Liberty Mines Inc

Mineral Resource Estimation for the Redstone Nickel Mine, Ontario, Canada

Report Prepared for

Liberty Mines Inc
8925 – 51st Avenue
Suite 311A
Edmonton
AB, T6E 5J3

Report Prepared by

SRK Consulting
Engineers and Scientists

SRK CONSULTING (CANADA) INC.
Suite 1000, 25 Adelaide Street East
Toronto, ON M5C 3A1
Tel: (416) 601-1445
Fax: (416) 601-9046
Web Address: www.srk.com
E-mail: toronto@srk.com

Project Reference Number: 3CL008.000

August 23, 2007
Mineral Resource Estimation for the Redstone Nickel Mine in Ontario, Canada

Liberty Mines Inc
8925 – 51st Avenue, Suite 311A
Edmonton AB, T6E 5J3
Tel: 780. 485.2299  Fax: 780. 485.2253
E-mail: gnash@libertymines.com  Web site: www.libertymines.com

SRK Consulting (Canada) Inc.
Suite 1000 – 25 Adelaide Street East
Toronto, Ontario M5C 3A1
Tel: 416.601.1445  Fax: 416.601.9046
E-mail: toronto@srk.com  Web site: www.srk.com

SRK Project Number 3CL008.000

August 23, 2007

Compiled by:

Reviewed and Endorsed by:

Glen Cole, P.Geo
Principal Resource Geologist

Jean-Francois Couture, Ph.D., P.Geo
Principal Geologist

Cover: a) Photograph of drill core from drill hole R07-06A Redstone Mine, highlighting massive sulphide horizon and b) long section across modeled Redstone deposit showing drilling coverage.
Executive Summary

Introduction

The assets of Liberty Mines Inc (“Liberty”) include an interest in the operating Redstone Nickel Mine (“Redstone”), which is located 24 kilometers south east of Timmins, Ontario, Canada. Subsequent to a period of closure and dewatering, Redstone re-commenced production in May 2006 and has achieved a maximum production rate of 200 tonnes per day. An aggressive surface and underground drilling campaign has been initiated at Redstone to further define the nickeliferous massive sulphide deposit here and to follow up on significant drilling intercepts identified from previous drilling campaigns.

In July 2006, SRK Consulting (Canada) Inc. (“SRK”) was retained by Liberty to compile a resource / reserve estimation and technical report for the Redstone Nickel Mine. The scope of work included two site visits to examine the property (conducted in August 2006 and in June 2007), review available technical information, interview project personnel and collect of all relevant information for the compilation of the technical report and resource estimation according to Canadian Securities Administrators NI43-101 and Form 43-101F1 guidelines in conformity with generally accepted CIM “Exploration Best Practices” and “Estimation of Mineral Resource and Mineral Reserves Best Practices” guidelines.

This classified resource estimate is the first NI43-101 compliant resource estimate to be completed at Redstone. SRK and Redstone staff has worked together to format and compile all the information required for this resource estimate over a period of about nine months.

The completion of this project was dependant on the completion of a pre-determined surface and underground drilling campaign completed to ‘best practice’ standards. This initial resource modelling and estimate will form the framework upon which future drilling campaigns will be designed.

Work Program

SRK and Redstone staff had discussions on various aspects of the data required for resource estimation during the period September 2006 to May 2007, including preliminary drill intercepts and their implications for resource modelling and estimation.

SRK received the final edited Redstone database (in Datamine and excel formats) from Liberty on 12 June 2007 during a site visit. This database included validated drillhole files, topographic surfaces, mined – out underground workings, a specific gravity database as well as an interpretive point file delineating the massive sulphide – footwall contact. These datasets formed the basis for the construction of 3D mineralized shells in June 2007.

Geostatistics, block modelling and resource estimation commenced in late June 2007 and were completed by mid July 2007. A preliminary resource statement was generated by SRK in July 2007, which led to a Liberty news release on 11 July 2007.

The requisite technical report was generated in July and August 2007. The major portion of this work program was completed at the SRK Toronto offices with material and data received from Redstone Project staff.
Geology and Mineralization

The Redstone property is located in the Archean age Abitibi Greenstone Belt of the Canadian Shield with local geology comprising of intermediate and felsic tuffs and sulphidic iron formation of the Deloro Assemblage disconformably overlain by komatiites and basalts of the Tisdale Assemblage.

Narrow porphyry dykes and sills intrude this volcanic sequence. A massive nickeliferous sulphide zone of variable thickness is preserved at the base of the komatiite unit at Redstone. Exploration and subsequent mining activity has been focussed on this horizon, although economically significant stringer nickeliferous sulphides do occur in the immediate hanging wall of the massive sulphides and structurally emplaced duplications of the massive horizon have been locally identified.

In the massive sulphide mineralization the main nickel sulphide mineral is pentlandite with minor amounts of millerite, violarite, gersdorffite and niccolite. Pyrite and pyrrhotite constitute 5 to 50% of the total sulphides with chalcopyrite present as an accessory mineral.

Exploration

The nickeliferous massive sulphide deposit at Redstone was discovered in 1987. Exploration activity since that time has included various phases of core diamond drilling from surface and from underground (including a current drilling campaign by Liberty). During 2002, Inco completed a UTEM electromagnetic survey and a magnetic survey of the property. These geophysical surveys identified highly prospective conductors within the Redstone Property.

As of June 2007, the Redstone exploration database is comprised of a total of 190 diamond drill holes. In addition, an underground sampling database of 2,718 records has been compiled and used for resource estimation purposes in this study.

Mineral Resource Estimation

Previous resource estimates at Redstone include that of Black Hawk Mining in 1995, which completed a resource estimate for mineralization identified in the 213 to 335 metre interval of the Redstone Mine. The resource estimate prepared by SRK is the first NI43-101 compliant resource estimate for the entire Redstone deposit, representing a new resource model for the Redstone deposit and supersedes any previous estimates. The mineral resources presented herein are reported in accordance with the Canadian Securities Administrators’ National Instrument 43-101 and have been estimated in conformity with generally accepted CIM “Estimation of Mineral Resource and Mineral Reserves Best Practices” guidelines.

The database used for resource estimation includes exploration drilling data collected during five exploration programs conducted during the period 1976 to 2007. The total database comprises 2,888 sample records from 190 drill holes and an additional 2,718 underground development sampling records. Although SRK could only review procedures and protocols applied to derive the Liberty portion of the dataset (38% of total sample records), SRK is of the opinion that the Redstone dataset is adequate for resource modelling and grade estimation for this style of sulphide mineralization.

Nickel (and copper) grades are spatially related to two kinds of sulphide mineralization at Redstone. The highest, most continuous grades are associated with the basal massive sulphide mineralization horizon which is locally highly variable in thickness. Overlaying the massive sulphide mineralization, stringer type sulphides occur which
are discontinuous in nature and associated with highly variable nickel grades. A
simplistic modelling methodology was devised to geologically model these two styles
of mineralization. These modelled surfaces also form hard boundaries for the selection
of data representing the two mineral types for geostatistical analyses and variography.
Mined out portions of Redstone have also been modelled.

Certain intervals within the historical database were not sampled for reasons unknown.
A composite file was created using uncapped values starting at the drillhole collar
position and defined within the mineralized solid for the two mineralization types. All
assays were composited to 1.0 metre intervals and extracted to a workspace for
statistical analyses and grade interpolation.

After careful examination of the composite data, SRK decided not to apply any
capping to the composited copper dataset. For the nickel data, the following capping
levels were applied:

- Massive sulphide zone: 25% Ni;
- Stringer type sulphide zone: 20% Ni.

Traditional experimental variograms for nickel and copper were modeled from the
composited datasets from the basal massive sulphide and overlying stringer type
sulphides for all three principle directions. A total of twelve variograms were then
fitted, yielding the directional ranges which were applied in the grade estimation
process.

For nickel and copper the major axis (Y) is orientated at N135 degrees, the regular
minor axis (X) orientated at N045 degrees and the Z axis being orientated
perpendicular to these. For nickel and copper the variogram reference plane has a dip
of -60 degrees towards the southeast.

The selected block size was set at three meters by two meters by two meters in the
easting, northing and elevation directions respectively. Block grades were estimated
using an inverse distance squared (ID²) estimator. Block grade estimation was
completed in a single pass using the search ellipse ranges defined by variography.

In terms of classification criteria, blocks with Z > 2750 metres (shallow) are classified
as measured, blocks with 2525 metres < Z < 2750 metres (intermediate depths) are
classified as indicated, whereas blocks with Z < 2525 metres are classified as inferred
(deep). Various geological and data density criteria were also applied in the
classification process. The block models were coded to differentiate between the
various different classification codes.

Mineral resources for the Redstone deposit have been classified according to the “CIM
Standards on Mineral Resources and Reserves: Definitions and Guidelines”
(December, 2005) by Glen Cole, P.Geo an appropriate Qualified Person as defined by
NI43-101.

A tabulated Mineral Resource statement for the Redstone Deposit is presented in
Table i.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Tonnage (000's T)</th>
<th>Nickel (%)</th>
<th>Copper (%)</th>
<th>Contained Nickel (T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured</td>
<td>274</td>
<td>2.64</td>
<td>0.01</td>
<td>7,236</td>
</tr>
<tr>
<td>Indicated</td>
<td>145</td>
<td>1.70</td>
<td>0.02</td>
<td>2,462</td>
</tr>
<tr>
<td>Inferred</td>
<td>148</td>
<td>3.44</td>
<td>0.00</td>
<td>5,099</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>567</strong></td>
<td><strong>2.61</strong></td>
<td><strong>0.01</strong></td>
<td><strong>14,797</strong></td>
</tr>
</tbody>
</table>

*Reported at 0.7% nickel cut-off. All figures have been rounded to reflect the accuracy of the estimate.

**Recommendations**

Significant nickel (and copper) mineralization has been identified at the Redstone Mine. Confidence in estimating mineral resources at Redstone (and subsequently their classification) is determined by various factors, including the following:

- An appreciation of the variables associated with komatiite-associated Ni-(Cu) deposits;
- An understanding of the 3D structural geological framework of the nickel sulphide mineralization;
- The drilling density;
- Proximity to historically mined out areas, with associated detailed geological mapping (and sampling);
- Whether the available data was derived pre-2004 or after 2004. Data derived after 2004 was generated by Liberty using industry best practices.

It is important to note that a significant portion (about 56%) of the geological model is located between 510 metres and 1,150 metres below surface. The confidence of the geological model in this zone is low, due to the lack of informing data. SRK considers that this initial geological model and resource estimate for Redstone represents a ‘starting point’ or framework upon which to base future exploration. SRK believes that if best practice guidelines are continued to be applied in future exploration programs, that there is a strong potential to increase the Inferred Resources in this zone and to upgrade the current Inferred resources to Indicated with additional drilling.

SRK is of the opinion that there is good potential to grow the mineral resources for the Redstone project with additional exploration. SRK recommends that Liberty consider the following aspects during future exploration drilling:

- Increase the drill density in the area 510 to 1,150 metres;
- Produce a detailed structural model for the Redstone Mine, which would improve the quality of the 3D geological model;
- Consideration should be given to getting an experienced structural geologist on site to provide insight and training for Redstone exploration staff to facilitate structural data collection, interpretation and 3D modeling;
- Attempt to map out the extent of known ‘hanging wall stinger type ore zones’ and to reconcile with the structural model;
- Geologically map the larger intrusions which occur in proximity to the zones of mineralization and incorporate them into the 3D model;
- Attempt to map out the thicker portions of the massive sulphide zone towards the margins of the deposit and incorporate into the 3D geological model;
• Continue with the current QAQC protocols relating to sample preparation and analyses. Consideration should be given to acquiring a new ‘blank’ standard;
• With the availability of Datamine on site, it would be beneficial to model new drill data soon after receipt to assess impact on drilling program;
• The resource model should be ‘updated’ once the geological model has been ‘upgraded’ and when the data density in the zone between 510 and 1,150 metres has increased considerably;
• Exploration staff should attempt to identify large ‘hanging wall stringer type ore zones’ which could be mined economically.

The Measured and Indicated mineral resources should be converted to a mineral reserve by applying appropriate mining methodologies and costs. Geotechnical recommendations relating to particularly stope support, to compensate for the structurally weak base of the massive sulphide zone, should be taken into account.

The focus on exploration drilling, which commenced in 2006, should continue. Liberty has planned an intensive diamond drilling exploration program at Redstone, which is scheduled to run from 2007 (already commenced) to 2010. The total planned drill meters are estimated at 39,000 meters, which will be achieved from a combination of deep surface drilling, exploration drilling from underground development drifts (on three levels) as well as drilling from an exploration shaft. The total costs of that exploration drilling program are estimated at approximately CN$3.1 million.
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1 Introduction

The assets of Liberty Mines Inc ("Liberty") include an interest in the operating Redstone Nickel Mine ("Redstone"), which is located 24 kilometres south east of Timmins, Ontario, Canada.

Subsequent to a period of closure and dewatering, Redstone re-commenced production in May 2006 and has achieved a maximum production rate of 200 tonnes per day. An aggressive surface and underground drilling campaign has been initiated at Redstone to further define the nickeliferous massive sulphide deposit here and to follow up on significant drilling intercepts identified from previous drilling campaigns.

Motivated by buoyant commodity prices, Liberty intends to accurately delineate this deposit through a two phase exploration strategy. Drilling up to April 2007 has focussed on the potential shallower resource above the 508m level of the mine, whereas ongoing and future drilling will focus on the potential deeper resource between the 508 metre and 1200 metre levels of the mine.

In June 2006, SRK Consulting (Canada) Inc. ("SRK") was retained by Liberty to compile a resource estimate and a technical report for the Redstone Nickel Mine property. Much of the data to be utilized in the resource estimation process is derived from historical sources. Included in this contract was the understanding that SRK would assist Liberty in formatting, compilation and validation of all information and data to be inputted into the resource modelling and estimation process. This preparation work was completed prior to the resource estimation process and occurred simultaneously to the completion of requisite drilling by Liberty during the period August 2006 to June 2007.

