

**MINERAL HOLDINGS AUSTRALIA PTY LTD**

**RETENTION LICENCE 1/2005  
HOGARTH CREEK, NW TASMANIA**

**ANNUAL REPORT ON EXPLORATION  
TO JUNE 2012**

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## **RL 1/2005 HOGARTH CREEK, NW TASMANIA, ANNUAL REPORT 2011**

### **ABSTRACT**

This report gives a review of the marketing and exploration work carried out by Mineral Holdings Australia Pty. Ltd. over the past 12 months on RL 1/2005.

The licence covers 5 sq km in the Dip Ranges and encloses the Thomas Mountain Silica Mine within 23M2009.

The licence covers the Detention Quartzite of the Rocky Cape Group and the target of exploration is silica, silica sand and quartzite for the chemical, metallurgical glass and coal seam methane industries.

Previous exploration by Mineral Holdings Australia Pty. Ltd. and its joint venture partners has outlined a substantial inventory of potential silica products in the RL namely 0.35Mt of hard, silicified quartzite, 1.55Mt of hard sandstone, 0.65Mt of poorly consolidated, soft sandstone and 2.45Mt of very soft unconsolidated sand. Some infill drilling would be required to raise this resource estimate to the Indicated Level (JORC Code)

In partnership with Jericho Resources a 300 tonne sample was collected and shipped to China for furnace trials.

Marketing of the quartzite and frac sand resources has continued. Meetings and discussions were held with numerous companies and several site visits were made.

## **RL 1/2005 HOGARTH CREEK, NW TASMANIA, ANNUAL REPORT 2010**

### **1.0 INTRODUCTION**

RL 1/2005 was applied for by Mineral Holdings Australia Pty Ltd on 21st February 2005 and was granted on 15<sup>th</sup> June 2005. RL 1/2005 covers the site of the Thomas Mountain Silica Resource which was originally covered by CML 8M/1989 and 1W/1088. Under its policy of revoking non performing mining leases Mineral Resources Tasmania suggested that a Retention Licence would be a more appropriate title for the marketing and industrial testing activities currently being pursued by MHA. Consequently RL1/2005 was granted and the mineral leases cancelled.

The Thomas Mountain Mine and prospect occurs in the northern Dip Range about 25 km south-west of Wynyard and 20km south-east of a deep water harbour at Port Latta. Access is via the township of Montumana on the Bass Highway, 25 km west of Wynyard, thence 6 km south along Montumana and Newhaven roads to a turn-off just east of Hogarths Creek. The mine site is held within 23M/2009 of 2Km<sup>2</sup> inside RL1/2005.

Over the past several years, MHA has had discussions with a number of industrial companies, within Australia and overseas, as potential customers or developers of the deposit. There has been considerable interest in the potential for producing “frac” sands from the site and renewed interest in the area as a source of fine silica sand for the glass and specialized silica products.

A 300 tonne samples of quartzite was taken By Jericho resources for full scale furnace trials in China.

### **2.0 GEOLOGY**

Resources of high grade quartzite have been reported in various government publications as occurring within the Proterozoic rocks of north- west Tasmania. The better quartzite occurred within the Detention Quartzite sub-group and rocks of this sub-group underlie most of the licence area..

Gee(1971) described the Proterozoic sequence within the Rocky Cape Group from youngest to oldest as – the Jacob Quartzite (1130m in thickness), the Irby Siltstone (760m) and the Detention Sub-group (1400m). Gee suggested The Detention Sub-group contained about 10% siltstone in beds from a few metres to more than 80 metres in thickness. The Rocky Cape Group, in turn, overlies the Cowrie Siltstone which was at least 2400m in thickness.

Structurally the Detention Quartzite is folded into a tight series of anticlines and synclines with north-east trending and dipping axes with folds becoming overturned in the east resulting in north-west dipping beds at 45 degrees or above.

Gee (1971) described the quartzites as uniformly fine grained orthoquartzites with 99% quartz grains and a granular to glassy texture depending on the degree of cementation by silica. Turner (1989) on the other hand preferred to call the mature, quartzose, sandy sediments quartz arenites and attributes their variable physical character as mostly due to variable silicification and occasionally to metamorphism.

