Queries/ Request for Additional Information: Tender Document for Bhangaon Iron Ore Block- Pre bid conference held on 05.02.2018

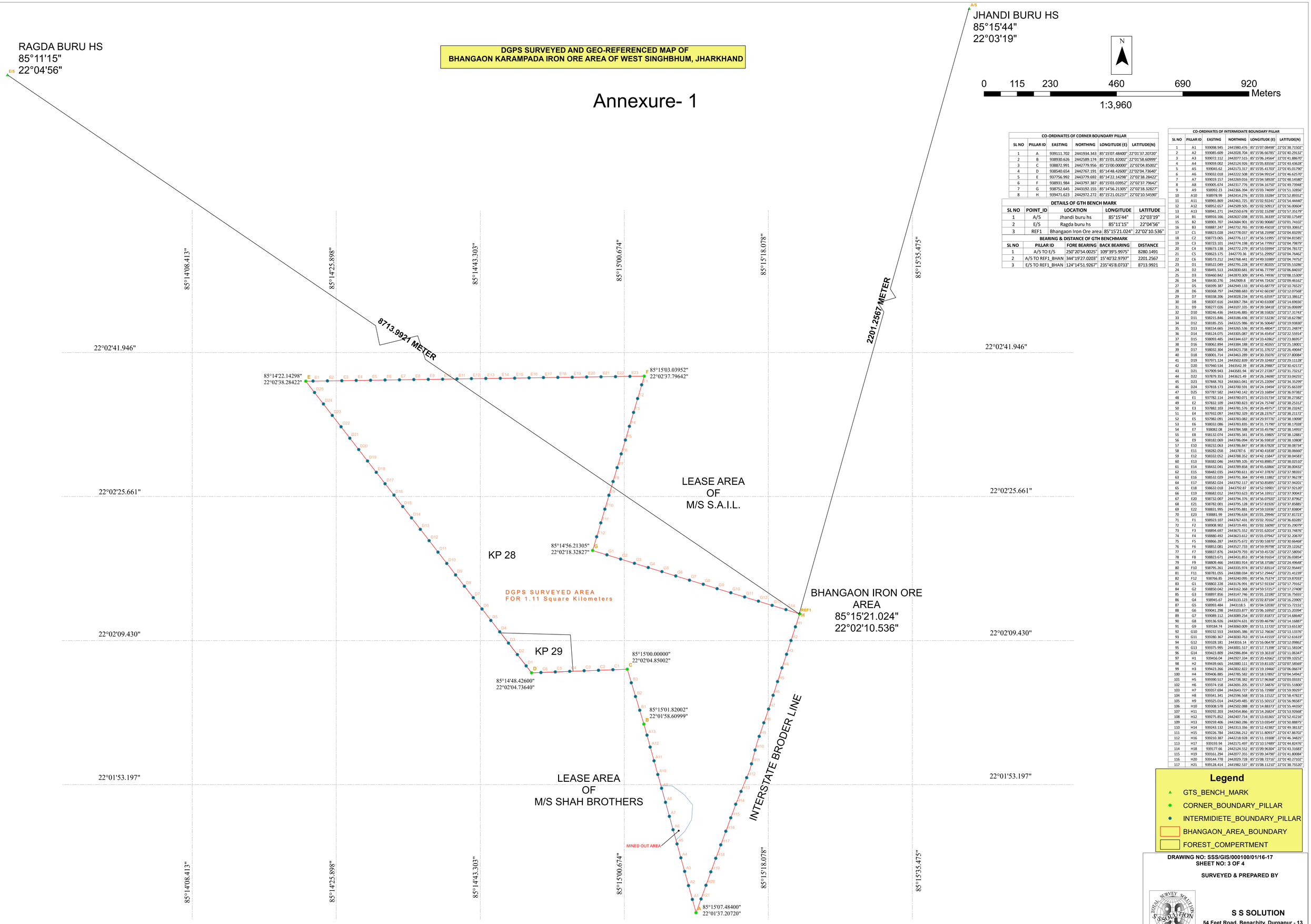
#	Documents	Clause No. and Existing Provision	Clarification Required	Suggested Text for Amendment, if any	Rationale for Clarification for Amendment	Reply by State Government
1	Tender Document, Vol-3	Encroachment of lease area by M/s SAIL to the extent of 12.951 Ha and by M/s Shah Brothers to the extent of 1.179 Ha as mentioned in the DGPS Report	1. What will happen to the area encroached? Whether this area will be surrendered by SAIL/Shah Brothers to the successful bidder? 2. During site visit it was observed that encroached area of the lease with M/s Shah Brother seems more than 1.179 Ha. Kindly give latest encroachment area details? Kindly also give the ore extracted figure in the encroached area since the mine is working as of now 3. Whether estimated resources takes in to account the ore extracted by M/s Shah Brothers in the encroached part?	State should clarify about the encroached area by other lessees.		1. There was an overlapping area of 6.97ha with M/s Shah Brothers in the western part of the Bhangaon leasehold area of 118ha. This area has been removed from the existing leasehold area and the present leasehold area has been revised to 111ha as shown in Annexure- 1. However, mining activity has undertaken in the encroachment area of 1.179 ha of M/s Shah Brothers. 2. The encroached area is 1.179 ha. 3. Geological Resource has been re-vised after excluding the mined out area of 1.179 hectares by Shah Brothers and the revised resource figure is 38.25 Mt instead of earlier 40.29 Mt. Revised Geological Report is being provided.

