



ACN 119 057 457

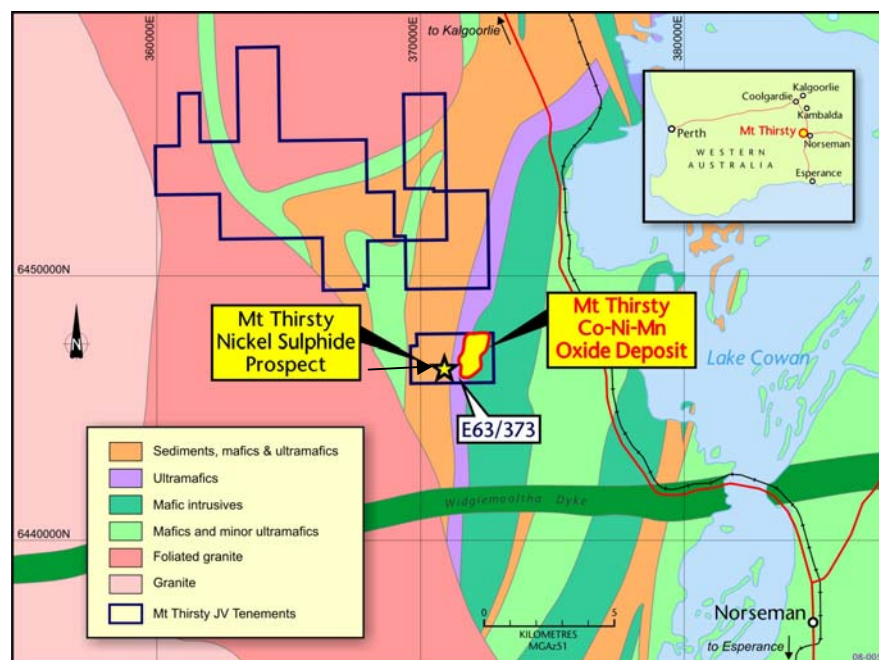
**ASX QUARTERLY REPORT  
FOR PERIOD ENDED 31<sup>ST</sup> MARCH 2012**

**SUMMARY**

***MT THIRSTY PROJECT (WA)***

***Mt Thirsty Co-Ni-Mn Oxide Resource***

- **Further test work supports proposition that Mt Thirsty oxide ore may be amenable to the low cost INNOVAT continuous vat leaching process**
- **“Locked cycle”\* bottle roll tests produce cobalt recoveries in the range 75 to 95%**



**Figure 1: Mt Thirsty Project Location and Regional Geology**

## **MT THIRSTY COBALT -NICKEL -MANGANESE PROJECT (Fission 50%)**

The Mt Thirsty Cobalt –Nickel -Manganese oxide project covering an area of 58km<sup>2</sup> is located 20km north-northwest of Norseman in the southern goldfields of Western Australia, a well endowed nickel terrain (see Figure 1). Fission through its wholly owned subsidiary Meteore Metals Limited owns 50% of the project in joint venture with Barra Resources Limited. The Mt Thirsty deposit has the potential to emerge as a significant cobalt supplier. Metallurgical testwork indicates that high recoveries of cobalt, nickel and manganese can be achieved through low temperature atmospheric leaching.

Mt Thirsty has a JORC compliant Indicated Resource of 16.6 million tonnes at 0.14% Cobalt, 0.60% Nickel and 0.98% Manganese and a JORC compliant Inferred Resource of 15.3 million tonnes at 0.11% Cobalt, 0.51% Nickel and 0.73% Manganese over a length of 1.6 kilometres and a width of up to 850 metres.

As well as the Cobalt-Nickel–Manganese oxide resource, the Mt Thirsty joint venture tenements have potential for nickel sulphide mineralisation at greater depth within the same ultramafic sequence which hosts the near surface oxide deposit. Intersections of nickel sulphides were made by the joint venture in 2010.