The silica resources currently outlined in the licence are 0.35Mt of very hard, silicified sandstone or quartzite, 1.55 Mt of hard sandstone, 0.65 Mt of poorly consolidated or soft weathered sandstone and 2.45 Mt of unconsolidated sand. The potential uses of the resources include silicon metal, silica sand and quartzite for the chemical, metallurgical, glass petroleum and coal seam gas industries.

### **3.0 PREVIOUS EXPLORATION AND EVALUATION**

There has been a long history of exploration by MHA and a series of joint venture partners for a wide range of silica products at Thomas Mountain. Details of that work were provided in the 2007 report.

In 1993/4 MHA developed 42 hammer drill holes along 8 sections for 666m in the area SW of Hogarths Creek. This has allowed a resource estimate to be made for an area of about 25 Ha extent to a depth of 10 metres extending south- west of the Quarry site. (Duncan (2005) estimated an inferred resource of **5 million tonnes** of siliceous material in the area just south of Hogarths Creek which breaks down to –

**0.35 Mt of very hard, silicified sandstone,  
1.55 Mt of hard sandstone,  
0.65 Mt of poorly consolidated, soft sandstone and  
2.45 Mt of very soft sand**

Duncan suggested some infill drilling would be necessary to lift the resource to the Indicated level of the JORC Code. He also suggested a significant increase in resource was likely at depth and along strike to the NE and SW with an inferred 20 Mt of high grade sand and sandstone available as a conservative figure in the area of the Retention Licence.

In 2010 MHA was asked by Temco to supply a bulk sample of quartzite from Hogarth Creek to determine its suitability in the manufacture of Ferro – silicon at the Temco plant in Bell Bay. About 8,000 tonnes of quartzite was mined and crushed on site to +25 - 60mm size and 5,000 tonnes of sized material was shipped to Bell Bay. A full report has not yet been supplied but verbal information suggests the Hogarth Creek material provided superior furnace returns but the cost of transport to Bell Bay more than offset the cost of inferior local quartzite. (Great material but cost of transport is too high). Temco has subsequently ceased production of ferro-silicon and the Bell Bay plant is for sale.

In recent times considerable effort was put into testing the unconsolidated sand from Thomas Mountain as a propping agent in oil drilling. Dip Range sand was tested by **Stim Laboratories, Halliburton Services and Dowell Schlumberger** of the USA and **Santos and Amdel** in Australia. Tests were carried out on the 20/45 size range (US screen) which is the -850 to +420um fraction. Dip range sand is a fine / medium grained sand with a median value of about 250um with about 50% in the 20/45 size fraction

As summarized by Stim, the Dip Range sample passed the size analysis, the acid solubility test and the turbidity test but was slightly below standard for shape factor, grain clusters and crush resistance tests for deep wells. From the Amdel tests, it is found that the sand grains have a dramatic decrease in crush resistance at about 4000 psi which would, according to Halliburton, restrict the use of the sand to shallow wells where less than 1200 psi is required in the recovery of methane gas from coal seams.

#### **4.0 CURRENT EXPLORATION AND MARKETING**

In November 2011 MHA and Jericho resources collected 300 tonnes of quartzite from the Thomas Mountain mine site, bagged it and shipped it to Burnie. It was then shipped to China for furnace trials. The material arrived in China on 17<sup>th</sup> January and test results are awaited.

Marketing of the quartzite and frac sand resources has continued. A number of meetings have been made with Wacker Chemie AG, Jericho Resources, Dow Corning USA, and Adelaide Brighton Cement. Correspondence was maintained with Norton Abrasives, Baker Hughes (USA), Schlumberger, Halliburton Sibelco, Stikine Energy, US Silica, and Simcoa.

Temco was supplied with 61Kg of quartzite in January which they requested for a university research program.

Jericho resources supplied assays of the bulk sample material shipped to China and these are recorded in Appendix 1.

Philip Milner Landscape Consultant Pty.Ltd. was engaged to undertake an environmental assessment of the Thomas Mountain Mine area.

#### **5.0 EXPENDITURE**

It is important to note how MHA has recorded its expenditure on the Dip Range Project.

Its own audited accounts show MHA has spent \$457084.49. This has been reported to MRT over the years as these accounts do not include any overheads no overheads have ever been reported to MRT. With a 10% allowance this would amount to \$45,700 unrecorded expenditure.