This technical report describes the resource estimation work conducted by SRK on data available as of 30 April 2007. This Canadian Securities Administrators National Instrument 43-101 ("NI43-101") compliant resource estimate and classification is the first auditable resource estimation conducted at Redstone.

Future exploration in 2007 and thereafter, will target the deeper portion of this deposit and will take cognisance of recommendations outlined in this technical report. Access to current mine workings is via a ramp from surface. Limited encouraging drilling results from historical exploration programs at depth have motivated Liberty to commence with the construction of a shaft to enable future access to the potential resources at depths below the 508m mine level.

1.1 Background of the Project

Liberty first approached SRK in June 2006 to commission a NI43-101 compliant resource estimate for the Redstone Property. To initiate the
project, a site visit was made by SRK on 17 August 2006 to evaluate the issues that would impact on the generation of a NI43-101 compliant resource.

Following the site visit, a technical memo was drafted by SRK highlighting recommended best practice procedures and on data required to enable resource estimate for the Redstone Mine. Of concern was the fact that the ownership of the Redstone project had changed several times since 1987 and that this had contributed to a fragmented data source with sometimes unvalidated integrity. Measures were suggested to remedy the situation and best practice procedures were implemented by Redstone staff.

During the period August 2006 to June 2007, SRK and Liberty worked together to compile a validated database to be used in the resource modelling and estimation process. This collaboration resulted in the verification, digital capturing and formatting of the entire Redstone underground development sampling database from the original paper plans.

It was decided to use all drilling information up to 30 April 2007 for the purposes of this resource estimation. SRK received the final validated database from Liberty in Datamine and excel format on 12 June 2007 during a second site visit by SRK. This database included validated drillhole files, topographic surfaces, mined – out underground workings, a specific gravity database as well as an interpretive point file delineating the massive sulphide – footwall contact. These datasets formed the basis for the construction of 3D mineralized shells in June 2007.

Geostatistics, block modelling and resource estimation commenced in late June 2007 and were completed by mid July 2007. A preliminary resource statement was generated by SRK in July 2007, which led to a Liberty news release on 11 July 2007.

This technical report was generated in July and August 2007. The major portion of this work program was completed at the SRK Toronto offices with material and data received from Redstone Project staff.

1.2 Qualification of SRK

The SRK Group comprises over 500 professionals, offering expertise in a wide range of resource engineering disciplines. The SRK Group’s independence is ensured by the fact that it holds no equity in any project and that its ownership rests solely with its staff. This permits SRK to provide its clients with conflict-free and objective recommendations on crucial judgment issues. SRK has a demonstrated track record in undertaking independent assessments of Mineral Resources and Mineral Reserves, project evaluations and audits, technical reports and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies and financial institutions worldwide. The SRK Group has also worked with a large number of major international mining companies and their projects, providing mining industry consultancy service inputs.
1.3 Scope of Work

The scope of work, as defined in a proposal presented by SRK to Liberty on June 26, 2006 includes the construction of a mineral resource model based largely on a drill dataset (comprising historical and current data). This work was to be supported by an independently prepared technical report formatted in compliance with NI43-101 guidelines.

Typically the preparation of a technical report and resource estimation for an mineral project involves the review and analyses of the following aspects of the project:

1. Regional and local geology;
2. Exploration work carried out on the project;
3. Audit of exploration database;
4. Review of quality assurance and quality control measures;
5. Definition of a geological model / mineralization framework;
6. Resource estimation methodology (geostatistics including variography);
7. Validation;
8. Outline of the resource classification methodology;
9. Exploration potential and recommendations for additional work.

The scope of work included a site visit to examine the property, review available technical information, interview project personnel and collect all relevant information for the compilation of the technical report according to NI43-101 and Form 43-101F1 guidelines in conformity with generally accepted CIM “Exploration Best Practices” and “Estimation of Mineral Resource and Mineral Reserves Best Practices” guidelines.

The technical report only discloses mineral resources as classified under the CIM Standards on Mineral Resources and Reserves: Definitions and Guidelines (December, 2005).

The original scope of work also made provision for the conversion of the Measured and Indicated mineral resources into a mineral reserve as well as for an analysis of the mining economics under various scenarios. This will be the scope for ongoing work in close collaboration between Liberty and SRK staff.

1.4 Project Team

This technical report was compiled by Mr. Glen Cole, P.Geo. (APGO#1416) and was reviewed by Dr. Jean-Francois Couture, P.Geo (APGO#0197). Mr. Cole is a Principal Resource Geologist with SRK. He has been practicing his profession continuously since 1986 and has extensive experience in estimating mineral resources in North America as well as in Southern and West Africa. Mr. Cole visited the project on two occasions: initially on 17 August 2006 and then again during the period 4 to 6 June 2007.
Dr. Couture is a Principal Geologist with SRK and has been employed by SRK since 2001. He has been engaged in mineral exploration and mineral deposit studies since 1982. Since joining SRK, Dr. Couture has prepared independent technical reports on several exploration projects in Canada, United States, China, Kazakhstan, Northern Europe, West Africa and South Africa. Dr. Couture did not visit the project area.

1.5 Basis of the Technical Report

This report is based on information provided to SRK by Liberty as well as information collected during the site visits.

SRK conducted certain verifications of exploration data from the Liberty drilling program from drill core, files and records maintained by Redstone Mine staff. Limited data verifications were possible for pre-Liberty data.

This technical report is based on the following sources of information:

- Discussions with Liberty VP: Exploration Mr William Randall;
- Datasets provided by Liberty;
- Review of historical plans and sections for the Redstone Mine;
- Underground and field data verifications derived from the site visits;
- Additional information obtained from the public domain sources.

1.6 Site Visit

In compliance with NI 43-101 guidelines, Mr Cole visited the Redstone Mine site during the periods 17 August 2006 and from 4 to 6 June 2007.

The main purpose of the site visits were to conduct geological investigations underground and to validate certain historical data considered for resource estimation. This validation process included the inspection of underground drill collar locations and the inspection of drill core from the Liberty drilling program in 2006 and 2007. Validation samples of split sampled core were taken by SRK.

The site visit also enabled technical discussions with project staff and for the on site compilation of information required for the technical report.

1.7 Acknowledgements

SRK would like to acknowledge the support and input provided by Liberty and Redstone Mine personnel for the preparation of this report. Mr William Randall in particular provided all the validated and formatted data and provided valuable technical insight and suggestions that enhanced the resource modelling process.
2 Reliance on other Experts

SRK’s opinion contained herein and effective August 23, 2007, is based on information provided to SRK by Liberty throughout the course of SRK’s investigations, which in turn reflect various technical and economic conditions at the time of writing. Given the nature of the mining business environment, these conditions can change significantly over relatively short periods of time. Consequently actual results may be significantly more or less favourable.

Much of the Redstone project database originates from historically derived exploration programs and sampling activities. This data cannot always be adequately verified and a reliance on the integrity of such data received from Liberty exists.

This report includes technical information, which requires subsequent calculations to derive sub-totals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, SRK does not consider them to be material.

SRK is not an insider, associate or an affiliate of Liberty, and neither SRK nor any affiliate has acted as advisor to Liberty or its affiliates in connection with this project. The results of the technical review by SRK are not dependent on any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings.

SRK has not researched ownership information such as property title and mineral rights and has relied on information provided by Liberty as to the actual status of the mineral titles.

Potential environmental liabilities associated with the Redstone Property were excluded from the work program. As such, no verification was conducted by SRK and no opinion is expressed regarding the environmental aspect of this exploration project.

SRK was informed by Liberty that there are no known litigations potentially affecting the Redstone Property.
3 Property Description and Location

3.1 Introduction

The general location of the Redstone Mine is shown in Figure 1. The Redstone property is located 24 kilometres south east of Timmins. The Redstone Mine property is located in the west central part of Eldorado Township, Porcupine Mining Division in Ontario. Eldorado Township is located within the Regional Municipality of Timmins. A detailed location map of the Redstone Mine in relation to Central Ontario infrastructure is provided in Figure 2.

Figure 1: Location of the Redstone Mine in central Ontario, Canada.
3.2 Land Tenure

The Redstone property consists of a total of three patented mining claims held by Liberty Mines Inc. These claims total 1002.1 hectares. These legally surveyed claims are shown in Figure 3. The tabulated details of these claims are listed in Appendix 1.

3.3 Underlying Agreements

The company Timmins Metal Corporation was vended into Liberty Mineral Exploration Inc. on September 15, 2003 in exchange for 2,840,000 shares of the company. The name ‘Liberty Mineral Exploration Inc’ was then changed to Liberty Mines Inc. on June 30th, 2005.

On May 31st, 2006 1001931 Ontario Limited and Timmins Metal Corporation were amalgamated with Liberty Mines Inc, so now Liberty Mines Inc. owns one hundred per cent of the Redstone property with no subsidiary involved. There are also no outstanding agreements relating to the ownership of the Redstone Property.
Figure 3: Redstone Property Mining Claim Plan.
4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Redstone property is located 24 kilometres south east of Timmins and is accessible through a network of secondary forestry roads extending south from South Porcupine (Figure 2). Two wheel drive vehicles can access the property in all seasons.

Timmins is a thriving mining community with a rich mining history and is the largest centre of commercial and social activity in the region. Most mining and exploration related equipment, services, supplies and personnel are sourced from Timmins. Modern telecommunications, a scheduled airline, partial rail service and numerous truck transportation companies service Timmins and vicinity.

The Physiography of Eldorado Township is characterized by low relief and a thick cover of proglacial lacustrine clay and silt, which results in poor drainage and extensive areas of wet muskeg. Local relief is approximately 30 metres associated with diabase dykes rising above an average elevation of approximately 290 metres. Thick alder and cedar swamps cover approximately half of the property. The area is drained northward by the Redstone River, which drains into the Nighthawk Lake, the Frederick House River and eventually into Hudson’s Bay.

Forestry companies have harvested most of the local area. Spruce, pine and fir were cut, leaving little merchantable timber on the property. Other local resources include an abundance of water and modest amounts of sand and gravel.

The climate is typical of northern boreal forest areas, with extended periods of sub zero temperatures in the winter months of November through to March. Moderate temperatures prevail during the summer months with temperatures in the range of 10-30 degrees Celsius accompanied by moderate precipitation. Experience indicates that most preliminary exploration activities can be executed in the summer months.

The Redstone surface area is large enough to accommodate all future construction of mining and processing facilities with related tailings and waste storage areas (Figure 4). A site photograph and associated plan showing the design of the recently constructed processing facility (Mill buildings and associated tailings and waste areas) at Redstone is shown in Figure 4.
Figure 4: Top: Redstone Mine and Mill site. Bottom: Mill site plan showing all associated infrastructure (from: www.libertymines.com).
5 History

The details of this section are modified from a comprehensive summary by Harron (2003). The earliest recorded geological observations in the area were by Burwash in 1896, who mapped along the Eldorado / Adams townships boundary. Additional reconnaissance style geological mapping observations along the Redstone River appear in Burrows (1912). Harding and Berry (1939) geologically mapped Adams and Eldorado townships for the Ontario Division of Mines at a scale of 1:63,360 and Pyke (1975) re-mapped the same townships at a scale of 1: 31,680 also for the Ontario Division of Mines.

Mineral exploration probably dates back to the 1906 Porcupine "gold rush" as the Redstone River was an important access route to the Timmins area. Approximately 20 old trenches and pits are known on the Redstone property and appear to focus on the gold potential of the iron formations. One pit in the northeast corner of the property exposes massive pyrrhotite containing disseminated chalcopyrite associated with a layer of iron formation.

In 1947 Mercury Investors Company Limited held claims in the vicinity of the northern boundary of CLM 244. Work concentrated on quartz veins hosted in felsic volcanic rocks of the Deloro Group. An initial grab sample assay of 75.5 g/t Au was not substantiated by additional exploration (Pyke, 1975).

In 1951 Dominion Gulf Company completed an airborne magnetic survey of an area south of Timmins that included Eldorado Township. This survey detected the large northeast-trending gabbroic dykes and the extensive iron formations. The extent of any ground follow up is unknown.

In 1959-60, Texasgulf Sulphur Company completed an airborne geophysical survey of the townships covering the Shaw Dome with follow up ground geophysical surveys. Diamond drilling tested several geophysical targets intersecting pyrite and pyrrhotite mineralization.

In 1961 Falconbridge Nickel Mines Limited held claims covering the eastern central part of the current property. Work consisted of geological mapping, which recognized the significance of sulphide mineralization located at the base of the ultramafic volcanic flows. Further work consisted of MAG and HLEM surveys followed by a total of 533 meters of diamond drilling at 13 sites along two sulphide-bearing iron formations (Kilburn, 1961).

Following the announcement of the Kidd Creek discovery, in 1964, Mespi Mines Limited / Acme Gas and Oil Company Limited / B. Lang contracted a combined airborne AMAG and AEM survey over a large area that included the Redstone Property. There is no ground follow-up exploration work recorded as a result of this survey.

In 1964 Mining Corporation (1964) Limited explored a 32 claim area previously explored by Falconbridge Nickel Limited in the east central and south-eastern parts of the current property (Britton, 1964). Work consisted of MAG and VLEM surveys followed by trenching and 14 diamond drill holes.
(488 metres). The best assayed intersection from the trenching returned 4.5 g/t Ag and 0.32% Ni over 9.1 metres. Diamond drilling is reported to have intersected barren massive and disseminated pyrite as well as pyrrhotite mineralization.

In 1968 Canadian Nickel Company Limited ("Canico") held claims covering most of the current property. Exploration activities included MAG and HLEM surveys and geological mapping, followed by 5 diamond drill holes (1,276 metres) that returned assays containing low concentrations of Ni and Cu.

