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Exploration and Evaluation

SINOSTEEL AUSTRALIA

Helen Springs Manganese Project

RC Drilling Program on EL 26534

Renner Springs, Northern Territory

By
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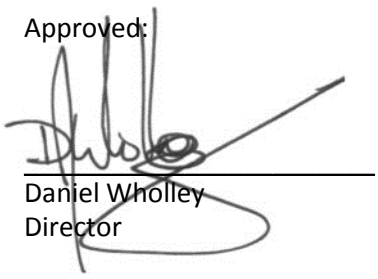

Daniel Wholley
Director

Executive Summary

A total of 2052m of RC drilling in 17 holes was completed on tenement EL 26534 on Helen Springs Station, NT on behalf of Sinosteel Australia Pty Ltd ("Sinosteel"). The drilling was carried out during the period 1/9/2011 to 9/9/2011.

The program was designed by Sinosteel and included proposed collar coordinates, inclinations, azimuths and hole depths. Targeting information was provided as either a "Mag" or an "EM" target. The programs were targeting Bootu Creek style manganese mineralisation and any type of mineralisation associated with postulated alkaline intrusive rocks.

No significant mineralisation was intersected in the drilling. Minor veinlets of a black mineral, thought to be manganiferous, were intersected within mafic saprolite in HSRC006; these assayed up to 0.78% Mn (39-40m). A metre width of the saprolite-saprock interface within mafics in HSRC016 is also weakly manganiferous and returned the highest assay of the program with 1.78% Mn and 345ppm Cu.

A mafic rock unit is considered to be wholly responsible for the aeromagnetic anomalism in the areas drill tested. It is unlikely that it is associated with the target mineralisation styles.

No obvious conductors were intersected in the majority of the drilling. As no information was provided as to the expected depth to the conductors or their relative intensity it is not possible to correlate them with the position of the unconformity surfaces, fracture zones or elements of the regolith and cover sequence, but aquifers at any of these sites could give rise to EM anomalies.

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1 Introduction

A total of 2052m of RC drilling in 17 holes (Table 1) was completed on tenement EL 26534 on Helen Springs Station, NT on behalf of Sinosteel Australia Pty Ltd ("Sinosteel"). The drilling was carried out during the period 1/9/2011 to 9/9/2011.

The 20 hole program designed by Sinosteel (Drillhole locations are shown in Figure 1) included inclinations, azimuths and hole depths. The program was targeting Bootu Creek style manganese mineralisation or mineralisation associated with postulated alkaline intrusive rocks.

Drilling was carried out by McKay Drilling who provided a Schramm T685 RC rig with booster, auxiliary and support vehicles. Drill-pads were cleared by W&S Stokes Contracting Pty Ltd using a loader.

The area of drilling is mostly flat with spinifex grass and generally sparse low scrub cover.

Table 1. Drillhole Location Data

Hole_ID	Total Depth (m)	Grid	Easting	Northing	RL-Nominal
HSRC001	102	MGA94_53	395098.00	7965600.0	250.0
HSRC002	78	MGA94_53	395075.00	7964620.0	250.0
HSRC003	84	MGA94_53	395200.00	7964812.0	250.0
HSRC004	60	MGA94_53	394365.00	7971400.0	250.0
HSRC005	120	MGA94_53	394775.00	7971500.0	250.0
HSRC006	96	MGA94_53	394650.00	7973220.0	250.0
HSRC007	90	MGA94_53	394527.00	7972524.0	250.0
HSRC008	100	MGA94_53	394065.00	7973090.0	250.0
HSRC009	120	MGA94_53	395840.00	7968680.0	250.0
HSRC010	216	MGA94_53	395300.00	7968685.0	250.0
HSRC011	100	MGA94_53	395761.00	7968916.0	250.0
HSRC012	144	MGA94_53	394800.00	7971675.0	250.0
HSRC013	240	MGA94_53	395275.00	7972755.0	250.0
HSRC014	180	MGA94_53	395412.00	7965170.0	250.0
HSRC015	114	MGA94_53	411104.00	7955573.0	250.0
HSRC016	100	MGA94_53	411200.00	7955365.0	250.0
HSRC020	108	MGA94_53	395100.00	7972900.0	250.0

A decision was made nearing the end of the program duration not to drill proposed holes 17, 18 and 19 (c.f. Figure 1) based on the results obtained from the drill holes outlined in Table 1.