### **Mt Thirsty Cobalt-Nickel-Manganese Oxide Deposit**

#### **Metallurgical Test Work**

Following on from a preliminary evaluation (Phase 1) of the viability of leaching Mt Thirsty oxide ore using sodium metabisulphite via continuous vat leaching, a second phase of metallurgical test work was completed by metallurgical consultants RMDSTEM during the quarter.

Based on the positive results from Phase 1 test work, Mt Thirsty oxide ore may be amenable to continuous vat leaching (CVL) using the proprietary INNOVAT treatment process. INNOVAT processing would require considerably lower capital expenditure and operating costs than for the previously developed flow sheet design. Cost benefits of the INNOVAT process could potentially far outweigh the considerably lower Ni recoveries achieved using this method compared to conventional processing.

The Phase 1 test work indicated that there is a good possibility of improving metal recoveries by regrinding and leaching after attritioning as the highest recoveries were obtained from the finer sized fractions. The latest test work used the remaining sample material from the Phase 1 tests and included the following:

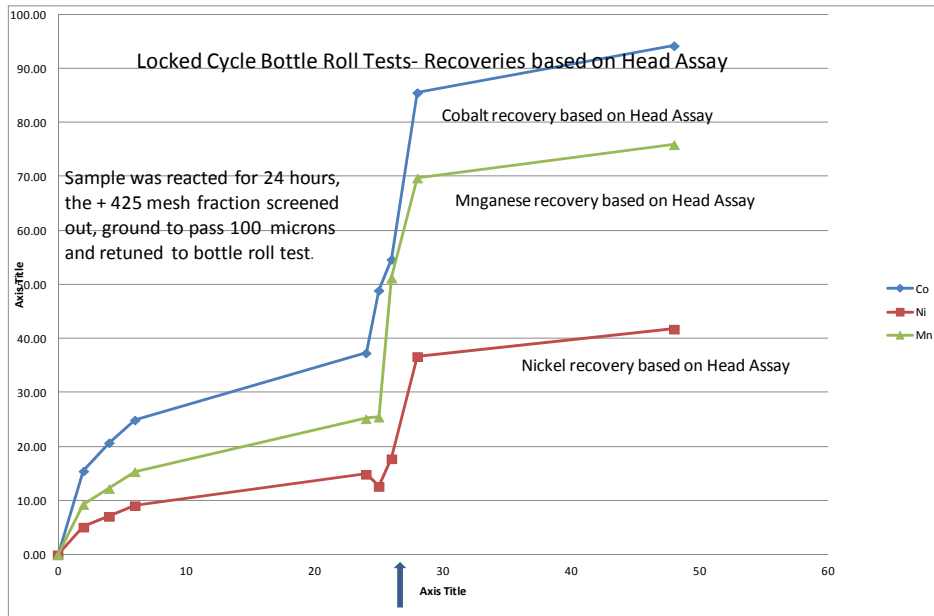
- Bottle roll tests on the whole sample (which was not done in the Phase 1 work)
- Regrinding and leaching bottle roll tests:
  - Leaching the whole sample, separating the + 0.425 mm material, grinding the +0.425 mm material to 100 µm and mixing back with the -0.425 mm material and leaching
- A pulse column test, which simulates the leaching characteristics of CVL
- Attritioning to determine the degradation characteristics and beneficiation of the manganese mineral asbolite which is host to most of the cobalt within the Mt Thirsty mineralisation
- Precipitation of the cobalt and nickel from the pregnant liquor solution using NaHS and MgO
- Preliminary financial modelling to identify key top value drivers and uncertainties

