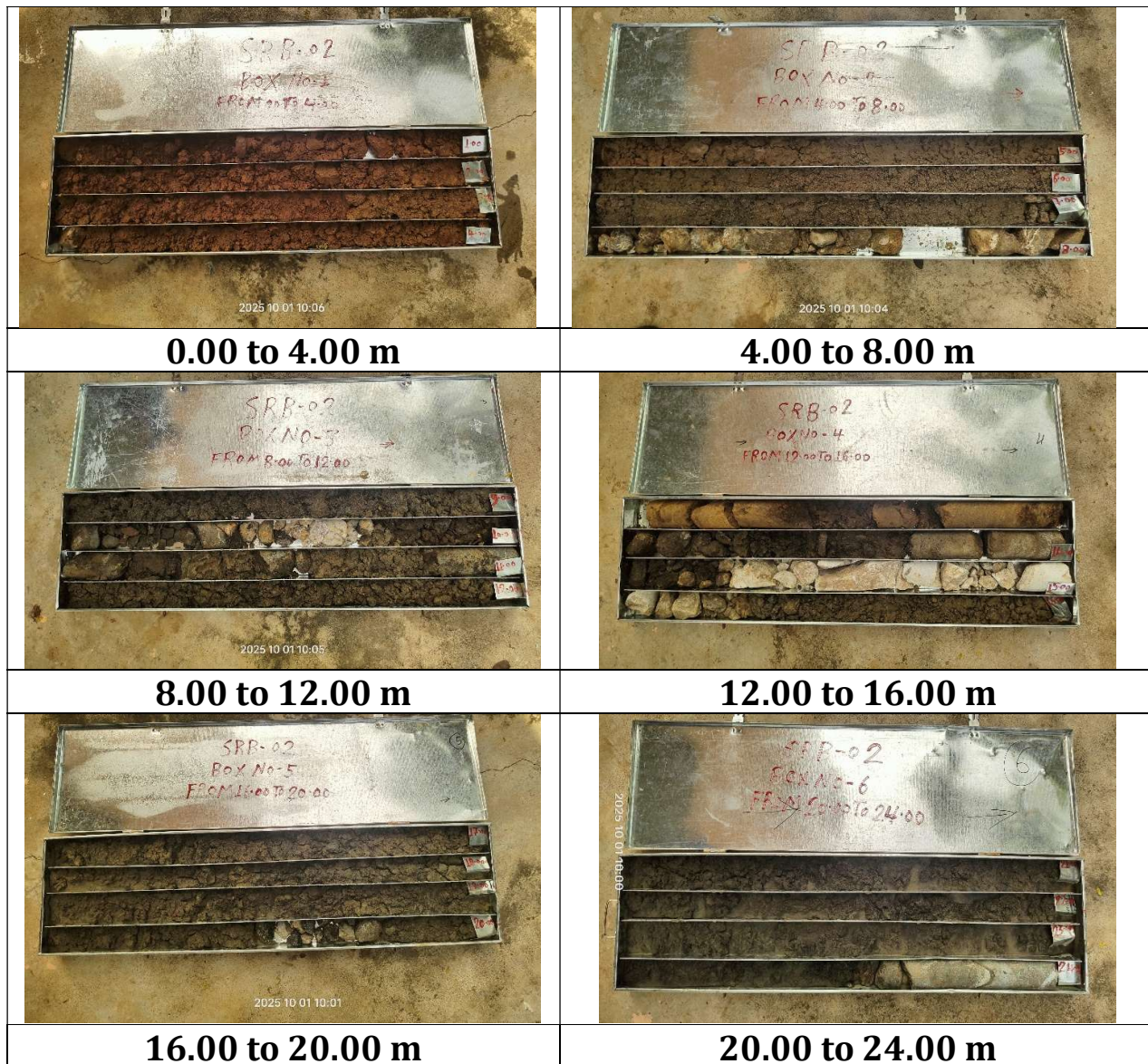
Core Photograph of Boreholes SRB-01 (BH-01)





Annexure -15







Core Photograph of Borehole (SRB-02)





Annexure -15

Core Photograph of Boreholes SRB-02 (BH-02)

	
24.00 to 29.00 m	28.00 to 33.00 m
	
33.00 to 38.00m	38.00 to 43.00 m
	
43.00 to 48.00 m	48.00 to 53.00 m



Annexure -15

Core Photograph of Boreholes SRB-02 (BH-02)

53.00 to 58.00 m	58.00 to 63.00 m
63.00 to 68.00 m	68.00 to 70.00 m



DGPS survey report of borehole points

Annexure -16

Leica Geosystems AG
Heinrich Wild Strasse
CH-9435 Heerbrugg
St. Gallen, Switzerland

Phone: + 41 71 727 3131
Fax: + 41 71 727 4674

- when it has to be **right**



GNSS Processing Report

Report created: 11/11/2025 12:56:27

Project Details

General		Customer Details		Master Coordinate System	
Project Name:	SAMALPATTI BASE TRANSFER	Customer Name:	-	Coordinate System Name:	UTM44N
Owner:	-	Contact Person:	-	Transformation Type:	Classical 3D
Lead Surveyor:	-	Number:	-	Residual Distribution:	None
Date Created:	11/11/2025 12:28:13	Email:	-	Ellipsoid:	WGS 1984
Last Accessed:	11/11/2025 12:28:13	Skype:	-	Projection Type:	UTM
Application Software:	Infinity 3.3.2	Website:	-	Geoid Model:	egm08_0N-90N_0E-180E_5x5
				CSCS Model:	-
Path:	E:\5.SAMALPATTI BH DGPS\Samalpatti Borehole\SAMALPATTI BASE TRANSFER\SAMALPATTI BASE TRANSFER.iprj				
Size:	110.9 MB				
Comments:	-				

Baseline BASE - BH-SRB-01

Processing Parameters (11/09/2025 09:14:39 - 11/09/2025 11:56:28)

Data	Selected	Used	Comments
Cut-Off Angle:	10°	10°	
Frequency:	Automatic	L1/E1/B1/L2/B2/L5/E5a/E5b/E5a+b	
Sampling Rate:	Use All	1.00 sec	
Satellite System:	GPS/GLONASS/Galileo/Beidou	GPS/GLONASS/Galileo/Beidou	
Ephemeris Type:	Broadcast	Broadcast	
Antenna Calibration Set:	NGS Absolute	NGS Absolute	

Processing Strategy

Solution Type:	Phase Fixed	Phase Fixed
Solution Optimisation:	Automatic	None
Frequency to use in Ionospheric Minimised:	Automatic	Automatic
Tropospheric Model:	VMF with GPT2 model	VMF with GPT2 model
Ionospheric Model:	Automatic	Computed
Allow Wideband Fix:	Automatic	Automatic

General Settings

Min. Distance for Ionospheric Minimised:	15 km
Possible Ambiguities Fix up to:	300 km
Min. Duration for Float Solution (static):	00:05:00

Time Settings

Time Format:	HH:mm:ss
Time System:	Local Time
Leap Seconds:	18

Results Baseline: BASE - BH-SRB-01

Acquisition



DGPS survey report of borehole points

Annexure -16

Start Time - End Time: 11/09/2025 09:14:39 - 11/09/2025 11:56:27
Duration: 02:41:48

Antennas

	Reference - BASE	Rover - BH-SRB-01
Receiver Name / SN:	LEICA GS16 / 3707963	LEICA GS18 / 3606815
Antenna Name / SN:	LEIGS15 / -	LEIGS18 / -
Carrier Offset:	0.360 m	0.000 m
Height Reading:	1.150 m	1.800 m
Antenna Height:	1.510 m	1.800 m

Phase Center Offset

	Reference - LEIGS15		Rover - LEIGS18	
GPS	L1	L2	L1	L2
East	0.000 m	0.002 m	0.000 m	0.002 m
North	-0.001 m	0.001 m	-0.001 m	0.000 m
Up	0.202 m	0.201 m	0.100 m	0.107 m

GLONASS	L1	L2	L1	L2
East	-	-	0.000 m	0.002 m
North	-	-	-0.001 m	0.000 m
Up	-	-	0.100 m	0.107 m

Coordinates

	Reference - BASE	Rover - BH-SRB-01		Reference - BASE	Rover - BH-SRB-01
Point Role:	Control	Fixed PP			
WGS84 Latitude:	-	12° 20' 07.98402" N	Easting:	225,692.262 m	225,490.399 m
WGS84 Longitude:	-	78° 28' 33.18483" E	Northing:	1,364,682.814 m	1,364,951.069 m
WGS84 Ellip. Height:	-	335.826 m	Ortho. Height:	421.847 m	426.622 m
WGS84 Cartesian X:	-	1,245,064.446 m			
WGS84 Cartesian Y:	-	6,106,530.346 m			
WGS84 Cartesian Z:	-	1,353,760.192 m			

Baseline Vector and Quality - WGS84

ΔLatitude:	0° 00' 08.66282"	SD ΔLatitude:	0.000 m
ΔLongitude:	-0° 00' 06.76101"	SD ΔLongitude:	0.000 m
ΔHeight:	4.785 m	SD ΔHeight:	0.000 m
ΔX:	189.737 m	SD ΔX:	0.000 m
ΔY:	-91.949 m	SD ΔY:	0.000 m
ΔZ:	261.093 m	SD ΔZ:	0.000 m
Slope Dist.:	335.595 m	SD Slope Dist.:	0.000 m

M0:	0.274 m	CQ 1D:	0.000 m
Q11:	0.00000000	CQ 2D:	0.000 m
Q12:	0.00000000	CQ 3D:	0.000 m
Q22:	0.00000001		
Q13:	0.00000000		
Q23:	0.00000000		
Q33:	0.00000000		

Frequency:	L1/E1/B1/L2/B2/L5/E5a/E5b/E5a+b	GDOP:	1.6 - 2.0	GPS SVs:	9/11
Solution Optimisation:	None	PDOP:	1.0 - 1.2	GLONASS SVs:	7/7
Solution Type:	Phase Fixed	HDOP:	0.4 - 0.5	Beidou SVs:	11/14
		VDOP:	0.8 - 1.1	Galileo SVs:	10/10
				QZSS SVs:	-

Ephemeris Type:	
GPS	Broadcast
GLONASS	Broadcast
Beidou	Broadcast
Galileo	Broadcast

Processing Info (11/09/2025 09:14:39 - 11/09/2025 11:56:28)

Processed Date/Time: 11/11/2025 12:56:05



DGPS survey report of borehole points

Annexure -16

Processing Messages

Warning

No valid ephemeris for satellite coordinate calculation R05 between 11/09/2025 11:59:42 and 11/09/2025 12:29:42.
No valid ephemeris for satellite coordinate calculation R06 between 11/09/2025 11:59:42 and 11/09/2025 12:29:42.
No valid ephemeris for satellite coordinate calculation R06 between 11/09/2025 12:29:42 and 11/09/2025 12:59:42.
No valid ephemeris for satellite coordinate calculation R06 between 11/09/2025 12:59:42 and 11/09/2025 13:29:42.
No valid ephemeris for satellite coordinate calculation R07 between 11/09/2025 11:59:42 and 11/09/2025 12:29:42.
No valid ephemeris for satellite coordinate calculation R07 between 11/09/2025 12:29:42 and 11/09/2025 12:59:42.
No valid ephemeris for satellite coordinate calculation R07 between 11/09/2025 12:59:42 and 11/09/2025 13:29:42.
Missing orbits for satellite R08.
No valid ephemeris for satellite coordinate calculation R09 between 11/09/2025 11:59:42 and 11/09/2025 12:29:42.
No valid ephemeris for satellite coordinate calculation R09 between 11/09/2025 12:29:42 and 11/09/2025 12:59:42.
No valid ephemeris for satellite coordinate calculation R09 between 11/09/2025 12:59:42 and 11/09/2025 13:29:42.
No valid ephemeris for satellite coordinate calculation R10 between 11/09/2025 11:59:42 and 11/09/2025 12:29:42.
No valid ephemeris for satellite coordinate calculation R10 between 11/09/2025 12:29:42 and 11/09/2025 12:59:42.
No valid ephemeris for satellite coordinate calculation R10 between 11/09/2025 12:59:42 and 11/09/2025 13:29:42.
Missing orbits for satellite R11.
No valid ephemeris for satellite coordinate calculation R16 between 11/09/2025 11:59:42 and 11/09/2025 12:29:42.

Baseline BASE - BH-SRB-02

Processing Parameters (11/09/2025 09:32:10 - 11/09/2025 11:41:14)

Data	Selected	Used	Comments
Cut-Off Angle:	10°	10°	
Frequency:	Automatic	L1/E1/B1/L2/B2/L5/E5a/E5b/E5a+b	
Sampling Rate:	Use All	1.00 sec	
Satellite System:	GPS/GLONASS/Galileo/Beidou	GPS/GLONASS/Galileo/Beidou	
Ephemeris Type:	Broadcast	Broadcast	
Antenna Calibration Set:	NGS Absolute	NGS Absolute	

Processing Strategy

Solution Type:	Phase Fixed	Phase Fixed
Solution Optimisation:	Automatic	None
Frequency to use in Ionosphere Minimised:	Automatic	Automatic
Tropospheric Model:	VMF with GPT2 model	VMF with GPT2 model
Ionospheric Model:	Automatic	Computed
Allow Widelane Fix:	Automatic	Automatic

General Settings

Min. Distance for Ionosphere Minimised:	15 km
Possible Ambiguities Fix up to:	300 km
Min. Duration for Float Solution (static):	00:05:00

Time Settings

Time Format:	HH:mm:ss
Time System:	Local Time
Leap Seconds:	18

Results Baseline: BASE - BH-SRB-02

Acquisition

Start Time - End Time:	11/09/2025 09:32:10 - 11/09/2025 11:41:14
Duration:	02:09:04

Antennas

	Reference - BASE	Rover - BH-SRB-02
Receiver Name / SN:	LEICA GS16 / 3707963	LEICA GS18 / 3603617
Antenna Name / SN:	LEIGS15 / -	LEIGS18 / -
Carrier Offset:	0.360 m	0.000 m
Height Reading:	1.150 m	1.800 m
Antenna Height:	1.510 m	1.800 m



DGPS survey report of borehole points

Annexure -16

Phase Center Offset

GPS	Reference - LEIGS15		Rover - LEIGS18	
	L1	L2	L1	L2
East	0.000 m	0.002 m	0.000 m	0.002 m
North	-0.001 m	0.001 m	-0.001 m	0.000 m
Up	0.202 m	0.201 m	0.100 m	0.107 m

GLONASS	L1	L2	L1	L2
East	-	-	0.000 m	0.002 m
North	-	-	-0.001 m	0.000 m
Up	-	-	0.100 m	0.107 m

Coordinates

	Reference - BASE	Rover - BH-SRB-02		Reference - BASE	Rover - BH-SRB-02
Point Role:	Control	Fixed PP			
WGS84 Latitude:	-	12° 19' 53.65535" N	Easting:	225,692.262 m	225,630.036 m
WGS84 Longitude:	-	78° 28' 37.94150" E	Northing:	1,364,682.814 m	1,364,509.193 m
WGS84 Ellip. Height:	-	335.963 m	Ortho. Height:	421.847 m	426.775 m
WGS84 Cartesian X:	-	1,244,942.438 m			
WGS84 Cartesian Y:	-	6,106,651.348 m			
WGS84 Cartesian Z:	-	1,353,330.052 m			

Baseline Vector and Quality - WGS84

ΔLatitude:	-0° 00' 05.66585"	SD ΔLatitude:	0.000 m
ΔLongitude:	-0° 00' 02.00434"	SD ΔLongitude:	0.000 m
ΔHeight:	4.922 m	SD ΔHeight:	0.000 m
ΔX:	67.729 m	SD ΔX:	0.000 m
ΔY:	29.053 m	SD ΔY:	0.000 m
ΔZ:	-169.047 m	SD ΔZ:	0.000 m
Slope Dist.:	184.413 m	SD Slope Dist.:	0.000 m

M0:	0.305 m	CQ 1D:	0.000 m
Q11:	0.00000000	CQ 2D:	0.000 m
Q12:	0.00000000	CQ 3D:	0.000 m
Q22:	0.00000002		
Q13:	0.00000000		
Q23:	0.00000000		
Q33:	0.00000000		

Frequency:	L1/E1/B1/L2/B2/L5/E5a/E5b/E5a+b	GDOP:	1.5 - 2.1	GPS SVs:	10/11
Solution Optimisation:	None	PDOP:	0.9 - 1.3	GLONASS SVs:	6/7
Solution Type:	Phase Fixed	HDOP:	0.4 - 0.5	Beidou SVs:	11/14
		VDOP:	0.8 - 1.1	Galileo SVs:	9/10
				QZSS SVs:	-

Ephemeris Type:	
GPS	Broadcast
GLONASS	Broadcast
Beidou	Broadcast
Galileo	Broadcast

Processing Info (11/09/2025 09:32:10 - 11/09/2025 11:41:14)

Processed Date/Time: 11/11/2025 12:56:05

Satellites

Satellite System	Used	Manually Disabled
GPS	G01 G02 G03 G04 G08 G10 - G16 G26 G27 G28 G31 G32	
GLONASS	R05 R06 R07 R09 R10 R15 - R16 R20 R21	
Beidou	C06 C07 C08 C09 C10 C13 - C16 C19 C20 C22 C29 C35 C36	
Galileo	E04 E06 E09 E10 E11 E12 - E16 E23 E31 E36	



List of samples for Petro studies

Sr. No	Bore Hole	Depth in mts	Sample ID	Rock Type as per field observations	PTS results
1	SRB-01	48.00	SR-1	Syenite	Syenite
2	SRB-01	17.00	SR-2	Carbonatite	Dolomitic Corbonatite
3	SRB-02	26.70	SR-3	Pyroxenite	Fenite
4	SRB-02	53.00	SR-4	Intermixed (Carbonatite or syenite)	Calcite Corbonatite
5	Outcrop (Carbonatite Band 1)	-	SR-5	Carbonatite (Pyroxenite)	Calcite Corbonatite
6	Outcrop (Carbonatite Band 1)	-	SR-6	Carbonatite (calcite)	Dolomatic Corbonatite
7	Outcrop (Carbonatite Band 2)	-	SR-7	Carbonatite	Dolomatic Corbonatite
8	Outcrop (Carbonatite Band 1)	-	SR-8	Carbonatite (Pyroxenite)	Dolomatic Corbonatite



Petrographic and Mineralogical Report
on the Samalpatti samples provided by KIOCL Limited, Bengaluru

Sample #SR-1



Fig. 1.1 Drill core photographs of the syenite sample.

