# LA SOCIETE DE GESTION MASKOURS INC. 

## ROSEVAL SILICA PROPERTY

SITE No. 3 PROJECT

IN

PENHORWOOD TOWNSHIP
PORCUPINE MINING DIVISION

DISTRICT OF COCHRANE

ONTARIO
by

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### 1.0 PREFACE

La Societe de Gestion Maskours Inc. holds a total of 32 unpatented mining claims in the southwestern portion of Penhorwood Township, Porcupine Mining Division, District of Cochrane, Ontario. The project area is located approximately 51.5 miles ( 82.9 km ) west of Timmins, Ontario. The project is located in NTS 42B/1 and approximately Latitude $48^{\circ} 05^{\prime}$ and Longitude $82^{\circ} 09^{\prime}$.

The purpose of this report is to present the results of the exploration activities of 1998 and 1999. These activities involved a transit surveying of all new drill holes and check surveying, revising the resource calculations previously completed by the author in 1994 with the results from the four 1998 drill holes which totalled 1312.3 feet. The new calculations incorporated the new transit surveying results, up to date drill sections and interpretation for a silica resource calculation. The above was completed by the author from December 1, 2000 to April 24, 2001.

### 2.0 INTRODUCTION

La Societe de Gestion Maskours Inc. holds a total of 32 unpatented mining claims in the southwestern portion of Penhorwood Township, Porcupine Mining Division, District of Cochrane, Ontario. The work outlined by this report covers the Site No. 3 area which is covered by mining claim P-994260 located in the north-central portion of the claim group.

The purpose of this report is to present the results of the exploration activities conducted during 1998 to 1999 on the La Societe de Gestion Maskours Inc. Penhorwood Township property. The activities at Site 3 involved a transit survey of the 1998 drill holes, check surveying, computerization of all drilling to date, and the generation of new drill sections for silica resource calculations.

The 1998 diamond drill holes and the assay results have been previously filed for assessment work.

### 2.1 LOCATION AND ACCESS

The 32 contiguous unpatented mining claims of La Societe de Gestion Maskours Inc. are located in the southwestern portion of Penhorwood Township, Porcupine Mining Division, District of Cochrane, Ontario as shown in Figure 1.

The project area is located approximately 51.5 miles ( 82.9 km ) west of Timmins, Ontario. Access to the project area is by Highway 101 west of Timmins for 35.73 miles ( 57.5 km ) to the all-weather gravel Kenogaming/Penhorwood Main logging roads. Travelling about 4.29 miles ( 6.9 km ) in a southerly direction on the gravel road is the


Penhorwood Road leading in a westerly to southwesterly direction for about 10.13 miles ( 16.3 km ) to the Canadian National Railway crossing. An upgraded gravel road approximately 300 metres north of the railway crossing leads westerly to the Extender Mineral property. Approximately 1.37 miles ( 2.2 km ) along this road is Site No. 2 open pit and an additional 0.68 miles ( 1.1 km ) to Site No. 3 open pit.

Figure 2 illustrates the access roads in Penhorwood Township and the claim group. The project is located in NTS 42B/1 and approximately Latitude $48^{\circ} 05^{\prime}$ and Longitude $82^{\circ} 09^{\prime}$.

### 2.2 TOPOGRAPHY AND VEGETATION

The low-lying areas are covered with black spruce and minor balsam and muskeg dry swamps to dense wet cedar swamps with minor black spruce and tag alders. The boundary areas around the various swamps are generally low, relatively flat sandy boulder outwash plains and reworked till with a mixture of black and white spruce, birch and minor poplar and cedar. The higher topographic areas are dominated by poplar, white spruce with minor and varying amounts of white pine, birch and black spruce.

The lowest topographic area is located in the southwestern area which drains into Hardiman Bay. The southwest portion of the claim group where Site 1 is located, is higher in elevation than the high ridges which hosts the silica deposits of Site 2 and Site 3 which trends at $\mathrm{N} 60^{\circ} \mathrm{E}$. The highest point in elevation is a steep southeast sided granite ridge located in the north-central area of the claim group.

### 2.3 PROPERTY STATUS

The Penhorwood Township property of La Societe de Gestion Maskours Inc. consists of 32 contiguous unpatented mining claims. The mining claims covered by this report are shown in Figure 3, and Table 1 indicates the current active mining claims.

### 2.4 PREVIOUS EXPLORATION ACTIVITIES

The two patented mining claims located in the centre of the claim group has had extensive exploration work. In 1917, barite was discovered about 1600 feet east-northeast of Horwood Lake CNR station. Small tonnages of barite were shipped in 1923, 1933, and 1940. During 1965, Horwood Mining Limited shipped quartz chip from a vein located south of the C.N.R. tracks and is known as Site 1.

The past exploration activity involving parts of the claim group were completed by B.M. Arnoit who drilled four diamond drill holes. No dates were available on the drilling.



Table 1: Current Active Mining Claims of La Societe de Gestion Maskours Inc., Penhorwood Township, Porcupine Mining Division, District of Cochrane, Ontario.

| Ming Claim | Recording Date | No. of Units |
| :--- | :--- | :--- |
| P 984378 | 1987-JUN-19 | 1 unit |
| P 984379 | 1987-JUN-19 | 1 unit |
| P 984380 | 1987-SEP-17 | 1 unit |
| P 986583 | 1987-JUN-22 | 1 unit |
| P 986584 | 1987-JUN-22 | 1 unit |
| P 986585 | 1987-JUN-22 | 1 unit |
| P 986587 | 1987-JUN-22 | 1 unit |
| P 986589 | 1987-SEP-01 | 1 unit |
| P 994114 | 1987-SEP-17 | 1 unit |
| P 994260 | 1987-SEP-17 | 1 unit |
| P 994261 | 1987-SEP-17 | 1 unit |
| P 995807 | 1987-OCT-08 | 1 unit |
| P 995808 | 1987-OCT-08 | 1 unit |
| P 995809 | 1987-AUG-25 | 1 unit |
| P 995810 | 1987-SEP-01 | 1 unit |
| P 1114596 | 1989-AUG-28 | 1 unit |
| P 1188912 | 1991-NOV-05 | 1 unit |
| P 1188913 | 1991-NOV-05 | 1 unit |
| P 1207767 | 1996-JUN-19 | 3 units |
| P 1207768 | 1996-JUN-19 | 1 unit |
| P 1219704 | 1999-MAY-05 | 2 units |
| P 1219706 | 1999-MAY-05 | 8 units |

Canadian John Mansville conducted a magnetic survey and geological mapping during 1956 on their Horwood Lake Group which is the northwestern portion of the present property.

Roseval Silica Inc. completed stripping of quartz zones in June of 1987 and September 1988, and limited geological mapping and 1,946 feet of percussion drilling completed in 1987.

During 1989, stripping and trenching was completed at Sites 2A and 3. A 1,866 foot diamond drill program was completed with 2 holes at Site 2,3 holes at Site 2A, and 3 holes at Site 3. The author completed the geological logging of the drill holes which tested the down dip extensions of the silica deposits from October 2 to 4, 1989.

Preliminary geophysical testing was conducted by the author on October 25 and 26, 1989. During January 15 to February 6, 1990, a total of 18.0 miles ( 28.97 km ) of line cutting was completed and surveyed with total field magnetic survey, vertical gradient survey and two VLF surveys utilizing Cutler, Maine and Annapolis, Maryland. An additional 3.42 miles ( 5.504 km ) of line cutting was completed in April 1990, and was surveyed with total field magnetic survey and a vertical gradient survey.

Trenching of the more promising anomalies was conducted under the supervision of the author from April 6 to 12, 1990. The geological survey of the 14 mining claims of Phase I was conducted by the author from May 3 to July 26, 1990. During this period, the author also conducted detail geological mapping of Site 3 and Site 2-2A, an initial elevation survey of Site 3 which established 198 elevation sites, a partial elevation survey of Site 2-2A, and a layout of exploration percussion drilling program for the various silica sites.

During the balance of the field season, additional elevation surveying was completed at Site 3 for the different stages of production, the completion of the percussion airtrack drilling program, quantity inventory surveying of the silica stock piles across from Site 2 and at the CNR siding, preliminary mining sections of Site 3 before 1990 production and final mining sections of Site 3 after the 1990 production and a reserve of the in situ mineable silica at Site 3.

During 1990 a total of 6715 feet ( 2046.7 metres) of exploration percussion drilling was completed at several of the sites including Site No. 4,5 and 7.

During 1991 and 1992, limited activities occurred on the property with production from the existing stock piles.

The exploration activities during 1992 were concentrated at Site No. 1. These activities involved detailed total field magnetic traverses, a computerized compilation of all known data, transit surveying of all percussion airtrack drill holes and diamond drill
holes, a 1110 foot diamond drilling program, topographic transit survey, and drill sections for a revised silica reserve calculation.

During April 1998, 5 diamond drill holes totalling 1633.8 feet were completed on the property with 4 drill holes totalling 1312.3 feet completed at Site No. 3. The purpose of the Site No. 3 drilling was to evaluate the potential of high quality silica beneath the current open pit.

Production resumed during 1999 and 2000 at Site No. 2 open pit with the production being shipped for smelter flux.