Of more importance however is unreported expenditure by third parties. For example the collection, bagging and transport of the 300 tonne sample to Burnie Port cost Jeherico in the order of \$25,000. The shipping costs to China and the cost of furnace trials will be borne by the Chinese and none of this will be recorded by MHA. The costs of the 5000 tonne sample to Temco, including mining, crushing, transport to Bell Bay was all charged to Temco and completely unknown to MHA. The total cost would have to be in the order of \$1,000,000 none of which will ever be recorded against the Retention Licence.

Perhaps some provision should be made to record actual or estimated third party expenditure in the Quarterly returns of expenditure.

## **5.0 CONCLUSION**

Temco have suggested the higher transport costs make the Thomas mountain quartzite uneconomic at this stage. However Wacker Chemie AG, Sibelco and Jericho Resources are taking considerable interest in the quartzite. They are currently evaluating further participation.

Considerable interest in the potential for the Thomas Mountain mine to produce proppant sands for the expanding coal seam methane industry has also been generated. Some 40 to 60% of the unconsolidated sand falls within the favourable 20 to 40 mesh size range and in a commercial operation the run of mine material could be screened to produce a +30mm fraction of metallurgical silica, a 20 to 40 mesh fraction of frac sand and a -40 mesh fraction for glass sand. The deposit is too coarse for silica flour.