#	Documents	Clause No. and Existing Provision	Clarification Required	Suggested Text for Amendment, if any	Rationale for Clarification for Amendment	Reply by State Government
2	Geological Map of Tender Document.	Page No.249 & 250, the Geological Maps shows SE side boundary from A to H pillar. Page No.685, the DGPS survey report map shows SE side boundary from A to H pillar	Whether the boundary from A to H pillar is Forest/ State/ Block boundary?	The gap area falls in between A to H boundary pillars of DGPS survey map and Geological map of tender document belongs to which State/land type? Please confirm.	Since the forest boundary and pillars A to H are not overlapping, a clarification may be provided. Where does the interstate boundary fall?	It is provided vide Annexure- 1 The interstate boundary lies along the boundary line of A- H
3	Summary of Mineral Block and DGPS Survey Report.	The corner pillar H shows different co-ordinates in page No.97 and 280 of Tender Document.	Clarify the correct boundary pillar co-ordinate for H.			It is provided vide Annexure- 1
4	Geological Report of Tender Document.	Page No.129 of Tender document.	It is observed that, the core samples analysis is done at State Govt.'s Hazaribagh lab, but 10% of the analysis has to be done at NABL accredited laboratory (Tata Steel Laboratory or other).	Kindly provide the NABL accredited laboratory analysis data.	Please indicate the variance, if any, in your analysis vis-a vis and NABL accredited lab.	According to Clause- 12 of Part- IV of Mineral (Evidence of Mineral Contents) Rule, 2015- "Check analysis of at least 10% of the samples may be analyzed from third party NABL accredited/ or department of science & technology (DST)/BIS recognized laboratories or government laboratories for assessing the acceptable levels of accuracy" samples were analyzed from State Government Laboratory as well as from NABL accredited laboratory (Tata Steel Laboratory) The results are provided vide Annexure- 2

#	Documents	Clause No. and Existing Provision	Clarification Required	Suggested Text for Amendment, if any	Rationale for Clarification for Amendment	Reply by State Government
5	Geological Report	Plates No 3	Borehole no 12 and 13 not plotted on the cross section.		Pls. confirm the reason why both the borehole not plotted in the cross section.	Iron ores are not encountered in borehole no.12 and 13 hence it is not plotted on the cross section.
6	Geological Report on Iron ore deposits in & around Bhangaon Village of Kiriburu & Karampada area of W. Singhbhum, Jharkhand	Contents: Annexure-3; Pages 156 – 218	There are a number of issues with the assay data, e.g. 1) There is missing assay data for many samples. 2) Repetitive sequence of alumina values found at places. 3) Alumina values at many places mentioned as ND (not detectable) which cannot be so as indicated by the corresponding Fe% values.		All the mentioned discrepancies have been highlighted and explained in the attached Excel data file – Annexure-1 The same needs to be resolved for a meaningful assessment of the deposit.	1) Missing assay data have already been provided 2. Alumina values have been reviewed and found Ok. 3) Alumina values recorded were less than 1 hence it was indicated as ND (not detectable). Letter from State Laboratory, Hazaribagh has been enclosed vide Annexure- 3 regarding the same.

DGPS SURVEYED AND GEO-REFERENCED MAP OF BHANGAON KARAMPADA IRON ORE AREA OF WEST SINGHBHUM, JHARKHAND

Annexure- 1



CO-ORDINATES OF CORNER BOUNDARY PILLAR					
SL NO	PILLAR ID	EASTING	NORTHING	LONGITUDE (E)	LATITUDE(N)
1	A	939111.702	2441934.343	85°15'07.48400"	22°01'37.20720"
2	B	938930.626	2442589.174	85°15'01.82002"	22°01'58.60999"
3	C	938872.991	2442779.956	85°15'00.00000"	22°02'04.85002"
4	D	938540.654	2442767.191	85°14'48.42600"	22°02'04.73640"
5	E	937756.992	2443779.692	85°14'22.14298"	22°02'38.28422"
6	F	938931.984	2443797.387	85°15'03.03952"	22°02'37.79642"
7	G	938752.645	2443192.155	85°14'56.21305"	22°02'18.32827"
8	H	939471.623	2442972.272	85°15'21.01237"	22°02'10.54590"

DETAILS OF GTH BENCH MARK				
SL NO	POINT_ID	LOCATION	LONGITUDE	LATITUDE
1	A/5	Jhandi buru hs	85°15'44"	22°03'19"
2	E/5	Ragda buru hs	85°11'15"	22°04'56"
3	REF1	Bhangaon Iron Ore area	85°15'21.024"	22°02'10.536"

BEARING & DISTANCE OF GTH BENCHMARK				
SL NO	PILLAR ID	FORE BEARING	BACK BEARING	DISTANCE
1	A/5 TO E/5	250°20'54.0025"	109°39'5.9975"	8280.1491
2	A/5 TO REF1_BHAN	344°19'27.0203"	15°40'32.9797"	2201.2567
3	E/5 TO REF1_BHAN	124°14'51.9267"	235°45'8.0733"	8713.9921