The following is a summary of the various resource/reserve calculations completed for the different silica areas:

| Site No. 1 | 63,230 tonne | (Komarechka, R.G., 1989) <br>  <br> 277,210 tonne |
| :--- | ---: | :--- |
| (Jensen, K., 1993 revised 1994) |  |  |
| Site No. 2 | 103,144 tonne | (van Hees, E., 1990) |
| Site No. 2a | 16,562 tonne | (van Hees, E., 1990) |
| Site No. 3 | 242,008 tonne | (Jensen, K., 1990) |
|  | 378,386 tonne | (Jensen, K., 1992) |
|  | 416,225 tonne | (Jensen, K., 1993 revised 1994) |

### 3.0 GEOLOGY \& MINERALOGY

### 3.1 REGIONAL GEOLOGY

The rock units of Penhorwood Township consists of a complexly folded mass of mafic metavolcanics, pyroclastics and metasediments, cut by mafic, ultramafic and felsic intrusives. The units are intruded by granite to granodiorite intrusives. Intruding all the rock units are northerly trending diabase dikes.

The metavolcanic and metasedimentary sequence has a greenschist metamorphic facies except near the granite contacts where it is an epidote-amphibolite facies. Carbonitization is common in the shear zones and at the contacts between the mafic and ultramafic intrusives.

Figure 4 illustrates the generalized geology of the Penhorwood Property. Based upon the published preliminary geological map of Penhorwood Township (Milne, V.G., 1972, Map 2230) the claim group is underlain by a 2,500 to 3,000 foot wide mafic metavolcanics trending approximately North 60 degrees East. The southeastern and northwestern flanks of the metavolcanics have exposures of biotite granodiorite gneiss and quartz porphyry to a granodiorite gneiss respectively. The extreme northwestern portion of the claim group is underlain by mafic metavolcanics which have been intruded by irregular shaped serpentinized ultramafic intrusives. The extreme

northeastern portion and a 600 foot zone within the central mafic metavolcanics are late felsic intrusives of hornblende-biotite granodiorite and muscovite granite respectively. The central portion of the property contains northerly trending late intrusive diabase dikes.

### 3.2 TERRAIN GEOLOGY

Northern Ontario was glaciated by continental ice sheets at least four times during the Pleistocene. The last glaciation, the Laurentide of Wisconsinan age, is preserved in the area. By late Wisconsinan time ice receded northeast through the area and deposited a variety of surficial materials including extensive ground morainal till. The area was probably ice free about 9,000 years ago. Glaciolacustrine sediments were deposited over the till. Recent organic terrain developed in poorly drained depressions. These glacial and non-glacial deposits, form a discontinuous mantle over the bedrock.

The rolling terrain is characterized by numerous rock knobs. Glaciofluvial deposits of sand and gravel, including occasional kame and esker formations occur a short distance from the claim group. Planar terrain, reflecting the deposits of glaciolacustrine silts and clays, are found in the lowlands.

Local areas of moderate relief and glasciofluvial landforms are generally well drained, even where bedrock occurs close to ground surface. In contrast, poorly drained topographical lows are frequently occupied by wet organic wetland deposits.

### 3.3 GEOLOGY OF HIGH SILICA DEPOSITS

The Penhorwood Township property of La Societe de Gestion Maskours Inc. hosts at least 3 deposits of high quality silica.

Site 1 is located 300 feet south and 600 feet east of the C.N.R. Horwood Station. The original estimates of the width for the quartz vein ranged from 23 to 65 feet for a length of 2,479 feet trending between $\mathrm{N} 015^{\circ} \mathrm{E}$ to $\mathrm{N} 040^{\circ} \mathrm{E}$. The vein occurs at or near the contact between the late felsic intrusive and mafic metavolcanics.

The western contact is exposed only near the Hardiman Bay road and appears to be either a magnetic rich metavolcanic or a mafic diabase dike. At the same location, the eastern contact is exposed and appears to consist of sheared mafic metavolcanic dipping about $70^{\circ}$ west. The quartz is a milky white opaque massive variety. Minor colour discolouration is locally present in the form of pale green due to chlorite contamination, a pale mauve colour which fades in a short period of time and a pale pink due to felsic inclusions. A minor amount of carbonate is present in the northern exposures and decreases southerly.

Site 2 is located in the northeastern portion of the claim group and is approximately 50 to 125 feet wide for a length of about 300 to 350 feet trending N $065^{\circ}$ E to $\mathrm{N} 068^{\circ} \mathrm{E}$. The silica deposit is vertical to steeply dipping to the east. The southern contact is a chlorite schist of mafic to ultramafic metavolcanics, while the northern contact is a light to medium pink, medium grained felsic intrusive (granitic).

The extension of the Site 2 deposit has been traced by several pits and trenches for a distance of 700 feet in a westerly direction. The geological environment for this extension, Site 2A, is very similar to that of Site 2. Three diamond drill holes were drilled under Site 2A. The quartz vein ranges from 40 to 50 feet wide and dipping approximately 70 degrees to the northwest.

The last known silica deposit is located approximately 1450 feet north of Site 2. Site 3 has a width of 100 to 150 feet for an approximate length of 300 feet trending $N$ $045^{\circ} \mathrm{E}$. This site was drilled with 7 holes. The northwestern unit intersected was granite followed by mafic to ultramafic chlorite schist and two wide quartz veins separated by mafic metavolcanics. The southeastern wall of the open pit has exposures of chlorite schist.

The ore zones are governed by the grade of the silica. The present economic market conditions have indicated that the final shipping product must have a grade of $99.8 \% \mathrm{SiO}_{2}$. Lower grade 'pit run' silica material has been shipped as smelter flux.

Based on the experience of the operators and the processing technique, values as low as $98 \% \mathrm{SiO}_{2}$ can be upgraded to the $99.9 \%$ high quality silica. Silica values as low as $95 \%$ can be upgraded at more expense.

Silica material has been classified by the $\mathrm{SiO}_{2}$ content into low grade silica from $95 \%$ to $97 \%$, medium grade silica from $97 \%$ to $99 \%$, and a high grade of greater than $99 \%$ silica.

### 4.0 CURRENT ACTIVITIES

This report covers the current activities of Site No. 3 which involve a computerized compilation of all known data, transit surveying of the 1998 diamond drill holes, and creating new drill sections for a current silica resource calculation.

### 4.1 DATA COMPILATION

A review of the exploration data available for the Site 3 area was completed by the author from December 1 to $5,2000$.

The amount of information on the Site 3 area consisted of the original surface mapping, updating the transit surveying of the area, 70 production and exploration
percussion airtrack drill holes and 7 diamond drill holes. Figure 6 which is located in the map folder, illustrates the location of all available drilling at Site 3.

The available maps indicating the geology, the location of the percussion airtrack holes and diamond drill holes, ore zone interpretation and the manual resource calculations were computerized in AutoCad. The drill holes were computerized in a drill hole computer program BORSURV, which created the diamond drill sections required for the AutoCad portion of the resource calculations.

### 4.2 TRANSIT SURVEYS

The survey was completed in 1999 by General Surveys of Timmins. The survey involved the surveying of all control stations, additional topographic features for section profiles and rechecking numerous percussion drill holes in bedrock which totalled 36 stations. The new co-ordinates for the control stations at Site 3 are indicated in Table 2. The new co-ordinates for the control stations were used to correct the database compiled in 1990 and used for reserve calculations in 1993 and revised in 1994.

Table 2: Summary of Co-ordinates for the Site No. 3 Control Survey Station (revised December 2000)

| Control Point | Easting | Northing | Elevation (feet) |
| :--- | :--- | :--- | :--- |
| Station 1 | -0.204 | 1.375 | 329.14 |
| Station 2 - Iron Bar | 44.551 | 0.015 | 328.49 |
| Station 3 - Iron Bar | 11.737 | -22.006 | 328.08 |
| Station 4 - Iron Bar | 652.055 | 0.008 | 316.52 |

### 4.3 COMPUTERIZATION

The computerization of the Site 3 information commenced with the correction of the original database. The computerization was completed from December 6 to 10, 2000, January 8 to 9, 2001 and April 2 to 11, 2001 by the author.

Table 3 contains the co-ordinates for the percussion airtrack drill holes and the diamond drill holes used in the data set for the resource calculations while Table 4 indicates the sources of the information. The database represents a total of 4092.0 feet in 70 percussion airtrack drill holes and 2126.3 feet in 7 diamond drill holes. Figure 5 is a plan map of Site No. 3 with all the drill holes.

The data was computerized utilizing AutoCad Version 13. This computerization

Table 3: Co-ordinates of the Percussion Airtrack Drill Holes and the Diamond Drill Holes in the Computer Database for Site No. 3 (revised December, 2000).