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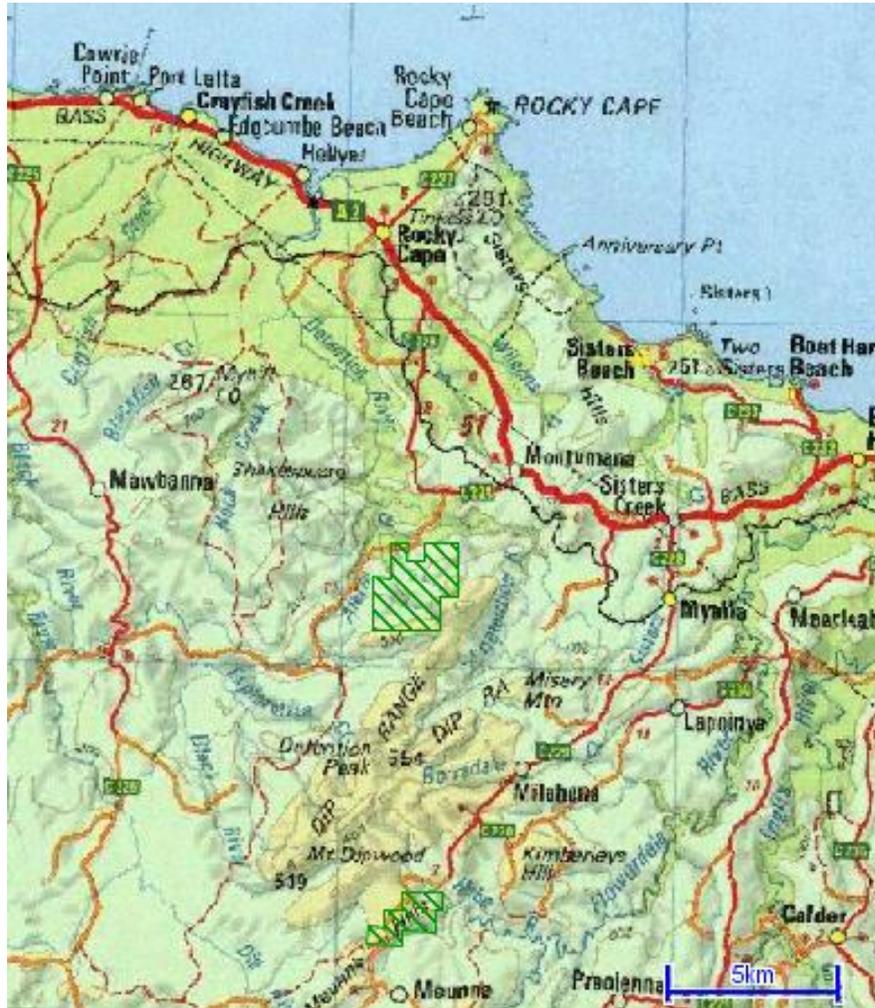
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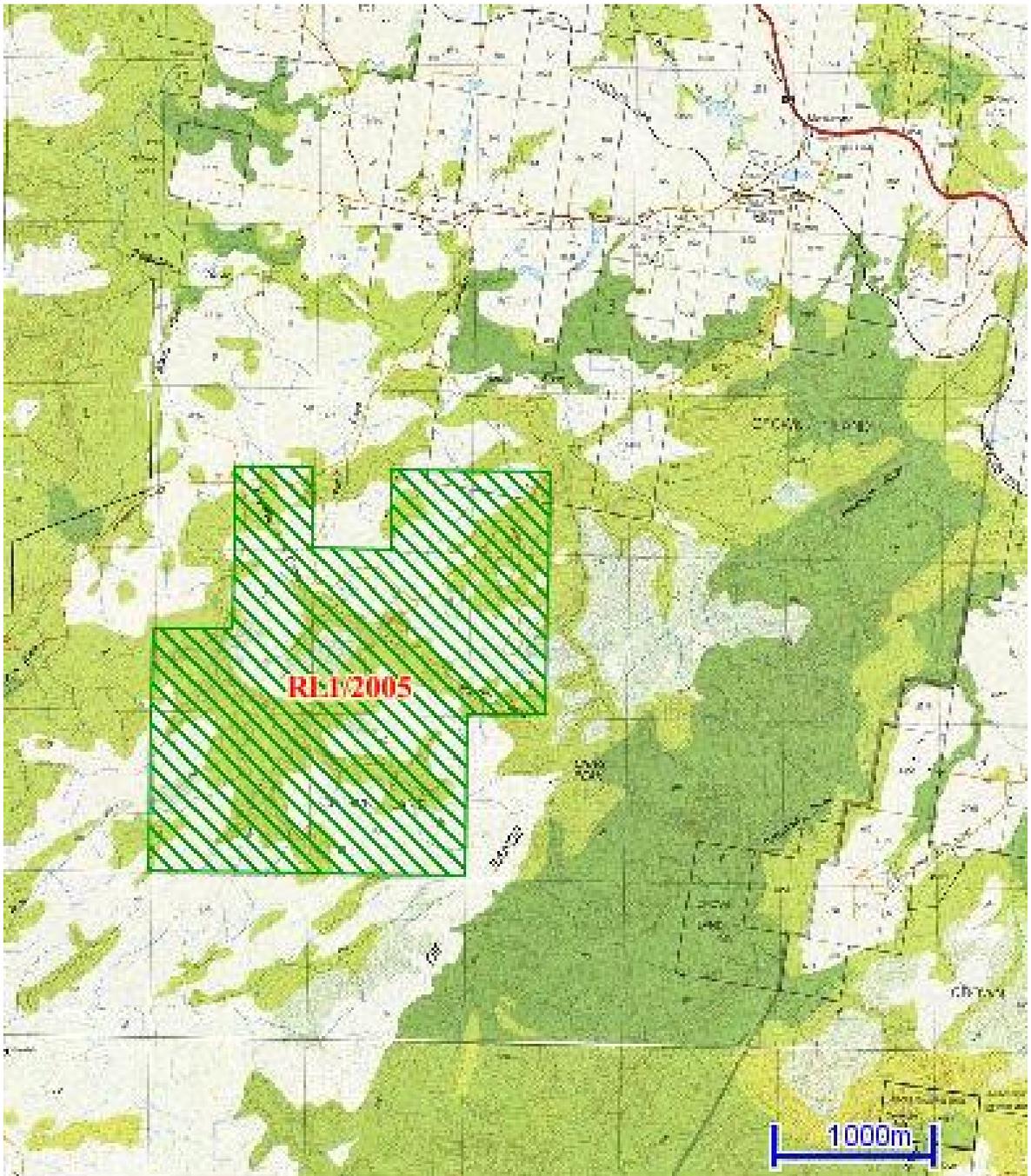
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## **7.0 KEYWORDS**

