

ASX and Media Release

7 September 2011

NEW LICENCE GRANTED OVER HIGH GRADE ZIRCON PROJECT

KEY POINTS

- Exploration licence granted over large scale Dampier heavy mineral sands project
- Former Rio Tinto exploration project, relinquished during the global financial crisis and before recent escalation in HM commodity prices
- Prior drilling has identified high grade zircon mineralisation (8.07% HM, 8.0% zircon in assemblage for a 0.65% in situ zircon grade) within a 15km strike length target zone
- Sheffield to undertake Aboriginal Heritage Surveys ahead of resource drilling

Bulk minerals explorer Sheffield Resources ("Sheffield") (ASX:SFX) today announced the grant of a key tenement covering its Dampier mineral sands project near Derby in the Kimberley region of Western Australia (see Figure 1).

Exploration licence E04/2083, is located approximately 60km west of the expanding port of Derby and lies outside the recently proclaimed Kimberley National Heritage Estate listed area. Together with 3 adjacent tenements under application, the Dampier project covers 1,314 km² of prospective mineral sands ground.

The Dampier project area was explored by Rio Tinto ("Rio") between 2004 and 2009. Rio completed four broadly spaced aircore drill traverses, identifying two zones of significant heavy mineral concentration: a large, shallow "eastern zone", named Thunderbird, and a smaller, deeper "western zone", named Argo (see Figures 2-4). Selected intersections from each prospect are listed below (refer to Tables 1 & 2 for further details):

Thunderbird	45m @ 9.85% HM from 3m (JD073), 27m @ 7.00% HM from 1.5m (JD023), and 27m @ 7.92% HM from 9m (JD003).
Argo	12m @ 3.49% HM from 42m (JD036), and 7.5m @ 3.44% HM from 27m (JD037)

Significantly, the mineral assemblage includes zircon grades of up to 11.4%.

Managing Director, Bruce McQuitty said the Dampier project represents a large scale mineral sands play with excellent heavy mineral grades and potentially high value heavy mineral assemblages.

"The Dampier project has significant size, scale and grade potential and is a key addition to Sheffield's mineral sands project portfolio which already includes the large McCalls project and smaller projects with near-term development potential in the North Perth Basin."

The heavy mineral concentrations are hosted by shallowly-dipping and deeply weathered sand units of the Jowlaenga Formation which occurs stratigraphically below the Broome Sandstone and its locally silcreted equivalent, the Melligo Quartzite. Sizing analysis indicates that the heavy mineral is fine-grained and typical of large shallow offshore mineral sand deposits.

The fine grained nature of the mineralisation and variable iron cementation and hardness may present some metallurgical challenges (lower recoveries) however these are offset by the high heavy mineral grade and the potentially high value zircon, rutile and leucoxene-rich mineral assemblage.

Figure 1: Location of Dampier HMS Project



Thunderbird

At Thunderbird, high grade mineralisation averages over 24m thickness and has been identified on two lines of drilling over a strike length of 6.5km. The mineralisation extends down dip for up to 5km, at which point the top of the HM accumulation sits at just 30m depth. A deeper leucoxene-rich western extension to the Thunderbird mineralisation is referred to as the Stingray prospect. A third drill line, located to the southeast of Thunderbird, intersected lower grade mineralization (e.g. JD013: 28.5m @ 2.61 % HM from 1.5m depth) which could extend the strike length to 11.5km. A large thorium radiometric anomaly, thought to be sourced from the rare earth-bearing monazite and xenotime component in the heavy mineral concentrations, indicates exploration potential for up to 15km of strike length (Figure 2).

The Thunderbird prospect averages 8.07% HM and 16.1% fines (<45µ). The mineral assemblage averages 8.0% zircon, 2.3% rutile, 6.7% leucoxene, 17.8% altered ilmenite, and 16.5%

ilmenite, based on the average of 63 samples analysed by SEM probing at the Rio Tinto facility in the United Kingdom in 2006 and 65 samples analysed by the CSIRO in Perth during 2008 using the AutoGeoSEM method. The high average heavy mineral grade (8.07%) and the moderately high average zircon assemblage (8.0%) equate to an average **in situ zircon grade of 0.65%***.