Mr. R. Draper staked 16 claims in the west central part of the township in 1964. Work in 1968 consisted of MAG and HLEM surveys that outlined numerous conductors. In 1969 the same area was resurveyed with a Crone JEM electromagnetic system that provided better resolution of the electromagnetic conductors, including the conductor associated with the R Zone deposit (AFRI 42A06SE0106).

In 1969 Mr. A. Bessette held 10 claims immediately south of the Draper claims and within the southwest corner of the current property. The extent of exploration work completed on these claims is unknown (Pyke, 1975).

In 1976 Utah Mines Limited staked the former 16 claim Draper property and added an additional 47 claims to the east in 1977 (Godbout, 1978). Exploration work completed to the end of 1979 included geological mapping, MAG and HLEM surveys over the entire property, and 51 diamond drill holes. Thirteen of these tested barren sulphide mineralization associated with electromagnetic conductors and the balance were used to define the "R" Zone mineralization. The "R" Zone is the principal nickeliferous sulphide deposit in the Redstone Mine.

In 1988 BHP-Utah Mines Limited (successor to Utah Mines Limited) completed DDH R52-88 to a depth of 616 metres. The hole was designed to test the depth potential of the sulphide mineralization, but terminated in diabase dyke.

In 1988 TNI acquired a 51% interest in a joint venture with BHP-Utah Mines Limited for the development of the Redstone Mine. Drill hole R 52-88 was deepened and intersected 2.76% Ni over a core length of 5.9 metres at a depth of 731 metres, demonstrating the existence of potentially economic mineralization to at least that depth.

In 1989 TNI completed a 3,353-meter surface diamond drilling exploration program designed to expand the sulphide mineralization, and to provide more detailed data required for a pre-NI43-101 reserve calculation. In addition, mine development via a ramp from surface commenced in January 1989. Underground work consisted of extending the ramp down to 229 meters below surface, and the establishment of 11 levels at the 31, 46, 61, 82,104, 125, 152, 183, 198, 213, and 229 metre levels.

In 1991 TNI contracted Overburden Drill Management Limited to conduct heavy mineral geochemical sampling of Quaternary glacigenic sediments and
chip sampling of the bedrock in the vicinity of the Redstone (R Zone) deposit. Nineteen vertical reverse circulation drill holes (130.7 metres) were drilled. The holes were drilled 50 to 100 metres apart in an irregular pattern covering a 400 by 500 metres area located to the south (down - ice) of the Redstone deposit. A total of 30 overburden samples and 19 bedrock chip samples were collected (Averill, 1991). Analyses of the sulphide portion of the heavy mineral concentrates indicate that values> 1,000 ppm Ni define the R Zone mineralization for a distance of 300 metres in the down - ice direction.

In 1991 TNI purchased the remaining 49% interest in the joint venture from BHP-Utah Mines Ltd. Mining began in November of 1989 and continued until July of 1992, primarily employing conventional shrinkage and up-dip panel stope mining methods with rare long-hole techniques employed for sill and pillar recovery. During this time 270,334 tonnes with an average grade of 2.41% Ni were extracted and processed at the nearby Langmuir Mill.

In November 1992, 1001931 Ontario Limited, then a wholly owned subsidiary of Black Hawk acquired the Redstone property and all equipment and infrastructure from the Trustee in Bankruptcy for TNI for $250,000. Sherritt Gordon Limited ("Sherritt Gordon"), (holder of a mortgage on the property) was granted a 2% net smelter royalty (to a maximum of $337,500) by Black Hawk. The agreement also specified that after Black Hawk spent $400,000 on exploration, Sherritt Gordon could elect to convert its net smelter royalty into a 40% working interest upon payment of $160,000 to Black Hawk. On March 30, 1998 the Sherritt Gordon (now Viridian Corporation) royalty agreement was modified to reflect discharge of the mortgage on the property and confirmation of a 2% net smelter royalty on production from the property.

During 1994/1995 Black Hawk performed 8,886 metres of surface diamond drilling to define an indicated resource from the 229 metre to the 335 metre level. A total of 25 diamond drill holes intersected the ultramafic-footwall volcanic contact between 229 and 320 metres below surface. The vertical interval between the 320 metre and the 731 metre elevation (DOH R 52-88, 2.76% Ni over a true width of 5.9 metres) was not drill tested. Highlights include 12.9% Ni over a core length of 1.2 metres at a vertical depth of 262.1 metres in DDH # BH94-1, and 16.84 % Ni over a core length of 1.8 metres at a vertical depth of 307.2 metres in DDH # BH94-3.

Black Hawk mining subsequently dewatered and placed the mine back into production in November 1995. Before the mine shut down in January 1996 the ramp was extended for another 30 vertical meters to 259 metres below surface, completing development on the 229 metre level and minor development on the 244 metre level. Stopes were prepared but no mining was reported, producing 5039 tonnes with an average grade of 1.66% Ni of development ore.

In October 2000, Timmins Metal Corporation (TMC) purchased 1001931 from Black Hawk in order to acquire the property and maintain the status of the existing closure plan. At the same time TMC acquired all rights and obligations attached to the Viridian Corporation (Sherritt Gordon) royalty agreement.
In December 2002, Timmins Metal Corp. granted an option to Inco to acquire an initial 60% interest in the property, with a further right to acquire an additional 10% interest. Inco carried out an exploration program designed to test the continuity of nickeliferous sulphide mineralization in the 335 to 731 metres depth interval, and drilled three UTEM anomalies at sites within 2 kilometres of the R Zone mineralization.

Timmins Metal Corporation was vended into Liberty Mineral Exploration Inc. on September 15, 2003 in exchange for 2,840,000 shares of the company. Liberty Mineral Exploration Inc. name was then changed to Liberty Mines Inc. on June 30th, 2005. On May 31st 2006, 1001931 Ontario Limited and Timmins Metal Corporation were amalgamated with Liberty Mines Inc, presenting Liberty Mines Inc. a one hundred percent ownership of the Redstone Property with no subsidiary involved. Liberty Mines Inc is listed on the Toronto Venture Exchange.

Dewatering by Liberty Mines Inc began in September 2005 and was completed by December 2005. During March 2006 Dumas Contracting Ltd was contracted to begin mine rehabilitation, development, and initial mining. During the months of October and November of 2006 Dumas Contracting Ltd (“Dumas”) was replaced by owner mining with Liberty employees placed in all ore headings. Dumas Contracting Ltd was limited to ramp development. By the end of August 2007 Dumas will not have any employees on site as Liberty Mines Inc has hired the required personnel and purchased all the necessary equipment to undertake all mining activities related to the Redstone mine.

Since the commencement of mining operations in early 2006 up to August 1, 2007 there have been a total of 914 metres of ramp development and 1,188 metres of level development. The ramp was extended down to the 366 metres level, while level development was focused on the 244, 274, and 305 metre levels. Ore production during the same period has totalled 31,603 tonnes with an average grade of 2.28% Ni, with commercial production announced on July 1st, 2007. Of these 31,603 tonnes, 19,671 tonnes have remained stockpiled at the Redstone mine site to be processed by the Redstone mill at a future date. The remaining balance (11,932 tonnes) was shipped for custom milling, a practice that was terminated on April 1st, 2007.
6 Geological Setting

6.1 Regional Geological Setting

The Redstone deposit is hosted by komatiitic volcanic flows of the Tisdale assemblage that flank the Shaw Dome and form part of the Abitibi Greenstone Belt (“AGB”). The AGB is one of the youngest parts of the Archean Superior Province forming what is considered one of the largest and best-preserved belts of its kind in the world.

The Abitibi Belt developed between 2.8 to 2.6 Ga (Jackson and Fyon, 1991) and has been subdivided in 9 lithotectonic assemblages (Ayer et al., 2002; Sproule et al., 2003). The relationships between these assemblages are ambiguous and may represent a superposition of allochthonous terranes (each terrane having been formed in a different tectonic environment), or a tectonically complex and structurally deformed single autochthonous terrane formed along a convergent margin, or a combination of both these. Even though the AGB has been subdivided into 9 distinct lithotectonic assemblages, only four of these are generally accepted to contain komatiitic rocks and therefore considered prospective for ultramafic-hosted Ni-Cu-(PGE) sulphide deposits.

These four AGB assemblages have distinct and well defined ages as well as spatial distribution (shown on plan in Figure 5):

1) Pacaud Assemblage (2750-2735 Ma);
2) Stoughton-Roquemaure Assemblage (2723-2720 Ma);
3) Kidd-Munro Assemblage (2719-2711 Ma), and the;
4) Tisdale Assemblage (2710-2703 Ma).

They also differ considerably in the physical vulcanology and geochemistry of the komatiitic flows. It is important to note that the latter two of these assemblages contain larger volumes of high magnesium, Al-undepleted komatiites (>5%), while the Tisdale assemblage contains more andesitic rocks and sulphide facies iron formations (Sproule et al., 2003).

The Shaw Dome is a major anticline centred approximately 20 kilometres southeast of Timmins, Ontario (Muir, 1979; Green and Naldrett, 1981). The anticlinal structure may be a result of regional folding that affected rocks north of the Shaw Dome or, more probably, due to the diapiric action of a large granitic body which partially outcrops in the central south-east portion of the dome. Volcanic rocks associated with the Shaw Dome have been associated with the Deloro assemblage and the younger Tisdale assemblage (Hall and Houle, 2006).

Pyke (1982) further sub-divided these assemblages into three volcanic formations: lower, middle, and upper volcanic formations. The lower formation of the Deloro assemblage is not exposed in the Shaw Dome, while the middle formation occupies the central part of the Dome north of the
Redstone mine and the exposed granitic intrusive rocks depicted. The location of the Redstone Mine on a geological framework defined by Map P 3542 generated by the Ontario Geological Survey (2004) is shown in the Figure 6. The upper volcanic formation of the Deloro was described by Pyke (1982) to contain a relative abundance of sulphide facies iron formations and a predominance of intermediate to felsic volcanic rocks of dacitic to andesitic composition.

Figure 5: Simplified regional geological setting of the Abitibi Belt.
Figure 6: The location of the Redstone Mine shown on an extract from Map P 3542 produced by the Ontario Geological Survey (2004).
Pyke (1982) does not mention the presence of extrusive komatiitic rocks in this assemblage having mapped all of the ultramafic rocks contained within this supracrustal package as intrusive in nature. Pyke (1982) does, however, add that “there is some intercalation of the komatiites (of the Tisdale assemblage) with the Deloro Group volcanic rocks”. Both intrusive and extrusive ultramafic rocks have been identified within the Deloro volcanic package (Hall & Houle, 2006; Houle & Guillmette, 2005) outlined by Pyke (1982). Therefore, either the assumption that the Deloro assemblage is devoid of komatiitic flows needs to be revised, or the disconformity that delineates the contact between Deloro and Tisdale rocks modified (Randall, pers. comm.).

Stone & Stone (2000) divided the komatiitic rocks into two horizons making no reference to stratigraphy: the lower komatiitic horizon (LKH) and the upper komatiitic horizon (UKH). The UKH consists of extrusive komatiitic rocks intercalated with calc-alkalic volcanic rocks and sulphide facies iron formations, while the LKH consists of komatiitic rocks that intrude the underlying felsic to intermediate volcanic flows and interbedded iron formations. The rocks that form the LKH are mostly dunites, wherlites, pyroxenites, and gabbros that intruded sometime between 2725 Ma and 2707 Ma (Stone & Stone, 2000). The UKH rocks are cumulate, spinifex textured and aphyric komatiites that extruded sometime before 2703 Ma (Corfu et al., 1989). The UKH komatiitic intrusions are interpreted to represent part of the feeder system that resulted in the eruption of channelized komatiitic flows that are, at least initially, cogenetic and form what is now a large dyke-sill-lava complex. Observations and interpretations by Stone & Stone (2000) are supported by later mapping of Adams, Shaw, Langmuir, and Carman Twps by Houle et al. (2003) and Houle & Guillmette (2004).

To date five Ni-Cu-(PGE) deposits have been discovered in the Shaw Dome (Redstone, Hart, McWatters, Langmuir #1, Langmuir #2), and numerous showings have been identified. These five deposits occur in komatiitic rocks found within the Deloro assemblage near the base of the Tisdale assemblage.

Proterozoic dykes of the Matachewan swarm and the Abitibi swarm intrude all of the rocks described so far. The Matachewan dykes generally trend north to north-west while the younger Abitibi swarm trends north-east.
6.2 Property Geology

6.2.1 Introduction

The description on the property geology in this section has been extracted from an internal report by W. Randall (VP, Liberty Mines Inc). The Redstone deposit appears to conform to a standard Kambalda-type deposit model subject to a considerable amount of post-emplacement tectonic modification. Massive magmatic Ni-Fe sulphide ore is hosted by the lower contact of a thick trough of ultramafic cumulate rock that is incised into footwall metavolcanic rocks of the Deloro Assemblage assimilating underlying sulphide facies iron formations. Although outcrop is poor on the Redstone Property, surface mapping by Liberty staff has enabled the generation of an interpretive surface geological map (Figure 7). The contact, and the associated mineralization, strikes at between 120 to 135 degrees, and exhibits an average dip of -60 degrees with variations ranging from -20 to -90 degrees, and plunges slightly to the south-east.

Figure 7: Simplified surface geological map of the Redstone Mine.
6.2.2 Lithologies

The footwall volcanic rocks are generally massive tuffs and flows with minor bedding that exhibit local brecciation and foliation spatially associated with the mineralized horizon. The tuffs and flows are of dacitic composition with a definite calc-alkaline affinity, composed primarily of very fine-grained quartz and feldspar. The feldspars have been extensively altered to sericite, epidote, chlorite and biotite. The komatitic flows that form the hanging wall rocks have cumulate textures proximal to the mineralization and basal contact. Spinifex textures are common in areas more distal to the mineralization and have been identified in core samples consistently throughout the unit. Komatiites associated with the Redstone deposit are Al-undepleted and have been largely altered to serpentine and carbonate minerals.