CO-ORDINATES OF INTERMIDIATE BOUNDARY PILLAR					
SL NO	PILLAR ID	EASTING	NORTHING	LONGITUDE (E)	LATITUDE(N)
1	A1	939098.945	2441980.476	85°15'07.08498"	22°01'38.71502"
2	A2	939085.609	2442028.704	85°15'06.66785"	22°01'40.29132"
3	A3	939072.112	2442077.515	85°15'06.24564"	22°01'41.88670"
4	A4	939059.002	2442124.926	85°15'05.83556"	22°01'43.43628"
5	A5	939045.62	2442173.317	85°15'05.41703"	22°01'45.01790"
6	A6	939032.018	2442222.508	85°15'04.99154"	22°01'46.62570"
7	A7	939019.157	2442269.016	85°15'04.58928"	22°01'48.14580"
8	A8	939005.674	2442317.776	85°15'04.16750"	22°01'49.73948"
9	A9	938992.23	2442366.394	85°15'03.74699"	22°01'51.32856"
10	A10	938978.99	2442414.276	85°15'03.33284"	22°01'52.89352"
11	A11	938965.869	2442461.725	85°15'02.92241"	22°01'54.44440"
12	A12	938952.657	2442509.505	85°15'02.50913"	22°01'56.00604"
13	A13	938941.271	2442556.678	85°15'02.15298"	22°01'57.35179"
14	B1	938916.166	2442637.038	85°15'01.36339"	22°02'00.17549"
15	B2	938901.707	2442684.901	85°15'00.90680"	22°02'01.74102"
16	B3	938887.247	2442732.765	85°15'00.45018"	22°02'03.30652"
17	C1	938823.028	2442778.037	85°14'58.25998"	22°02'04.83295"
18	C2	938773.065	2442776.117	85°14'56.51995"	22°02'04.81585"
19	C3	938723.101	2442774.198	85°14'54.77993"	22°02'04.79879"
20	C4	938673.138	2442772.279	85°14'53.03994"	22°02'04.78172"
21	C5	938623.175	2442770.36	85°14'51.29992"	22°02'04.76462"
22	C6	938573.212	2442768.441	85°14'49.55989"	22°02'04.74752"
23	D1	938522.049	2442791.228	85°14'47.80205"	22°02'05.53280"
24	D2	938491.513	2442830.681	85°14'46.77795"	22°02'06.84010"
25	D3	938460.842	2442870.309	85°14'45.74936"	22°02'08.15309"
26	D4	938430.276	2442909.8	85°14'44.72426"	22°02'09.46162"
27	D5	938399.387	2442949.133	85°14'43.68779"	22°02'10.76525"
28	D6	938368.797	2442988.683	85°14'42.66190"	22°02'12.07568"
29	D7	938338.206	2443028.234	85°14'41.63597"	22°02'13.38612"
30	D8	938307.616	2443067.784	85°14'40.61008"	22°02'14.69656"
31	D9	938277.026	2443107.335	85°14'39.58418"	22°02'16.00699"
32	D10	938246.436	2443146.885	85°14'38.55826"	22°02'17.31743"
33	D11	938215.846	2443186.436	85°14'37.53236"	22°02'18.62786"
34	D12	938185.255	2443225.986	85°14'36.50640"	22°02'19.93830"
35	D13	938154.665	2443265.536	85°14'35.48047"	22°02'21.24874"
36	D14	938124.075	2443305.087	85°14'34.45454"	22°02'22.55914"
37	D15	938093.485	2443344.637	85°14'33.42862"	22°02'23.86957"
38	D16	938062.894	2443384.188	85°14'32.40265"	22°02'25.18001"
39	D17	938032.304	2443423.738	85°14'31.37672"	22°02'26.49044"
40	D18	938001.714	2443463.289	85°14'30.35076"	22°02'27.80084"
41	D19	937971.124	2443502.839	85°14'29.32483"	22°02'29.11128"
42	D20	937940.534	2443542.39	85°14'28.29887"	22°02'30.42172"
43	D21	937909.943	2443581.94	85°14'27.27287"	22°02'31.73212"
44	D22	937879.353	2443621.49	85°14'26.24690"	22°02'33.04255"
45	D23	937848.763	2443661.041	85°14'25.22094"	22°02'34.35299"
46	D24	937818.173	2443700.591	85°14'24.19494"	22°02'35.66339"
47	D25	937787.582	2443740.142	85°14'23.16894"	22°02'36.97382"
48	E1	937782.114	2443780.071	85°14'23.01734"	22°02'38.27382"
49	E2	937832.109	2443780.823	85°14'24.75748"	22°02'38.25312"
50	E3	937882.103	2443781.576	85°14'26.49757"	22°02'38.23242"
51	E4	937932.097	2443782.329	85°14'28.23767"	22°02'38.21172"
52	E5	937982.091	2443783.082	85°14'29.97776"	22°02'38.19098"
53	E6	938032.086	2443783.835	85°14'31.71790"	22°02'38.17028"
54	E7	938082.08	2443784.588	85°14'33.45796"	22°02'38.14955"
55	E8	938132.074	2443785.341	85°14'35.19805"	22°02'38.12881"
56	E9	938182.069	2443786.094	85°14'36.93818"	22°02'38.10808"
57	E10	938232.063	2443786.847	85°14'38.67828"	22°02'38.08734"
58	E11	938282.058	2443787.6	85°14'40.41838"	22°02'38.06660"
59	E12	938332.052	2443788.352	85°14'42.15847"	22°02'38.04583"
60	E13	938382.046	2443789.105	85°14'43.89857"	22°02'38.02510"
61	E14	938432.041	2443789.858	85°14'45.63866"	22°02'38.00432"
62	E15	938482.035	2443790.611	85°14'47.37876"	22°02'37.98355"
63	E16	938532.029	2443791.364	85°14'49.11882"	22°02'37.96278"
64	E17	938582.024	2443792.117	85°14'50.85895"	22°02'37.94201"
65	E18	938632.018	2443792.87	85°14'52.59901"	22°02'37.92120"
66	E19	938682.012	2443793.623	85°14'54.33911"	22°02'37.90043"
67	E20	938732.007	2443794.376	85°14'56.07920"	22°02'37.87962"
68	E21	938782.001	2443795.128	85°14'57.81926"	22°02'37.85885"
69	E22	938831.995	2443795.881	85°14'59.55936"	22°02'37.83804"
70	E23	938881.99	2443796.634	85°15'01.29946"	22°02'37.81723"
71	F1	938923.107	2443767.431	85°15'02.70162"	22°02'36.83285"
72	F2	938908.902	2443719.491	85°15'02.16090"	22°02'35.29079"
73	F3	938894.697	2443671.552	85°15'01.62014"	22°02'33.74876"
74	F4	938880.492	2443623.612	85°15'01.07942"	22°02'32.20670"
75	F5	938866.287	2443575.672	85°15'00.53870"	22°02'30.66468"
76	F6	938852.081	2443527.733	85°14'59.99798"	22°02'29.12262"
77	F7	938837.876	2443479.793	85°14'59.45726"	22°02'27.58056"
78	F8	938823.671	2443431.853	85°14'58.91654"	22°02'26.03854"
79	F9	938809.466	2443383.914	85°14'58.37586"	22°02'24.49648"
80	F10	938795.261	2443335.974	85°14'57.83514"	22°02'22.95445"
81	F11	938781.055	2443288.034	85°14'57.29442"	22°02'21.41239"
82	F12	938766.85	2443240.095	85°14'56.75374"	22°02'19.87033"
83	G1	938802.228	2443176.991	85°14'57.92334"	22°02'17.79162"
84	G2	938850.042	2443162.368	85°14'59.5725"	22°02'17.27408"
85	G3	938897.856	2443147.746	85°15'01.22180"	22°02'16.75655"
86	G4	938945.67	2443133.123	85°15'02.87104"	22°02'16.23905"
87	G5	938993.484	2443118.5	85°15'04.52030"	22°02'15.72151"
88	G6	939041.298	2443103.877	85°15'06.16950"	22°02'15.20394"
89	G7	939089.112	2443089.254	85°15'07.81873"	22°02'14.68640"
90	G8	939136.926	2443074.631	85°15'09.46796"	22°02'14.16887"
91	G9	939184.74	2443060.009	85°15'11.11720"	22°02'13.65130"
92	G10	939232.553	2443045.386	85°15'12.76636"	22°02'13.13376"
93	G11	939280.367	2443030.763	85°15'14.41559"	22°02'12.61619"
94	G12	939328.181	2443016.14	85°15'16.06478"	22°02'12.09862"
95	G13	939375.995	2443001.517	85°15'17.71398"	22°02'11.58104"
96	G14	939423.809	2442986.894	85°15'19.36318"	22°02'11.06347"
97	H1	939456.04	2442927.334	85°15'20.42662"	22°02'09.10252"
98	H2	939439.665	2442880.111	85°15'19.81035"	22°02'07.58569"
99	H3	939423.266	2442832.822	85°15'19.19466"	22°02'06.06674"
100	H4	939406.885	2442785.582	85°15'18.57892"	22°02'04.54942"
101	H5	939390.517	2442738.382	85°15'17.96368"	22°02'03.03331"
102	H6	939374.158	2442691.205	85°15'17.34876"	22°02'01.51800"
103	H7	939357.694	2442643.727	85°15'16.72988"	22°01'59.99297"
104	H8	939341.341	2442596.568	85°15'16.11522"	22°01'58.47823"
105	H9	939325.014	2442549.485	85°15'15.50153"	22°01'56.96587"
106	H10	939308.578	2442502.088	85°15'14.88373"	22°01'55.44350"
107	H11	939292.203	2442454.866	85°15'14.26824"	22°01'53.92668"
108	H12	939275.852	2442407.714	85°15'13.65365"	22°01'52.41216"
109	H13	939259.406	2442360.286	85°15'13.03549"	22°01'50.88875"
110	H14	939243.132	2442313.356	85°15'12.42382"	22°01'49.38132"
111	H15	939226.784	2442266.212	85°15'11.80937"	22°01'47.86702"
112	H16	939210.387	2442218.928	85°15'11.19308"	22°01'46.34825"
113	H17	939193.94	2442171.497	85°15'10.57489"	22°01'44.82476"
114	H18	939177.66	2442124.552	85°15'09.96304"	22°01'43.31683"
115	H19	939161.294	2442077.355	85°15'09.34790"	22°01'41.80884"
116	H20	939144.778	2442029.728	85°15'08.72716"	22°01'40.27102"
117	H21	939128.414	2441982.537	85°15'08.11210"	22°01'38.75520"