Rio undertook mineral characterisation test work in 2007 on a single bulk sample of 300kg collected from drill holes that twinned the JD003 intersection. The work indicated that 24-39% of the total HM is iron oxide aggregates with the remainder being mostly ilmenite, altered ilmenite, low titanium ilmenite, leucoxene, rutile and zircon. Calculated mineralogy of float-sink fractions from the 300kg bulk sample indicated a head mineral assemblage of **11.5% zircon**. Rio concluded that although iron oxide aggregates represent a significant proportion of the heavy mineral assemblage, the amount of zircon, rutile, leucoxene and altered ilmenite was sufficient to encourage additional exploration.

*In situ zircon grade is calculated by multiplying the average HM grade by the average zircon content of the mineral assemblage using the intersections quoted in Tables 1 & 2.

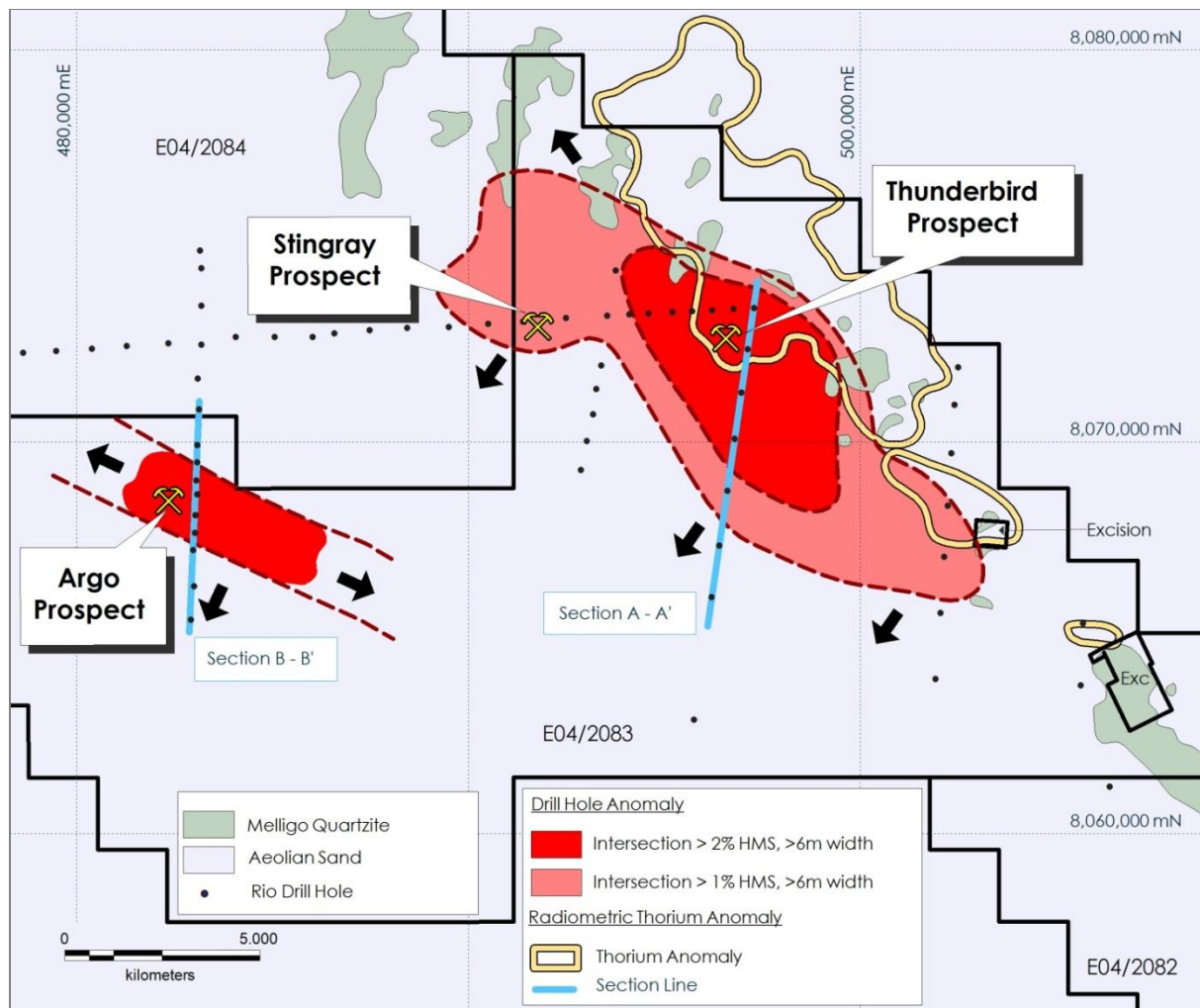


Figure 2: Plan of mineralised zones at Dampier showing location of Rio Tinto drill holes