6.2.3 Intrusives

Numerous quartz-feldspar porphyry sills and dykes intrude both the dacitic rocks and the komatiites, but have not been recognized to cross-cut the ore body. These felsic intrusions are generally sub-parallel to the strike of the ore body, and appear to range from 20cm to approximately 4m in diameter. In various instances the porphyritic intrusives are directly in contact with the massive mineralization forcing the latter into highly deformed wedges. Extremely rare instances of where mafic dykes cross-cut the ore horizon have been recorded.

6.2.4 Mineralization and Structure

Nickel-Iron sulphides are predominantly found at, or immediately adjacent to, the basal contact between the komatitic flow and the footwall dacite. These sulphides occur mainly in massive form with associated stringers, but also as fine disseminations and blebs. Net-textured sulphides have not been identified, except by Robinson & Hutchinson (1982) in very rare cases. The massive sulphide ore has developed widespread durchbewegung textures, where fragments of the wall rocks have been broken, deformed and rotated within the ductile sulphide matrix (Figure 8). In addition, abundant quartz-carbonate veining can be found within and immediately adjacent to the massive ore (Figure 9).

The textures and veining observed are a clear indication that the contact between the ultramafic rock and the dacite has undergone significant amount of deformation related to faulting. The presence of ductile massive sulphide at the base of the paleotrough provided a weak point and allowed the nucleation of a relatively minor fault that is roughly parallel to the primary contact but that sits at the slightly lower stratigraphic level at the base of the embayment (Figure 9). Along the flanks of the mineralized zone the Ni-Fe sulphide ore departs from the primary contact and projects into the dacitic footwall rocks.
along the plane of the fault. The projection of this planar deformation zone into the footwall volcanics flanking the trough accounts for the current distribution of massive sulphides along an essentially planar surface. This ‘surface’ is tangential to the base of the trough at its centre but that lies entirely within dacite at its western extremity. The total amount of displacement along the fault is probably relatively minor, on the scale of tens of metres. Underground mapping has shown that the fault is most probably a left-handed, normal oblique-slip fault.

Figure 8: Durchbewegung texture within the massive sulphide deposit (fragments of wall rock preserved within ductile sulphide matrix)

Numerous instances of semi-continuous hanging-wall mineralization have been described, and, more recently, mined by Liberty Mines. This mineralization occurs as discontinuous stringers of massive Ni-Fe sulphides within fractured dacitic rocks. In these instances the contact relations are reversed, with dacitic volcanic rocks forming the hangingwall and the ultramafic rocks the footwall. These zones are structural repetitions of the stratigraphy as a result of faulting where the primary contact has been thrusted into the overlying hanging wall komatiite.

This remobilization, in conjunction with known faulting, lends validity to a post-emplacement metamorphic origin for Ni tenor variations and possibly enrichment.

The relative abundance of stringer ore compared to the typical Kambalda style model for this deposit type is attributed to the structural modification of net-textured sulphide mineralization.
Figure 9: Structure associated quartz and carbonate veining at the base of the massive sulphide zone from drillhole RS07-6A.
7 Deposit Types

The distribution of magmatic Ni-Cu-PGE sulphide deposits in Canada, with a resource size greater than 100,000 tonnes is shown in Figure 10.

Considerable research by various writers over the years indicates that komatiite hosted nickel deposits in the Timmins area are similar to the Archean age nickel deposits of the Kambalda and Windarra areas in Western Australia.

In the AGB four of the assemblages contain komatiites. Komatiite-associated Ni-Cu-(PGE) deposits have only been identified within the Kidd- Munro and Tisdale (including Redstone) assemblages. This is consistent with the interpretation that komatiite associated Ni-Cu-(PGE) deposits form within lava channels of channelized sheet flows, but not within sheet flows or lava lobes. Tisdale assemblage ultramafic volcanic rocks with high MgO contents (up to 32%) are defined as aluminium undepleted komatiites (“AUK”).

Individual flows are usually less than 100 metres thick and typically occur at or near the base of ultramafic sequences. The flow units can be recognised by the presence of chilled contacts, the distribution of spinifex textures, marked compositional or mineralogical changes at unit boundaries and the presence of ultramafic breccia or sulphidic sediments at contacts.

Figure 10: Map showing the distribution of magmatic Ni-Cu-PGE sulphide deposits in Canada, with resources greater than 100,000 tonnes (after Wheeler et al, 1996)
According to published classification systems quoted in Sproule et al (2002), five types of mineralization are recognised in AUK associated Ni-Cu-(PGE) sulphide deposits. These are types 1 through to 5. The Redstone nickel massive sulphide deposit is a classic example of Type 1 mineralization, with subordinate examples of Type 2 mineralization seen.

Type 1 mineralization at Redstone is similar to that at Kambalda, Mt. Keith and Perseverance deposits in Western Australia. The genesis of the Shaw Dome and the Australian deposits is attributed to the combined effect of lava channels (or channelized sheet flows) which provides the heat and metal sources, and sulphide bearing iron formations in the footwall that provide an external sulphur source. Thermal erosion of the underlying rocks by the komatiite flows is considered to be the dominant mechanism for adding sulphur to the magma and to the creating a depositional ‘trough’ fro sulphide minerals. Type 2 mineralization characteristically contains disseminated sulphide mineralization within channelized flows resulting in large tonnage low grade deposits.

Characteristics of this deposit type which should be used in exploration methodologies include:

- Geological mapping of komatiite flow units;
- Presence of sulphidic footwall rocks;
- Lithogeochemical surveys can detect AUK komatiites;
- Airborne and ground electromagnetic surveys will detect the location of massive sulphide mineralization, whereas magnetic surveys should detect pyrrhotite rich sulphide mineralization.
8 Mineralization

Nickel-iron sulphides are predominantly found at, or immediately adjacent to, the basal contact between the komatiitic flow and the footwall dacites (Refer to Figure 9). These sulphides occur mainly in massive form with associated stringers, but also as fine disseminations and blebs.

Numerous instances of semi-continuous hanging-wall mineralization have been described, and, more recently, mined by Liberty Mines. This mineralization occurs as discontinuous stringers of massive Ni-Fe sulphides within fractured dacitic rocks. In these instances the contact relations are reversed, with dacitic volcanic rocks forming the hangingwall and the ultramafic rocks the footwall.

The massive sulphide ore is composed primarily of pentlandite, pyrrhotite, and pyrite with lesser amounts of millerite, violarite, gersdorffite, and niccolite (Robinson & Hutchinson, 1982). Pentlandite occurs as fine to medium grained, euhedral to subhedral, octahedra with a pyrrhotitic matrix and as exsolution lamellae within pyrrhotite (Figure 11). Millerite has been observed to be enclosed by pentlandite, while violarite forms replacement rims around pentlandite octahedra. Nickel tenors within the massive sulphide ore (100% sulphides) exhibit a large range from 8.4-29.74 % Ni. In the Redstone deposit chalcopryite has been remobilized and now rims either the massive sulphide ore or, more commonly, the quartz-carbonate veins with higher concentrations observed near the margins of the deposit.

Nickeliferous sulphide mineralization has been delineated over a strike length of up to 274.3 metres down to 508 metres vertically below surface. Further drilling has continued to identify mineralization down to 1,155 metres below surface with core intersections of up to 3.62% Ni over 4.65 metres including 7.13% Ni over 1.75 metres, and 2.4% Ni over 8.5 metres including 14.2% over 0.7 metre.
Figure 11: Massive sulphide mineralization (including pyrrhotite, pentlandite and pyrite) near the basal contact of a komatiitic flow and footwall dacite from drillhole RS07-6A.
9 Exploration

9.1 Historical

In addition to diamond drilling activities (a total of 51,545 metres drilled) conducted by five different operators at Redstone between 1976 and 2007 (Table 1), a limited amount of geophysical work has been conducted as well.

The geophysical work conducted by Inco in 2003, deserves mention. Inco conducted a UTEM electromagnetic survey and a magnetic survey over the Redstone property. These surveys identified seven conductive zones localized along AUK / dacite contacts. Inco planned diamond drilling programs to drill test these conductors. Not all of the conductors identified by the Inco surveys have been drill tested. The position of the Redstone property (and other Liberty exploration properties) within a regional aeromagnetic image is shown in Figure 12.

9.2 Future

A surface diamond drill program is underway (as of August 2007) with the objective of targeting mineralization between 762 metres and 1,155 metres. An average of 2-3 wedged holes off of each initial set-up is achieved ensuring maximum efficiency of the program.

Future exploration at the Redstone deposit will focus on delineating mineralization between approximately 457 metres and 1,155 metres below surface. This will involve three phases of underground diamond drilling and an exploration shaft. A diamond drill drift is being driven approximately 200 metres into the hanging wall at the 366 metre level to facilitate diamond drilling down to approximately 640 metres below surface. This would represent Phase I of drilling, and would consist entirely of underground diamond drilling. Phase II will require another similar diamond drill drift at the 488 metre level to target mineralization below 640 metres down to a depth of 762 metres, and would once again consist entirely of underground drilling.

A 900 metre exploration shaft is being constructed at the Redstone mine site. The purpose of this shaft is to facilitate the delineation of the mineralized horizon below 762 metres down to 1,155 metres. Once again, drilling would be from underground diamond drill bays.
Figure 12: Plan position of Redstone (and other Liberty properties) seen in relation to Liberty’s regional claim outline overlain on an aeromagnetic image of the area.
10 Drilling

10.1 Introduction

During the period 1976 to 2007, a number of exploration companies undertook various phases of drilling activities in the vicinity of the Redstone Mine. Drilling can broadly be classified by that conducted prior to 2004 (historical drilling) and that conducted by Liberty after 2004. Details of this drilling are tabulated in Table 1.

Table 1: A tabulation of diamond drilling activities conducted at the Redstone Mine.

<table>
<thead>
<tr>
<th>Company</th>
<th>Period</th>
<th>Type</th>
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<td>Timmins Nickel</td>
<td>1988-91</td>
<td>Underground and surface</td>
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<td>Utah Mines Ltd</td>
<td>1976-9</td>
<td>Surface</td>
<td>50</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td></td>
<td>112</td>
</tr>
<tr>
<td>Liberty Drilling</td>
<td>(post-2004)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liberty Deep</td>
<td>2006-7</td>
<td>Surface</td>
<td>4</td>
</tr>
<tr>
<td>Liberty Upper</td>
<td>2006-7</td>
<td>Underground and surface</td>
<td>74</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>Total all drilling</td>
<td></td>
<td></td>
<td>190</td>
</tr>
</tbody>
</table>

The majority of the drilling at Redstone was diamond drilling (only 19 reverse circulation holes drilled by Timmins Nickel), although core from the programs drilled prior to 2004 is not available for inspection by SRK. All of the drilling from the above drilling programs was considered for resource estimation purposes. Specifics regarding the Liberty drilling programs are described in the following section. Specific details regarding the historical drilling are not available in a report, but have been summarized by Harron, 2003. Drill core from historical drilling was not available to SRK and minimal exploration records relating to this drilling by Inco, Black Hawk Mining, Timmins Nickel and by Utah Mines Ltd is available for review.

A total of 190 drill holes have been drilled to date, totalling 51,545 meters with an average drill depth of 271 meters (Figure 13).

10.2 Drilling by Liberty (post 2004)

The majority of drilling by Liberty was conducted from underground platforms during 2006 – 7. In addition, four deep holes were drilled from surface (including two deflections from original holes), averaging 1,144 metres in length (Table 1). A total of 21,983 metres from 78 drill holes has been drilled.
by Liberty up to 30 April 2007 all of which has been used for resource modelling and estimation purposes. The Liberty drilling comprises forty - one percent of the total Redstone drilling dataset.

The core size for underground drilling is BQTK, whereas that for surface drilling is NQ. All the drilling done by Liberty is diamond drill core, with the core safely stored on surface for checking and review. The drilling contractor is Bradley Bros from Timmins. The boreholes are numbered by a clear alphanumeric code. The drill core is however not routinely photographed for a digital record.

Drill collars are surveyed by a land surveyor, with the original collar azimuth and plunge setup determined by compass. Downhole surveying is routinely conducted at 25m intervals with a Maxibor instrument. Casing is used for surface drilling, but is pulled for underground drilling. Core orientation is achieved with the EzyMark system. In terms of geotechnical data, RQD and recovery percentages have been routinely collected.

An example of the output of a typical Liberty drill log (R06-16), highlighting all requisite drilling information in DH logger (Century Systems) output in shown in Figure 13.

10.3 Drilling Pattern and Density

The plan position and section of all drilling conducted at Redstone is illustrated in Figure 14.

Utah Mines Ltd drilled 50 surface holes to an average drill length of 143 metres. These holes were all directed north (360 degrees) at dips varying from -40 to -65 degrees. The maximum depth below surface achieved was about 250 metres, although drilling typically targets depths less than 100 metres below surface. Drilling was done on about 30 metres sections.
Timmins Nickel drilled 35 surface and underground holes to an average drill length of 355 metres. These holes were usually directed north (360 degrees) at dips usually of about -60 degrees. The maximum depth below surface achieved was about 1,200 metres, although drilling typically targets depths less than 400 metres below surface. Drilling achieved a broad coverage of about 150 x 150 metres over the Redstone property.

Black Hawk mining drilled 25 surface holes to an average drill length of 338 metres. These holes were usually directed north (360 degrees) at dips usually of about -60 degrees. The depth below surface achieved was usually less than 400 metres. Drilling achieved narrow range coverage of about 20 x 20 metres over a small area.