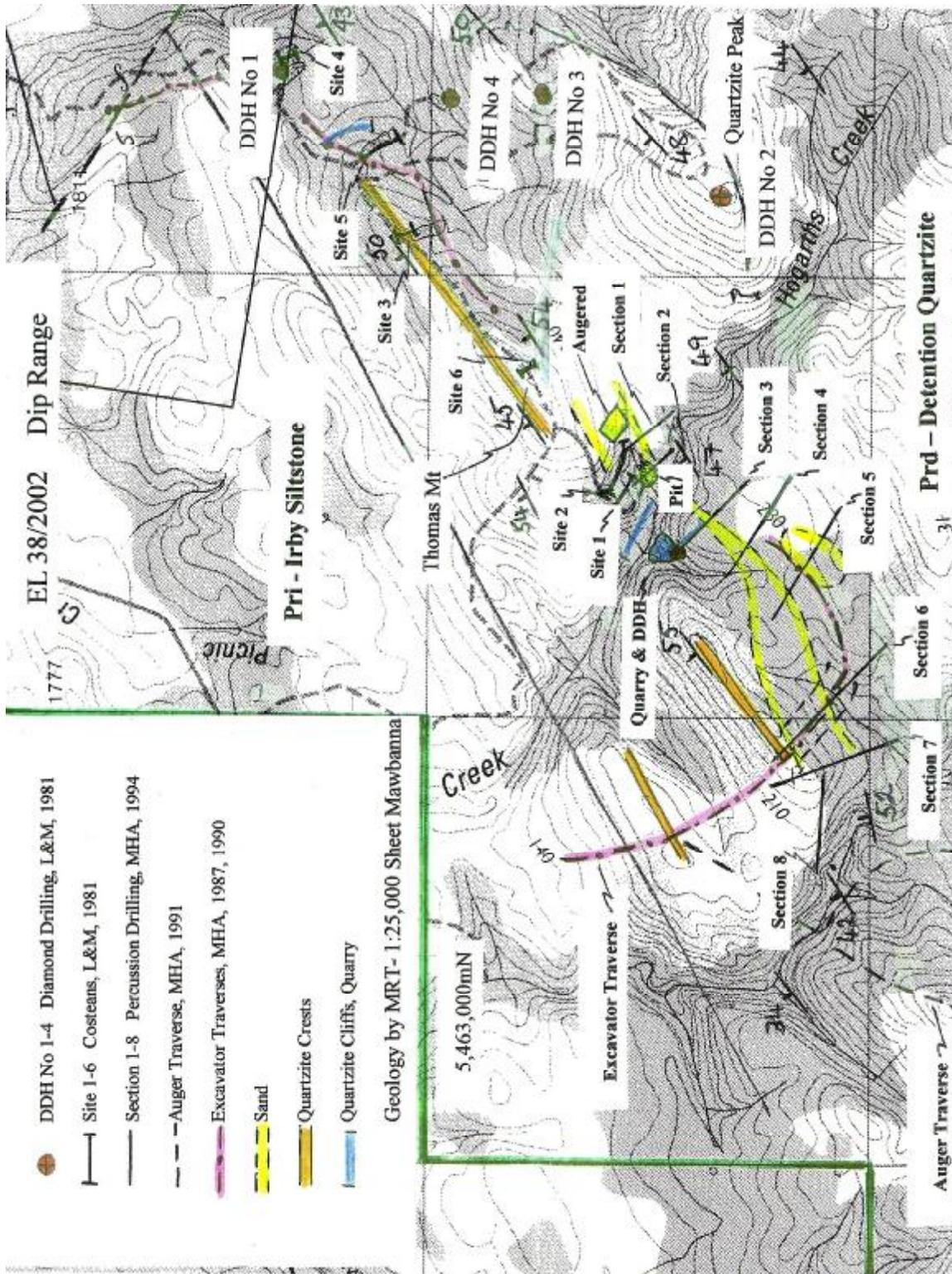
Dip Range, Thomas Mountain, Detention Subgroup, Rocky Cape Group, Sand, Quartzite, Silica Resources.