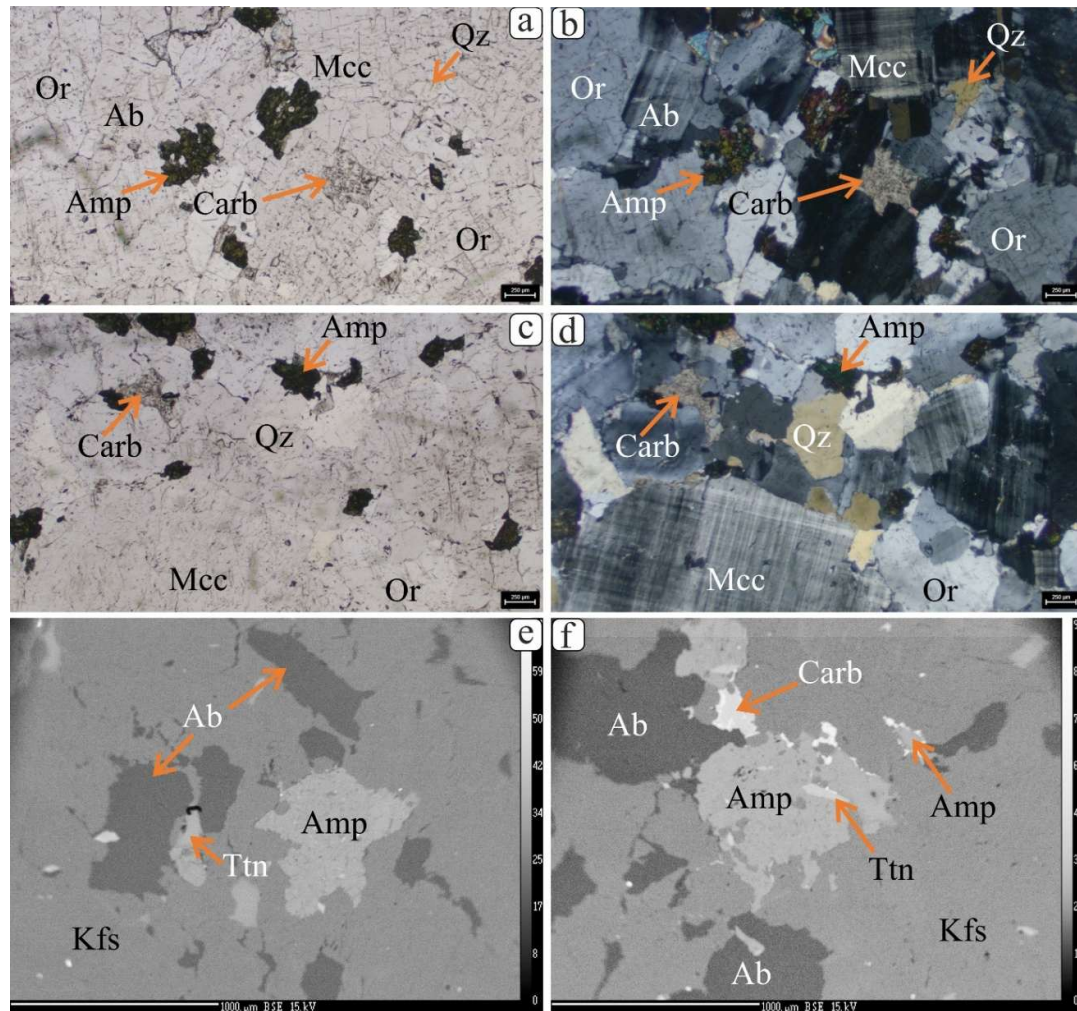


Fig. 1.2 Representative photomicrographs (a–d) and BSE images (e and f) of the syenite showing the major and accessory phases. Note the alteration of amphibole and its replacement by carbonates (probably Sr-bearing calcite and strontianite) in 'f'. Abbreviations: albite = Ab, Amphibole = Amph, carbonate = Carb, K-feldspar = Kfs, microcline = Mcc, orthoclase = Or, quartz = Qz, titanite = Ttn.

The rock is a medium- to coarse-grained, consisting dominantly of subhedral to anhedral crystals of microcline, orthoclase, plagioclase, quartz, and aegirine-augite (Fig. 1.2). Characteristic cross hatched pattern is observed in microcline, while orthoclase is recognized from its cloudy appearance, low relief in PPL, simple Carlsbad twinning, and first order gray interference color in XPL (Fig. 1.2b and d). Alkali-feldspars are the most abundant phases in the rock, constituting more than 80–85 modal % of the rock. Nearly 10–15 modal % of the rock is plagioclase, while quartz makes up around 5–7 modal % and aegirine-augite about 3–4 modal %. Deducing from the above observations, the rock **Aegirine-augite and quartz-bearing Syenite**. In addition to the above minerals, trace amounts of carbonate probably, Ca-bearing strontianite) and titanite are also present (Fig. 1.2a–d). The rock shows signs of alteration, such as carbonate and a rim consisting probably of REE-(fluor)carbonates or (Ca, Sr, and Ba)-bearing REE carbonates or baryte or celestine or a combination of the above around it, is observed to have replaced aegirine-augite grains and formed titanite (Fig. 1.2e and f). Presence of the Ca-, Sr-, and Ba-, REE-bearing carbonates, baryte, and celestine is inferred from the Ca, Sr, Ba, and REE counts observed in EPMA X-ray meter. A set of EPMA major element of all the important minerals can be found in Appendix table 1.

In Summary:

Alkaline syenitic rock dominated by K-feldspar with minor plagioclase and interstitial quartz. Mafic minerals are altered to chlorite/amphibole indicating post-magmatic metasomatism. EPMA data show evolved alkali feldspar chemistry with late hydrothermal modification. Interpreted as magmatic crystallization followed by fenitic alteration under low-grade conditions. EPMA data show stoichiometric K-feldspar (microcline–orthoclase) and albite with minor Fe. Aegirine-augite is Na-, Ca- and Fe-rich, reflecting alkaline affinity. Accessory titanite is Ca–Ti rich, while Ca-bearing strontianite indicates Sr enrichment and late carbonate–REE fluid interaction.

Mineral Phases Identified:

Primary Silicate Phase: Microcline, orthoclase, plagioclase, quartz

Secondary Silicate Phase: Titanite (inferred to have formed from alteration), a rim consisting probably of REE-(fluor)carbonates or (Ca, Sr, and Ba)-bearing REE carbonates (though these are carbonates, they are described as a replacement rim around aegirine-augite)

Mafic Phase: Aegirine-augite

Carbonate Phase: Carbonate (probably Ca-bearing strontianite), (Ca, Sr, and Ba)-bearing REE carbonates

Other Accessory Phase: Titanite, baryte, celestine

REE Phase: REE-(fluor)carbonates, (Ca, Sr, and Ba)-bearing REE carbonates

XRD Results: The rock is dominated by K-Feldspar Microcline (52%), followed Orthoclase (38%) Other minor minerals are: Albite (6%) Quartz (3%) and Augite (1%)

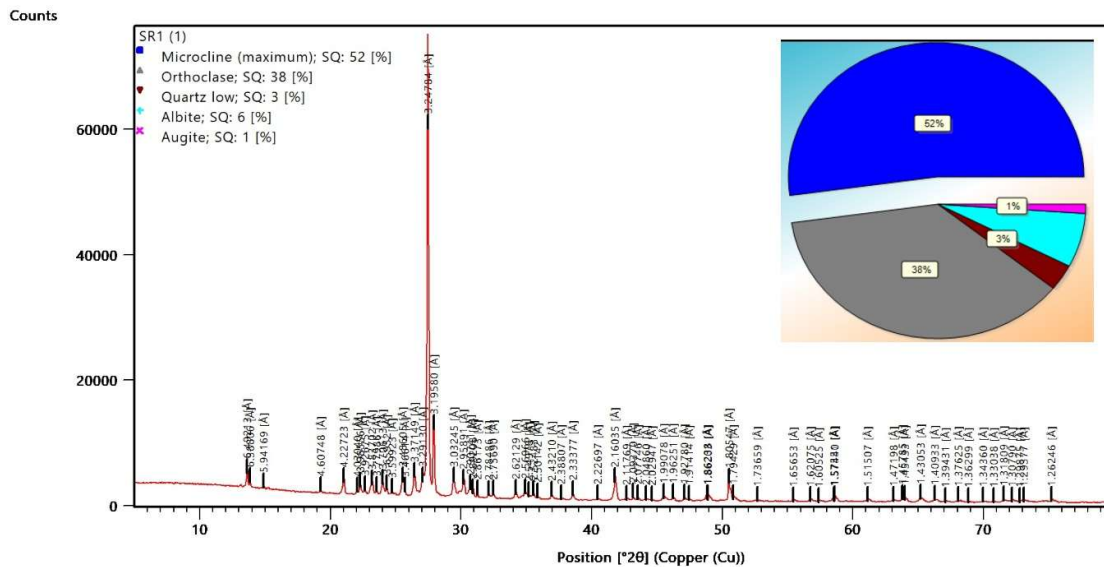


Fig. 1.3. XRD results showing major minerals present in the rock: **Aegirine-augite and quartz-bearing Syenite**

Sample #SR-2

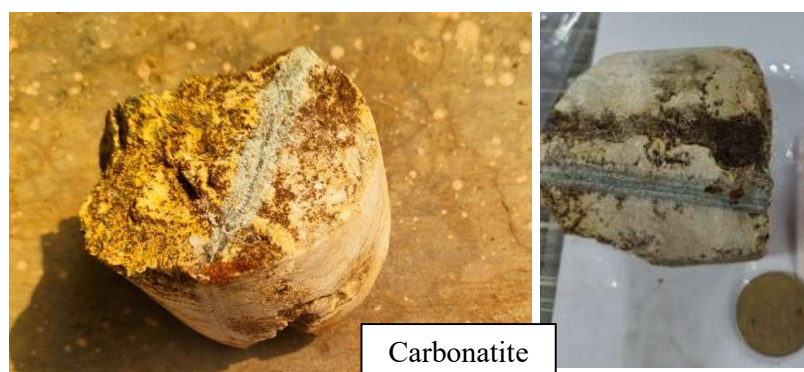


Fig. 2.1 Drill core photographs of the dolomite carbonatite.

It is a medium- to fine-grained, carbonate dominant rock, constituting abundant dolomite and calcite (Fig. 2.2a–c). The former occurs as subrounded, globular bodies, accounting for about 60–70 modal % of the rock, while the latter occurs as randomly oriented globular bodies, comprising about 30–35 modal % (the distinction is clearly observed in BSE images) (Fig. 2.2b). Based on mineral modal abundances, the rock can be termed as a **Dolomite Carbonatite**. The rock also contains numerous phases having higher average Z-contrast in BSE images than dolomite and calcite (Fig. 2.2b and f). These phases occur within calcite or at the dolomite-calcite boundaries, but never within dolomite (Fig. 2.2b and f). Based on the Ca, Sr, Ba, and REE counts SEM-BSE they can be REE-(fluor)carbonates or (Ca, Sr, and Ba)-bearing REE carbonates or baryte or celestine or **ancylite** or a combination of the low temperature reequilibration of dolomite (Fig. 2.2b). During reequilibration and calcite exsolution, the incompatible elements within dolomite were exsolved, forming the observed high Z-contrast phases in calcite. Moreover, the carbonatite is altered, as evident from the occurrence of calcite-bearing crosscutting vein and precipitation of fibrous richterite and rare phlogopite along it (Fig. 2.2c–e). Other alteration features include occurrence of pits and vugs within calcite and dolomite, and their filling by monazite (Fig. 2.2f) together with the other REE phases, above. Deducing from the modal abundances of the two rock forming carbonates, their textural and mineralogical associations, calcite appears to have exsolved from dolomite in response to including monazite, REE-(fluor)carbonates and (Ca, Sr, and Ba)-bearing REE carbonates, constitute > 1 modal % of the rock. Monazite occurs as irregular grains with their sizes ranging from 50–200 microns long and few tens to 60 microns across. A set of EPMA major element of all the important minerals can be found in Appendix table 2.

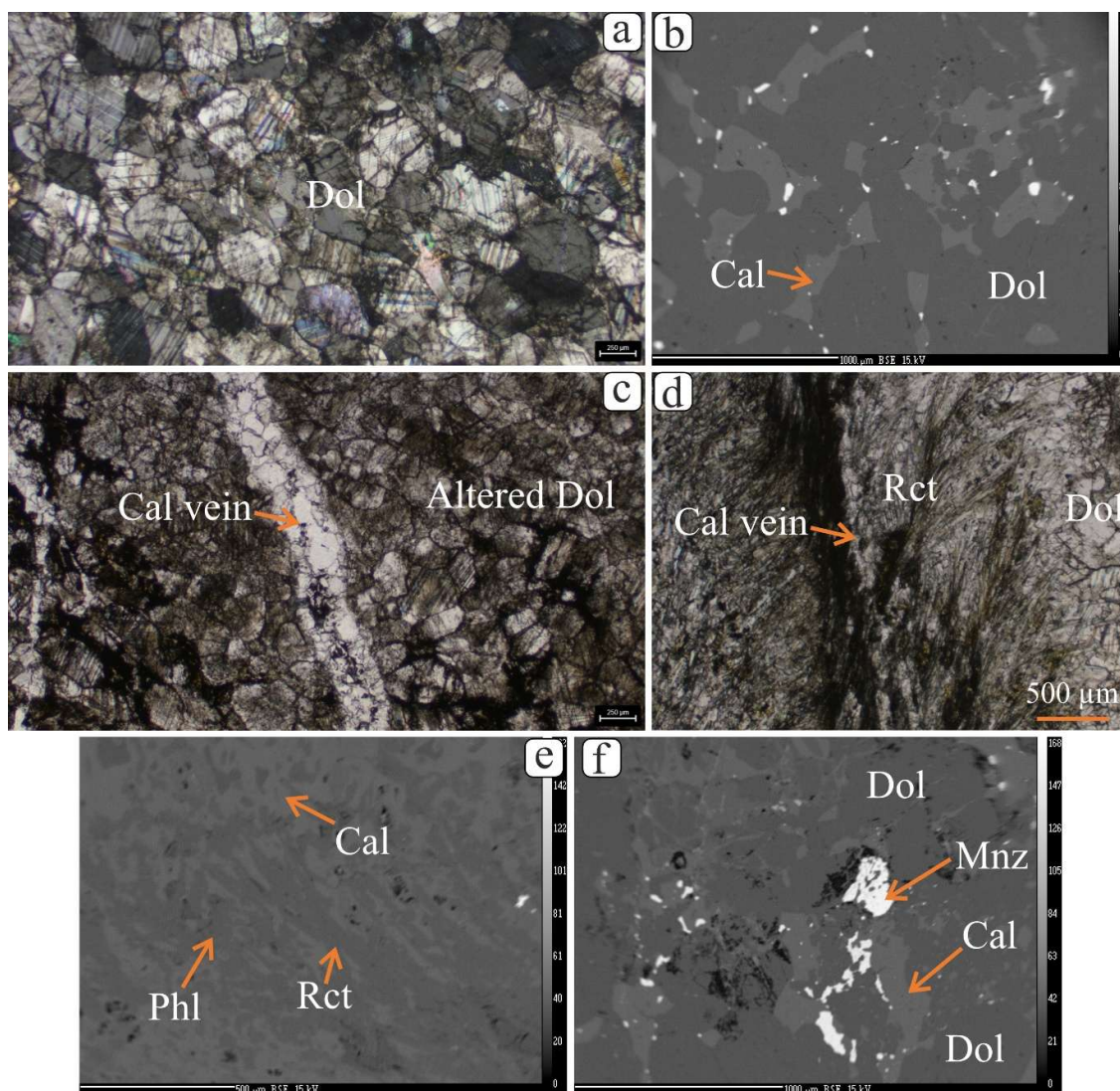


Fig. 2.2 Representative photomicrographs (a, c, and d) and BSE images (b, e, and f) of the dolomite carbonatite intruded by calcite-bearing vein, which led to alteration and precipitation of fibrous aegirine-augite and monazite. Abbreviations: calcite = Cal, dolomite = Dol, richterite = Rct, monazite = Mnz, phlogopite = Phl.