#### *Bottle Roll Tests*

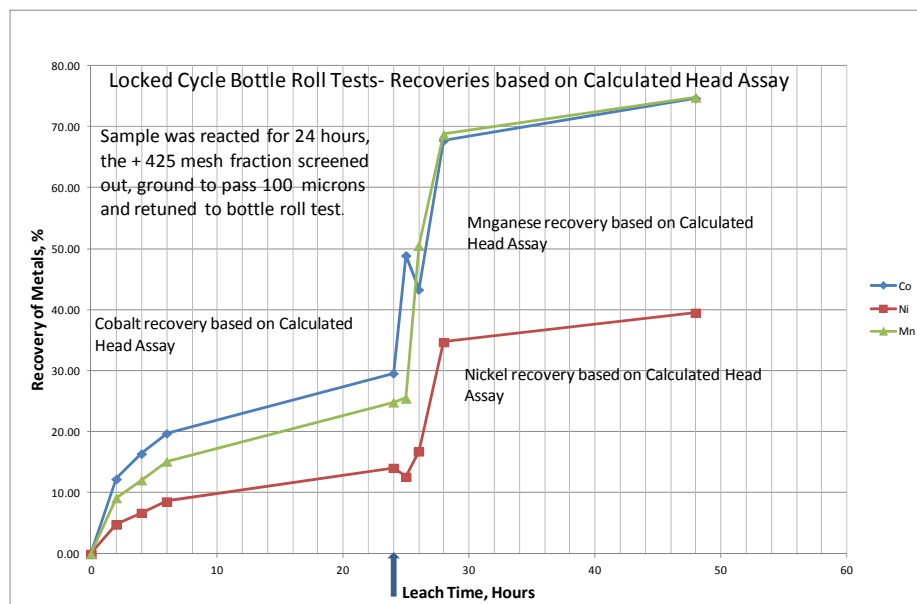
The Phase 1 bottle roll tests showed that the finer size fractions below 0.425 mm leached quickly and gave good recoveries compared to the coarser size fractions above 0.425 mm.

The conceptual CVL flow sheet developed envisages leaching the -6.25 mm material, separating the +0.425 mm material from the residue (as it contains substantial cobalt), grinding to -100 µm and reintroducing into the vat to improve the overall cobalt recovery.

“Locked cycle”\* bottle roll tests were conducted to simulate re-grinding and re-leaching and gave cobalt recoveries of 75% and 94 % in 48 hours based on a head assay and calculated head assay respectively (Figures 2a & b). This variation in recoveries is believed to be due to difficulties in assaying coarse grain size cobalt containing material and further investigation is required. These tests however suggest that favourable cobalt recoveries are achievable.



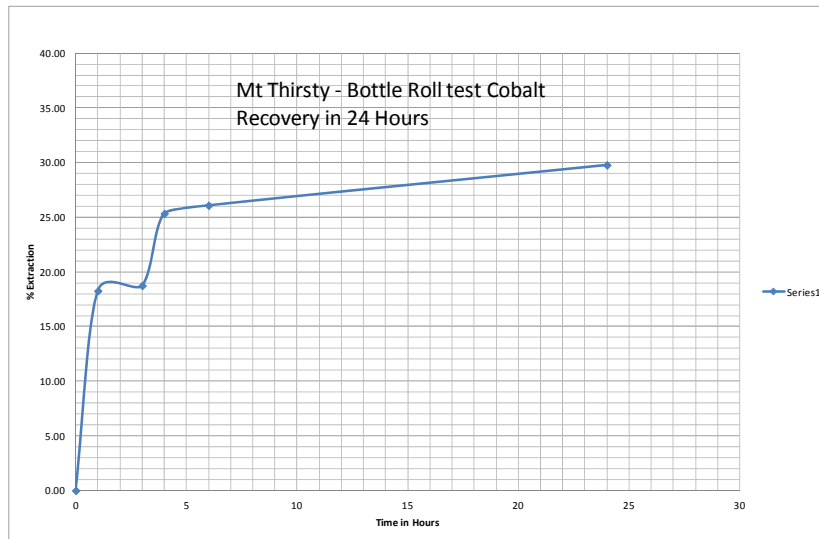
**Figure 2a: Locked Cycle Bottle Roll Tests – Recoveries Based on Head Assay**



**Figure 2b: Locked Cycle Bottle Roll Tests – Recoveries Based on Calculated Head Assay**

\*A series of repetitive batch tests in which intermediate products generated in one test are added to the subsequent test to simulate the operations of a continuous process in which the intermediate materials are recycled. Each test is referred to as a "cycle." When equilibrium is reached in two or more cycles, the test is said to be "locked".