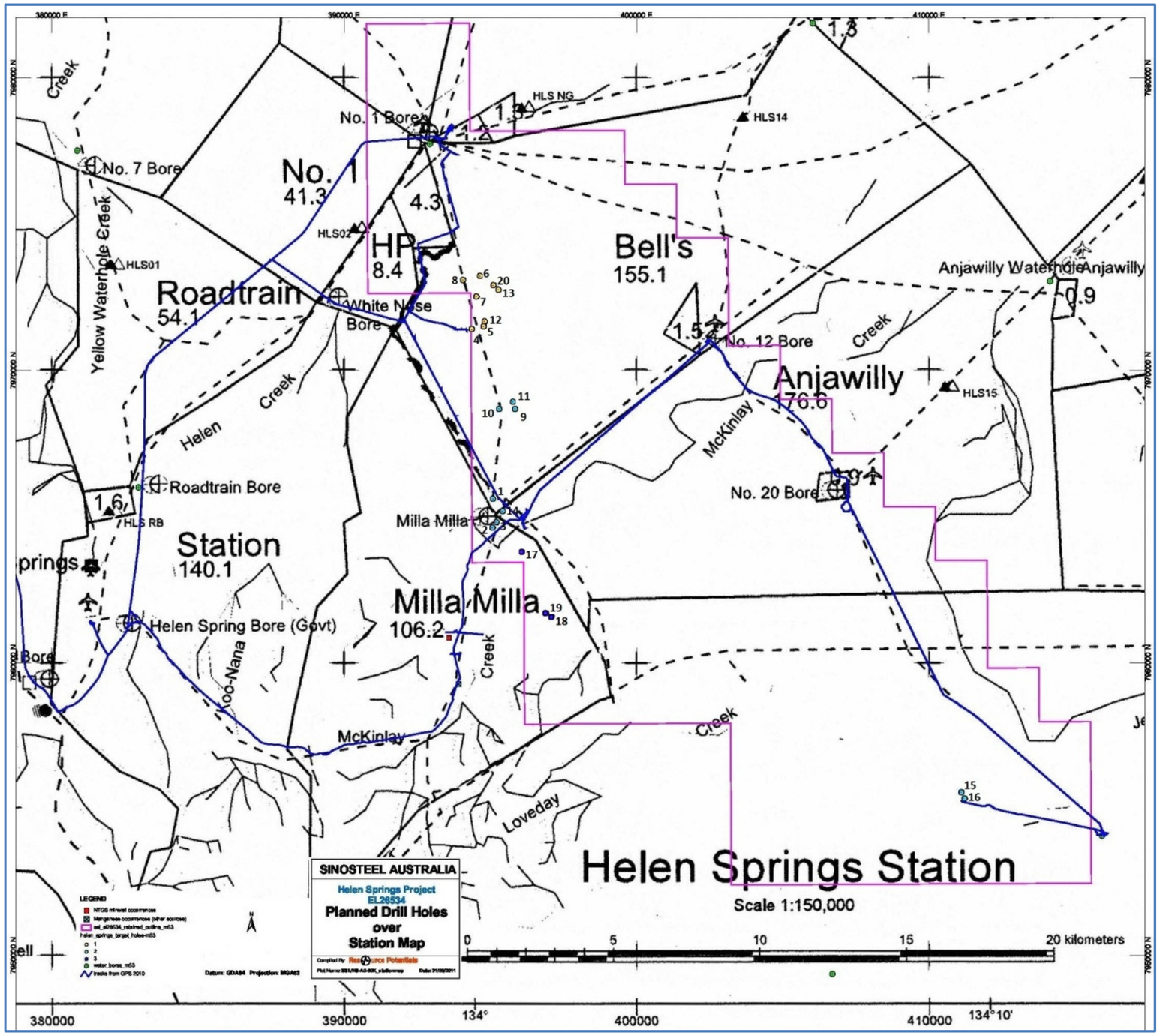

Figure 1. Helen Springs EL26534 actual and proposed drill hole locations

2 Geology

The immediate area of drilling is covered by Quarternary aeolian and alluvial sands with no outcrop, thus little was known of the underlying geology. Regional mapping by the NTGS/BMR (1:250K Helen Springs SE5310) suggests the area is underlain by Proterozoic Sediments of the Renner Group, under a thin veneer of unspecified Cambrian rock. Outcrops of Cambrian volcanics have been mapped to the west of the area of drilling. Geophysical interpretation by Sinosteel appears to have suggested that Proterozoic Sediments of the prospective Tomkinson Group may have continued under the Quarternary cover in the area of drilling.