Legend

- GTS_BENCH_MARK
- CORNER_BOUNDARY_PILLAR
- INTERMIDIETE_BOUNDARY_PILLAR
- BHANGAON_AREA_BOUNDARY
- FOREST_COMPERTMENT

DRAWING NO: SSS/GIS/000100/01/16-17
SHEET NO: 3 OF 4

SURVEYED & PREPARED BY

S S SOLUTION
54 Feet Road, Benachity, Durgapur - 13
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EMAIL ID:-sssolution_88@rediffmail.com

Annexure- 2

Sun-Tech

Sun-Tech

40 P Tupudana Industrial Area,Ranchi-834003, Jharkhand

ACCREDITED LABORATORY BY NABL GOVT. OF INDIA

TEL.- 7808266661/2/3

TEST RESULTS

Test Report No.	ST/TR/17-18/ 3293	Date of Receipt of Test Item	13-02-18
Job Code	**M0660218**	Page	1 of 1
Report Date	17-02-18	Date of Completion of Test	17-02-18
Customer's Name & Address	**DEPUTY DIRECTOR LABORATORY STATE GEOLOGICAL LABORATORY, HAZARIBAGH**		Certificate. no. TC-5432
Reference & date	पंत्राक – रा 0 भू 0 प्रयोग 0 . 35	हजारिबाग, दिनांक – 13.2.2018	
Material/ Item	**APPROXIMATELY 50gm SAMPLE IN SEALED PACKET SAID TO BE IRON ORE**		
Test Method	**IS : 1493- Part- 1- 1981, BY ICP-OES & FLAME PHOTOMETER**		

