

Map makers: Dunjian Zhu, Fengchu Liao

Reviewers: Zhifang Zeng

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Table 1 LOMOTENG Results of Engineering Survey

Project Number	Coordinate (m)		Level (m)	Remarks
	X	Y		
East of Exploration Line 17	-3102400.063	08501200.697	1342.051	
West of Exploration Line 17	-3102399.653	08500500.065	1328.072	
East of Exploration Line 11	-3101849.992	08501214.889	1340.092	
West of Exploration Line 11	-3101849.606	085000215.499	1322.532	
East of Exploration Line 5	-3101250.307	08501245.534	1367.281	
West of Exploration Line 5	-3101250.047	08500110.271	1321.722	
East of Exploration Line 0	-3100649.916	08501204.080	1372.207	
West of Exploration Line 0	-3100650.006	08500099.994	1321.615	
East of Exploration Line 6	-3100060.067	08501313.123	1429.247	
West of Exploration Line 6	-3100049.257	08500005.862	1321.804	
East of Exploration Line 12	-3099449.999	08501345.012	1441.807	
West of Exploration Line 12	-3099450.065	08500209.808	1325.506	
East of Exploration Line 18	-3098850.407	08501000.141	1395.447	
West of Exploration Line 18	-3098850.296	08500000.051	1334.284	
East of Exploration Line 3	-3100940.421	08501058.345	1374.425	
West of Exploration Line 3	-3100939.864	08500134.380	1321.406	
ZK1701	-3102397.060	08501002.851	1347.826	
ZK1702	-3102399.945	08500751.131	1335.023	
ZK1703	-3102402.194	08500593.031	1329.142	
ZK1101	-3101848.889	08500875.490	1328.395	
ZK1102	-3101849.096	08500617.879	1326.403	
ZK1103	-3101842.876	08500420.881	1324.904	
ZK501	-3101249.956	08501054.510	1378.597	
ZK502	-3101244.653	08500777.852	1366.226	
ZK503	-3101251.153	08500485.333	1330.547	
ZK504	-3101251.038	08500213.416	1332.881	
ZK001	-3100648.061	08500787.553	1395.790	
ZK002	-3100647.062	08500513.254	1332.616	
ZK003	-3100647.659	08500247.072	1324.771	
ZK601	-3100046.776	08501245.772	1457.545	

Project Number	Coordinate (m)		Level (m)	Remarks
	X	Y		
ZK602	-3100051.422	08501065.517	1431.014	
ZK603	-3100046.169	08500848.259	1412.180	
ZK604	-3100051.852	08500603.888	1375.391	
ZK605	-3100049.199	08500344.031	1329.342	
ZK606	-3100050.813	08500141.720	1323.614	
ZK1201	-3099448.309	08501311.508	1441.587	
ZK1202	-3099449.622	08501132.546	1443.536	
ZK1203	-3099448.850	08500852.304	1442.722	
ZK1204	-3099455.886	08500575.574	1385.330	
ZK1205	-3099449.952	08500290.822	1327.490	
ZK1801	-3098854.939	08500494.702	1365.013	
ZK1802	-3098854.939	08500216.838	1341.779	
ZK1803	-3098850.482	08500009.697	1334.406	
ZK301	-3100940.016	08500360.012	1327.670	
TC1101	-3101744.103	08501180.023	1356.041	
TC1101	-3101724.672	08501214.672	1372.056	
TC1102	-3101804.975	08500885.830	1335.513	
TC1102	-3101842.531	08500988.682	1335.000	
TC001	-3100648.373	08500991.272	1393.274	
TC001	-3100663.140	08501015.520	1388.074	
TC1401	-3099207.598	08500880.829	1411.076	
TC1401	-3099243.360	08500897.294	1413.028	
TC1601	-3099063.231	08501300.758	1401.614	
TC1601	-309969.148	08501296.150	1415.328	
TC1801	-3098902.682	08500930.342	1347.804	
TC1801	-3098928.660	08500936.820	1376.406	
TC1802	-3098836.826	08500727.651	1368.982	
TC1802	-3098853.932	08500780.280	1373.552	
CK1 The Starting Point at East Wall	-3101232.402	08501218.752	1378.081	
CK1 The Starting Point at West Wall	-3101301.304	08501032.262	1375.318	

Table 2 Results of Quality Control Tests for Drilling

Hole Number	Date of commencement Date of completion (Date, Month, Year)	Finished Depth (m)	Core Recovery Rate (%)			Recovery Rate (%) of Orebed (Roof & Floor)			Drill Hole deviation				Hole Sealing	Basic Hydrological Observation	Original data	Quality Grade	Remarks
			Total	Q	V _G	V _{gl}	Roof	Orebed	Floor	Depth (m)	Zenith angle Degree	Azimuth angle					
ZK001	2011.8.24	95.95	100	/	100	100	100	100	90.00	2°	146°	95.95	95.93	-0.02	Up to standard	Up to standard	Up to standard
	2011.8.29																
ZK501	2011.8.19	50.85	59	/	66	47	100	64	40.00	2°	261°	50.85	50.80	-0.05	Up to standard	Up to standard	Up to standard
	2011.9.1																
ZK502	2011.8.4	67.74	73	/	91	37	96	64	60.00	2°	146°	67.74	67.74	0.00	Up to standard	Up to standard	Up to standard
	2011.8.18																
ZK503	2011.7.21	80.28	82	100	80	77	79	57	80.28	/	/	80.28	80.28	0	Up to standard	Up to standard	Up to standard
	2011.9.15																
ZK602	2011.8.3	60.94	90	/	85	98	90	80	60.00	-2°	/	60.94	60.94	0.00	Up to standard	Up to standard	Up to standard
	2011.8.18																
ZK603	2011.8.24	83.68	56	/	42	83	30	67	80.00	2°	261°	83.68	83.68	0.00	Up to standard	Up to standard	Up to standard
	2011.9.12																
ZK605	2011.9.13	101.38	84	/	78	98	82	88	92.00	0°	/	101.38	101.38	0.00	Up to standard	Up to standard	Up to standard
	2011.9.16																
ZK1101	2011.8.4	62.68	93	/	92	100	89	98	60.00	0°	/	62.68	62.68	0.00	Up to standard	Up to standard	Up to standard
	2011.8.8																
ZK1102	2011.8.8	119.67	97	100	90	100	93	74	116.00	2°	166° /	119.67	119.67	0.00	Up to standard	Up to standard	Up to standard
	2011.8.15																
ZK1103	2011.8.17	116.95	99	100	98	100	98	100	110.00	2°	/	116.95	116.95	0.00	Up to standard	Up to standard	Up to standard
	2011.8.23																
ZK1201	2011.8.24	60.68	63	/	77	40	81	70	60.00	2°	261°	60.68	60.68	0.00	Up to standard	Up to standard	Up to standard
	2011.9.7																

Table 2 Results of Quality Control Tests for Drilling

Hole Number	Date of commencement Date of completion (Date, Month, Year)	Core Recovery Rate (%)				Recovery Rate (%) of Orebed & Floor)			Hole deviation				Correction of Drill Hole Depth			Basic Hydrological Observation Simple Hydrological survey	Original data	Quality Grade	Remarks
		Total	Q	V _g	V _{gl}	Roof	Orebed	Floor	Depth (m)	Zenith angle (°)	Azimuth angle (°)	Before (m)	After (m)	Deviation	Hole Sealing				
ZK1202	2011.8.31	66	/	56	86	91	40	completion of hole	35.00	261°	38.48	38.48	0.00	Drill holes are sealed with	Up to standard	Up to standard	Up to standard		
	2011.9.9																		
ZK1204	2011.9.17	83	/	78	98	/	78	completion of hole	60.00	146°	68.68	68.68	0.00	Same as above	Up to standard	Up to standard	Up to standard		
	2011.9.20																		
ZK1701	2011.9.10	97	/	100	93	/	100	completion of hole	26.00	102°	26.48	26.48	0.00	Same as above	Up to standard	Up to standard	Up to standard		
	2011.9.16																		
ZK1702	2011.9.17	97	/	97	92	/	No ore discovered	170.00	3°	311°	173.78	173.78	0.00	Same as above	Up to standard	Up to standard	Up to standard		
	2011.9.25																		
ZK1703	2011.9.20	100	100	100	100	/	No ore discovered	/	/	/	64.00	64.00	0	Same as above	Up to standard	Up to standard	Up to standard	Percussive Drilling	
	2011.9.21																		
ZK1203	2011.11.3	84.27	/	88	97	92	72	92	101.00	201.7°	107.95	107.95	0.00	Same as above	Up to standard	Up to standard	Up to standard		
	2011.11.16																		
ZK601	2011.10.20	66	/	86	59	/	86	59	35.00	201.7°	36.28	36.28	0.00	Same as above	Up to standard	Up to standard	Up to standard		
	2011.10.27																		
ZK002	2011.10.27	96	100	99	94	99	93	94	100.00	130°	104.98	104.98	0.00	Same as above	Up to standard	Up to standard	Up to standard		
	2011.11.01																		
ZK1206	2011.11.11	100	100	100	100	100	100	100	100.00	349.4°	102.00	102.00	0.00	Same as above	Up to standard	Up to standard	Up to standard		
	2011.11.12																		
ZK301	2011.11.11	100	100	100	100	100	100	100	120.00	58.5°	122.68	122.68	0.00	Same as above	Up to standard	Up to standard	Up to standard		
	2011.11.16																		
ZK304	2011.11.03	97.71	100	86	99	99	99	99	146.85	191.7°	146.85	146.85	0.00	Same as above	Up to standard	Up to standard	Up to standard		
	2011.11.11																		

Table 2 Results of Quality Control Tests for Drilling

Hole Number	Date of commencement		Finished Depth (m)	Core Recovery Rate (%)				Recovery Rate (%) of Orebed (Roof & Floor) (%)			Hole deviation			Correction of Drill Hole Depth			Hole Sealing	Basic Hydrological Observation	Original data	Quality Grade	Remarks
	Date of completion (Date, Month, Year)			Total	Q	Vg	Vgl	Roof	Orebed	Floor	Depth (m)	Zenith angle (°)	Azimuth angle (°)	Before (m)	After (m)	Deviation (±)					
ZK003	2011.9.1		171.62	100	97	/	99	97	84	150.00	2°	261°	171.62	171.57	0.05	Up to standard	Up to standard	Up to standard			
	2011.10.6																				
ZK1802	2011.9.27		95.71	100	99	100	100	91	100	95.00	0.6°	130°	95.71	95.71	0.00	Up to standard	Up to standard	Up to standard			
	2011.10.5																				
ZK1801	2011.10.15		100.21	100	98	73	100	90	73	100.00	1.1°	294.1°	100.21	100.21	0.00	Up to standard	Up to standard	Up to standard			
	2011.10.21																				
ZK1205	2011.9.21		101.73	100	92	46	/	No ore discovered	/	90.00	1°	200.7°	101.73	101.75	0.00	Up to standard	Up to standard	Up to standard			
	2011.10.18																				
ZK606	2011.10.12		159.03	100	99	100	99	99	100	150.00	1.3°	112.9°	159.03	159.03	0.00	Up to standard	Up to standard	Up to standard			
	2011.10.19																				
ZK604	2011.9.21		92.88	/	82	83	93	59	83	92.00	3.1°	51.1°	92.88	92.88	0.00	Up to standard	Up to standard	Up to standard			
	2011.10.13																				
ZK1803	2011.9.24		150.00	100	100	100	/	No ore discovered	/	150	/	/	150.00	150.00	0	Up to standard	Up to standard	Up to standard	Percussive Drilling		
	2011.9.25																				

Table 3 Registry Form for the Results of Surface Sampling

Exploration line No.	Project No.	Stratum code	Sequence No. of orebed (including interbeds)	Sequence number of sample	Test number	Sample length (m)	True thickness (m)	Analysis results ($\times 10^{-2}$)					Remarks																					
								Mn	TFe	SiO ₂	P	S																						
0	TC001	Vg	2	H14	S000402	0.72	0.4	3.64	42.1	15.2	0.06	0.2																						
														H15	S000403	0.73	0.4	2.65	39	16.9	0.07	0.2												
														H16	S000404	0.98	0.52	1.02	22	28.9	0.06	0.2												
														H17	S000405	0.94	0.5	1.59	38.9	15.8	0.09	0.2												
														H18	S000406	0.78	0.41	47.29	9.46	1.1	0.03	<0.1												
														H19	S000407	0.78	0.72	38.94	16.88	1.9	0.04	0.1												
														H20	S000408	0.82	0.75	43.1	11.57	1.5	0.05	<0.1												
														H21	S000409	0.79	0.73	37.43	13.32	5.1	0.12	<0.1												
														H22	S000410	0.77	0.71	42.62	8.03	2.4	0.08	<0.1												
														H23	S000411	0.82	0.75	44.84	9.5	2.1	0.06	<0.1												
														H24	S000412	0.79	0.73	45.89	9.34	1.5	0.06	<0.1												
														H26	S000414	0.83	0.75	19.6	28.03	10.1	0.03	<0.1												
														H27	S000415	0.92	0.85	29.16	27.78	6	0.03	<0.1												
H28	S000416	0.8	0.8	19.82	20.19	23.3	0.02	0.1																										
H29	S000417	0.8	0.8	18.56	21.63	18.4	0.01	<0.1																										
H1	S000418	0.83	0.48	4.09	4.4	2.6	0.01	<0.1																										
H2	S000419	0.78	0.39	2.36	3.2	10.5	<0.01	<0.1																										
H3	S000420	0.74	0.36	28.85	16.1	7.1	0.06	0.1																										
H4	S000424	0.71	0.36	31.62	16.56	7.1	0.06	<0.1																										
H5	S000425	0.75	0.36	47.11	14.12	2.8	0.07	<0.1																										
H6	S000426	0.54	0.52	>50	12.4	2.1	0.03	<0.1																										
H7	S000427	0.54	0.52	26.54	15.5	6.2	0.06	<0.1																										
H8	S000428	0.54	0.52	27.2	13.68	9.2	0.04	<0.1																										
H9	S000429	0.54	0.52	28.02	17.15	9.4	0.05	<0.1																										
H10	S000430	0.54	0.52	24.54	18.29	9	0.1	<0.1																										
H11	S000431	0.54	0.52	21.8	24.68	8.8	0.07	<0.1																										
H12	S000432	0.54	0.52	16.74	30.65	9.2	0.06	<0.1																										
H13	S000433	0.54	0.52	17.32	28.04	8.8	0.07	<0.1																										
H14	S000434	0.54	0.52	20.16	25.68	9.4	0.06	<0.1																										
H15	S000435	1.1	0.7	30.82	17.83	6.2	0.11	<0.1																										
H16	S000436	1.1	0.69	20.28	25.21	9	0.11	<0.1																										
H17	S000437	1.1	0.69	27.8	15.59	9.4	0.05	<0.1																										
H18	S000438	1.07	0.66	20.86	25.53	7.7	0.1	<0.1																										
H19	S000439	1.12	0.69	23.88	19.23	8.3	0.06	0.1																										
H1	S000440	0.58	0.26	2.21	12.4	4.3	0.02	<0.1																										
H2	S000441	0.55	0.24	23.1	26.9	3.6	0.03	<0.1																										
H3	S000442	0.74	0.67	27.25	28.85	4.1	0.04	<0.1																										
H4	S000446	0.48	0.41	3.44	4.8	14.5	0.02	<0.1																										
H5	S000447	0.47	0.41	4.12	37.2	21.4	0.02	<0.1																										
H6	S000448	0.76	0.63	0.19	65.5	4.1	0.01	<0.1																										
H7	S000449	0.73	0.61	0.73	67	1.5	0.01	<0.1																										
14	TC1401	Vg1	⊙	H1	S000418	0.83	0.48	4.09	4.4	2.6	0.01																							
													H2	S000419	0.78	0.39	2.36	3.2	10.5	<0.01	<0.1													
													H3	S000420	0.74	0.36	28.85	16.1	7.1	0.06	0.1													
													H4	S000424	0.71	0.36	31.62	16.56	7.1	0.06	<0.1													
													H5	S000425	0.75	0.36	47.11	14.12	2.8	0.07	<0.1													
													H6	S000426	0.54	0.52	>50	12.4	2.1	0.03	<0.1													
													H7	S000427	0.54	0.52	26.54	15.5	6.2	0.06	<0.1													
													H8	S000428	0.54	0.52	27.2	13.68	9.2	0.04	<0.1													
													H9	S000429	0.54	0.52	28.02	17.15	9.4	0.05	<0.1													
													H10	S000430	0.54	0.52	24.54	18.29	9	0.1	<0.1													
													H11	S000431	0.54	0.52	21.8	24.68	8.8	0.07	<0.1													
													H12	S000432	0.54	0.52	16.74	30.65	9.2	0.06	<0.1													
													H13	S000433	0.54	0.52	17.32	28.04	8.8	0.07	<0.1													
16	TC1601	Vg	II	H1	S000440	0.58	0.26	2.21	12.4	4.3	0.02																							
													H2	S000441	0.55	0.24	23.1	26.9	3.6	0.03	<0.1													
													H3	S000442	0.74	0.67	27.25	28.85	4.1	0.04	<0.1													
													H4	S000446	0.48	0.41	3.44	4.8	14.5	0.02	<0.1													
													H5	S000447	0.47	0.41	4.12	37.2	21.4	0.02	<0.1													
													H6	S000448	0.76	0.63	0.19	65.5	4.1	0.01	<0.1													
													H7	S000449	0.73	0.61	0.73	67	1.5	0.01	<0.1													
													18	TC1801	Vg1	Floor	H1	S000368	1.13	0.24	2.66	2.4	1.3	0.01										
																										H2	S000369	1.24	0.26	2.53	2.7	1.7	0.01	0.1
																										H3	S000370	1.21	0.24	3.9	15.8	38.5	0.01	0.1
																										H4	S000371	0.52	0.42	1.13	58.2	8.6	0.01	<0.1
																										H5	S000372	0.8	0.7	46.16	15.13	2.8	0.04	<0.1
																										H6	S000373	0.8	0.7	33.42	16.63	8.1	0.04	<0.1
H7	S000374	0.8	0.7	28.73	19.01	6.8	0.03	<0.1																										
H8	S000375	0.8	0.7	25.18	20.94	10.1	0.05	0.2																										
H9	S000376	0.8	0.7	25.02	16.87	11.3	0.04	0.2																										
H10	S000377	0.8	0.7	20.18	16.33	14.5	0.04	0.2																										
H11	S000378	0.8	0.7	22.87	20.16	9.5	0.06	0.2																										
H12	S000382	1.18	0.46	32.9	16.55	7.3	0.1	<0.1																										
H13	S000383	1.17	0.46	24.17	24.1	9.8	0.07	<0.1																										
H14	S000384	1.18	0.46	27.78	18.68	9.4	0.07	0.2																										
0	TC001	Vg	Roof	H1	S000385	0.82	0.78	5.24	15.5	35.1	0.03	0.2																						
													H2	S000386	0.68	0.56	6.8	16.3	27.6	0.03	0.2													
													H3	S000387	0.72	0.42	4.18	37.4	16.3	0.1	0.2													
													H4	S000388	0.81	0.49	2.78	47.9	12.4	0.07	0.2													
													H5	S000389	0.38	0.35	12.05	32.2	13.7	0.07	0.2													
													H6	S000390	1.12	0.39	4.9	50.7	7.7	0.05	0.2													
													H7	S000391	0.77	0.35	22.64	38.84	3.6	0.12	0.2													
													H8	S000392	0.72	0.33	18.76	44.24	4.3	0.1	0.2													
													H9	S000393	1.03	0.46	10.3	50.3	2.1	0.08	0.2													
													H10	S000394	0.89	0.36	2.46	51.6	10.7	0.08	0.1													
													H11	S000395	1.16	0.53	17.18	44.29	3	0.22	0.2													
													H12	S000396	0.8	0.45	4.06	43.3	16.5	0.05	0.2													
													H13	S000397	0.64	0.36	1.61	15.8	33.2	0.04	0.2													

Table 3 Registry Form for the Results of Surface Sampling

Exploration line No.	Project No.	Stratum code	Sequence number of boring (including intervals)	Sequence number of sample	Test number	Sample length(m)	True thickness (cm)	Analysis results ($\times 10^2$)					Remarks			
								Mn	TFe	SiO ₂	P	S				
16	TC101	Vg	II	H8	S000450	0.7	0.64	3.04	56	6.4	0.02	0.02	<0.1			
				H9	S000451	0.7	0.64	25.53	21.06	7.9	0.06	0.06	<0.1			
				H10	S000452	0.7	0.64	26.96	19.81	8.1	0.06	0.06	<0.1			
				H11	S000453	0.7	0.64	25.59	20.98	8.6	0.08	0.08	<0.1			
				H12	S000454	0.7	0.64	29.89	19.06	7.7	0.09	0.09	<0.1			
				H13	S000455	0.7	0.64	29.49	18.45	8.1	0.08	0.1				
				H14	S000456	0.8	0.73	26.64	18.47	8.6	0.09	0.09	<0.1			
				H15	S000457	0.8	0.73	27.7	15.53	9.2	0.08	0.08	<0.1			

Exploration line No.	Project No.	Stratum code	Sequence number of boring (including intervals)	Sequence number of sample	Test number	Sample length(m)	True thickness (cm)	Analysis results ($\times 10^2$)					Remarks
								Mn	TFe	SiO ₂	P	S	
		Vg1	Floor	H1	S000458	0.65	0.54	1.35	1.6	0.9	0.01	0.01	<0.1
				H2	S000459	0.66	0.56	1.21	0.9	0.4	0.01	0.01	<0.1
				H3	S000460	1.24	0.6	26.58	20.63	2.4	0.02	0.02	<0.1
				H4	S000461	1.24	0.6	27.2	25.21	4.3	0.03	0.03	<0.1
				H5	S000462	1.24	0.6	27.22	24.81	1.7	0.01	0.01	<0.1
				H6	S000463	1.24	0.6	28.27	25.96	2.4	0.03	0.03	<0.1
			II	H7	S000464	1.24	0.6	38.44	22.04	1.9	0.02	0.02	<0.1
				H8	S000465	1.26	0.61	35.2	26.28	4.5	0.05	0.05	<0.1
				H9	S000469	0.81	0.43	12	16.6	24.8	0.03	0.03	<0.1
				H10	S000470	1.14	0.68	32.37	26.52	5.6	0.04	0.04	<0.1
				H11	S000471	1.06	0.63	27.54	30.12	6.6	0.04	0.04	<0.1
				H12	S000472	0.81	0.68	0.95	3.7	28.6	0.01	0.01	<0.1
			Roof	H13	S000473	0.62	0.52	0.62	2.8	38.4	0.01	0.01	<0.1

Table 4 Registry Form for the Results of Drilling Sampling

Exploratio n line No.	Project Stratum code	Sequence number of orebed (including interbeds)	Sample No.	Test number	Sampling location(m)		True thickness (m)	Analysis results ($\times 10^{-2}$)					Remarks
					From	To		Mn	TFe	SiO ₂	P	S	
0	ZK001	I	H10	S000523	141.02	141.82	0.72	29.59	28.14	3.4	0.19	0.2	
			H11	S000524	141.82	142.68	0.77	28.03	32.47	3.2	0.01	0.1	
			H12	S000525	142.68	143.44	0.68	29.2	26.87	4.5	0.17	0.2	
			H13	S000526	143.44	144.14	0.63	32.6	20.54	6.8	0.07	0.2	
			H14	S000527	144.14	144.93	0.71	32.6	21.22	7.1	0.02	0.1	
			H15	S000528	144.93	145.66	0.66	42.82	14.92	7.3	0.08	0.1	
			H16	S000529	145.66	146.54	0.79	37.09	20.27	6.8	0.14	<0.1	
			H17	S000530	146.54	146.87	0.3	18.84	37.52	3.8	0.07	<0.1	
			H18	S000531	146.87	147.87	0.9	26.58	31.16	6.8	0.02	0.1	
			H19	S000532	147.87	148.17	0.27	24.86	12.1	14.5	0.01	0.1	
			H20	S000536	148.17	148.92	0.67	29.26	21.36	9.2	0.04	0.3	
			H21	S000537	148.92	149.67	0.67	17.12	12.98	23.3	0.02	0.1	
			H22	S000538	149.67	150.18	0.46	26.42	28.7	7.3	0.01	0.1	
			H23	S000539	150.18	150.64	0.41	27.39	30.86	6.2	0.03	0.3	
			H24	S000540	150.64	151.4	0.68	23.28	35.86	5.1	0.03	0.3	
			H25	S000541	151.4	152.27	0.78	25.32	28.4	7.5	0.03	0.1	
			H26	S000542	152.27	152.54	0.24	12.6	20.8	15.4	0.12	0.2	
			H27	S000543	152.54	153.2	0.59	22.71	30.96	6.8	0.03	0.4	
			H28	S000544	153.2	153.48	0.25	6.95	27.6	17.8	0.01	0.1	
			H29	S000545	153.48	153.98	0.45	0.64	18.3	28.7	0.01	<0.1	
			H30	S000546	153.98	155	0.92	5.67	25.8	17.8	0.01	0.1	
			H31	S000547	155	155.31	0.28	16.69	33.58	7.3	0.05	0.4	
			H32	S000548	155.31	155.99	0.61	21.06	30.55	7.5	0.07	0.2	
			H33	S000549	155.99	156.17	0.16	7.48	28.6	13.5	0.12	0.1	
H34	S000550	156.17	156.63	0.41	12.05	27.8	13	0.1	0.1				
H35	S000551	156.63	157.03	0.36	26.69	19.51	10.7	0.15	0.1				
H36	S000552	157.03	157.87	0.75	17.03	42.72	3.6	0.38	0.1				
H37	S000553	157.87	158.87	0.9	32.66	27.45	4.7	0.17	<0.1				
H38	S000554	158.87	159.73	0.77	20.92	35.45	6.2	0.2	0.1				
H39	S000558	159.73	160.54	0.73	18.52	38.83	5.6	0.15	0.1				
H40	S000559	160.54	161.36	0.74	20.98	28.2	9.6	0.05	0.1				
H41	S000560	161.36	161.72	0.32	1.98	8.3	26.7	<0.01	0.4				
H42	S000561	161.72	162.3	0.52	22.56	32.27	7.3	0.07	0.1				
H43	S000562	162.3	163.31	0.91	24	20.73	10.5	0.13	0.1				
H44	S000563	163.31	163.91	0.54	23.75	23.69	8.1	0.07	<0.1				
0	ZK002	II	H1	S000163	67.16	68.16	0.96	0.09	3.5	40.9	0.06	0.1	
			H2	S000164	68.16	68.72	0.54	0.46	62	10.3	0.03	<0.1	
			H3	S000165	68.72	69.19	0.45	0.2	39.3	16.7	0.03	<0.1	
			H4	S000166	69.19	70.27	1.03	0.63	6.5	36.6	0.04	0.1	
			H5	S000167	70.27	71.34	1.02	1.98	43.9	12.2	0.01	0.1	
			H6	S000168	71.34	72.41	1.02	9.24	48.7	5.3	0.02	<0.1	
			H7	S000169	72.41	73.46	1	14.95	42.9	4.1	0.02	0.1	
			H8	S000170	73.46	74.7	1.19	29.93	31.92	3	0.05	0.1	
			H9	S000171	74.7	75.95	1.2	42.18	17.05	5.8	0.08	0.1	
			H10	S000172	75.95	76.95	0.96	29.51	31.71	4.1	0.04	0.2	
			H11	S000173	76.95	77.95	0.96	8.08	40.5	8.1	0.01	0.1	
			H12	S000174	77.95	78.66	0.68	19.44	35.86	6.4	0.03	<0.1	
			H13	S000175	78.66	79.78	1.07	12.6	48.6	3.6	0.02	<0.1	
			H14	S000176	79.78	80.36	0.55	8.3	14.2	25.5	0.04	<0.1	
			H15	S000177	80.36	81.51	1.1	11.7	50.4	4.7	0.02	<0.1	
			H16	S000178	81.51	83.12	1.54	12.26	50.77	4.1	0.01	0.1	
			H17	S000179	83.12	84.55	1.37	3.61	16.2	31.7	0.01	0.2	
			H18	S000180	84.55	84.81	0.25	2.31	9	36.2	0.01	0.2	
			H19	S000181	84.81	85.72	0.87	26.19	28.76	6	0.02	0.1	
			H20	S000185	85.72	86.26	0.52	17.07	20.61	22.2	0.02	<0.1	
			H21	S000186	86.26	87.06	0.77	4.62	10.4	33.2	0.03	<0.1	
			H22	S000187	87.06	88.31	1.13	17.42	8.67	13.5	0.02	<0.1	
			H23	S000188	88.31	89.02	0.64	23.98	31.46	9.8	0.05	0.1	
			H24	S000189	89.02	89.32	0.27	18.18	20.07	23.3	0.03	0.1	
H25	S000190	89.32	89.91	0.53	32.8	16.28	11.1	0.01	0.1				
H26	S000191	89.91	91.02	1.01	5.94	1.8	0.6	0.01	0.1				
H27	S000192	91.02	92.1	0.98	3.72	2.5	0.6	0.01	0.1				
H1	S000670	71.44	72.44	0.96	0.14	0.4	69.5	0.02	<0.1				
H2	S000671	72.44	73.44	0.96	0.23	6.4	42.1	0.04	<0.1				
H3	S000672	73.44	74.03	0.57	7.66	6.4	6.1	0.04	0.1				
H4	S000673	74.03	74.62	0.57	35.28	5.4	8.5	0.05	<0.1				
H5	S000674	74.62	75.62	0.96	12.5	6.4	17.9	0.05	<0.1				
H6	S000675	75.62	76.62	0.96	4.15	6.4	4.1	0.05	<0.1				
H1	S000514	132.09	133.3	1	0.19	6.4	36.4	0.1	0.1				
H2	S000515	133.3	134.35	0.87	0.17	6.4	35.5	0.13	<0.1				