| Original Hole No. | Computer Hole No. | Type of Drill Hole | Eastings | Northings | Elevation (feet) | Length (feet) | Dip | Section Bearing |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 89-1 | RA89-1 | Airtrack | 527.117 | 2.896 | 320.000 | 60.00 | -90.00 | 0.00 |
| 89-2 | RA89-2 | Airtrack | 426.584 | -22.700 | 320.000 | 60.00 | -90.00 | 0.00 |
| 89-3 | RA89-3 | Airtrack | 421.621 | -3.394 | 321.000 | 60.00 | -90.00 | 0.00 |
| 89-4 | RA89-4 | Airtrack | 380.440 | 12.849 | 324.000 | 60.00 | -90.00 | 0.00 |
| 89-5 | RA89-5 | Airtrack | 376.303 | -45.012 | 326.000 | 60.00 | -90.00 | 0.00 |
| 90-02 | RS9002 | Airtrack | 356.404 | 51.787 | 307.569 | 60.00 | -90.00 | 0.00 |
| 90-03 | RS9003 | Airtrack | 254.017 | 33.296 | 315.522 | 60.00 | -90.00 | 0.00 |
| 90-04 | RS9004 | Airtrack | 252.590 | -3.598 | 314.464 | 60.00 | -90.00 | 0.00 |
| 90-05 | RS9005 | Airtrack | 311.318 | 35.235 | 314.454 | 60.00 | -90.00 | 0.00 |
| 90-06 | RS9006 | Airtrack | 83.802 | 7.995 | 324.162 | 60.00 | -90.00 | 0.00 |
| 90-06A | RS9006A | Airtrack | 549.720 | -38.354 | 310.319 | 60.00 | -90.00 | 0.00 |
| 90-07 | RS9007 | Airtrack | 548.919 | 31.269 | 319.366 | 60.00 | -70.00 | 191.69 |
| 90-07A | RS9007A | Airtrack | 592.129 | -20.867 | 318.438 | 60.00 | -90.00 | 0.00 |
| 90-07B | RS9007B | Airtrack | 77.714 | 29.277 | 321.792 | 60.00 | -90.00 | 0.00 |
| 90-09 | RS9009 | Airtrack | 539.374 | -8.653 | 319.063 | 60.00 | -90.00 | 0.00 |
| 90-09B | RS9009B | Airtrack | 563.182 | 10.492 | 320.574 | 60.00 | -90.00 | 0.00 |
| 90-10 | RS9010 | Airtrack | 290.179 | 9.098 | 315.168 | 60.00 | -90.00 | 0.00 |
| 90-101 | RS90101 | Airtrack | 554.380 | -25.293 | 288.156 | 60.00 | -90.00 | 0.00 |
| 90-102 | RS90102 | Airtrack | 419.274 | -11.956 | 277.887 | 35.00 | -34.00 | 159.85 |
| 90-103 | RS90103 | Airtrack | 424.121 | 4.963 | 210.422 | 60.00 | -90.00 | 0.00 |
| 90-104 | RS90104 | Airtrack | 421.510 | 19.966 | 210.818 | 60.00 | -90.00 | 0.00 |
| 90-105 | RS90105 | Airtrack | 416.467 | 32.243 | 210.422 | 60.00 | -90.00 | 0.00 |
| 90-106 | RS90106 | Airtrack | 460.203 | 70.875 | 290.443 | 60.00 | -90.00 | 0.00 |
| 90-107 | RS90107 | Airtrack | 270.425 | 63.566 | 315.420 | 60.00 | -90.00 | 0.00 |
| 90-108 | RS90108 | Airtrack | 497.406 | 32.880 | 276.383 | 60.00 | -90.00 | 0.00 |
| 90-109 | RS90109 | Airtrack | 520.755 | 13.970 | 278.341 | 60.00 | -90.00 | 0.00 |
| 90-110 | RS90110 | Airtrack | 280.481 | -3.126 | 314.477 | 60.00 | -90.00 | 0.00 |
| 90-111 | RS90111 | Airtrack | 221.239 | -6.786 | 314.958 | 60.00 | -90.00 | 0.00 |
| 90-112 | RS90112 | Airtrack | 220.287 | 32.724 | 313.063 | 60.00 | -90.00 | 0.00 |
| 90-115 | RS90115 | Airtrack | 419.951 | 77.311 | 288.057 | 60.00 | -90.00 | 0.00 |
| 90-12 | RS9012 | Airtrack | 545.518 | 34.222 | 319.522 | 60.00 | -90.00 | 0.00 |
| 90-13 | RS9013 | Airtrack | 468.438 | 66.612 | 304.480 | 60.00 | -90.00 | 0.00 |
| 90-13B | RS9013B | Airtrack | 403.560 | 59.044 | 306.397 | 40.00 | -90.00 | 0.00 |
| 90-14 | RS9014 | Airtrack | 47.605 | 14.751 | 325.225 | 60.00 | -90.00 | 0.00 |
| 90-16 | RS9016 | Airtrack | 34.921 | 61.101 | 312.793 | 60.00 | -90.00 | 0.00 |
| 90-17 | RS9017 | Airtrack | -4.784 | 113.488 | 306.475 | 60.00 | -90.00 | 0.00 |
| 90-18 | RS9018 | Airtrack | -4.004 | 114.453 | 306.152 | 60.00 | -60.00 | 155.69 |
| 90-19 | RS9019 | Airtrack | 15.931 | 84.305 | 311.190 | 60.00 | -90.00 | 0.00 |
| 90-20 | RS9020 | Airtrack | -19.695 | 165.490 | 305.855 | 60.00 | -90.00 | 0.00 |
| A1 | RSA1 | Airtrack | 272.442 | -109.719 | 319.917 | 40.00 | -90.00 | 0.00 |
| A2 | RSA2 | Airtrack | 443.770 | -56.680 | 320.000 | 20.00 | -90.00 | 0.00 |
| A3 | RSA3 | Airtrack | 383.460 | -5.341 | 326.000 | 70.00 | -90.00 | 0.00 |
| A4 | RSA4 | Airtrack | 290.017 | -37.044 | 316.000 | 60.00 | -90.00 | 0.00 |
| A5 | RSA5 | Airtrack | 244.226 | -42.860 | 318.000 | 40.00 | -90.00 | 0.00 |
| A6 | RSA6 | Airtrack | 164.830 | -29.544 | 316.000 | 60.00 | -90.00 | 0.00 |
| A7 | RSA7 | Airtrack | 95.257 | -19.764 | 319.000 | 40.00 | -90.00 | 0.00 |

Table 3: Continued

| Original Hole No. | Computer Hole No. | Type of Drill Hole | Eastings | Northings | $\begin{gathered} \text { Elevation } \\ \text { (feet) } \end{gathered}$ | Length (feet) | Dip | Section Bearing |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A8 | RSA8 | Airtrack | 22.867 | -67.854 | 326.199 | 40.00 | -90.00 | 0.00 |
| EXPO1 | REXPO1 | Airtrack | 583.143 | 1.363 | 321.303 | 60.00 | -90.00 | 0.00 |
| EXPO2 | REXPO2 | Airtrack | 586.493 | 26.718 | 321.303 | 60.00 | -90.00 | 0.00 |
| RS89 T-10-1 | R89T101 | Airtrack | 281.112 | -56.630 | 272.382 | 60.00 | -90.00 | 0.00 |
| RS89 T-12-1 | R89T121 | Airtrack | 329.860 | -7.716 | 274.741 | 65.00 | -90.00 | 0.00 |
| RS89 T-14-1 | R89T141 | Airtrack | 379.827 | 41.015 | 275.834 | 50.00 | -8.00 | 338.69 |
| RS89 T-14-2 | R89T142 | Aintrack | 389.426 | -36.342 | 272.954 | 67.00 | -90.00 | 0.00 |
| RS89 T-15-1 | R89T151 | Airtrack | 478.234 | -3.639 | 278.439 | 90.00 | -90.00 | 0.00 |
| RS89 T-15-2 | R89T152 | Airtrack | 461.450 | 20.396 | 275.444 | 115.00 | -90.00 | 0.00 |
| RS89 T-15-3 | R89T153 | Airtrack | 436.409 | 46.381 | 272.194 | 100.00 | -90.00 | 0.00 |
| RS89 T-15-4 | R89T154 | Airtrack | 464.487 | 22.037 | 277.256 | 80.00 | -40.00 | 48.69 |
| RS89 T-15-5 | R89T155 | Airtrack | 465.640 | 22.037 | 277.277 | 50.00 | -40.00 | 93.69 |
| RS89 T-15-6 | R89T156 | Airtrack | 481.063 | 0.338 | 280.850 | 70.00 | -40.00 | 103.69 |
| RS89 T-4-1 | R89741 | Airtrack | 87.610 | -19.196 | 319.240 | 60.00 | -45.00 | 350.69 |
| RS89 T-4-2 | R89T42 | Airtrack | 99.856 | -45.878 | 318.397 | 60.00 | -60.00 | 162.69 |
| RS89 T-5-1 | R89T51 | Airtrack | 191.737 | -120.332 | 318.157 | 20.00 | -90.00 | 0.00 |
| RS89 T-5-2 | R89T52 | Airtrack | 176.026 | -96.833 | 318.200 | 70.00 | -90.00 | 0.00 |
| RS89 T-5-3 | R89T53 | Airtrack | 160.932 | -73.347 | 318.200 | 70.00 | -90.00 | 0.00 |
| RS89 T-5-4 | R89T54 | Airtrack | 146.241 | -50.389 | 319.600 | 60.00 | -90.00 | 0.00 |
| RS89 T-5-5 | R89T55 | Airtrack | 131.322 | -26.561 | 319.584 | 50.00 | -90.00 | 0.00 |
| RS89 T-8-1 | R89T81 | Airtrack | 242.409 | -80.570 | 300.916 | 30.00 | -90.00 | 0.00 |
| RS89 T-8-2 | R89T82 | Airtrack | 236.759 | -47.545 | 301.553 | 50.00 | -90.00 | 0.00 |
| RS89 T-9-1 | R89T91 | Airtrack | 270.428 | -67.405 | 301.074 | 30.00 | -90.00 | 0.00 |
| RS89 T-9-2 | R89T92 | Airtrack | 270.417 | -32.344 | 301.100 | 60.00 | -90.00 | 0.00 |
| RS89-06 | RS89-6 | Diamond | 396.005 | 132.684 | 307.235 | 288.00 | -45.00 | 178.69 |
| RS89-07 | RS89-7 | Diamond | 296.915 | 131.659 | 309.881 | 288.00 | -45.00 | 178.69 |
| RS89-08 | RS89-8 | Diamond | 185.696 | 125.593 | 304.042 | 238.00 | -45.00 | 173.69 |
| RS-98-01 | RS98-1 | Diamond | 500.018 | 134.956 | 310.950 | 252.60 | -59.50 | 180.00 |
| RS-98-02 | RS98-2 | Diamond | 450.018 | 214.956 | 287.750 | 341.20 | -51.00 | 180.00 |
| RS-98-03 | RS98-3 | Diamond | 350.265 | 189.956 | 298.271 | 377.30 | -51.00 | 180.00 |
| RS-98-04 | RS98-4 | Diamond | 500.018 | 209.956 | 282.266 | 341.20 | -62.00 | 180.00 |