CHEMICAL ANALYSIS OF IRON ORE

Sl. No.	Sample No.	SAMPLE ID	Locality	TEST RESULTS								
				SiO_2%	Total Fe%	Al_2O_3%	Fe_2O_3%	LOI	Na	K	S	P
1	42172	BH-10/B-31	BHANGOAN	1.89	64.59	0.01	92.34	4.71	0.003	0.00011	0.015	0.028
2	42173	BH-10/B-35		7.64	59.64	0.03	85.27	5.93	0.065	0.0032	0.017	0.051
3	42174	BH-10/B-38		7.14	62.48	0.012	89.33	2.38	0.048	0.0012	0.019	0.076
4	42175	BH-10/B-42		14.89	56.01	3.78	80.08	0.06	0.057	0.0024	0.012	0.12
5	42176	BH-10/B-04		3.64	59.62	1.18	85.24	8.83	0.069	0.0031	0.017	0.018
6	42177	BH-10/B-10		3.82	64.37	0.54	92.03	2.52	0.052	0.0018	0.016	0.021
7	42178	BH-10/B-15		5.71	61.71	4.78	88.23	0.16	0.045	0.0024	0.017	0.057
8	42179	BH-10/B-02		11.92	49.78	4.19	71.17	11.51	0.061	0.0019	0.022	0.121
9	42180	BH-10/B-07		11.34	53.64	4.95	76.69	5.82	0.061	0.0027	0.014	0.12
10	42181	BH-10/B-28		13.75	46.42	4.85	66.37	13.82	0.054	0.0031	0.022	0.135
11	42182	BH-12/B-05		3.65	61.48	1.54	87.90	5.80	0.038	0.0015	0.016	0.057

Done by:- Poonam, Fedlish, Nawal, Sangbidhan

********** END OF REPORT **********

Preeti Varma
Authorized Signatory

SUNTECH, 40P, Tupudana Industrial Area, Ranchi-03

162027

DECLARATION:

1. Sample will be retained for three months.2. The test results relates only to the sample submitted for testing and as per applicable parameters . Product endorsement is neither inferred nor implied.
3. Total liability of our work is limited only to invoiced amount.4. The report can not be used as an evidence in the court of law , without written approval of Laboratory.
5. This report cannot be reproduced except in full without prior written approval from the Laboratory Director.6. All disputes subject to Ranchi Jurisdiction only.

Doc. No F01(5.10) Rev.05

Sun-Tech

40 P Tupudana Industrial Area,Ranchi-834003, Jharkhand

ACCREDITED LABORATORY BY NABL GOVT. OF INDIA

TEL.- 7808266661/2/3

TEST RESULTS

Test Report No.	ST/TR/17-18/ 3290	Date of Receipt of Test Item	13-02-18
Job Code	**M0660218**	Page	1 of 1
Report Date	17-02-18	Date of Completion of Test	17-02-18
Customer's Name & Address	**DEPUTY DIRECTOR LABORATORY STATE GEOLOGICAL LABORATORY, HAZARIBAGH**		Certificate. no. TC-5432
Reference & date	पत्रांक – रा 0 भू 0 प्रयोग 0 . 35	हजारिबाग, दिनांक – 13.2.2018	
Material/ Item	**APPROXIMATELY 50gm SAMPLE IN SEALED PACKET SAID TO BE IRON ORE**		
Test Method	**IS : 1493- Part- 1- 1981, BY ICP-OES & FLAME PHOTOMETER**		

CHEMICAL ANALYSIS OF IRON ORE

Sl. No.	Sample No.	SAMPLE ID	Locality	TEST RESULTS								
				SiO_2%	Total Fe%	Al_2O_3%	Fe_2O_3%	LOI	Na	K	S	P
1	42130	BH-03/B-59	BHANGOAN	12.89	50.76	5.12	72.57	8.21	0.065	0.027	0.017	0.102
2	42131	BH-03/B-36		18.72	48.37	4.17	69.15	6.76	0.052	0.0039	0.021	0.120
3	42132	BH-04/B-21		10.37	59.78	0.32	85.47	2.73	0.037	0.0011	0.018	0.052
4	42133	BH-04/B-27		4.78	62.54	1.75	89.41	2.94	0.045	0.0026	0.019	0.05
5	42134	BH-04/B-49		10.12	61.59	0.68	88.06	0.02	0.062	0.003	0.018	0.042
6	42135	BH-04/B-51		3.75	63.82	0.62	91.24	3.28	0.057	0.0028	0.015	0.028
7	42136	BH-04/B-53		3.34	66.34	BDL	94.85	0.73	0.045	0.0037	0.016	0.021
8	42137	BH-04/B-54		10.57	59.42	BDL	84.95	3.37	0.037	0.0041	0.017	0.048
9	42138	BH-04/B-46		19.85	52.41	BDL	74.93	4.05	0.048	0.0029	0.017	0.102
10	42139	BH-04/B-23		24.37	47.38	0.59	67.74	6.12	0.041	0.0034	0.021	0.12
11	42140	BH-04/B-48		10.48	54.81	2.18	78.36	7.78	0.065	0.0018	0.014	0.121
12	42141	BH-04/B-47		19.17	51.57	0.57	73.73	5.36	0.049	0.0027	0.017	0.102
13	42142	BH-05/B-125		7.68	62.67	1.28	89.60	0.27	0.065	0.0029	0.014	0.087
14	42143	BH-05/B-104		15.37	56.72	BDL	81.09	2.35	0.051	0.0037	0.013	0.119

NOTE:- BDL- BELOW DETECTION LIMIT

Done by:- Poonam, Fedlish, Nawal, Sangbidhan

***

Sun-Tech

40 P Tupudana Industrial Area,Ranchi-834003, Jharkhand

ACCREDITED LABORATORY BY NABL GOVT. OF INDIA

TEL.- 7808266661/2/3

TEST RESULTS

Test Report No.	ST/TR/17-18/ 3292	Date of Receipt of Test Item	13-02-18
Job Code	**M0660218**	Page	1 of 1
Report Date	17-02-18	Date of Completion of Test	17-02-18
Customer's Name & Address	**DEPUTY DIRECTOR LABORATORY STATE GEOLOGICAL LABORATORY, HAZARIBAGH**		**Certificate. no. TC-5432**
Reference & date	पंत्राक – रा 0 भू 0 प्रयोग 0 . 35 हजारिबाग, दिनांक – 13.2.2018		
Material/ Item	**APPROXIMATELY 50gm SAMPLE IN SEALED PACKET SAID TO BE IRON ORE**		
Test Method	**IS : 1493- Part- 1- 1981, BY ICP-OES & FLAME PHOTOMETER**		