Table 4 Registry Form for the Results of Drilling Sampling

Exploration line No.	Project No.	Stratum code	Sequence number of orebed (including interbeds)	Sample No.	Test number	Sampling location(m)		True thickness (m)	Analysis results ($\times 10^{-2}$)					Remarks
						From	To		Mn	TFe	SiO ₂	P	S	
5	ZK504	Vg1		H20	S000709	130.25	130.25	1.01	3.54	5.3	11.8	0.03	<0.1	
				H21	S000710	130.25	131.85	1.24	2.22	15.8	1.9	0.01	<0.1	
				H1	S000676	0	0.8	0.79	25.41	16.07	9	0.05	<0.1	
				H2	S000677	0	1.6	0.79	26.25	16.1	9.6	0.04	<0.1	
				H3	S000678	1.6	2.55	0.94	32.64	18.84	6.2	0.07	<0.1	
				H4	S000679	2.55	3.53	0.97	21.18	26.56	8.1	0.06	<0.1	
				H5	S000680	3.53	4.56	1.12	22.46	21.87	9.6	0.04	<0.1	
				H6	S000681	4.56	5.76	1.09	34.78	17.32	6.2	0.06	<0.1	
				H7	S000682	5.76	6.53	0.76	42.26	10.22	5.8	0.04	<0.1	
				H8	S000683	6.53	7.88	1.34	49.42	6.83	2.1	0.13	<0.1	
				H9	S000684	7.88	8.76	0.87	43.03	12.85	3.4	0.04	<0.1	
				H10	S000685	8.76	9.76	0.99	6.8	20.9	35.9	0.02	<0.1	
				H11	S000686	9.76	10.76	0.99	5.87	14.5	39.6	0.02	<0.1	
				H2	S000689	15	16	0.95	0.21	4.9	37.9	0.03	0.1	
				H3	S000693	17	17.78	0.76	2.33	41.2	13	0.03	<0.1	
				H4	S000694	17.78	18.52	0.72	21.5	17.33	12.4	0.03	<0.1	
				H5	S000695	18.52	19.52	0.97	19.64	23.14	10.7	0.05	0.1	
				H6	S000696	19.52	20.52	0.97	13.85	23.5	12.2	0.04	0.1	
				H7	S000697	20.52	21.52	0.97	24.12	24.16	6.8	0.02	0.1	
H8	S000698	21.52	22	0.46	42.68	10.65	3	0.21	<0.1					
H9	S000699	22	22.7	0.68	32.33	16.4	6.6	0.04	<0.1					
H10	S000700	22.7	23.43	0.71	40.86	14.44	3.6	0.07	<0.1					
H11	S000701	23.43	23.78	0.34	40.68	13.31	2.6	0.05	<0.1					
H12	S000702	23.78	24.1	0.31	29.06	21.82	4.9	0.15	0.1					
H13	S000703	24.1	25.1	0.97	41.32	14.66	2.1	0.07	0.1					
H14	S000704	25.1	25.3	0.19	35.6	15.33	5.3	0.03	0.1					
H15	S000705	25.3	25.83	0.51	31.3	18.01	6.4	0.08	0.1					
H16	S000706	25.83	26.03	0.19	31.16	20.65	6	0.07	0.1					
H17	S000707	26.03	27.03	0.97	41.56	12	3.9	0.13	<0.1					
H18	S000708	27.03	27.63	0.58	29.37	15.52	7.5	0.06	<0.1					
H19	S000709	27.63	28.16	0.51	20.88	15.42	12.8	0.04	<0.1					
H20	S000710	28.16	28.88	0.7	39.13	11.66	6	0.09	<0.1					
H21	S000711	28.88	29.78	0.87	28.96	16.25	8.3	0.08	<0.1					
H22	S000712	29.78	30.75	0.94	20.86	13.36	15.8	0.07	<0.1					
H23	S000713	30.75	31.53	0.76	33.08	9.43	10.7	0.05	<0.1					
H24	S000714	31.53	32.26	0.71	38.68	9.67	8.8	0.03	<0.1					
H25	S000715	32.26	32.78	0.5	36.62	9.39	10.6	0.03	<0.1					
H26	S000716	32.78	33.78	0.97	36.54	13.64	5.8	0.04	<0.1					
H27	S000717	33.78	34.78	0.97	23.04	34.39	1.3	0.04	0.2					
H28	S000718	34.78	35.63	0.82	22.66	37.12	2.2	0.05	0.2					
H29	S000719	35.63	36.63	0.97	4.7	32.4	21.2	0.02	0.2					
6	ZK602	Vg		H21	S000692	66.74	67.29	0.49	6.08	11.2	31.2	0.04	0.1	
				H22	S000693	67.29	67.54	0.22	16.1	29.63	11.3	0.09	0.2	
				H24	S000694	67.54	67.74	0.18	0.81	19.6	29.1	0.04	0.1	
				H25	S000695	67.74	68.49	0.67	26.66	28.34	3.9	0.09	<0.1	
				H26	S000696	68.49	68.69	0.18	6.19	13.4	25.9	0.02	0.1	
				H27	S000697	68.69	69.84	0.13	20.32	30.28	9.2	0.07	0.2	
				H28	S000698	69.84	69.14	0.27	0.96	9.1	38.1	0.04	0.1	
				H29	S000699	69.14	69.84	0.63	8.84	40.6	8.8	0.05	0.2	
				H30	S000700	69.84	70.09	0.22	1.03	16	24	0.04	0.1	
				H31	S000701	70.09	70.79	0.65	2.12	4.6	2.6	0.01	<0.1	
				H32	S000702	70.79	71.49	0.65	1.61	15.8	5.3	0.04	<0.1	
				H33	S000703	71.49	71.89	0.37	1.24	32	2.1	0.01	0.2	
				H34	S000704	71.89	71.99	0.09	1.54	33.3	1.1	<0.01	0.2	
				H35	S000705	71.99	72.49	0.47	0.19	60	6.6	0.01	0.1	
				H36	S000706	72.49	72.81	0.3	2.55	10.5	0.6	0.01	<0.1	
				H37	S000707	72.81	73.66	0.79	0.11	64.6	5.6	0.01	<0.1	
				H38	S000708	73.66	74.51	0.79	2.89	2.2	0.9	<0.01	<0.1	
				H39	S000709	74.51	75.31	0.75	2.82	3.3	0.4	<0.01	<0.1	
				H40	S000710	75.31	76.21	0.84	2.88	8.6	0.6	0.01	<0.1	
H41	S000711	76.21	76.81	0.56	0.04	67.5	3.4	0.01	<0.1					
H42	S000712	76.81	77.41	0.56	1.96	25	0.6	<0.01	<0.1					
H43	S000713	77.41	78.21	0.75	0.13	60.4	3.3	0.01	0.1					
H44	S000714	78.21	79.11	0.84	0.04	66.5	2.1	0.01	0.1					
H1	S006687	107.6	108.57	1.02	0.06	14.2	47.1	0.03	<0.1					
H2	S006688	108.57	109.38	0.66	0.32	7.8	55.4	0.02	<0.1					
H3	S006689	109.38	110.51	1.03	8.62	38.3	14.1	0.05	<0.1					
H4	S006690	110.51	111.79	1.17	26.38	25.15	10.1	0.07	<0.1					
H5	S006691	111.79	112.73	0.86	0.22	10	34.9	0.04	<0.1					
H6	S006692	112.73	113.85	1.02	2.52	58.2	4.7	0.02	<0.1					
H7	S006693	113.85	115.2	1.23	2.01	64.3	2.1	0.08	<0.1					
H8	S006694	115.2	116.26	0.97	1.85	61.8	3.9	0.06	<0.1					
H9	S006695	116.26	117.42	1.06	0.91	51.3	10.9	0.03	<0.1					
H10	S006696	117.42	118.42	0.91	1.48	47.6	13.9	0.02	<0.1					
H11	S006697	118.42	119.52	1	2.01	22.1	29.1	0.02	<0.1					
H12	S006698	119.52	120.74	1.11	13.65	42.6	8.1	0.02	<0.1					
H13	S006699	120.74	121.45	0.65	16.21	45.9	4.1	0.05	<0.1					
H14	S006700	121.45	122.38	0.85	20.02	38.38	6.2	0.04	<0.1					
H15	S006701	122.38	123.68	1.19	2.11	9	36.8	0.03	<0.1					
H16	S006702	123.68	125.08	1.28	2.83	7.2	37	0.03	<0.1					
H17	S006703	125.08	126.53	1.32	26.91	27.21	7.9	0.05	<0.1					
H18	S006704	126.53	127.77	1.13	28.69	25.03	7.1	0.03	<0.1					
H19	S006705	127.77	128.95	0.92	4.63	8.5	8.3	0.03	<0.1					

Table 4 Registry Form for the Results of Drilling Sampling

Exploration line No.	Project No.	Stratum code	Sequence No. of orebed (including interbeds)	Sample No.	Test number	Sampling location(m)		True thickness (m)	Analysis results ($\times 10^{-2}$)				Remarks
						From	To		Mn	TFe	SiO ₂	P	
6	ZK606	Vg	II	H11	S000617	136.17	137.08	0.87	19.65	27.94	8.3	0.08	<0.1
				H12	S000618	137.08	137.87	0.76	26.5	26.95	6.4	0.08	<0.1
				H13	S000619	137.87	138.69	0.79	19.68	30.6	6.2	0.05	<0.1
				H14	S000623	138.69	139.25	0.54	27.24	24.54	6.8	0.05	<0.1
				H15	S000624	139.25	140.52	1.22	40.12	13	7.7	0.02	<0.1
				H16	S000625	140.52	140.72	0.19	5.99	7.1	26.3	0.02	<0.1
				H17	S000626	140.72	141.28	0.54	21.04	12.48	18	0.04	<0.1
				H18	S000627	141.28	141.73	0.43	0.28	3.5	38.7	0.01	<0.1
				H19	S000628	141.73	142.32	0.57	1.79	8.2	36.6	0.02	<0.1
				H20	S000629	142.32	142.8	0.46	23.88	14.19	19	0.05	<0.1
				H21	S000630	142.8	143.69	1.05	18	22.82	16.9	0.05	<0.1
				H22	S000631	143.69	144.4	0.45	0.58	11.5	31	0.07	<0.1
				H23	S000632	144.4	145.5	1	0.67	17.3	47.7	0.06	<0.1
				H24	S000633	145.5	146.49	0.95	0.43	18.8	29.1	0.1	<0.1
				H25	S000634	146.49	147.13	0.62	0.3	9.3	42.4	0.16	0.1
				H26	S000635	147.13	148.5	1.32	1.26	21.4	3.4	0.01	<0.1
				H27	S000636	148.5	149.72	1.17	2.16	6.3	1.1	0.01	<0.1
				H28	S000637	149.72	150.21	0.47	0.66	50.5	1.9	0.01	<0.1
				H29	S000638	150.21	150.86	0.62	1.89	8	0.4	0.01	0.1
				H30	S000639	150.86	151.43	0.55	0.27	64.4	1.9	0.02	<0.1
H31	S000640	151.43	152.64	1.15	2.12	5.7	0.3	0.01	0.1				
11	ZK1101	Vg	I	H1	S000001	28.23	29.23	0.91	0.4	14.3	25.3	0.11	<0.1
				H2	S000002	29.23	30.23	0.91	0.29	13.7	14.4	0.05	<0.1
				H3	S000003	30.23	31.23	0.91	0.11	9.3	12.8	0.05	<0.1
				H4	S000004	31.23	32.19	0.87	0.35	32.4	10.8	0.23	0.1
				H5	S000005	32.19	32.81	0.56	0.33	45.6	8.9	0.44	<0.1
				H6	S000006	32.81	33.12	0.28	0.44	26.4	20.1	0.14	<0.1
				H7	S000007	33.12	34.12	0.91	0.68	49.2	11.5	0.14	<0.1
				H8	S000008	34.12	34.53	0.37	0.3	35.6	13.7	0.02	0.1
				H9	S000009	34.53	35.44	0.86	0.94	53.2	8	0.01	<0.1
				H10	S000010	35.44	36.46	0.98	1.32	49.9	9.3	0.01	<0.1
				H11	S000011	36.46	37.37	0.84	3.68	43.7	8	0.05	<0.1
				H12	S000012	37.37	38.33	0.9	35.36	15.58	6.7	0.06	<0.1
				H13	S000013	38.33	39.3	0.91	41.9	11.95	4.1	0.06	<0.1
				H14	S000014	39.3	40.54	1.17	14.75	44.6	5.1	0.07	<0.1
				H15	S000015	40.54	41.04	0.47	3.11	5.4	29.1	0.01	<0.1
				H16	S000016	41.04	41.89	0.8	95.38	24.42	6.8	0.02	<0.1
				H17	S000017	41.89	42.96	1.01	28.11	25.98	5.8	0.08	0.1
				H18	S000018	42.96	43.97	0.95	23.02	30.05	5.8	0.06	<0.1
				H19	S000019	43.97	45.05	1.01	14.75	35.9	7.5	0.02	0.1
				H20	S000020	45.05	45.4	0.33	2.41	7.9	29.1	0.17	0.1
H24	S000024	45.4	46.24	0.79	19.75	43.73	1.7	0.06	<0.1				

Exploration line No.	Project No.	Stratum code	Sequence No. of orebed (including interbeds)	Sample No.	Test number	Sampling location(m)		Sampling location(m)	Analysis results ($\times 10^{-3}$)					Remarks
						From	To		Mn	TFe	SiO ₂	P	S	
11	ZK1102	Vg	II	H25	S000025	46.24	47.22	0.92	21.9	40.6	1.5	0.05	<0.1	
				H26	S000026	47.22	48.15	0.87	6.92	54.8	2.1	0.13	0.1	
				H27	S000027	48.15	49.17	0.96	23.12	34.34	2.6	0.04	0.1	
				H28	S000028	49.17	50.04	0.82	36.8	16.81	2.1	0.01	0.1	
				H29	S000029	50.04	50.91	0.82	34.94	18.45	2.4	0.01	0.1	
				H30	S000030	50.91	51.95	0.98	37.15	18.18	3.2	0.02	<0.1	
				H31	S000031	51.95	52.94	0.93	34.5	24.16	4.5	0.02	0.1	
				H32	S000032	52.94	53.75	0.76	17.56	41.26	5.6	0.03	0.1	
				H33	S000033	53.75	54.67	0.87	3.26	6.02	46.4	0.02	0.2	
				H34	S000034	54.67	55.69	0.96	2.42	2.2	57.3	0.01	0.1	
				H1	S000124	40.36	41.36	0.89	0.33	17.3	46.4	0.05	0.2	
				H2	S000125	41.36	42.36	0.89	0.32	17.1	48.5	0.05	<0.1	
				H3	S000126	42.36	43.53	1.07	19.05	41.36	5.1	0.05	<0.1	
				H4	S000127	43.53	44.47	0.86	19.1	42.62	3.7	0.04	<0.1	
				H5	S000128	44.47	45.16	0.43	2.99	10.1	46.7	0.06	<0.1	
				H6	S000129	45.16	45.64	0.63	19.92	27.57	21.2	0.06	<0.1	
				H7	S000130	45.64	47.05	1.18	3.42	7.6	3.6	0.02	0.2	
				H8	S000131	47.05	48.05	0.84	2.43	5.9	4.4	0.01	0.2	
				H1	S000149	91.34	92.46	1.03	0.33	20.9	46.5	0.03	<0.1	
				H2	S000150	92.46	93.46	0.93	1.32	11.3	38.4	0.03	0.1	
H3	S000151	93.46	94.07	0.54	23.44	32.83	4.7	0.05	0.2					
H4	S000152	94.07	95.42	1.2	0.63	6.6	36.8	0.01	0.1					
H5	S000153	95.42	96.33	0.81	23.08	38.63	2.1	0.06	0.1					
H6	S000154	96.33	97.09	0.68	0.32	6	37.6	0.01	<0.1					
H7	S000155	97.09	98.09	0.89	7.26	20.5	26.1	0.04	<0.1					
H8	S000156	100.74	101.81	0.95	2.63	13.8	36.6	0.03	<0.1					
H9	S000157	101.81	102.68	0.78	18.2	27.73	18.6	0.06	<0.1					
H10	S000158	102.68	103.68	0.82	3.83	2.5	1.9	<0.0	<0.1					
H11	S000162	103.68	104.68	0.82	3.43	4.8	2.8	0.01	0.2					
H1	S000225	0	1	0.7	0.04	2.2	42.8	0.02	<0.1					
H2	S000226	30.5	31.5	0.89	0.08	2.1	45.5	0.03	<0.1					
H3	S000227	31.5	32.56	0.94	3.25	16.3	28.4	0.08	0.1					
H4	S000228	32.56	32.85	0.27	9.64	41.61	8.2	0.06	<0.1					
H5	S000229	32.85	33.9	0.93	15.8	31.26	8.6	0.06	<0.1					
H6	S000230	33.9	34.62	0.64	21.4	26.34	7.7	0.06	<0.1					
H7	S000234	34.62	35.53	0.86	22.94	12.69	16.8	0.07	0.1					
H8	S000235	35.53	36.58	0.89	0.12	1.7	43.6	0.03	<0.1					
H9	S000236	36.58	37.42	0.75	0.1	2.6	42	0.03	<0.1					
H10	S000237	37.42	38.58	1.03	38.78	10.39	8.8	0.07	0.1					

Table 4 Registry Form for the Results of Drilling Sampling

Project No.	Stratum code	Sequence No. of orebed (including interbeds)	Sample No.	Test number	Sampling location(m)	True thickness (m)	Analysis results ($\times 10^{-3}$)					Remarks	
							Mn	TFe	SiO ₂	P	S		
ZK1201	Vg1		H11	S000238	38.58	39.56	0.89	1.35	19.9	37.1	0.08	<0.1	
			H12	S000239	39.58	40.56	0.89	18.49	18.57	25.6	0.09	<0.1	
			H13	S000474	40.58	41.56	0.89	12.95	23	27	0.05	<0.1	
			H14	S000475	41.58	42.56	0.89	1.54	4	67.2	0.04	<0.1	
			H1	S000240	5	6	0.93	7.87	21.1	26.3	0.05	0.1	
			H2	S000241	6	6.71	0.66	13.35	28.7	15.5	0.04	<0.1	
			H3	S000242	6.71	7.85	1.06	19.66	19.24	13	0.06	<0.1	
			H4	S000243	7.85	8.45	0.56	22.06	22.16	10.5	0.05	<0.1	
			H5	S000244	8.45	9.37	0.85	5.98	16.4	27.9	0.03	<0.1	
			H6	S000245	9.37	10.02	0.6	13.5	16.4	23.3	0.04	<0.1	
			H7	S000246	10.02	11.79	1.64	14.2	24.4	13.6	0.04	<0.1	
			H8	S000247	11.79	13.14	1.26	24.37	11.57	17.4	0.06	<0.1	
			H9	S000248	13.14	14.48	1.25	7.36	13.9	27.7	0.04	0.1	
			ZK1203	Vg		H10	S000249	14.48	15.98	1.39	21.3	16.38	13.6
H11	S000250	15.98				17.48	1.39	28.11	14.31	11.3	0.08	<0.1	
H12	S000251	17.48				18.6	1.05	43.52	15.36	2.2	0.07	<0.1	
H13	S000255	18.6				19.4	0.74	22.83	25.76	6.3	0.07	<0.1	
H14	S000256	19.4				20.48	1	50.22	12.15	2.1	0.06	<0.1	
H15	S000257	20.48				21.87	1.29	30.01	22.48	4.8	0.08	<0.1	
H16	S000258	21.87				23.35	1.37	25.38	12.8	16.3	0.07	<0.1	
H17	S000259	23.35				24.96	1.51	45.51	13.13	4.2	0.03	<0.1	
H18	S000260	24.96				26.48	1.4	1.2	3.5	72.1	0.05	<0.1	
H19	S000476	26.48				27.48	0.98	1.78	6	35.9	0.05	<0.1	
H1	S000714	35.15				36.15	0.92	0.2	4.4	40.3	0.02	<0.1	
H2	S000715	36.15				37.15	0.92	0.56	11	35.1	0.02	<0.1	
H3	S000716	37.15				38.03	0.81	22.26	15.91	16.3	0.05	<0.1	
H4	S000717	38.03				38.99	0.83	32.54	22.44	3.5	0.06	0.1	
ZK1204	Vg		H5	S000718	38.99	40.43	1.33	0.71	15.5	34.2	0.05	<0.1	
			H6	S000719	40.43	41.9	1.35	0.76	14.6	33.9	0.03	<0.1	
			H7	S000720	41.9	42.88	0.9	6.87	40	23.7	0.04	0.1	
			H8	S000721	42.88	43.98	1.01	0.74	16.4	38.3	0.05	<0.1	
			H9	S000722	43.98	44.98	0.92	0.67	16.3	37.6	0.05	0.1	
			H10	S000723	44.98	45.98	0.92	0.52	16.4	38.9	0.05	0.1	
			H1	S000326	44.7	45.7	0.93	0.28	14.8	39	0.05	0.1	
			H2	S000327	45.7	46.7	0.93	1.84	21.1	37.9	0.06	<0.1	
			H3	S000328	46.7	47.4	0.65	37.5	14.4	4.4	0.04	<0.1	
			H4	S000329	47.4	48	0.56	37.29	13.75	4.2	0.05	<0.1	
			H5	S000348	48	48.64	0.62	45.74	11.46	2.6	0	<0.1	
			H6	S000349	48.64	50	1.3	41.92	12.63	3.4	0	<0.1	
			H7	S000350	50	51.28	1.23	17.58	32.96	8.1	0.1	0.1	
			H8	S000351	51.28	51.73	0.43	28.02	29.03	8.8	0	<0.1	
H9	S000352	51.73	52.28	0.53	8.5	37	9.8	0	<0.1				
ZK1204	Vg		H10	S000353	52.28	52.9	0.63	21.04	25.8	8.3	0.05	0.1	
			H11	S000354	52.94	53.7	0.71	40.32	12.21	4.5	0.2	0.1	
			H12	S000355	53.68	54.7	0.96	25.18	24.46	4.9	0.07	<0.1	
			H13	S000359	54.68	55.7	0.96	24.13	29.43	6.6	0.05	0.1	
			H14	S000360	55.68	56.7	0.96	27.28	32.27	1.7	0.06	0.1	
			H15	S000361	56.68	58.2	1.44	22	39.54	2.8	0.07	0.1	
			H16	S000362	58.18	59.7	1.44	28.34	29.03	5.8	0.05	0.1	
			H17	S000363	59.68	60.9	1.2	26.44	28.89	5.8	0.03	0.1	
			H18	S000364	60.93	61.4	0.48	14.65	8.9	26.3	0.03	0.1	
			H19	S000365	61.43	62.7	1.2	39.63	15.88	4.5	0.07	<0.1	
			H20	S000366	62.68	63.7	0.96	3.36	3.5	17.1	0.03	0.1	
			H21	S000367	63.68	64.7	0.96	1.01	3.6	40.2	0.04	0.1	
			H1	S000724	73	74	0.93	0.12	4.5	38.5	0.07	0.1	
			H2	S000725	74	75	0.93	0.38	6.6	35.7	0.1	<0.1	
ZK1206	Vg		H3	S000726	75	76	0.93	0.46	3.5	39	0.06	0.1	
			H4	S000727	75	77	0.93	14.4	20.6	19.3	0.07	<0.1	
			H5	S000728	77	78	0.93	20.8	23.38	13.3	0.07	<0.1	
			H6	S000732	78	79	0.93	24.06	22.12	12.8	0.04	<0.1	
			H7	S000733	79	80	0.93	26.1	18.48	13.9	0.03	0.1	
			H8	S000734	80	81	0.93	29.22	27.13	3.4	0.08	<0.1	
			H9	S000735	81	82	0.93	25.41	29.51	6.6	0.03	<0.1	
			H10	S000736	82	83	0.93	23.77	16.7	17.8	0.03	<0.1	
			H11	S000737	83	84	0.93	26.38	15.58	16.1	0.04	<0.1	
			H12	S000738	84	85	0.93	32.52	18.74	11.4	0.06	<0.1	
			H13	S000739	85	86	0.93	36.28	12.03	12.8	0.05	0.1	
			H14	S000740	86	87	0.93	26.36	16.29	16.3	0.03	<0.1	
			H15	S000741	87	88	0.93	7.7	7.8	35.6	0.04	0.1	
			H16	S000742	88	89	0.93	4.32	4.2	12.7	0.02	0.1	
H17	S000743	89	90	0.93	2.24	5.4	16.6	0.02	<0.1				
ZK1701	Vg		H1	S000308	0	1	0.93	24.2	26.4	8.9	0.04	<0.1	
			H2	S000309	1	2.4	1.3	32.46	19.79	7.9	0.04	<0.1	
			H3	S000310	2.4	2.73	0.3	28.11	19.64	9.2	0.03	<0.1	
			H4	S000311	2.73	4.03	1.2	29.02	21.97	7.7	0.04	<0.1	
			H5	S000312	4.03	5.38	1.25	28.73	21.12	7.3	0.04	<0.1	
			H6	S000313	5.38	6.38	0.93	28.52	22.24	7.7	0.04	<0.1	
			H7	S000317	6.38	7.2	0.76	27.63	25.01	6.1	0.05	<0.1	
			H8	S000318	7.2	8.63	1.32	20.82	23.08	11.7	0.02	<0.1	
			H9	S000319	8.63	9.63	0.93	27.92	21.25	9.5	0.02	<0.1	
			H10	S000320	9.63	10.6	0.93	19.24	26.36	11.2	0.03	<0.1	
			H11	S000321	10.63	11.6	0.93	18.51	23.65	13.4	0.02	<0.1	
			H12	S000322	11.63	12.6	0.93	14.5	37.4	8	0.01	<0.1	
			H13	S000323	12.63	13.7	1.02	19.05	41.76	5.6	0.02	<0.1	