Table 4: Sources of Information for the Percussion Airtrack Drill Holes and the Diamond Drill Holes in the Computer Database for Site No. 3.

| Original Hole No. | Computer Hole No. | Type of Drill Hole | Source of Information |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Assays | Geology | Dip | Bearing |
| 89-1 | RA89-1 | Airtrack | 2 | 2 | 2 a | 2 |
| 89-2 | RA89-2 | Airtrack | 2 | 2 | 2 a | 2 |
| 89-3 | RA89-3 | Airtrack | 2 | 2 | 2a | 2 |
| 89-4 | RA89-4 | Airtrack | 2 | 2 | 2 a | 2 |
| 89-5 | RA89-5 | Airtrack | 2 | 2 | 2a | 2 |
| 90-02 | RS9002 | Airtrack | 3 |  |  |  |
| 90-03 | RS9003 | Airtrack | 3 |  |  |  |
| 90-04 | RS9004 | Airtrack | 3 |  |  |  |
| 90-05 | RS9005 | Airtrack | 3 |  |  |  |
| 90-06 | RS9006 | Airtrack | 3 |  |  |  |
| 90-06A | RS9006A | Airtrack |  |  |  |  |
| 90-07 | RS9007 | Airtrack | 3 |  |  |  |
| 90-07A | RS9007A | Airtrack |  |  |  |  |
| 90-07B | RS9007B | Airtrack | 3 |  |  |  |
| 90-09 | RS9009 | Airtrack | 3 |  |  |  |
| 90-09B | RS9009B | Airtrack | 3 |  |  |  |
| 90-10 | RS9010 | Airtrack | 3 |  |  |  |
| 90-101 | RS90101 | Airtrack | 3 |  |  |  |
| 90-102 | RS90102 | Airtrack | 3 |  |  |  |
| 90-103 | RS90103 | Airtrack | 3 |  |  |  |
| 90-104 | RS90104 | Airtrack | 3 |  |  |  |
| 90-105 | RS90105 | Airtrack | 3 |  |  |  |
| 90-106 | RS90106 | Airtrack | 3 |  |  |  |
| 90-107 | RS90107 | Airtrack | 3 |  |  |  |
| 90-108 | RS90108 | Airtrack | 3 |  |  |  |
| 90-109 | RS90109 | Airtrack | 3 |  |  |  |
| 90-110 | RS90110 | Airtrack | 3 |  |  |  |
| 90-111 | RS90111 | Airtrack | 3 |  |  |  |
| 90-112 | RS90112 | Airtrack | 3 |  |  |  |
| 90-115 | RS90115 | Airtrack | 3 |  |  |  |
| 90-12 | RS9012 | Airtrack |  |  |  |  |
| 90-13 | RS9013 | Airtrack |  |  |  |  |
| 90-13B | RS9013B | Airtrack |  |  |  |  |
| 90-14 | RS9014 | Airtrack | 3 |  |  |  |
| 90-16 | RS9016 | Airtrack |  |  |  |  |
| 90-17 | RS9017 | Airtrack | 3 |  |  |  |
| 90-18 | RS9018 | Airtrack | 3 |  |  |  |
| 90-19 | RS9019 | Airtrack | 3 |  |  |  |
| 90-20 | RS9020 | Airtrack | 3 |  |  |  |
| A1 | RSA1 | Airtrack |  |  |  |  |
| A2 | RSA2 | Airtrack | 4 | 2 b | 2a |  |
| A3 | RSA3 | Airtrack | 4 | 2 b | 2a |  |
| A4 | RSA4 | Airtrack | 4 | 2 b | 2a |  |
| A5 | RSA5 | Airtrack |  |  |  |  |
| A6 | RSA6 | Airtrack | 4 | 2 b | 2a |  |
| A7 | RSA7 | Airtrack |  |  |  |  |

Table 4: Continued

| Original Hole No. | Computer Hole No. | Type of Drill Hole | Source of Information |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Assays | Geology | Dip | Bearing |
| A8 | RSA8 | Airtrack |  |  |  |  |
| EXPO1 | REXPO1 | Airtrack | 4 |  |  |  |
| EXPO2 | REXPO2 | Airtrack | 4 |  |  |  |
| RS89 T-10-1 | R89T101 | Airtrack | 2 | 2 b | 2a | 2 |
| RS89 T-12-1 | R89T121 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-14-1 | R89T141 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-14-2 | R89T142 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-15-1 | R89T151 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-15-2 | R89T152 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-15-3 | R89T153 | Airtrack | 2 | 2 b | 2a | 2 |
| RS89 T-15-4 | R89T154 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-15-5 | R89T155 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-15-6 | R89T156 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-4-1 | R89T41 | Airtrack | 2 | 2 b | 2 | 2 |
| RS89 T-4-2 | R89T42 | Airtrack | 2 | 2b | 2 | 2 |
| RS89 T-5-1 | R89T51 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-5-2 | R89T52 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-5-3 | R89T53 | Airtrack | 2 | 2 b | 2a | 2 |
| RS89 T-5-4 | R89T54 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-5-5 | R89T55 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-8-1 | R89T81 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-8-2 | R89T82 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-9-1 | R89T91 | Airtrack | 2 | 2b | 2a | 2 |
| RS89 T-9-2 | R89T92 | Airtrack | 2 | 2b | 2a | 2 |
| RS89-06 | RS89-6 | Diamond | 2 | 2 | 2 | 2 |
| RS89-07 | RS89-7 | Diamond | 2 | 2 | 2 | 2 |
| RS89-08 | RS89-8 | Diamond | 2 | 2 | 2 | 2 |
| RS-98-01 | RS98-1 | Diamond | 5 | 5 | 5 | 5 |
| RS-98-02 | RS98-2 | Diamond | 5 | 5 | 5 | 5 |
| RS-98-03 | RS98-3 | Diamond | 5 | 5 | 5 | 5 |
| RS-98-04 | RS98-4 | Diamond | 5 | 5 | 5 | 5 |

## Source of Information

1 Nor-Dev Assistance Contract Final Report, November 1987
2 Report to OMIP on the Exploration Project of High Quality Quartz Veins in Penhorwood Township, Volume 2 - Reserves, February 1990

## 2a From Sections filed with Reference Number 2

2b Geology Intervals Estimated from Sections Filed with Reference Number 2
3 Site 3 Roseval Silica Inc. 1990 Reserves - K.A. Jensen
4 Exploration and Reserve Calculation of the Roseval Silica Inc. Project, January 30, 1990
5 Report on the 1998 Drilling Program, Roseval Property, M.F. Stalker, July, 1999
assisted in rapid access of the various surveys conducted, comparison of the previous information and established a data base for the present evaluation and future exploration and production of the high quality silica. All the figures contained in this report were generated by AutoCad.

The diamond drilling information generated by BORSURV was imported into AutoCad. Additional information of the legend, title block, interpretation, ore blocks and topographic profiles were added directly to each of the drill sections.

The compilation of the vast amount of data was accomplished by the computer drill hole program "BORSURV". This program is a comprehensive software package for the handling of drill hole data and for plotting sections, plans and levels. Other features offered are total grid rotation, statistics and computation on assay data, resource calculations and deposit modelling. The BORSURV program takes into account the inclination of the mineralized or ore zone.

The grid sections were computer generated at 50 foot intervals with an influence of 25.0 feet on either side of the section line. The section north is North $38.59^{\circ}$ West astronomic and the bearing of the reference line is North $51.41^{\circ}$ East. The quartz zones encountered in the drilling were plotted on these sections. Using structural, geological and assay information, the ore zones were drawn on section, revised and digitized in AutoCad.

The Site No. 3 drill sections with assays, geology and topographic features are illustrated in Figures 6 to 18 inclusively, for Site 3 are located in the map folder.

### 5.0 MINERAL RESOURCES

The following is an excerpt from the CIM Standards on Mineral Resources and Reserves (August 2000).

Mineral Resources are subdivided, in order of increasing geological confidence, into Inferred (the quality and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity), Indicated (quality, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters to support mine planning and evaluation of the economic viability of the deposit) and Measured (quality, grade or quality, densities, shape and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters to support production planning and evaluation of the economic viability of the deposit) categories. An Inferred Mineral Resource has a lower level of confidence that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral

Resource but has a lower level of confidence than a Measured Mineral Resource.
A Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study, which must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. The Probable Mineral Reserve is the economically mineable part of an Indicated and in some circumstances a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. A Proven Mineral Reserve is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study.

### 5.1 INTRODUCTION

The additional diamond drilling during 1998, indicated that the quartz zone was wider and more expensive than previous reported and provided additional assay data for the central and eastern portion of the Site No. 3 zone. With this new data, a revised mineral resource calculation was conducted by the author.

The grade of the silica was obtained from the analysis completed by SKW Canada for all percussion drill holes and the 1989 diamond drilling. Their analysis indicated the percentage of contaminants: $\mathrm{Fe}_{2} \mathrm{O}_{3}, \mathrm{Al}_{2} \mathrm{O}_{3}, \mathrm{CaO}$, and $\mathrm{TiO}_{2}$. The percentage of silica was obtained from subtracting the total of all the contaminants from $100 \%$. This was the analytical practice for the evaluation and grade control for silica which was to be processed into silicon metal at the SKW Canada facility.