In Summary:

It is a medium- to fine-grained, carbonate dominant rock, constituting abundant dolomite and calcite. It contains high-REE phases including monazite, REE-(fluor)carbonates, and (Ca,Sr,Ba)-bearing REE carbonates that formed by exsolution of incompatible elements during low-temperature reequilibration of dolomite. These REE minerals occur exclusively within calcite or at dolomite-calcite boundaries, never within dolomite. Alteration features include calcite veins with fibrous richterite and phlogopite, as well as pits and vugs filled by monazite and other REE phases. The REE-bearing phases constitute >1 modal % of the rock, with

monazite occurring as 50-200 μm irregular grains. The magmatic assemblage record later metasomatic overprint at sub-greenschist to lower-greenschist grade.

Mineral Phases Identified:

Primary Silicate Phase: Not present. Rock is a carbonatite.

Secondary Silicate Phase: Richterite, phlogopite

Mafic Phase: Not present

Carbonate Phase: Dolomite, calcite, REE-(fluor)carbonates, (Ca, Sr, and Ba)-bearing REE carbonates, **ancylite**

Other Accessory Phase: Baryte, celestine

REE Phase: Monazite, REE-(fluor)carbonates, (Ca, Sr, and Ba)-bearing REE carbonates, **ancylite**.

XRD Results: The rock is dominated by carbonates specifically dolomite (66%), followed by calcite (30%) Other minor minerals are: Mg-hornblende (3.8%) and Mica (0.2%).

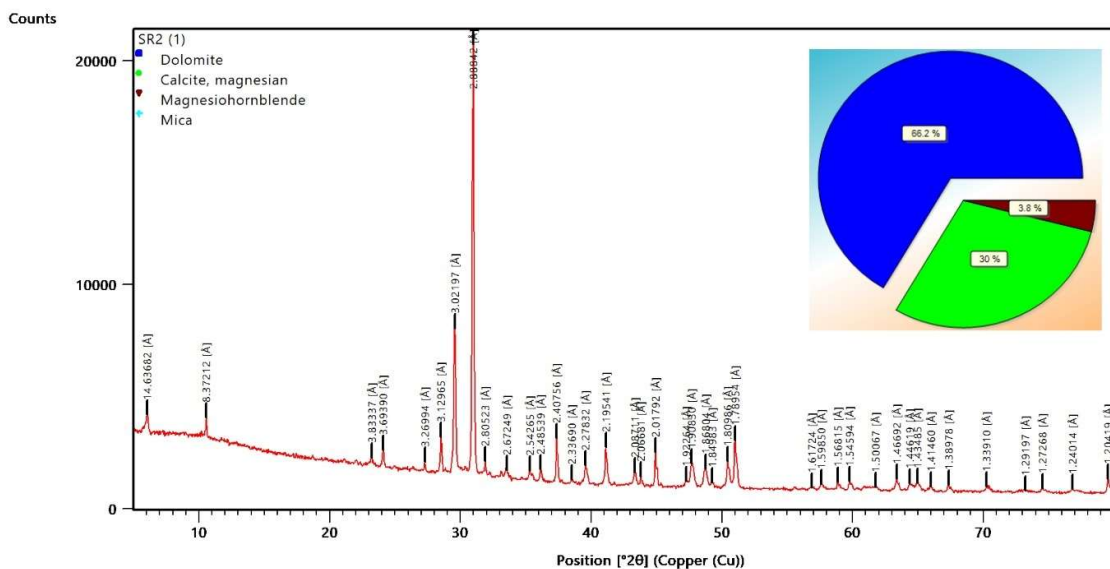


Fig. 2.3. XRD results showing major minerals present in the rock: **Dolomite Carbonatite**.

Sample #SR-3



Fig. 3.1 Drill core photographs of the fenite.

The rock is medium- to coarse-grained and represents a zone of intense fenitization driven by alkali-rich fluid derived from the carbonatite melt. It occurs between the dolomite carbonatite and the syenite mentioned above (SR #1 and #2) and comprises abundant andradite and aegirine-augite, phases characteristic of such zones of metasomatism (Fig. 3.2a–c), also called **Fenite**. Titanite is another important constituent of the rock, that may or may not have formed during the metasomatism. However, textural evidence, such as the occurrence of titanite as rim around andradite (Fig. 3.2c), indicates that it has formed during the metasomatism. Calcite is also present as interstitial phase but it appears to be not a part of the rock, as it occurs mostly along the spaces available between the above-mentioned minerals (Fig. 3.2a–c). The zone also contains sulfide minerals like pyrrhotite, chalcopyrite, and pyrite (Fig. 3.2d), in decrease order of abundances and magnetite, wherein magnetite, pyrrhotite, and pyrite appear to have altered with pyrrhotite replaced by pyrite (Fig. 3.2d). A set of EPMA major element of all the important minerals can be found in Appendix table 3.

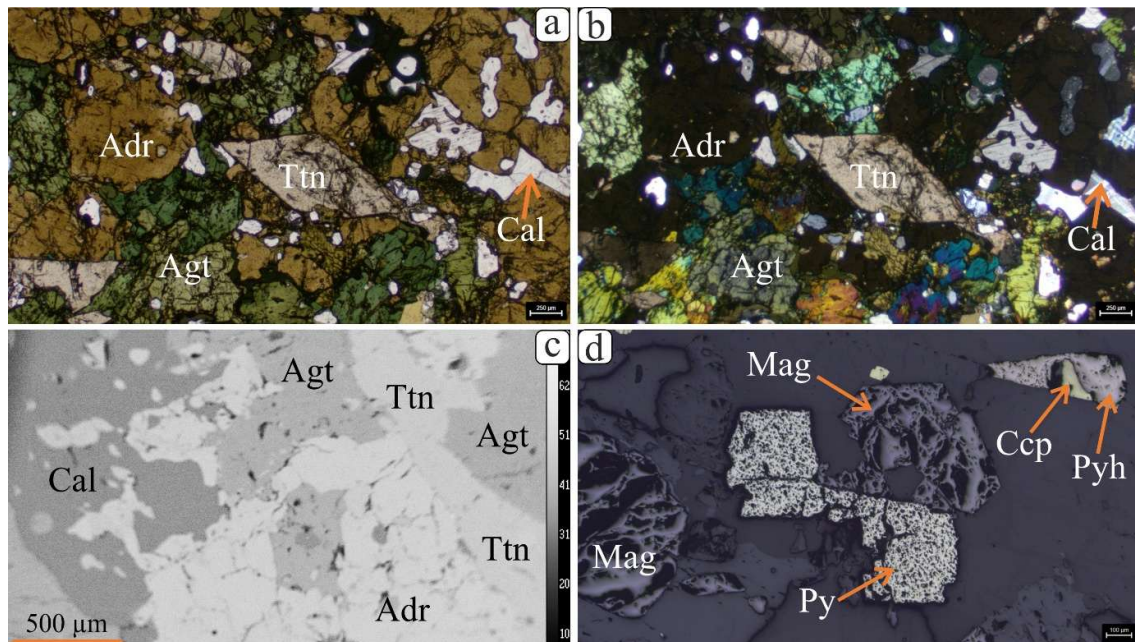


Fig. 3.2 Representative photomicrographs (a, b, and d) and BSE image (c) of the fenite, containing abundant andradite, aegirine-augite with minor interstitial calcite. Abbreviations: andradite = Adr, aegirine-augite = Agt, calcite = Cal.

In Summary:

This sample represents a fenitized zone between dolomite carbonatite and syenite, formed by alkali-rich fluids from the carbonatite melt. It contains abundant metasomatic minerals including andradite, aegirine-augite, and titanite (occurring as rims around andradite). Interstitial calcite is present but not considered part of the primary rock assemblage. Accessory sulfides (pyrrhotite, chalcopyrite, pyrite) and magnetite occur, with alteration textures showing pyrrhotite replaced by pyrite. Textures indicate weak metamorphic overprint and hydrothermal alteration rather than regional metamorphism.

Mineral Phases Identified:

Primary Silicate Phase: Andradite, aegirine-augite (formed during fenitization/metasomatism)

Secondary Silicate Phase: Rare titanite

Mafic Phase: Aegirine-augite

Carbonate Phase: Calcite (described as interstitial and likely not part of the primary rock assemblage)

Other Accessory Phase: Titanite, magnetite, pyrrhotite, chalcopyrite, pyrite

REE Phase: Not Present

XRD Results: The rock is having mixed composition of microcline feldspar (27%), andradite garnet (21%), augite pyroxene (16%), calcite (15%), titanite (14%) and biotite (7) by

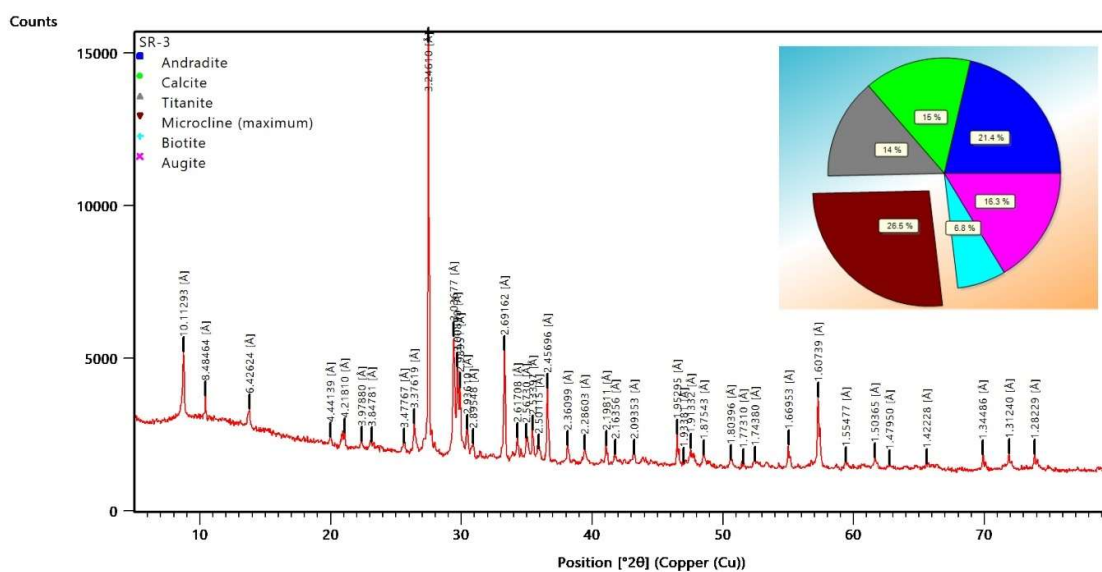


Fig. 3.3. XRD results showing major minerals present in the rock: **Fenite**.

Sample #SR-4



Fig. 4.1 Drill core photographs of the calcite carbonatite.

The rock is medium-grained **calcite carbonatite** containing > 60 modal % calcite followed by ~15–20 modal % potassic-richterite, 12–17 modal % phlogopite, and 2–3 modal % opaques, such as pyrite, magnetite, and chalcopryite, in decrease order of their abundances (Fig. 4.2). The calcite grains are subhedral to rounded, containing exsolution lamellae of (Ca, Sr, and Ba)-bearing REE carbonates or baryte or celestine and partially altered by secondary calcite, that occurs as irregular patches (Fig. 4.2a–c). Potassic-richterite occurs as radiating needle (Fig. 4.2a–c), while phlogopite is scattered and occurs as irregular tabular grains (Fig. 4.2a and b). Both the silicate phases are altered, occurring in association with REE-(fluor)carbonate or (Ca, Sr, and Ba)-bearing REE carbonates or baryte or celestine or **ancylite** or a combination of these minerals (inferred from the Ca, Sr, and REE counts observed in EPMA X-ray meter). At places phlogopite is seen to have replaced potassic-richterite (Fig. 4.2a). Pitted pyrite grains with chalcopryite infillings occur as irregular bodies having corroded boundaries surrounded by rims of magnetite pseudomorph (Fig. 4.2d). A set of EPMA major element of all the important minerals can be found in Appendix table 4.

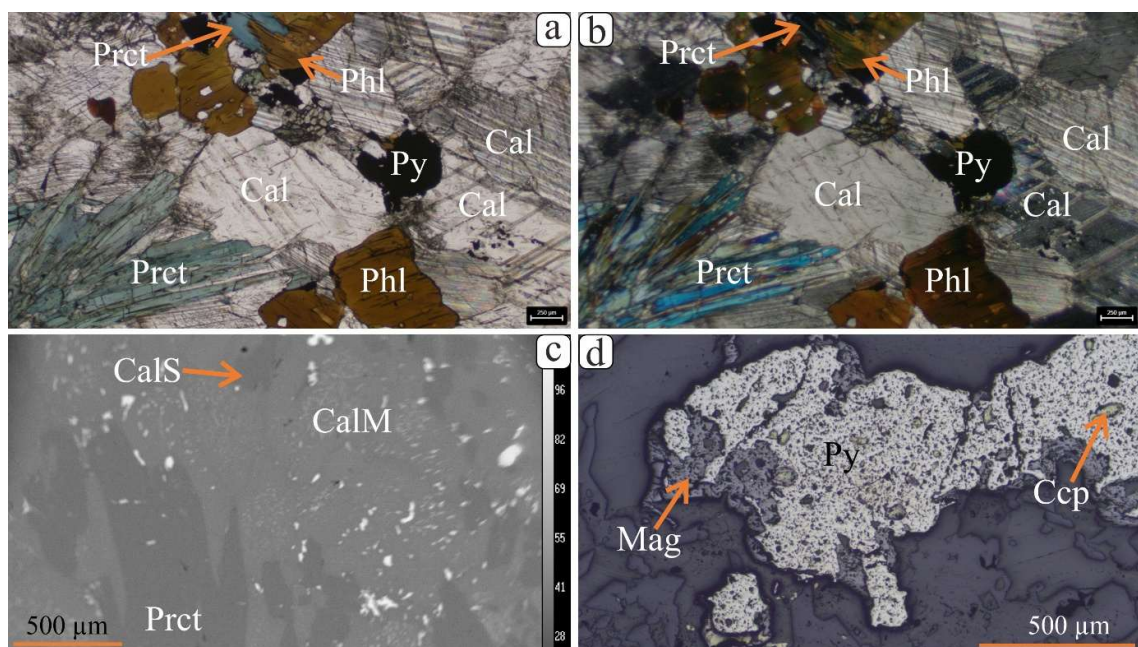


Fig. 4.2 Representative photomicrographs (a, b, and d) and BSE image (c) of the calcite carbonatite, dominated by calcite, phlogopite, and potassic-richterite. Abbreviations: calcite = Cal, magmatic calcite = CalM, chalcopyrite = Ccp, secondary calcite = CalS, magnetite = Mag, phlogopite = Phl, potassic-richterite = Pret, pyrite = Py.

In Summary:

This medium-grained calcite carbonatite (>60% calcite) contains potassic-richterite (15-20%), phlogopite (12-17%), and opaque minerals (pyrite, magnetite, chalcopyrite). Calcite hosts exsolution lamellae of (Ca,Sr,Ba)-bearing REE carbonates, baryte, or celestine, and is partially altered by secondary calcite. Both silicate phases are altered and associated with REE-(fluor)carbonates, (Ca,Sr,Ba)-bearing REE carbonates, **ancylite**, baryte, or celestine, with phlogopite locally replacing potassic-richterite. Pyrite shows pitted textures with chalcopyrite infillings and magnetite pseudomorph rims. EPMA data indicate alkali metasomatism with localized enrichment in incompatible elements. Mineral relations suggest primary magmatic origin followed by hydrothermal alteration.

Mineral Phases Identified:

Primary Silicate Phase: Potassic-richterite, phlogopite

Secondary Silicate Phase: Phlogopite is replacing potassic-richterite; alteration is associated with REE phases

Mafic Phase: Potassic-richterite, phlogopite

Carbonate Phase: Calcite, secondary calcite, (Ca, Sr, and Ba)-bearing REE carbonates, REE-(fluor)carbonates, **ancylite**

Other Accessory Phase: Baryte, celestine, pyrite, magnetite, chalcopyrite

REE Phase: (Ca, Sr, and Ba)-bearing REE carbonates, REE-(fluor)carbonates, **ancylite**

XRD Results: The rock is dominated by carbonates specifically calcite (77%), followed by dolomite (22%). Minor mineral in the rock is: Actinolite (0.7%).

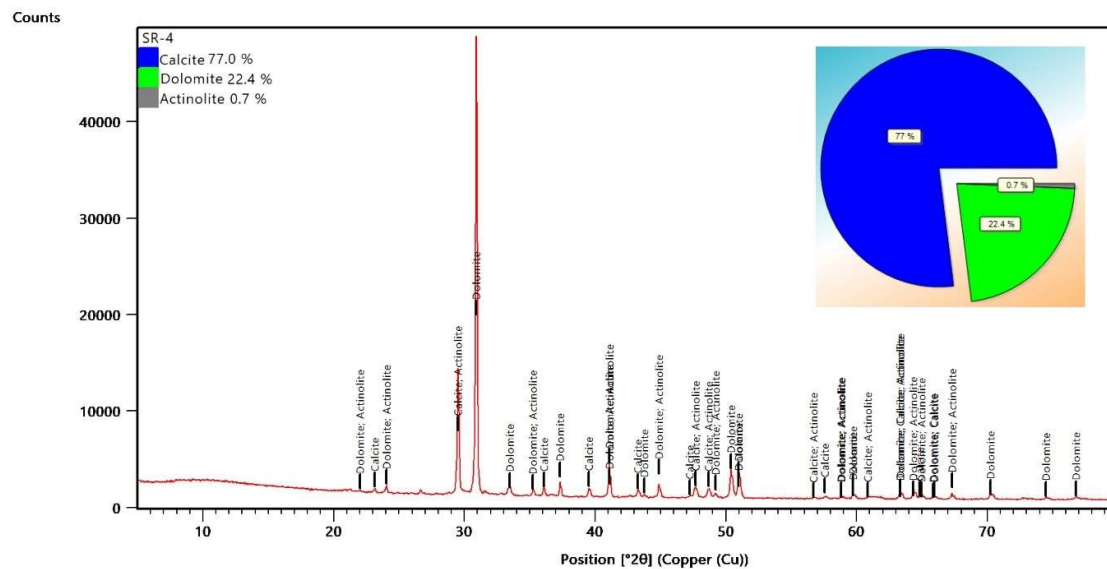


Fig. 4.3. XRD results showing major minerals present in the rock: **Calcite Carbonatite**.