Table 4 Registry Form for the Results of Drilling Sampling

Exploratio n line No.	Project No.	Stratum code	Sequence No. of orebed (including interbeds)	Sample No.	Test number	Sampling location(m) From To	True thickness (m)	Analysis results ($\times 10^{-2}$)					Remarks					
								Mn	TFe	SiO ₂	P	S						
17	ZK1702	Vg	I	H3	S000479	75.8	77	1.04	26.07	23.74	10.9	0.04	<0.1					
				H4	S000480	77	78	0.87	24.87	25.45	9.4	0.06	<0.1					
				H5	S000481	78	79.23	1.07	29.24	15.5	11.6	0.11	<0.1					
				H6	S000482	79.23	79.95	0.62	24.85	29.67	7.5	0.05	<0.1					
				H7	S000483	79.95	80.71	0.66	11.4	46.1	6.4	0.05	<0.1					
				H8	S000484	80.71	81.38	0.58	10.3	46.1	6.2	0.05	<0.1					
				H9	S000485	81.38	82.25	0.75	14.6	48.7	3	0.03	<0.1					
				H10	S000486	82.25	82.85	0.52	22.1	44.49	2.6	0.06	<0.1					
				H11	S000490	82.85	83.71	0.74	11.75	55.8	2.4	0.03	<0.1					
				H12	S000491	83.71	84.93	1.06	32.72	30.75	3	0.03	<0.1					
				H13	S000492	84.93	85.67	0.64	16.46	34.44	9.2	0.02	<0.1					
				H14	S000493	85.67	86.71	0.9	22.72	29.15	9.6	0.06	<0.1					
				H15	S000494	86.71	87.44	0.63	44.4	15.79	4.3	0.06	<0.1					
				H16	S000495	87.44	88.43	0.86	39.94	15.01	6.2	0.03	<0.1					
				H17	S000496	88.43	89.33	0.78	1.71	21.5	36.4	0.06	<0.1					
				H18	S000497	89.33	90.42	0.94	1.37	7.4	28.9	0.05	<0.1					
				H19	S000498	90.42	91.16	0.64	1.62	5.2	20.8	0.07	<0.1					
				18	ZK1802	Vg	II	H3	S000479	75.8	77	1.04	26.07	23.74	10.9	0.04	<0.1	
								H4	S000480	77	78	0.87	24.87	25.45	9.4	0.06	<0.1	
H5	S000481	78	79.23					1.07	29.24	15.5	11.6	0.11	<0.1					
H6	S000482	79.23	79.95					0.62	24.85	29.67	7.5	0.05	<0.1					
H7	S000483	79.95	80.71					0.66	11.4	46.1	6.4	0.05	<0.1					
H8	S000484	80.71	81.38					0.58	10.3	46.1	6.2	0.05	<0.1					
H9	S000485	81.38	82.25					0.75	14.6	48.7	3	0.03	<0.1					
H10	S000486	82.25	82.85					0.52	22.1	44.49	2.6	0.06	<0.1					
H11	S000490	82.85	83.71					0.74	11.75	55.8	2.4	0.03	<0.1					
H12	S000491	83.71	84.93					1.06	32.72	30.75	3	0.03	<0.1					
H13	S000492	84.93	85.67					0.64	16.46	34.44	9.2	0.02	<0.1					
H14	S000493	85.67	86.71					0.9	22.72	29.15	9.6	0.06	<0.1					
H15	S000494	86.71	87.44					0.63	44.4	15.79	4.3	0.06	<0.1					
H16	S000495	87.44	88.43					0.86	39.94	15.01	6.2	0.03	<0.1					
H17	S000496	88.43	89.33					0.78	1.71	21.5	36.4	0.06	<0.1					
H18	S000497	89.33	90.42					0.94	1.37	7.4	28.9	0.05	<0.1					
H19	S000498	90.42	91.16					0.64	1.62	5.2	20.8	0.07	<0.1					
18	ZK1801	Vg	I					H14	S000324	13.73	14.63	0.83	3.24	14.7	37.5	0.01	<0.1	
								H15	S000325	14.63	15.63	0.93	2.59	14	37.1	0.01	<0.1	
				H1	S000499	128.86	129.9	0.65	5.98	30.1	11.6	0.03	0.2					
				H2	S000500	129.88	124.9	0.64	0.56	42.1	16.7	0.04	0.2					
				H3	S000501	124.88	125.8	0.58	0.66	27.5	25.9	0.01	<0.1					
				H4	S000502	125.78	126.8	0.66	0.11	21.7	38.1	0.03	<0.1					
				H5	S000503	128.81	128	0.78	0.09	10.6	49.4	0.03	<0.1					
				H6	S000504	128.03	128.8	0.48	0.05	8	51.8	0.06	<0.1					
				H7	S000505	128.78	129.8	0.63	0.05	10.6	50.3	0.07	<0.1					
				H8	S000506	129.76	130.8	0.64	0.13	12	51.3	0.1	0.1					
				H9	S000507	130.76	131.8	0.65	0.07	11.3	52.2	0.06	<0.1					
				H10	S000508	131.78	132.9	0.72	0.12	14.2	50.1	0.02	<0.1					
				H11	S000509	132.9	133.9	0.61	4.27	9.9	52	0.02	<0.1					
				H12	S000513	133.86	134.8	0.59	6.97	9	49	0.06	<0.1					
				H13	S000605	120.63	121.7	0.69	0.69	0.06	0.5	55.8	0.02					
				H14	S000606	121.7	122.9	0.75	0.75	0.01	0.7	44.9	0.02					
				H1	S000641	71	72	0.98	0.98	0.01	5.4	38.1	0.02					
				H2	S000642	72	73	0.98	0.98	0.08	23.5	27.8	0.05					
				H3	S000646	73	74	0.98	0.98	0.12	45	15	0.08					
				H4	S000647	74	75	0.98	0.98	0.27	50.4	12.3	0.1					
H5	S000648	75	76	0.98	0.98	0.31	43.8	17.2	0.06									
H6	S000649	76	77	0.98	0.98	7.22	30.7	19.9	0.04									
H7	S000650	77	78	0.98	0.98	13.55	10.5	25.7	0.05									
H8	S000651	78	78.98	0.98	0.98	20.46	18.55	17.7	0.06									
H9	S000652	78.98	80	1.01	1.01	39.81	11.58	5.2	0.06									
H10	S000653	80	80.95	0.95	0.95	36.62	11.29	8.2	0.05									
H11	S000654	80.95	81.95	0.98	0.98	25.3	26.97	6.9	0.03									
H12	S000655	81.95	82.95	0.98	0.98	14.3	46.2	6.1	0.03									
H13	S000656	82.95	83.6	0.64	0.64	20.06	43.68	0.9	0.04									
H14	S000657	83.6	84.69	1.07	1.07	20.56	39.34	2.3	0.03									
H15	S000658	84.69	85.8	1.09	1.09	32.17	28.95	1	0.04									
H16	S000659	85.8	86.95	1.12	1.12	28.79	24.93	6.4	0.04									
H17	S000660	86.95	88.37	1.3	1.3	37.31	24.58	5.6	0.03									
H18	S000661	88.37	89.95	1.64	1.64	8.89	16.8	35.1	0.01									
H19	S000662	89.95	91.45	1.47	1.47	15.95	29.8	14.6	0.05									
H20	S000663	91.45	92.85	1.37	1.37	8.09	22.8	8.9	0.03									
H21	S000664	92.85	93.4	0.54	0.54	0.72	50.2	4.8	0.01									
H22	S000666	93.4	94.4	0.98	0.98	2.28	1.6	0.4	0.01									
H23	S000669	94.4	95.95	1.52	1.52	2.19	3.9	3.8	0.01									
H1	S000477	74	75	0.87	0.87	1.04	13.5	40.2	0.05									
H2	S000478	75	75.8	0.69	0.69	0.35	10.3	38.1	0.01									

Table 5 Analysis Results of Harmful Elements

Sequence number	Test number	Sample number	Analysis results (10 ⁻²)					
			Cu	Pb	Zn	Ni	Co	
1	S000001	ZK1101-H1	<0.01	0.01	<0.01	<0.01	<0.005	
2	S000002	ZK1101-H2	<0.01	<0.01	<0.01	<0.01	<0.005	
3	S000003	ZK1101-H3	<0.01	<0.01	<0.01	<0.01	<0.005	
4	S000004	ZK1101-H4	<0.01	0.01	<0.01	<0.01	0.005	
5	S000005	ZK1101-H5	<0.01	0.01	<0.01	<0.01	<0.005	
6	S000006	ZK1101-H6	<0.01	0.01	<0.01	<0.01	<0.005	
7	S000007	ZK1101-H7	<0.01	0.01	<0.01	<0.01	<0.005	
8	S000008	ZK1101-H8	<0.01	0.01	<0.01	<0.01	<0.005	
9	S000009	ZK1101-H9	<0.01	<0.01	<0.01	<0.01	<0.005	
10	S000010	ZK1101-H10	<0.01	<0.01	<0.01	0.01	0.006	
11	S000011	ZK1101-H11	0.01	<0.01	0.01	0.05	0.021	
12	S000012	ZK1101-H12	0.02	0.03	0.03	0.06	0.027	
13	S000013	ZK1101-H13	0.01	0.05	0.01	0.01	0.01	
14	S000014	ZK1101-H14	<0.01	0.01	<0.01	0.01	0.012	
15	S000015	ZK1101-H15	<0.01	<0.01	0.01	0.01	0.005	
16	S000016	ZK1101-H16	0.01	0.02	0.01	0.02	0.007	
17	S000017	ZK1101-H17	<0.01	<0.01	0.01	0.01	0.007	
18	S000018	ZK1101-H18	0.01	0.01	0.01	0.01	<0.005	
19	S000019	ZK1101-H19	<0.01	0.01	0.01	0.02	<0.005	
20	S000020	ZK1101-H20	<0.01	<0.01	<0.01	0.01	<0.005	
21	S000024	ZK1101-H24	<0.01	0.04	<0.01	0.01	0.01	
22	S000025	ZK1101-H25	<0.01	0.04	<0.01	<0.01	<0.005	
23	S000026	ZK1101-H26	<0.01	0.01	<0.01	0.01	<0.005	

Sequence number	Test number	Sample number	Analysis results (10 ⁻²)					
			Cu	Pb	Zn	Ni	Co	
24	S000027	ZK1101-H27	<0.01	<0.01	0.01	0.01	<0.005	
25	S000028	ZK1101-H28	<0.01	<0.01	<0.01	<0.01	<0.005	
26	S000029	ZK1101-H29	<0.01	<0.01	<0.01	<0.01	<0.005	
27	S000030	ZK1101-H30	<0.01	<0.01	<0.01	<0.01	<0.005	
28	S000031	ZK1101-H31	<0.01	<0.01	<0.01	0.01	<0.005	
29	S000032	ZK1101-H32	<0.01	<0.01	<0.01	0.01	<0.005	
30	S000041	ZK1801-H1	<0.01	<0.01	<0.01	<0.01	<0.005	
31	S000042	ZK1801-H2	<0.01	<0.01	<0.01	0.01	<0.005	
32	S000046	ZK1801-H3	<0.01	<0.01	<0.01	<0.01	<0.005	
33	S000047	ZK1801-H4	<0.01	<0.01	<0.01	<0.01	<0.005	
34	S000048	ZK1801-H5	<0.01	0.01	<0.01	0.01	<0.005	
35	S000049	ZK1801-H6	0.01	0.01	<0.01	0.02	0.009	
36	S000050	ZK1801-H7	0.02	0.03	0.01	0.03	0.01	
37	S000051	ZK1801-H8	0.01	0.02	0.01	0.02	<0.005	
38	S000052	ZK1801-H9	0.01	0.07	0.01	0.02	0.005	
39	S000053	ZK1801-H10	0.01	0.04	0.02	0.02	<0.005	
40	S000054	ZK1801-H11	0.01	0.05	0.01	0.02	0.005	
41	S000055	ZK1801-H12	<0.01	0.02	0.01	0.01	<0.005	
42	S000056	ZK1801-H13	<0.01	0.03	0.01	0.01	<0.005	
43	S000057	ZK1801-H14	<0.01	0.02	0.01	0.02	0.008	
44	S000058	ZK1801-H15	0.01	0.06	0.01	0.01	<0.005	
45	S000059	ZK1801-H16	0.01	0.03	0.01	0.01	0.005	
46	S000060	ZK1801-H17	0.01	0.04	0.01	0.01	<0.005	

Table 7 Analysis Results of Repeat Samples

Original sample number	Repeat sample number	Analysis results (Mn%)		Relative error (%)	Absolute error	Out-of-tolerance sample	(Original value - Testing value)/Original value	Avg. value	Analysis results (TFe%)		Relative error (%)	Absolute error	Out-of-tolerance sample	(Original value - Testing value)/Original value	Avg. value	Remarks
		Original value	Testing value						Original value	Testing value						
ZK503-H20	S000067	19.28	19.01	-0.89	-0.17		1.50	19.15	20.52	20.92	1.91	0.4		2.14	20.7	■ means Out-of-tolerance sample
ZK602-H13	S000113	41.32	39.90	-3.50	-1.42		0.90	40.61	14.66	13.82	-6.08	-0.84		2.62	14.2	
ZK502-H3	S000136	21.48	21.72	1.11	0.24		1.40	21.60	25.96	27.15	4.38	1.19		1.84	26.6	The conclusion are drew by both the exploration team and BDB after work together to solve the problem.
ZK1103-H5	S000159	23.08	23.98	3.82	0.90		1.33	23.53	38.63	37.62	-2.68	-1.01		1.41	38.1	
ZK1202-H10	S000252	21.30	21.46	0.75	0.16		1.41	21.38	16.38	16.70	1.92	0.32		2.42	16.5	
ZK605-H7	S000270	24.13	23.71	-1.76	-0.42		1.32	23.92	17.82	16.97	-5.01	-0.85		2.36	17.4	
ZK605-H12	S000291	33.20	33.70	1.49	0.50		1.05	33.45	23.98	23.98	0.00	0		1.96	24.0	
ZK1701-H4	S000314	29.02	29.88	2.92	0.86		1.15	29.45	21.97	21.92	-0.23	-0.05		2.07	21.9	
ZK1204-H4	S000335	37.29	39.92	6.81	2.63		0.94	38.61	13.75	13.98	1.65	0.23		2.65	13.9	
ZK1204-H7	S000356	16.70	16.40	-1.80	-0.30		1.62	16.55	34.00	34.40	1.16	0.4		1.54	34.2	
ZK1204-H15	S000379	22.00	29.43	28.89	7.43		1.26	25.72	39.54	20.30	-94.78	-19.24		1.70	29.9	It is determined there are problems with the sample making. The data is not counted as part of the data.
TC001-H18	S000421	47.29	2.53	-179.69	-44.76		1.28	24.91	9.45	3.10	-204.84	-6.35		3.74	6.3	
TC1101-H8	S000466	35.20	36.40	3.35	1.20		1.00	35.80	26.28	24.99	-5.16	-1.29		1.88	25.6	
ZK1802-H6	S000487	24.85	25.78	3.67	0.93		1.27	25.32	29.67	30.81	3.70	1.14		1.68	30.2	
ZK1802-H15	S000510	40.80	40.70	-0.20	-0.10		-1.46	2055.40	15.79	16.80	6.01	1.01	■	2.44	16.3	
ZK003-H14	S000533	32.60	32.48	-0.37	-0.12		1.07	32.54	21.22	21.79	2.62	0.57		2.09	21.5	
ZK003-H36	S000555	17.03	16.64	-2.32	-0.39		1.61	16.84	42.72	42.07	-1.55	-0.65		1.29	42.4	
ZK606-H21	S000643	18.00	18.60	3.33	0.60		1.54	18.30	23.60	23.60	0.00	0		1.98	23.6	
ZK1801-H13	S000665	20.06	20.02	-0.20	-0.04		1.46	20.04	43.68	43.58	-0.23	-0.1		1.26	43.6	
ZK504-H14	S000711	20.02	19.30	-3.66	-0.72		1.48	19.66	38.38	38.18	-0.52	-0.2		1.41	38.3	
ZK1203-H3	S000729	20.70	19.35	-6.52	-1.35	■	1.46	20.03	15.91	16.40	2.99	0.49		2.45	16.2	
ZK301-H12	S000761	39.11	39.15	0.10	0.04		0.93	39.13	17.23	17.81	3.26	0.58		2.35	17.5	
ZK301-H19	S000773	20.00	19.14	-4.39	-0.86		1.48	19.57	41.26	43.43	5.00	2.17	■	1.29	42.3	

Table 8 Analysis Results of Standard Samples

Test number	Analysis results (Mr%)		Relative error (%)	Absolute error	Allowed relative error	Out-of-tolerance sample	Analysis (TFe%)		(TFe%)	Absolute error	Allowed relative error	Out-of-tolerance sample	Remarks
	Standard value	Assay Value					Standard value	Assay Value					
S000022	19.75	22.48	12.93	2.73	0.96		1.30	1.37	5.24	0.07	4.32		The conclusion are drew by both the exploration team and BDB alter work together to solve the problem.
S000045	33.70	35.32	7.48	2.62	0.69		2.10	2.20	4.65	0.10	3.76		
S000068	21.20	22.59	6.35	1.39	0.96		1.40	1.45	3.51	0.05	4.32		
S000091	34.10	33.20	-2.67	-0.90	0.76		11.10	11.28	1.61	0.18	2.06		means Out-of-tolerance sample
S000114	34.80	35.94	3.19	1.14	0.69		2.10	2.21	5.10	0.11	3.76		
S000137	38.20	37.18	-2.71	-1.02	0.69		2.20	2.30	4.44	0.10	3.76		
S000160	22.70	22.66	-0.18	-0.04	0.96		1.40	1.47	4.88	0.07	4.32		
S000183	31.60	32.64	3.24	1.04	0.76		10.90	11.21	2.80	0.31	2.06		
S000206	29.90	32.06	7.20	2.16	0.76		10.50	11.06	5.19	0.56	2.06		
S000232	29.90	32.40	8.03	2.50	0.76		10.80	11.26	4.17	0.46	2.06		
S000253	31.20	32.72	4.76	1.52	0.76		10.50	10.96	4.29	0.46	2.06		
S000271	32.40	32.58	0.55	0.18	0.76		10.70	11.20	4.37	0.50	2.06		
S000292	22.60	22.54	-0.27	-0.06	0.96		1.30	1.40	7.41	0.10	4.32		
S000315	23.20	22.73	-2.05	-0.47	0.96		1.30	1.40	7.41	0.10	4.32		
S000336	24.70	22.94	-7.39	-1.76	0.96		1.40	1.47	4.88	0.07	4.32		
S000357	22.60	22.79	0.84	0.19	0.96		1.30	1.40	7.41	0.10	4.32		
S000380	37.20	37.14	-0.16	-0.06	0.69		2.10	2.24	6.45	0.14	3.76		
S000400	21.40	22.52	5.10	1.12	0.96		1.30	1.39	6.69	0.09	4.32		
S000422	31.20	32.64	4.51	1.44	0.76		10.90	11.31	3.69	0.41	2.06		
S000444	33.90	32.24	-5.02	-1.66	0.76		11.10	11.28	1.61	0.18	2.06		
S000467	36.10	37.10	2.73	1.00	0.69		2.00	2.19	9.07	0.19	3.76		
S000488	32.80	32.77	-0.09	-0.03	0.76		11.10	11.19	0.81	0.09	2.06		
S000511	21.50	22.46	4.37	0.96	0.96		1.30	1.41	8.12	0.11	4.32		
S000534	21.60	22.39	3.59	0.79	0.96		1.30	1.30	0	0	4.32		
S000556	32.50	33.22	2.19	0.72	0.76		10.80	11.25	4.08	0.45	2.06		
S000577	34.50	36.15	4.67	1.65	0.69		2.10	2.22	5.56	0.12	3.76		
S000600	35.30	36.62	3.67	1.32	0.69		2.20	2.30	4.44	0.10	3.76		
S000621	31.70	32.66	2.98	0.96	0.96		11.10	11.29	1.70	0.19	4.32		
S000644	21.50	22.42	4.19	0.92	0.76		1.30	1.40	7.41	0.10	2.06		

S000666	22.00	22.57	2.56	0.57	0.96	1.30	1.39	6.69	0.09	4.32
S000691	21.90	22.71	3.63	0.81	0.96	1.30	1.40	7.41	0.10	4.32
S000712	21.70	22.55	3.84	0.85	0.96	1.40	1.46	4.20	0.06	4.32
S000730	32.10	32.58	1.48	0.48	0.76	11.20	11.39	1.68	0.19	2.06
S000748	32.80	32.62	-0.55	-0.18	0.76	11.30	11.49	1.67	0.19	2.06
S000762	33.90	36.60	7.66	2.70	0.69	2.90	2.75	-5.31	-0.15	3.76
S000774	31.70	32.84	3.53	1.14	0.76	11.20	11.41	1.86	0.21	2.06

Table 9 Results of Rock Mechanics Experiments

Compressive strength sample number	Sampling depth (m)	Stratum	Rocks	Testing status	Direction of force	Compressive strength (MPa)		Remarks
						Individual value		
ZK001-KY1	63.15~63.75	Vgl	Sericite Slate	Natural	Parallel to the surface of stratum	39.4	1. The test is done by the Testing Center of Geological Exploration Institute of Hunan Province.	1. The test is done by the Testing Center of Geological Exploration Institute of Hunan Province. 2. The code which sets before compressive strength sample number and shear strength sample number is the sequence number of drill hole sampling.
						49.2		
ZK502-KY1	21.23~21.63	Vg	Sericite Slate	Natural	Parallel to the surface of stratum	64.9	50.0	
						45.4		
						56.3		
ZK502-KY2	65.88~66.38	Vg	Dolomite	Natural	Parallel to the surface of stratum	48.2	120.3	
						121.6		
						120.7		
ZK602-KY1	53.63~54.31	Vgl	Dolomite	Natural	Parallel to the surface of stratum	118.6	108.0	
						58.7		
						115.5		
ZK1102-KY1	20.29~20.79	Vg	Dolomite	Natural	Parallel to the surface of stratum	100.5	142.5	
						152.3		
						142.3		
ZK1802-KY1	93.28~93.63	Vgl	Quartzite	Natural	Parallel to the surface of stratum	132.8	105.0	
						106.6		
						95.9		
Original is: ZK501-KY1	21.20~21.47	Vg	Dolomite	Natural	Parallel to the surface of stratum	112.4	135.1	
						150.2		
						128.3		
Original is: ZK502-KY1	39.90~40.32	Vg	Iron-manganese ore	Natural	Parallel to the surface of stratum	126.9	159.5	
						140.4		
						173.2		
KY2	X:-3100097 Y:08501283	Vg	Iron-manganese ore	Natural	Parallel to the surface of stratum	165	153.6	
						162.1		
						152.3		
KY3	X:-3100097 Y:08501283	Vg	Iron ore	Natural	Parallel to the surface of stratum	146.3	137.5	
						77.5		
						142.3		
Shear strength	Sampling depth	Stratum	Rocks	Testing status	Direction of force	Shear strength		

sample No.	(m)				Parallel to the core axis	The effective angle of internal friction φ (degree)	The effective angle of internal friction φ (degree)
ZK1802-KJ1	94.26~95.27	Vgl	Dolomite	saturation	Parallel to the core axis	45.3°	12.6
Original is: 501-KJ1	14.98~15.80	Vg	Iron-manganese ore	saturation	Parallel to the core axis	44.2°	10.7
Original is: 502-KJ1	38.88~39.90	Vg	Iron-manganese ore	saturation	Parallel to the core axis	46.1°	16.2
ZK504-KJ1	85.45~86.95	Vgl	Metasandstone	saturation	Parallel to the core axis	40.9°	2.65
ZK504-KJ2	88.25~89.85	Vgl	Metasandstone	saturation	Parallel to the core axis	41.0°	1.98
ZK504-KJ3	103.25~104.85	Vgl	Slate	saturation	Parallel to the core axis	41.6°	4.52
ZK504-KJ4	105.40~107.10	Vgl	Slate	saturation	Parallel to the core axis	42.3°	4.06
ZK502-KJ1	21.23~21.63	Vgl	Slate	saturation	Parallel to the core axis	40.6°	4.11
ZK1102-KJ1	20.29~20.79	Vgl	Quartzite	saturation	Parallel to the core axis	43.5°	15.80

Table 10 Average Grades of Single-project Orebed (including interbeds)

Explorator ion line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-3}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-3}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
0	TC001	Vg	H1	0.78	5.24	15.50	35.10	0.03	0.20	1.34	5.89	15.83	31.97	0.03	0.1	
			H2	0.56	6.80	16.30	27.60	0.03	0.20							
			H3	0.42	4.18	37.40	16.30	0.10	0.20							
		I	H4	0.49	2.78	47.90	12.40	0.07	0.20	1.65	5.60	42.56	12.56	0.07	0.1	
			H5	0.35	12.05	32.20	13.70	0.07	0.20							
			H6	0.39	4.90	50.70	7.70	0.05	0.20							
		I	H7	0.35	22.64	39.84	3.60	0.12	0.20							
			H8	0.33	18.76	44.24	4.30	0.10	0.20	1.67	16.74	45.00	3.13	0.14	0.1	
			H9	0.46	10.30	50.30	2.10	0.08	0.20							
		①	H11	0.33	17.18	44.29	3.0	0.22	0.2							
			H10	0.36	2.46	51.6	10.7	0.08	0.1	0.36	2.46	51.60	10.70	0.08	0.10	
			H12	0.45	4.06	43.3	16.5	0.05	0.2							
		2	H13	0.36	1.61	15.8	33.2	0.04	0.2	2.63	2.38	33.65	20.97	0.06	0.1	
H14	0.40		3.64	42.1	15.2	0.06	0.2									
H15	0.40		2.65	39.0	16.9	0.07	0.2									
II	H16	0.52	1.02	22.0	28.9	0.06	0.2									
	H17	0.50	1.59	38.9	15.8	0.09	0.2	6.37	34.63	16.01	3.68	0.06	0.1			
	H18	0.41	47.29	9.45	1.1	0.03	0.1									
②	H19	0.72	38.94	15.88	1.90	0.04	0.10									
	H20	0.75	43.10	11.57	1.50	0.05	0.10									
	H21	0.73	37.43	13.32	5.10	0.12	0.10									
Vg	H22	0.71	42.62	8.03	2.40	0.08	0.10									
	H23	0.75	44.84	9.50	2.10	0.06	0.10									
	H24	0.73	45.89	9.34	1.50	0.06	0.10									
I	H25	0.72	19.60	29.03	10.10	0.03	0.10									
	H27	0.85	28.16	27.78	6.0	0.03	0.1	0.75	9.60	18.70	21.80	0.03	0.10			
	H26	0.75	9.60	18.7	21.8	0.03	0.1	0.75	0.09	3.50	40.90	0.06	0.10			
22	ZK001	Vg	H1	0.96	0.09	3.5	40.9	0.06	0.1							
			H2	0.54	0.46	52.0	10.3	0.03	0.1							
			H3	0.45	0.20	39.3	16.7	0.03	0.1							
		I	H4	1.03	0.63	6.5	36.6	0.04	0.1	4.06	3.06	36.19	16.90	0.03	0.1	
			H5	1.02	1.98	43.9	12.2	0.01	0.1							
			H6	1.02	9.24	48.7	5.3	0.02	0.1							
		I	H7	1.00	14.95	42.9	4.1	0.02	0.1							
			H8	1.19	29.93	31.92	3.0	0.05	0.1							
			H9	1.20	42.18	17.05	5.8	0.08	0.1							
		I	H10	0.96	29.51	31.71	4.1	0.04	0.2	6.10	25.61	34.13	4.39	0.04	0.1	
			H12	0.68	19.44	35.86	6.4	0.03	0.1							
			H13	1.07	12.60	48.6	3.6	0.02	0.1							