The 1998 diamond drill analyses were completed by Chemex Labs Ltd. The diamond drill report was filed for assessment work with MNDM. The assay package was a 11 -oxide package plus Loss on Ignition (LOI) and included $\mathrm{SiO}_{2}$ plus an additional 35 element suite. The above mentioned report has both the Chemex $\mathrm{SiO}_{2}$ and the calculated $\mathrm{SKW}_{\mathrm{SiO}_{2}}$. For the purpose of this mineral resource report and for the consistency used throughout the history of the Roseval Project, the SKW method of calculating the silica content was used. Figure 19 illustrates the comparison of the Chemex analysis verses the SKW method for 149 intervals.

One of the difficulties encountered during this mineral resource calculation was some of the percussion drill holes had a percentage description for the silica without the analytical results which totalled 46 intersections. A total of 275 intervals had both the percentage descriptions for the silica and an analytical result.

In the category of $+99 \% \mathrm{SiO}_{2}$ analysis, there were 191 intervals with a $+95 \%$ silica description, 2 with a $90 \%$ silica description and 2 with a $75 \%$ silica description.

In the category of $97.5 \%$ to $99 \% \mathrm{SiO}_{2}$ analysis, there were 22 intervals with a

Figure 19: The Chemex Analysis verses the SKW Method for $\mathrm{SiO}_{2}$.


Note: Total comparison equal 149 assays intervals.

$+95 \%$ silica description, 12 with a $90 \%$ silica description, 3 with a $85 \%$ silica description, 1 with a $75 \%$ silica description and 1 with a $50 \%$ silica description.

In the category of $95 \%$ to $97.5 \% \mathrm{SiO}_{2}$ analysis, there were 9 intervals with a $+95 \%$ silica description, 9 with a $90 \%$ silica description, 1 with a $85 \%$ silica description, 2 with a $80 \%$ silica description and 1 with a $75 \%$ silica description.

In the category of $90 \%$ to $95 \% \mathrm{SiO}_{2}$ analysis, there was 1 interval with a $+95 \%$ silica description, 9 with a $90 \%$ silica description, 1 with a $85 \%$ silica description, 3 with a $80 \%$ silica description, 1 with a $75 \%$ silica description, 1 with a $60 \%$ silica description and 3 with a $50 \%$ silica description.

Of the 46 intervals with only a silica description, 18 intervals had a description of $+95 \%$ silica, 2 intervals had a description of $90 \%$ silica, 1 interval had a description of $85 \%$ silica, 3 intervals had a description of $80 \%$ silica, 3 intervals had a description of $75 \%$ silica, 3 intervals had a description of $60 \%$ silica, 2 intervals had a description of $55 \%$ silica and 13 intervals had a description of $50 \%$ silica.

### 5.2 METHOD OF CALCULATIONS

The mineral resource calculation was manually computed by the "Linear Reserves - Cross-Section Method". The area of influence on a drill section was taken to 25 feet for Measured, from 25 to 50 feet for Indicated and from 50 to 100 feet for Inferred Resource categories. When 2 intersections were within 25 feet, $1 / 2$ the distance to the adjacent drill hole section was used to limit the block size. The quartz zone area was calculated in square feet for each drill section and the average grade of silica.

A similar distance was used within the boundaries of the drill section. Some of the mineralized blocks from one drill section could be projected to the adjacent drill sections. The original Measured block when projected to adjacent sections would become Indicated while the original Indicated block when projected to adjacent sections would become Inferred. Generally the projections of the original Indicated block to the adjacent sections were from 50 to 75 feet and rarely to 100 feet.

The geology, structural features and assays were added to each drill section to assist in the interpretation, delineate of the quartz zones or veins and the ore grade blocks on the drill sections.

### 5.3 MINERAL RESOURCE PARAMETERS

The cut-off grade is the assay value used to distinguish between ore and waste. Material at or in excess of the cut-off grade is considered to be ore and material below the cut-off grade was considered waste.

Previous authors have used the criteria of $+90 \%$ to $95 \%$ and $+95 \%$ silica assays for the mineral resource cut-off. The previous production history and records indicated that the minimum silica grade was $97 \%$ silica which could be upgraded to the economic $+99 \%$ silica ore.

From past production history and commercial contracts, silica with values of $75 \%$ or $80 \%$ and higher was sold as smelter flux, while the $97 \%$ and higher pit grades could be upgraded through the sorting process to a $+99 \%$ grade and could be sold as material for the production of silicon metal.

In this report, the author has used the following silica percentage categories to define the mineral or ore grades: $80 \%$ to $85 \%, 85 \%$ to $90 \%, 90 \%$ to $95 \%$ and $95 \%$ to $97 \%, 97 \%$ to $99 \%$ and $+99 \%$ silica for the mineral resource calculations.

The specific gravity used in the tonnage calculations for the Site No. 3 high quality silica zone was $2.65 \mathrm{gm} / \mathrm{cc}$ or 12.1 cubic feet per ton ( 2000 pound short ton).

### 5.4 MINERAL RESOURCE CALCULATIONS

The Resource Drill Sections, Figures 20 to 32 inclusively, indicate the blocks used for the resource calculations. These figures do not indicate the blocks that have been projected from adjacent sections. The results of the resource calculations are summarized in Table 5 while the results of each drill section are indicated in Table 6.

Table 5: Summary of Resource Calculations

| $\begin{gathered} \text { Range } \\ \% \mathrm{SiO}_{2} \end{gathered}$ | $\begin{gathered} \text { Grade } \\ \% \mathrm{SiO}_{2} \\ \hline \end{gathered}$ | Measured (tons) | $\begin{gathered} \text { Grade } \\ \% \mathrm{SiO}_{2} \end{gathered}$ | Indicated (tons) | $\begin{gathered} \text { Grade } \\ \% \mathrm{SiO}_{2} \\ \hline \end{gathered}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 99+ | 99.429 | 119,620 | 99.338 | 102,323.20 | 99.326 | 165,257 |
| 97.5 to 99 | 98.305 | 73,619 | 98.287 | 86,177.67 | 98.250 | 153,458 |
| 95 to 97.5 | 96.405 | 21,465 | 96.447 | 25,665.85 | 96.405 | 40,163 |
| 90 to 95 | 92.490 | 33,030 | 92.388 | 39,939.68 | 92.376 | 60,846 |
| 85 to 90 | 88.143 | 24,320 | 88.119 | 30,956.84 | 87.991 | 59,233 |
| 80 to 85 | 82.278 | 8,348 | 82.284 | 11,279.61 | 82.400 | 22,283 |
| Totals | 96.596 | 280,402 | 96.024 | 296,343 | 95.827 | 501,240 |

A total mineral resource for Site No. 3 which includes all the above categories is $1,077,984$ tons with an overall grade of $96.081 \% \mathrm{SiO}_{2}$.


|  | $\begin{array}{\|l} \text { Range } \\ (\% \mathrm{SiO} 2) \end{array}$ | $\begin{aligned} & \text { Grade } \\ & \left(\% \mathrm{SiO}_{2}\right) \end{aligned}$ | Measured (tons) | Grade (\% SiO2) | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & \left(\% \mathrm{SiO}_{2}\right) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 0+00E | 99+ | 99.358 | 2,389.17 | 99.52 | 1,325.43 | 99.52375 | 2,038.20 |
|  | 97.5 to 99 | 98.496 | 2,588.22 | 98.50 | 1,684.88 | 98.50216 | 3,077.77 |
|  | 95 to 97.5 | 96.742 | 1,010.62 | 96.74 | 1,010.62 | 96.742 | 1,063.31 |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected fromSec 0+50W | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec 0+50E | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Totals |  |  | 5,988.02 |  | 4,020.93 |  | 6,179.28 |


|  | $\begin{aligned} & \text { Range } \\ & (\% \text { SiO2 }) \end{aligned}$ | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Measured (tons) | $\begin{aligned} & \begin{array}{l} \text { Grade } \\ (\% \mathrm{SiO} 2) \end{array} \end{aligned}$ | $\qquad$ (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 0+50E | 99+ | 99.518 | 3,786.69 | 99.52 | 3,124.17 | 99.51867 | 5,442.29 |
|  | 97.5 to 99 |  |  | 98.47 | 809.67 | 98.49252 | 1,033.31 |
|  | 95 to 97.5 |  |  |  |  | 96.742 | 117.02 |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec $0+00$ | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec $1+00 E$ |  |  |  |  |  |  |  |
|  | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  | . |
|  | 80 to 85 |  |  |  | ONA言 | 5 |  |
| Totals |  |  | 3,786.69 |  | cos3, 6384 | act | 6,592.62 |
|  |  |  | ection-2000.x |  |  |  | Page 1 |


|  | $\begin{aligned} & \text { Range } \\ & (\% \mathrm{SiO}) \end{aligned}$ | $\begin{aligned} & \begin{array}{l} \text { Grade } \\ (\% \mathrm{SiO} 2) \end{array} \end{aligned}$ | Measured (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 1+00E | 99+ | 99.554 | 3,093.35 |  |  |  |  |
|  | 97.5 to 99 | 98.671 | 3,168.18 | 98.68 | 1,033.06 | 98.677 | 2,066.12 |
|  | 95 to 97.5 | 95.921 | 3,293.10 | 96.40 | 5,291.57 | 96.39718 | 10,583.14 |
|  | 90 to 95 | 94.031 | 1,695.45 |  |  |  |  |
|  | 85 to 90 | 89.420 | 847.73 |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec 0+50E | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec 1+50E | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Totals |  |  | 12,097.81 |  | 6,324.63 |  | 12,649.26 |