Sample #SR-5



Fig. 5.1 Photographs of surface outcrop samples of calcite carbonatite.

The rock is a **calcite carbonatite**, containing calcite, potassic-richterite, phlogopite, and magnetite, in decreasing order of abundances (Fig. 5.2.a–c). The rock has undergone pervasive alteration, as evident from the pitted appearance of calcite, precipitation of abundant potassic-richterite, pseudomorphic alteration of phlogopite and magnetite to a goethite (Fig. 5.2d). Occurrence of potassic-richterite in carbonatite indicates metasomatism by an alkali-rich fluid derived from the carbonatite body. The altered domains also contain baryte, signifying the presence of sulfate species in the fluid. The only observed REE minerals in such altered domains is monazite (identified on the basis of the higher Ce and P counts in the SEM-BSE EDX) occurring as 50–100 micron long and 40–60 microns across grains (Fig. 5.2d). The only observed REE minerals in such altered domains is monazite (identified on the basis of the higher Ce and P counts in the EPMA X-ray meters) occurring as 50–100 micron long and 40–60 microns across grains (Fig. 5.2d). A set of EPMA major element of all the important minerals can be found in Appendix table 5.

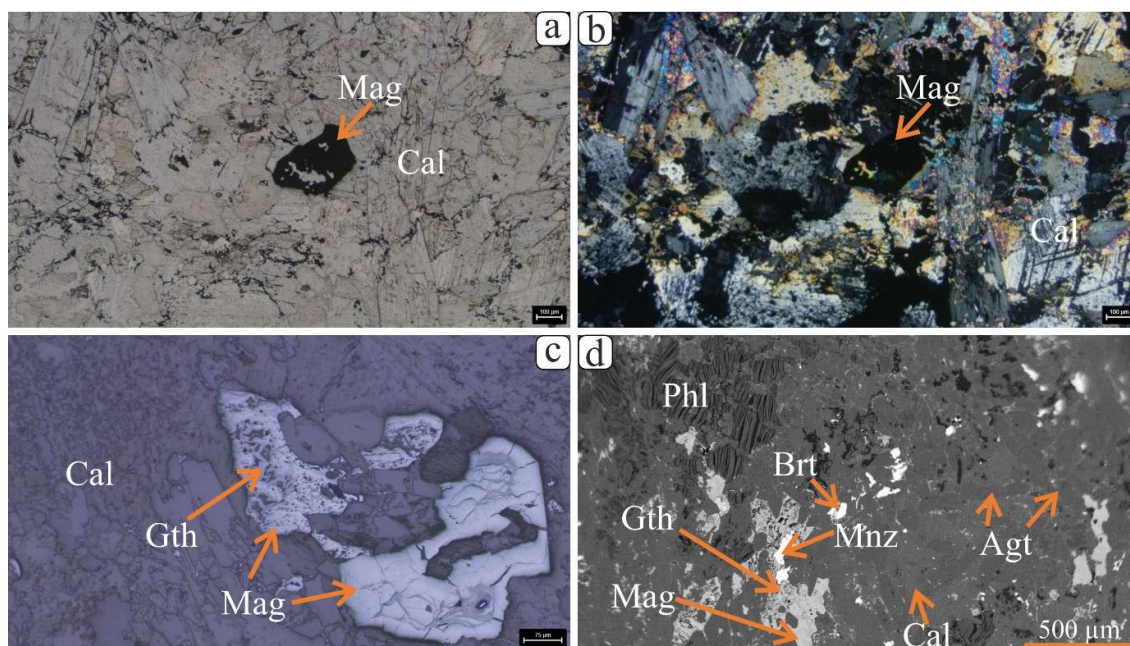


Fig. 5.2 Representative photomicrographs (a–c) and BSE image (d) of the calcite carbonatite. Abbreviations: baryte = Brt, calcite = Cal, magnetite = Mag, monazite = Mnz, goethite = (Gth).

In Summary:

This calcite carbonatite has undergone pervasive alteration marked by pitted calcite, abundant potassic-richterite precipitation, and pseudomorphic replacement of phlogopite and magnetite by goethite. The potassic-richterite indicates metasomatism by alkali-rich fluids from the carbonatite, while baryte in altered domains signifies sulfate-bearing fluids. Monazite is the only REE mineral observed in altered domains, identified by elevated Ce and P counts. The alteration assemblage records fluid-mediated remobilization and concentration of REEs into phosphate phases. EPMA chemistry reflects late fluid-driven modification and redistribution of trace elements. Indicates brittle deformation accompanied by low-temperature hydrothermal activity.

Mineral Phases Identified:

Primary Silicate Phase: Potassic-richterite, phlogopite

Secondary Silicate Phase: None explicitly named (potassic-richterite is described as being precipitated during alteration, but it is the same mineral phase)

Mafic Phase: Potassic-richterite, phlogopite, magnetite

Carbonate Phase: Calcite

Other Accessory Phase: Baryte, goethite (alteration product after phlogopite and magnetite)

REE Phase: Monazite

XRD Results: The rock is dominated by calcite (77%), amphiboles such as arfvedsonite (Na-amphibole) and riebeckite (2.0%) and minor apatite (2%).

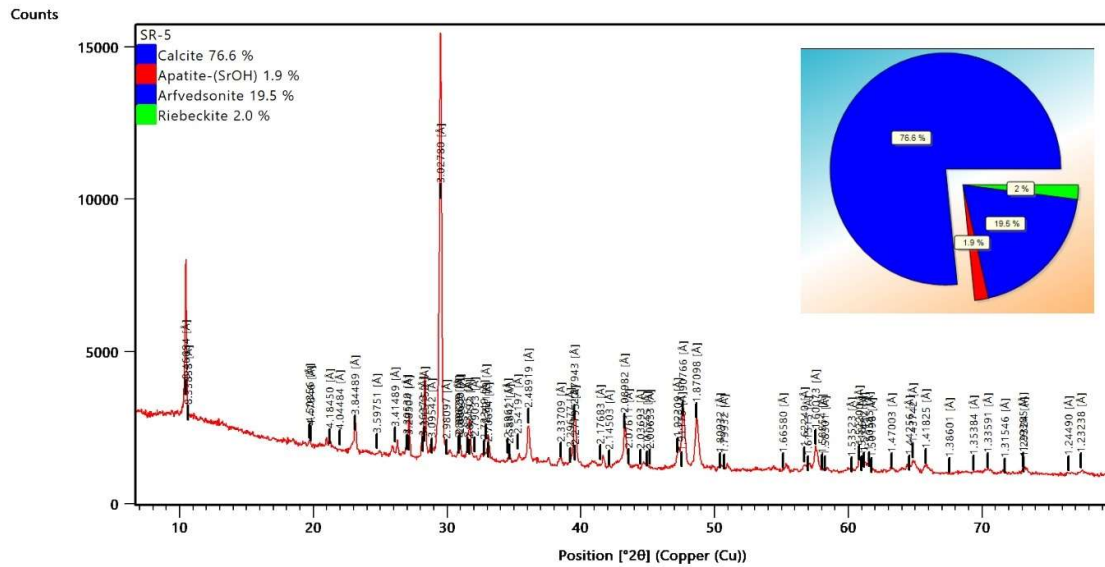


Fig. 5. 3. XRD results showing major minerals present in the rock: **Calcite Carbonatite**.

Sample #SR-6



Fig. 6.1 Photographs of surface outcrop samples of dolomite carbonatite.

The rock is medium- to coarse-grained, containing abundant dolomite (80–90 modal %), followed by calcite (~10–17 modal %), and minor fluorapatite (<1 modal %) (Fig. 6.2). Dolomite occurs as couple of hundreds to 700 microns long and 200–300 microns across subhedral to rounded grains (Fig. 6.2a and b). Based on the mineral abundance, the rock can be termed as **dolomite carbonatite**. It is thoroughly altered as evident from the brown coloration (Fig. 6.2a). Observation of BSE images reveals that the dolomite hosts symplectitic calcite, ranging in size from couple of microns to >500 microns long (Fig. 6.2c), formed due to low temperature reequilibration of the host. Calcite is accompanied by REE-(fluor)carbonate or (Ca, Sr, and Ba)-bearing REE carbonates or baryte or celestine or **ancylite** or a combination of these minerals, that are also exsolved from the dolomite and occur mostly within calcite or at the grain boundaries between calcite, but rarely withing dolomite (Fig. 6.2c). Fluorapatite is rare, but occurs as large millimetres to centimetres long elongated grains that are fractured (Fig. 6.2a, b, and d). It is altered along the grain boundaries and fractures, and the fractures are filled by dolomite, calcite, and monazite (Fig. 6.2d). Based on the textural observations, the rock can be termed dolomite carbonatite. Monazite grains are tens of fifties microns long and 20–60 micron across. A set of EPMA major element of all the important minerals can be found in Appendix table 6.

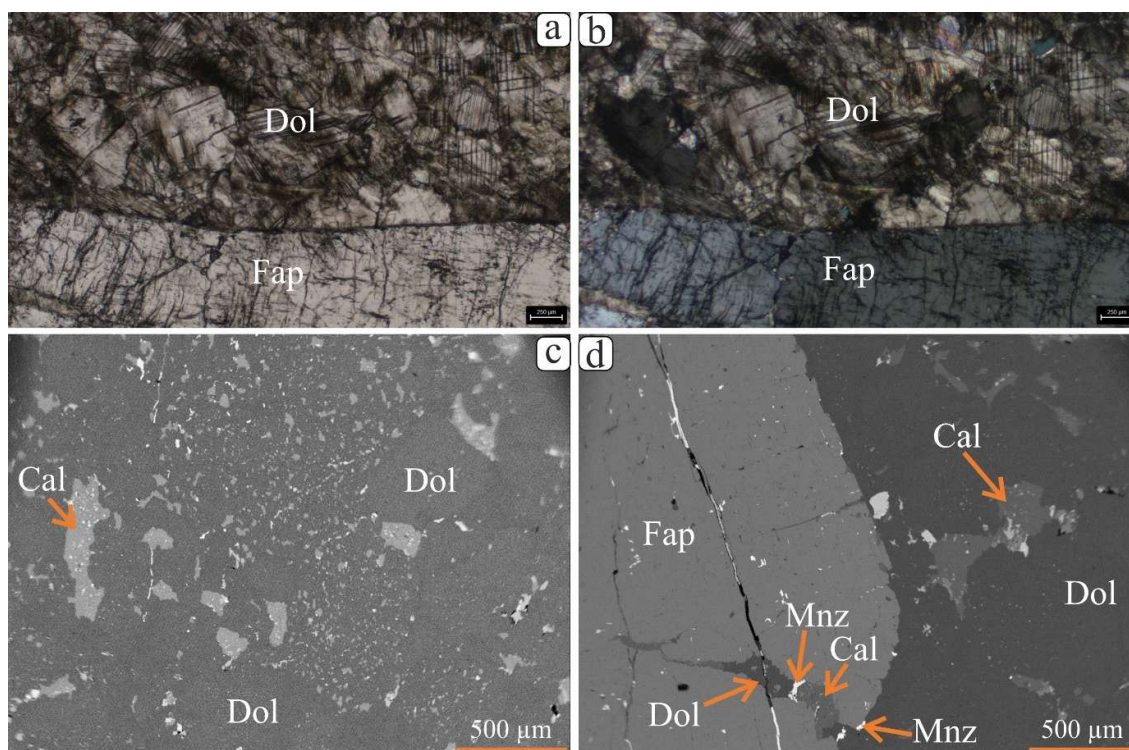


Fig. 6.2 Representative photomicrographs (a and b) and BSE images (c and d) of the calcite-bearing dolomite carbonatite. Abbreviations: calcite = Cal, dolomite = dol, fluorapatite = Fap, monazite = Mnz.

In Summary:

This dolomite carbonatite (80-90% dolomite, 10-17% calcite) contains symplectitic calcite exsolved during low-temperature reequilibration, accompanied by REE-(fluor)carbonates, (Ca,Sr,Ba)-bearing REE carbonates, and **ancylite** that occur exclusively within calcite or at grain boundaries. Rare fluorapatite occurs as large fractured grains altered along boundaries and fractures, with fractures filled by dolomite, calcite, and monazite. Monazite grains formed from REEs released during both carbonate exsolution and apatite alteration. The rock records two stages of REE mineralization: exsolution-related REE carbonates and hydrothermal monazite. EPMA results show compositional zoning consistent with metasomatic exchange. Interpreted as alkaline intrusive affected by late-stage fluid circulation.

Mineral Phases Identified:

Primary Silicate Phase: None mentioned

Secondary Silicate Phase: None mentioned

Mafic Phase: None mentioned

Carbonate Phase: Dolomite, calcite, REE-(fluor)carbonates, (Ca, Sr, and Ba)-bearing REE carbonates, **ancylite**

Other Accessory Phase: Fluorapatite, baryte, celestine

REE Phase: Monazite, REE-(fluor)carbonates, (Ca, Sr, and Ba)-bearing REE carbonates, ancylite

XRD Results: The rock is dominated by carbonates specifically dolomite (91%), followed by calcite (4%) and apatite (4).

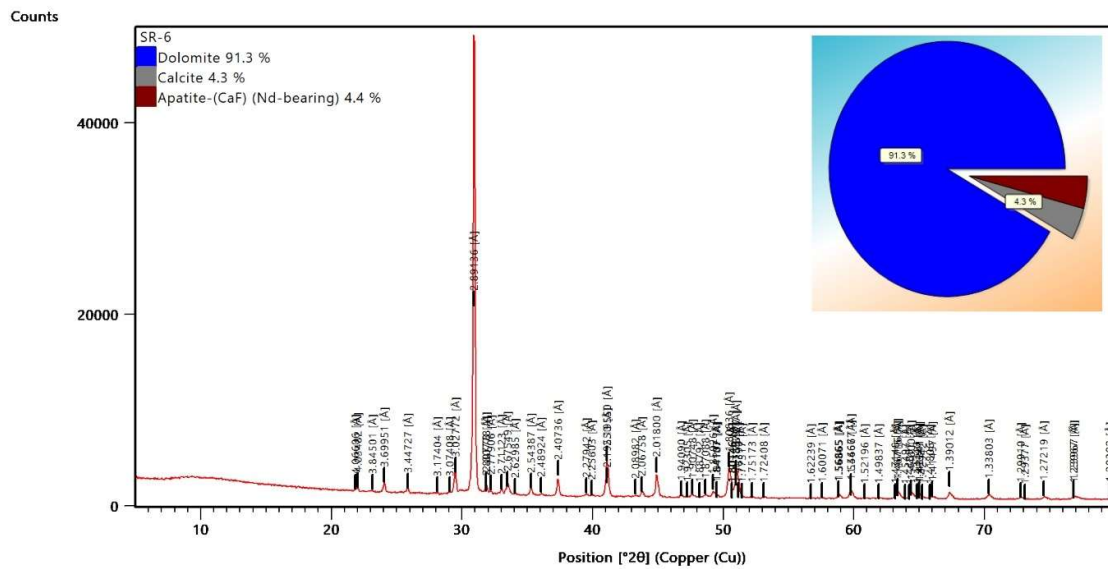


Fig. 6. 3. XRD results showing major minerals present in the rock: **Calcite Carbonatite.**

Sample #SR-7



Fig. 7.1 Photographs of surface outcrop samples of dolomite carbonatite.

The rock is medium- to fine-grained **dolomite carbonatite**, composed of dolomite (~80 modal %), iron oxides (magnetite and its alteration products), phlogopite, aegirine-augite, and fluorapatite (Fig. 7.2). Although, calcite is abundant in the rock, it is not a part of the original rock, as it occurs as thin, 10–20 microns thick veins, crosscutting the dolomite carbonatite and its constituent minerals (Fig. 7.2).

XRD Results: The rock is dominated by carbonates specifically dolomite (79%), followed by Mg-calcite (17%) and the minor minerals are: flourapatite (2%). Augite (2%).

