



ASX CODE: IFE

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31 January 2014

Quarterly Report 31 December 2013

Highlights

- During the quarter the Company received final development approval for the multi user port facility at Lucky Bay from the government of South Australia.

The key risk stages of the approval process have now been successfully passed.

- A Joint Venture (JV) for manganese (Mn) was signed with Trafford Resources Limited (ASX: TRF). IronClad can earn up to an 80% interest in all manganese on the Joint Venture tenements. This agreement not only broadens the company's exposure to other commodities but provides significant synergies with its Wilcherry Hill Iron project. Initial metallurgical test work suggests that the manganese present at Hercules can be upgraded using a gravity separation plant similar to that planned for Stage 2 of the Wilcherry Hill Iron Ore Project.

Wilcherry Hill Project

Lucky Bay Common User Facility Development Application

The Development Application (DA) amendment for the Lucky Bay export facility was approved by the South Australian Minister for Planning, on 29 November 2013. The approval decision allows for construction and operation of the facility subject to a number of normal conditions.

Legislative requirements under the Development Act and Development Regulations 2008, include a requirement that the works must be substantially commenced within 12 months of the date of approval.

Following DA approval, the Company, in conjunction with the port owners, Sea Transport Corporation, are in the process of completing the detailed engineering design of the facility making allowance for all conditions of approval.



Mining Approvals

All mining related approvals for the project have been received.

The rehabilitation and closure plans were approved and the resulting environmental bond documents in the amount of \$2,700,000 were received.

Subject to payment of the environmental bond, either as a cash bond or as an unconditional bank guarantee, construction at Wilcherry Hill may commence.

This completes the mining approval requirements and paves the way for the start of mining operations.

EXPLORATION ACTIVITIES

Overview

During the December quarter, the Company signed a Joint Venture (JV) with Trafford Resources Limited whereby it can earn up to an 80% interest in any manganese (Mn) mineralisation that occurs within the Wilcherry Hill Project group of tenements

Signing of the JV followed the intersection of highly anomalous manganese (Mn) mineralisation (22m @ 22% Mn) during the January 2013 drilling campaign which was testing for northern and eastern extensions of the Hercules Iron (Fe) resources.

With manganese margins potentially USD \$60-\$70 higher than those for iron, producing and selling manganese concentrate in addition to iron production has the potential to generate larger and earlier surplus cash flows, for the Wilcherry Hill Iron Project.

Manganese exploration commenced on two prospect areas: Pier Dam and Hercules East. Exploration included historical data compilation, review of available geophysical data, ground magnetic surveying, orientation geochemical sampling, drill planning and acquisition of digital aerial photography.

Simple gravity concentration test work was carried out to examine the beneficiation potential of manganese rich samples from the January 2013 drilling campaign.

Exploration for additional near surface, high grade iron Direct Shipping Ore (DSO) continued during the quarter.

Iron Exploration

Ground magnetic surveys were completed over ten prospect areas. A total of 214 line km was completed (Details are shown in Table 1). The data are currently being processed and modeled. Final results are expected next quarter.



Results from these surveys will assist in planning of additional drilling programs which are to be undertaken once mining operations commence.

Table 1 Ground Magnetometer Survey Areas

Area	Survey	Total Metres	ML6390	EL5299	EL4286
Temeraire	TM_P003	10,690	6,800	3,890	
Stuart	Stuart Central	94,215		94,215	
Ultima Dam West	UDW-east	17,385	17,385		
Reddon Dam	RD_P001	10,926			10,926
Cunyarie Dam	CD_P002	17,000		17,000	
Zealous	Zealous	18,500	18,500		
Ultima Dam East	UE_P006	11,100		11,100	
Zealous South	ZS1	28,260		28,260	
Telephone Dam	TD_P008	3,100		3,100	
Ultima Dam East	UE_P010	3,500		3,500	
Overall		214,676	42,685	161,065	10,926

Manganese Exploration

Following the signing of the Manganese Joint Venture, preliminary exploration programs commenced - focused initially on the Hercules East and Pier Dam Prospects, approximately 15km east of the Company's Wilcherry Hill iron deposit. Significant manganese mineralisation has been recorded at these two areas by previous explorers.

Hercules East

Early 2013 iron ore drilling intersected 22m @ 22% Mn from 56m in hole 13HCRC026 and 7m @ 20% Mn from 55m in hole 13HCRC001. This discovery, on the eastern flank of the Hercules Prospect, indicated potential for a new manganese zone to be added to the 8km strike length of the main Hercules Prospect.

Analysis confirmed the principal manganese mineral as pyrolusite (MnO₂).