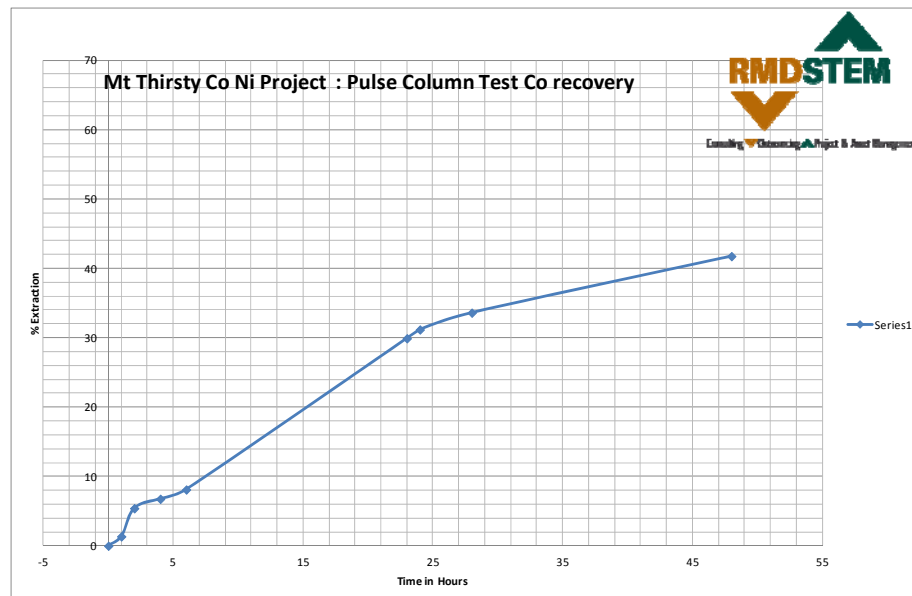
In comparison bottle roll tests also carried out on the whole sample resulted in a recovery of only 30% after 24 hours (Figure 3).



**Figure 3: Cobalt Recovery in the Bottle Roll Test Using Whole Sample**

*Pulse Column Test (PCT)*

A pulse column leach test was carried out to more closely simulate conditions during continuous vat leaching. A cobalt recovery of 42% was achieved within a total time of 48 hours (Figure 4). The material was poorly leached because of size problems and by chemical constraints. A “locked cycle” PCT test is required to confirm if cobalt recoveries indicated by the “locked cycle” bottle roll tests are achievable. The test however showed the sample material to fluidise well and remain fluidised throughout the testing.



**Figure 4: Pulse Column Test Cobalt Recovery**

*Back End Studies*

Two methods of cobalt and nickel precipitation from the leach solution were trialled, one using NaHS solution and one using MgO, both of which are currently in use at various nickel-cobalt operations.

The percentage of cobalt precipitated from the pregnant liquor solution was 85% using NaHS and 100% with MgO. The products from both methods exhibit good settling and filterability.

#### *Pulse Column Fines Settling Tests*

Settling tests on fines taken from the pulse column showed good settling rates without flocculent and a good settling rate but slightly poor compaction with flocculent. The tests indicate that a large volume paste thickener could be operated efficiently to aid extraction of the leach residue as a paste, avoiding the requirement for a large tailings dam.

#### *Preliminary Financial Modelling*

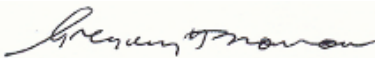
Financial modelling identified cobalt price, cobalt pay factor and cobalt recovery as the top value drivers for the Mt Thirsty project using CVL processing. The price and consumption of sodium meta bisulphite, cobalt recovery and the price and consumption of sulphuric acid were identified as the key uncertainties and further studies are required to determine their effect on project profitability.

#### *Results and Forward Program*

Results from the latest test work support the proposal that Mt Thirsty oxide is amenable to the low cost INNOVAT continuous vat leaching process. Further metallurgical test work has been recommended by the consultant and a forward program is currently being considered by the Mt Thirsty Joint Venture partners.