CHEMICAL ANALYSIS OF IRON ORE

Sl. No.	Sample No.	SAMPLE ID	Locality	TEST RESULTS								
				SiO_2%	Total Fe%	Al_2O_3%	Fe_2O_3%	LOI	Na	K	S	P
1	42158	BH-06/B-39	BHANGOAN	12.29	57.61	0.64	82.37	3.57	0.065	0.0015	0.016	0.052
2	42159	BH-06/B-76		23.85	48.37	1.72	69.15	4.07	0.057	0.0064	0.021	0.12
3	42160	BH-06/B-74		14.75	54.29	2.18	77.62	4.28	0.034	0.0031	0.014	0.121
4	42161	BH-06/B-42		10.82	58.42	0.64	83.52	3.89	0.052	0.0085	0.018	0.053
5	42162	BH-09/B-25		6.57	53.18	4.18	76.03	12.03	0.047	0.0034	0.014	0.12
6	42163	BH-09/B-04		3.24	59.85	2.64	85.57	7.42	0.062	0.0027	0.018	0.053
7	42164	BH-09/B-20		7.54	60.41	0.48	86.37	4.45	0.059	0.0054	0.014	0.087
8	42165	BH-09/B-05		19.89	48.18	2.54	68.88	7.50	0.042	0.0031	0.022	0.12
9	42166	BH-09/B-06		21.74	45.86	3.47	65.57	8.02	0.048	0.0024	0.021	0.134
10	42167	BH-09/B-10		23.68	45.37	3.12	64.87	7.14	0.037	0.0018	0.022	0.135
11	42168	BH-09/B-13		18.45	48.52	2.57	69.37	8.44	0.031	0.0012	0.022	0.121
12	42169	BH-09/B-18		14.58	54.27	2.34	77.59	4.30	0.052	0.0017	0.013	0.12
13	42170	BH-09/B-21		23.57	48.17	1.62	68.87	4.76	0.037	0.0024	0.022	0.121
14	42171	BH-09/B-24		14.12	54.68	2.19	78.18	4.44	0.028	0.0012	0.012	0.029

Done by:- Poonam, Fedlish, Nawal, Sangbidhan

********** END OF REPORT **********

162026

SUNTECH, 40 P, Tupudana Industrial Area, Ranchi-03

Preeti Varma
Authorized Signatory

DECLARATION:
1. Sample will be retained for three months 2. The test results relates only to the sample submitted for testing and as per applicable parameters . Product endorsement is neither inferred nor implied.
3. Total liability of our work is limited only to invoiced amount 4. The report can not be used as an evidence in the court of law , without written approval of Laboratory.
5. This report cannot be reproduced except in full without prior written approval from the Laboratory Director 6. All disputes subject to Ranchi Jurisdiction only.

Doc. No.F01(5.10) Rev.05

Sun-Tech

40 P Tupudana Industrial Area,Ranchi-834003, Jharkhand

ACCREDITED LABORATORY BY NABL GOVT. OF INDIA

TEL.- 7808266661/2/3

TEST RESULTS

Test Report No.	ST/TR/17-18/ 3289	Date of Receipt of Test Item	13-02-18
Job Code	**M0660218**	Page	1 of 1
Report Date	17-02-18	Date of Completion of Test	17-02-18
Customer's Name & Address	**DEPUTY DIRECTOR LABORATORY STATE GEOLOGICAL LABORATORY, HAZARIBAGH**		**Certificate. no. TC-5432**
Reference & date	पंत्राक – रा 0 भू 0 प्रयोग 0 . 35	हजारिबाग, दिनांक – 13.2.2018	
Material/ Item	**APPROXIMATELY 50gm SAMPLE IN SEALED PACKET SAID TO BE IRON ORE**		
Test Method	**IS : 1493- Part- 1- 1981, BY ICP-OES & FLAME PHOTOMETER**		

CHEMICAL ANALYSIS OF IRON ORE

Sl. No.	Sample No.	SAMPLE ID	Locality	TEST RESULTS								
				SiO_2%	Total Fe%	Al_2O_3%	Fe_2O_3%	LOI	Na	K	S	P
1	42116	BH-02/B-29	BHANGOAN	1.45	65.27	0.75	93.32	3.44	0.003	0.0018	0.017	0.022
2	42117	BH-02/B-40		8.65	61.27	0.47	87.60	2.20	0.004	0.0019	0.016	0.056
3	42118	BH-02/B-27		16.27	53.12	2.17	75.95	4.44	0.029	0.0075	0.013	0.121
4	42119	BH-02/B-36		21.29	48.78	1.17	69.74	6.63	0.03	0.0027	0.021	0.119
5	42120	BH-02/B-22		13.85	45.78	7.82	65.45	11.74	0.021	0.0017	0.02	0.094
6	42121	BH-02/B-11		5.42	45.58	12.42	65.17	15.85	0.027	0.0078	0.018	0.091
7	42122	BH-03/B-04		6.42	61.57	0.54	88.03	3.88	0.034	0.0062	0.016	0.074
8	42123	BH-03/B-09		8.79	60.82	0.67	86.95	2.44	0.042	0.0078	0.014	0.086
9	42124	BH-03/B-12		6.57	61.31	1.07	87.65	3.56	0.057	0.0034	0.0015	0.084
10	42125	BH-03/B-16		2.98	65.78	0.37	94.05	1.53	0.038	0.0012	0.017	0.021
11	42126	BH-03/B-25		2.11	65.92	0.72	94.25	1.84	0.047	0.0015	0.013	0.022
12	42127	BH-03/B-31		14.78	57.02	1.17	81.52	1.36	0.032	0.0014	0.014	0.121
13	42128	BH-03/B-45		14.58	55.11	0.78	78.79	4.54	0.057	0.0082	0.12	0.120
14	42129	BH-03/B-49		8.57	54.61	5.21	78.08	6.81	0.061	0.023	0.13	0.119