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-3}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-3}$)					Remarks		
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S			
0	ZK001	①	H11	0.96	8.08	40.5	8.1	0.01	0.1	0.96	8.08	40.50	8.10	0.01	0.10			
			H14	0.57	8.30	14.2	25.5	0.04	0.1	0.57	8.30	14.20	25.50	0.04	0.10			
		②	H15	1.10	11.70	50.4	4.7	0.02	0.1	6.60	18.31	32.32	9.39	0.02	0.1			
			H16	1.54	12.35	50.77	4.1	0.01	0.1									
			H19	0.87	26.19	28.76	6.0	0.02	0.1									
			H20	0.52	17.07	20.61	22.2	0.02	0.1									
			H22	1.13	17.42	8.67	13.5	0.02	0.1									
			H23	0.64	23.98	31.46	9.8	0.05	0.1									
			H24	0.27	18.18	20.07	23.3	0.03	0.1									
			H25	0.53	32.80	16.28	11.1	0.01	0.1									
		③	H17	1.37	3.61	16.2	31.7	0.01	0.2	1.62	3.41	15.09	32.39	0.01	0.20			
			H18	0.25	2.31	9.0	36.2	0.01	0.2	0.77	4.62	10.40	33.20	0.03	0.10			
		④	H21	0.77	4.62	10.4	33.2	0.03	0.1	1.92	0.19	3.40	55.80	0.03	0.1			
			H1	0.96	0.14	0.4	69.5	0.02	0.1	0.57	7.66	51.80	6.10	0.04	0.10			
		Vg	H2	0.96	0.23	6.4	42.1	0.04	0.1									
		1	ZK002	I	H3	0.57	7.66	51.8	6.1	0.04	0.1	1.53	20.99	17.51	14.40		0.05	0.1
					H4	0.57	35.28	22.74	8.5	0.05	0.1							
					H5	0.96	12.50	14.4	17.9	0.05	0.1							
H1	1.00				0.19	4.90	36.40	0.10	0.10									
H2	0.87				0.17	4.80	35.50	0.13	0.10									
Vg	ZK003		H3	0.84	0.69	12.20	28.00	0.09	0.10	2.71	0.34	7.13	33.51	0.11	0.1			
			H4	0.80	2.37	57.60	4.90	0.17	0.10									
			H5	1.23	2.80	56.20	4.10	0.05	0.10									
			H6	0.46	2.55	56.60	4.10	0.38	0.10									
			H7	0.74	2.67	55.30	4.50	0.18	0.10									
			H8	0.97	16.65	36.81	4.70	0.22	0.10									
			H9	0.89	27.59	23.57	5.10	0.30	0.30									
			H10	0.72	29.59	28.14	3.40	0.19	0.20									
I			H11	0.77	28.03	32.47	3.20	0.01	0.10	3.23	2.63	56.40	4.39	0.16	0.1			
			H12	0.68	29.20	26.87	4.50	0.17	0.20									
			H13	0.63	32.60	20.54	6.80	0.07	0.20									
			H14	0.71	32.60	21.22	7.10	0.02	0.10									
			H15	0.66	42.82	14.92	7.30	0.08	0.10									
			H16	0.79	37.09	20.27	6.80	0.14	0.10									
			H17	0.30	18.84	37.52	5.80	0.07	0.10									
			H18	0.90	26.58	31.16	6.80	0.02	0.10									

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-2}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-2}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
H19	H19		H21	0.67	17.12	12.98	23.30	0.02	0.10							
																24.86
H20	H20		H22	0.46	26.42	28.70	7.30	0.01	0.10							
																29.26
I			H23	0.41	27.39	30.86	6.20	0.03	0.30	0.1						
			H24	0.68	23.28	35.86	5.10	0.03	0.30							
			H25	0.78	23.32	28.40	7.50	0.03	0.10							
			H26	0.24	12.60	20.80	15.40	0.12	0.20							
			H27	0.59	22.71	30.96	6.80	0.03	0.40							
			H28	0.25	6.95	27.6	17.8	0.01	0.1							
			H29	0.45	0.64	18.3	28.7	0.01	0.1							
			H30	0.92	5.67	23.8	17.8	0.01	0.1							
			H31	0.28	16.69	33.58	7.3	0.05	0.4							
			H32	0.61	21.06	30.55	7.5	0.07	0.2							
II	ZK003		H33	0.16	7.48	28.6	13.5	0.12	0.1	8.24						
			H34	0.41	12.05	27.8	13.0	0.10	0.1							
			H35	0.36	26.69	19.51	10.7	0.15	0.1							
			H36	0.75	17.03	42.72	3.6	0.38	0.1							
			H37	0.90	32.66	27.45	4.7	0.17	0.1							
			H38	0.77	20.92	35.45	6.2	0.20	0.1							
			H39	0.73	18.52	38.83	5.6	0.15	0.1							
			H40	0.74	20.98	28.20	9.6	0.05	0.1							
			H42	0.52	22.56	32.27	7.3	0.07	0.1							
			H43	0.91	24.00	20.73	10.5	0.13	0.1							
III			H44	0.54	23.75	23.69	8.1	0.07	0.1	0.32						
			H45	0.56	22.65	26.46	9.8	0.09	0.1							
Vg	ZK501		H41	0.32	1.98	8.3	26.7	<0.01	0.1	0.97						
			H2	1.05	15.89	32.57	7.7	0.04	0.1							
I			H3	1.04	16.03	34.04	7.7	0.05	0.1	5.91						
			H4	1.07	10.30	43.0	6.8	0.05	0.1							
			H5	0.93	28.42	23.53	5.3	0.06	0.1							
			H6	0.88	29.12	21.39	5.3	0.07	0.1							
			H7	0.94	13.21	41.12	6.0	0.03	0.1							
			H8	0.93	9.67	45.8	6.6	0.03	0.1							
II			H9	0.95	8.42	47.7	4.8	0.02	0.1	0.95						
H10			0.95	8.42	47.7	4.8	0.02	0.1								

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-2}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-2}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
5	ZK501	II	H9	1.04	12.35	48.4	4.3	0.02	0.1	11.54	26.21	28.51	2.05	0.03	0.1	
			H11	0.61	17.75	30.00	5.2	0.03	0.1							
			H12	0.73	14.10	41.5	2.1	0.03	0.1							
			H13	0.42	33.20	17.98	1.3	0.03	0.1							
			H14	0.83	17.26	40.20	2.2	0.04	0.2							
			H15	1.40	34.46	17.56	1.6	0.03	0.2							
			H16	0.84	36.56	11.34	3.6	0.03	0.1							
			H17	0.82	40.20	13.83	0.2	0.03	0.3							
			H18	1.28	22.10	34.39	1.3	0.04	0.1							
			H19	0.66	26.87	23.35	1.7	0.02	0.1							
			H20	0.74	22.87	31.82	1.1	0.02	0.1							
			H21	1.20	25.51	33.73	0.5	0.04	0.1							
			H22	0.97	35.83	20.88	2.6	0.03	0.1							
			H23	0.69	1.04	54.5	17.5	0.01	0.2							
H24	0.69	0.28	63.8	4.3	0.01	0.1										
H25	0.83	0.12	61.0	10.1	0.01	0.1										
H26	1.11	0.08	45.8	31.4	0.01	0.1										
H27	0.94	0.33	52.0	23.2	0.01	0.1										
ZK502	I	I	H1	0.97	0.51	10.8	50.4	0.02	0.2	4.06	29.10	22.39	7.20	0.06	0.1	
			H2	0.97	1.01	25.7	53.0	0.02	0.1							
			H3	0.61	21.48	25.96	9.8	0.04	0.1							
			H4	0.97	35.58	18.91	3.4	0.06	0.1							
			H5	0.92	31.02	25.49	5.7	0.08	0.1							
			H6	0.90	36.76	19.67	5.1	0.07	0.1							
			H7	0.52	11.50	21.4	17.8	0.04	0.1							
			H8	0.14	21.68	31.76	6.1	0.08	0.2							
			H9	0.71	3.10	8.0	72.4	0.02	0.2							
			H10	0.88	26.25	30.86	1.6	0.06	0.2							
			H11	0.43	26.40	33.84	1.1	0.06	0.1							
			H12	1.11	36.08	21.42	1.9	0.09	0.1							
			H5	1.02	3.23	36.6	19.0	0.04	0.1							
			H4	0.74	10.20	46.7	6.8	0.05	0.1							
H5	0.65	7.24	47.8	7.1	0.06	0.1										
H6	0.63	5.68	52.0	4.3	0.08	0.2										
H7	0.63	4.17	51.7	7.3	0.05	0.1										
ZK503	I	I	H1	0.63	5.68	52.0	4.3	0.08	0.2	3.67	5.93	45.86	9.90	0.05	0.1	
			H2	0.97	1.01	25.7	53.0	0.02	0.1							
			H3	0.61	21.48	25.96	9.8	0.04	0.1							
			H4	0.97	35.58	18.91	3.4	0.06	0.1							
			H5	0.92	31.02	25.49	5.7	0.08	0.1							
			H6	0.90	36.76	19.67	5.1	0.07	0.1							
			H7	0.52	11.50	21.4	17.8	0.04	0.1							

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Mn	Fe	SiO ₂	P	S	Orebed thickness (m)	Mn	Fe	SiO ₂	P	S	Remarks
5		I	H8	0.27	34.76	23.05	6.2	0.05	0.1	4.27	29.72	27.41	5.99	0.05	0.1	
			H9	0.22	42.24	17.11	5.6	0.06	0.1							
			H10	0.63	40.72	16.17	7.3	0.06	0.1							
			H11	0.91	21.70	36.92	5.1	0.04	0.1							
			H12	0.45	19.10	42.32	4.5	0.05	0.1							
			H13	0.45	11.55	53.3	2.6	0.03	0.1							
			H14	0.50	28.11	26.64	7.3	0.05	0.1							
			H15	0.48	47.19	10.21	7.5	0.06	0.1							
			H16	0.36	34.22	21.92	8.3	0.06	0.1							

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results (×10 ⁻³)						Orebed thickness (m)	Avg. grade of each bed (×10 ⁻³)					Remarks
					Mn	Fe	SiO ₂	P	S	Mn		Fe	SiO ₂	P	S		
5		②	H17	0.75	2.99	15.1	32.1	0.04	0.2	1.96	0.94	14.93	30.53	0.04	0.1		
			H18	0.90	4.31	13.0	31.2	0.03	0.1								
			H19	0.31	7.45	20.1	24.8	0.06	0.1								
		③	H21	0.31	7.06	14.4	27.0	0.03	0.1	0.80	6.46	12.44	29.57	0.04	0.1		
			H22	0.49	6.08	11.2	31.2	0.04	0.1								
			H20	0.63	19.28	20.52	15.4	0.06	0.1								
		II	ZK503	H23	0.22	16.10	29.63	11.3	0.09	0.2	2.01	18.63	24.03	12.88	0.05	0.1	
				H24	0.18	0.81	19.6	29.1	0.04	0.1							
				H25	0.67	26.66	28.34	3.9	0.09	0.1							
				H26	0.18	6.19	13.4	25.9	0.02	0.1							
		3		H27	0.13	20.32	30.26	9.2	0.07	0.2	2.71	0.46	56.44	3.77	0.03	0.1	
				H41	0.56	0.04	67.50	3.40	0.01	0.10							
H42	0.56			1.96	25.00	0.60	0.10	0.10									
H43	0.75			0.13	60.40	8.30	0.01	0.10									
Vg	ZK504	H44	0.84	0.04	66.50	2.10	0.01	0.10	1.69	0.16	11.65	50.41	0.03	0.1			
		H1	1.02	0.06	14.2	47.1	0.03	0.1									
		H2	0.68	0.32	7.8	55.4	0.02	0.1									
		H3	1.03	8.62	38.3	14.1	0.05	0.1									
		H4	1.17	26.38	25.15	10.1	0.07	0.1									
		H5	0.86	0.22	10.0	34.9	0.04	0.1									
		H6	1.02	2.52	58.2	4.7	0.02	0.1									
		H7	1.23	2.01	64.3	2.1	0.08	0.1									
		H8	0.97	1.85	61.8	3.9	0.06	0.1									
		H9	1.06	0.91	51.3	10.9	0.03	0.1									
		H10	0.91	1.48	47.6	13.9	0.02	0.1									
		H11	1.00	2.01	22.1	29.1	0.02	0.1									
I		H12	1.11	13.65	42.6	8.1	0.02	0.1	8.26	5.94	45.23	11.11	0.05	0.1			
		H11	1.00	2.01	22.1	29.1	0.02	0.1									

6	ZK601	I	H13	0.65	16.21	45.90	4.1	0.05	0.1	2.47	2.48	8.07	36.90	0.03	0.1	
				H14	0.85	20.02	38.38	6.2	0.04							0.1
				H15	1.19	2.11	9.0	38.8	0.03							0.1
				H16	1.28	2.83	7.2	37.0	0.03							0.1
				H17	1.32	26.91	27.21	7.9	0.05							0.1
				H18	1.13	28.69	25.03	7.1	0.03							0.1
	II	H1	0.79	25.41	18.07	9.0	0.05	0.1								
		H2	0.79	26.25	16.10	9.6	0.04	0.1								
		H3	0.94	32.64	18.84	6.2	0.07	0.1								
		H4	0.97	21.18	26.56	8.1	0.06	0.1								
		H5	1.12	22.46	21.87	9.6	0.04	0.1								
		H6	1.09	34.78	17.32	6.2	0.06	0.1								
	ZK602	Vg	H7	0.76	42.26	10.22	5.8	0.04	0.1	1.90	0.28	8.70	35.65	0.05	0.1	
				H8	1.34	49.42	6.83	2.1	0.13							0.1
				H9	0.87	43.03	12.85	3.4	0.04							0.1
				H1	0.95	0.21	4.9	37.9	0.03							0.1
				H2	0.95	0.35	12.5	33.4	0.06							0.2
				H3	0.76	2.33	41.2	13.0	0.03							0.1
ZK601	I	H4	0.72	21.50	17.33	12.4	0.08	0.1	0.76	2.33	41.20	13.00	0.03	0.10		
			H5	0.97	19.64	23.14	10.7	0.05							0.1	
			H6	0.97	13.85	23.5	12.2	0.04							0.1	
			H7	0.97	24.12	24.16	6.8	0.02							0.1	
			H8	0.46	42.68	10.65	3.0	0.01							0.1	
			H9	0.68	32.33	16.40	6.6	0.04							0.1	
			H10	0.71	40.86	14.44	3.6	0.07							0.1	
			H11	0.34	40.68	13.31	2.6	0.05							0.1	
			H12	0.31	29.06	20.82	4.9	0.15							0.1	
			H13	0.97	41.32	14.66	2.1	0.07							0.1	
			H14	0.19	36.60	15.33	5.3	0.08							0.1	
			H15	0.51	31.30	18.01	6.4	0.08							0.1	
ZK602	I	H16	0.19	31.16	20.65	6.0	0.07	0.1	17.29	30.15	17.80	7.25	0.06	0.1		
			H17	0.97	41.56	12.00	3.9	0.13							0.1	
			H18	0.58	29.37	15.52	7.5	0.06							0.1	
			H19	0.51	20.88	15.42	12.8	0.04							0.1	
			H20	0.70	39.13	11.66	6.0	0.09							0.1	
			H21	0.87	28.96	16.25	8.3	0.08							0.1	

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-3}$)					Orebed thickness (m)	AVG. grade of each bed ($\times 10^{-3}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
6	ZK601	I	H7	0.76	42.26	10.22	5.8	0.04	0.1	1.90	0.28	8.70	35.65	0.05	0.1	
				H8	1.34	49.42	6.83	2.1	0.13							0.1
				H9	0.87	43.03	12.85	3.4	0.04							0.1
				H1	0.95	0.21	4.9	37.9	0.03							0.1
				H2	0.95	0.35	12.5	33.4	0.06							0.2
				H3	0.76	2.33	41.2	13.0	0.03							0.1
	ZK601	I	H4	0.72	21.50	17.33	12.4	0.08	0.1	0.76	2.33	41.20	13.00	0.03	0.10	
				H5	0.97	19.64	23.14	10.7	0.05							0.1
				H6	0.97	13.85	23.5	12.2	0.04							0.1
				H7	0.97	24.12	24.16	6.8	0.02							0.1
				H8	0.46	42.68	10.65	3.0	0.01							0.1
				H9	0.68	32.33	16.40	6.6	0.04							0.1
				H10	0.71	40.86	14.44	3.6	0.07							0.1
				H11	0.34	40.68	13.31	2.6	0.05							0.1
				H12	0.31	29.06	20.82	4.9	0.15							0.1
				H13	0.97	41.32	14.66	2.1	0.07							0.1
				H14	0.19	36.60	15.33	5.3	0.08							0.1
				H15	0.51	31.30	18.01	6.4	0.08							0.1
ZK602	I	H16	0.19	31.16	20.65	6.0	0.07	0.1	17.29	30.15	17.80	7.25	0.06	0.1		
			H17	0.97	41.56	12.00	3.9	0.13							0.1	
			H18	0.58	29.37	15.52	7.5	0.06							0.1	
			H19	0.51	20.88	15.42	12.8	0.04							0.1	
			H20	0.70	39.13	11.66	6.0	0.09							0.1	
			H21	0.87	28.96	16.25	8.3	0.08							0.1	

	H22	0.94	20.86	13.36	15.8	0.07	0.1							
	H23	0.76	33.08	9.43	10.7	0.05	0.1							
	H24	0.71	38.68	9.67	8.8	0.03	0.1							
	H25	0.50	36.62	9.39	10.6	0.03	0.1							
	H26	0.97	36.54	13.64	5.8	0.04	0.1							
	H27	0.97	23.04	34.39	1.3	0.04	0.2							
	H28	0.82	22.66	37.12	2.2	0.05	0.2							
	H1	1.45	0.02	0.8	45.6	0.03	0.1	2.90	0.03	1.45	44.40	0.03	0.1	
	H2	1.45	0.04	2.1	43.2	0.03	0.1							
	H3	1.45	0.99	26.0	2.1	0.09	0.1							
	H4	1.45	1.05	28.1	1.8	0.10	0.1							
	H5	0.62	2.11	25.9	8.9	0.06	0.1							
	H6	1.03	5.64	32.6	10.7	0.05	0.1	6.58	4.16	31.51	5.61	0.07	0.1	
	H7	0.97	10.55	36.0	7.2	0.05	0.1							
	H8	1.06	6.69	41.8	7.3	0.04	0.1							
	ZK603													

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-2}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-2}$)				Remarks			
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P		S		
6	ZK603	①	H10	0.87	4.14	33.0	17.1	0.04	0.1	0.87	4.14	33.00	17.10	0.04	0.10			
			H9	0.96	13.95	38.90	5.80	0.05	0.10									
			H11	1.06	11.20	38.2	6.0	0.01	0.1									
			H12	1.06	42.42	13.01	2.2	0.04	0.1									
			H13	0.77	17.31	30.36	8.8	0.02	0.1									
			H14	0.96	26.19	36.36	0.5	0.04	0.1									
			H15	0.96	22.68	42.66	0.5	0.03	0.1									
			H16	0.96	24.00	37.93	2.4	0.04	0.1									
		②	H17	0.62	20.80	29.67	18.8	0.04	0.1									
			H10	0.87	4.14	33.0	17.1	0.04	0.1	0.87	4.14	33.00	17.10	0.04	0.10			
			H18	1.14	7.89	4.8	73.4	0.02	0.1									
			H19	1.14	5.18	3.3	84.2	0.02	0.1									
		Vg1	H20	0.96	3.06	2.0	1.1	0.01	0.1	4.20	4.25	2.66	43.03	0.01	0.1			
			H21	0.96	14.85	2.6	0.7	0.01	0.1									
		III	H22	0.67	50.00	2.7	0.4	0.02	0.1	1.63	29.30	2.64	0.58	0.01	0.1			
			H1	0.95	0.22	12.50	50.50	0.03	0.20									
Vg	H2	1.02	0.30	13.0	43.9	0.02	0.1	3.07	1.80	24.75	40.02	0.03	0.1					
	H3	0.58	7.50	9.1	30.2	0.04	0.1											
	H4	0.54	1.25	26.8	25.2	0.03	0.1	5.57	2.04	51.16	8.80	0.02	0.1					
I	H5	0.57	1.47	46.8	12.4	0.01	0.1											

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-5}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-2}$)					Remarks	
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S		
6	ZK605	I	H6	1.04	1.62	54.9	7.3	0.01	0.1	4.79	34.46	26.35	1.85	0.06	0.1		
			H7	0.62	0.83	52.4	7.1	0.02	0.1								
			H8	1.03	1.48	54.9	7.7	0.01	0.1								
			H9	1.09	1.14	55.2	5.3	0.01	0.1								
			H10	0.68	7.21	55.2	3.9	0.03	0.1								
			H11	1.12	29.82	29.01	2.4	0.05	0.1								
			H12	0.94	32.50	30.70	2.0	0.04	0.1								
			H13	0.82	35.26	27.78	1.3	0.05	0.1								
			H14	0.79	36.34	23.32	1.7	0.08	0.1								
			H15	1.12	38.84	21.12	1.7	0.06	0.1								
			H16	1.09	1.98	9.8	37.9	0.03	0.1								
			H17	1.16	1.26	7.3	41.3	0.01	0.1								
			H18	0.48	34.98	22.15	2.6	0.04	0.1								
			H19	0.91	39.06	18.91	1.5	0.02	0.1								
			H20	1.12	40.16	17.86	2.6	0.03	0.1								
		H21	0.59	35.48	21.33	4.7	0.13	0.1									
		H22	0.97	31.44	27.25	3.6	0.03	0.1									
		H1	0.74	0.03	0.6	55.2	0.02	0.1									
		H2	0.88	0.19	1.7	43.2	0.07	0.1									
											1.62	0.12	1.20	48.68	0.05	0.1	

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-5}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-2}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
6	ZK605	I	H3	0.75	2.17	37.3	17.4	0.07	0.1	0.75	2.17	37.30	17.40	0.07	0.10	
			H4	0.93	10.40	44.9	5.7	0.05	0.1							
			H5	1.09	34.04	11.51	10.1	0.07	0.1							
			H6	1.13	29.14	12.50	14.7	0.06	0.1							
			H7	1.03	24.13	17.82	15.1	0.05	0.1							
			H8	0.91	37.11	15.23	10.0	0.07	0.1							
			H9	0.82	18.81	45.40	2.6	0.06	0.1							
			H10	0.83	31.91	23.11	6.2	0.11	0.1							
			H11	1.30	32.36	19.79	7.3	0.06	0.1							
			H12	1.23	33.20	23.98	5.4	0.07	0.1							
			H13	0.13	25.28	21.90	12.9	0.09	0.1							
			H1	0.77	0.28	2.0	52.2	0.03	0.3							
			H2	0.83	0.04	5.5	50.7	0.02	0.1							
			H3	0.87	0.18	3.8	42.1	0.03	0.1							
			H4	0.80	0.03	11.3	38.1	0.05	0.1							
H5	0.88	0.11	40.4	18.2	0.03	0.1										
H6	0.79	1.65	24.9	28.9	0.03	0.1										
									3.27	0.13	5.64	45.93	0.03	0.1		
									2.60	5.12	30.83	20.38	0.06	0.1		

11	TC1101	I	H7	0.93	12.80	26.8	15.2	0.10	0.1	7.41	24.06	9.19	0.05	0.1
			H8	0.77	14.60	23.5	13.7	0.04	0.1					
			H9	0.86	14.70	29.4	9.0	0.03	0.1					
			H10	0.87	29.29	28.54	5.8	0.07	0.1					
			H11	0.87	19.65	27.94	8.3	0.08	0.1					
			H12	0.76	26.50	26.95	6.4	0.08	0.1					
			H13	0.79	19.68	30.60	6.2	0.05	0.1					
			H14	0.54	27.24	24.54	6.8	0.05	0.1					
			H15	1.22	40.12	13.00	7.7	0.02	0.1					
			H16	0.19	5.99	7.1	26.3	0.02	0.1					
		H17	0.54	21.04	12.48	18.0	0.04	0.1						
		②	H18	0.43	0.28	3.5	38.7	0.01	0.1	1.00	1.14	37.50	0.10	0.1
			H19	0.57	1.79	8.2	36.6	0.02	0.1	1.51	19.79	17.54	0.05	0.10
		II	H20	0.46	23.88	14.19	19.0	0.05	0.1	1.10	1.28	0.65	0.01	0.1
			H21	1.05	18.00	22.82	16.9	0.05	0.1					
		Vg	H1	0.54	1.35	1.60	0.90	0.01	0.10					
			H2	0.56	1.21	0.90	0.40	0.01	0.10					
			H3	0.60	26.58	29.63	2.40	0.02	0.10					
			H4	0.60	27.20	25.21	4.30	0.03	0.10					
			H5	0.60	27.22	24.81	1.70	0.01	0.10					
			H6	0.60	28.27	25.96	2.40	0.03	0.10					
I	H7	0.60	38.44	22.04	1.90	0.02	0.10	5.35	28.90	25.56	0.03	0.10		

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results($\times 10^{-3}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-3}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
11	TC1101		H8	0.61	35.20	26.28	4.50	0.05	0.10	2.73	0.00	0.27	17.50	0.07	0.1	
			H9	0.43	12.00	16.60	24.80	0.03	0.10							
			H10	0.68	32.37	26.52	5.60	0.04	0.10							
			H11	0.63	27.54	30.12	6.60	0.04	0.10							
			H1	0.91	0.40	14.3	25.3	0.11	0.1							
			H2	0.91	0.29	13.7	14.4	0.05	0.1							
			H3	0.91	0.11	9.3	12.8	0.05	0.1							
			H4	0.87	0.35	32.4	10.8	0.23	0.1							
			H5	0.56	0.33	45.6	8.9	0.44	0.1							
			H6	0.28	0.44	26.4	20.1	0.14	0.1							
I	ZK1101		H7	0.91	0.68	49.2	11.5	0.14	0.1	5.67	1.89	44.23	10.60	0.12	0.1	
			H8	0.37	0.30	36.6	18.7	0.02	0.1							
			H9	0.86	0.94	53.2	8.0	0.01	0.1							
			H10	0.98	1.32	49.9	9.3	0.01	0.1							