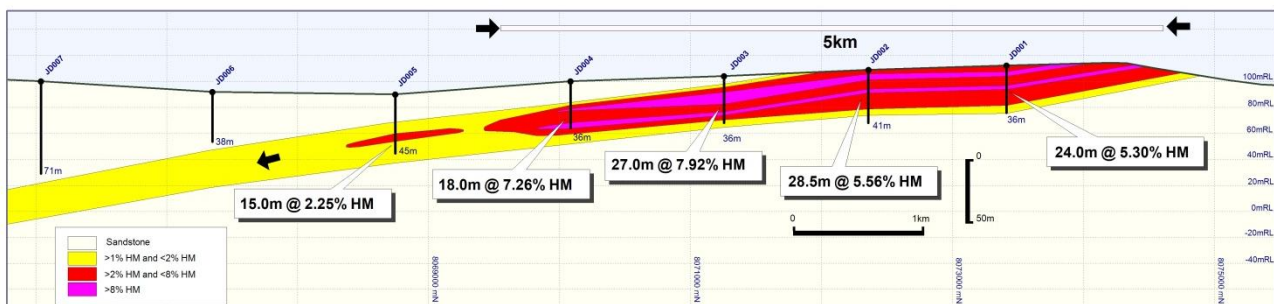


Figure 3: Thunderbird Prospect – Cross Section A-A'

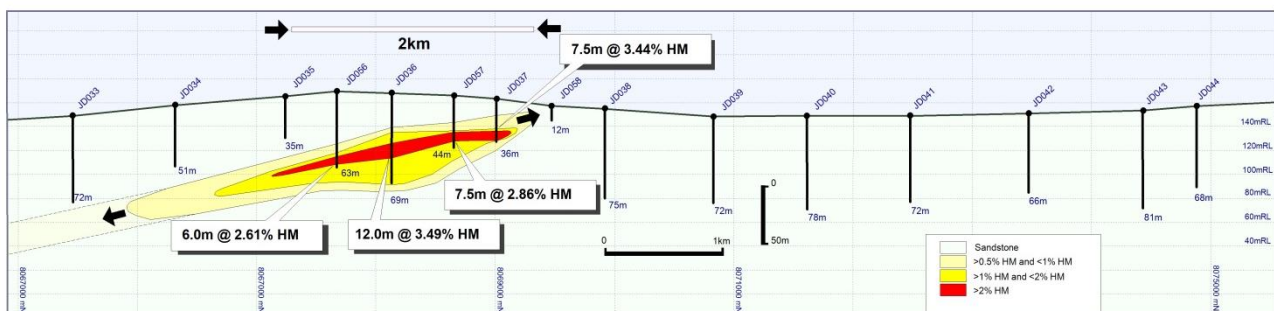


Figure 4: Argo Prospect – Cross Section B-B'

Argo

At Argo, mineralisation between 6 to 12m thick has been intersected in four drill holes and extends down-dip over a distance of 2km along a north-south drill line. The depth of the heavy mineral zone ranges from 27 to 54m. The mineralisation dips to the south at 0.8 degrees and is open along strike to the northwest, southeast and up-dip.

The heavy mineral horizon averages 3.1% HM and 6.9% fines (<45µ) with the mineral assemblage consisting of 7.4% zircon, 5.9% rutile, 56.4% leucoxene, 4.5% altered ilmenite and 0.1% ilmenite (based on the average of 20 samples analysed by the CSIRO in Perth during 2008 using the AutoGeoSEM method).

Rio undertook metallurgical test work in 2007 using conventional processing methods on a 420kg bulk sand sample from Argo. The work focused on the quality of the zircon which was found to be within the acceptable 500 U+Th range if 10% of the zircon is removed magnetically. The heavy mineral concentrate product after gravity upgrading contained 11.6% ZrO₂, which translates to **a zircon content of 17.3%**. This does not reconcile with the 7.2% zircon content shown by SEM mineralogy over the 9m of the high grade interval within the bulk sample interval. Bulk samples from both deposits returned substantially higher zircon grades than the average of the SEM test work. Sheffield plans to undertake further mineral assemblage test work on both deposits to provide more accurate mineral assemblage data.