Done by:- Poonam, Fedlish, Nawal, Sangbidhan

********** END OF REPORT **********

162023

SUNTECH, 40P, Tupudana Industrial Area, Ranchi-03

Preeti Varma
Authorized Signatory

DECLARATION:

1. Sample will be retained for three months.2. The test results relates only to the sample submitted for testing and as per applicable parameters . Product endorsement is neither inferred nor implied.
3. Total liability of our work is limited only to invoiced amount.4. The report can not be used as an evidence in the court of law , without written approval of Laboratory.
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Doc. No.F01(5.10) Rev.05

Sun-Tech

40 P Tupudana Industrial Area,Ranchi-834003, Jharkhand

ACCREDITED LABORATORY BY NABL GOVT. OF INDIA

TEL.- 7808266661/2/3

[redacted]

TEST RESULTS

Test Report No.	ST/TR/17-18/ 3291	Date of Receipt of Test Item	13-02-17
Job Code	**M0660218**	Page	1 of 1
Report Date	17-02-18	Date of Completion of Test	17-02-18
Customer's Name & Address	**DEPUTY DIRECTOR LABORATORY STATE GEOLOGICAL LABORATORY, HAZARIBAGH**		**Certificate. no. TC-5432**
Reference & date	पंत्राक – रा 0 भू 0 प्रयोग 0 . 35	हजारिबाग, दिनांक – 13.2.2018	
Material/ Item	**APPROXIMATELY 50gm SAMPLE IN SEALED PACKET SAID TO BE IRON ORE**		
Test Method	**IS : 1493- Part- 1- 1981, BY ICP-OES & FLAME PHOTOMETER**		

CHEMICAL ANALYSIS OF IRON ORE

Sl. No.	Sample No.	SAMPLE ID	Locality	TEST RESULTS								
				SiO_2%	Total Fe%	Al_2O_3%	Fe_2O_3%	LOI	Na	K	S	P
1	42144	BH-05/B-99	BHANGOAN	10.18	60.17	BDL	86.03	2.65	0.065	0.0015	0.018	0.057
2	42145	BH-05/B-87		14.37	55.78	0.85	79.75	3.84	0.057	0.0027	0.014	0.121
3	42146	BH-05/B-90		10.17	58.48	BDL	83.61	5.10	0.047	0.0042	0.017	0.048
4	42147	BH-05/B-92		16.31	55.82	0.59	79.81	2.09	0.064	0.0031	0.015	0.122
5	42148	BH-05/B-93		29.85	47.78	0.47	68.31	0.17	0.052	0.0029	0.022	0.121
6	42149	BH-05/B-91		24.67	51.75	BDL	73.99	0.18	0.041	0.0037	0.017	0.102
7	42150	BH-05/B-105		18.71	53.82	0.78	76.95	2.39	0.038	0.0018	0.012	0.12
8	42151	BH-05/B-84		12.54	53.17	2.18	76.02	8.07	0.058	0.0027	0.011	0.121
9	42152	BH-06/B-38		12.14	57.45	0.85	82.14	3.74	0.067	0.0039	0.017	0.048
10	42153	BH-06/B-41		3.61	64.82	0.59	92.67	2.04	0.051	0.0018	0.015	0.02
11	42154	BH-06/B-46		1.85	65.48	0.71	93.62	2.74	0.042	0.0024	0.016	0.022
12	42155	BH-06/B-50		9.82	60.42	0.58	86.38	2.10	0.038	0.0031	0.018	0.057
13	42156	BH-06/B-48		1.95	65.91	0.56	94.23	2.16	0.061	0.0014	0.017	0.022
14	42157	BH-06/B-44		6.45	62.58	0.61	89.47	2.35	0.042	0.0021	0.017	0.057

NOTE:- BDL- BELOW DETECTION LIMIT

Done by:- Poonam, Fedlish, Nawal, Sangbidhan

********** END OF REPORT **********

162025

SUN-TECH. 40 P. Tupudana Industrial Area Ranchi-03

Preeti Varma
Authorized Signatory

DECLARATION:
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Doc. No FO/5.10 Rev 05

		Bangaon Iron ore Project(Sample No.)			
	Bore Hole No 1 (BH -01)				
S No	Field Borehole No	SGL No	Grad(SGL)	Sun Tech	
1	BH-01/B168	1616	62.54		
2	BH-01/B169	1617	64.89		
3	BH-01/B170	1618	61.42		
4	BH-01/B171	1619	62.54		
5	BH-01/B172	1620	64.89		
6	BH-01/B149	1597	57.52		
7	BH-01/B-151	1599	55.28		
8	BH-01/B-152	1600	48.58		
9	BH-01/B-128	1576	47.46		
10	BH-01/B-143	1591	46.91		
	BORE HOLE NO 2 (BH-02)				
1	BH-02/B-25	1707	61.43		
2	BH-02/B-31	1713	63.10		
3	BH-02/B-37	1719	59.75		
4	BH-02/B-34	1716	56.96		
5	BH-02/B-29	1711	65.34	65.27	
6	BH-02/B-40	1722	61.43	61.27	
7	BH-02/B-27	1709	53.61	53.12	
8	BH-02/B-36	1718	49.14	48.78	
9	BH-02/B-22	1704	45.49	45.78	
10	BH-02/B-11	1693	45.23	45.58	
	BORE HOLE NO 3 (BH-03)				
1	BH-03/B-04	1827	61.42	61.57	
2	BH-03/B-09	1832	60.86	60.82	
3	BH-03/B-12	1835	61.43	61.31	
4	BH-03/B-16	1839	65.89	65.78	
5	BH-03/B-25	1848	66.01	65.92	