#### *Mining Lease*

Negotiations are still continuing with the native title claimants for a compensation package that will pave the way towards grant of the Mining Lease covering the Mt Thirsty cobalt - nickel oxide deposit.



Greg Solomon  
Executive Chairman

*The interpretations and conclusions reached in this report are based on current geological theory and the best evidence available to the authors at the time of writing. It is the nature of all scientific conclusions that they are founded on an assessment of probabilities and, however high these probabilities might be, they make no claim for complete certainty. Any economic decisions that might be taken on the basis of interpretations or conclusions contained in this report will therefore carry an element of risk.*

*The information in this announcement, insofar as it relates to Mineral Exploration activities, is based on information compiled by Michael J Glasson and Robert N Smith, who are members of the Australian Institute of Geoscientists, both of whom have more than five years experience in the field of activity being reported on. Mr Glasson and Mr Smith are consultants. Mr Glasson and Mr Smith have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Glasson and Mr Smith consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.*

*It should not be assumed that the reported Exploration Results will result, with further exploration, in the definition of a Mineral Resource.*

# Appendix 5B

## Mining exploration entity quarterly report

Introduced 01/07/96 Origin Appendix 8 Amended 01/07/97, 01/07/98, 30/09/01, 01/06/10, 17/12/10

Name of entity

FISSION ENERGY LTD

ABN

49 119 057 457

Quarter ended ("current quarter")

31 MARCH 2012

### Consolidated statement of cash flows

<b>Cash flows related to operating activities</b>	Current quarter \$A'000	Year to March (9 months) \$A'000
1.1 Receipts from product sales and related debtors	8	24
1.2 Payments for (a) exploration & evaluation	(7)	(27)
(b) development	-	-
(c) production	-	-
(d) administration	(93)	(390)
1.3 Dividends received	-	-
1.4 Interest and other items of a similar nature received	3	12
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Other (provide details if material)	-	-
<b>Net Operating Cash Flows</b>	<b>(89)</b>	<b>(381)</b>
<b>Cash flows related to investing activities</b>		
1.8 Payment for purchases of: (a) prospects	-	-
(b) equity investments	-	-
(c) other fixed assets	-	-
1.9 Proceeds from sale of: (a) prospects	-	-
(b) equity investments	-	-
(c) other fixed assets	-	-
1.10 Loans to other entities	-	-
1.11 Loans repaid by other entities	-	-
1.12 Other (provide details if material)	-	-
<b>Net investing cash flows</b>	<b>-</b>	<b>-</b>
1.13 Total operating and investing cash flows (carried forward)	<b>(89)</b>	<b>(381)</b>

+ See chapter 19 for defined terms.

**Appendix 5B**  
**Mining exploration entity quarterly report**

1.13	Total operating and investing cash flows (brought forward)	(89)	(381)
	<b>Cash flows related to financing activities</b>		
1.14	Proceeds from issues of shares, options, etc.	-	-
1.15	Proceeds from sale of forfeited shares	-	-
1.16	Proceeds from borrowings	-	-
1.17	Repayment of borrowings	-	-
1.18	Dividends paid	-	-
1.19	Other (provide details if material)	-	-
	<b>Net financing cash flows</b>	-	-
	<b>Net increase (decrease) in cash held</b>	(89)	(381)
1.20	Cash at beginning of quarter/year to date	338	630
1.21	Exchange rate adjustments to item 1.20	-	-
1.22	<b>Cash at end of quarter</b>	249	249

**Payments to directors of the entity and associates of the directors**

**Payments to related entities of the entity and associates of the related entities**

		Current quarter \$A'000
1.23	Aggregate amount of payments to the parties included in item 1.2	90
1.24	Aggregate amount of loans to the parties included in item 1.10	-

1.25 Explanation necessary for an understanding of the transactions

Management Fees, as per agreement, were paid during the quarter to a company of which Mr GH Solomon and Mr DH Solomon are directors.  
Directors Fees paid during the period.

**Non-cash financing and investing activities**

2.1 Details of financing and investing transactions which have had a material effect on consolidated assets and liabilities but did not involve cash flows

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2.2 Details of outlays made by other entities to establish or increase their share in projects in which the reporting entity has an interest

-

+ See chapter 19 for defined terms.