Figure 5: Rougher stage (left) and Cleaner stage (right) gravity separation of HM undertaken by Mineral Technologies Pty Ltd on bulk sample from the Argo prospect. Source: Combined Annual Report (C96/2003 Mt Jowlaenga) for the Period 21 July 2007 to 20 July 2008 Rio Tinto Exploration Pty Ltd.

Exploration potential and further work

The Thunderbird prospect is located within a 15km by 6km coincident geochemical, drill hole and thorium radiometric anomaly. This target has been tested by only four lines of drilling. The mineralisation remains open in all directions. The Argo prospect is concealed by shallow aeolian sand and has been traversed by a single line of aircore holes. The mineralisation is open along strike in both directions.

Sheffield intends to complete Aboriginal Heritage Surveys over the project as soon as possible, ahead of an aircore drilling programme of sufficient density to enable estimation of an inferred resource and to provide representative samples for metallurgical work. Due to the impending onset of the wet season it may not be possible to complete this drilling until May 2012.

The Company has agreed to issue 250,000 options (exercise price of 44c, expiry 3 years) to a consultant in consideration for identifying this opportunity for the Company.

ENDS

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COMPETENT PERSONS' STATEMENT

The information in this announcement that relates to exploration results is based on information compiled by Bruce McQuitty. Mr McQuitty is a full time employee of the Company. Mr McQuitty is a Member of the Australasian Institute of Geoscientists and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and the activity to which they are undertaking to qualify as Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code")'. Mr McQuitty consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

FORWARD LOOKING AND EXPLORATION TARGET STATEMENTS

Some statements in this announcement regarding estimates or future events are forward-looking statements. They involve risk and uncertainties that could cause actual results to differ from estimated results. Forward-looking statements include, but are not limited to, statements concerning the Company's exploration programme, outlook, target sizes and mineralised material estimates. They include statements preceded by words such as "expected", "planned", "target", "scheduled", "prospective", and similar expressions.

Table 1: Rio Tinto drill hole intersections >3m @ >2% HM

THUNDERBIRD							
Hole ID	Easting	Northing	Depth From (m)	Depth To (m)	Interval Width (m)	HM %	Slimes %
JD001	497290	8073408	4.5	28.5	24.0	5.30	17.51
JD002	497129	8072357	1.5	30.0	28.5	5.56	17.46
JD003	496974	8071252	9.0	36.0*	27.0	7.92	18.81
JD004	496801	8070081	18.0	36.0*	18.0	7.26	14.38
JD023	496758	8073388	1.5	28.5	27.0	7.00	17.48
JD025	495707	8073332	3.0	15.0*	12.0	13.23	12.65
JD072	494586	8073276	19.5	37.5*	18.0	8.49	15.03
JD073	495703	8073335	3.0	48.0	45.0	9.85	15.67
Average					24.9	8.07	16.12
THUNDERBIRD LOW GRADE HALO							
JD005	496607	8068745	30.0	45.0*	15.0	2.25	7.54
JD013	502145	8067066	1.5	30.0	28.5	2.61	21.91
Average					21.8	2.43	14.73
STINGRAY							
JD067	490505	8073004	75.0	81.0	6.0	4.54	13.83
JD069	492491	8073159	45.0	51.0*	6.0	4.49	10.75
JD070	493546	8073212	34.5	37.5	3.0	3.47	9.51
JD070	493546	8073212	48.0	51.0*	3.0	2.93	8.44
Average					4.5	3.86	10.63
ARGO							
JD036	483042	8068131	42.0	54.0	12.0	3.49	6.97
JD037	483055	8069009	27.0	34.5	7.5	3.44	6.45
JD056	483027	8067671	54.0	60.0	6.0	2.61	7.09
JD057	483086	8068655	30.0	37.5	7.5	2.86	7.02
Average					8.3	3.10	6.88

Intersections calculated using a 2% HM lower cut, a minimum interval of 3m and allowing 1.5m internal dilution.
 * denotes drill hole terminated in mineralisation.