All drill-holes intersected a veneer of Quarternary cover, overlying a mafic unit, which in turn un-conformably overlies a variable sedimentary package. The generalised stratigraphy comprises a thin veneer (1-6m) of aeolian sands and variably lateritised alluvium (5-25m) overlying a silcrete zone which is often gradational into a pallid zone of uncertain origin; it may be a silicified carbonate or siltstone (5-15m), rarely with a basal poorly consolidated sandstone. Unconformably below this lies a medium grained mafic rock, which in most holes is weathered to clay saprolite. In a few holes the mafic is clearly identifiable as a medium to coarse grained dolerite. In holes HSRC006, 008, 013, 020, 007,012,009,010 and 011 the mafic is a relatively uniform 20-35m thick, and is possibly horizontal or gently dipping. In holes 001,014, 002 and 003 the thickness is far greater, to 125m+ in hole HSRC014. Directly below the base of the mafic, where it was intersected, is a more weathered, sometimes vuggy ferruginous and clayey zone (1-5m thick).

Underlying this is a variety of sediments; in the Northern most holes (HSRC006, 013, 020, 007, 012) it is dolomitic sandstone, in HSRC004 and 005 to the NW it is a dolomitic siltstone. In holes HSRC009, 010, 011 the sediment consists of massive, slightly hematitic moderately well-sorted quartz-arenites. Holes 001, 003 and 014 bottomed in fresh basalt. Hole 014 was different from most other drill-holes in that a 30m section of coarse sandstone was intersected above the mafic unit. Both holes 001 and 014 intersected lithified interbeds of similar coarse poorly sorted sandstone within the mafics. Holes HSRC015 and 016 to the far south intersected banded siltstone or mudstone below the 45-50m thick mafic unit. These consist of alternating layers of grey carbonaceous sediment and green chloritic (?), possibly tuffaceous sediment.

3 Interpretation of the Stratigraphy

The mafic unit should probably be assigned to the Cambrian Helen Springs Volcanics; associated interflow and overlying sandstones (eg HSRC014) would belong to the Muckaty Member. The leached, sometimes karstic ferruginous basal contact of the mafics can thus be interpreted as a palaeo-surface representing the Cambrian unconformity at the contact with the underlying Proterozoic; the variety of sediment types intersected below the mafics suggests the unconformity is angular. The thickness of the mafics intersected in HSRC014 is much greater than in the other holes; however, this is probably the only hole in which apparent Cambrian sediments overlying the mafic have been preserved; in all other holes the sediments overlying the mafic unit appear to be more recent (not lithified, although this is difficult to determine in the weathered regolith), and the top contact is likely to be an unconformable erosion surface, so that only part of the mafic unit remains.

The siltstones/mudstones intersected in HSRC015 and 16 may be tuffaceous; it is likely that they belong to the Tomkinson Group.

Correlation of the other Proterozoic sediments intersected in the holes with the known stratigraphy may be possible by a geologist familiar with the region, but given the similarity in descriptions and the sparseness of the drilling data correlation is not possible.

4 Geophysical Signature

The mafics are strongly magnetic due to fine disseminated magnetite and have a magnetic susceptibility of 300-2000x10^{-5} SI units. The quartz arenites have a weak to moderate magnetic signature (0-250x10^{-5} SI), which may be attributable to frequently observed detrital magnetite grains and/or hematite in the matrix. The dolomitic sandstones, siltstones, mudstone and recent cover have negligible magnetic susceptibility.

Of importance to note is the decline in the magnetic signature of the mafics with intensity of weathering. Weathered mafic rock and mafic textured saprock retain their magnetite content to a large degree, but clay saprolite derived from the mafics often has only low magnetic susceptibility due to the conversion of magnetite to hematite-goethite. As the mafics appear to form a widespread blanket over the drilled area, the patterns in the aeromagnetics over the area are not only influenced by the presence and absence and thickness of the mafics, but importantly also by the depth and intensity of oxidation; this helps to explain the patterns seen in the magnetic imagery over the Helen Springs area.

Sandstone interbeds in holes HSRC001 and 014 are aquifers; their depth should be checked against any available EM pseudosections as it seems likely that they are the cause of the EM anomalies. Elsewhere EM anomalies can probably also be related to weak salinity variations in aquifers on lithological, structural or regolith contacts. Fresh basalt intersected in HSRC014 contains accessory pyrite, but at <0.1% it is unlikely that this is the cause of the EM anomalies.