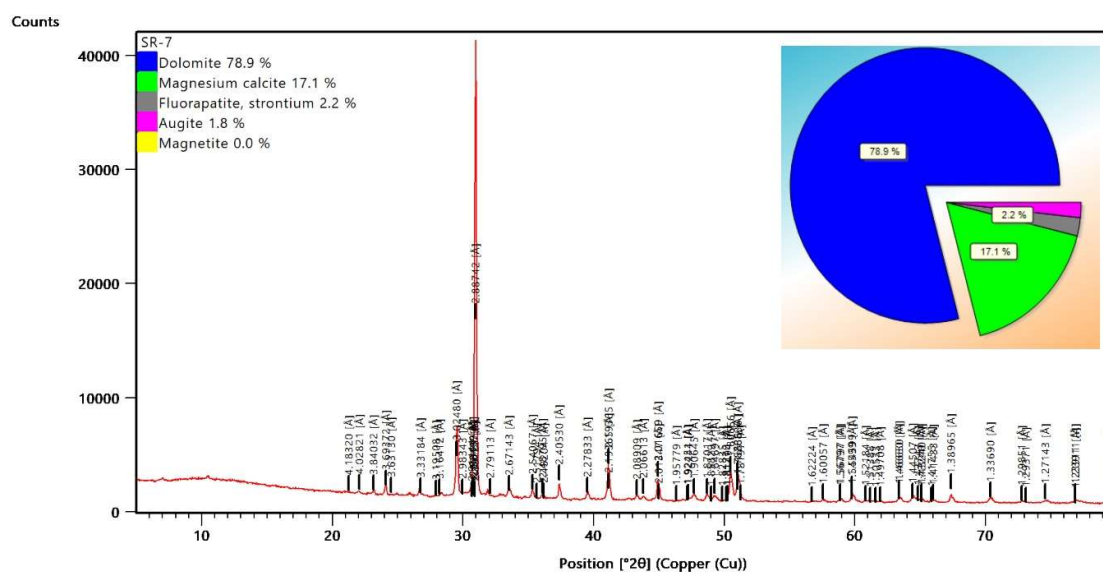


Fig. 7. 3. XRD results showing major minerals present in the rock: **Dolomite Carbonatite**.

Dolomite and phlogopite are partially replaced by calcite (Fig. 7.2), magnetite by goethite (Fig. 7.2c–d), fluorapatite by secondary apatite (Fig. 7.2b). Due to the alteration, rare earth elements within the primary dolomite and fluorapatite are released, giving rise to monazite (Fig. 7.2e). At times, a thin, baryte-bearing vein is observed at the center of the calcite vein (Fig. 7.2f), indicating the presence of sulfate-rich component in the fluid. A set of EPMA major element of all the important minerals can be found in Appendix table 7.

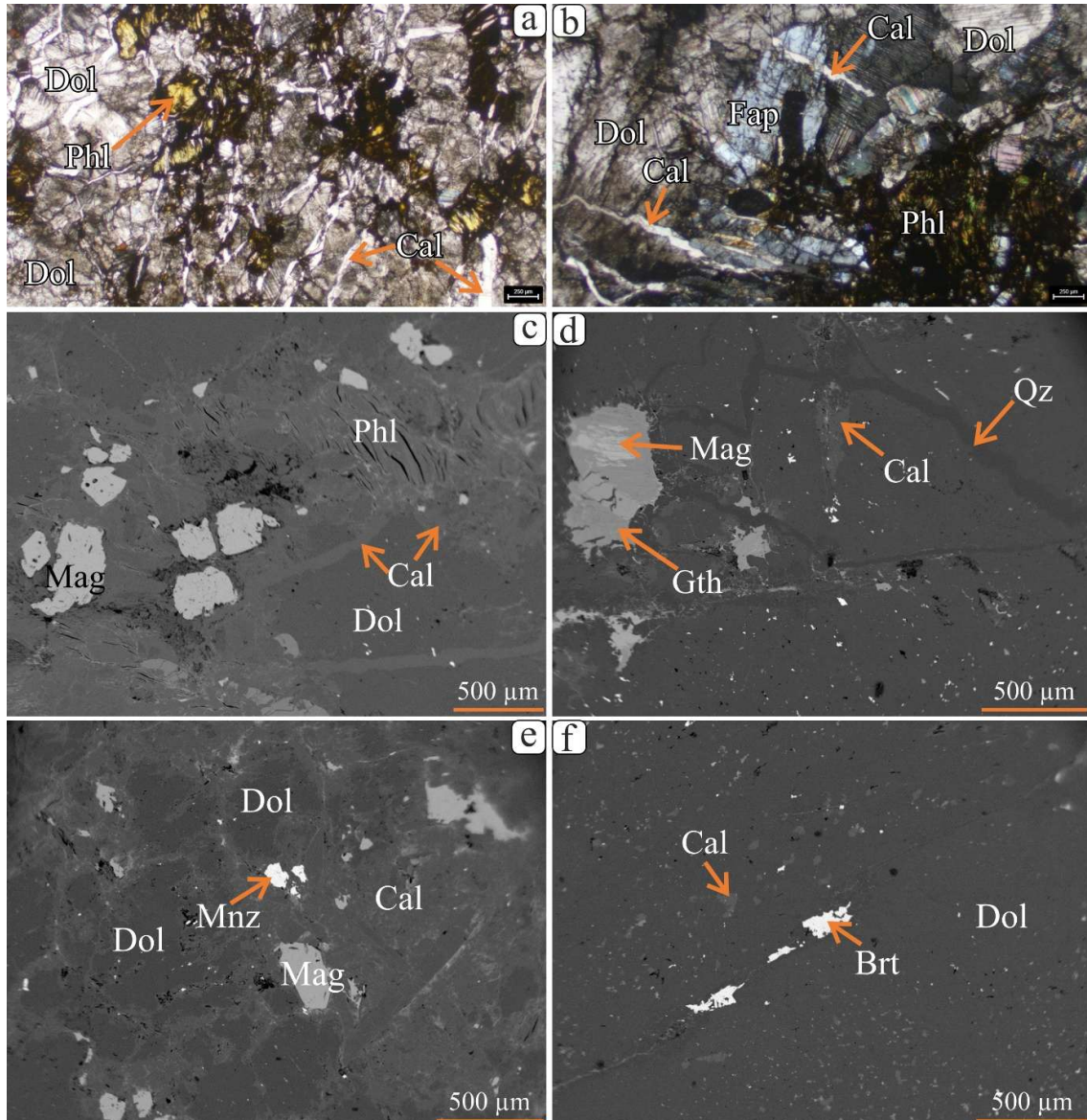


Fig. 7.2 Representative photomicrographs (a and b) and BSE images (c–f) of the dolomite carbonatite. Abbreviations: baryte = Brt, calcite = Cal, dolomite = dol, fluorapatite = Fap, magnetite = Mag, monazite = Mnz, phlogopite = Phl, goethite = Gth.

In Summary:

This medium-to fine-grained dolomite carbonatite (~80% dolomite) contains iron oxides, phlogopite, aegirine-augite, and fluorapatite, crosscut by thin calcite veins (10-20 μm) with central baryte-bearing zones indicating sulfate-rich fluids. Primary minerals are partially replaced: dolomite and phlogopite by calcite, magnetite by goethite, and fluorapatite by secondary apatite. REEs released from primary dolomite and fluorapatite during alteration precipitated as monazite. The alteration assemblage records fluid-mediated REE remobilization into phosphate phases. EPMA mineral chemistry indicates limited re-equilibration under low-grade metamorphic conditions. Suggests sub-greenschist facies alteration.

Mineral Phases Identified:

Primary Silicate Phase: Phlogopite, aegirine-augite

Secondary Silicate Phase: None explicitly named (phlogopite is partially replaced by calcite)

Mafic Phase: Phlogopite, aegirine-augite, magnetite, iron oxides

Carbonate Phase: Dolomite (79%), Mg-calcite (17%), calcite (described as vein material not part of original rock)

Other Accessory Phase: Fluorapatite (2%), secondary apatite, goethite (alteration after magnetite), baryte

REE Phase: Monazite

Sample #SR-8



Fig. 8.1 Photographs of surface outcrop samples of dolomite carbonatite.

The rock sample is a **dolomite carbonatite**. Similar to sample #SR-7, this rock (sample #SR-8) shares the same mineralogy, textures, alteration pattern, and presence of later calcite-bearing crosscutting veins. The only difference observed in sample #SR-8 is the greater intensity of alteration. A set of EPMA major element of all the important minerals can be found in Appendix table 8.

XRD Results: The rock is dominated by carbonates specifically dolomite (48 %), biotite (19%), microcline (16%) , actinolite (14 %) minor augite (4%).

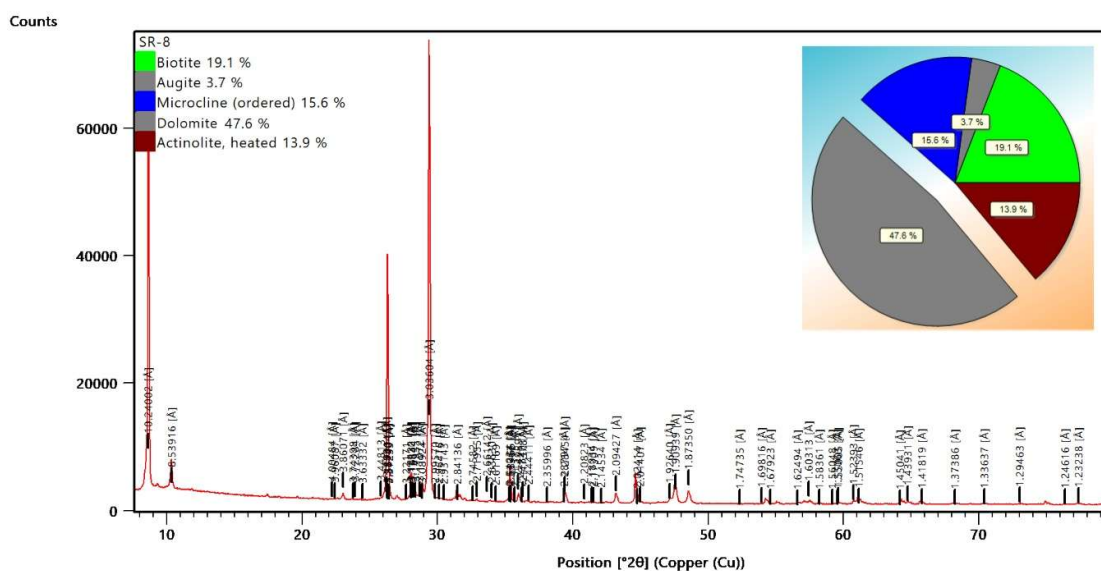


Fig. 8. 2. XRD results showing major minerals present in the rock: **Dolomite Carbonatite**.

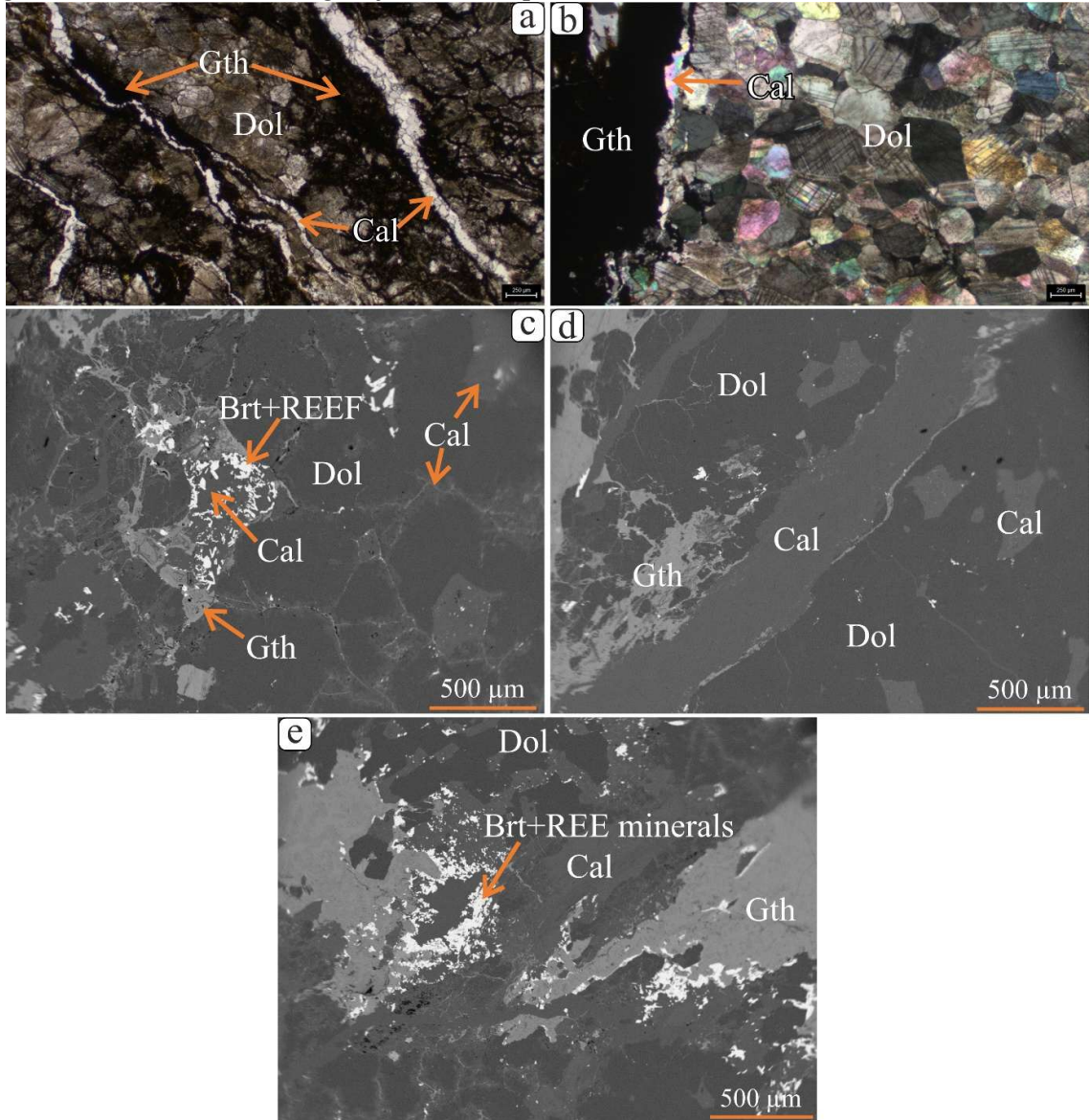


Fig. 8.3 Representative photomicrographs (a and b) and BSE images (c–e) of the dolomite carbonatite. (a) Dolomite carbonatite infiltrated by calcite-bearing veins outlined by (Fe,Si)-(hydr)oxide. (b) At times, the outlining goethite itself is outlined by calcite of younger generation. (c–e) Alteration of the dolomite carbonatite and precipitation of and association consisting (Fe,Si)-(hydr)oxide, baryte, and REE=(fluor)carbonates. Abbreviations: baryte = Brt, calcite = Cal, dolomite = dol, REE-(fluor)carbonate= REEF, goethite = Gth.

In Summary:

The rock sample is a dolomite carbonatite. contains iron oxides, phlogopite, aegirine-augite, and fluorapatite. Primary minerals dolomite and phlogopite are partially replaced by calcite, magnetite by goethite, and fluorapatite by secondary apatite. REEs released from primary dolomite and fluorapatite during alteration precipitated as monazite. The alteration assemblage records fluid-mediated REE remobilization into phosphate phases. EPMA mineral chemistry indicates limited re-equilibration under low-grade metamorphic conditions, suggests sub-greenschist facies alteration.

Primary Silicate Phase: Phlogopite, aegirine-augite

Secondary Silicate Phase: None explicitly named (phlogopite is partially replaced by calcite)

Mafic Phase: Phlogopite, aegirine-augite, magnetite, iron oxides

Carbonate Phase: Dolomite (79%), Mg-calcite (17%), calcite (described as vein material not part of original rock)

Other Accessory Phase: Fluorapatite (2%), secondary apatite, goethite (alteration after magnetite), baryte

REE Phase: Monazite

Integrated Mineral Phase Interpretation:

The studied samples show dominant silicate mineral phases (carbonate, feldspar–quartz ± amphibole/biotite) representing primary magmatic assemblages. Secondary silicate phases (chlorite, sericite) and carbonate phases indicate fenitization .

REE Mineral Phases are interpreted to occur mainly in:

1. REE Mineral Phases in Phosphate Phases

- Monazite [(Ce,La,Nd,Th)PO₄] is the dominant REE-bearing phosphate mineral across the complex
- Fluorapatite [Ca₅(PO₄)₃F] serves as a primary host for REEs, though it is not itself an REE mineral:

2. Carbonate Phase (REE-carbonates in metasomatized zones)

- REE-(fluor)carbonates [e.g., bastnäsite-(Ce): (Ce,La)(CO₃)F]
- Ca, Sr, and Ba)-bearing REE carbonates [e.g., carbocernaite-(Ce): (Ca,Ce,Sr,Ba)(CO₃)₂-like phases]
- Ancylyte [Sr(Ce,La)(CO₃)₂(OH)·H₂O]
- Calcite [CaCO₃] as REE host

3. Minor Oxide Phase (if Ce-enriched zones occur)

- Magnetite and Iron Oxides eg. Goethite [FeO(OH)]
- Ce-oxide phases (e.g., cerianite, CeO₂)

The REE mineralization the study area occurs predominantly in phosphate phases (monazite) and carbonate phases (REE-(fluor)carbonates, (Ca,Sr,Ba)-REE carbonates, ancylite). Oxide phases play a minor role. Monazite dominates the phosphate-hosted REE mineralization, while a diverse suite of REE carbonates (bastnäsite-type, carbocernaite-type, ancylite) characterizes the carbonate-hosted REE assemblage.

Appendix table 1. Representative EPMA data of K-feldspar (Kfs), albite (Ab), aegirine-augite (agt), Ca-bearing strontianite (Ca-Str), and titanite (Ttn).