Table 2: Drill hole intersections >3m @ >2% HM – mineral assemblages

THUNDERBIRD								
Hole ID	Depth From (m)	Depth To (m)	Interval Width (m)	Zircon	Rutile	Leucoxene	Altered Ilmenite	Ilmenite
JD001	4.5	28.5	24.0	10.5	2.5	4.8	11.7	31.2
JD002	1.5	30.0	28.5	9.4	2.9	4.9	13.3	27.1
JD003	9.0	36.0*	27.0	11.4	3.0	6.5	14.1	31.9
JD004	18.0	36.0*	18.0	8.9	2.8	5.7	23.7	26.5
JD023	1.5	28.5	27.0	7.1	1.8	3.7	20.5	5.8
JD025	3.0	15.0*	12.0	4.8	2.2	12.5	19.6	2.2
JD072	19.5	37.5*	18.0	6.2	1.9	10.7	24.0	2.1
JD073	3.0	48.0	45.0	5.5	1.6	4.9	15.4	5.2
Average			24.9	8.0	2.3	6.7	17.8	16.5
THUNDERBIRD LOW GRADE HALO								
JD005	30.0	45.0*	15.0	6.7	3.0	8.1	29.9	12.1
JD013	1.5	30.0	28.5	8.9	2.7	6.4	21.2	20.2
Average			21.8	7.8	2.9	7.2	25.5	16.2
STINGRAY								
JD067	75.0	81.0	6.0	6.0	4.7	44.3	21.0	0.5
JD069	45.0	51.0*	6.0	NA	NA	NA	NA	NA
JD070	34.5	37.5	3.0	9.8	3.1	45.1	10.2	0.6
JD070	48.0	51.0*	3.0	NA	NA	NA	NA	NA
Average			4.5	7.9	3.9	44.7	15.6	0.6
ARGO								
JD036	42.0	54.0	12.0	5.9	3.5	41.1	6.1	0.4
JD037	27.0	34.5	7.5	8.0	8.7	57.0	2.1	0.0
JD056	54.0	60.0	6.0	7.7	5.4	60.8	6.6	0.1
JD057	30.0	37.5	7.5	7.9	6.0	66.5	3.1	0.0
Average			8.3	7.4	5.9	56.4	4.5	0.1

Intersections calculated using a 2% HM lower cut, a minimum interval of 3m and allowing 1.5m internal dilution. NA = not analysed. * denotes drill hole terminated in mineralisation.

ABOUT SHEFFIELD RESOURCES

Sheffield Resources Limited (**Sheffield**) is a new exploration company with a bulk minerals focus. The Company's Projects are geared towards the steel industry feed cycle (iron ore and tungsten) and the emerging fillers-ceramics-pigments cycle (talc, zircon, titanium dioxide).

ASX Code – SFX

Market Cap @ 27cps - \$15.8m

Issued shares – 58.7m

Cash - \$4.1 (at 30/6/2011)

The Company has over 6,000km² of highly prospective tenure, all situated in Western Australia.

HEAVY MINERAL SANDS

Sheffield controls over 5,000km² of mineral sands tenure in the established North Perth Basin mineral sands province and the emerging Carnarvon, Eucla and Canning Basin provinces.

The Dampier project, located near Derby in WA's Kimberley region is the most recent addition to Sheffield's heavy mineral sands project portfolio, Dampier is a large scale zircon play formerly explored by Rio Tinto.

Sheffield's North Perth Basin tenement package of over 2,500km² contains seven advanced exploration projects: West Mine North, Ellengail, Yandanooka, Durack, Beekeepers, and Irwin which are located near Eneabba and the large McCalls deposit - a former BHP project located near Gingin. These projects are well located close to existing mineral sands operations and to a network of highways and railway lines connecting to Geraldton and Fremantle/Kwinana ports. Sheffield's strategy is, subject to exploration success, to build multiple HMS projects capable of supporting a flexible mobile mining plant.

TALC

Sheffield has 1,152km² of tenure over the 175km-long Moora Talc Belt which represents a dominant ground position over a region that has, for the last 50 years, been exclusively controlled by major mining companies.

The Moora Talc Belt includes the large Three Springs mine which is owned by Rio Tinto Limited subsidiary Luzenac Australia Pty Ltd. Three Springs is renowned for producing high purity talc and is a relatively simple "dig-and-deliver" operation.

The existing infrastructure is excellent. A railway and a sealed highway transect the project and connect to Geraldton port approximately 170km to the northwest.

Sheffield's large tenement holding contains numerous talc occurrences and has the potential to become a strategic talc asset. Sheffield therefore represents a unique opportunity for investors to gain exposure to one of the few high-grade talc explorers in the world.

IRON

Sheffield's Pilbara iron ore projects consist of five granted tenements and 7 tenement applications, five of which are subject to ballot with multiple competing parties. Sheffield's strategy is to target hematite mineralisation adjacent to infrastructure in the world class Pilbara iron province and to build up consolidated tenement holdings over time. High grade iron mineralisation has been identified on three of the Company's tenements.