	H11	0.84	8.68	43.7	8.0	0.05	0.1														
	H12	0.90	35.36	15.58	6.7	0.06	0.1														
	H13	0.91	41.90	11.95	4.1	0.06	0.1														
	H14	1.17	14.75	44.6	5.1	0.07	0.1														
	H16	0.80	26.58	24.42	6.8	0.02	0.1														
	H17	1.01	28.11	25.98	5.8	0.08	0.1														
	H18	0.95	23.02	30.05	5.8	0.06	0.1														
	H19	1.01	14.75	35.9	7.5	0.02	0.1														
①	H15	0.47	3.11	5.4	29.1	0.01	0.1	6.75	25.70	27.80	5.94	0.05	0.1								
②	H20	0.33	2.41	7.9	29.1	0.17	0.1	6.75	25.70	27.80	5.94	0.05	0.1								
③	H26	0.87	6.92	54.8	2.1	0.13	0.1	6.75	25.70	27.80	5.94	0.05	0.1								
	H24	0.79	19.76	43.73	1.7	0.06	0.1														
	H25	0.92	21.90	40.60	1.5	0.05	0.1														
	H27	0.96	23.12	34.34	2.6	0.04	0.1														
	H28	0.82	36.80	16.81	2.1	0.01	0.1														
	H29	0.82	34.94	18.45	2.4	0.01	0.1														
	H30	0.98	37.15	19.18	3.2	0.02	0.1														
	H31	0.93	34.50	24.16	4.5	0.02	0.1														
	H32	0.76	17.56	41.26	5.6	0.03	0.1														
Vg	H1	0.89	0.33	17.3	46.4	0.05	0.2														
	H2	0.89	0.32	17.1	48.5	0.05	0.1														
I	H3	1.07	19.05	41.36	5.1	0.05	0.1														
	H4	0.86	19.10	42.62	3.7	0.04	0.1														
②	H5	0.63	2.99	10.2	46.7	0.06	0.1	6.98	28.46	29.57	2.93	0.03	0.1								
II	H6	0.44	19.92	27.57	21.2	0.06	0.1	6.98	28.46	29.57	2.93	0.03	0.1								
								1.78	0.33	17.20	47.45	0.05	0.1								
ZK1102								1.93	19.07	41.92	4.48	0.05	0.1								
								0.63	2.99	10.2	46.7	0.06	0.1								
								0.44	19.50	27.57	21.2	0.06	0.1								

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-2}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-2}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
		Vg	H1	1.03	0.33	20.9	46.5	0.03	0.1	1.96	0.80	16.34	42.66	0.03	0.1	
			H2	0.93	1.32	11.3	38.4	0.03	0.1							
		I	H3	0.54	23.44	32.83	4.7	0.05	0.2	1.35	23.22	36.31	3.14	0.06	0.1	
			H5	0.81	23.08	38.63	2.1	0.06	0.1							
11	ZK1103	①	H4	1.20	0.63	6.6	36.8	0.01	0.1	1.20	0.63	6.60	36.80	0.01	0.10	
			H6	0.68	0.52	6.0	37.6	0.01	0.1							
		②	H7	0.89	7.26	20.5	26.1	0.04	0.1	2.52	3.70	14.06	33.16	0.05	0.1	
			H8	0.95	2.63	13.8	36.6	0.03	0.1							
		II	H9	0.78	18.20	27.73	18.6	0.06	0.1	0.78	18.20	27.75	18.60	0.06	0.10	
12	ZK1201	Vg	H1	0.70	0.04	2.2	42.8	0.02	0.1	2.90	1.99	10.28	34.26	0.05	0.1	
			H2	0.89	0.08	2.1	45.5	0.03	0.1							

ZK1202	I	H3	0.94	3.25	16.3	28.4	0.08	0.1	2.43	19.80	23.39	11.27	0.06	0.1	
		H4	0.27	9.64	41.61	8.2	0.06	0.1							
	②	H5	0.93	15.80	31.26	8.6	0.06	0.1	1.64	0.11	2.11	42.87	0.03	0.1	
		H6	0.64	21.40	26.34	7.7	0.06	0.1							
	H	H7	0.86	22.94	12.69	16.8	0.07	0.1	1.03	38.78	10.39	8.80	0.07	0.10	
		H8	0.89	0.12	1.7	43.6	0.03	0.1							
	Vg	H9	0.75	0.10	2.6	42.0	0.03	0.1	0.93	7.87	21.10	26.50	0.05	0.10	
		H10	1.03	38.78	10.39	8.8	0.07	0.1							
	ZK1203	I	H1	0.93	7.87	21.1	26.3	0.05	0.1	5.78	18.01	20.10	15.24	0.05	0.1
			H2	0.66	13.35	28.7	15.5	0.04	0.1						
①		H3	1.06	19.66	19.24	13.0	0.06	0.1	0.85	5.98	18.40	27.90	0.03	0.10	
		H4	0.56	22.06	22.16	10.5	0.05	0.1							
②		H6	0.60	13.50	16.4	23.3	0.04	0.1	1.25	7.36	13.90	27.70	0.04	0.10	
		H7	1.64	14.20	24.4	13.6	0.04	0.1							
II		H8	1.26	24.37	11.57	17.4	0.06	0.1	9.74	32.70	16.12	8.06	0.06	0.1	
		H5	0.85	5.98	18.4	27.9	0.03	0.1							
Vg		H9	1.25	7.36	13.9	27.7	0.04	0.1	1.84	0.38	7.70	37.70	0.02	0.1	
		H10	1.39	21.30	16.38	13.6	0.06	0.1							
I	H11	1.39	28.11	14.31	11.3	0.08	0.1	1.64	27.46	19.21	9.82	0.06	0.1		
	H12	1.05	43.52	15.36	2.2	0.07	0.1								
ZK1204	I	H13	0.74	22.83	25.76	6.3	0.07	0.1	1.86	1.06	17.95	38.45	0.06	0.1	
		H14	1.00	50.22	12.15	2.1	0.06	0.1							
I	H15	1.29	30.01	22.48	4.8	0.08	0.1	14.77	29.29	24.24	5.65	0.06	0.1		
	H16	1.37	25.38	12.80	16.3	0.07	0.1								
I	H17	1.51	45.51	13.13	4.2	0.03	0.1	1.84	0.38	7.70	37.70	0.02	0.1		
	H1	0.92	0.20	4.4	40.3	0.02	0.1								
I	H2	0.92	0.56	11.0	35.1	0.02	0.1	1.64	27.46	19.21	9.82	0.06	0.1		
	H3	0.81	22.26	15.91	16.3	0.05	0.1								
I	H4	0.83	32.54	22.44	3.5	0.06	0.1	1.64	27.46	19.21	9.82	0.06	0.1		
	H10	0.63	21.04	25.80	8.30	0.05	0.10								

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-3}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-3}$)					Remarks		
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S			
12	ZK1204	Vg	H1	0.93	0.28	14.8	39.0	0.05	0.1	1.86	1.06	17.95	38.45	0.06	0.1			
			H2	0.93	1.84	21.1	37.9	0.06	0.1									
		I	H3	0.65	37.50	14.40	4.4	0.04	0.1	14.77	29.29	24.24	5.65	0.06	0.1			
			H4	0.56	37.29	13.75	4.2	0.05	0.1									
		I	H5	0.62	45.74	11.46	2.60	0.04	0.10	14.77	29.29	24.24	5.65	0.06	0.1			
			H6	1.30	41.92	12.63	3.40	0.10	0.10									
		I	H7	1.23	17.58	32.98	8.10	0.05	0.10	14.77	29.29	24.24	5.65	0.06	0.1			
			H8	0.43	20.02	29.03	8.80	0.04	0.10									
		I	ZK1204	I	H10	0.63	21.04	25.80	8.30	0.05	0.10	14.77	29.29	24.24	5.65	0.06	0.1	
					H10	0.63	21.04	25.80	8.30	0.05	0.10							

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-3}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-3}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
14	ZK1206	I	H11	0.71	40.32	12.21	4.50	0.20	0.10	0.53	8.45	37.00	9.80	0.02	0.10	
			H12	0.96	25.18	24.46	4.90	0.07	0.10							
			H13	0.96	24.13	29.43	6.60	0.05	0.10							
			H14	0.96	27.28	32.27	1.70	0.06	0.10							
			H15	1.44	22.00	39.54	2.80	0.07	0.10							
			H16	1.44	28.34	29.03	5.80	0.05	0.10							
			H17	1.20	26.44	28.89	5.80	0.03	0.10							
			H18	0.48	14.65	8.90	26.30	0.03	0.10							
			H19	1.20	39.63	15.88	4.50	0.07	0.10							
			H9	0.53	8.45	37.00	9.80	0.02	0.10							
			H1	0.93	0.12	4.5	38.5	0.07	0.1							
H2	0.93	0.38	6.6	35.7	0.10	0.1										
H3	0.93	0.45	3.5	39.0	0.06	0.1										
H4	0.93	14.40	20.6	19.3	0.07	0.1										
H5	0.93	20.80	23.38	13.3	0.07	0.1										
H6	0.93	24.06	22.12	12.8	0.04	0.1										
H7	0.93	26.10	18.48	13.9	0.03	0.1										
H8	0.93	29.22	27.13	3.4	0.08	0.1										
H9	0.93	25.41	29.51	6.6	0.03	0.1										
H10	0.93	23.77	16.70	17.8	0.03	0.1										
H11	0.93	26.38	15.58	16.1	0.04	0.1										
H12	0.93	32.52	18.74	11.4	0.06	0.1										
H13	0.93	36.28	12.03	12.8	0.05	0.1										
H14	0.93	26.36	16.29	16.3	0.03	0.1										
H3	0.36	28.85	16.10	7.10	0.06	0.10										
H4	0.36	31.62	15.55	7.10	0.06	0.10										
H5	0.36	47.11	14.12	2.80	0.07	0.10										
H6	0.52	50.00	12.40	2.10	0.03	0.10										
H7	0.52	26.54	15.50	6.20	0.06	0.10										
H8	0.52	27.20	13.68	9.20	0.04	0.10										
H9	0.52	29.02	17.16	9.40	0.05	0.10										
H10	0.52	24.54	18.29	9.00	0.10	0.10										
H11	0.52	21.80	24.68	8.80	0.07	0.10										
14	TC1401	I	H12	0.52	16.74	30.65	9.20	0.06	0.10	9.19	26.66	19.98	7.78	0.07	0.1	
			H13	0.52	17.32	28.04	8.80	0.07	0.10							
			H14	0.52	20.16	25.05	9.40	0.06	0.10							
			H15	0.70	30.82	17.83	6.20	0.11	0.10							
			H16	0.69	20.28	25.21	9.00	0.11	0.10							
			H17	0.69	27.80	15.59	9.40	0.05	0.10							

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-3}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-3}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
14	TC1401	I	H12	0.52	16.74	30.65	9.20	0.06	0.10	9.19	26.66	19.98	7.78	0.07	0.1	
			H13	0.52	17.32	28.04	8.80	0.07	0.10							
			H14	0.52	20.16	25.05	9.40	0.06	0.10							
			H15	0.70	30.82	17.83	6.20	0.11	0.10							
			H16	0.69	20.28	25.21	9.00	0.11	0.10							
			H17	0.69	27.80	15.59	9.40	0.05	0.10							

16	TC1601	2	H18	0.66	20.86	25.53	7.70	0.10	0.10	3.88	7.83	48.49	7.91	0.02	0.1			
			H19	0.69	23.88	19.22	8.30	0.06	0.10									
			H2	0.55	23.10	26.90	3.60	0.03	0.10									
			H3	0.41	27.26	29.85	4.10	0.04	0.10									
			H4	0.41	3.44	48.00	14.50	0.02	0.10									
			H5	0.63	4.12	37.20	21.40	0.02	0.10									
			H6	0.63	0.19	65.50	4.10	0.01	0.10									
			H7	0.61	0.73	67.00	1.50	0.01	0.10									
			H8	0.64	3.04	56.00	6.40	0.02	0.10									
			H9	0.64	25.53	21.06	7.90	0.06	0.10									
			H10	0.64	26.56	19.81	8.10	0.06	0.10									
			H11	0.64	25.59	20.98	8.60	0.08	0.10									
			H12	0.64	29.88	19.06	7.70	0.09	0.10									
			H13	0.64	29.49	19.45	8.10	0.08	0.10									
			H14	0.73	26.64	18.47	8.60	0.09	0.10									
			H15	0.73	27.70	19.53	9.20	0.08	0.10									
			17	ZK1701	I	H1	0.93	24.20	26.40							8.9	0.04	0.1
H2	1.30	32.46				19.79	7.9	0.04	0.1									
H3	0.30	28.11				19.64	9.2	0.03	0.1									
H4	1.20	29.02				21.97	7.7	0.04	0.1									
H5	1.25	28.73				21.12	7.3	0.04	0.1									
H6	0.93	28.52				22.24	7.7	0.04	0.1									
H7	0.76	27.63				25.01	6.1	0.05	0.1									
H8	1.32	20.82				23.08	11.7	0.02	0.1									
H9	0.93	27.32				21.25	9.5	0.02	0.1									
H10	0.93	19.24				26.36	11.2	0.03	0.1									
H11	0.93	18.51				23.65	13.4	0.02	0.1									
H12	0.93	14.50				37.4	8.0	0.01	0.1									
H13	1.02	19.05				41.76	5.6	0.02	0.1									
H4	0.42	1.13				58.2	8.6	0.01	0.1									
H5	0.70	46.16				15.13	2.8	0.04	0.1									
H6	0.70	33.42				16.63	8.1	0.04	0.1									
H7	0.70	28.73				18.01	6.8	0.03	0.1									
18	TC1801	I	H8	0.70	25.18	20.94	10.1	0.05	0.2	12.73	24.53	25.35	8.78	0.03	0.1			
			H9	0.70	25.02	18.57	11.3	0.04	0.2									
			H10	0.70	20.18	16.53	14.5	0.04	0.2									
			2			H4	0.42	1.13	58.2							8.60	0.01	0.10
			I			H5	0.70	46.16	15.13							2.8	0.04	0.1
			I			H6	0.70	33.42	16.63							8.1	0.04	0.1
			I			H7	0.70	28.73	18.01							6.8	0.03	0.1

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^3$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^3$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
18	TC1801		H8	0.70	25.18	20.94	10.1	0.05	0.2	6.28	28.68	18.50	8.99	0.05	0.1	
			H9	0.70	25.02	18.57	11.3	0.04	0.2							
			H10	0.70	20.18	16.53	14.5	0.04	0.2							

Table 10 Average Grades of Single-project Orebed (including interbeds)

Exploration line No.	Project No.	Sequence number of orebed (including interbeds)	Sample No.	True thickness (m)	Analysis results ($\times 10^{-2}$)					Orebed thickness (m)	Avg. grade of each bed ($\times 10^{-2}$)					Remarks
					Mn	Fe	SiO ₂	P	S		Mn	Fe	SiO ₂	P	S	
18	ZK1802	Vg	H1	0.87	1.04	13.50	40.20	0.05	0.10	1.56	0.73	12.08	39.27	0.03	0.1	
			H2	0.69	0.35	10.30	38.10	0.01	0.10							
			H3	1.04	26.07	23.74	10.90	0.04	0.10							
		H4	0.87	24.87	25.45	9.40	0.06	0.10								
		H5	1.07	29.24	15.50	11.60	0.11	0.10								
		H6	0.62	24.85	29.67	7.50	0.05	0.10								
		H7	0.66	11.40	46.10	6.40	0.05	0.10								
		H8	0.58	10.30	46.10	6.20	0.05	0.10								
		H9	0.75	14.60	48.70	3.00	0.03	0.10								
		H10	0.52	22.10	44.49	2.60	0.06	0.10								
		H11	0.74	11.75	55.80	2.40	0.03	0.10								
		H12	1.06	32.72	30.75	3.00	0.03	0.10								
		H13	0.64	16.46	34.44	9.20	0.02	0.10								
		H14	0.90	22.72	29.15	9.60	0.06	0.10								
		H15	0.63	44.40	15.79	4.30	0.06	0.10								
		H16	0.86	39.94	15.01	6.20	0.03	0.10								
		H1	0.96	0.12	14.4	50.3	0.04	0.1								
		H2	0.96	0.04	17.5	32.8	0.05	0.1								
		H3	0.96	0.07	13.3	36.0	0.04	0.1								
		H4	0.96	0.71	37.5	20.9	0.04	0.1								
		H5	0.96	1.48	48.3	10.8	0.04	0.1								
H6	0.58	26.52	20.23	13.2	0.09	0.1										
H7	1.18	39.11	14.34	7.6	0.07	0.1										
H8	0.79	13.05	21.5	21.4	0.06	0.1										
H9	0.79	22.56	20.61	14.1	0.05	0.1										
H10	0.49	29.68	17.08	11.3	0.07	0.1										
H11	0.64	6.94	9.0	23.8	0.03	0.1										
H12	1.13	39.11	17.23	6.7	0.09	0.1										
H13	0.19	10.80	13.8	26.2	0.07	0.1										
H14	0.29	37.29	24.02	7.1	0.04	0.1										
H15	0.14	0.82	7.6	34.1	0.02	0.1										
H16	1.11	22.73	32.27	7.2	0.05	0.1										
H17	0.21	0.76	10.0	34.2	0.05	0.1										
H18	0.48	11.20	36.3	10.7	0.06	0.1										
H19	1.17	20.00	41.26	4.2	0.11	0.1										
H20	1.06	26.54	31.97	4.9	0.15	0.1										
H21	1.14	26.18	24.40	4.4	0.22	0.1										
3	ZK301	Vg	H1	0.96	0.12	14.4	50.3	0.04	0.1	2.88	0.08	15.07	39.70	0.04	0.1	
			H2	0.96	0.04	17.5	32.8	0.05	0.1							
			H3	0.96	0.07	13.3	36.0	0.04	0.1							
		H4	0.96	0.71	37.5	20.9	0.04	0.1								
		H5	0.96	1.48	48.3	10.8	0.04	0.1								
		H6	0.58	26.52	20.23	13.2	0.09	0.1								
		H7	1.18	39.11	14.34	7.6	0.07	0.1								
		H8	0.79	13.05	21.5	21.4	0.06	0.1								
		H9	0.79	22.56	20.61	14.1	0.05	0.1								
		H10	0.49	29.68	17.08	11.3	0.07	0.1								
I	H1	0.96	0.12	14.4	50.3	0.04	0.1	1.92	1.10	42.90	15.85	0.04	0.1			
	H2	0.96	0.04	17.5	32.8	0.05	0.1									
	H3	0.96	0.07	13.3	36.0	0.04	0.1									
II	H4	0.96	0.71	37.5	20.9	0.04	0.1	3.83	27.21	18.35	13.11	0.07	0.1			
	H5	0.96	1.48	48.3	10.8	0.04	0.1									
	H6	0.58	26.52	20.23	13.2	0.09	0.1									
	H7	1.18	39.11	14.34	7.6	0.07	0.1									
@	H8	0.79	13.05	21.5	21.4	0.06	0.1	0.64	6.94	9.00	23.80	0.03	0.10			
	H9	0.79	22.56	20.61	14.1	0.05	0.1									
	H10	0.49	29.68	17.08	11.3	0.07	0.1									
II	H11	0.64	6.94	9.0	23.8	0.03	0.1	6.92	24.47	28.24	7.92	0.11	0.1			
	H12	1.13	39.11	17.23	6.7	0.09	0.1									
	H13	0.19	10.80	13.8	26.2	0.07	0.1									
	H14	0.29	37.29	24.02	7.1	0.04	0.1									
	H15	0.14	0.82	7.6	34.1	0.02	0.1									
	H16	1.11	22.73	32.27	7.2	0.05	0.1									
	H17	0.21	0.76	10.0	34.2	0.05	0.1									

Table 11 Average Grades & Average Thicknesses of Interbeds in Sections

Exploration line number	Interbed No.	Project No.	True thickness (m)	Avg. Grade ($\times 10^{-2}$)		Avg. thickness (m)	Weighted avg. grade ($\times 10^{-2}$)		Remarks
				Mn	TFe		Mn	TFe	
0	①	TC001-H10	0.96	2.46	51.60	0.66	6.55	43.53	
		ZK001-H11	0.96	8.08	40.50				
	②	ZK001-H14	0.57	8.30	14.20	1.10	5.30	22.45	
		ZK003-H28-H30	1.62	4.24	25.35				
5	③	ZK003-H41	0.32	1.98	8.30	0.90	7.45	22.93	
		ZK001-H17-H18	1.62	3.41	15.09				
		TC001-H26	0.75	9.60	18.70				
	④	ZK001-H21	0.77	4.62	10.40	0.77	4.62	10.4	
6	①	ZK504-H11	1	2.01	22.1	1	2.01	22.1	
	②	ZK501-H8	0.93	9.67	45.80				
		ZK502-H9	0.71	3.10	8.00	1.52	6.31	32.12	
		ZK503-H17-H19	1.96	0.94	14.93				
11		ZK504-H15-H16	2.47	2.48	8.07				
	③	ZK501-H10	0.95	8.42	47.70	0.88	7.52	31.58	
		ZK503-H21-H22	0.80	6.46	12.44				
	③	ZK603-H10	0.87	4.14	33.00	0.67	4.14	33.00	
12	②	ZK604-H16-H17	2.25	1.61	8.51	1.46	1.46	7.77	
		ZK606-H18-H19	1.00	1.14	6.18				
	①	ZK1101-H15	0.47	3.11	5.40	0.84	1.33	6.26	
		ZK1103-H4	1.20	0.63	6.60				
3	②	ZK1101-H20	0.33	2.41	7.90				
		ZK1102-H5	0.63	2.99	10.20	1.16	2.91	10.93	
		ZK1103-H6-H8	2.52	3.70	14.06				
	③	ZK1101-H26	0.87	6.92	54.80	0.87	6.92	54.80	
11	①	ZK1202-H5	0.85	5.98	18.40	0.69	13.86	33.44	
		ZK1204-H9	0.53	8.45	37.00				
	②	ZK1201-H8-H9	1.64	0.11	2.11	1.45	3.25	7.21	
		ZK1202-H9	1.25	7.36	13.90				
3	②	ZK301-H11	0.64	6.94	9.00	0.64	6.94	9.00	

Table 12 Average Grades & Average Thicknesses of Orebeds in Blocks

Orebed No.	Codes of mineral resources	Ore block No.	Project & sample No.	Single-project thickness (m)	Single-Project grade($\times 10^{-2}$)					Avg. thickness of block (m)	Avg. grade of block($\times 10^{-2}$)					Block volume (m ³)	Avg. grade of orebed($\times 10^{-2}$)					Remarks
					Mn	TFe	SiO ₂	P	S		Mn	TFe	SiO ₂	P	S		Mn	TFe	SiO ₂	P	S	
1	333	1月13日	ZK504	8.26	5.94	45.23	11.11	0.05	0.1	4.3	4.64	41.54	13.06	0.04	0.1	381087						
			ZK503	3.67	5.93	45.86	9.9	0.05	0.1		26.4	25.46	19.24	2.8	0.1							
			ZK502	0.97	1.01	25.7	53	0.02	0.1													
I	333	I-1	ZK1802	10.94	24.5	31.41	6.9	0.05	0.1	11.75	24.77	28.57	27.37	0.04	0.1	713752					Iron-manganese orebed I	
			ZK1801	12.55	25.02	26.11	45.22	0.04	0.1		25.18	25.91	13.32	6.34	0.1							
			ZK1802	10.94	24.5	31.41	6.9	0.05	0.1													
			ZK1206	10.23	25.94	20.05	20.18	13.06	0.05		26.4	25.46	19.24	2.8	0.1							
			ZK1802	10.94	24.5	31.41	6.9	0.05	0.1													
			ZK1801	12.55	25.02	26.11	45.22	0.04	0.1		27.35	24.77	23.03	0.05	0.1							
			ZK1206	10.23	25.94	20.05	20.18	13.06	0.05													
			ZK1204	14.77	29.29	24.24	5.65	0.06	0.1		9.65	27.35	24.77	23.03	0.05							0.1
			ZK1801	12.55	25.02	26.11	45.22	0.04	0.1													
			ZK1204	14.77	29.29	24.24	5.65	0.06	0.1		24.28	22.6	25.49	0.05	0.1							
			ZK1203	1.64	27.46	19.21	9.82	0.06	0.1													
			ZK1801	12.55	25.02	26.11	45.22	0.04	0.1		10.87	25.71	23.52	29.39	0.05							0.1
ZK1203	1.64	27.46	19.21	9.82	0.06	0.1																
ZK1801	12.55	25.02	26.11	45.22	0.04	0.1	7.29	24.28	22.6	25.49	0.05	0.1										
TC1401	9.19	26.66	19.98	7.78	0.07	0.1																
ZK1203	1.64	27.46	19.21	9.82	0.06	0.1	10.87	25.71	23.52	29.39	0.05	0.1										
ZK1202	5.78	18.01	20.1	15.24	0.05	0.1																
ZK1801	12.55	25.02	26.11	45.22	0.04	0.1	5.67	24.86	19.92	9.96	0.06	0.1										
TC1401	9.19	26.66	19.98	7.78	0.07	0.1																
TC1801	6.28	28.68	18.5	8.99	0.05	0.1	3.55	24.71	20.96	9.34	0.07	0.1										
TC1401	9.19	26.66	19.98	7.78	0.07	0.1																
TC1601	4.66	27.33	19.74	8.34	0.08	0.1	8.82	23.15	21.51	15.56	7.59	0.1										
ZK1202	5.78	18.01	20.1	15.24	0.05	0.1																
ZK1201	2.43	19.8	23.39	11.27	0.06	0.1	10.45	27.34	22.79	10.54	3.24	0.1										
TC1601	4.66	27.33	19.74	8.34	0.08	0.1																
ZK1201	2.43	19.8	23.39	11.27	0.06	0.1	7.65	29.71	23.89	6.24	0.06	0.1										
ZK1206	10.23	25.94	20.05	20.18	13.06	0.05																
ZK1206	7.41	24.06	23.53	9.19	0.05	0.1	10.45	27.34	22.79	10.54	3.24	0.1										
ZK1206	10.23	25.94	20.05	20.18	13.06	0.05																
ZK1204	14.77	29.29	24.24	5.65	0.06	0.1	7.65	29.71	23.89	6.24	0.06	0.1										
ZK606	7.41	24.06	23.53	9.19	0.05	0.1																
ZK1206	10.23	25.94	20.05	20.18	13.06	0.05	10.45	27.34	22.79	10.54	3.24	0.1										
ZK606	7.41	24.06	23.53	9.19	0.05	0.1																
ZK1204	14.77	29.29	24.24	5.65	0.06	0.1	7.65	29.71	23.89	6.24	0.06	0.1										
ZK605	9.4	28.34	22.89	8.79	0.07	0.1																
ZK1204	14.77	29.29	24.24	5.65	0.06	0.1	7.65	29.71	23.89	6.24	0.06	0.1										
ZK1203	1.64	27.46	19.21	9.82	0.06	0.1																
ZK605	9.4	28.34	22.89	8.79	0.07	0.1	7.65	29.71	23.89	6.24	0.06	0.1										
ZK604	4.79	34.46	26.35	1.85	0.06	0.1																