Minerals	Na ₂ O	MgO	Al ₂ O ₃	K ₂ O	CaO	TiO ₂	MnO	FeO	ZnO	SiO ₂	Total
Kfs	0.30	0.03	17.33	16.23	b.d.l.	b.d.l.	b.d.l.	0.23	b.d.l.	64.55	99.43
Kfs	0.41	b.d.l.	17.52	16.43	b.d.l.	b.d.l.	0.05	0.16	b.d.l.	65.60	100.34
Kfs	0.25	b.d.l.	17.56	16.56	b.d.l.	b.d.l.	b.d.l.	0.13	0.04	64.97	99.76
Kfs	0.21	b.d.l.	17.22	16.63	b.d.l.	0.02	0.04	0.07	b.d.l.	64.54	99.11
Ab	11.77	0.01	18.41	0.18	b.d.l.	b.d.l.	0.05	0.11	0.02	69.72	100.35
Ab	11.95	b.d.l.	18.72	0.15	0.01	b.d.l.	b.d.l.	0.10	0.11	70.36	101.42
Ab	11.47	0.02	18.66	0.13	b.d.l.	0.01	b.d.l.	0.14	b.d.l.	69.58	100.05
Ab	11.65	0.02	18.94	0.06	b.d.l.	b.d.l.	b.d.l.	0.05	0.14	69.18	100.06
Agt	6.00	6.55	2.40	0.01	13.37	0.07	0.60	18.44	b.d.l.	52.63	100.11
Agt	6.27	7.09	1.23	b.d.l.	13.23	0.13	0.44	17.93	b.d.l.	53.75	100.10
Agt	6.97	6.20	0.94	0.01	11.84	0.09	0.38	19.11	b.d.l.	53.75	99.32
Agt	7.85	5.34	2.45	b.d.l.	10.29	0.11	0.37	20.27	0.08	53.00	99.79
Ca-Str	0.05	b.d.l.	b.d.l.	b.d.l.	32.12	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.04	32.32
Ca-Str	0.04	b.d.l.	b.d.l.	0.03	33.05	0.01	0.02	b.d.l.	b.d.l.	0.02	33.30
Ca-Str	b.d.l.	0.02	b.d.l.	b.d.l.	33.22	b.d.l.	0.04	0.01	0.10	b.d.l.	33.44
Ttn	0.03	0.01	0.72	b.d.l.	27.24	35.74	b.d.l.	2.48	b.d.l.	29.73	95.98

Low oxide totals in Ca-bearing strontianite and titanite arose because these Sr and Nb were included in the calibration file, but the former contains Sr, while the latter contains some Nb. b.d.l. = below detection limit.

Appendix table 2. Representative EPMA data of calcite (Cal), dolomite (Dol), richterite = Rct, and phlogopite = Phl.

Mineral	Na ₂ O	MgO	Al ₂ O ₃	K ₂ O	CaO	TiO ₂	MnO	FeO	BaO	SiO ₂	Total
Cal	b.d.l.	1.45	b.d.l.	b.d.l.	51.20	b.d.l.	1.20	0.50	b.d.l.	b.d.l.	54.46
Cal	b.d.l.	1.86	b.d.l.	b.d.l.	50.09	b.d.l.	1.12	0.76	0.06	b.d.l.	53.98
Cal	0.02	2.17	b.d.l.	b.d.l.	50.44	b.d.l.	0.79	0.77	0.18	0.01	54.47
Cal	0.06	2.64	0.02	0.01	50.17	b.d.l.	0.81	0.81	0.24	0.03	54.83
Dol	0.01	18.30	b.d.l.	b.d.l.	28.19	b.d.l.	0.94	3.30	0.05	b.d.l.	50.86
Dol	0.01	18.35	b.d.l.	b.d.l.	28.46	b.d.l.	0.95	3.19	0.03	0.02	51.02
Dol	0.02	18.27	0.08	0.02	28.17	b.d.l.	0.88	3.40	0.09	b.d.l.	50.96
Dol	0.01	18.41	0.90	b.d.l.	28.04	b.d.l.	0.95	3.47	0.08	0.03	51.93
Rct	2.92	20.90	0.68	1.13	10.02	b.d.l.	0.24	4.32	0.06	56.28	96.53
Rct	2.45	20.70	2.78	0.90	9.73	0.02	0.21	4.02	b.d.l.	55.74	96.58
Rct	2.83	20.86	2.39	0.89	9.37	0.07	0.17	4.38	0.04	56.48	97.49
Phl	0.93	23.58	7.23	6.65	3.16	0.11	0.89	6.22	0.13	46.99	95.92

Low oxide totals in calcite analyses are due to the lack of Sr in the calibration. b.d.l. = below detection limit.

Appendix table 3. Representative EPMA data of calcite (Cal), andradite (Adr), aegirine-augite (Agt), and titanite (Ttn).

Mineral	Na ₂ O	MgO	Al ₂ O ₃	CaO	TiO ₂	MnO	FeO	SiO ₂	Total
Cal	b.d.l.	0.05	b.d.l.	54.80	0.02	0.41	0.14	b.d.l.	55.49
Cal	0.01	0.04	0.01	54.06	b.d.l.	0.39	0.31	0.04	54.89
Cal	b.d.l.	0.03	0.01	54.72	b.d.l.	0.11	0.23	0.02	55.17
Adr	0.09	0.21	3.29	31.99	1.99	0.70	23.20	35.34	96.82
Adr	0.14	0.10	3.20	31.11	1.56	1.17	24.14	35.51	96.99
Adr	0.03	0.15	3.15	31.95	1.62	0.76	23.82	35.51	97.06
Agt	4.52	4.83	3.31	15.90	0.34	0.72	19.36	50.04	99.17
Agt	4.61	4.61	3.40	15.72	0.34	0.54	20.28	50.28	99.93
Agt	5.24	4.79	3.50	14.93	0.38	0.51	19.49	49.98	99.03
Ttn	0.05	b.d.l.	0.94	27.85	36.42	0.06	1.56	30.23	97.12
Ttn	0.11	b.d.l.	0.81	27.57	36.61	b.d.l.	1.28	30.01	96.42

Low oxide totals in andradite is because all the Fe is reported as Fe²⁺, even though a part of it is in Fe³⁺ state. b.d.l. = below detection limit

Appendix table 4. Representative EPMA data of calcite (Cal), potassic-richterite (Prct), and titanite (Ttn).

Mineral	Na ₂ O	MgO	Al ₂ O ₃	K ₂ O	CaO	TiO ₂	MnO	FeO	BaO	SiO ₂	Total
Cal	0.03	1.21	0.01	b.d.l.	48.02	b.d.l.	0.81	1.01	1.36	0.02	52.63
Cal	0.04	1.04	b.d.l.	0.01	49.72	b.d.l.	0.86	1.10	0.35	0.01	53.18
Prct	5.38	16.38	0.33	4.02	3.61	0.24	0.18	12.10	b.d.l.	55.54	97.78
Prct	5.26	16.48	0.16	4.38	3.54	0.20	0.24	11.25	0.04	56.29	97.88
Phl	0.11	17.74	7.07	9.35	0.04	0.42	0.10	19.59	b.d.l.	40.41	94.88
Phl	0.03	16.66	6.28	9.59	b.d.l.	0.62	0.12	20.27	0.09	38.98	92.79
Phl	0.03	16.62	6.38	9.68	b.d.l.	0.60	0.09	20.48	0.06	39.30	93.25
Phl	0.01	17.10	6.57	9.80	b.d.l.	0.58	0.16	19.80	0.09	39.20	93.48

Low oxide totals in calcite analyses are due to the lack of Sr in the calibration. b.d.l. = below detection limit.

Appendix table 5. Representative EPMA data of calcite (Cal), goethite (Gth), magnetite (Mag), potassic-richterite (Prct), and phlogopite (Phl).

Mineral	Na ₂ O	MgO	Al ₂ O ₃	K ₂ O	CaO	TiO ₂	MnO	FeO	BaO	SiO ₂	Total
Prct	4.40	17.45	1.15	3.97	8.60	0.26	0.05	6.65	b.d.l.	51.03	93.66
Prct	4.83	19.89	0.04	4.67	4.64	0.11	0.14	6.28	b.d.l.	57.21	97.83
Phl	0.58	20.69	9.55	4.71	0.81	0.45	0.02	10.25	0.14	44.35	91.69
Phl	0.21	20.05	8.75	2.64	2.97	0.46	0.05	9.49	0.15	40.26	85.07
Cal	0.02	0.49	b.d.l.	b.d.l.	54.67	b.d.l.	0.72	0.90	0.31	b.d.l.	57.15
Cal	b.d.l.	2.37	b.d.l.	b.d.l.	54.23	b.d.l.	b.d.l.	0.02	b.d.l.	0.02	56.66
Cal	b.d.l.	1.52	b.d.l.	b.d.l.	54.45	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.01	56.01
Gth	0.03	0.49	0.34	0.05	0.69	b.d.l.	0.20	78.04	0.26	4.62	84.78
Gth	0.05	0.36	0.42	b.d.l.	0.44	b.d.l.	0.62	76.74	0.39	5.12	84.23
Mag	b.d.l.	0.07	0.04	b.d.l.	0.02	0.01	b.d.l.	91.52	b.d.l.	0.06	91.73

Low oxide total in case of magnetite is because all the Fe is reported as Fe²⁺, even though a part of the total Fe is in Fe³⁺ state. b.d.l. = below detection limit.

Appendix table 6. Representative EPMA data of calcite (Cal), dolomite (Dol), fluorapatite (Fap), and Sr-rich calcite (Sr-Cal).

Minerals	F	Na ₂ O	MgO	P ₂ O ₅	CaO	MnO	FeO	BaO	Total
Fap	3.41	0.28	b.d.l.	40.82	51.98	b.d.l.	b.d.l.	b.d.l.	96.66
Fap	3.57	0.30	b.d.l.	40.26	52.37	b.d.l.	b.d.l.	b.d.l.	96.69
Dol	b.d.l.	b.d.l.	18.86	b.d.l.	29.17	0.69	2.93	b.d.l.	51.78
Dol	0.01	0.03	19.18	0.03	28.46	0.42	2.43	b.d.l.	50.75
Dol	0.02	b.d.l.	19.61	0.02	28.38	0.52	2.76	b.d.l.	51.31
Dol	b.d.l.	0.01	19.11	b.d.l.	28.47	0.52	2.31	b.d.l.	50.75
Dol	b.d.l.	0.03	19.72	b.d.l.	28.89	0.45	2.24	b.d.l.	51.49
Cal	0.02	b.d.l.	0.33	0.03	52.20	0.09	0.19	0.93	54.31
Cal	b.d.l.	0.07	0.69	0.03	53.95	0.25	0.31	0.23	55.60
Cal	0.01	0.04	0.71	b.d.l.	53.81	0.22	0.31	0.22	55.55
Cal	b.d.l.	0.02	0.87	b.d.l.	51.93	0.32	0.36	0.17	53.75
Cal	0.02	0.02	0.80	0.06	53.66	0.20	0.35	0.12	55.26
Sr Cal	0.01	0.07	0.02	b.d.l.	38.18	b.d.l.	0.03	0.24	38.63

Low oxide totals in fluorapatite, calcite, and Sr-rich calcite analyses are due to the lack of Sr in the calibration. b.d.l. = below detection limit.

Appendix table 7. Representative EPMA data of calcite (Cal), dolomite (Dol), goethite (Gth), magnetite (Mag), monazite (Mnz), and quartz (Qz).

Mineral	MgO	P ₂ O ₅	CaO	MnO	FeO	SiO ₂	Total
Dol	18.61	0.02	28.62	0.50	3.96	0.05	51.88
Dol	19.30	0.04	28.45	0.50	3.26	0.06	51.88
Dol	18.91	0.02	28.25	0.54	3.65	0.11	51.63
Dol	18.24	b.d.l.	28.43	0.65	4.08	b.d.l.	51.51
Cal	0.63	b.d.l.	54.48	0.04	0.03	b.d.l.	55.24
Cal	0.75	0.03	55.36	0.06	0.01	0.02	56.33
Cal	2.09	0.04	53.67	0.01	0.17	b.d.l.	56.07
Cal	0.94	0.04	55.64	b.d.l.	0.07	b.d.l.	56.74
Mag	0.01	b.d.l.	0.05	0.02	93.21	0.02	93.37
Mag	0.04	0.03	0.04	0.02	92.96	0.12	93.28
Mag	0.02	b.d.l.	b.d.l.	b.d.l.	93.07	0.14	93.25
Mag	b.d.l.	b.d.l.	0.02	0.01	92.93	0.07	93.23
Mnz	b.d.l.	27.46	0.03	b.d.l.	b.d.l.	0.12	29.78
Qz	0.01	b.d.l.	0.05	0.01	0.08	103.05	103.27
Gth	0.48	0.04	0.16	b.d.l.	74.48	4.24	79.47
Gth	0.37	b.d.l.	0.14	b.d.l.	76.82	3.12	80.58

Low oxide total in case of magnetite is because all the Fe is reported as Fe²⁺, even though a part of the total Fe is in Fe³⁺ state and in case of monazite is because rare earth elements (REEs) and Sr were not included in the calibration file. b.d.l. = below detection limit.

Appendix table 8. Representative EPMA data of calcite (Cal), dolomite (Dol), goethite (Gth), and magnetite (Mag).

Minerals	MgO	Al ₂ O ₃	CaO	MnO	FeO	BaO	SiO ₂	Total
Dol	18.37	1.21	28.71	0.61	3.41	0.05	0.05	52.51
Dol	18.01	1.41	28.39	0.73	3.95	0.01	0.36	52.97
Dol	18.52	0.27	28.78	0.84	3.85	0.01	0.01	52.43
Dol	18.45	0.61	28.51	0.75	3.52	b.d.l.	0.05	51.96
Cal	1.12	b.d.l.	56.15	b.d.l.	0.49	0.04	b.d.l.	57.87
Cal	1.33	0.01	56.06	0.01	0.16	b.d.l.	0.02	57.67
Cal	0.84	b.d.l.	56.73	b.d.l.	0.01	0.08	0.03	57.80
Cal	0.76	b.d.l.	53.36	0.32	0.50	0.25	0.04	55.33
Cal	1.77	0.03	55.14	0.08	0.15	b.d.l.	b.d.l.	57.20
Gth	0.84	3.12	0.52	0.10	67.05	0.14	8.23	80.22
Gth	0.67	2.77	0.78	0.07	68.27	0.75	10.43	83.90
Gth	0.11	0.04	0.14	b.d.l.	82.96	0.02	1.14	84.53
Mag	0.01	0.74	0.05	b.d.l.	92.95	0.01	0.06	94.05

Low oxide total in case of magnetite is because all the Fe is reported as Fe²⁺, even though a part of the total Fe is in Fe³⁺ state. b.d.l. = below detection limit.

Place: Powai, Mumbai.