Inco drilled 2 deep surface holes to an average drill length of 785 metres. These holes were usually directed north (360 degrees) at dips usually of -65 degrees. The maximum depth below surface achieved was about 920 metres. Drilling was designed to drill test geophysical anomalies within deeper portions of the Redstone property.

Timmins Nickel drilled 35 surface and underground holes to an average drill length of 355 metres. These holes were usually directed north (360 degrees) at dips usually of about -60 degrees. The maximum depth below surface achieved was about 1,200 metres, although drilling typically targeted depths less than 400 metres below surface. Drilling achieved a broad coverage of about 150 x 150 metres over the Redstone property.

Liberty drilled 78 drill holes from surface and underground to an average drill length of 282 metres. The underground drilling was fanned in multiple orientations and angles from four underground collar positions. These holes targeted massive sulphide intersections below historical and current workings, typically achieving drill intercepts within the range 225 to 655 metres below surface. The deepest Liberty hole from surface achieved a drill depth of 1,350 metres below surface.

It is evident in Figure 14, that drilling at Redstone becomes sparse with depth, with no drill intercepts to date recorded within the range of 900 to 1,200 metres below surface. This ‘gap’ is to be addressed by future Redstone drilling programs.

It is the opinion of SRK that the drilling strategy and pattern have produced an adequate drill density to construct initial resource models for this style of mineralization.
Figure 14: Plan and section showing contributions and drill coverage of the various drill programs
11 Sampling Approach and Methodology

11.1 Introduction

Data reviewed in this study and applied for geological modeling and resource estimation was the product of various phases of historical and current exploration programs by different companies. Historical exploration field procedures implemented by exploration staff have not been well recorded and documented. Therefore SRK is unable to comment on the sampling methodology.

SRK was able to review core handling, logging or sampling procedures implemented during the current Liberty drilling programs. All drill core is transported to the secure Redstone core yard, near the main office, where it is logged. Core is marked for sampling and mechanically split. Half of the split core is submitted for sample preparation and analyses (and sometimes for specific gravity), whereas the other half remains stored in the original core boxes. The results of drill core logging and sampling are recorded into DH logger (Century Systems) format, with adequate detail on lithology and mineralization recorded. Assay analyses results for Ni%, Cu%, Au gpt, Pt gpt and Pd gpt are recorded adjacent to lithology descriptions. Au, Pt and Pd have not been routinely sampled however. An extract from the drill log for R07-51 from 179.50 metres to 192.50 metres is provided in Figure 15.

---

**Figure 15: Extract from Liberty drill log for R07-51 in DH Logger format**
11.2 Sampling Protocols

Summary statistics for sample lengths for the Redstone drill database is shown in Table 2. It is noted that the mean sample length for the Liberty drilling sampling (0.87 m) slightly exceeds that for the historical drilling (0.80 m), but at a lower standard deviation. Liberty have sampled all mineralized core intercepts, which include a footwall sample below the massive sulphide basal contact as well as sample coverage of all mineralized intercepts in the hanging wall to the massive sulphide. Records of sampling protocols for historical sampling programs are unavailable.

In addition to drill sampling data, 2,718 underground development sampling records have been captured from original paper assay sheet format to digital format and included into the total assay sampling database to be used for geostatistical analyses of the Redstone deposit.

<table>
<thead>
<tr>
<th>Detail</th>
<th>Historical (pre-2004)</th>
<th>Liberty (2006-7)</th>
<th>Total Drill database</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.80</td>
<td>0.87</td>
<td>0.85</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.02</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Median</td>
<td>0.61</td>
<td>1.00</td>
<td>0.98</td>
</tr>
<tr>
<td>Mode</td>
<td>0.61</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.58</td>
<td>0.38</td>
<td>0.45</td>
</tr>
<tr>
<td>Sample Variance</td>
<td>0.33</td>
<td>0.15</td>
<td>0.20</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.61</td>
<td>5.48</td>
<td>4.25</td>
</tr>
<tr>
<td>Skewness</td>
<td>1.35</td>
<td>0.74</td>
<td>1.07</td>
</tr>
<tr>
<td>Range</td>
<td>3.83</td>
<td>2.99</td>
<td>3.83</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Maximum</td>
<td>3.84</td>
<td>3.00</td>
<td>3.84</td>
</tr>
<tr>
<td>Count</td>
<td>885</td>
<td>2,003</td>
<td>2,888</td>
</tr>
</tbody>
</table>

The proportional contribution of various data sources to the total sampling database used for geostatistical analyses is shown in Figure 16.
Redstone sampling data sources

Figure 16: Proportional contributions of the various sampling database sources

Histograms of sampling intervals from the various Redstone exploration programs are shown in Figure 17.
Figure 17: Histogram of sampled lengths from various combinations of the Redstone drill dataset.
12 Sample Preparation, Analyses and Security

12.1 Sample Preparation and Analyses

Information regarding the historical INCO, Black Hawk Mining, Timmins Nickel and Utah Mines Ltd sample preparation, analyses and procedures is not available to SRK. Summarized information regarding Liberty program is documented here.

The primary laboratory used by Liberty for drill core analyses is ALS Chemex, with sample preparation undertaken at the ALS Chemex Timmins sample preparation facility and subsequent analyses undertaken at the ALS Chemex Vancouver laboratories. Total turn-around time is reported to be about six weeks.

In terms of sample preparation, usually after drying core samples are fine crushed to 70% <2mm (code CRU-31) and split with a riffle splitter. Split samples are pulverized and then split again to 85% <75 microns (code PUL-31).

Generally analyses is conducted for only nickel and copper, with analyses for Platinum, palladium and gold conducted on request. The assay method used is aqua regia digestion followed by fusion and AAS (analytical code AA46). Analyses for precious metals are reported from an aqua regia leach and using conventional ICP-AES analyses (analytical code ME-ICP41).

The ALS Chemex has ISO 9001 and ISO17025 registration in North America. SRK is unable to comment on the security measures in place during the sample handling processes during the various phases of data generation, as no information relating to this aspect is available.

Analytical results are returned by ALS Chemex to Liberty electronically with data directly updated to the Century Systems database. Certificates of Analyses are received for all assay data, which is checked against the original digital data. The original master pulps are stored for 90 days subsequent to the submission of the Certificates of Analyses, thereafter they are returned to site on request for storage.

12.2 Quality Assurance and Quality Control Program

Quality control measures are typically set in place to ensure the reliability and trustworthiness of exploration data. This includes written field procedures and independent verifications of aspects such as drilling, surveying, sampling and assaying, data management and database integrity. Appropriate documentation of quality control measures and analysis of quality control data are an integral component of a comprehensive quality assurance program and an important safeguard of project data.
The field procedures implemented by INCO, Black Hawk Mining, Timmins Nickel and Utah Mines Ltd during their respective exploration programs cannot be commented upon by SRK, as documentation to verify exploration aspects such as surveying, drilling, core handling, sampling, assaying and database creation and management are not available. Aspects of the quality control measures implemented by Liberty have been reviewed by SRK. It is SRK’s opinion that recent quality control measures implemented and documented by Liberty, meet industry best practice guidelines.

Analytical control measures typically involve internal and external laboratory measures implemented to monitor the precision and accuracy of the sampling, preparation and assaying process. They are also important to prevent and monitor the voluntary or inadvertent contamination of samples. Assay certificates and Quality Assurance and Quality Control Reports from ALS Chemex were made available to SRK, who noted that internal and external laboratory control measures were in place.

In addition to the inferred quality assurance measures taken by ALS Chemex in Vancouver, a series of external analytical quality control measures to monitor the reliability of assaying results delivered by ALS Chemex Laboratories is implemented by Liberty. A series of blanks and standards were inserted at approximately every 10 to 20 samples (usually about 2 per batch).

Certified blank samples are used by Liberty. These blanks have recently also been verified by Liberty, by sending ten blank samples to the SGS Laboratory at Lakefield. The results of the assayed nickel and copper ‘blanks’ is shown in Figure 18, where a particularly wide variance in nickel values is noted. The reason for this high variance is not known.

Two commercial certified standards (LBE-1 and LBE-2) and one ‘uncertified’ standard (Ni111) were applied by Liberty. The results of the Liberty standards for nickel and copper percentages are plotted in Figure 18. The recommended value for the copper and nickel reference materials are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Ni %</th>
<th>Cu %</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBE-1</td>
<td>1.090</td>
<td>0.071</td>
</tr>
<tr>
<td>LBE-2</td>
<td>6.440</td>
<td>0.200</td>
</tr>
<tr>
<td>Ni111</td>
<td>0.420</td>
<td>0.240</td>
</tr>
</tbody>
</table>
Figure 18: Plot for the control Nickel and Copper samples used by Liberty (top=blank, middle=nickel and bottom=copper).
12.3 Specific Gravity Database

Specific gravity measurements were collected during the Liberty core drilling program in 2006-7. No reliable specific gravity data exist for any of the previous historical drilling programs.

A total of specific gravity 556 specific gravity determinations were made by ALS Chemex in Vancouver from pulverized core samples using pycnometry. These were all assigned to a single weathering profile with no geo-domain differentiation. The statistics of this dataset is summarized in Table 3. This table differentiates between the total SG dataset (n=556), SG data where Ni% >0.25 and where Ni% >0.50.

A histogram of the resultant specific gravity data is shown in Figure 19. The total dataset and where Ni% > 0.25 is considered. Specific gravity measurements were not only taken for mineralized samples, but for low grade and waste samples as well. A general positive relationship between SG and Ni% is apparent from the Liberty SG dataset. This positive relationship is highlighted in Figure 20 which shows the relationship between SG and Ni%, for Ni% > 0.5%.

For resource estimation, two nickel sulphide mineralized horizons have been modelled. The well defined high grade massive sulphide horizon at the base is generally characterized by nickel grades exceeding 0.5%. The weighted (to sample length) average of SG for Ni% >0.50 is 2.93 g/cm³ (n = 117). Overlying the massive sulphide horizon is a poorly defined zone containing lower grade stringer ore nickel sulphides generally with nickel grades locally exceeding 0.25%. The weighted average for SG data with nickel grades exceeding 0.25% is 2.87 g/cm³.

Table 3: Statistics of the specific gravity database for various scenarios.

<table>
<thead>
<tr>
<th>Detail</th>
<th>Total dataset (n=556)</th>
<th>Ni%&gt;0.25% (n=175)</th>
<th>Ni%&gt;0.50% (n=117)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.87</td>
<td>2.92</td>
<td>2.98</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>Median</td>
<td>2.80</td>
<td>2.83</td>
<td>2.88</td>
</tr>
<tr>
<td>Mode</td>
<td>2.76</td>
<td>2.74</td>
<td>2.82</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.28</td>
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<td>0.37</td>
</tr>
<tr>
<td>Sample Variance</td>
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<tr>
<td>Maximum</td>
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<td>4.40</td>
<td>4.40</td>
</tr>
<tr>
<td>Sum</td>
<td>1594.86</td>
<td>510.52</td>
<td>348.77</td>
</tr>
<tr>
<td>Count</td>
<td>556</td>
<td>175</td>
<td>117</td>
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</table>
Histogram of specific gravity data
Total dataset $n = 556$

<table>
<thead>
<tr>
<th>Specific Gravity</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
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<td>2.7</td>
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<td>2.9</td>
<td>124</td>
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</tr>
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<td>8</td>
</tr>
<tr>
<td>3.2</td>
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<td>5</td>
</tr>
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<td>3.4</td>
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<td>3.5</td>
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<td>3.7</td>
<td>6</td>
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<td>3.8</td>
<td>2</td>
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</tr>
<tr>
<td>4.4</td>
<td>2</td>
</tr>
</tbody>
</table>

Figure 19: Histogram of specific gravity data for the total Liberty dataset (top) and for Ni>0.25% (bottom).
Figure 20: Scatter plot showing the relationship between SG and Ni% from the Liberty drilling dataset for Ni% > 0.50.
13 Data verification

13.1 Historical Data Verifications

It is good practice for exploration staff to implement field procedures designed to verify the collection of exploration data and to minimize the potential for inadvertent data entry errors. SRK was unable to comment on the procedures adopted by INCO, Black Hawk Mining, Timmins Nickel and Utah Mines Ltd. No record is available of the procedures adopted by these companies to undertake data verifications. SRK was able to review the procedures adopted by Liberty exploration staff.

13.2 Control Sampling Assay Protocols

Control sampling procedures applied by Liberty at Redstone include techniques such as the following:

- Validation of the assay results in the database compared with the original assay certificates;
- Taking replicate core samples from a second split of the pulverized sample at the laboratory;
- Duplicate analyses of selected samples;
- Sieve tests to verify the grinding on the pulp required for assaying;
- Insertion of routine blank samples to check for possible sample contamination during the preparation and assaying process;
- Application of appropriate grade certified control samples (standards);
- A check assaying program with an umpire laboratory.

Liberty has recently introduced the Century Systems database to Redstone. This system as applied on Redstone is more than just a database, it is a management tool that combines borehole logging, mine mapping and assay data in a way that integrates seamlessly with Datamine, which is the modelling and design software applied. Century Systems is a data verification tool, generating data input error and QAQC reports for management action.

13.3 SRK Independent Verifications

During the site visits to Redstone, SRK was able to verify many of the underground drill collars positions and review most of the exploration protocols and procedures applied by Liberty exploration staff. In addition SRK selected five drill holes from the Liberty drill program for high level logging which was compared to database information. Generally logging compared well, to that observed.

Assay results were compared to actual core intersections and a good correlation between sulphide mineralization and higher grades was observed.
SRK also took ten additional independent core samples for comparative analyses. These ten samples were taken from remnant split Liberty core from previously sampled positions, taking care to sample core of varying sulphide mineralization (low as well as high grade samples taken).

The SRK samples were submitted to SGS Laboratories in Toronto for independent analyses. In contrast to Liberty, which analysed by aqua regia digestion (which yields a partial leach only) followed by AAS (code AA46), SRK elected to have a ‘near total’ four acid digestion followed by ICP-AES (analytical code ICP90Q). The comparative results from this verification study are provided in Table 4 and graphically in Figure 21. SRK regards the variance in nickel and copper grades in Table 4 to be acceptable and typical for deposits of this nature.