Table 12 Average Grades & Average Thicknesses of Orebeds in Blocks

Orebed No.	Codes of mineral resources	Ore block No.	Project & sample No.	Single-project thickness (m)					Single-Project grade($\times 10^{-3}$)					Avg. thickness of block (m)	Avg. grade of block($\times 10^{-3}$)					Block volume (m^3)	Avg. grade of orebed($\times 10^{-3}$)					Remarks
				Mn	TFe	SiO ₂	P	S	Mn	TFe	SiO ₂	P	S		Mn	TFe	SiO ₂	P	S		Mn	TFe	SiO ₂	P	S	
332	I-12		ZK1203	1.64	27.46	19.21	9.82	0.06	0.1	4.89	24.57	26.56	7.62	0.05	0.1	778084										
			ZK1202	5.78	18.01	20.10	15.24	0.05	0.1																	
			ZK604	4.79	34.46	26.55	1.85	0.06	0.1																	
			ZK603	7.35	22.64	33.42	4.89	0.03	0.1																	
332	I-13		ZK1202	5.78	18.01	20.10	15.24	0.05	0.1	10.14	26.03	22.01	8.20	0.05	0.1	677998										
			ZK603	7.35	22.64	33.42	4.89	0.03	0.1																	
			ZK602	17.29	30.15	17.80	7.25	0.06	0.1																	
			ZK1202	5.78	18.01	20.10	15.24	0.05	0.1																	
332	I-14		ZK1201	2.43	19.80	23.39	11.27	0.06	0.1	8.54	28.23	18.18	8.69	0.06	0.1	895841										
			ZK602	17.29	30.15	17.80	7.25	0.06	0.1																	
			ZK601	8.67	33.55	16.19	6.47	0.06	0.1																	
			ZK1201	2.43	19.80	23.39	11.27	0.06	0.1																	
333	I-15		ZK601	8.67	33.55	16.19	6.47	0.06	0.1	5.55	30.54	17.77	7.52	0.06	0.1	270420										
			ZK1201	2.43	19.80	23.39	11.27	0.06	0.1																	
			ZK601	8.67	33.55	16.19	6.47	0.06	0.1																	
			ZK606	7.41	24.06	23.53	9.19	0.05	0.1																	
333	I-16		ZK606	7.41	24.06	23.53	9.19	0.05	0.1	10.10	26.03	25.23	6.15	0.12	0.1	477115										
			ZK003	12.79	27.17	26.22	4.39	0.16	0.1																	
			ZK606	7.41	24.06	23.53	9.19	0.05	0.1																	
			ZK605	9.40	28.34	22.89	8.79	0.07	0.1																	
332	I-17		ZK003	12.79	27.17	26.22	4.39	0.16	0.1	7.78	26.49	24.15	7.35	0.10	0.1	1145849										
			ZK002	1.53	20.99	17.51	14.4	0.05	0.1																	
			ZK605	9.40	28.34	22.89	8.79	0.07	0.1																	
			ZK604	4.79	34.46	26.55	1.85	0.06	0.1																	
332	I-18		ZK002	1.53	20.99	17.51	14.4	0.05	0.1	5.46	26.76	26.62	6.43	0.06	0.1	892377										
			ZK001	6.60	18.31	32.32	4.39	0.04	0.1																	
			ZK604	4.79	34.46	26.55	1.85	0.06	0.1																	
			ZK603	7.35	22.64	33.42	4.89	0.03	0.1																	
332	I-19		ZK001	6.60	18.31	32.32	4.39	0.04	0.1	4.98	24.11	33.15	3.86	0.05	0.1	711697										
			TC001	1.67	16.74	45.00	3.13	0.14	0.1																	
			ZK603	7.35	22.64	33.42	4.89	0.03	0.1																	
			ZK602	17.29	30.15	17.80	7.25	0.06	0.1																	
332	I-20		TC001	1.67	16.74	45.00	3.13	0.14	0.1	8.77	27.20	23.89	6.33	0.06	0.1	599536										
			ZK602	17.29	30.15	17.80	7.25	0.06	0.1																	
			ZK601	8.67	33.55	16.19	6.47	0.06	0.1																	
			TC001	1.67	16.74	45.00	3.13	0.14	0.1																	
332	I-21		ZK602	17.29	30.15	17.80	7.25	0.06	0.1	9.21	30.41	18.94	6.76	0.06	0.1	459872										
			ZK601	8.67	33.55	16.19	6.47	0.06	0.1																	
			TC001	1.67	16.74	45.00	3.13	0.14	0.1																	
			ZK601	8.67	33.55	16.19	6.47	0.06	0.1																	
333	I-22		TC001	1.67	16.74	45.00	3.13	0.14	0.1	5.17	30.84	20.84	5.93	0.07	0.1	203852										
			ZK603	12.79	27.17	26.22	4.39	0.16	0.1																	
			ZK601	8.67	33.55	16.19	6.47	0.06	0.1																	
			ZK603	12.79	27.17	26.22	4.39	0.16	0.1																	
333	I-23		ZK504	2.61	16.36	42.05	6.49	0.03	0.1	7.70	25.34	28.90	4.75	0.14	0.1	377488										

Table 12 Average Grades & Average Thicknesses of Orebeds in Blocks

Orebed No.	Codes of mineral resources	Ore block No.	Project & sample No.	Single-project thickness (m)					Single-Project grade($\times 10^{-2}$)					Avg. thickness of block (m)	Avg. grade of block($\times 10^{-2}$)					Block volume (m^3)					Avg. grade of orebed($\times 10^{-2}$)					Remarks
				Mn	TFe	SiO ₂	P	S	Mn	TFe	SiO ₂	P	S		Mn	TFe	SiO ₂	P	S	Mn	TFe	SiO ₂	P	S	Mn	TFe	SiO ₂	P	S	
332	I-24		ZK003	12.79	27.17	26.22	4.39	0.16	0.1	5.01	26.09	26.32	6.83	0.11	0.1	833508	25.89	25.29	10.51	0.71	0.1									
			ZK002	1.53	20.99	17.51	14.4	0.05	0.1																					
			ZK301	3.83	27.21	18.35	13.11	0.07	0.1																					
			ZK504	2.61	16.36	42.05	6.49	0.03	0.1																					
			ZK503	4.27	29.72	27.41	5.99	0.05	0.1																					
332	I-25		ZK002	1.53	20.99	17.51	14.4	0.05	0.1	3.99	24.94	28.07	6.49	0.05	0.1	701918	25.89	25.29	10.51	0.71	0.1									
			ZK001	6.60	18.31	32.32	4.39	0.04	0.1																					
			ZK503	4.27	29.72	27.41	5.99	0.05	0.1																					
			ZK502	4.06	29.10	22.39	7.2	0.06	0.1																					
			ZK001	6.60	18.31	32.32	4.39	0.04	0.1																					
332	I-26		TC001	1.67	16.74	45.00	3.13	0.14	0.1	4.44	21.16	32.24	5.63	0.06	0.1	666051	25.89	25.29	10.51	0.71	0.1									
			ZK502	4.06	29.10	22.39	7.2	0.06	0.1																					
			ZK501	5.91	18.42	32.99	6.53	0.05	0.1																					
			ZK504	2.61	16.36	42.05	6.49	0.03	0.1																					
			ZK1103	1.35	22.78	36.31	3.14	0.06	0.1																					
333	I-27		ZK504	2.61	16.36	42.05	6.49	0.03	0.1	1.98	18.55	40.09	5.35	0.04	0.1	107882	25.89	25.29	10.51	0.71	0.1									
			ZK503	4.27	29.72	27.41	5.99	0.05	0.1																					
			ZK1103	1.35	22.78	36.31	3.14	0.06	0.1																					
			ZK1102	1.93	19.07	41.92	4.48	0.05	0.1																					
			ZK503	4.27	29.72	27.41	5.99	0.05	0.1																					
332	I-28		ZK502	4.06	29.10	22.39	7.2	0.06	0.1	2.54	21.19	32.72	5.45	0.05	0.1	414273	25.89	25.29	10.51	0.71	0.1									
			ZK1102	1.93	19.07	41.92	4.48	0.05	0.1																					
			ZK1101	6.75	25.70	27.80	5.94	0.05	0.1																					
			ZK502	4.06	29.10	22.39	7.2	0.06	0.1																					
			ZK501	5.91	18.42	32.99	6.53	0.05	0.1																					
332	I-29		ZK1101	6.75	25.70	27.80	5.94	0.05	0.1	4.25	26.78	28.03	6.09	0.05	0.1	624311	25.89	25.29	10.51	0.71	0.1									
			ZK502	4.06	29.10	22.39	7.2	0.06	0.1																					
			ZK501	5.91	18.42	32.99	6.53	0.05	0.1																					
			ZK1101	6.75	25.70	27.80	5.94	0.05	0.1																					
			ZK502	4.06	29.10	22.39	7.2	0.06	0.1																					
332	I-30		ZK501	5.91	18.42	32.99	6.53	0.05	0.1	5.57	23.97	28.34	6.45	0.05	0.1	465378	25.89	25.29	10.51	0.71	0.1									
			ZK1101	6.75	25.70	27.80	5.94	0.05	0.1																					
			ZK501	5.91	18.42	32.99	6.53	0.05	0.1																					
			TC1101	5.35	28.90	25.56	3.13	0.14	0.1																					
			ZK1101	6.75	25.70	27.80	5.94	0.05	0.1																					
333	I-31		ZK501	5.91	18.42	32.99	6.53	0.05	0.1	6.00	24.28	28.85	5.30	0.08	0.1	708791	25.89	25.29	10.51	0.71	0.1									
			TC1101	5.35	28.90	25.56	3.13	0.14	0.1																					
			ZK1101	6.75	25.70	27.80	5.94	0.05	0.1																					
			ZK1103	1.35	6.60	18.31	3.14	0.06	0.1																					
			ZK1701	12.73	24.53	25.35	8.78	0.03	0.1																					
332	I-32		ZK1103	1.35	6.60	18.31	3.14	0.06	0.1	7.04	22.81	24.68	8.24	0.03	0.1	431924	25.89	25.29	10.51	0.71	0.1									
			ZK1701	12.73	24.53	25.35	8.78	0.03	0.1																					
			ZK1103	1.35	6.60	18.31	3.14	0.06	0.1																					
			ZK1102	1.93	19.07	41.92	4.48	0.05	0.1																					
			ZK1701	12.73	24.53	25.35	8.78	0.03	0.1																					
332	I-33		ZK1102	1.93	19.07	41.92	4.48	0.05	0.1	5.34	22.35	26.74	7.79	0.03	0.1	295555	25.89	25.29	10.51	0.71	0.1									
			ZK1701	12.73	24.53	25.35	8.78	0.03	0.1																					
			ZK1102	1.93	19.07	41.92	4.48	0.05	0.1																					
			ZK1101	6.75	25.70	27.80	5.94	0.05	0.1																					
			ZK1701	12.73	24.53	25.35	8.78	0.03	0.1																					
332	I-34		ZK1101	6.75	25.70	27.80	5.94	0.05	0.1	7.14	24.40	27.60	7.50	0.04	0.1	504263	25.89	25.29	10.51	0.71	0.1									
			ZK1701	12.73	24.53	25.35	8.78	0.03	0.1																					
			ZK1101	6.75	25.70	27.80	5.94	0.05	0.1																					
			ZK1101	6.75	25.70	27.80	5.94	0.05	0.1																					
			ZK1701	12.73	24.53	25.35	8.78	0.03	0.1																					
333	I-35		ZK1101	6.75	25.70	27.80	5.94	0.05	0.1	9.74	24.94	26.20	7.80	0.04	0.1	306744	25.89	25.29	10.51	0.71	0.1									
			ZK1701	12.73	24.53	25.35	8.78	0.03	0.1																					

Table 12 Average Grades & Average Thicknesses of Orebeds in Blocks

Orebed No.	Codes of mineral resources	Ore block No.	Project & sample No.	Single-project thickness				Single-Project grade($\times 10^{-2}$)				Avg. thickness of block (m)	Avg. grade of block($\times 10^{-2}$)				Block volume				Avg. grade of orebed($\times 10^{-2}$)				Remarks
				(m)	Mn	TFe	SiO ₂	P	S	Mn	TFe		SiO ₂	P	S	Mn	TFe	SiO ₂	P	S	Mn	TFe	SiO ₂	P	
II	333	II-1	ZK1202	9.74	32.70	16.12	8.06	0.06	0.1	5.39	33.25	15.56	8.13	0.06	0.1	439184	25.65	25.86	6.48	0.06	0.1	Iron-manganese orebed II			
			ZK1201	1.03	38.78	10.39	8.80	0.07	0.10																
			ZK606	1.51	19.79	20.19	17.54	0.05	0.1																
	333	II-2	ZK604	4.07	36.55	21.34	2.90	0.04	0.1	4.07	36.55	21.34	2.9	0.04	0.1	45401	25.34	28.11	6.91	0.03	0.1				
			ZK606	1.51	19.79	20.19	17.54	0.05	0.1																
			ZK003	8.24	21.73	29.91	7.78	0.14	0.1																
	333	II-5	ZK604	4.07	36.55	21.34	2.90	0.04	0.1	5.34	25.34	28.11	6.91	0.03	0.1	186199	28.77	23.60	5.71	0.04	0.1				
			ZK001	6.60	18.31	32.32	9.39	0.02	0.1																
			ZK604	4.07	36.55	21.34	2.90	0.04	0.1																
	332	II-6	ZK001	6.60	18.31	32.32	9.39	0.02	0.1	5.68	28.77	23.60	5.71	0.04	0.1	378317	35.38	18.09	3.38	0.05	0.1				
			TC001	6.37	34.63	16.01	3.68	0.06	0.1																
			ZK604	4.07	36.55	21.34	2.90	0.04	0.1																
	333	II-7	TC001	6.37	34.63	16.01	3.68	0.06	0.1	5.22	35.38	18.09	3.38	0.05	0.1	234675	23.08	29.03	7.72	0.12	0.1				
			ZK003	8.24	21.73	29.91	7.78	0.14	0.1																
			ZK504	2.45	27.73	26.20	7.53	0.04	0.1																
333	II-8	ZK003	8.24	21.73	29.91	7.78	0.14	0.1	4.91	23.10	28.23	8.32	0.11	0.1	411311	21.32	29.61	8.70	0.09	0.1					
		ZK301	6.92	24.47	28.24	7.92	0.11	0.1																	
		ZK504	2.45	27.73	26.20	7.53	0.04	0.1																	
332	II-9	ZK503	2.01	18.63	24.03	12.88	0.05	0.1	5.94	21.32	29.61	8.70	0.09	0.1	416170	26.06	24.66	6.63	0.05	0.1					
		ZK003	8.24	21.73	29.91	7.78	0.14	0.1																	
		ZK301	6.92	24.47	28.24	7.92	0.11	0.1																	
333	II-10	ZK503	2.01	18.63	24.03	12.88	0.05	0.1	4.35	26.06	24.66	6.63	0.05	0.1	686551	29.38	24.41	2.51	0.04	0.1					
		ZK001	6.60	18.31	32.32	9.39	0.02	0.1																	
		ZK001	6.60	18.31	32.32	9.39	0.02	0.1																	
332	II-11	TC001	6.37	34.63	16.01	3.68	0.06	0.1	6.78	29.38	24.41	2.51	0.04	0.1	56420	25.35	26.49	10.20	0.04	0.1					
		ZK502	2.42	30.79	27.06	1.65	0.07	0.1																	
		ZK501	11.54	26.21	28.51	2.05	0.03	0.1																	
333	II-12	ZK504	2.45	27.73	26.20	7.53	0.04	0.1	1.62	25.35	26.49	10.20	0.04	0.1	75838	22.60	25.75	9.64	0.04	0.1					
		ZK1103	0.78	18.20	27.73	18.6	0.06	0.1																	
		ZK504	2.45	27.73	26.20	7.53	0.04	0.1																	
332	II-14	ZK1102	0.44	19.92	27.57	21.2	0.06	0.1	1.42	22.60	25.75	9.64	0.04	0.1	201842	26.97	28.07	5.03	0.04	0.1					
		ZK503	2.01	18.63	24.03	12.88	0.05	0.1																	
		ZK502	2.42	30.79	27.06	1.65	0.07	0.1																	
332	II-15	ZK1102	0.44	19.92	27.57	21.2	0.06	0.1	2.96	26.97	28.07	5.03	0.04	0.1	500677	25.65	25.86	6.48	0.06	0.1					
		ZK503	2.01	18.63	24.03	12.88	0.05	0.1																	

Table 12 Average Grades & Average Thicknesses of Orebeds in Blocks

Orebed No.	Codes of mineral resources	Ore block No.	Project & sample No.	Single-project thickness (m)				Single-Project grade($\times 10^{-3}$)				Avg. thickness of block (m)	Avg. grade of block($\times 10^{-3}$)				Avg. grade of orebed($\times 10^{-3}$)				Remarks
				Mn	TFe	SiO ₂	P	S	Mn	TFe	SiO ₂		P	S	Mn	TFe	SiO ₂	P	S		
332	II-16	ZK1101	ZK1101	6.98	28.46	29.57	2.93	0.03	0.1	6.98	20.62	28.70	2.30	0.03	0.1	585561	25.65	25.86	6.48	0.06	0.1
				2.42	30.79	27.06	1.65	0.07	0.1												
				11.54	26.21	28.51	2.05	0.03	0.1												
				6.98	28.46	29.57	2.93	0.03	0.1												
333	II-17	ZK1101	ZK1101	11.54	26.21	28.51	2.05	0.03	0.1	9.26	27.06	28.91	2.38	0.03	79353	25.65	25.86	6.48	0.06	0.1	
				6.98	28.46	29.57	2.93	0.03	0.1												
333	II-18	ZK1102	ZK1102	0.78	18.20	27.73	18.6	0.06	0.1	2.73	27.06	29.32	5.40	0.03	205119	25.65	25.86	6.48	0.06	0.1	
				0.44	19.92	27.57	21.2	0.06	0.1												
			ZK1101	6.98	28.46	29.57	2.93	0.03	0.1												

Table 13-1 Results of Particle Densities

Sample No.	Analysis results ($\times 10^2$)					Assay results (g/cm^3)	Avg. density (g/cm^3)	Remarks
	Mn	TFe	SiO ₂	P	S			
XT3	14.95	40.0	2.8	0.08	<0.1	4.249	4.21	Iron orebed I
XT15	13.85	44.6	2.8	0.02	<0.1	4.105		
XT24	1.42	57.8	4.9	0.03	<0.1	4.676		
XT26	8.65	33.6	12.2	0.02	0.1	3.942		
XT29	1.49	28.6	4.8	0.01	<0.1	3.440		
XT34	25.1	26.3	4.6	0.02	0.1	4.132		
XT37	1.17	54.9	6.6	0.02	<0.1	4.287		
XT40	11.45	37.8	8.9	0.02	<0.1	4.021		
XT57	0.23	36.2	19.5	0.03	<0.1	3.25		
XT60	2.67	45.3	11.6	0.01	<0.1	3.76		
XT61	2.65	45.9	6.3	0.01	<0.1	3.72		
XT64	1.57	63.1	3.2	0.03	<0.1	4.65		
XT66	1.50	59.7	5.8	0.03	<0.1	4.64		
XT67	2.67	56.0	4.3	0.10	<0.1	4.10		
XT69	19.20	40.5	3.4	0.04	0.1	4.19		
XT70	10.85	37.6	6.4	0.03	0.1	5.25		
XT76	10.30	49.2	5.8	0.05	0.1	4.17		
XT79	4.97	47.5	6.6	0.02	0.1	3.98		
XT80	0.06	58.6	16.5	0.01	0.1	4.39		
XT89	2.31	55.4	4.7	0.06	0.1	4.12		
XT97	0.15	66.9	0.9	<0.01	0.1	4.87		
XT98	0.07	69.9	1.1	0.01	0.1	4.91		
XT99	2.78	47.3	11.6	0.06	0.1	4.14		
XT100	2.42	31.8	18.6	0.09	0.1	3.08		
XT96	0.24	64.7	3.9	0.01	0.1	4.40		
XT101	3.50	49.8	9.4	0.07	0.1	4.10		
XT103	1.48	57.0	6.8	0.02	<0.1	4.32		

Sample No.	Analysis results ($\times 10^2$)					Assay results (g/cm^3)	Avg. density (g/cm^3)	Remarks
	Mn	TFe	SiO ₂	P	S			
XT102	6.97	56.3	2.6	0.08	0.1	4.73	4.21	Iron ores from Iron orebed I
XT105	0.27	42.0	16.9	0.04	0.1	3.86		
XT106	3.83	62.3	1.1	0.06	0.1	4.88		
XT2	33.8	19.7	2.1	0.03	<0.1	3.979		
XT5	24.5	28.7	3.9	0.03	<0.1	4.336		
XT12	28.8	14.0	6.4	0.05	<0.1	3.605		
XT25	25.5	22.4	1.8	0.04	<0.1	4.186		
XT36	34.5	16.8	2.3	0.04	<0.1	4.095		
XT45	32.9	22.8	0.6	0.06	<0.1	4.412		
XT48	29.5	25.3	7.0	0.05	0.1	4.352		
XT49	22.0	25.8	8.1	0.07	<0.1	4.215		
XT53	30.1	17.4	6.0	0.04	<0.1	4.584		
XT55	36.2	23.7	5.4	0.08	<0.1	4.670		
XT98	21.1	34.9	6.0	0.03	0.1	4.09		
XT72	37.4	14.6	3.6	0.03	<0.1	4.17		
XT77	48.9	11.2	7.1	0.08	0.1	4.57		
XT78	13.00	36.9	7.3	0.06	0.1	4.11		
XT81	19.75	41.5	4.3	0.04	<0.1	4.71		
XT83	13.75	35.3	8.8	0.01	0.1	3.73		
XT84	24.4	29.8	5.8	0.09	0.1	4.28		
XT38	30.2	17.7	4.9	0.03	<0.1	3.796		
XT50	19.75	18.3	12.9	0.08	<0.1	3.500		
XT51	40.8	12.5	7.7	0.07	<0.1	3.827		
XT85	43.9	12.6	5.6	0.07	<0.1	4.52		
XT86	21.9	24.9	6.8	0.05	0.1	4.01		
XT87	39.1	20.4	4.7	0.06	<0.1	4.54		
XT88	14.10	47.7	4.1	0.02	0.1	4.52		

Table 13-2 Results of Particle Densities

Sample No.	Analysis results ($\times 10^{-3}$)					Assay results (g/cm^3)	Remarks
	Mn	TFe	SiO ₂	P	S		
XT90	34.3	24.6	2.8	0.02	0.2	4.34	Iron-manganes e ores from Iron-manganes e orebed I
XT91	22.8	28.6	6.0	0.01	0.4	4.14	
XT92	16.75	33.6	7.9	0.06	0.1	4.38	
XT93	27.5	15.1	8.8	0.08	0.1	4.12	
XT94	12.80	38.2	6.8	0.05	0.1	4.24	
XT95	23.8	28.1	7.7	0.03	0.1	4.25	
XT104	40.8	10.0	5.3	0.06	<0.1	3.99	
XT1	34.2	14.6	3.9	0.02	<0.1	4.091	
XT4	26.0	31.8	3.2	0.04	<0.1	4.483	
XT6	27.2	21.6	0.9	0.03	<0.1	3.791	
XT7	36.5	16.8	2.8	0.05	<0.1	4.439	
XT8	27.7	29.0	3.2	0.05	<0.1	4.217	
XT9	32.1	15.2	4.9	0.04	<0.1	3.761	
XT10	34.2	13.4	6.8	0.04	<0.1	4.314	
XT11	34.0	18.7	4.1	0.04	<0.1	4.121	
XT13	36.1	14.0	6.8	0.06	<0.1	4.269	
XT14	18.35	36.3	4.5	0.05	<0.1	3.819	
XT15	30.7	22.2	6.8	0.06	0.1	4.350	
XT17	34.8	18.2	3.2	0.08	<0.1	4.227	
XT18	40.5	11.5	2.8	0.07	<0.1	4.180	
XT19	12.70	51.6	0.9	0.01	<0.1	5.130	
XT20	35.2	12.9	6.2	0.06	<0.1	4.343	
XT21	26.1	20.4	3.6	0.04	<0.1	3.927	
XT22	39.0	17.3	4.5	0.08	<0.1	4.425	

Sample No.	Analysis results ($\times 10^{-3}$)					Assay results (g/cm^3)	Remarks
	Mn	TFe	SiO ₂	P	S		
XT23	30.9	13.8	5.6	0.06	<0.1	4.058	Iron-manganes e ores from Iron-manganes e orebed II
XT27	29.8	16.4	6.5	0.04	<0.1	4.026	
XT28	36.6	9.9	2.6	0.04	<0.1	3.994	
XT30	30.4	20.8	1.7	0.02	0.1	4.350	
XT31	40.5	11.2	1.4	0.05	<0.1	4.003	
XT32	23.3	33.8	4.2	0.02	<0.1	4.495	
XT33	39.1	11.3	0.7	0.03	<0.1	4.020	
XT35	21.4	37.4	3.5	0.02	<0.1	4.292	
XT39	17.60	38.6	4.0	0.02	<0.1	4.105	
XT41	23.2	31.7	2.1	0.02	<0.1	3.958	
XT42	27.8	27.8	4.3	0.03	<0.1	4.340	
XT43	14.00	30.9	11.2	0.02	<0.1	4.234	
XT44	30.9	21.9	7.8	0.03	<0.1	4.268	
XT46	23.8	29.0	3.4	0.01	<0.1	4.178	
XT47	17.05	45.6	1.1	0.04	<0.1	4.487	
XT52	37.9	11.5	9.1	0.03	<0.1	4.135	
XT54	31.7	21.6	2.3	0.12	<0.1	3.987	
XT56	15.80	44.8	5.7	0.02	<0.1	4.629	
XT58	24.6	35.5	1.2	0.06	<0.1	4.24	
XT63	18.25	45.5	2.4	0.04	<0.1	4.46	
XT71	43.0	18.2	5.8	0.17	<0.1	4.29	
XT73	27.0	27.5	4.9	0.06	0.1	4.56	
XT75	42.3	15.7	8.3	0.07	0.1	4.32	
XT82	30.1	29.9	1.9	0.13	0.1	4.71	