|  | Range (\% SiO2) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Measured (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 1+50E | 99+ | 99.352 | 2,948.39 | 99.37 | 2,330.17 | 99.34059 | 3,345.70 |
|  | 97.5 to 99 | 98.084 | 671.36 | 98.00 | 323.35 | 98 | 646.69 |
|  | 95 to 97.5 | 96.204 | 1,941.45 | 96.20 | 1,406.22 | 96.20367 | 1,941.45 |
|  | 90 to 95 | 93.848 | 1,120.12 | 93.85 | 992.52 | 93.8475 | 1,293.39 |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec $1+00 \mathrm{E}$ | 99+ |  |  | 99.28 | 477.05 |  |  |
|  | 97.5 to 99 |  |  | 98.71 | 1,163.74 | 98.677 | 516.53 |
|  | 95 to 97.5 |  |  | 96.61 | 591.76 | 96.686 | 1,630.62 |
|  | 90 to 95 |  |  | 93.99 | 576.07 |  |  |
|  | 85 to 90 |  |  | 89.42 | 190.74 |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec $2+00 \mathrm{E}$ | 99+ |  |  | 99.41 | 3.180 .35 | 99.33687 | 1,528.01 |
|  | 97.5 to 99 |  |  | 98.06 | 1,938.16 | 98.26894 | 929.94 |
|  | 95 to 97.5 |  |  | 96.70 | 1,924.94 | 96.67503 | 1,759.78 |
|  | 90 to 95 |  |  | 93.90 | 1,416.47 | 93.92446 | 1,264.06 |
|  | 85 to 90 |  |  | 88.97 | \%4. 40 |  |  |
|  | 80 to 85 |  |  |  | ONR | 5 |  |
| Totals |  |  | 6,681.32 | \% | 5.71118 .93 | C | 14,856.17 |

Table 5: Site No. 3 Mineral Resource Calculations by Section

|  | $\begin{aligned} & \text { Range } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Measured (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 2+00E | 99+ | 99.408 | 6,108.47 | 99.34 | 3,314.09 | 99.35979 | 3,663.80 |
|  | 97.5 to 99 | 98.238 | 5,695.54 | 98.45 | 3,507.73 | 98.32557 | 4,469.75 |
|  | 95 to 97.5 | 96.697 | 3,849.88 | 96.68 | 3,519.57 | 96.6833 | 4,535.33 |
|  | 90 to 95 | 93.889 | 3,104.63 | 93.89 | 3,104.67 | 93.83585 | 4,990.08 |
|  | 85 to 90 | 88.968 | 1,214.79 | 88.97 | 1,214.79 | 88.968 | 2,429.59 |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec 1+50E | 99+ |  |  | 99.44 | 1,117.31 | 99.40779 | 846.61 |
|  | 97.5 to 99 |  |  | 98.13 | 207.69 |  |  |
|  | 95 to 97.5 |  |  | 96.20 | 835.25 | 96.20367 | 1,350.56 |
|  | 90 to 95 |  |  | 93.85 | 560.06 | 93.8475 | 495.33 |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec $2+50 \mathrm{E}$ | 99+ |  |  | 99.61 | 3.402 .67 | 99.6696 |  |
|  | 97.5 to 99 |  |  | 98.81 | 931.28 | 98.72353 | 1,106.86 |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  | 91.55 | 1,618.16 | 91.47446 | 1,594.92 |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Totals |  |  | 19,973.31 |  | 23,333.26 |  | 28,316.84 |


|  | $\begin{aligned} & \text { Range } \\ & (\% \text { SiO2 }) \end{aligned}$ | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Measured (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 2+50E | 99+ | 99.663 | 8,237.36 | 99.66 | 4,814.83 | 99.66883 | 7,629.01 |
|  | 97.5 to 99 | 98.803 | 1,923.47 | 98.83 | 1,258.60 | 98.8397 | 2,755.99 |
|  | 95 to 97.5 | 97.123 | 1,136.78 | 97.19 | 1,011.94 | 97.08832 | 1,515.79 |
|  | 90 to 95 | 91.470 | 3,428.10 | 91.24 | 2,865.68 | 91.64034 | 4,073.88 |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec $2+00 E$ |  |  |  |  |  |  |  |
|  | 99+ |  |  | 99.34 | 1,984.77 | 99.31514 | 2,566.98 |
|  | 97.5 to 99 |  |  | 98.28 | 1,707.00 | 98.48669 | 2,653.31 |
|  | 95 to 97.5 |  |  | 96.68 | 1,762.19 | 96.71819 | 2,878.37 |
|  | 90 to 95 |  |  | 93.89 | 1,543.84 | 93.93182 | 2,371.73 |
|  | 85 to 90 |  |  | 88.97 | 566.65 | 88.968 | 648.78 |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec 3+00E |  |  |  |  |  |  |  |
|  | 99+ |  |  | 99.55 | 2,884.65 | 99.30831 | 2,295.76 |
|  | 97.5 to 99 |  |  | 98.05 | 3,301.86 | 97.9714 | 6,870.62 |
|  | 95 to 97.5 |  |  | 96.66 | 682.27 | 96.65665 | 391.57 |
|  | 90 to 95 |  |  | 93.10 | 2,329.26 | 92.77074 | 2,642.00 |
|  | 85 to 90 |  |  | 88.18 | 239993 | 18773571 | 5,210.43 |
|  | 80 to 85 |  |  |  | Lo | $0_{0}$ |  |
| Totals |  |  | 14,725.70 |  | 0275418.69 | -宜 | 44,504.23 |
|  |  |  | section-2000.x |  | $\begin{aligned} & \frac{1}{2} \text { MBER } \\ & \frac{c}{Y R} \frac{c 4}{M H} \end{aligned}$ |  | Page 3 |


|  | $\begin{aligned} & \begin{array}{l} \text { Range } \\ (\% \mathrm{SiO} 2) \end{array} \end{aligned}$ | Grade (\% SiO2) | Measured (tons) | $\begin{array}{\|l} \hline \text { Grade } \\ (\% \mathrm{SiO} 2) \end{array}$ | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 3+00E | 99+ | 99.556 | 9,509.05 | 99.39 | 4,190.19 | 99.34127 | 7,250.12 |
|  | 97.5 to 99 | 98.279 | 12,237.02 | 98.15 | 9,380.27 | 98.15234 | 10,436.94 |
|  | 95 to 97.5 | 96.657 | 1,404.96 | 96.66 | 783.14 | 96.65665 | 1,404.96 |
|  | 90 to 95 | 92.562 | 7,849.38 | 92.32 | 5,454.15 | 94.773 | 1,610.91 |
|  | 85 to 90 | 88.180 | 4,798.26 | 87.99 | 3,968.84 | 87.64058 | 3,465.95 |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec $2+50 E$ | 99+ |  |  | 99.63 | 350.04 | 99.63 | ,845.00 |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  | 90.04 | 159.03 | 90.0415 | 809.24 |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec 3+50E |  |  |  |  |  |  |  |
|  | 99+ |  |  | 99.28 | 1,068.88 | 99.28354 | 4,705.35 |
|  | 97.5 to 99 |  |  | 97.93 | 431.32 | 97.93111 | 414.96 |
|  | 95 to 97.5 |  |  | 95.39 | 158.49 | 95.38682 | 1,067.98 |
|  | 90 to 95 |  |  | 92.62 | 1,977.67 | 92.58064 | 6,087.25 |
|  | 85 to 90 |  |  | 87.80 | 160.64 | 87.90981 | 8,847.58 |
|  | 80 to 85 |  |  | 81.87 | 1,063.99 | 81.88153 | 4,289.11 |
| Totals |  |  | 35,798.68 |  | 29,146.65 |  | 52,235.35 |


|  | $\begin{array}{\|l} \text { Range } \\ (\% \text { SiO2) } \end{array}$ | Grade (\% SiO2) | Measured (tons) | Grade (\% SiO2) | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 3+50E | 99+ | 99.404 | 18,293.45 | 99.33 | 8,341.92 | 99.28463 | 14,545.87 |
|  | 97.5 to 99 | 97.931 | 862.64 | 97.93 | 651.03 | 97.93111 | 1,302.07 |
|  | 95 to 97.5 | 95.387 | 1,818.97 | 95.39 | 1,818.97 | 95.38682 | 2,299.30 |
|  | 90 to 95 | 92.712 | 8,569.55 | 92.47 | 5,301.61 | 92.38248 | 9,499.83 |
|  | 85 to 90 | 88.505 | 4,151.12 | 88.42 | 3,444.69 | 88.31198 | 5,719.13 |
|  | 80 to 85 | 81.891 | 4,751.90 | 81.89 | 4,751.90 | 81.88566 | 6,879.88 |
| Projected from $\operatorname{Sec} 3+00 E$ | 99+ |  |  | 99.35 | 935.10 | 99.23607 | 1,337.04 |
|  | 97.5 to 99 |  |  | 98.88 | 702.48 | 98.15702 | 3,270.06 |
|  | 95 to 97.5 |  |  | 96.66 | 194.75 | 96.65665 | 40.33 |
|  | 90 to 95 |  |  | 92.52 | 2,714.57 | 92.4413 | 5,106.22 |
|  | 85 to 90 |  |  | 89.35 | 756.82 | 89.352 | 563.55 |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec 4+00E | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  | 98.52 | 3,018.84 | 98.27916 | 7,055.52 |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  | 88.14 | 7,k9R20 | 388. | 1,698.70 |
|  | 80 to 85 |  |  |  | $0^{\circ}$ | - ${ }^{1}$ |  |
| Totals |  |  | 38,447.62 |  | c-34, 84, 38 | antin | 59,317.49 |
|  |  |  | ection-2000.x |  |  | $\begin{array}{c\|c} 110 C A & \frac{4}{6} \\ 1 . \frac{23}{D A Y} & = \end{array}$ | 4 |