5 Mineralisation

No significant mineralisation was intersected during the drilling program. Minor veinlets of a black mineral, interpretted to be manganiferous, were intersected within mafic saprolite in HSRC006; these assayed up to 0.78% Mn (39-40m). A metre width of the saprolite-saprock interface within mafics in HSRC016 is also weakly manganiferous and returned the highest assay of the program with 1.78% Mn and 345ppm Cu.

None of the above is suggestive of economic mineralisation; the weakly manganiferous zones appear to be associated with redox processes in the weathering profile.

Very little quartz veining was noted in any of the rocks. Samples of quartz veined material did not return any significant assay results. No significant alteration was observed, apart from weathering related hematitisation.

6 Sampling

A 1-3kg sample was split from every metre drilled using a cone splitter. Most of these samples remain at the drill site as only a few samples were interpreted to be worth analysing. A total of 41 samples were assayed by Amdel Mineral laboratories for a suite of elements (Ag, As, Bi, Ca, Cr, Cu, Fe, Mg, Mn, Ni, P, Pb, Ti, V and Zn). The entire sample was ring-milled in a LM5 to 85% passing 75 micron; a 250g split of the pulp was taken. Analysis was by ICP-OES after a multi-acid digest. Appendix 1 details the assay results.

A small sieved sample of every metre drilled is preserved in chip trays which are presently stored at CSA Global's Darwin office.

7 Drilling

Drilling conditions are considered as good. An average penetration rate of approximately 275m/day was achieved. Most samples were dry with little groundwater in-flows in most holes, although some distinct aquifers could be identified, especially at the base of the mafic units.

Bottom of hole surveys were carried out on all angled holes apart from HSRC006 (the camera was not available) and on the deeper vertical holes. The down-hole digital camera recorded more variation in the earth's magnetic field than expected; it is possible that some of the azimuth readings obtained have been aversely influenced by proximity to the hammer, non-stainless rods or magnetic rocks, although deviations from the expected azimuth are within normal parameters for RC drilling, and are relatively consistent from hole to hole.

8 Rehabilitation

Rubbish was removed from all drill-sites, collar pipes were removed and holes were permanently capped using cement plugs.

Sample piles were levelled out over the pads using a grader.

The area is covered by Aeolian sands which are still mobile, which means that the pads will quickly become indistinguishable from the surrounding area.

9 Conclusions

The mafic rock unit is considered to be wholly responsible for the aeromagnetic anomalism in the areas drill tested. It is highly unlikely that it is associated with the types of mineralisation sought.

No obvious conductors were intersected in the drilling. As no information was provided as to the expected depth to the conductors or their relative intensity it is not possible to correlate them with the position of the unconformity surfaces, fracture zones or elements of the regolith and cover sequence, but aquifers at any of these sites could give rise to EM anomalies.

The carbonaceous mudstones in holes HSRC015 and 016 may be responsible for EM anomalies in this area.

While 3 proposed holes were not drilled, all three holes were aimed at “mag” targets with a similar geophysical signature to those drilled; it seems logical to conclude that the source of the magnetic anomalism is the same mafic unit as was intersected elsewhere.