Table 14 Reserves Estimation by Sections

Orebody number	Codes of mineral reserves	Ore block number	Projected number (m ²)	Avg. dip angle (°)	Slope area (m ²)	Avg. thickness (m)	Volume (m ³)	Density (t/m ³)	Avg. grade (%)		Amount (万吨)	Remarks
									Mn	TFe		
I	333	I-1	89200	11	90870	4.68	425269	4.21	2.92	40.46	179.0	
	333	I-2	150649	14	155261	3.25	504598	4.21	3.41	38.85	212.4	
	333	I-3	39900	17	41723	2.92	121831	4.21	3.74	45.00	51.3	
	332	I-4	141050	16	146734	1.79	262654	4.21	3.89	44.73	110.6	
	332	I-5	160025	13	164234	2.74	450002	4.21	2.72	44.69	189.5	
	332	I-6	137175	16	142703	4.47	637883	4.21	3.38	39.72	268.5	
	332	I-7	62225	13	63662	3.00	191585	4.21	4.27	34.36	80.7	
	333	I-8	23000	14	23704	1.21	28682	4.21	4.57	42.13	12.1	
	333	I-9	38650	17	40416	5.75	232392	4.21	4.97	48.39	97.8	
	332	I-10	160050	14	164950	3.53	582272	4.21	4.84	47.38	245.1	
	332	I-11	82250	12	84088	2.32	195083	4.21	4.26	39.84	82.1	
	333	I-12	74425	16	77424	2.23	172656	4.21	3.39	36.24	72.7	
	333	I-13	86350	13	88621	4.30	381072	4.21	4.54	41.54	160.4	
	333	I-1	58675	15	60745	11.75	713752	4.23	24.77	28.57	301.9	
	333	I-2	41625	25	45928	10.59	486379	4.23	25.18	25.91	205.7	
	332	I-3	131850	14	135886	12.12	1646943	4.23	26.40	25.46	696.7	
	332	I-4	83575	14	86134	9.65	831189	4.23	27.35	24.77	351.6	
	332	I-5	83200	8	84018	7.29	612489	4.23	24.28	22.60	259.1	
	333	I-6	38600	17	40364	10.87	438753	4.23	25.71	23.52	185.6	
	332	I-7	166100	16	172794	5.67	979740	4.23	24.86	19.92	414.4	
	333	I-8	18725	46	26956	3.55	95693	4.23	24.71	20.96	40.5	
	333	I-9	43375	22	46781	8.82	412612	4.23	25.15	21.51	174.5	
332	I-10	108100	20	115038	10.45	1202143	4.23	27.34	22.79	508.5		
332	I-11	160225	14	165130	7.65	1263245	4.23	29.71	23.89	534.4		
332	I-12	156700	10	159117	4.89	778084	4.23	24.57	26.56	329.1		
332	I-13	65150	13	66864	10.14	677998	4.23	26.03	22.01	286.8		
332	I-14	101325	15	104899	8.54	895841	4.23	28.23	18.18	378.9		
333	I-15	37325	40	48724	5.55	270420	4.23	30.54	17.77	114.4		
333	I-16	45175	17	47239	10.10	477115	4.23	26.03	25.23	201.8		
332	I-17	140600	17	147024	7.78	1143849	4.23	26.49	24.15	483.8		
332	I-18	159250	13	163439	5.46	892377	4.23	26.76	26.62	377.5		
332	I-19	137375	16	142911	4.98	711697	4.23	24.11	33.15	301.0		
332	I-20	65375	17	68362	8.77	599536	4.23	27.20	23.89	253.6		
332	I-21	47750	17	49332	9.21	459872	4.23	30.41	18.94	194.5		
333	I-22	37500	18	39430	5.17	203852	4.23	30.84	20.84	86.2		

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Table 14 Reserves Estimation by Sections

Orebody number	Codes of mineral reserves	One block number	Projected number (m ²)	Avg. dip angle (°)	Slope area (m ²)	Avg. thickness (m)	Volume (m ³)	Density (t/m ³)	Avg. grade (%)		Amount (C/T)	Remarks
									Mn	IFe		
I	333	I-23	46625	18	49024	7.70	377488	4.23	25.34	28.90	159.7	
	332	I-24	160700	15	166369	5.01	833508	4.23	26.09	26.32	352.6	
	332	I-25	172075	12	175919	3.99	701918	4.23	24.94	28.07	296.9	
	332	I-26	144900	15	150012	4.44	666651	4.23	21.16	32.24	281.7	
	333	I-27	52375	16	54486	1.98	107882	4.23	18.55	40.09	45.6	
	332	I-28	158255	14	163100	2.54	414273	4.23	21.19	32.72	175.2	
	332	I-29	145020	9	146828	4.25	624311	4.23	26.78	28.03	264.1	
	332	I-30	81725	12	83551	5.57	465378	4.23	23.97	28.34	196.9	
	333	I-31	112850	18	118132	6.00	708791	4.23	24.28	28.85	299.8	
	333	I-32	58350	18	61353	7.04	431924	4.23	22.81	24.58	182.7	
	332	I-33	52929	17	553477	5.34	295555	4.23	22.55	26.74	125.0	
	332	I-34	68815	13	70625	7.14	504263	4.23	24.40	27.60	213.3	
	333	I-35	29200	22	31493	9.74	306744	4.23	24.94	26.20	129.8	
	333	II-1	69100	32	81481	5.39	459184	4.23	33.25	15.56	185.8	
	333	II-2	13300	16	13836	1.51	20892	4.23	19.79	20.19	8.8	
	333	II-3	10950	11	11155	4.07	45401	4.23	36.55	21.34	19.2	
	333	II-4	76775	18	80726	4.88	393943	4.23	21.41	28.38	166.6	
	333	II-5	33975	13	34869	5.34	186189	4.23	25.34	28.11	78.8	
	332	II-6	64025	16	66605	5.68	378317	4.23	28.77	23.60	160.0	
	333	II-7	43425	15	44957	5.22	234675	4.23	35.38	18.09	99.3	
	333	II-8	40575	18	42663	5.35	228247	4.23	23.08	29.03	96.5	
	332	II-9	80525	16	83770	4.91	411311	4.23	23.10	28.23	174.0	
	333	II-10	67675	15	70062	5.94	416170	4.23	21.32	29.61	176.0	
	332	II-11	152450	15	157828	4.35	686551	4.23	26.06	24.66	290.4	
	332	II-12	80775	14	83248	6.78	564420	4.23	29.38	24.41	238.7	
	333	II-13	45000	16	46813	1.62	75838	4.23	25.35	26.49	32.1	
	332	II-14	137920	14	142142	1.42	201842	4.23	22.60	25.75	85.4	
	332	II-15	167065	9	169147	2.96	500677	4.23	26.97	28.07	211.8	
	332	II-16	82350	11	83851	6.98	585561	4.23	20.62	28.70	247.7	
	333	II-17	8150	18	8569	9.26	79353	4.23	27.06	28.91	33.6	
	333	II-18	72575	15	75135	2.73	205119	4.23	27.06	29.32	86.8	

Table 15 Reserves Estimation for the Lomoteng Mining Area Unit: 10,000 tons

Orebed number	Codes of mineral resources	Amount	Grade (%)			Mn/TFe	Remarks
			Mn	TFe	Mn+TFe		
I	332	976.5	3.82	42.74			①: The total stripping ration of the ore deposits is 6.27 : 1
	333	785.8	3.78	41.16			
	332+333	1762.3	3.8	42.04			
I	332	7275.7	26.07	25.15	51.22	1.04	②: The indicated mineral resource (UNFC Code 332) is 73% of total mineral resource.
	333	2128.3	25.28	25.77	51.05	0.98	
	332+333	9404	25.89	25.29	51.18	1.02	
II	332	1408	24.84	26.56	51.40	0.94	
	333	983.5	26.62	25.01	51.63	1.06	
	332+333	2391.5	25.65	25.86	51.51	0.99	
I + II	332	8683.7	25.90	25.34	51.24	1.02	
	333	3111.8	25.70	25.53	51.23	1.01	
	332+333	11795.5	25.85	25.39	51.24	1.02	
Total	332	9660.2					
	333	3897.6					
	332+333	13557.8					

Note: The grade of total reserves amount has not calculated because there are two kinds ores—iron ores and iron-manganese ores.

Table 16 Estimation for the Stripping Volume of Overburden

Ore block No.	Projected area (m ²)	Avg. dip angle (°)	Slope area (m ²)	Avg. thickness (m)	Volume (m ³)
1	58675	15	60745	72.25	4388814
Slope 1	14313	15	14818	36.13	535371
2	41625	25	45928	72.25	3318306
Slope 2	44520	25	49122	36.13	1774792
3	131850	14	135886	64.78	8802721
4	83575	14	86134	49.67	4278253
5	83200	8	84018	27.46	2307125
6	38600	17	40354	35.08	1415959
7	166100	16	172794	5.70	9846924
8	18725	46	26956	11.50	309991
9	43375	22	46781	97.21	4547624
Slope 3	59500	22	64173	48.61	3119441
10	108100	20	115038	76.70	8823385
11	160225	14	165130	50.85	8396864
12	156700	10	159117	34.31	5459316
13	65150	13	66864	20.89	1396783
14	101325	15	104899	11.24	1179069
15	37325	40	48724	11.51	560817
16	45175	17	47239	127.92	6042829
Slope 4	63315	17	66208	63.96	4234662
17	140600	17	147024	98.35	14459836
18	159250	13	163439	64.80	10590843
19	137375	16	142911	40.89	5843636
20	65375	17	66362	19.46	1330326
21	47750	17	49932	5.88	293599
22	37500	18	39430	0.60	23558
23	46625	18	49024	117.08	5739780
Slope 5	57020	18	59954	58.54	3509729
24	160700	15	166369	88.94	14796848
25	172075	12	175919	88.94	15646359
26	144900	15	150012	25.66	3849296
27	52375	16	54486	97.15	5293284
Slope 6	39015	16	40587	48.58	1971730
28	158255	14	163100	70.39	11480592
29	145020	9	146828	37.62	5523658
30	81725	12	83551	21.39	1787151
31	112350	18	118132	9.82	1160064
32	58350	18	61353	45.76	2807513
Slope 7	32291	18	33953	22.86	776839
33	52929	17	55347	42.35	2343963
34	68315	13	70625	21.03	1485246
35	29200	22	31493	13.79	434288
					183025174

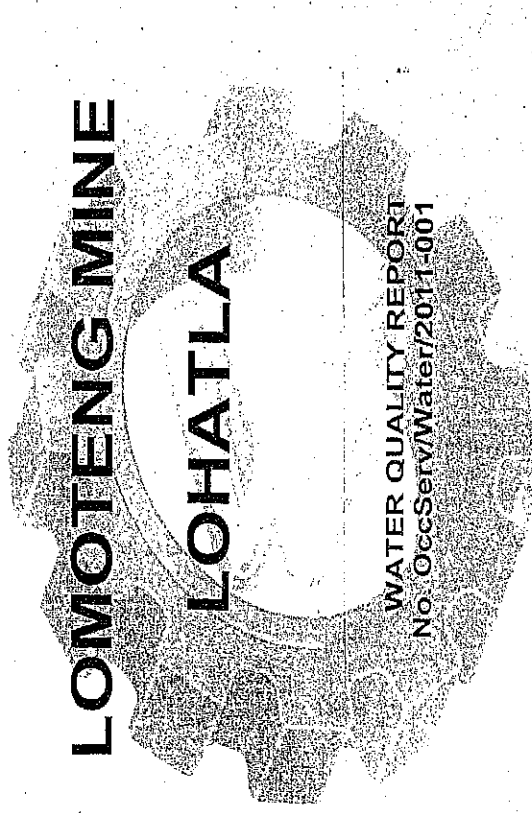
Table 17 Estimation for the Stripping Volume of Tailings

Ore block No.	Projected area. (m ²)	Avg. dip angle (°)	Slope area (m ²)	Avg. thickness (m)	Volume (m ³)
(4)	83575	14	86134	0.18	15504
(5)	83200	8	84018	0.53	44529
(7)	166100	16	172794	0.75	129595
(8)	18725	46	26956	0.82	22104
(9)	43375	22	46781	1.00	46781
(10)	108100	20	115038	0.38	43714
(11)	160225	14	165130	0.70	115591
(12)	156700	10	169117	1.31	208444
(13)	65160	13	66864	0.99	66195
(14)	101325	15	104899	0.94	98605
(16)	45175	17	47239	1.47	69442
(17)	140600	17	147024	0.74	108798
(18)	159250	13	163439	1.54	251696
(19)	137375	16	142911	2.04	291539
(20)	65375	17	68362	0.38	25978
(23)	46625	18	49024	2.71	132856
(24)	160700	15	166369	2.20	366012
(25)	172075	12	175919	1.85	325451
(26)	144900	15	150012	1.91	286522
(27)	52375	16	54486	3.60	196148
(28)	158255	14	163100	2.65	432214
(29)	145020	9	146828	1.44	211432
(30)	81725	12	83551	1.42	118642
(31)	112350	18	118132	1.48	174835
(32)	58350	18	61353	1.86	114117
(33)	52929	17	55347	1.45	80254
(34)	68815	13	70625	0.77	504263
(35)	29200	22	31493	0.84	26454
					4057833

Table 18 Static Water Levels of Drill Holes

Borehole number	Borehole level (m.)	End hole depth (m.)	Aquifer	Rocks	Static water level (m.)		Observation date (Day, Month, Year)	Remarks
					Depth	Depth		
ZK1701	1347.826	26.48	Vgl	Dolomite	22.00	1325.826	2011.9.17	
ZK1702	1335.023	173.78	Vg	Slate	34.80	1300.223	2011.9.25	
ZK1703	1329.142	63.00	Vg	Slate	28.40	1300.742	2011.9.25	
ZK1101	1328.395	62.68	Vg	Sandy Slate	10.63	1317.765	2011.8.9	
ZK1102	1326.403	119.67	Vg	Quartzite	35.01	1291.393	2011.8.16	
ZK1103	1324.904	116.95	Vg	Sandy Slate	16.00	1308.904	2011.8.24	
ZK501	1378.597	50.85	Vgl	Krast Cave	43.28	1335.317	2011.9.3	
ZK502	1366.226	67.74	Vgl	Krast Cave	53.00	1313.226	2011.8.19	
ZK503	1330.647	80.23						Failure in hole, stable water level is
ZK504	1322.681	146.85	Vg	Slate	18.00	1304.681	2011.10.24	
ZK001	1395.790	95.95	Vg	Iron-Manganese Ore	76.20	1319.590	2011.8.30	
ZK002	1332.616	104.89	Vg	Quartzite	28.20	1304.416	2011.11.02	
ZK003	1324.771	171.62	Vg	Sandy Slate	34.00	1308.469	2011.10.06	
ZK601	1342.469	36.28			Dry			
ZK602	1431.014	60.94	Vg	Patchy Iron-Manganese Ore	22.60	1408.414	2011.08.19	
ZK603	1412.180	83.68	Vg	Sandy Slate	37.00	1375.180	2011.09.13	
ZK604	1375.391	92.88	Vg	Iron-Manganese Ore	80.88	1294.511	2011.10.13	
ZK605	1329.342	101.38	Vg	Sandy Slate	45.00	1284.342	2011.09.17	
ZK606	1323.614	159.03	Vg	Slate	39.00	1284.614	2011.10.20	
ZK1201	1441.587	60.68			Dry		2011.09.08	
ZK1202	1443.536	38.48			Dry		2011.09.10	
ZK1203	1433.722	107.95			Dry			
ZK1204	1385.330	68.68			Dry		2011.10.09	
ZK1205	1327.490	101.73	Vg	Quartzite	48.00	1279.490	2011.10.20	
ZK1206	1345.703	102.00		Slate	29.60	1316.103	2011.10.26	
ZK1801	1365.013	100.21			Dry		2011.10.22	
ZK1802	1341.779	95.71	Vg	Sericite Slate	58.00	1283.779	2011.10.05	
ZK1803	1334.406	150.00	Vg	slates	48.00	1286.406	2011.09.26	

Table 19 Bacteriological Water Analysis



OCCUPATIONAL HYGIENE SERVICES
OCCUSERV
T/A J C DAVEL OCCUPATIONAL HYGIENE SERVICES

The text is arranged vertically. 'OCCUPATIONAL HYGIENE SERVICES' is at the top in a standard sans-serif font. Below it is the company name 'OCCUSERV' in a large, bold, serif font. At the bottom, 'T/A J C DAVEL OCCUPATIONAL HYGIENE SERVICES' is written in a smaller sans-serif font.

Technical summary

of the surveying and mapping project
at the PIN2 section of the Lometeng Manganese Mine,
Northern Cape, South Africa



Hunan Geological Institute PRC



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CHAPTER ONE

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and northern sections of the mining area are undeveloped and depopulated, covered by thorny shrubs and in which wild animals live. Hence, these tough conditions have caused difficulties to conducting this project. The surveying and mapping project was undertaken at the time when autumn turned into winter. The weather was dry, and the UV intensity was strong.

3. Project Organization and Management

Before we entered into South Africa, our team compiled a technical plan after we accepted this surveying and mapping project. Then all the technicians joined a training programme for life safety, etiquette and etc. Meanwhile, all the required equipment were examined and maintained to ensure their normal use in South Africa. Spare parts for the equipment were also prepared for unexpected needs. The whole project was strictly completed according to the prescribed technical plan.

There were 9 technicians for this surveying and mapping project, as follows:

Name	Post	Pro. Title	Job	Remarks
Zeng Zhifang	Chief Engineer	Senior Engineer	Chief Supervisor	
Xiang Bo		Engineer	Supervisor	
Yang Yun		Assistant Engineer	Technical Supervisor	
Jiang Wenjie		Assistant Engineer	Outdoor-job Leader	
Li Ming		Surveyor	Operator	
Tang Yabin		Assistant Engineer	Indoor-job Leader	
Jiang Min		Assistant Engineer	Indoor Operator	
Mo Yexiong		Assistant Engineer	Indoor Operator	
Zhu Cuizhi		Technician	Indoor Operator	

topographic maps", GB/T 20257-2007 of the National Standards of the People's Republic of China.

(5) The technical plan and working programme designed for this project, and other standards and supplementary provisions needed for this project.

5. Previous Work

This surveying and mapping project was undertaken in South Africa, and no previous work was done. Thus, no original survey data could be utilized. The survey region needed to be identified through field reconnaissance.

CHAPTER 2 Methodologies

1. GPS Control Points and Data Observation

(1) GPS control points

3 first-order GPS control points were buried for this project, while 14 second-order GPS control points were set up. Thus, there were 17 control points in total, with average 2 control points/1Km², which could satisfy the requirements of the technical plan and the project. The surface above each GPS control point was casted with cement, which measured 20Cm X 20Cm. Cross-head screws were used as survey markers, nailed in the middle of the cement cast. The serial number of each control point, followed by the dates of casting, was engraved on the cement cast. All letters were headed to the north. First-order GPS control points were numbered as GPS-1, GPS-2, and ect., while second-order GPS control points were numbered as I-1, I-2, and etc.. No duplicate numbers were permitted, but empty numbers and skipped numbers were allowed.

(2) Data Observation

Since no local control points were available, an independent coordinate system, which similar to the WGS-84 coordinate system, was utilized for this project. This method was approved by the Consigning Institution and the Chief Supervisor. Firstly, the data from first-order GPS control points

Requirements for vertical accuracy are demonstrated by Table 5:

Orders	Vertical accuracy	Distance from the base station (km)	Observation Times
First-order	$\leq 3\text{cm}$ between times (same group) Less than 4cm between groups	≤ 5	2 times each, for 2 mobile stations
Second-order	$\leq 5\text{cm}$ between times (same group)	≤ 7	2 times

Table 5: Main technical requirements of vertical survey by GPS-RTK

After the burial of control points and the data observation, the locations of control points were recorded for future convenience.

(3) Measuring the Height Difference and Side Length

An analytical method was used by introducing a total station to measure the height difference and side length between two control points which could be seen directly from each other. At each observing point, the abovementioned height difference and side length were measured twice at different rod (prism) heights, averages were then calculated. Such results were compared with the data surveyed by GPS-RTK, and the differences were controlled under 5cm (+/-). Some measured side lengths were excluded and observed again, which did not reach such requirements. We measured 12 side lengths, including 16 control points. The maximum error of the horizontal distance was 0.048m, while the average error was 0.018m. The maximum error of the height difference was 0.046m, while the average error was 0.024m. Detail information can be seen as follows:

performed. A single base station was used when we were slowly moving and collecting data. The distance between the receiver and the base station was fewer than or equal to 10Km, while epochs were greater than or equal to 10. When GPS-RTK satellite singles were weak, total stations were employed for collecting the data. Intensive data collection was carried out in the irregularly shaped terrain to delineate and densify topographic features. Meanwhile, topographic data were collected according to the prescribed requirements in the flat areas. Such collected data can be adjusted according to the prescribed requirements.

(2) Mapping with collected data

As required and designed for this survey project, the initial mapping ratio for the survey area is 1:2000, and then a topographic map in map scale 1:5000 was generated accordingly. SOUTH CASS7.0 Mapping System was used for the mapping process. After the field work, original data were assorted and saved in the laptops on a daily basis. No data should be overly stocked in the survey devices. All data were numbered in the same way (with date or unified code), and stored in one laptop. The data of ground objects were assorted and edited on the same day. Then, DTM and contour lines, with contour interval of 2 meter, could be generated after all other height data had been collected. Due to the operational needs of the mine, certain ground objects were displayed in the map as below:

1. Noticeable buildings (such as houses, bunk houses and board houses etc.) are drawn to scale correspondingly;
2. All roads for vehicles inside of the mining zone are shown as "internal roads".
3. Only electric transmission wires of the mining area are shown in the map. In contrast, wires between electric poles are not drawn. When there are too many ground objects around the same spot, poles can be ignored. Poles equipped with transformers must be measured in field, and drawn on the map.
4. Mining pits in the mining area are measured in field and shown in the map, but without specific lines showing geologic features. Mining pits are

7	Height point	1432.6	1432.6	0.0
8	Height point	1429.2	1429.2	0.0
9	Height point	1428.7	1428.6	0.1
10	Height point	1427.1	1427.3	0.2
11	Height point	1423.8	1423.8	0.0
12	Height point	1421.0	1421.0	0.0
13	Height point	1414.6	1414.4	0.2
14	Height point	1413.3	1413.2	0.1
15	Height point	1407.4	1407.4	0.1
16	Height point	1400.9	1400.9	0.0
17	Height point	1394.1	1394.0	0.1
18	Height point	1390.5	1390.3	0.2
19	Height point	1387.0	1386.0	1.0
20	Height point	1386.1	1386.1	0.0
21	Height point	1388.7	1388.7	0.0
22	Height point	1394.8	1394.7	0.1
23	Height point	1393.8	1393.8	0.0
24	Height point	1394.5	1394.4	0.1

43	Height point	1331.0	1331.0	0.0
44	Height point	1331.0	1331.0	0.0
45	Height point	1329.0	1328.8	0.2
46	Height point	1325.9	1325.9	0.0
47	Height point	1323.9	1323.9	0.0
48	Height point	1323.1	1323.2	0.1
49	Height point	1322.2	1322.1	0.1
50	Height point	1321.9	1321.9	0.0
51	Height point	1322.7	1322.6	0.1
52	Height point	1323.2	1323.1	0.1
53	Height point	1453.0	1452.9	0.1
54	Height point	1453.8	1454.5	0.7
55	Height point	1452.2	1451.6	0.6
56	Height point	1454.3	1454.3	0.0
57	Height point	1454.5	1454.4	0.1
58	Height point	1451.0	1451.0	0.0
59	Height point	1447.1	1447.0	0.1
60	Height point	1444.2	1443.9	0.3

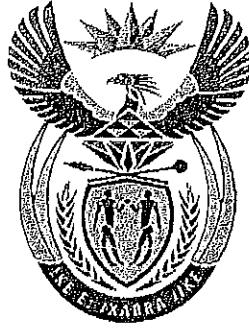
79	Height point	1372.2	1372.0	0.2
80	Height point	1369.8	1369.4	0.4
81	Height point	1363.3	1363.0	0.3
82	Height point	1354.7	1354.6	0.1
83	Height point	1351.5	1351.4	0.1
84	Height point	1353.5	1353.5	0.0
85	Height point	1355.7	1355.6	0.1
86	Height point	1356.7	1357.3	0.6
87	Height point	1357.0	1357.6	0.6
88	Height point	1347.5	1347.3	0.2
89	Height point	1339.5	1339.2	0.3
90	Height point	1331.5	1331.3	0.2
91	Height point	1343.8	1343.9	0.1
92	Height point	1338.7	1338.9	0.1
93	Height point	1334.1	1334.0	0.1
94	Height point	1329.5	1329.6	0.1
95	Height point	1436.4	1436.4	0.0
96	Height point	1431.8	1431.7	0.1

CHAPTER 3 Submitted Results and Documents

1. The technical plan of this surveying and mapping project.
2. The related data of control point
 - (1) Sorted data of control point
 - (2) Results table of control point
 - (3) Station description of control point
 - (4) General view of Control point
3. The related data of topographic mapping
 - (1) Topographic sheet in 1:2000 (CAD Format)
 - (2) Topographic sheet in 1:2000 (MAPGIS Format)
 - (3) Topographic sheet in 1:2000 (50 X 50 Cm in size)
 - (4) Topographic sheet in 1:5000 (CAD Format)
 - (5) Topographic sheet in 1:5000 (MAPGIS Format)
4. The related data of accuracy test
 - (1) The accuracy test for the side lengths of control points
 - (2) The accuracy test for topographic data
5. The technical summary of this surveying and mapping project.
6. A disk containing the abovementioned data.

RECEIVED BY
MEO LESURE
WPCO-LU
Abur
21/10/2010

DME 386



DEPARTMENT: MINERALS AND ENERGY
REPUBLIC OF SOUTH AFRICA

MINING RIGHT

Granted in terms of section 23(1) of the Mineral and Petroleum Resources Development Act, 2002
(Act No. 28 of 2002)

Minerals and Energy for Development and Prosperity

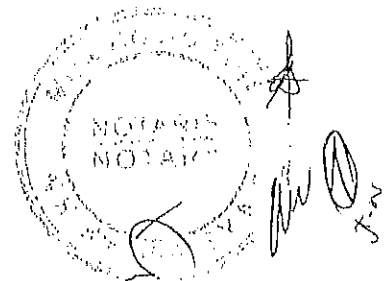
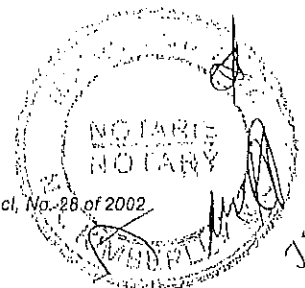


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Protocol No ⁹⁵ 1-2-/2010
File Ref No (NC)240MR
Application No

LET IT HEREBY BE MADE KNOWN:

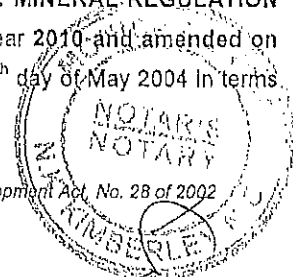
THAT on this 13TH day of August in the year 2010, before me, Monica du Toit a Notary Public, duly sworn and admitted, residing and practising at Kimberley, in the Northern Cape Province of South Africa, and in the presence of the subscribing competent witnesses, personally came and appeared:

Pieter Frederik Swart, Regional Manager, Northern Cape Region of the Department of Minerals and Energy, and as such in his / her capacity as the duly authorised representative of:

THE MINISTER OF MINERALS AND ENERGY

The said Regional Manager, being duly authorised thereto under and by virtue of a Power of Attorney granted by the **DIRECTOR-GENERAL OR DEPUTY DIRECTOR-GENERAL: MINERAL REGULATION** of the Department of Minerals and Energy on the 21st day of June in the year 2010 and amended on 11th August 2010 in terms of the powers delegated by the Minister on the 12th day of May 2004 in terms of section 103 (1) of the Act,

Mining Right: Granted in terms of Section 23 of the Mineral and Petroleum Resources Development Act, No. 28 of 2002



AND

Phemelo Sehunelo in his personal capacity or as the sole member of Adistra 11 CC, Registration number:

2	0	0	5	/	0	6	7	2	3	6	/	2	3	
---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

(Hereinafter together with his/her/its successors in title and assigns referred to as "the Holder".

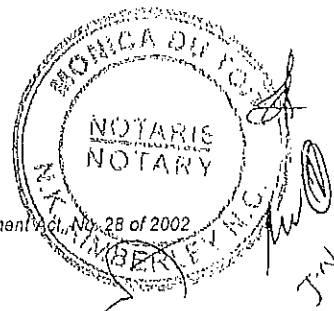
AND THE MINISTER AND HOLDER DECLARED THAT:

WHEREAS The State is the custodian of the Nation's mineral and petroleum resources in terms of section 3 of the Act.