Location diagram RL 1/2005



PLAN 1 Location diagram RL 1/2005



# **APPENDIX 1**

## Assay result of 300t bulk sample



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ICP-OES ANALYTICAL REPORT

9<sup>th</sup> January, 2012

Sample ID : Thomas Mountain Quartzite

Element	Test Results	Test Results
PPM	TM-1.1 (09-01-2012)	TM-1.2 (09-01-2012)
Aluminum	177	142
Iron	88	72
Titanium	188	155
Chromium	0.6	0.5
Manganese	1.2	0.9
Calcium	31	30
Potassium	15	20
Lithium	0.19	0.14
Sodium	20	18.7
Phosphorus	8	5.8
Boron	4.1	2.4
Nickel	0.2	0.2
Zircon	19.3	17
Copper	1	1.1
Germanium	0.8	0.7
Uranium	0.97	1.04
Thorium	0.2	0.16
Tungsten	0.15	0.1
Vanadium	0.81	0.68
Barium	1.49	1.32
Total (ppm)	556.01	469.84

Method : ICP-OES  
 Reviewed By :  
 Phil Delacretaz

  
 Chief Technical Advisor



Sample	Al	Li	Na	K	Ca	Fe	Ti	Cr	Mn	Mg	Mi	Zn	P	B	Ge	U	Th	W	V	Mo	Sn	Total	
MPA	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
<b>Thomas Mountain</b>																							
TM-1 - Quartzite	177135	166	20070	15336	31070	66059	197979	1027	561	1236	2534	245	19387	6036	4143	779	968	210	152	610	19	1454	566437
TM-1.2 - Quartzite	142473	141	16771	20270	29789	73242	156676	1136	425	900	9490	210	17005	5002	2787	666	1037	159	104	678	3	1306	481612
<b>Average</b>	<b>159804</b>	<b>164</b>	<b>18421</b>	<b>17804</b>	<b>30430</b>	<b>80651</b>	<b>171776</b>	<b>1077</b>	<b>488</b>	<b>1103</b>	<b>11016</b>	<b>233</b>	<b>18207</b>	<b>5959</b>	<b>3070</b>	<b>733</b>	<b>1003</b>	<b>165</b>	<b>129</b>	<b>744</b>	<b>14</b>	<b>1410</b>	<b>525615</b>
TM-1a Sand	214152	408	25336	43066	20256	92367	200008	641	806	1296	20716	150	49139	7607	4326	622	862	276	143	1206	23	71218	
TM-1b Sand	213163	405	26891	43045	20655	89067	200663	811	775	1203	20536	144	48663	6980	4622	634	768	204	140	1149	32	704075	
<b>Average</b>	<b>213653</b>	<b>407</b>	<b>26110</b>	<b>43091</b>	<b>20199</b>	<b>90717</b>	<b>200006</b>	<b>626</b>	<b>790</b>	<b>1290</b>	<b>20626</b>	<b>147</b>	<b>49249</b>	<b>7293</b>	<b>4476</b>	<b>626</b>	<b>810</b>	<b>240</b>	<b>142</b>	<b>1179</b>	<b>77</b>	<b>700096</b>	
<b>Champion Rd</b>																							
C-1a - Raw	346090	264	36840	16011	278906	12800	61966	549	213.6	126	48964	144	2285	1291.8	33466	302.7	243	26.4	33.9	696	14.7	1236548	
C-1b - Raw	354098	258	36877	17196	253365	13077	73008	48.9	252.6	147	61942	204	1905	1390.8	31479	248.7	288	26.4	624	34.8		1284704	
<b>Average</b>	<b>351095</b>	<b>261</b>	<b>36808</b>	<b>16604</b>	<b>236651</b>	<b>12939</b>	<b>67482</b>	<b>51</b>	<b>233</b>	<b>137</b>	<b>53006</b>	<b>174</b>	<b>2000</b>	<b>1341</b>	<b>30468</b>	<b>276</b>	<b>251</b>	<b>26</b>	<b>32</b>	<b>606</b>	<b>25</b>	<b>1261626</b>	
CR-2 - After Process	239211	198	25193	15986	209410	6408	60046	6	2.5	12	266679	162	1700	430	26388	296	215	14	22	535	7	894045	
CR-2.2 - After Process	376342	216	20759	16703	219547	6884	68686	12	231	12	336022	348	1673	427	22122	316	194	13	31	538	7	1361883	
<b>Average</b>	<b>337277</b>	<b>207</b>	<b>24476</b>	<b>16346</b>	<b>211079</b>	<b>6646</b>	<b>66666</b>	<b>9</b>	<b>2.8</b>	<b>12</b>	<b>296301</b>	<b>255</b>	<b>1687</b>	<b>429</b>	<b>24255</b>	<b>307</b>	<b>205</b>	<b>14</b>	<b>27</b>	<b>537</b>	<b>7</b>	<b>979464</b>	