Date: 12^h March 2026

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Ore zone details

Sl	Trench/ Borehole No	Sample ID	HREE (ppm)										LREE (ppm)							Total REE (ppm)		Zone	TOTAL REE (%)	RM (ppm)			
			Dy	Er	Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H- REE	Eu	La	Ce	Nd	Pr	Sm	Total LREE					Sc	Nb	Ta	Mo
1	Trench 1	57 TR 01/01	47.54	41.63	120.73	14.34	38.64	3.22	1.00	174.54	22.63	464.27	41.98	2663.59	3519.74	1172.69	307.56	182.41	7887.96	8352.23	6836.67	Z1	0.84	114.36	10.10	7.34	5.00
2		57 TR 01/02	48.21	24.76	148.35	2.38	20.27	2.87	1.00	121.19	8.85	377.89	48.50	2978.67	4947.48	1362.98	464.88	191.84	9994.33	10372.22			1.04	178.13	12.17	8.05	2.51
3		57 TR 01/03	43.00	28.00	236.00	8.00	19.00	2.00	2.00	144.00	10.00	492.00	41.00	2750.00	3920.00	1138.00	418.00	183.00	8450.00	8942.00			0.89	524.00	9.00	2.00	<0.5
4		57 TR 01/04	49.92	14.37	140.38	17.71	12.74	3.98	1.00	156.43	12.35	408.88	43.14	1477.53	3058.72	931.41	246.90	3.00	5760.70	6169.59			0.62	58.71	5.85	14.00	13.00
5		57 TR 01/05	50.05	25.01	132.21	9.79	21.93	3.02	1.00	160.11	12.09	415.21	41.12	1504.21	3097.38	902.00	255.26	158.57	5958.53	6373.74			0.64	61.47	7.62	4.00	8.25
6		57 TR 01/06	53.00	21.00	164.00	7.00	18.00	2.00	2.00	182.00	12.00	461.00	60.00	1797.00	3370.00	886.00	352.00	172.00	6637.00	7098.00			0.71	59.00	5.00	3.00	<0.5
7		57 TR 01/07	37.03	25.63	120.85	14.77	5.03	3.68	2.00	131.29	11.59	351.86	36.76	1089.56	2310.24	711.63	198.20	139.44	4485.84	4837.69			0.48	32.18	4.35	11.00	<0.5
8		57 TR 01/08	37.30	15.23	100.12	18.07	12.58	2.45	1.00	120.34	8.87	315.96	28.85	1212.24	2252.46	695.32	177.13	121.92	4487.92	4803.88			0.48	29.29	5.57	<0.5	<0.5
9		57 TR 01/09	38.41	16.75	94.30	4.00	4.27	2.56	<0.5	116.34	8.42	285.05	27.94	1149.13	2167.06	657.24	180.62	113.65	4295.64	4580.69			0.46	69.79	5.75	<0.5	1.35
10	SRB 01	BH1 10-11	16.85	10.33	52.92	2.26	8.09	1.61	<0	54.61	5.23	151.90	16.01	777.43	1381.52	404.35	136.67	71.51	2787.49	2939.40	2685.83	Z2	0.29	32.66	9.24	3.76	1.59
11		BH1 11-12	18.57	11.18	56.73	2.37	9.04	1.93	<0	62.14	6.20	168.15	16.95	699.39	1276.05	395.02	131.06	74.31	2592.77	2760.93			0.28	27.87	9.49	4.50	1.27
12		BH1 12-13	22.45	13.20	60.58	3.06	9.56	1.81	<0	77.00	7.26	194.94	18.63	629.09	1220.18	395.13	132.17	77.67	2472.87	2667.81			0.27	18.89	10.24	3.59	1.10
13		BH1 13-14	22.88	13.23	60.89	2.95	9.44	1.98	<0	81.74	7.94	201.05	18.20	573.56	1120.34	377.41	125.35	76.37	2291.23	2492.28			0.25	14.09	9.37	3.96	1.24
14		BH1 14-15	23.25	11.98	61.53	2.95	8.93	1.83	<0	77.69	7.02	195.18	18.38	552.77	1123.81	386.56	129.37	77.85	2288.75	2483.93			0.25	25.42	4.78	3.60	0.55
15		BH1 15-16	21.00	9.00	65.17	4.00	8.00	1.00	1.00	68.00	8.00	185.17	25.00	637.00	1297.00	399.00	149.44	78.00	2585.44	2770.61			0.28	41.00	7.00	2.00	<0.5
16		BH1 16-17	24.40	12.09	68.81	0.95	9.74	1.35	<0.5	71.06	6.23	194.65	21.51	1128.96	2023.73	578.99	199.42	96.67	4049.29	4243.93	5082.23	Z3	0.42	36.23	6.67	2.80	<0.5
17		BH1 17-18	19.25	14.85	66.02	4.00	12.44	2.85	<0.5	60.20	7.28	186.89	17.88	779.68	1429.87	451.05	150.20	77.38	2906.05	3092.94			0.31	85.10	22.00	7.68	<0.5
18		BH1 18-19	48.54	23.72	120.97	7.85	16.89	1.44	<0.5	158.45	12.27	390.13	40.45	2039.28	3867.89	1041.26	353.61	177.20	7519.69	7909.82			0.79	31.07	6.14	2.34	<0.5
19		BH1 19-20	18.36	9.79	48.19	2.48	6.71	1.02	<0	62.41	5.23	154.20	15.03	646.48	1187.52	350.61	122.04	64.83	2386.51	2540.71	2299.72	Z4	0.25	15.51	3.45	1.69	0.59
20		BH1 20-21	30.10	15.23	79.51	2.56	12.04	2.91	<0	105.90	10.45	258.69	22.90	515.24	1132.73	410.27	141.97	90.56	2313.67	2572.36			0.26	17.24	3.98	5.75	<0
21		BH1 21-22	38.30	18.30	86.33	5.12	12.35	2.00	0.32	136.90	11.42	311.05	27.18	527.63	1192.45	442.44	146.18	104.12	2439.99	2751.04			0.28	13.56	1.75	2.39	<0
22		BH1 22-23	10.11	5.67	25.48	1.47	3.59	0.42	<0	36.10	2.96	85.80	8.26	327.67	621.69	190.91	64.56	35.88	1248.97	1334.77			0.13	3.09	2.51	0.52	1.84
23		BH1 23-24	34.06	17.46	80.58	3.93	11.18	1.31	<0	120.81	9.66	278.98	26.32	954.05	1825.01	561.59	197.83	110.16	3674.95	3953.94	4192.69	Z5	0.40	10.18	2.42	1.55	<0
24		BH1 24-25	23.20	12.57	64.56	3.42	9.04	0.87	<0	72.42	5.46	191.54	21.14	1205.02	2083.21	562.74	199.48	96.30	4167.89	4359.43			0.44	35.65	5.59	1.78	23.50
25		BH1 25-26	13.84	8.39	43.33	1.92	6.29	0.67	<0	38.64	3.37	116.43	14.06	1003.40	1680.71	430.44	152.32	68.25	3349.18	3465.62			0.35	43.32	5.32	1.81	1.61
26		BH1 26-27	14.74	10.56	43.98	2.32	8.88	0.68	<0	39.41	3.19	123.76	14.64	1012.54	1710.18	431.83	139.53	70.29	3379.01	3502.78			0.35	30.80	4.05	1.34	2.17
27		BH1 27-28	17.37	17.27	48.15	5.19	16.48	1.04	<0	42.90	3.08	151.48	15.72	1209.73	1982.95	482.86	130.16	77.96	3899.37	4050.85			0.41	21.98	3.54	1.30	1.26
28		BH1 28-29	22.58	12.23	69.23	3.72	9.02	0.52	<0	64.34	4.14	185.78	22.69	1886.46	2983.27	717.79	261.27	111.50	5982.99	6168.76			0.62	13.16	3.10	1.39	1.02
29		BH1 29-30	14.68	8.99	45.32	2.27	6.99	0.57	<0	41.25	3.30	123.36	15.14	1041.03	1772.50	449.29	156.98	72.11	3507.04	3630.41			0.36	30.75	4.88	1.10	0.80
30		BH1 30-31	15.21	9.01	52.10	2.09	7.03	0.65	<0	39.73	3.19	129.01	17.00	1349.15	2226.78	558.38	203.57	85.13	4440.01	4569.02			0.46	60.83	6.22	1.98	2.02
31		BH1 31-32	13.49	8.73	46.92	1.77	6.77	0.72	<0	35.23	2.67	116.31	15.14	1141.35	1913.44	478.43	170.43	74.71	3793.49	3909.80			0.39	36.15	8.10	1.78	1.45
32		BH1 32-33	19.46	11.19	69.05	4.00	10.44	0.98	<0.5	49.08	3.83	168.03	22.53	1703.43	2910.95	755.49	258.70	109.66	5760.76	5928.79			0.59	88.59	11.86	2.81	1.29
33		BH1 33-34	11.37	6.29	36.61	1.68	5.22	0.70	<0.5	32.55	2.61	97.02	11.11	729.93	1241.62	334.74	113.63	52.19	2483.22	2580.25			0.26	9.80	7.31	0.92	1.20
34		BH1 34-35	28.55	14.97	93.39	4.37	12.94	0.91	<0.5	78.01	5.38	238.51	31.09	2374.36	4028.23	1024.26	357.67	149.88	7965.49	8204.00	6287.41	Z6	0.82	50.41	8.96	2.08	1.17
35		BH1 35-36	24.50	12.55	77.10	3.77	10.23	0.81	<0.5	68.48	5.28	202.73	25.22	1730.18	2954.88	770.81	265.33	117.35	5863.79	6066.52			0.61	75.91	6.64	1.76	1.62
36		BH1 36-37	35.38	16.50	86.37	4.00	12.30	1.80	<0.5	113.36	9.73	279.43	27.08	890.48	1821.30	586.82	198.59	111.79	3636.05	3915.48			0.39	22.83	5.42	2.53	<0.5
37		BH1 37-38	45.59	22.27	123.73	2.34	17.58	2.24	<0.5	138.08	11.38	363.20	39.35	1759.73	3312.51	985.25	330.78	172.81	6600.43	6963.63	1470.07	Z7	0.70	32.56	10.20	3.71	<0.5
38		BH1 38-39	10.73	6.66	33.32	4.00	5.70	0.87	<0.5	32.83	2.93	97.04	9.58	413.44	767.06	245.04	78.23	42.67	1556.01	1653.05			0.17	13.83	10.01	1.06	3.32
39		BH1 39-40	10.37	8.56	28.59	1.34	5.59	1.10	<0.5	36.51	4.43	96.48	7.83	311.62	588.06	192.37	57.84	32.90	1190.62	1287.10			0.13	9.40	20.15	1.76	0.52
40		BH1 40-41	11.96	7.22	36.12	5.00	5.53	0.77	<0.5	36.76	3.09	106.44	11.05	565.92	1028.68	299.95	98.43	49.50	2053.52	2159.97			0.22	8.37	9.87	0.72	<0.5



Ore zone details

SI	Trench/ Borehole No	Sample ID	HREE (ppm)										LREE (ppm)							Total REE (ppm)	Zone	TOTAL REE (%)	RM (ppm)			
			Dy	Er	Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H- REE	Eu	La	Ce	Nd	Pr	Sm	Total LREE				Sc	Nb	Ta	Mo
41		BH1 41-42	32.00	21.00	93.00	6.00	15.00	1.63	1.00	110.00	8.00	287.63	36.00	886.00	1702.00	441.00	158.12	104.00	3327.12	2426.29	Z8	0.36	36.00	20.00	5.00	1.00
42		BH1 42-43	7.41	4.81	21.11	7.00	3.58	1.00	<0.5	25.42	2.33	72.68	6.19	254.30	476.33	151.22	45.90	26.54	960.47			0.10	17.00	8.50	<0.5	2.00
43		BH1 43-44	20.00	11.00	48.00	5.00	8.00	1.00	1.00	71.00	10.00	175.00	21.00	495.00	930.00	255.00	89.32	51.00	1841.32			0.20	29.00	9.00	1.00	2.00
44		BH1 44-45	25.25	20.65	57.63	5.00	12.34	1.94	<0.5	95.12	11.71	229.63	17.40	500.45	916.46	329.56	94.31	66.57	1924.75			0.22	34.21	30.00	3.88	0.71
45		BH1 45-46	21.37	10.75	64.16	3.19	8.91	0.85	<0.5	63.44	4.54	177.20	20.36	1149.85	2015.59	565.38	193.36	92.64	4037.19			0.42	37.27	7.39	1.15	0.82
46		BH1 46-47	10.19	5.24	31.75	4.00	4.57	1.00	<0.5	30.29	2.29	89.32	10.04	619.76	1083.70	294.11	99.93	46.83	2154.36			0.22	16.68	4.47	<0.5	0.58
47		BH1 47-48	10.15	5.63	30.71	1.66	4.32	1.00	<0.5	30.61	2.46	86.54	10.04	732.18	1235.28	314.03	110.44	46.95	2448.92			0.25	17.80	4.66	<0.5	<0.5
48		BH1 48-49	13.87	6.82	42.51	0.84	5.77	1.00	<0.5	39.80	2.69	113.30	13.93	959.66	1609.26	419.07	145.99	64.90	3212.81			0.33	10.90	4.13	<0.5	<0.5
49		BH1 49-50	12.71	6.77	40.05	1.55	5.93	0.62	<0.5	35.89	2.71	106.23	12.45	790.09	1348.81	361.92	123.43	58.25	2694.95			0.28	26.67	4.99	<0.5	1.28
50		BH1 50-51	9.13	5.03	29.09	1.18	3.56	0.27	<0	25.08	1.64	74.97	9.49	722.79	1179.03	292.94	106.75	46.69	2357.68			0.24	13.13	2.36	0.82	1.95
51		BH1 51-52	10.79	6.94	32.67	1.22	4.87	0.55	<0	32.80	2.72	92.57	10.11	640.72	1068.70	295.75	99.14	47.97	2162.39			0.23	16.20	9.06	1.41	0.87
52		BH1 52-53	8.95	7.28	28.57	0.93	5.47	0.86	<0	28.26	2.71	83.02	8.19	517.78	864.43	240.76	79.47	38.30	1748.93			0.18	15.40	13.71	2.18	1.46
53		BH1 53-54	11.54	8.91	36.37	4.00	6.02	0.91	<0	35.80	3.29	106.84	11.08	736.59	1210.79	320.13	112.08	52.16	2442.83			0.25	6.82	14.17	2.29	0.97
54		BH1 54-55	9.28	7.63	26.12	0.93	4.71	1.18	<0	33.59	4.19	87.63	7.19	303.56	564.58	176.45	55.64	30.64	1138.06			0.12	20.57	13.57	2.66	1.79
55		BH1 55-56	16.93	8.97	52.93	2.32	7.24	0.68	<0	50.26	3.33	142.67	16.62	1225.57	1988.92	512.74	182.76	80.55	4007.16	4091.32	Z9	0.41	13.00	5.10	1.34	0.68
56		BH1 56-57	13.18	7.42	43.81	1.56	6.16	0.70	<0	37.01	2.64	112.46	13.72	986.18	1641.48	425.32	149.34	66.02	3282.06			0.34	9.80	6.45	1.57	1.90
57		BH1 57-58	28.01	15.17	88.03	1.11	11.52	0.98	<0	79.67	5.62	230.12	28.48	2235.85	3780.85	913.31	328.26	138.98	7425.73			0.77	37.03	7.47	2.85	1.61
58		BH1 58-59	23.25	14.63	64.24	2.84	11.61	1.39	<0	72.54	5.73	196.23	20.35	515.91	1104.17	420.77	121.09	86.00	2268.29			0.25	16.97	19.17	3.57	2.64
59		BH1 59-60	25.40	15.82	76.12	3.14	12.42	1.92	<0	78.44	6.63	219.90	23.50	1061.55	1904.38	562.36	190.79	105.61	3848.20			0.41	29.89	17.79	4.30	0.68
60		BH1 60-61	25.81	15.64	76.65	3.00	11.51	1.18	<0	77.17	5.80	216.74	25.00	1330.51	2340.42	645.31	226.81	114.17	4682.22			0.49	26.19	15.69	3.20	1.00
61		BH1 61-62	28.40	16.01	87.87	2.13	12.82	2.04	<0	84.52	7.09	240.87	27.18	1213.87	2233.19	666.29	229.93	124.00	4494.46			0.47	25.84	10.20	4.53	0.63
62		BH1 62-63	24.37	18.44	64.54	2.56	13.17	1.60	<0	82.90	7.25	214.82	20.42	810.96	1478.49	458.14	151.80	87.26	3007.08			0.32	27.95	29.69	4.48	0.41
63		BH1 63-64	18.00	10.35	55.58	2.05	7.88	0.62	<0	49.73	3.59	147.81	18.43	1095.53	1881.72	501.86	177.83	86.31	3761.68			0.39	29.81	10.03	2.21	1.28
64		BH1 64-65	11.37	8.70	34.59	1.11	5.99	0.68	<0	35.59	2.87	100.90	10.48	687.47	1158.21	302.36	105.89	49.42	2313.83			0.24	19.61	16.10	2.18	1.21
65		BH1 65-66	4.44	5.81	11.53	0.14	4.62	0.65	<0	18.40	2.08	47.67	2.83	62.77	132.27	57.14	14.93	10.21	280.14	2495.69	Z10	0.03	4.90	17.28	1.52	1.23
66		BH1 66-67	15.98	13.51	40.71	5.00	10.33	1.56	<0	57.93	5.96	150.97	12.09	232.75	473.20	204.83	56.78	45.80	1025.45			0.12	15.69	18.00	4.68	0.47
67		BH1 67-68	46.02	23.87	118.51	6.49	18.12	2.93	<0	152.70	12.87	381.50	37.65	950.90	1968.50	721.24	226.52	155.10	4059.90			0.44	25.68	12.85	5.40	1.42
68		BH1 68-69	22.47	12.63	62.12	2.95	9.22	1.30	<0	72.00	5.68	188.37	19.25	761.03	1411.50	447.70	147.69	84.52	2871.68			0.31	8.34	10.31	2.04	3.25
69		BH1 69-70	37.46	20.45	96.32	5.40	14.79	3.02	<0	129.36	12.51	319.30	29.05	749.57	1531.78	550.04	173.59	119.41	3153.45			0.35	10.50	9.76	4.98	0.17
70		57 TR 04/36	26.82	12.34	85.00	16.13	10.82	1.18	2.00	60.75	3.61	218.64	29.63	1255.94	5917.13	1384.36	339.17	135.08	9061.30			0.09	224.00	6.26	4.81	<0.5
71		57 TR 04/37	54.04	40.94	150.23	29.32	27.03	2.40	<0.5	181.70	13.52	499.18	47.70	2392.78	4804.51	1269.08	296.62	201.54	9012.23			0.10	40.24	1.57	2.39	0.83
72		57 TR 04/38	18.43	7.49	82.81	3.23	31.81	4.90	<0.5	79.99	7.49	236.15	22.90	749.54	1648.61	552.01	87.66	91.36	3152.09			0.03	38.54	10.00	2.55	<0.5
73		57 TR 04/39	33.17	11.06	73.70	27.78	18.06	3.72	2.00	91.78	8.42	269.70	22.98	833.40	1834.32	561.96	139.24	98.50	3490.40			0.04	34.88	2.88	3.07	<0.5
74		57 TR 04/40	46.13	25.91	159.69	21.81	32.97	3.29	<0.5	137.05	8.65	435.49	47.03	1248.46	3065.53	1095.06	284.71	207.43	5948.22			0.06	25.30	9.69	<0.5	<0.5
75		57 TR 04/41	22.58	22.79	65.60	26.71	17.10	3.30	<0.5	76.81	6.13	241.00	17.87	564.34	1231.80	407.65	106.96	66.12	2394.75			0.03	24.75	6.25	<0.5	<0.5
76		57 TR 04/42	22.71	15.34	93.43	10.95	11.94	1.60	<0.5	99.62	7.56	263.15	23.64	1216.35	2572.77	756.44	215.41	126.53	4911.14			0.05	28.12	3.47	<0.5	<0.5
77		57 TR 04/43	26.27	12.47	72.48	20.95	24.43	3.04	<0.5	78.77	6.27	244.70	20.74	1002.55	1904.46	573.72	177.43	103.60	3782.50			0.04	48.67	3.30	<0.5	0.98
78		57 TR 04/44	29.00	11.00	84.00	4.00	11.00	1.00	1.00	84.00	8.00	233.00	28.00	726.00	1528.00	664.00	178.00	121.00	3245.00			0.03	32.00	1.00	<0.5	2.00
79		57 TR 04/45	31.39	14.74	80.62	1.47	11.12	1.67	1.00	77.83	5.83	225.67	25.24	756.35	1575.44	527.91	171.70	91.29	3147.93			0.03	32.11	6.57	<0.5	<0.5