AND WHEREAS The Holder has applied for a mining right in terms of section 22 of the Act,

AND WHEREAS The **DIRECTOR-GENERAL OR DEPUTY DIRECTOR-GENERAL: MINERAL REGULATION** of the Department of Minerals and Energy has by virtue of powers delegated to him, granted to the Holder, a mining right in terms of section 23(1) of the Act.

NOW THEREFORE THE MINISTER GRANTS A MINING RIGHT SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:



Definitions

In this mining right, the following words and expressions shall have the meanings assigned to them:

'Act' means the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and includes the Regulations, guidelines, circulars, directives and orders made in terms of that Act;

'Effective date' means 13th day of August in the year 2010 (being the date on which the environmental management programme is approved in terms of section 39(4) of the Act);

'Environmental Management Programme' is as defined in the Act and includes any other Environmental Management Programme approved in terms of the previous mining legislation;

'Financial year' means a complete financial year of the Holder which, at the time of the granting of this mining right, commences on 31st day of March in the year 2010; and ends on 28th day of February in the year 2011;

'Holder' is as defined in the Act, and specifically in relation to this right, it means Adistra 11 Cc, Registration No/Identification No 200506723623;

'Mineral' is as defined in the Act, and specifically in relation to this right means Manganese and Iron Ore;

'Mining Area' is as defined in the Act and includes any additional area of environmental liability as may be reflected on the Environmental Management Programme relating to this right;

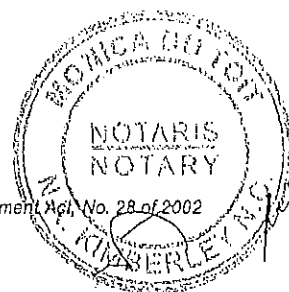
'Mining right' is as defined in the Act and includes all the Annexures to it, agreements and Inclusions by reference;

'Mining Work Programme' is as defined in the Act and as reflected in the attached Annexure A to this mining right;

'Minister' means the Minister of Minerals and Energy and includes the successors in title, the assignee or any person duly authorised to act in the Minister's place and stead;

'Regional Manager' is as defined in the Act and specifically in relation to this right means the Regional Manager for the Northern Cape Region of the Department of Minerals and Energy; and

'Social and Labour Plan', is as contemplated in regulation 46 of the Regulations to the Act and is as reflected in the attached Annexure B to this mining right.



1. **Description of the Mining Area**

The Mining Area shall comprise the following:

Certain: **Farm Lomoteng No.669**

Situated: **In Magisterial/Administrative District of Kuruman**

Measuring: **6404.0460 hectares in extent.**

(In the case of various farms being involved, a list can be attached and referred to as Annexure N/A);

Which Mining Area is described in detail on the attached Diagram/plan marked Annexure C.

2. **Granting of Mining Right**

Without detracting from the provisions of sections 5 and 25 of the Act, the Minister grants to the Holder the sole and exclusive right to mine, and recover the mineral/s in, on and under the mining area for the Holder's own benefit and account, and to deal with, remove and sell or otherwise dispose of the mineral/s, subject to the terms and conditions of this mining right, the provisions of the Act and any other relevant law in force for the duration of this right.

3. **Commencement, Duration and Renewal**

3.1. This mining right shall commence on 13th August 2010 and, unless cancelled or suspended in terms of this clause 13 of this right and or section 47 of the Act, will continue to be in force for a period of 15 years ending on 12th August 2025.

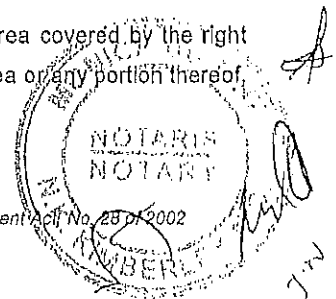
3.2. The Holder must commence with the mining operations within a year from the date on which the mining right becomes effective in terms of section 23 (5) of the Act, or any later date as may, upon a written request by the Holder, be authorised in writing by the Minister in terms of the Act, failing which this right may be cancelled or suspended.

3.3. Any application for renewal must be submitted to the Regional Manger not later than 60 working days prior to the date of expiry of this right.

4. **Amendments, Variation and Abandonment**

4.1. The terms of this right (including by extension of the area covered by it or by the addition of minerals or a share or shares or seams, mineralized bodies, or strata, which are not at the time the subject thereof) may not be amended or varied without the written consent of the Minister.

4.2. The Holder shall be entitled to abandon or relinquish the right or the area covered by the right entirely or in part. Upon abandonment or relinquishment of the mining area or any portion thereof, the Holder must:



4.2. The Holder shall be entitled to abandon or relinquish the right or the area covered by the right entirely or in part. Upon abandonment or relinquishment of the mining area or any portion thereof, the Holder must:

4.2.1. Furnish the Regional Manager with all prospecting and /or mining results and/or information, as well as the general evaluation of the geological, geophysical and borehole data in respect of such abandoned area in so far as it applies to the mineral or any other mineral/s obtained in respect of this right and,

4.2.2. Apply for a closure certificate in terms of section 43 (3) of the Act.

4.3 With effect from the date the Holder has abandoned or relinquished a portion or portions of the mining area, and subject to section 43 of the Act, the Minister is entitled to grant any right, permit, or permission referred to in the Act in, on, or under the portion/s, so abandoned or relinquished, to any person/s.

5. Payment of Royalties

5.1. The Holder shall as contemplated in section 25 (2) (g) pay to the State throughout the duration of this mining right, royalties payable in terms of any Act or Amendment to an Act of Parliament implemented.

6. Payment of Interest

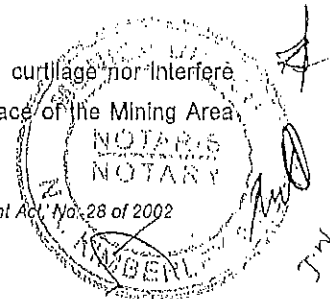
If mining fees, any fees, any levy, royalties or consideration referred to in clause 5 are not paid punctually, the Holder shall be in mora and shall pay interest thereon at the rate prescribed in terms of section 80 of the Public Finance Management Act, 1999(Act 1 of 1999) reckoned from the date on which payment is due and payable, to the date of actual payment.

7. Restrictions and Obligations Imposed on the Holder

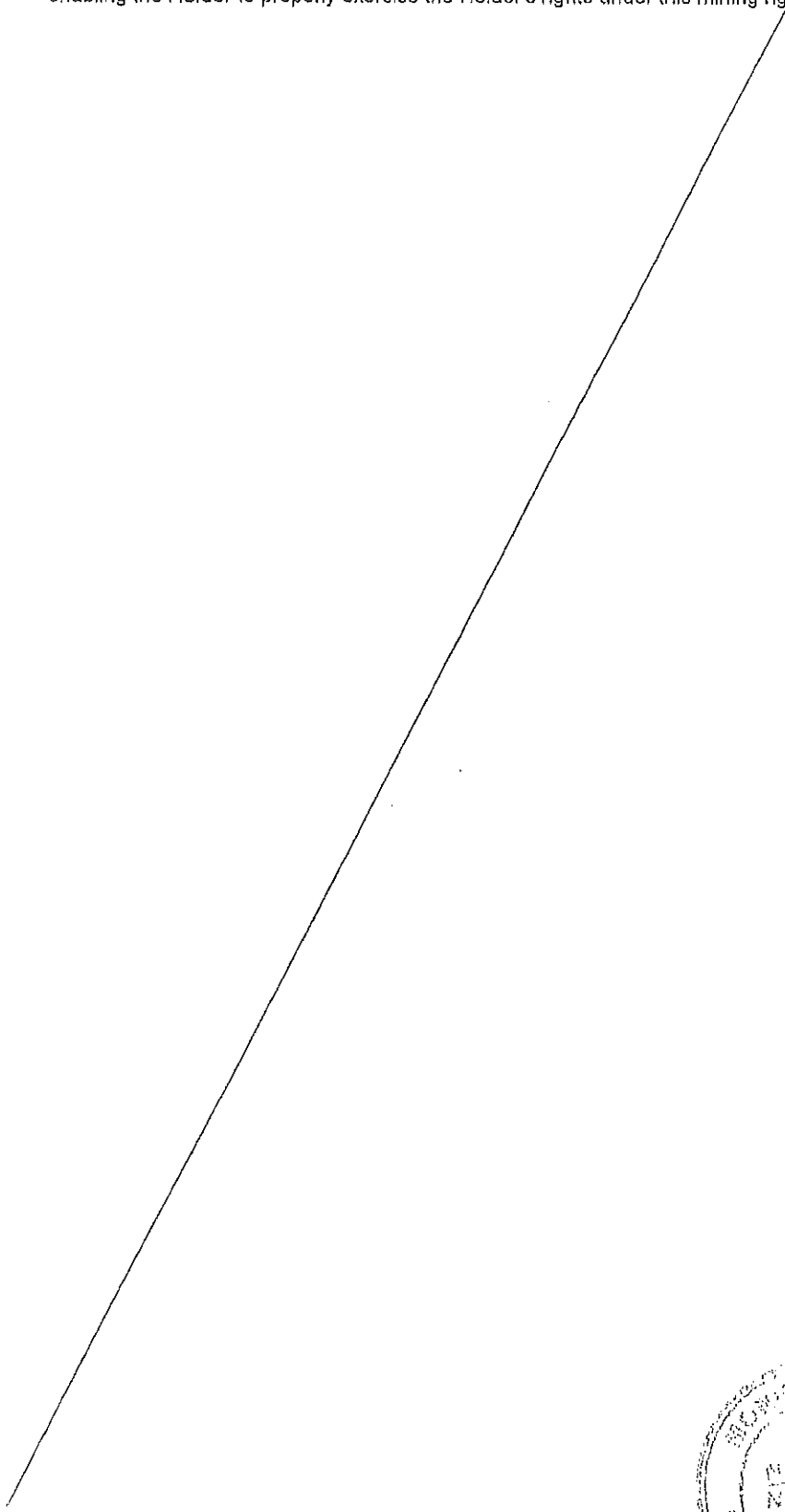
7.1 The Holder is entitled to the rights referred to in section 5(2), (3) and section 25 of the Act, and such other rights as may be contained in this mining right or such other right as may be granted to, acquired by or conferred upon the Holder by any other applicable law.

7.2 Mining operations in the mining area must be conducted in accordance with the Mining Work Programme and any amendment to such Mining Work Programme and an approved Environmental Management Plan.

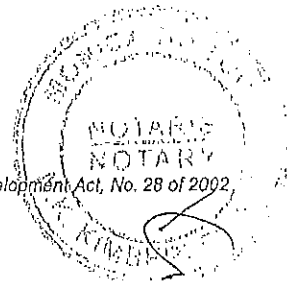
7.3 The Holder shall not trespass or enter into any homestead, house or its curtilage nor interfere with or prejudice the interests of the occupiers and/or owners of the surface of the Mining Area.



except to the extent to which such interference or prejudice is necessary for the purposes of enabling the Holder to properly exercise the Holder's rights under this mining right.



Mining Right: Granted in terms of Section 23 of the Mineral and Petroleum Resources Development Act, No. 28 of 2002.



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[Handwritten initials]
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8. Conditions on disposal of Minerals and/ or Products Derived from Mining

It is a condition of the granting of this mining right that the Holder shall dispose of all minerals and/ or products derived from the exploitation of the mineral at competitive market prices which shall mean in all cases, non-discriminatory prices or non-export parity prices. If the minerals are sold to any entity, which is an affiliate or non-affiliated agent or subsidiary of the Holder, or is directly or indirectly controlled by the Holder, such purchaser must unconditionally undertake in writing to dispose of the minerals and any products produced from the minerals, at competitive market prices.

9. Mortgage, Cession, Transfer, Alienation

9.1 This mining right, a shareholding, an equity, an interest or participation in the right or joint venture, or a controlling interest in a company, close corporation or joint venture, may not be encumbered, ceded, transferred, mortgaged, let, sublet, assigned, alienated or otherwise disposed of without the written consent of the Minister, except in the case of a change of controlling interest in listed companies.

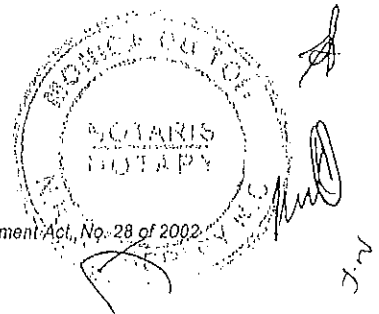
9.2 Any transfer, encumbrance, cession, letting, sub-letting, assignment, alienation or disposal of this right or any interest therein or any share or any interest in the Holder, without the consent of the Minister referred to in section 11(1) is of no force, no effect and is invalid.

10. Protection of Boreholes, Shafts, Edits and Openings.

All boreholes, shafts, edits, excavations, and openings sunk or made, by the Holder during the currency of this mining right shall be sealed, closed, fenced, made safe by the Holder in accordance with the approved Environmental Management Programme, the Mine Health and Safety Act, 1996 or any other applicable laws and Regulations.

11. Holder's liability for payment of Compensation for Loss or Damage

11.1. Subject to section 43 of the Act, the Holder shall, during the tenure of this right while carrying out the mining operations under this right, take all such necessary and reasonable steps to adequately safeguard and protect the environment, the mining area and any person/s using or entitled to use the surface of the mining area from any possible damage or injury associated with any activities on the mining area.



- 11.2. Should the holder fail to take reasonable steps referred to above, and to the extent that there is legal liability, the holder shall compensate such person or persons for any damage or losses, including but not limited to damage to the surface, to any crops or improvements, which such person or persons may suffer as a result of, arising from or in connection with the exercise of his/her rights under this mining right or of any act or omission in connection therewith.

12. Inspection of Mining Area

The Minister and/or any person duly authorised thereto in writing by the Minister shall be entitled to inspect the mining area, the Holder's mining operations and the execution of the approved Environmental Management Programme on the Mining Area as provided for in the Act, and any instruction conveyed in writing by the Minister to the Holder requiring the proper performance by the Holder of the Holder's obligations under this mining right shall be put into effect by the Holder in terms of the Act.

13. Cancellation or Suspension

- 13.1 Subject to section 47 of the Act, this mining right may be cancelled or suspended if the Holder:
- 13.1.1 Submits inaccurate, incorrect and or misleading information in connection with any matter required to be submitted under the Act;
 - 13.1.2 Fails to honour or carry out any agreement, arrangement, or undertaking, including the undertaking made by the Holder in terms of the Broad Based Socio Economic Empowerment Charter and Social and Labour plan, on which the Minister relied for the granting of this right;
 - 13.1.3 Breaches any material term and condition of this mining right;
 - 13.1.4 Conducts mining operations in contravention of the provisions of the Act;
 - 13.1.5 Contravenes the requirement of the approved Environmental Management Programme; or
 - 13.1.6 Contravenes any provisions of this Act in any other manner.
- 13.2 Before the Minister cancels or suspends this right, the Minister shall:
- 13.2.1 Give written notice to the Holder indicating the intention to suspend or cancel this right;
 - 13.2.2 Give reason/s why the Minister is considering the suspension or cancellation of this right;
 - 13.2.3 Give the Holder 30 days to show reasons why the right should not be suspended or cancelled;
 - 13.2.4 Notify, the mortgagee (if any), of the intention to suspend or cancel this right; and
 - 13.2.5 Direct the Holder, where it is possible to remedy any contravention, breach or failure, to comply or to take such specified measures to remedy any contravention, breach or failure to comply.
- 13.3 If the Holder does not take the measures as specified by the Minister to remedy a contravention, breach or failure, the Minister may cancel or suspend this right after considering representations made by the Holder in terms of clause 13.2.3.



14. Records and Returns

- 14.1. The Holder shall maintain all such books, plans and records in regard to mining on the Mining Area as may be required by the Act and shall furnish to the office of the Regional Manager such reports and documents as may be relevant under this right.
- 14.2. The Holder shall furnish to the Regional Manager all such monthly returns contemplated in section 28 (2) A of the Act not later than the 15th day of the month following the month in respect of which it was reported.
- 14.3. The Holder shall furthermore at the end of each year following commencement of this mining right, inform the Regional Manager in writing of any new developments and of the future mining activities planned in connection with the exploitation/mining of the minerals on the Mining Area.

15. Minister's Liability for Compensation

The Minister shall not at any time be liable or responsible for the payment of compensation of whatever nature to the Holder, the Holder's successors-in-title or assignee, or any person whomsoever as a result of the granting of this right.

16. Compliance with the Laws of the Republic

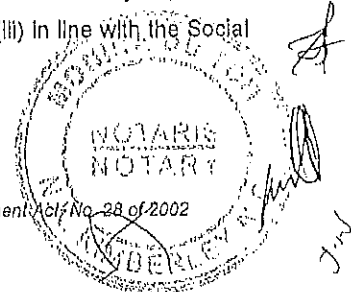
The granting of this Right, does not exempt the Holder and its successors in title and/or assigns from complying with the relevant provisions of the Mine Health and Safety Act, (Act No.29 of 1996) and any other law in force in the Republic of South Africa.

17. Provisions relating to section 2(d) and (f) of the Act

In the furthering of the objects of this Act, the Holder is bound by the provisions of an agreement or arrangement dated 23 and 29 June 2009 entered into between the Holder/ empowering partner and Lidino Trading 514 CC (the empowerment partner) which agreement or arrangement was taken into consideration for purposes of compliance with the requirements of the Act and or Broad Based Economic Empowerment Charter developed in terms of the Act and such agreement shall form part of this right.

18. Social and Labour Plan

- 18.1 The holder must annually, not later than three months before the end of its financial year, submit detailed Implementation plan to give effect to Regulation 46(e)(i),(ii) and (iii) in line with the Social and Labour Plan.



18.2 The holder must annually, not later than three months after finalisation of its audited annual report, submit a detailed report on the implementation of the previous year's social and labour plan.

19. Severability

Notwithstanding anything to the contrary, any provision of this mining right which is contrary to any provision of the Act or which is otherwise ultra vires, null and void, voidable, or unenforceable, shall be severable from the rest of this right, such rest thus being and remaining of full force, effect and enforceable.

20. Domicilia citandi et executandi

20.1. The parties hereto choose the following addresses as their *domicilia citandi et executandi* and for all purposes arising from this mining right, in particular for the purposes of serving of any notice in terms of this mining right, and any notice properly addressed to the under mentioned postal addresses of the parties shall be deemed to have been received by the addressee within 14 days if given in writing and posted by prepaid registered post addressed to the addressee at the relevant postal address:

20.1.1. In the case of the Minister:

Physical Address	Postal Address
Liberty Corner Building, 29-31 Currey Street, Kimberley Code 8301 Tel 053 807 1700 Fax 053 832 5631	Private Bag X6093 Kimberley 8300

20.1.2. In the case of the Holder:

Physical Address	Postal Address
88 Du Toitspan Road Kimberley Code 8301 Tel 053 831 5030 Fax 0865685913	88 Du Toitspan Road Kimberley 8301

20.2. Notwithstanding anything to the contrary herein contained, a written notice or communication actually received by a party at any place other than the chosen *domicilia citandi et executandi*

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shall constitute adequate notice or communication to the party notwithstanding that it was not sent to or delivered at such party's chosen *domicilium citandi et executandi*.

20.3 Either party shall be entitled from time to time to change the *domicilla citandi et executandi* or postal address furnished above after giving at least 14 days prior written notice of such change to the other party, failing which the above mentioned addresses will remain in force.

20.4 Any written notice or communication contemplated in this clause which is forwarded by one party to the other by registered post will be presumed to have been received by the addressee on the fourteenth day following the date of posting from an address within the Republic of South Africa to the addressee at the postal address of the addressee for the time being as determined in accordance with the provisions of this clause.

21. Costs

The Holder shall pay all costs and charges incurred in connection with the execution and registration of this prospecting right.

Thus done and signed at Kimberley on the 13th day of August in the year 2010 in the presence of the undersigned witnesses:

AS WITNESS:

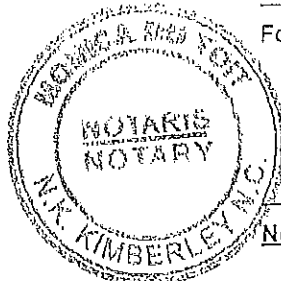
J. J. van der Merwe

[Signature]
For and on behalf of the Minister

AS WITNESS:

[Signature]

[Signature]
For and on behalf of the Holder



[Signature]
Notary Public

Deed of

~~11/2011~~
~~11/2011~~

PROTOCOL NO. 249/2011

NOTARIAL DEED OF CESSION OF A MINING RIGHT

BE IT HEREBY MADE KNOWN:

THAT on this the 20th day of April in the year 2011, before me

DIPESH JASMAT

Notary Public by lawful authority duly admitted and sworn, residing and practising at **JOHANNESBURG** in the Province of Gauteng, in the Republic of South Africa, and in the presence of the undersigned witnesses, personally came and appeared

ELIZABETH PETRO VAN VUUREN

In her capacity as the duly authorised attorney and agent of



- (1) **ADISTRA 11 CC**
(Registration Number 2005/067236/23)

(hereinafter together with its successors in title and assigns, referred to as "the Cedant")

the said Appearer being duly authorised hereto by a Power of Attorney signed at Sandton on 17th February 2011 and granted to her by Phemelo Sehunelo in his capacity as the sole member and duly authorised representative of the Cedant, he being duly authorised thereto by virtue of a resolution of the sole member of the Cedant,

and

- (2) **MAIN STREET 811 (PROPRIETARY) LIMITED**
(Registration Number 2010/009049/07)

(hereinafter together with its successors in title and assigns, referred to as "the Cessionary")

the said Appearer being duly authorised hereto by a Power of Attorney signed at Sandton on 17th February 2011 and granted to her by Phemelo Sehunelo in his capacity as director and duly authorised representative of the Cessionary, he being duly authorised thereto by virtue of a round robin resolution of the Board of Directors of the Cessionary,

copies of which Resolutions and Powers of Attorney have this day been exhibited to me the Notary Public, by the said Appearer and reside in my Protocol with the minute hereof.



AND THE APPEARER DECLARED THAT WHEREAS:

- A. The Cedant is the holder of the under-mentioned Mining Right granted to the Cedant in terms of the Mineral and Petroleum Resources Development Act, No. 28 of 2002 ("the MPRDA).
- B. The Cedant and Cessionary entered into a Sale of Mining Right Agreement dated 20 August 2010, in terms of which the Cedant sold and agreed to transfer the under-mentioned Mining Right to the Cessionary ("the Sale Agreement").
- C. The Sale Agreement was conditional upon the fulfilment of certain conditions precedent, all of which have either been fulfilled or waived in writing by mutual agreement between the parties.
- D. In terms of clause section 11 of the MPRDA, the Cedant is not entitled to cede its rights and obligations under the under-mentioned Mining Right without the written consent of the Minister of Mineral Resources.
- E. On 28 January 2011, the Director-General of the Department of Mineral Resources, by virtue of powers delegated to him, consented to the cession of the under-mentioned Mining Right to the Cessionary, a copy of which consent is attached hereto as Annex "A" and Initialed for purposes of identification.

NOW THEREFORE THESE PRESENTS WITNESS:

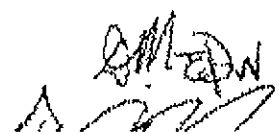
1. The Cedant hereby cedes, assigns, transfers and makes over to and in favour of the Cessionary all the Cedant's rights and obligations in and to the Mining Right executed on 13 August 2010, and registered in the Mineral and Petroleum Titles Registration Office on 21 September 2010 under registration number 91/2010, whereby the Cedant was granted the sole and exclusive right by the Minister of Mineral Resources to mine for manganese and iron ore in, on or under

the Farm Lomoleng No. 669

in the Magisterial District of Kuruman, in the Northern Cape Province

measuring 6404,0460 (Six Thousand Four Hundred and Four comma Nought Four Six Nought) hectares in extent,

as more fully appears from the plan relating thereto.

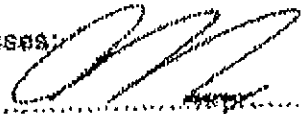
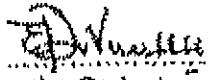


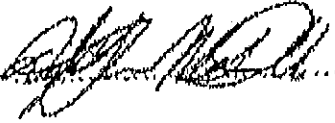
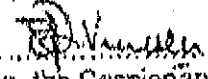
34(1)(b) 4
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- 2. The cession shall take effect on the date of registration hereof in the Mineral and Petroleum Titles Registration Office.
- 3. The Cessionary hereby accepts the cession of the aforementioned Mining Right, subject to all attendant obligations and subject to all terms and conditions of such Mining Right.
- 4. The purchase price payable by the Cessionary to the Cedant for the aforementioned mining right, in terms of the Sale Agreement, is R148 000 000.00 (One Hundred and Forty Eight Million Rand), exclusive of value-added tax ("VAT") levied or leviable in terms of the Value -Added Tax Act, No. 59 of 1991.

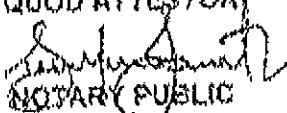
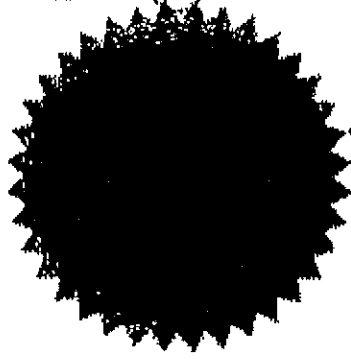
THUS DONE AND EXECUTED AT JOHANNESBURG in the presence of the undersigned witnesses and me, the Notary Public, on the date herein before mentioned:

Witnesses:

1.		

		q.q. the Cedant
2.		

		q.q. the Cessionary

QUOD ATTESTORI

 NOTARY PUBLIC




mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DMR 10

(NC) 30/5/12/2/240 MR

CONSENT IN TERMS OF SECTION 11(2) OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (ACT OF 2002) (HEREINAFTER REFERRED TO AS "THE SAID ACT") TO THE CESSION OF A MINING RIGHT HELD BY ADISTRA 11 CC (HEREINAFTER REFERRED TO AS "THE CEDENT") TO MAIN STREET 811 (PTY) LTD (HEREINAFTER REFERRED TO AS "THE CESSIONARY") AND THE TRANSFER OF A CONTROLLING INTEREST IN MAIN STREET 811(PTY) LTD TO SUPER MAYER INVESTMENT LIMITED.

1. WHEREAS a Mining Right has been granted, in terms of section 23 (1) of the said Act, to the cedent to mine manganese and iron ore on the farm Lomoteng 569, in the Administrative District of Kuruman.
2. WHEREAS the cedent and the cessionary have entered into an agreement with the object to cede the mining right to the cessionary, and the controlling interest in the cessionary will be transferred to Super Mayer Investment Limited.
3. WHEREAS the power to grant consent to the cession of a mining right and to a change in the controlling interest in the holder of a mining right, in terms of Section 11(2) of the said Act, has been delegated to me by the Minister of Minerals and Energy in terms of Section 103 of the said Act.
4. NOW THEREFORE, I, ADVOCATE SANDILE NOGXINA, in my capacity as Director-General of the Department of Mineral Resources, by virtue of the powers delegated to me, hereby grant consent to the cession of the said mining right to the cessionary and to the transfer of a controlling interest in the cessionary to Super Mayer Investment Limited.

DIRECTOR GENERAL

DATE: 28/01/2011