Follow up drilling is planned for early next quarter.



Metallurgical Test Work

Composite samples from the 2013 drilling program were generated and submitted for metallurgical test work. The aim of the initial test work was to identify the mineral hosting the manganese and determine what concentrate could be produced from the material by gravity beneficiation.

Pyrolusite was identified as the manganese bearing mineral. Pyrolusite has a relatively high specific gravity (4.8) which makes it amenable to beneficiation using simple low cost gravity separation.

Based upon this initial test work, it appears feasible to create a pyrolusite concentrate using a gravity separation plant similar to that planned for Ironclad's Stage 2 Wilcherry Hill Iron Project.

Details of the metallurgical test work can be found as an Appendix to IFE ASX Release "Initial Manganese Testwork Results", 30/10/2013.

Pier Dam

Earlier rock chip sampling at the Pier Dam Prospect in 2007 and 2011 demonstrated an 8km West-North West trending zone of manganese anomalism. Manganese values ranged from 15.5% Mn - 31.4% Mn.

As part of its regional iron exploration program, IronClad collected a number of surface grab samples on one outcrop at the western end of this trend. A distinct manganese rich zone averaging 38.8% Mn from five grab samples was delineated as part of an iron rich zone averaging 52% Fe from three grab samples.

The Pier trend of manganese mineralisation appears open ended.

Ground Magnetic Survey

A 134 line-km ground magnetic survey was completed over the Pier Dam prospect. Although the manganese mineralisation itself is not magnetic, the modeled data will assist in geological and structural interpretations.

Acquired data are currently being processed and modeled. Final results are expected next quarter.

Lucky Bay Infrastructure

Detail designs of the Lucky Bay dock and onshore infrastructure are nearing completion and the documents will be used for tendering of these facilities during Q1 2014. Sea Transport, the owner of the Lucky Bay harbour, has commenced its detail design of the harbour extension, deepening of the existing harbour and the approach channel from Spencer Gulf.



A specialist supplier was engaged to design the offshore mooring at the approved location 5.5 nautical miles offshore from the port.

Options for supply of the marine fleet for transshipping operation were evaluated with IronClad personnel visiting shipyards in China to inspect tugs, crane barges and dumb barges now under construction.

Designs for upgrades to public roads along the ore haulage route from mine to port were reviewed and amended to suit the proposed double road train truck configuration resulting in capital savings. .

Feasibility Study

An updated, detailed feasibility report for the development of Stage 1 of the Wilcherry Hill project covering the first 3 years of operation was completed. The study verified the proposed development strategy and project economics.

Marketing and Shipping

A 57m powered transshipping barge is currently under construction in Guangzhou, China. The barge successfully completed its Sea Trials during December. Completion is now scheduled for March 2014. The barge is currently being offered for sale.

Health, Safety, Environment and Community Performance

There were no health and safety incidents for the quarter. Similarly there were no environmental or community complaint events reported in the quarter and statutory compliance monitoring was carried out on schedule

Subsequent Events

IronClad successfully completed 7 holes (666 metres) at Hercules East Manganese Prospect as part of its Joint Venture earn-in commitment. (ASX Release 28th January 2014)

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About the Wilcherry Hill Iron Ore Project

The Wilcherry Hill iron ore project (“the Project”) on South Australia’s Eyre Peninsula is an 80:20 Joint Venture between IronClad Mining Limited (ASX: IFE) and Trafford Resources Limited (ASX: TRF).

50% of the first four years of production from the project have been contracted under comprehensive sales and marketing agreements.

Stage 1 of the project involves production of 1Mtpa of Direct Shipping Ore (“DSO”) magnetite, increasing to 2Mtpa in the project’s third year of operation.

Ore will be transported via road from the Project to the Company’s port facilities at Lucky Bay, near Cowell, on South Australia’s Spencer Gulf, before being exported via transhipments to awaiting ships anchored off-shore in the Spencer Gulf.

Stage 2 of the Project involves a further increase in production to 3 Mtpa of iron ore by combining Wilcherry Hill magnetite concentrate with the DSO product.

Stage 3 includes the exploration and development of the joint venture’s Hercules Project, 15 kilometres south east of Wilcherry Hill, which has an inferred and indicated JORC classification of 194 Mt.