Table 4: Comparative analyses for SRK check assay verification

<table>
<thead>
<tr>
<th>Sample #</th>
<th>SGS ICP90Q</th>
<th>ALS Chemex AA46</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ni%  Cu%</td>
<td>Ni%  Cu%</td>
</tr>
<tr>
<td>390323</td>
<td>7.36  0.19</td>
<td>9.17  0.27</td>
</tr>
<tr>
<td>390324</td>
<td>0.93  0.06</td>
<td>0.24  0.08</td>
</tr>
<tr>
<td>391964</td>
<td>10.90 0.07</td>
<td>8.73  0.00</td>
</tr>
<tr>
<td>391966</td>
<td>8.83  0.09</td>
<td>7.79  0.00</td>
</tr>
<tr>
<td>391040</td>
<td>0.49  0.00</td>
<td>0.65  0.00</td>
</tr>
<tr>
<td>391322</td>
<td>10.50 0.26</td>
<td>9.66  0.01</td>
</tr>
<tr>
<td>392162</td>
<td>0.06  0.00</td>
<td>0.05  0.03</td>
</tr>
<tr>
<td>391320</td>
<td>0.80  0.07</td>
<td>0.92  0.13</td>
</tr>
<tr>
<td>391033</td>
<td>0.34  0.01</td>
<td>1.27  0.05</td>
</tr>
<tr>
<td>391961</td>
<td>0.88  0.09</td>
<td>1.14  0.00</td>
</tr>
</tbody>
</table>

average: 4.11  0.08  3.96  0.06
Figure 21: Graph showing comparative Ni% assays for SGS (ICP90Q) and ALS Chemex (AA46).

The verification study shows that although average assays are similar, for higher nickel grades SGS results tend to be higher, whereas at lower nickel grades ALS Chemex yield marginally higher results. These variations are however considered significant.
14 Adjacent Properties

The areas surrounding the Redstone Project have experienced mining and prospecting activities including geological mapping and diamond drilling with significant discoveries of sulphide mineralization similar to that at Redstone.

In addition to the Redstone Ni-Cu deposit there are four other Ni-Cu-(PGE) deposits / occurrences hosted by Tisdale age AUK within the Shaw Dome structure. These other deposits are not necessary directly correlated with the Redstone deposit, but are discussed here for local significance, especially as these are located in proximity to Liberty claims. These deposits / occurrences are Langmuir 1, Langmuir 2, McWatters and Hart. These mineral occurrences are shown in Figure 22.

At Langmuir 1 the massive sulphide (Type 1) mineralization is delineated over a strike length of 150 metres to a depth of 140 metres, with a maximum width of 1.5 metres and an approximate grade of 2.2% Ni. Up to 7 metres of net textured (Type 1) sulphide mineralization grading approximately 1-2% Ni and up to 13 metres of disseminated sulphide (Type 2) mineralization grading about 0.3 to 0.9% Ni overlie the massive sulphide mineralization. This situation is very similar to Redstone.

Figure 22: Plan showing mineral properties adjacent to Redstone, seen in relation to Liberty’s claim outlines.
At Langmuir 2 the massive sulphide is delineated over a strike length of 200 m, to a depth of 300 m, with a maximum width of 2.5 metres and an approximate grade of 2.4% Ni. Up to 12 metres net textured (Type 1) sulphide mineralization grading about 1-2% Ni and up to 28 metres of disseminated (Type 2) sulphide mineralization grading about 0.3-0.9% Ni overlie the massive sulphide mineralization (reported in Harron, 2003). Both Langmuir #1 and Langmuir #2 are past producing mines with total reported production of 111,502 tonnes with an average grade of 1.74% Ni, and 1,133,750 tonnes with an average grade of 1.50% Ni. Neither of these deposits have 43-101 compliant resource evaluations.

The McWatters deposit is about 15m thick and is reported over a strike length of 150 metres and to a depth of 100 m. This deposit is hosted by steeply dipping serpentinite. The sulphide mineralization is divided into an upper irregular disseminated zone (Type 2 and 4) containing a reported 496,500 tonnes grading 0.77% Ni and a lower massive sulphide zone (Type 1) containing 167,451 tonnes grading 1.91% Ni. McWatters has a NI43-101 compliant Indicated Resource of 540,400 tonnes @ 1.06% Ni (W Randall, pers com).

At Hart nickel mineralization occurs both within iron formation (Type 5 mineralization) and within komatiite flows (Type 1) over a length of about 213 metres (reported in Harron, 2003). The Hart deposit has an historical inferred resource of 700,000 tonnes grading 0.9% Ni.

In addition to the known deposits in the area there are many other prospects, including the Galata showing (up to 7.5% Ni) and the recently discovered mineralized intervals by Golden Chalice Resources.
15 Mineral Processing, Mineralogy and Metallurgical Testing

Metallurgical testwork was completed by Timmins Nickel on Redstone nickel sulphide mineralization in 1989, the results of this work are however not available (Harron, 2003). Melling (1995) indicates that nickel recovery was 80-85% producing a 20% concentrate.

Liberty commissioned SGS (Lakefield) to undertake flotation testwork on Redstone ore material under various scenarios and to design a Fleet circuit in April 2006 (SGS, 2006). The purpose of this work was to conduct flotation tests on a composite Redstone aggregate sample in order to understand the flotation response of this feed in a proposed flotation circuit for the Redstone Mine.

A modern nickel concentrating mill has recently been constructed (commissioned in July 2007) at Redstone. The Redstone Mill is designed to specifically process komatiite associated ore. The mill is permitted to process 1,500 tonnes per day, but was constructed to accommodate 2,000 tonnes per day.

The mill consists of two parts: the crusher house (containing a Birdboro jaw crusher and a Metso HP 400 cone crusher) and the mill building (containing a primary ball mill, rougher flotation tank cells and thickeners). A portion of the Redstone mill is shown in Figure 23. The mill produces dry (4-6% moisture) concentrate bags, which weigh about 1.5 tonnes, which are then loaded into containers for shipment to a smelter in China. The newly commissioned Redstone Mill has achieved an average recovery of 91.7% and has produced concentrate grades of 19-24% nickel (W. Randall, pers comm.).

Figure 23: The recently commissioned Redstone Mill located adjacent to Redstone Mine.
16 Mineral Resource and Mineral Reserve Estimates

16.1 Introduction

At the commencement of production at Redstone in 1989, Timmins Nickel reported a measured resource* of 105,000 tonnes grading 3.24% Ni, an indicated resource of 25,750 tonnes grading 3.17% Ni and an inferred resource* of 287,350 tonnes grading 2.24% Ni (Anon, 1989).

In 1995 Black Hawk Mining completed a resource calculation for mineralization identified in the 213 to 335 metres interval (Lapierre, 1995). Resources above the 229 metres level were calculated using 15.24 metres x 30.48 metres blocks multiplied by the calculated true thickness of the massive sulphide mineralization. Grades used in the calculation were derived from drill cores and chip samples collected along drifts. A minimum true width of 1.22 metres and a lower cut-off grade of 1.0% Ni were used to define the mineralization of economic interest. Resources below the 229 metre level were based on the results of 20 new drillhole intercepts and were calculated by constructing polygons around each drillhole intercept. The Black Hawk calculation estimated an indicated resource of 49,400 tonnes grading 3.90% Ni over an average width of 1.4m above the 229 metre level. Inferred resources* in the 229 to 335 metre interval were calculated to be 104,150 tonnes grading 4.19% Ni (undiluted).

An estimated 279,632 tonnes grading 2.38% Ni has been produced from Redstone between 1989 and 1996 by various operators (Luhta et al, 1997). At mine closure in 1996, inferred resources were reported to be 170,000 tonnes grading 3.28% Ni above the 244 metre level (Atkinson et al, 1998).

The mineral resource estimate prepared by SRK and presented herein is the first NI43-101 compliant resource estimate for Redstone, representing a new resource model for the Redstone deposit. It supersedes any previous estimates.

This section summarizes the data, methodology and parameters used by SRK to estimate the mineral resources for the Redstone deposit. The mineral resource model considers all available drilling and underground sampling data.

All resource estimation work was completed by Glen Cole, P.Geo from data received from William Randall, (Liberty VP Exploration). The resource estimation and accompanying technical report was reviewed by Dr JF Couture of SRK. Previous sections of this report have highlighted some concerns about the documentation and procedures relating to the historical borehole data. These issues concern aspects such as: drilling surveying, sampling approach, lack of documented quality assurance and quality control measures

* The reported figures are historical in nature and not considered current by Liberty. These resource figures were estimated in 1989 before the development of NI43-101 and should not be relied upon.
and the inability to reasonably validate and verify a large part of the dataset that was used for resource modelling and estimation. These historical data are located primarily in the mined out areas. These concerns are not applicable to the Liberty data, which fortunately were acquired from the future mining areas.

The mineral resources presented herein are reported in accordance with the Canadian Securities Administrators’ National Instrument 43-101 and have been estimated in conformity with generally accepted CIM “Estimation of Mineral Resource and Mineral Reserves Best Practices” guidelines. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into mineral reserve.

Datamine Studio Version 2.1 was used to construct solids, build composites and the block model, to run grade interpolation and to estimate and tabulate mineral resources. Isatis Version 5.1.7 was used to undertake geostatistical analyses of the dataset and to generate variograms for nickel and copper.

16.2 Database Validation

The data verifications adopted by SRK and Liberty are discussed in Section 13. Minimal data verification was possible for the pre-Liberty data. The database records provided to SRK by Liberty were audited against digital log sheets, sections and plans. Database records reflect original data, except for the lithology codes which have been simplified and standardized by Liberty according to reasonable geological criteria. These lithology codes facilitated the geological modelling process.

The Excel and Datamine format database provided to SRK was checked for any missing data, overlapping intervals and for duplicated data inputs. The assay database comprises of only two data types viz. drill data from various periods as well as underground chip sampling data.

16.3 Resource Estimation

16.3.1 Database

The database used for resource estimation includes exploration drilling data collected during five exploration programs conducted during the period 1976 to 2007. Redstone drilling database source details is tabulated in Table 1. The total database comprises two thousand eight hundred and eighty eight sample records from one hundred and ninety drill holes and an additional two thousand seven hundred and eighteen underground development sampling records. The total resource assay database comprises of five thousand six hundred and six records.

The borehole database received from Liberty contains information about drill collar location, assay results for nickel and copper (and sometimes precious metals), lithology and surveying for all Liberty drill holes. Additional information was provided about aspects like structures and RQD. Drilling information from the INCO, Black Hawk Mining, Timmins Nickel and Utah
Mines Ltd campaigns are not as detailed. SRK is of the opinion however that the Redstone dataset is adequate for resource modelling and grade estimation for this style of sulphide mineralization.

16.3.2 Solid Body Modelling

Nickel (and copper) grades are spatially related to two kinds of sulphide mineralization at Redstone. The highest, most continuous grades are associated with the basal massive sulphide mineralization horizon which is locally highly variable in thickness. Overlying the massive sulphide mineralization, stringer type sulphides occur which are discontinuous in nature and associated with highly variable nickel grades. Evidence of discontinuous structurally duplicated massive sulphides located in the hanging wall of known massive sulphide stopes is observed underground. An additional complexity is the occurrence of barren intrusive dykes which complicate the continuity of known mineralization. The 3D orientation of such intrusives has not been defined, with the majority of these being thin and probably discontinuous.

With considerable interpretive input from Redstone exploration staff, the following geological solid modelling methodology was adopted:

1. A digital surface was constructed for the base of the massive sulphide from information from underground workings, drift mapping, underground development sampling as well as from all drill hole massive sulphide – dacite footwall intersections

2. Considering information from all massive sulphide intersections, the average thickness of the basal massive sulphide mineralization is 1.2 m. It was not possible to model all the local variances in the massive sulphide horizon, with large portions of the un-mined massive sulphide horizon only covered by drillhole information. The upper contact of the massive sulphide was then modelled as a surface translated 1.2 metres above the lower defined surface.

3. Sectional analyses of all drillhole information, combined with limited underground information established that stringer type sulphides with variable nickel grades occur in the hanging wall of the massive sulphides up to a perpendicular distance of 20 metres above the basal contact of the massive sulphide. The extent of the lower grade stringer type sulphides zone was then modelled as being defined as having a lower contact shared with the upper surface of the massive sulphide and an upper surface translated 20 metres above the lower defined surface of the massive sulphide.

4. The above methodology enables the creation of surfaces to simplistically define the extent of the two types of mineralization on Redstone (Figure 24). These surfaces will also become hard boundaries for the selection of data representing the two mineral types for geostatistical analyses and variography.
It is recognised that this geological model is a simplification of the reality on Redstone. The model should be seen as a starting point upon which to attach more detail as this becomes available. It is particularly important that structural geology aspects be focussed on in future updates of the geology model.

In addition to the construction of a geology model, a 3D model for the mined out workings on Redstone from digital mine plans of mine workings up to 30 April 2007 was created.

No weathered surfaces have been modelled, as all drilled material is considered fresh by all available logging detail and by site inspection of the Liberty core by SRK.

Figure 24: Simplistic sectional view of the result of the geological modeling process applied at Redstone
16.3.3 Compositing

Composite files were created using uncapped values starting at the drillhole collar position and defined within each of the two ‘mineralized zones’ viz. the lower massive sulphide zone and the overlaying stringer type sulphide zone. The underground development sampling dataset is combined with the massive sulphide dataset for variography and grade estimation. The geostatistical signature for nickel of the composited underground development data is similar to that of the composited drilling dataset from the massive sulphide zone. This trend is confirmed in a QQ plot (Figure 25) comparing the two sources of nickel data.