Appendix 1 Amdel Laboratory Assay Results

				Order No	SS150911		Sinosteel Australia Helen Springs Assay Results												
				UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
				SCHEME	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E	IC3E
				DETECT LIMIT	1	3	5	10	2	2	100	10	5	2	10	5	10	2	2
Hole ID	From (m)	To (m)	Interval (m)	Assay ID	Ag	As	Bi	Ca	Cr	Cu	Fe	Mg	Mn	Ni	P	Pb	Ti	V	Zn
HSRC006	30	31	1	1501	<1	4	<5	26600	55	210	82900	7980	490	20	290	65	5430	180	55
HSRC006	31	32	1	1502	<1	8	<5	3060	30	125	77800	5545	385	30	660	50	6690	265	80
HSRC006	32	33	1	1503	<1	<3	<5	2640	25	120	79300	7700	420	40	260	15	6595	300	70
HSRC006	33	34	1	1504	<1	<3	<5	3670	24	120	76500	7585	320	41	280	10	6425	275	100
HSRC006	34	35	1	1505	<1	<3	<5	3025	27	150	73800	7670	290	44	150	<5	6500	270	150
HSRC006	35	36	1	1506	<1	6	<5	3310	23	125	71000	8640	315	45	85	<5	4860	200	105
HSRC006	36	37	1	1507	<1	<3	<5	3440	31	120	77700	8970	450	55	90	10	5655	255	110
HSRC006	37	38	1	1508	<1	<3	<5	4010	32	120	79400	10600	595	60	75	5	6015	235	130
HSRC006	38	39	1	1509	<1	<3	<5	3915	26	130	76000	8995	4735	60	90	10	6190	265	210
HSRC006	39	40	1	1510	<1	<3	<5	4540	24	125	80100	11200	7860	75	100	10	6610	275	275
HSRC006	40	41	1	1511	<1	<3	<5	4630	18	85	81300	12000	1850	75	70	10	7035	265	275
HSRC006	41	42	1	1512	<1	<3	<5	4370	20	85	80500	10800	1770	70	70	10	6675	270	240
HSRC006	50	51	1	1513	<1	<3	<5	6475	44	27	82100	17200	955	95	70	5	6075	200	145
HSRC006	51	52	1	1514	<1	4	<5	5855	23	22	82600	15700	975	85	65	5	5965	200	155
HSRC006	52	53	1	1515	<1	<3	<5	6150	28	28	77300	16000	1090	95	65	<5	6250	190	140
HSRC008	48	49	1	1516	<1	4	<5	2915	22	120	78400	7485	620	115	110	<5	6340	230	200
HSRC008	49	50	1	1517	<1	<3	<5	1975	15	65	88800	6700	285	75	90	<5	<10	180	155
HSRC008	50	51	1	1518	<1	<3	<5	1430	17	55	76500	4475	390	37	110	<5	5750	195	85
HSRC008	51	52	1	1519	<1	4	<5	2705	33	135	101900	6870	445	65	210	<5	7200	335	125
HSRC013	42	46	4	1520	<1	10	<5	6230	36	120	77100	8755	550	55	815	20	5815	200	150
HSRC013	46	50	4	1521	<1	12	<5	9665	31	135	71200	9500	455	40	1880	5	5760	240	115
HSRC013	50	54	4	1522	<1	4	<5	11600	29	155	72100	14300	580	43	2190	5	5640	220	85
HSRC013	75	76	1	1523	<1	6	<5	2130	36	48	46100	5710	1355	32	585	15	7935	335	60
HSRC013	76	77	1	1524	<1	<3	<5	2225	25	47	37500	3530	270	17	670	15	6215	225	31
HSRC013	77	78	1	1525	<1	6	<5	1000	17	24	31000	1740	460	10	320	30	1720	42	14
HSRC020	39	40	1	1526	<1	18	<5	1820	40	60	29500	3630	3670	130	1005	265	2290	155	315
HSRC020	40	41	1	1527	<1	24	<5	1550	48	70	45400	5585	1180	120	355	50	4115	130	325
HSRC020	75	76	1	1528	<1	4	<5	2430	18	25	28200	2955	735	15	680	40	3745	115	50
HSRC009	54	55	1	1529	<1	4	<5	4460	47	135	75300	10200	845	130	330	10	8600	320	195
HSRC009	55	56	1	1530	<1	6	<5	2695	29	145	69400	7065	880	110	180	<5	6565	265	115
HSRC009	56	57	1	1531	<1	<3	<5	1435	29	70	69600	3220	445	50	120	<5	6885	275	55
HSRC009	57	58	1	1532	<1	8	<5	1230	35	55	91500	2415	320	37	285	10	7135	360	39
HSRC009	58	59	1	1533	<1	14	<5	1180	39	80	95100	2475	210	41	335	5	7860	345	42
HSRC015	46	47	1	1534	<1	6	<5	2425	55	29	63500	6470	255	60	355	<5	7655	295	115
HSRC015	47	48	1	1535	<1	4	<5	7850	29	31	42200	2795	500	47	2770	<5	7790	265	40
HSRC015	48	49	1	1536	<1	6	<5	24000	31	20	47000	1460	270	13	7970	<5	4445	210	18
HSRC015	49	50	1	1537	<1	4	<5	7305	37	8	22600	3995	95	13	2575	5	3135	135	21
HSRC015	50	51	1	1538	<1	4	<5	935	36	5	31900	8280	165	19	215	<5	2905	105	40
HSRC016	43	44	1	1539	<1	10	<5	3935	31	170	108100	11300	2280	120	405	15	6405	255	285
HSRC016	44	45	1	1540	<1	8	<5	3385	30	345	94500	8690	17800	240	380	10	6670	265	395
HSRC016	45	46	1	1541	<1	<3	<5	5665	36	110	90200	10100	2365	130	165	10	6675	205	290