|  | $\begin{array}{\|l} \hline \begin{array}{l} \text { Range } \\ (\% \mathrm{SiO} 2) \end{array} \\ \hline \end{array}$ | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Measured (tons) | $\begin{aligned} & \begin{array}{l} \text { Grade } \\ (\% \mathrm{SiO} 2) \end{array} \\ & \hline \end{aligned}$ | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 4+00E | 99+ | 99.141 | 950.54 | 99.14 | 475.27 | 99.141 | 950.54 |
|  | 97.5 to 99 | 98.243 | 25,791.69 | 98.24 | 22,222.23 | 98.25457 | 43,837.85 |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 | 88.143 | 3,215.25 | 88.14 | 1,652.40 | 88.14256 | 3,304.79 |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec 3+50E | $99+$ |  |  |  |  | 99.2834 | 1,766.38 |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  | 95.38682 | 375.97 |
|  | 90 to 95 |  |  | 92.29 | 1,536.67 | 92.43523 | 4,822.67 |
|  | 85 to 90 |  |  |  |  | 88.249 | 566.32 |
|  | 80 to 85 |  |  | 81.87 | 514.79 | 81.87748 | 2,342.17 |
| Projected from Sec 4+50E | 99+ |  |  | 99.24 | 2,307.09 | 99.2433 | 5,519.79 |
|  | 97.5 to 99 |  |  | 98.59 | 1,165.31 | 98.59429 | 2,126.59 |
|  | 95 to 97.5 |  |  | 96.52 | 425.68 | 96.52452 | 1,709.32 |
|  | 90 to 95 |  |  | 90.40 | 602.21 | 90.40475 | 2,005.14 |
|  | 85 to 90 |  |  | 87.43 | 3,194.63 | 87.46081 | 8,802.73 |
|  | 80 to 85 |  |  |  |  |  |  |
| Totals |  |  | 29,957.48 |  | 34,096.28 |  | 78,130.27 |


|  | $\begin{array}{\|l} \begin{array}{l} \text { Range } \\ (\% \text { SiO2 }) \end{array} \\ \hline \end{array}$ | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Measured (tons) | $\begin{aligned} & \hline \text { Grade } \\ & \left(\% \mathrm{SiO}_{2}\right) \end{aligned}$ | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & \left(\% \mathrm{SiO}_{2}\right) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 4+50E | 99+ | 99.417 | 15,642.73 | 99.36 | 13,318.22 | 99.31211 | 11,576.86 |
|  | 97.5 to 99 | 98.594 | 3,902.27 | 98.46 | 5,308.88 | 98.51515 | 7,718.43 |
|  | 95 to 97.5 | 96.327 | 4,120.74 | 96.41 | 3,592.98 | 96.32586 | 4,129.92 |
|  | 90 to 95 | 90.405 | 2,805.87 | 90.40 | 2,805.87 | 90.40475 | 2,805.87 |
|  | 85 to 90 | 87.543 | 8,543.31 | 87.58 | 7,169.46 | 87.52277 | 9,459.09 |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from <br> Sec 4+00E | 99+ |  |  | 99.14 | 475.27 | 99.141 | 950.54 |
|  | 97.5 to 99 |  |  | 98.09 | 7,405.56 | 98.08444 | 19,503.86 |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  | 88.14 | 1,607.62 | 88.14256 | 3,260.02 |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec $5+00 \mathrm{E}$ | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  | NAL GE | 0 |  |
|  | 80 to 85 |  |  |  | 10 | 0 |  |
| Totals |  |  | 35,014.92 |  |  |  | 59,404.59 |
|  |  |  |  |  |  |  | Page 5 |


|  | $\begin{aligned} & \text { Range } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | $\begin{aligned} & \text { Grade } \\ & \left(\% \mathrm{SiO}_{2}\right) \end{aligned}$ | Measured (tons) | Grade (\% SiO2) | Indicated (tons) | Grade (\% SiO2) | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 5+O0E | 99+ | 99.380 | 47,689.44 | 99.24 | 25,095.37 | 99.35876 | 15,315.23 |
|  | 97.5 to 99 | 98.323 | 15,176.55 | 98.29 | 11,332.58 | 97.9726 | 6,563.67 |
|  | 95 to 97.5 | 96.190 | 475.05 | 96.19 | 418.00 | 96.19 | 475.05 |
|  | 90 to 95 | 91.555 | 3,553.95 | 91.82 | 2,604.19 | 91.69347 | 3,215.46 |
|  | 85 to 90 | 89.017 | 1,549.55 | 89.02 | 1,549.55 | 89.01667 | 1,549.55 |
|  | 80 to 85 | 82.788 | 3,595.62 | 82.80 | 3,151.12 | 84.54796 | 2,025.35 |
| Projected from Sec 4+50E | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected <br> from <br> Sec $5+50 \mathrm{E}$ | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Totals |  |  | 72,040.15 |  | 44,150.81 |  | 29,144.30 |


|  | $\begin{array}{\|l} \begin{array}{l} \text { Range } \\ (\% \mathrm{SiO} 2) \end{array} \\ \hline \end{array}$ | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Measured (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & \left(\% \mathrm{SiO}_{2}\right) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 5+50E | 99+ | 99.410 | 971.54 |  |  |  |  |
|  | 97.5 to 99 | 97.529 | 1,602.44 |  |  |  |  |
|  | 95 to 97.5 | 97.077 | 2,413.43 |  |  |  |  |
|  | 90 to 95 | 94.392 | 902.69 |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected from Sec 5+00E | 99+ |  |  | 99.23 | 17,810.35 | 99.27012 | 49,441.65 |
|  | 97.5 to 99 |  |  | 98.27 | 6,692.16 | 98.27213 | 18,409.08 |
|  | 95 to 97.5 |  |  | 96.19 | 237.53 | 96.19 | 655.52 |
|  | 90 to 95 |  |  | 91.56 | 1,776.97 | 91.71135 | 4,381.16 |
|  | 85 to 90 |  |  | 89.02 | 774.77 | 89.01667 | 2,324.32 |
|  | 80 to 85 |  |  | 82.79 | 1,797.81 | 82.79328 | 4,948.93 |
| Projected from Sec 6+00E |  |  |  |  |  |  |  |
|  | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | $85 \text { to } 90$ |  |  |  | NAL | EO |  |
|  | 80 to 85 |  |  |  | $c_{0}^{\prime} 1$ | ${ }^{\circ}$ |  |
| Totals |  |  | 5,890.10 |  | 52906958 | (1) | 80,160.66 |
|  |  |  |  |  |  | $\begin{array}{c\|c} 1004 & \frac{4}{6} \\ \frac{23}{0.4 y} & 3 \\ \hline \end{array}$ |  |

Table 5: Site No. 3 Mineral Resource Calculations by Section
April, 2001

|  | $\begin{aligned} & \text { Range } \\ & \text { (\% SiO2) } \end{aligned}$ | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Measured (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \mathrm{SiO} 2) \end{aligned}$ | Indicated (tons) | $\begin{aligned} & \text { Grade } \\ & (\% \text { SiO2 }) \end{aligned}$ | Inferred (tons) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SECTION 6+00E | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Projected <br> from <br> Sec 5+00E | 99+ |  |  |  |  | 99.23436 | 17,862.04 |
|  | 97.5 to 99 |  |  |  |  | 98.27 | 6,692.16 |
|  | 95 to 97.5 |  |  |  |  | 96.19 | 237.53 |
|  | 90 to 95 |  |  |  |  | 91.55539 | 1,776.97 |
|  | 85 to 90 |  |  |  |  | 89.01667 | 774.77 |
|  | 80 to 85 |  |  |  |  | 82.78819 | 1,797.81 |
| Projected from Sec 6+50E | 99+ |  |  |  |  |  |  |
|  | 97.5 to 99 |  |  |  |  |  |  |
|  | 95 to 97.5 |  |  |  |  |  |  |
|  | 90 to 95 |  |  |  |  |  |  |
|  | 85 to 90 |  |  |  |  |  |  |
|  | 80 to 85 |  |  |  |  |  |  |
| Totals |  |  | 0.00 |  | 0.00 |  | 29,141.28 |


| 99.358 | $2,389.17$ | 99.522 | $1,325.43$ |
| :--- | :--- | :--- | :--- |
| 99.518 | $3,786.69$ | 99.520 | $3,124.17$ |



### 6.0 CONCLUSIONS AND RECOMMENDATIONS

From past experience and mining practices, high quality silica can be obtained from the $97.5 \% \mathrm{SiO}_{2}$ and above. The total Measured Resource above $97.5 \% \mathrm{SiO}_{2}$ is 193,240 tons ( 175,672 tonne) with an averaged grade of $99.001 \%$ while the Indicated Resource above $97.5 \% \mathrm{SiO}_{2}$ is 188,500 tons ( 171,364 tonne) with an averaged grade of $98.86 \% \mathrm{SiO}_{2}$. The Inferred Resource above $97.5 \% \mathrm{SiO}_{2}$ is 318,715 tons ( 289,740 tonne) with an averaged grade of $98.81 \% \mathrm{SiO}_{2}$.

In comparing the previous reserve calculations (Jensen, 1994) which included all categories above $97.5 \% \mathrm{SiO}_{2}$ was 416,225 tonne compared with the current volume of 700,455 tons or 636,777 tonne.

The complete mining of the Measured and Indicated Resource of Site No. 3 could produce approximately 576,745 tons ( 524,318 tonne) at an averaged grade of $96.302 \% \mathrm{SiO}_{2}$.

The author recommends that all samples from future percussion exploration drilling be assayed. Generally the production blast pattern is 5 feet by 6 feet. It is further recommended that a certain percentage of the production percussion drill holes also be assayed, especially those at the bottom or last bench in the open pit.