All assays were composited to 1.0 metre intervals and extracted to a workspace for statistical analyses and grade interpolation.

Certain intervals within the historical database (within the mineralized zones) were not sampled for reasons unknown. These intervals were assigned a value of zero in the compositing process.

![Redstone MS Zone QQ Plot:Underground sampling v BH 1.0m Composite Ni% data](image)

**Figure 25:** QQ plot of composited underground nickel data against composited drilling nickel data within the massive sulphide zone.
16.3.4 Statistics

Basic statistical tabulations for composited nickel and copper from all drilling data sources from within both mineralized zones are presented in Table 5. The statistical signature of each of these mineralized zones is substantially different, justifying the decision to separate these two data populations for geostatistical analyses which should result in higher confidence grade estimations.

Histograms for composited nickel and copper for all data sources combined within the two mineralized zones are provided in Figure 26 and Figure 27. Nickel data is highly skewed with a dominance of low values, although within the massive sulphide zone a significant portion (about 15% of the total) of the data is in the higher grade tail (exceeding 10% Ni). The higher grade tail is somewhat smaller in the stringer type sulphide zone.

Copper values are uniformly low in both mineralization zones (Figure 27). The majority of the copper assays in the database (96% of the total) are less than 0.01%.

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Massive Sulphide Zone</th>
<th>Stringer type sulphide Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ni</td>
<td>Cu</td>
</tr>
<tr>
<td>Mean</td>
<td>3.90</td>
<td>0.02</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.15</td>
<td>0.00</td>
</tr>
<tr>
<td>Median</td>
<td>1.08</td>
<td>0.00</td>
</tr>
<tr>
<td>Mode</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>6.07</td>
<td>0.08</td>
</tr>
<tr>
<td>Sample Variance</td>
<td>36.88</td>
<td>0.01</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>3.86</td>
<td>92.99</td>
</tr>
<tr>
<td>Skewness</td>
<td>2.08</td>
<td>8.64</td>
</tr>
<tr>
<td>Range</td>
<td>36.40</td>
<td>1.27</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>36.40</td>
<td>1.27</td>
</tr>
<tr>
<td>Sum</td>
<td>6062.18</td>
<td>24.16</td>
</tr>
<tr>
<td>Count</td>
<td>1555</td>
<td>1555</td>
</tr>
</tbody>
</table>
Figure 26: Histogram for composited nickel for all data sources within the two mineralized zones
Redstone Project:
Histogram of total composite Cu grades within the massive sulphide zone
n=1,555

Redstone Project:
Histogram of total composite Cu grades within the stringer type sulphide zone
n=3,845

Figure 27: Histogram for composited copper for all data sources within the two mineralized zones
16.3.5 Grade Capping

Based on careful examination of the composited nickel and copper datasets for all data within the modelled mineralized zones and by consideration of the respective probability plots (Figure 28 and Figure 29), SRK decided not to apply any capping to the composited copper dataset. For the nickel data, the following cappings were applied:

- Massive sulphide zone: 25% Ni
- Stringer type sulphide zone: 20% Ni

**Figure 28: Probability Plots for composited nickel for all data sources within the two mineralized zones (MS= massive, STR= stringer type)**
Figure 29: Probability Plots for composited copper for all data sources within the two mineralized zones (MS= massive, STR= stringer type)
16.3.6 Variography

Isatis software version 5.1.7 was used to generate all variograms. Traditional experimental variograms were modeled from the composited datasets from the two mineralization zones (basal massive sulphide and overlying stringer type sulphides) for nickel and copper for all three principle directions.

A total of twelve variograms were then fitted, yielding the directional ranges listed in Table 6. Two of these modelled directional variograms (for nickel in the massive sulphide zone) are illustrated in Figure 30. Based on the highly irregular variograms obtained from the Redstone dataset, it was decided not use kriging as a grade estimation technique, but to rather apply a robust inverse distance methodology.

For nickel and copper the major axis (Y) is orientated at N135 degrees, the regular minor axis (X) orientated at N045 degrees and the Z axis being orientated perpendicular to these. These directions coincide with local modelled geological orientations, yielding the ‘best’ variograms.

For nickel and copper the variogram reference plane has a dip of -60 degrees towards the southeast. For nickel and copper grade estimation, the search ellipse was orientated at an azimuth of N135 degrees with a dip of -60 degrees, relative to the local grid.

Table 6: Variography analyses: ranges for nickel and copper for all modeled directions and for both the two mineralization zones.

<table>
<thead>
<tr>
<th>Modelled direction:</th>
<th>Nickel % (m)</th>
<th>Copper % (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massive Sulphide Zone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Axis</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Y Axis</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>Z Axis</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Stringer Type Sulphide Zone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Axis</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Y Axis</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Z Axis</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>
Figure 30: Illustrative modeled variograms for nickel from the massive sulphide zone (top = direction N135, whereas bottom = N045).
16.3.7 Block Model and Grade Estimation

Criteria used in the selection of block size includes the borehole spacing, composite assay length, a consideration of potential mining unit sizes as well as the geometry of the modelled mineralized zones. The block size was set at three meters by two meters by two meters in the easting, northing and elevation directions respectively. The parameters of the Datamine block model constructed by SRK are presented in Table 7.

A two split Datamine sub block routine was applied during block model construction (with a minimum block size of one by one by one metres) to ensure that the modeled mineralized zones are adequately filled.

Table 7: Parameters of the Redstone Block Model constructed by SRK.

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Block Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block origin:</td>
<td></td>
</tr>
<tr>
<td>X (m)</td>
<td>3000</td>
</tr>
<tr>
<td>Y (m)</td>
<td>2800</td>
</tr>
<tr>
<td>Z (m)</td>
<td>1850</td>
</tr>
<tr>
<td>Rows</td>
<td>270</td>
</tr>
<tr>
<td>Columns</td>
<td>425</td>
</tr>
<tr>
<td>Levels</td>
<td>625</td>
</tr>
<tr>
<td>Percent Model</td>
<td>No</td>
</tr>
<tr>
<td>Rotation</td>
<td>No</td>
</tr>
</tbody>
</table>

Block grades were estimated using and inverse distance squared (ID²) estimator. Block grade estimation was completed in a single pass using the search ellipse ranges defined by variography as outlined in the previous section.

For the all classes of Mineral Resources defined in this study, applied search ellipse ranges are:

Massive sulphides: X=40 metres, Y=75 metres and Z=10 metres for nickel and X =30 metres, Y =50 metres and Z =8 metres for copper; and

Stringer type sulphides: X=20 metres, Y=40 metres and Z=8 metres for nickel and X =20 metres, Y =40 metres and Z =8 metres for copper.

In addition, the minimum and maximum numbers of samples used for grade estimation were set at 2 and 20 respectively.

In terms of classification criteria, blocks with Z > 2,750 metres (shallow) are classified as measured, blocks with 2,525 metres < Z < 2,750 metres (intermediate depths) are classified as indicated, whereas blocks with Z < 2,525 metres are classified as inferred (deep). The block models were coded to differentiate between the various different classification codes.

Specific gravity values appropriate to the mineralization code were added to the model (values previously discussed).
16.4 Model Validation

Global and local grade estimates were checked for appropriateness. Original nickel and copper drilled grades were compared with block grades on a section-by-section basis. Grade estimation by inverse distance squared was found to appropriately reflect general grade trends and appropriately correspond to proximal borehole grades.

An example of the Redstone block grade estimation output generated by inverse distance squared is shown in Figure 31, which is a north to south long section along X=3352 (looking east) showing nickel block grade distribution relative to drill hole density (yellow) and modeled mineralization zone definition.

Figure 31: North to south long section along X=3352 (looking east), showing block coded Ni% grade distribution relative to drill hole density (yellow) and mineralization zone definition.
16.5 Mineral Resource Classification

Mineral resources have been estimated in conformity with generally accepted CIM “Estimation of Mineral Resource and Mineral Reserves Best Practices” Guidelines. Mineral resources are not mineral reserves and do not have demonstrated economic viability.

SRK is not aware of any known environmental, permitting, legal, title, taxation, socio-economic, marketing or other relevant issues that could potentially affect this estimate of mineral resources. Mineral reserves can only be estimated based on the results of an economic evaluation as part of a preliminary feasibility study or a feasibility study. As such no mineral reserves have been estimated by SRK as part of the present assignment. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

Mineral resources for the Redstone deposit have been classified according to the “CIM Standards on Mineral Resources and Reserves: Definitions and Guidelines” (December, 2005) by Glen Cole, P.Geo an appropriate Qualified Person as defined by NI43-101. Mineral resources were classified as Measured, Indicated and Inferred Mineral Resources using the following criteria (illustrated in Figure 32):

Measured Mineral Resources:

- Defined above \( Z = 2750 \) m, which is extends down to approximately 285 metres below surface
- Located within high confidence area characterized by high drilling densities and operational stoping and development
- Confident understanding of the geological model and grade variances, characterized by detailed underground mapping
- single pass search ellipse ranges defined by variography as outlined in the previous section

Indicated Mineral Resources:

- Defined between 2,525 metres < \( Z < 2,750 \) metres, which extends down to approximately 510 metres below surface
- Located within medium confidence area characterized by medium drilling densities but no operational stoping and development
- Moderate understanding of the geological model and grade variances, defined by extrapolating measured resources and moderate drill density data.
- single pass search ellipse ranges defined by variography as outlined in the previous section

Inferred Mineral Resources:

- Defined between 1885 metres < \( Z < 2525 \) m, which extends down to approximately 1,150 metres below surface
- Located within low confidence area characterized by low drilling densities with no operational stoping and development
- Poor understanding of the geological model and grade variances, the steepening of modelled resource dip probably indicates undefined structural complexities
- Single pass search ellipse ranges defined by variography as outlined in the previous section

**Resource Classification: Redstone Mine**

![Diagram of resource classification](image)

**Figure 32:** Diagrammatic illustration of the resource classification methodology applied at Redstone.
16.6 Mineral Resource Statement

The three categories of Mineral Resources for the Redstone deposit are reported at a single cut-off of 0.7% nickel, which is the cut-off Redstone management believe is achievable at future projected underground mining methods, volumes and associated costs.

Resources within mining voids created by mining activity (historical and current) up to 30 April 2007 have been excluded from reported resources.

A classified Mineral Resources statement for the total resource at Redstone is presented in Table 8. The numbers have been rounded to reflect the relative accuracy of the estimate. Table 9 illustrates tonnage and grade sensitivity of the total resource to cut-off. This sensitivity is also represented as a Grade – Tonnage Curve for nickel in Figure 33.

Categorized Mineral Resource statements tabulating the Redstone resource in terms of classification and ore type and illustrating their sensitivity to cut-off are provided in Table 10 and Table 11.


<table>
<thead>
<tr>
<th>Classification</th>
<th>Tonnage 000's t</th>
<th>Nickel (%)</th>
<th>Copper (%)</th>
<th>Contained Nickel (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured</td>
<td>274</td>
<td>2.64</td>
<td>0.01</td>
<td>7,236</td>
</tr>
<tr>
<td>Indicated</td>
<td>145</td>
<td>1.70</td>
<td>0.02</td>
<td>2,462</td>
</tr>
<tr>
<td>Inferred</td>
<td>148</td>
<td>3.44</td>
<td>0.00</td>
<td>5,099</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>567</strong></td>
<td><strong>2.61</strong></td>
<td><strong>0.01</strong></td>
<td><strong>14,797</strong></td>
</tr>
</tbody>
</table>

* Reported at 0.7% nickel cut-off. All figures have been rounded to reflect the accuracy of the estimate.
Table 9: Redstone Deposit: Total resource sensitivity table.

<table>
<thead>
<tr>
<th>Above</th>
<th>Tonnes</th>
<th>Ni%</th>
<th>Cu%</th>
<th>Contained Ni (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>1,280,143</td>
<td>1.37</td>
<td>0.01</td>
<td>17,538</td>
</tr>
<tr>
<td>0.40</td>
<td>843,501</td>
<td>1.93</td>
<td>0.01</td>
<td>16,280</td>
</tr>
<tr>
<td>0.60</td>
<td>653,534</td>
<td>2.35</td>
<td>0.01</td>
<td>15,358</td>
</tr>
<tr>
<td>0.70</td>
<td>567,155</td>
<td>2.61</td>
<td>0.01</td>
<td>14,803</td>
</tr>
<tr>
<td>0.80</td>
<td>513,263</td>
<td>2.80</td>
<td>0.01</td>
<td>14,371</td>
</tr>
<tr>
<td>1.00</td>
<td>437,836</td>
<td>3.13</td>
<td>0.01</td>
<td>13,704</td>
</tr>
<tr>
<td>1.20</td>
<td>380,641</td>
<td>3.44</td>
<td>0.01</td>
<td>13,094</td>
</tr>
<tr>
<td>1.40</td>
<td>313,728</td>
<td>3.89</td>
<td>0.01</td>
<td>12,204</td>
</tr>
<tr>
<td>1.60</td>
<td>276,921</td>
<td>4.21</td>
<td>0.02</td>
<td>11,658</td>
</tr>
<tr>
<td>1.80</td>
<td>252,833</td>
<td>4.45</td>
<td>0.02</td>
<td>11,251</td>
</tr>
<tr>
<td>2.00</td>
<td>233,645</td>
<td>4.66</td>
<td>0.02</td>
<td>10,888</td>
</tr>
<tr>
<td>5.00</td>
<td>87,258</td>
<td>7.20</td>
<td>0.01</td>
<td>6,283</td>
</tr>
</tbody>
</table>

Reported figures exclude mined out areas and all figures have been rounded to reflect the accuracy of the estimate.

Figure 33: Nickel Grade Tonnage Curve for the Total Redstone Resource
Table 10: Redstone Resources per classification type.