### Financing facilities available

Add notes as necessary for an understanding of the position.

	Amount available \$A'000	Amount used \$A'000
3.1 Loan facilities	-	-
3.2 Credit standby arrangements	-	-

### Estimated cash outflows for next quarter

	\$A'000
4.1 Exploration and evaluation	70
4.2 Development	-
4.3 Production	-
4.4 Administration	80
<b>Total</b>	<b>150</b>

### Reconciliation of cash

Reconciliation of cash at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts is as follows.

	Current quarter \$A'000	Previous quarter \$A'000
5.1 Cash on hand and at bank	249	338
5.2 Deposits at call	-	-
5.3 Bank overdraft	-	-
5.4 Other (provide details)	-	-
<b>Total: cash at end of quarter</b> (item 1.22)	249	338

### Changes in interests in mining tenements

	Tenement reference	Nature of interest (note (2))	Interest at beginning of quarter	Interest at end of quarter
6.1	Interests in mining tenements relinquished, reduced or lapsed			
6.2	Interests in mining tenements acquired or increased			

+ See chapter 19 for defined terms.



**Appendix 5B**  
**Mining exploration entity quarterly report**

**Issued and quoted securities at end of current quarter**

Description includes rate of interest and any redemption or conversion rights together with prices and dates.

	Total number	Number quoted	Issue price per security (see note 3) (cents)	Amount paid up per security (see note 3) (cents)
7.1 <b>Preference securities</b> <i>(description)</i>				
7.2 Changes during quarter (a) Increases through issues (b) Decreases through returns of capital, buy-backs, redemptions				
7.3 <b>+Ordinary securities</b>	126,930,258	126,930,258		
7.4 Changes during quarter (a) Increases through issues (b) Decreases through returns of capital, buy-backs				
7.5 <b>+Convertible debt securities</b> <i>(description)</i>	NOT APPLICABLE			
7.6 Changes during quarter (a) Increases through issues (b) Decreases through securities matured, converted				
7.7 <b>Options</b> <i>(description and conversion factor)</i>	511,508 3,000,000 888,888 500,000	NIL NIL NIL NIL	<i>Exercise price</i> 20 cents 13.75 cents 12 cents 19 cents	<i>Expiry date</i> 16 April 2012 20 Nov 2012 12 Feb 2013 26 May 2013
7.8 Issued during quarter				
7.9 Exercised during quarter				
7.10 Expired during quarter				
7.11 <b>Debentures</b> <i>(totals only)</i>	NOT APPLICABLE			
7.12 <b>Unsecured notes</b> <i>(totals only)</i>	NOT APPLICABLE			

+ See chapter 19 for defined terms.

## Compliance statement

- 1 This statement has been prepared under accounting policies which comply with accounting standards as defined in the Corporations Act.
- 2 This statement does give a true and fair view of the matters disclosed.

Sign here:



(Company secretary)

Date: 19 April 2012

Print name: Aaron Gates

## Notes

- 1 The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity wanting to disclose additional information is encouraged to do so, in a note or notes attached to this report.
- 2 The "Nature of interest" (items 6.1 and 6.2) includes options in respect of interests in mining tenements acquired, exercised or lapsed during the reporting period. If the entity is involved in a joint venture agreement and there are conditions precedent which will change its percentage interest in a mining tenement, it should disclose the change of percentage interest and conditions precedent in the list required for items 6.1 and 6.2.
- 3 **Issued and quoted securities** The issue price and amount paid up is not required in items 7.1 and 7.3 for fully paid securities.
- 4 The definitions in, and provisions of, *AASB 6: Exploration for and Evaluation of Mineral Resources* and *AASB 107: Statement of Cash Flows* apply to this report.
- 5 **Accounting Standards** ASX will accept, for example, the use of International Financial Reporting Standards for foreign entities. If the standards used do not address a topic, the Australian standard on that topic (if any) must be complied with.

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+ See chapter 19 for defined terms.