Competent Person Statement

Competent Person Statement – Exploration Results

The information in this announcement that relates to exploration results is based on information compiled by Chris Mroczek, who is a Member of The Australasian Institute of Mining and Metallurgy and who has more than five years’ experience in the field of activity being reported on and is the Chief Geologist of the Company. Mr Mroczek has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity undertaken to qualify as a Competent Person as defined in the 2004 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Mr Mroczek consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



Appendices: Supporting Information

JORC Code, 2012 Edition – Table A1

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information. 	<ul style="list-style-type: none"> Surface lag geochemical samples collected at 10 sites. This was an orientation survey undertaken in preparation for more extensive lag geochemical program to be undertaken in first quarter calendar 2014 Unconsolidated stony material was swept / scrapped from surface area of approximately 1.5m radius. Samples were representative of the 1.5m area sampled Approximately 2-3kg of sample was placed in a sieve stack and sieved 3 sample fractions collected at each site : -3.2mm, 3.2mm – 6.4mm and +6.4mm, Approximately 200g of sieved material from each fraction was sampled and submitted for analysis at Amdel - Bureau Veritas Laboratory in Adelaide South Australia.
Drilling techniques	<ul style="list-style-type: none"> Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc). 	<ul style="list-style-type: none"> Drilling not carried out
Drill sample recovery	<ul style="list-style-type: none"> Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. Whether a relationship exists between sample recovery and grade and whether sample bias may 	<ul style="list-style-type: none"> Drilling not carried out



<i>Criteria</i>	<i>JORC Code explanation</i>	<i>Commentary</i>
<i>Logging</i>	<p>have occurred due to preferential loss/gain of fine/coarse material.</p> <ul style="list-style-type: none"> Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged. 	<ul style="list-style-type: none"> Drilling not carried out Qualitative lag petrology and morphology logged for each sample. Data gathered not suitable for any Mineral Resource / Reserve estimation
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. Whether sample sizes are appropriate to the grain size of the material being sampled. 	<ul style="list-style-type: none"> Each 2-3kg bulk geochemical sample was sieved into three fractions - 3.2mm, 3.2mm – 6.4mm and +6.4mm, and approximately 200g of each sample was submitted for analysis. Sampling was dry The 200g subsample was submitted to Amdel - Bureau Veritas Laboratory in Adelaide, South Australia for analysis. For this small sampling program no field duplicates were submitted Each sample submitted is crushed to a nominal 4mm then milled in a pulveriser to 90% passing 106µm. An analytical pulp of 250g is taken and the residue retained. A 0.66g subsample of the analytical pulp is fused with 7.2g of lithium metaborate to form a 40mm glass disc which is then presented to an XRF for the determination of elements of interest. Sample sizes are considered to be appropriate for the material sampled.
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations 	<ul style="list-style-type: none"> The assay method has been specifically chosen for each element based on advice from Amdel - Bureau Veritas. Total analysis was carried out using XRF for a routine suite of 11 elements and a gravimetric method was used to analyse LOI (loss on ignition). The



<i>Criteria</i>	<i>JORC Code explanation</i>	<i>Commentary</i>
	<p><i>factors applied and their derivation, etc.</i></p> <ul style="list-style-type: none"> <i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i> 	<p><i>components analysed by XRF Al₂O₃, CaO, Fe, K₂O, MgO, Mn, Na₂O, P, S, SiO₂, TiO₂.</i></p> <ul style="list-style-type: none"> <i>No hand held tools were used</i> <i>Nominal one in twenty (5%) of all samples submitted by Ironclad are reference standards – none inserted for this small program</i> <i>Nominal one in twenty of all samples are analysed in duplicate by the laboratory</i> <i>Blanks and reference materials are randomly inserted by the laboratory into every rack of samples.</i> <i>Laboratory used has adopted the ISO 9001 Quality Management Systems. NATA (ISO17025) certified reports are available.</i> <i>Levels of accuracy and precision are within control limits</i>
<i>Verification of sampling and assaying</i>	<ul style="list-style-type: none"> <i>The verification of significant intersections by either independent or alternative company personnel.</i> <i>The use of twinned holes.</i> <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i> <i>Discuss any adjustment to assay data.</i> 	<ul style="list-style-type: none"> <i>No independent verification undertaken, not considered necessary.</i> <i>No Drilling carried out</i> <i>All Information is hand logged onto field sheets then entered into spreadsheet off site then uploaded into a master database after verification by the database manager</i> <i>Each fraction sampled is labeled with unique sample number assigned at point of sampling in field.</i> <i>Sample number is used to match assay's from laboratory to in-house database containing sample coordinate data, geological sample description.</i> <i>No assay data has been adjusted.</i>
<i>Location of data points</i>	<ul style="list-style-type: none"> <i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i> <i>Specification of the grid system used.</i> <i>Quality and adequacy of topographic control.</i> 	<ul style="list-style-type: none"> <i>All 10 sample sites were surveyed by handheld GPS to ± 3m accuracy.</i> <i>All survey information is in Datum MGA 94 Map Projection UTM ZONE 53 South</i> <i>Topographic data is accurate to 0.5m using data collected from magnetic and gravity surveys.</i>