### MEASURED RESOURCES AS OF JULY 11, 2007
(within z > 2750m, excluding mined out areas)

<table>
<thead>
<tr>
<th>ABOVE</th>
<th>Tonnes</th>
<th>Ni%</th>
<th>Cu%</th>
<th>Ni (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>542,480</td>
<td>1.53</td>
<td>0.01</td>
<td>8,300</td>
</tr>
<tr>
<td>0.40</td>
<td>391,876</td>
<td>2.01</td>
<td>0.01</td>
<td>7,877</td>
</tr>
<tr>
<td>0.60</td>
<td>308,306</td>
<td>2.42</td>
<td>0.01</td>
<td>7,461</td>
</tr>
<tr>
<td>0.70</td>
<td>274,085</td>
<td>2.64</td>
<td>0.01</td>
<td>7,236</td>
</tr>
<tr>
<td>0.80</td>
<td>251,219</td>
<td>2.81</td>
<td>0.01</td>
<td>7,059</td>
</tr>
<tr>
<td>1.00</td>
<td>220,524</td>
<td>3.08</td>
<td>0.01</td>
<td>6,792</td>
</tr>
<tr>
<td>1.20</td>
<td>197,022</td>
<td>3.31</td>
<td>0.01</td>
<td>6,521</td>
</tr>
<tr>
<td>1.40</td>
<td>170,840</td>
<td>3.62</td>
<td>0.01</td>
<td>6,184</td>
</tr>
<tr>
<td>1.60</td>
<td>147,268</td>
<td>3.96</td>
<td>0.02</td>
<td>5,832</td>
</tr>
<tr>
<td>1.80</td>
<td>134,312</td>
<td>4.18</td>
<td>0.02</td>
<td>5,614</td>
</tr>
<tr>
<td>2.00</td>
<td>123,365</td>
<td>4.38</td>
<td>0.02</td>
<td>5,403</td>
</tr>
<tr>
<td>2.00</td>
<td>37,312</td>
<td>7.00</td>
<td>0.03</td>
<td>2,612</td>
</tr>
</tbody>
</table>

### INDICATED RESOURCES AS OF JULY 11, 2007
(within 2750m > z > 2525m, excluding mined out areas)

<table>
<thead>
<tr>
<th>ABOVE</th>
<th>Tonnes</th>
<th>Ni%</th>
<th>Cu%</th>
<th>Ni (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>485,531</td>
<td>0.76</td>
<td>0.01</td>
<td>3,690</td>
</tr>
<tr>
<td>0.40</td>
<td>256,171</td>
<td>1.19</td>
<td>0.02</td>
<td>3,048</td>
</tr>
<tr>
<td>0.60</td>
<td>172,447</td>
<td>1.53</td>
<td>0.02</td>
<td>2,638</td>
</tr>
<tr>
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<td>0.02</td>
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<td>0.03</td>
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<td>63,941</td>
<td>2.63</td>
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<td>53,794</td>
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<td>0.04</td>
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<td>5.00</td>
<td>3,155</td>
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<td>0.01</td>
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</tbody>
</table>

### INFERRED RESOURCES AS OF JULY 11, 2007
(within z < 2525m, excluding mined out areas)

<table>
<thead>
<tr>
<th>ABOVE</th>
<th>Tonnes</th>
<th>Ni%</th>
<th>Cu%</th>
<th>Ni (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>252,133</td>
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<td>0.00</td>
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<tr>
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<td>172,781</td>
<td>3.05</td>
<td>0.00</td>
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</tr>
<tr>
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<td>140,245</td>
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</tr>
<tr>
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</tr>
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<td>46,792</td>
<td>7.30</td>
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<td>3,416</td>
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Table 11: Redstone Resources per ore type.

**MASSIVE SULPHIDE RESOURCES AS OF JULY 11, 2007**
(within 1.2m of basal footwall contact, excluding mined out areas)

<table>
<thead>
<tr>
<th>ABOVE</th>
<th>Tonnes</th>
<th>Ni%</th>
<th>Cu%</th>
<th>Ni (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>323,296</td>
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<td>0.60</td>
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<tr>
<td>1.00</td>
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<td>0.02</td>
<td>9,058</td>
</tr>
<tr>
<td>1.20</td>
<td>232,545</td>
<td>3.83</td>
<td>0.02</td>
<td>8,990</td>
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<td>1.40</td>
<td>203,256</td>
<td>4.21</td>
<td>0.02</td>
<td>8,587</td>
</tr>
<tr>
<td>1.60</td>
<td>185,502</td>
<td>4.42</td>
<td>0.02</td>
<td>8,332</td>
</tr>
<tr>
<td>1.80</td>
<td>174,354</td>
<td>4.64</td>
<td>0.02</td>
<td>8,090</td>
</tr>
<tr>
<td>2.00</td>
<td>163,004</td>
<td>4.83</td>
<td>0.02</td>
<td>7,873</td>
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<td>2.50</td>
<td>67,917</td>
<td>7.15</td>
<td>0.02</td>
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**STRINGER TYPE ORE RESOURCES AS OF JULY 11, 2007**
(within 20m of basal footwall contact, excluding mined out areas)

<table>
<thead>
<tr>
<th>ABOVE</th>
<th>Tonnes</th>
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<th>Cu%</th>
<th>Ni (t)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.01</td>
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<td>0.01</td>
<td>5,924</td>
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</tr>
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<td>205,291</td>
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<td>0.00</td>
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</tr>
<tr>
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<td>110,472</td>
<td>3.31</td>
<td>0.00</td>
<td>3,657</td>
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<td>88,419</td>
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<td>19,341</td>
<td>7.39</td>
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<td>1,429</td>
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</table>
17 Interpretation and Conclusions

The understanding of the geological controls determining the distribution of nickel mineralization at Redstone and the continuity of the higher grade massive sulphide type ore is well understood down to approximately 285 metres below surface. This understanding has been gained from close spaced drilling, detailed underground geological mapping and from the knowledge gained from an extended period of stoping. An acceptable drill density has allowed the massive sulphide ore body to be extrapolated down to approximately 510 metres below surface.

Our understanding of the nickel grade distribution within the lower grade structurally – controlled stringer type ore in the hangingwall has been limited by a smaller dataset on this mineralization type (minimal stoping information) and by an imperfect understanding of the structurally elements that influence it’s continuity. An increased appreciation of the structural controls of the stringer type nickel mineralization should result in increased resources from this ore type.

An accelerated and well managed diamond exploration program since early 2006 by Liberty has considerably increased the quality of the Redstone resource dataset, which has facilitated resource modelling and estimation in this study. The Liberty component of the total dataset equates to 43% of drilling meters and 38% of sampling data. It is fortunate that the majority of this exploration is focussed on deeper future mining areas. The exploration methodologies and protocols practiced by Liberty exploration staff conform to industry ‘best practices’.

In a relatively short period of time (since mid 2006), Liberty management have introduced a quality management system that compares well to industry standard. Sampling protocols, drilling procedures, database management and overall quality assurance and quality control are areas that have received attention. The implementation of industry standard database management systems and 3D modelling software packages on Liberty have contributed considerably to the high exploration standards.

The geology model and classified resource estimate reflect current knowledge of the Redstone mineralization continuity and associated grade trends. Currently all modelled resources below approximately 510 metres below surface are classified as inferred. A tremendous opportunity exists to upgrade the resources in the deeper portion of the ore body by increasing the drilling density as well as by increasing our understanding of the structural framework upon which the Redstone orebody is based. Such an improved structurally based resource body will not only lead to upgraded resources but also to reduced risk in future mining decisions based on this model.

This first NI43-101 compliant resource estimate should serve as a starting point, which should be continually updated and improved as additional data and interpretations become available.
18 Recommendations

Significant nickel (and copper) mineralization has been identified at the Redstone Mine. Confidence in estimating mineral resources at Redstone (and their classification) is determined by various factors, including the following:

- An appreciation of the variables associated with komatiite-associated Ni-(Cu) deposits;
- An understanding of the 3D structural geological framework of the nickel sulphide mineralization;
- The drilling density;
- Proximity to historically mined out areas, with associated detailed geological mapping (and sampling);
- Whether the available data was derived pre-2004 or after 2004. Data derived after 2004 was generated by Liberty using industry best practices.

It is significant to note that largest portion of the geological model is located between 510 metres and 1,150 metres below surface. The confidence of the geological model in this zone is low, due to the lack of informing data. SRK considers that this initial geological model and resource estimate for Redstone represents a ‘starting point’ or framework upon which to base future exploration. SRK believes that if best practice guidelines are continued to be applied in future exploration practices, that there is a strong potential to increase the Inferred Resources in this zone and to upgrade the current Inferred resources to Indicated with additional drilling.

SRK is of the opinion that there is good potential to grow the mineral resources for the Redstone project with additional exploration. SRK recommends that Liberty considers the following aspects during future exploration drilling:

- Increase the drill density in the area 510 to 1,150 metres;
- Produce a detailed structural model for the Redstone Mine, which would improve the quality of the 3D geological model;
- Consideration should be given to getting an experienced structural geologist on site to provide insight and training for Redstone exploration staff to facilitate structural data collection, interpretation and 3D modeling;
- Attempt to map out the extent of known ‘hanging wall stinger type ore zones’ and to reconcile with the structural model;
- Geologically map the larger intrusions which occur in proximity to the zones of mineralization and incorporate into the 3D model;
- Attempt to map out the thicker portions of the massive sulphide zone towards the margins of the deposit and incorporate into the 3D geological model;
- Continue with the current QAQC protocols relating to sample preparation and analyses. Consideration should be given to acquiring a new ‘blank’ standard;
• With the availability of Datamine on site, it would be beneficial to model new drill data soon after receipt to assess impact on drilling program;
• The resource model should be ‘updated’ once the geological model has been ‘upgraded’ and when the data density in the zone between 510 and 1,150 metres has increased considerably;
• Geology staff should attempt to identify large ‘hanging wall stringer type ore zones’ which could be mined economically.

The focus on exploration drilling, which commenced in 2006, needs to continue. Liberty has planned an intensive exploration program at Redstone, which is scheduled to run from 2007 (already commenced) to 2010. The total planned drill meters are estimated at 39,000 meters, which will be achieved from a combination of deep surface drilling, exploration drilling from underground development drifts (on three levels) as well as drilling from an exploration shaft.

The estimated exploration budget for the period 2007 to 2010 is tabulated in Table 12. Details regarding the breakdown on planned diamond drill meters, targeted depths and estimated costs are summarized here.

### Table 12: Redstone Project: Estimated exploration budget for 2007 and beyond.

<table>
<thead>
<tr>
<th>Program</th>
<th>Phase</th>
<th>Detail</th>
<th>Period</th>
<th>Meters</th>
<th>Cost (CNS)</th>
</tr>
</thead>
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<tr>
<td><strong>Diamond drilling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>From surface</td>
<td>2-3 deflections per hole</td>
<td>2007</td>
<td>9,000</td>
<td>990,000</td>
</tr>
<tr>
<td>(Target: 762 to 1155m levels)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>From underground development</td>
<td>Drift on 366m</td>
<td>2007-08</td>
<td>10,000</td>
<td>700,000</td>
</tr>
<tr>
<td>(Target: 457 to 762m levels)</td>
<td>Phase 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drift on 488m</td>
<td>2008-09</td>
<td>10,000</td>
<td>700,000</td>
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<tr>
<td>C</td>
<td>From Exploration Shaft</td>
<td>Drifting on 830m</td>
<td>2009-10</td>
<td>10,000</td>
<td>700,000</td>
</tr>
<tr>
<td>(Target: 762 to 1155m levels)</td>
<td>Phase 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td>39,000</td>
<td>3,090,000</td>
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19 References


APPENDIX A

Redstone Property Mining Claims
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<th>Property</th>
<th>Claim No.</th>
<th>Area (Ha)</th>
<th>Map Area</th>
<th>Title</th>
</tr>
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<td>251.3</td>
<td>42 A/6</td>
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</tr>
<tr>
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<td><strong>Total:</strong></td>
<td></td>
<td><strong>1002.1</strong></td>
<td></td>
<td></td>
</tr>
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</table>
CERTIFICATE AND CONSENT


I, Glen Cole, residing at 15 Langmaid Court, Whitby, Ontario do hereby certify that:

1) I am a Principal Resource Geologist with the firm of SRK Consulting (Canada) Inc. (SRK) with an office at Suite 1000, 25 Adelaide Street East, Toronto, Ontario, Canada;

2) I am a graduate of the University of Cape Town in South Africa with a B.Sc (Hons) in Geology in 1983; I obtained an M.Sc (Geology) from the University of Johannesburg in South Africa in 1995 and an M.Eng in Mineral Economics from the University of the Witwatersrand in South Africa in 1999. I have practiced my profession continuously since 1986;

3) I am a Professional Geoscientist registered with the Association of Professional Geoscientists of the province of Ontario (APGO#1416) and am also registered as a Professional Natural Scientist with the South African Council for Scientific Professions (Reg#400070/02)

4) I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Redstone Mine or securities of Liberty Mines Inc.

5) That, as of the date of this certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading;

6) I have read National Instrument 43-101 and Form 43-101F1 and I am a Qualified Person for the purpose of NI 43-101 and this technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;

7) I, as the qualified person, am independent of the issuer as defined in Section 1.4 of National Instrument 43-101;

8) I am the author of this report;

9) I have personally inspected the Redstone Mine and surrounding areas on two occasions, firstly on 17 August 2006 and then again between June 4 and 6, 2007;

10) SRK Consulting (Canada) Inc. was retained by Liberty Mines Inc. to prepare a mineral resource estimate for the Redstone Nickel Mine. This assignment was completed using CIM “Best practices” and Canadian Securities Administrators National Instrument 43-101 guidelines;

I hereby consent to use of this report for submission to any Provincial regulatory authority

Glen Cole, P.Geo. 
Principal Resource Geologist 
Toronto, Canada 
August 23, 2007