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6	BH-03/B-31	1854	56.96	57.02
7	BH-03/B-45	1868	55.28	55.11
8	BH-03/B-49	1872	54.73	54.61
9	BH-03/B-59	1882	50.82	50.76
10	BH-03/B-36	1859	48.58	48.37
	BORE HOLE NO 4 (BH-04)			
1	BH-04/B-21	1908	59.87	59.78
2	BH-04/B-27	1914	62.88	62.54
3	BH-04/B-49	1936	61.46	61.59
4	BH-04/B-51	1852	63.55	63.82
5	BH-04/B-53	1854	66.41	66.34
6	BH-04/B-54	1855	59.37	59.42
7	BH-04/B-46	1933	52.54	52.41
8	BH-04/B-23	1910	47.51	47.38
9	BH-04/B-48	1935	54.88	54.81
10	BH-04/B-47	1934	51.46	51.57
	BORE HOLE NO 5 (BH-05)			
1	BH-05/B-125	1993	62.54	62.67
2	BH-05/B-104	1972	56.40	56.72
3	BH-05/B-99	1967	60.31	60.17
4	BH-05/B-87	1955	55.84	55.78
5	BH-05/B-90	1958	58.63	58.48
6	BH-05/B-92	1960	55.84	55.82
7	BH-05/B-93	1961	47.66	47.78
8	BH-05/B-91	1959	51.93	51.75
9	BH-05/B-105	1973	53.60	53.82
10	BH-05/B-84	1952	53.05	53.17
	BORE HOLE NO 6 (BH-06)			

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1	BH-06/B-38	2010	57.52	57.45	
2	BH-06/B-41	2013	64.22	64.82	
3	BH-06/B-46	2018	65.34	65.48	
4	BH-06/B-50	2022	60.31	60.42	
5	BH-06/B-48	2020	65.89	65.91	
6	BH-06/B-44	2016	62.54	62.58	
7	BH-06/B-39	2011	57.52	57.61	
8	BH-06/B-76	2046	48.58	48.37	
9	BH-06/B-74	2044	54.17	54.29	
10	BH-06/B-42	2014	58.63	58.42	
	BORE HOLE NO 9A (BH-9A)				
1	BH-09A/B-25	2177	53.05	53.18	
2	BH-09A/B-04	2156	59.75	59.85	
3	BH-09A/B-20	2172	60.31	60.41	
4	BH-09A/B-05	2157	48.02	48.18	
5	BH-09A/B-06	2158	45.79	45.86	
6	BH-09A/B-10	2162	45.23	45.37	
7	BH-09A/B-13	2165	49.70	48.52	
8	BH-09A/B-18	2170	54.16	54.27	
9	BH-09A/B-21	2173	48.02	48.17	
10	BH-09A/B-24	2176	54.72	54.68	

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	BORE HOLE NO 10A (BH-10A)			
1	BH-10A/B-31	2214	64.78	64.59
2	BH-10A/B-35	2218	59.75	59.64
3	BH-10A/B-38	2221	62.54	62.48
4	BH-10A/B-42	2225	56.96	56.01
5	BH-10A/B-04	2187	59.75	59.62
6	BH-10A/B-10	2193	64.22	64.37
7	BH-10A/B-15	2198	61.99	61.71
8	BH-10A/B-02	2185	49.70	49.78
9	BH-10A/B-07	2190	53.61	53.64
10	BH-10A/B-28	2211	46.35	46.42
	BORE HOLE NO 12 (BH-12)			
	BH-12/B-05	2230	61.38	61.48
	BORE HOLE NO 9 (BH-9)			
1	BH-9/B-2		50.64	
2	BH-9/B-3		53.61	
3	BH-9/B-11		54.48	
4	BH-9/B-38		64.02	
5	BH-9/B-39		58.35	
6	BH-9/B-40		64.82	
7	BH-9/B-41		65.84	
8	BH-9/B-42		62.49	
	BORE HOLE NO 10 (BH-10)			

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1	BH-10/B-05		50.61		
2	BH-10/B-36		56.26		
3	BH-10/B-37		48.95		
4	BH-10/B-38		58.48		
5	BH-10/B-39		60.07		

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Annexure- 3

झारखण्ड सरकार
उघोग, खान एवं भूतत्व विभाग
राजकीय भूतात्विक प्रयोगशाला
हजारीबाग।

पत्रांक–रा0भू0प्रयोग0 -203(Tech)/2016-17 281 हजारीबाग, दिनांक– 15 - 3 - 2018

प्रेषक,

डॉ0 आई0 एम0 असदुल्लाह
उप निदेशक, प्रयोगशाला
हजारीबाग।

सेवा में,

उप निदेशक, भूतत्व
पूर्वी सिंहभूम अंचल
जमशेदपूर।

विषयः– मद संख्या–SC/IO/07/2016-17 के भनगाँव करमपदा क्षेत्र का लौह अयस्क नमूनों का पुनः जाँच करने के सम्बन्ध में।

प्रसंगः– आपका पत्रांक-18, दिनांक 09-02-2018

महाशय,

उपरोक्त प्रसंगाधीन पत्र के सम्बन्ध में कहना है कि मद संख्या–SC/IO/07/2016-17 के भनगाँव करमपदा क्षेत्र का लौह अयस्क नमूनों में से कुछ नमूनों में Al_2O_3 को Trace में अंकित किया गया है। अर्थात लौह अयस्क नमूनों में Al_2O_3 1% से कम उपस्थित है।

कृपया सूचनार्थ।

आपका विश्वासी

ह0/–
(डॉ0 आई0एम0असदुल्लाह)
उप निदेशक, प्रयोगशाला
हजारीबाग।

ज्ञापांक– 281 tech हजारीबाग, दिनांक–

प्रतिलिपिः– निदेशक, भूतत्व, झारखण्ड, राँची को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

15/3/18

उप निदेशक, प्रयोगशाला
हजारीबाग।

निदेशक भूतत्व
झारखण्ड, राँची
प्राप्ति संख्या 679
दिनांक 28/3/18

TECH_NABL_LATTERS
ABHAY, SGLAB.

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