Ore zone details

SI	Trench/ Borehole No	Sample ID	HREE (ppm)										LREE (ppm)							Total REE (ppm)		Zone	TOTAL REE (%)	RM (ppm)			
			Dy	Er	Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H- REE	Eu	La	Ce	Nd	Pr	Sm	Total LREE					Sc	Nb	Ta	Mo
80	Trench 4	57 TR 04/46	32.00	15.00	108.00	4.00	14.00	2.00	1.00	97.00	9.00	282.00	30.00	1080.00	1907.00	732.00	250.00	139.00	4138.00	4420.00	4339.03	Z11	0.04	35.00	5.00	<0.5	<0.5
81		57 TR 04/47	26.04	17.19	78.99	3.53	12.83	2.99	<0.5	73.54	6.53	221.64	21.37	517.12	1055.52	428.11	133.69	78.01	2233.83	2455.47			0.02	15.40	19.00	6.41	<0.5
82		57 TR 04/48	42.52	19.63	109.18	7.15	14.80	2.01	<0.5	106.20	7.74	309.24	34.44	1297.56	2435.64	760.56	244.19	124.84	4897.22	5206.46			0.05	35.90	5.46	4.69	<0.5
83		57 TR 04/49	36.86	15.82	108.21	5.74	14.61	1.93	<0.5	84.63	5.11	272.90	34.05	821.19	1789.71	701.91	221.23	127.12	3695.20	3968.10			0.04	18.69	4.71	4.31	<0.5
84		57 TR 04/50	36.87	17.93	100.72	5.93	14.10	3.33	1.00	101.27	8.52	289.69	28.62	758.07	1558.70	565.33	188.81	102.25	3201.78	3491.47			0.03	46.42	6.78	5.10	<0.5
85		57 TR 04/51	32.34	17.84	83.87	5.11	12.30	2.11	<0.5	90.44	7.31	251.31	25.92	872.16	1725.27	563.29	181.09	93.70	3461.41	3712.73			0.04	21.46	13.74	4.55	<0.5
86		57 TR 04/52	43.85	22.22	115.77	6.85	16.72	3.04	1.00	115.59	9.36	334.40	36.05	1230.19	2450.00	784.51	248.06	130.84	4879.65	5214.06			0.05	32.89	13.09	6.30	<0.5
87		57 TR 04/53	44.44	22.05	111.39	7.15	15.47	2.14	<0.5	115.39	8.91	326.95	36.20	1081.96	2241.32	763.12	239.02	131.13	4492.74	4819.69			0.05	58.39	8.68	4.66	<0.5
88		57 TR 04/54	32.71	15.57	82.19	4.75	11.45	2.21	1.00	74.91	6.29	231.07	24.72	746.69	1587.71	523.30	163.85	89.35	3135.62	3366.70			0.03	53.03	10.76	5.06	0.84
89		57 TR 04/55	20.92	13.20	57.39	2.51	9.25	2.21	2.00	58.20	5.53	171.21	15.95	316.28	718.90	306.32	96.44	57.60	1511.49	1682.69			0.02	12.58	20.93	5.56	<0.5
90		57 TR 04/56	20.74	14.90	55.08	2.99	10.44	1.78	1.00	60.83	5.37	173.12	16.30	349.11	765.41	319.18	89.69	57.18	1596.87	1769.99			0.02	20.64	18.00	4.13	<0.5
91	SRB 02	BH2 12-13	20.36	10.04	68.40	2.46	9.89	2.65	<0	65.46	6.25	185.51	19.29	397.34	944.86	373.38	124.77	84.61	1944.24	2129.74	2085.21	Z12	0.21	9.06	2.62	4.13	<0
92		BH2 13-14	31.43	23.19	78.57	4.27	14.94	2.93	0.11	134.49	14.56	304.49	27.62	322.31	790.33	431.70	114.99	111.96	1798.92	2103.41			0.21	3.81	24.90	6.72	<0
93		BH2 14-15	4.75	4.52	11.79	4.00	2.92	0.35	<0	20.60	2.17	51.11	4.17	74.45	163.83	74.55	18.76	17.01	352.77	403.88			0.04	1.33	9.94	1.01	0.45
94		BH2 15-16	17.26	12.20	47.96	2.08	8.78	1.66	<0	64.48	6.96	161.37	15.89	345.90	737.95	287.89	88.56	65.84	1,542.04	1,703.41			0.17	7.35	14.30	4.34	1.35
95		BH2 24-25	31.57	29.34	85.67	6.00	21.55	3.51	<0.5	126.96	15.93	320.52	28.71	430.19	979.69	520.85	133.87	114.94	2,208.24	2,528.76			0.25	8.42	50.00	9.00	1.44
96		BH2 25-26	35.77	35.93	99.67	4.00	28.36	5.05	0.84	150.26	21.77	381.65	33.47	285.70	763.33	525.07	134.79	128.92	1,871.28	2,252.94			0.23	16.33	71.00	11.00	2.24
97		BH2 26-27	35.08	30.50	91.64	3.00	21.74	3.35	<0.5	138.98	16.51	340.79	30.87	498.55	1,143.52	570.09	150.50	124.11	2,517.64	2,858.44			0.29	6.69	58.00	8.00	<0.5
98		BH2 27-28	33.32	31.95	87.29	3.09	21.08	2.95	0.73	133.32	14.90	328.62	29.35	484.81	1,073.16	527.40	138.78	119.00	2,372.51	2,701.12			0.27	2.85	66.00	9.00	<0.5
99		BH2 28-29	24.97	24.49	66.46	3.11	16.71	3.11	<0.5	106.51	14.91	260.27	22.29	203.52	529.62	353.07	83.45	83.25	1,275.20	1,535.47	1,544.56	Z13	0.15	9.17	41.00	7.00	1.20
100		BH2 29-30	22.84	21.20	60.03	3.00	14.32	2.56	<0.5	92.69	12.11	228.76	19.63	236.53	584.26	327.79	81.69	74.99	1,324.89	1,553.64			0.16	6.85	45.00	8.19	1.10
101		BH2 30-31	35.24	33.17	88.98	4.00	23.18	3.89	0.60	147.14	19.10	355.29	29.48	267.50	706.54	462.13	111.44	112.12	1,689.21	2,044.51	2,450.55	Z14	0.20	9.40	61.00	9.00	0.54
102		BH2 31-32	16.42	11.80	48.80	2.16	8.30	1.02	<0.5	52.45	4.80	145.74	15.62	745.91	1,360.77	420.27	134.83	71.14	2,748.54	2,894.28			0.29	6.63	11.00	1.85	1.59
103		BH2 32-33	13.65	9.47	40.94	4.00	7.08	1.05	<0.5	42.76	4.01	122.96	12.41	639.16	1,160.69	339.58	109.63	56.21	2,317.67	2,440.63			0.24	6.77	8.00	1.24	0.74
104		BH2 33-34	23.51	15.88	61.94	4.00	10.82	1.90	<0.5	81.85	8.13	208.04	18.47	514.50	1,110.65	403.40	124.13	77.67	2,248.81	2,456.85			0.25	28.43	17.00	3.08	<0.5
105		BH2 34-35	37.18	29.47	85.19	4.62	17.55	2.98	<0.5	149.40	16.97	343.37	28.30	327.71	847.53	465.62	116.79	109.22	1,895.18	2,238.54			0.22	4.18	49.00	7.71	<0.5
106		BH2 35-36	35.46	32.86	92.95	4.82	23.25	4.23	<0.5	139.94	18.49	352.00	30.21	582.02	1,193.49	540.59	139.99	115.83	2,602.13	2,954.13			0.30	12.18	51.00	8.00	<0.5
107		BH2 36-37	24.04	15.68	68.78	1.26	12.19	1.98	<0.5	76.76	6.99	207.67	20.04	798.24	1,495.51	478.27	156.05	86.85	3,034.97	3,242.64			0.32	7.81	17.00	3.31	<0.5
108		BH2 37-38	23.36	16.92	59.45	2.95	11.60	2.01	<0.5	83.57	8.74	208.60	18.38	401.35	874.38	349.07	102.44	72.68	1,818.30	2,026.90			0.20	6.87	22.00	3.95	<0.5
109		BH2 38-39	37.42	28.54	86.80	5.19	16.83	3.19	<0.5	154.05	18.16	350.20	28.35	354.07	857.79	454.39	118.31	107.77	1,920.68	2,270.88			0.23	6.82	41.00	7.75	<0.5
110		BH2 39-40	29.60	25.38	71.91	3.79	15.29	3.05	<0.5	122.24	15.36	286.61	23.62	256.83	665.45	376.90	96.08	88.49	1,507.37	1,793.98			0.18	6.69	48.00	8.52	1.11
111		BH2 40-41	20.00	10.00	64.00	3.00	8.00	1.00	1.00	59.00	6.51	172.51	19.00	599.00	1,232.00	367.00	127.16	76.00	2,420.16	2,592.66			0.26	17.00	18.00	7.00	<0.5
112		BH2 41-42	8.94	5.91	27.88	0.97	4.92	0.94	<0.5	27.01	2.75	79.31	7.74	230.91	490.09	175.37	52.48	33.27	989.86	1,069.18	1,454.80	Z15	0.11	22.11	11.79	1.10	<0.5
113		BH2 42-43	14.29	10.08	46.11	1.34	8.70	1.67	<0.5	41.05	4.01	127.26	12.74	402.54	846.90	301.46	93.74	55.78	1,713.17	1,840.43			0.18	10.98	23.18	2.89	<0.5
114		BH2 43-44	18.04	10.18	53.76	2.30	8.14	1.10	<0.5	53.23	4.32	151.06	16.61	677.57	1,310.99	412.74	135.08	73.67	2,626.65	2,777.71	3,168.58	Z16	0.28	19.37	12.21	1.39	<0.5
115		BH2 44-45	28.61	13.71	76.37	4.11	10.50	0.88	<0.5	86.26	6.15	226.59	25.35	794.36	1,664.23	560.09	180.43	108.39	3,332.86	3,559.45			0.36	13.45	7.07	1.16	<0.5
116		BH2 45-46	46.66	21.99	107.19	4.98	15.17	1.51	<0.5	156.32	12.80	366.62	36.35	1,156.30	2,416.28	778.73	256.39	150.98	4,795.03	5,161.65	5,199.01	Z17	0.52	25.82	4.97	1.20	<0.5
117		BH2 46-47	46.18	21.62	114.70	6.77	16.22	1.51	<0.5	146.88	11.34	365.21	38.42	1,149.65	2,437.69	820.50	263.31	161.59	4,871.16	5,236.37			0.52	28.56	6.74	1.75	<0.5
118		BH2 47-48	10.51	5.89	32.62	1.66	4.79	1.00	<0.5	31.81	2.54	90.81	10.24	696.94	1,178.20	310.07	107.47	47.95	2,350.87	2,441.68	2,455.70	Z18	0.24	24.03	6.29	<0.5	<0.5
119		BH2 48-49	7.05	3.98	21.24	0.90	3.27	1.00	<0.5	21.64	1.80	60.88	6.47	326.05	594.81	175.01	55.28	29.14	1,186.76	1,247.63			0.12	7.19	5.77	<0.5	0.77



Ore zone details

SI	Trench/ Borehole No	Sample ID	HREE (ppm)										LREE (ppm)							Total REE (ppm)		Zone	TOTAL REE (%)	RM (ppm)			
			Dy	Er	Gd	Ho	Tb	Lu	Tm	Y	Yb	Total H- REE	Eu	La	Ce	Nd	Pr	Sm	Total LREE					Sc	Nb	Ta	Mo
120		BH2 49-50	18.93	10.29	58.24	2.77	7.90	0.82	<0.5	54.35	4.14	157.45	18.68	1,150.16	2,007.44	539.11	187.27	87.08	3,989.73	4,147.17	2,455.15	Z19	0.41	52.19	9.15	1.39	<0.5
121		BH2 50-51	13.81	7.17	38.00	0.85	5.36	1.00	<0.5	42.09	3.19	111.48	12.30	480.17	938.23	295.96	94.64	53.86	1,875.18	1,986.65			0.20	16.04	5.44	<0.5	<0.5
122		BH2 51-52	34.00	18.00	200.00	5.99	14.00	2.00	2.00	107.00	8.84	391.83	42.00	2,419.00	3,578.00	1,036.00	651.78	146.00	7,872.78	8,264.61	7,763.83	Z19	0.83	107.00	5.00	<0.5	<0.5
123		BH2 52-53	33.00	12.00	103.00	4.00	13.00	1.00	1.00	104.00	8.16	279.16	29.00	987.00	1,829.00	624.00	234.63	124.00	3,827.63	4,106.79			0.41	97.00	5.00	1.00	<0.5
124		BH2 53-54	51.11	25.18	121.21	4.90	17.08	1.97	<0.5	173.89	14.64	409.97	40.34	1,580.02	3,286.10	922.66	312.94	169.28	6,311.34	6,721.32			0.67	47.64	6.45	2.51	<0.5
125		BH2 54-55	40.45	19.18	92.53	2.11	13.86	1.28	<0.5	122.85	8.52	300.78	26.15	1,283.15	2,798.62	687.25	298.65	140.26	5,234.08	5,534.86			0.55	53.95	9.18	3.04	<0.5
126		BH2 55-56	28.18	19.25	109.21	5.45	16.28	1.98	<0.5	126.62	9.95	316.92	35.26	1,800.56	2,897.27	958.03	334.04	157.70	6,182.86	6,499.77			0.65	28.56	6.00	3.77	<0.5
127		BH2 56-57	14.35	10.95	53.28	1.64	9.21	1.31	<0.5	37.81	3.43	131.97	16.03	1,107.55	1,993.18	544.33	186.66	79.88	3,927.63	4,059.60			0.41	12.52	12.00	2.60	1.07
128		BH2 57-58	36.18	20.62	103.89	4.82	16.23	1.73	<0.5	111.55	8.33	303.34	33.83	1,736.96	3,461.71	896.86	305.46	151.48	6,586.29	6,889.63			0.69	14.95	13.00	2.95	<0.5
129		BH2 58-59	36.07	19.85	101.66	4.00	14.75	1.39	<0.5	113.85	8.94	300.50	33.99	2,238.03	4,138.17	983.78	343.29	156.12	7,893.38	8,193.88			0.82	52.17	5.00	3.00	<0.5
130		BH2 59-60	48.81	27.82	135.78	6.80	20.87	2.57	<0.5	127.89	12.40	382.93	45.12	1,998.56	4,589.87	1,001.85	397.63	195.04	8,228.07	8,611.00			0.86	26.46	16.00	4.93	<0.5
131		BH2 60-61	47.12	27.96	126.50	6.56	21.71	2.49	<0	135.16	11.29	378.78	47.60	3,011.78	5,210.20	1,158.73	507.95	212.43	10,148.69	10,527.47			1.05	25.23	8.00	5.53	0.43
132		BH2 61-62	45.13	24.95	127.18	6.22	18.38	1.80	<0	120.58	9.74	353.98	44.50	3,570.58	5,258.69	1,185.96	531.30	215.42	10,806.45	11,160.43			1.12	77.50	12.07	4.72	0.85
133		BH2 62-63	63.21	32.80	180.52	6.70	24.41	1.81	<0	188.67	12.45	510.57	61.69	3,879.98	5,975.34	1,239.89	639.12	290.02	12,086.04	12,596.61			1.26	52.78	9.67	4.18	0.90
134		BH2 63-64	6.92	5.81	17.97	0.81	3.40	0.67	<0	26.26	3.04	64.89	5.38	298.63	510.86	135.14	46.58	23.04	1,019.62	1,084.52	1,223.97	Z20	0.11	3.54	9.04	1.13	0.69
135		BH2 64-65	7.63	6.57	20.91	0.85	3.82	0.85	<0	29.15	3.45	73.23	6.05	341.03	549.77	144.86	51.00	25.48	1,118.19	1,191.41			0.12	9.01	10.84	1.62	0.26
136		BH2 65-66	8.79	6.11	28.30	3.00	4.86	0.81	<0	27.00	2.30	81.17	8.40	348.99	656.29	197.86	65.79	37.47	1,314.81	1,395.98	4,432.10	Z21	0.14	25.95	8.71	1.77	1.07
137		BH2 66-67	16.64	9.79	49.34	1.97	7.01	0.93	<0	51.60	4.11	141.38	15.78	896.43	1,596.37	423.52	154.41	73.55	3,160.06	3,301.44			0.33	23.55	7.87	1.79	0.47
138		BH2 67-68	24.43	13.83	78.84	2.93	11.64	1.72	<0	69.65	5.39	208.43	24.79	1,492.12	2,557.01	674.64	250.81	117.84	5,117.21	5,325.64			0.53	43.99	10.08	4.27	0.75
139		BH2 68-69	27.04	14.82	81.16	0.82	11.51	1.40	<0	79.99	5.93	222.66	26.56	1,503.44	2,646.49	698.21	257.37	122.30	5,254.36	5,477.01			0.55	21.85	8.66	3.12	0.49
140		BH2 69-70	16.43	10.81	52.11	3.00	8.30	1.32	<0	49.20	4.27	145.44	16.21	1,039.63	1,737.82	444.16	165.12	75.92	3,478.86	3,624.29			0.36	41.94	13.34	3.39	0.99