It appears that the 1998 diamond drill program located additional high grade silica resource and additional drilling is warranted in the vicinity of $5+50$ East to $6+50$ East. Additional areas in the western portion of the Site No. 3 area should be drilled to located and increase the resources.

Respectfully submitted,



Dated at Timmins, Ontario April 23, 2001

## STATEMENT OF QUALIFICATIONS

I, Kian A. Jensen, of the City of Timmins, Ontario, do hereby certify that:

1. I am currently contracted as a consultant by La Societe de Gestion Maskour Inc.
2. I am a graduate of the University of Waterloo with an Honours B.Sc. In Earth Science, Geology Major (1975).
3. I am a member in good standing in the following associations:
a) Geological Association of Canada - Fellow, 1983
b) Association of Geoscientists of Ontario
c) Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS) as a Professional Geoscientist - Member 11004 (1999).
4. I have been employed as a geologist/geophysicist by various exploration, mining and consulting companies since 1978 and in the Timmins area since 1981.
5. I am directly responsible for the work outlined in this report and have been involved with the various exploration and mining activities on the Roseval Silica Property since 1988.
6. I have no direct interest, nor do I have any shares of any company exploring the properties described in this report, nor on any adjacent or surrounding property.

Dated this $23^{\text {rd }}$ dayof April, 2001, at Timmins, Ontario

Kian A. Jensen, B.Se., P.Geo.


Guillet, G.R.
1963 Barite in Ontario; Ontario Department of Mines, Industrial Mineral Report No.10, 42p

Guillet, G.R. and Kriens, J
1984 Ontario and the Mineral Filler Industry; Ontario Ministry of Natural Resources, Mineral Resources Branch, Industrial Background Paper 5 (IMBP 5), 175 p.

Harding, W.D.
1937 Geology of the Horwood Lake Area; Ontario Department of Mines, Annual Report Volume 46, Part 2, 34 p. Accompanied by Map 46a, scale 1 inch to 1 mile.

Milne, V.G. and assistants
1967 Preliminary Geology of Penhorwood Township, District of Sudbury; Ontario Department of Mines, Map No. P-419, scale 1 inch to $1 / 4$ mile.

Milne, V.G.
1972 Geology of the Kukatush-Sewell Lake Area, District of Sudbury; Ontario Division of Mines, GR97, 116p. Accompanied by Maps 2230,2231, scale 1 inch to 1/2 mile.

Resident Geologist Assessment Files
T-495 Arnoit, B.M.
T-506 Canadian John Mansville
T-3237 Roseval Silica Inc.
Vos, M.A.
1981 Silica in Ontario, Industrial Minerals Supplement; Ontario Geological Survey Miscellaneous Paper 85, 36p.

Vos, M.A., Abolins, T., McKnight, R.L.W., and Smith, V.
1987 Industrial Minerals of Northern Ontario; Geological Survey, Mineral Deposits Circular 26, p 272p.

## APPENDIX A

The following is a summary of the work conducted by the author, K. Jensen:
BORSURV:
Verify databases, input additional holes, creating the diamond drill sections for AutoCad editing, etc.

| Dec 1, 2000 | K. Jensen | 8 hrs |
| :--- | :--- | :--- |
| Dec 4, 2000 | K. Jensen | 8 hrs |
| Dec 5, 2000 | K. Jensen | 8 hrs |

## AutoCad:

Creating and editing drill sections:

| Dec 6,2000 | K. Jensen | 8 hrs | Sec 0+00 to 1+00E |
| :--- | :--- | ---: | :--- |
| Dec 7,2000 | K. Jensen | 8 hrs | Sec 1+50E to 2+50E |
| Dec 8,2000 | K. Jensen | 8 hrs | Sec 3+00E to 3+50E |
| Dec 9,2000 | K. Jensen | 8 hrs | Sec 4+00E to 4+50E |
| Dec 10,2000 | K. Jensen | 10 hrs | Sec 5+00E to 6+00E |
|  |  |  |  |
| Jan 8, 2001 | K. Jensen | 12 hrs | editing Site No. 3 Plan Map |
| Jan 9, 2001 | K. Jensen | 6 hrs | editing Site No. 3 Plan Map |

Interpretation and AutoCad of Resource Blocks:
April 2, 2001 K. Jensen 12 hrs Sec 4+50E
April 3, 2001
K. Jensen

10 hrs
Sec $5+00 E$
April 4, 2001
K. Jensen

10 hrs
April 5, 2001
K. Jensen 12 hrs

April 6, 2001
April 7, 2001
April 8, 2001
K. Jensen 8 hrs

Sec $4+00 E$
Sec $5+50 \mathrm{E}$ and $3+50 \mathrm{E}$
Sec 6+00E and 3+00E
K. Jensen $12 \mathrm{hrs} \quad \operatorname{Sec} 2+50 \mathrm{E}, 2+00 \mathrm{E}$ and $1+50 \mathrm{E}$
K. Jensen 8 hrs

Sec $1+00 \mathrm{E}$ and $0+00$
Resource Calculations of Blocks:
April 9, 2001 K. Jensen 12 hrs
April 10, 2001 K. Jensen 12 hrs
April 11, 2001 K. Jensen 18 hrs
Report Writing:
April 19, 20, 21, 23, 20013.5 days
Plotting Sections:
April 24, $2001 \quad 1.0$ days

## REFERENCES

## APPENDIX A

The following is a summary of the work conducted by $M$. Stalker:

## BORSURV:

Data input all percussion drill holes and diamond drill holes, verify databases
January 2000 - total 36 hours
February 2000 - total 30 hours
March 2000 - total 35 hours
April 2000 - total 20 hours
May 2000 - total 25 hours






$\underset{\substack{\text { Elyanow } \\ 350 \\ \hline \text { reft }}}{ }$

325 FEET

300 FEET

275 FEET

250 FEET

225 FEET

200 FEET

175 FEET

150 FEET

125 FEET

100 FEET

75 FEET

50 FEET

25 FEET

0 FEET
-25 FEET

ROSEVAL SILICA INCORPORATED
SITE 3 - SECTION NO. $2+00$ EAST
PENHORWOOL TOWNSHIP
PORCUPINE MINING DIVISION, ONTARIO







SECTION NO. $4+50$ EAST SECTiON LOOKING N $231.25^{\circ} \mathrm{E}$





[^0]ROSEVAL SILICA iNCORPORATED
SITE 3 - SECTION NO. 6+00 EAST
SECTION LOOKING N
ROKING N $231.25^{\circ} \mathrm{E}$
PENHORWOOD TOWNSHIP
PORCUPINE MINING DIVISION, ONTARI






ROSEVAL SILICA INCORPORATED
SITE 3 - SECTION NO. $1+00$ EAST
SECTION LOOKING N $231.25^{\circ} \mathrm{E}$
PENHORWOOD TOWNSHIP
PORCUPINE MINING DIVISION, ONTARIO




## SURFACE PLAN




ELEvation
350 FEET








## Work Report Summary

Transaction No: W0160.30060
Recording Date: 2001-MAY-02
Approval Date: 2001-SEP-10

Status: APPROVED
Work Done from: 2000-JAN-04
to: 2001-APR-23

Client(s):
154855 LA SOCIETE DE GESTION MASKOURS INC
Survey Type(s):
DATA

## Work Report Details:

| Claim\# |  | Perform | Perform Approve | Applied | Applied Approve | Assign | Assign Approve | Reserve | Reserve Approve | Due Date |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| P | 994260 | \$11,218 | \$4,000 | \$0 | \$0 | \$8,000 | 4,000 | \$3,218 | \$0 | 2002-SEP-17 |
| P | 1219704 | \$0 | \$0 | \$1,600 | \$800 | \$0 | 0 | \$0 | \$0 | 2002-MAY-05 |
| $P$ | 1219706 | \$0 | \$0 | \$6,400 | \$3,200 | \$0 | 0 | \$0 | \$0 | 2002-MAY-05 |
|  |  | \$11,218 | \$4,000 | \$8,000 | \$4,000 | \$8,000 | \$4,000 | \$3,218 | \$0 |  |

Status of claim is based on information currently on record.


| Ministry of | Ministère du |
| :--- | :--- |
| Northern Development | Développement du Nord |
| and Mines | et des Mines |

Date: 2001-SEP-13

GEOSCIENCE ASSESSMENT OFFICE 933 RAMSEY LAKE ROAD, 6th FLOOR SUDBURY, ONTARIO
P3E 6B5

Tel: (888) 415-9845
Fax:(877) 670-1555
BOUCHERVILLE, QUEBEC
J4B 2J2 CANADA

Submission Number: 2.21339
Transaction Number(s): W0160.30060
Dear Sir or Madam

## Subject: Approval of Assessment Work

We have approved your Assessment Work Submission with the above noted Transaction Number(s). The attached Work Report Summary indicates the results of the approval.

At the discretion of the Ministry, the assessment work performed on the mining lands noted in this work report may be subject to inspection and/or investigation at any time.

The 45 days outlined in the Notice dated July 24, 2001, have passed. The TOTAL VALUE of assessment credit that will be allowed, based on the information provided in this submission, is $\$ 4000.00$

If you have any question regarding this correspondence, please contact LUCILLE JEROME by email at lucille.jerome@ndm.gov.on.ca or by phone at (705) 670-5858.

Yours Sincerely,


Roy Spooner
Supervisor, Geoscience Assessment Office

## Cc: Resident Geologist <br> Kian Attwood Jensen <br> (Agent)

Assessment File Library
La Societe De Gestion Maskours Inc.
(Claim Holder)



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