<i>Criteria</i>	<i>JORC Code explanation</i>	<i>Commentary</i>
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <i>Data spacing for reporting of Exploration Results.</i> <i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i> <i>Whether sample compositing has been applied.</i> 	<ul style="list-style-type: none"> <i>The 10 samples were collected at 50m intervals along 1 northing line.</i> <i>Data gathered not suitable for any Mineral Resource / Reserve estimation.</i> <i>No compositing carried out.</i>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i> <i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i> 	<ul style="list-style-type: none"> <i>Samples were collected along an east –west orientated line.</i> <i>Orientation of the regional rock units, major structures and prospective mineralised zones is interpreted to strike to the North and dip to the west. No introduced sampling bias is apparent at this stage</i>
<i>Sample security</i>	<ul style="list-style-type: none"> <i>The measures taken to ensure sample security.</i> 	<ul style="list-style-type: none"> <i>Sampling conducted by Ironclad staff. Samples delivered to Laboratory by Ironclad staff</i>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <i>The results of any audits or reviews of sampling techniques and data.</i> 	<ul style="list-style-type: none"> <i>No audits or reviews have been undertaken at this time</i>

Section 2 Reporting of Exploration Results

<i>Criteria</i>	<i>JORC Code explanation</i>	<i>Commentary</i>
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i> <i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i> 	<ul style="list-style-type: none"> <i>Exploration Licence EL 5164. Licensee is Trafford Resources Ltd. Ironclad Mining Ltd has joint venture agreements in place with Trafford that give it rights to the iron and manganese.</i> <i>The tenement is in good standing and currently expires 12/11/2014</i> <i>The tenement is located on Pastoral land</i>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <i>Acknowledgment and appraisal of exploration by other parties.</i> 	<ul style="list-style-type: none"> <i>Extensive historical exploration has been conducted in the region for base metals, precious metals and uranium. Apart from exploration by Ironclad since 2008, no exploration had been conducted by past</i>



<i>Criteria</i>	<i>JORC Code explanation</i>	<i>Commentary</i>
		<p>explorers at the site of this drilling for manganese.</p> <ul style="list-style-type: none"> Open file reports on past exploration are available from the South Australian Dept. for Manufacturing, Innovation, Trade, Resources and Energy
Geology	<ul style="list-style-type: none"> Deposit type, geological setting and style of mineralisation. 	<ul style="list-style-type: none"> The iron and manganese mineralisation explored for occurs within Banded Iron Formation (BIF) rocks of the Palaeoproterozoic Hutchison Group metasediments. Outcrop in the vicinity of the area sampled is poor and limited to rare sub-crops of massive featureless ironstone The Hercules East Mn Prospect is still considered at this stage to represent a BIF target.
Drill hole Information	<ul style="list-style-type: none"> A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length. If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case. 	<ul style="list-style-type: none"> Drilling not carried out Lag sample location information and fractions sampled is shown in Table 2 below
Data aggregation methods	<ul style="list-style-type: none"> In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in 	<ul style="list-style-type: none"> Results reported as received from the laboratory. No weight averaging or cutting applied. All data received has been reported Assay results are listed below in Tables 3 No metal equivalents have been used



<i>Criteria</i>	<i>JORC Code explanation</i>	<i>Commentary</i>
<i>Relationship between mineralisation widths and intercept lengths</i>	<p><i>detail.</i></p> <ul style="list-style-type: none"> <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i> <i>These relationships are particularly important in the reporting of Exploration Results.</i> <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i> <i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg ‘down hole length, true width not known’).</i> 	<ul style="list-style-type: none"> <i>Drilling not carried out.</i>
<i>Diagrams</i>	<ul style="list-style-type: none"> <i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i> 	<ul style="list-style-type: none"> <i>No diagrams included in main body of release</i>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i> 	<ul style="list-style-type: none"> <i>All assay results have been reported – see Table 3 below</i>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i> 	<ul style="list-style-type: none"> <i>All relevant data collected so far have been reported.</i> <i>Continuous disclosures of Exploration Results are found in periodic releases and Quarterly reports to the ASX.</i> <i>Refer: IFE ASX Release 30 October 2013</i>
<i>Further work</i>	<ul style="list-style-type: none"> <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i> 	<ul style="list-style-type: none"> <i>Extensive lag geochemical program to be undertaken in first quarter calendar 2014.</i> <i>Planning in progress - No final diagrams showing proposed survey area available at this time.</i>