

**Report  
to  
Evaluate and Recommend  
an Exploration Program  
on the**

**Chukuni Property**

**of**

**SOLITAIRE MINERALS CORPORATION**

**Byshe and Heyson Townships  
Red Lake Mining Division, Ontario  
N.T.S. 52N/04SW**

June 6<sup>th</sup>, 2003  
Thunder Bay, Ontario

Brian Nelson, P.Geo.  
Desmond Cullen, P.Geo.

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**Solitaire Minerals Corp.**

**Chukuni Property**

June 6<sup>th</sup>, 2003

Mr. Charles Desjardins, President and CEO  
Solitaire Minerals Corp.  
Suite 1788 – 650 West Georgia St.  
Vancouver, B.C.  
V6B 4N8

Dear Sir,

Please find enclosed a report dated June 6<sup>th</sup>, 2003 and entitled:

***Report to Evaluate and Recommend an Exploration Program on The  
Chukuni Property of Solitaire Minerals Corporation, Byshe and Heyson  
Townships, Red Lake Mining Division, Ontario.***

It is evident, after careful study of the available information on the Chukuni Property claims, that the group has the potential to host economic gold mineralization.

The reference material used to prepare this report is available in the author's office and in the Ministry of Northern Development and Mines, Resident Geologist's Office in Red Lake, Ontario.

A diligent effort and a recommended, comprehensive exploration program with a proposed **\$400,000.00** budget, is required to evaluate the potential of the Chukuni Property to host an economic gold deposit.

Sincerely yours,

"Brian Nelson"

Brian Nelson, P.Geo.

"Desmond Cullen"

Desmond Cullen, P.Geo

**Solitaire Minerals Corp.**

**Chukuni Property**

Brian Nelson, P.Geo., and Desmond Cullen, P.Geo.  
1000 Alloy Drive  
Thunder Bay  
Ontario P7B 6A5

### **CONSENT of AUTHOR**

**To: TSX Venture Exchange, British Columbia Securities Commission**

We, Brian Nelson and Desmond Cullen, do hereby consent to the filing, with the regulatory authorities referred to above, of the technical report titled "A Report to Evaluate and Recommend an Exploration Program on The Chukuni Property of Solitaire Minerals Corporation" and dated June 6<sup>th</sup>, 2003 (the "Technical Report") and to the written disclosure of the Technical Report and extracts from or a summary of the Technical Report in the written disclosure in the prospectus of Solitaire Minerals Corporation being filed.

We also certify that we have read the written disclosure being filed and we do not have any reason to believe that there are any misrepresentations in the information derived from the Technical Report or that the written disclosure in the prospectus of Solitaire Minerals Corporation contains any misrepresentation of the information contained in the Technical Report.

Dated this 6<sup>th</sup> Day of June, 2003

Brian Nelson, P.Geo.

Desmond Cullen, P.Geo.

**SUMMARY**

**INTRODUCTION and TERMS of REFERENCE**

Clark Exploration Consulting of Thunder Bay, Ontario was contracted by Solitaire Minerals Corporation to author a report to evaluate and provide recommendations for exploration on the Chukuni Property. The report and recommendations are based on:

- 1/ Public data archived at the Ministry of Northern Development and Mines, Red Lake District Geologist's Office, Red Lake, Ontario;
- 2/ In-house reference material available in the author's office;
- 3/ Personal visit of the property by B. Nelson on May 26<sup>th</sup>, 2003.

The Chukuni Property lies within the Archean Red Lake Greenstone Belt (RLGB) of the Uchi Subprovince of the Superior Province of the Canadian Shield. The geology of the Byshe claims is predominantly underlain by Keewatin volcanics of intermediate to mafic compositions and lesser-intercalated clastic and chemical sediments. These rocks strike east-northeast, dip vertically or steeply to the south and are interpreted to be part of an anticline with an axial plane @ N35°E. Intrusive bodies exist on the property and include several small felsic (often porphyritic) dykes, a biotite granodiorite to the northwest and the "Howey Diorite" a trondjhemitic to dioritic intrusive complex. The intrusives and narrow porphyritic dykes display contacts that strike WNW and NW.

Within the Howey Diorite, minor pyrrhotite and chalcopyrite are present as local disseminations, and in quartz veins, in both early and late stage intrusive rocks. Numerous small trenching, pitting and drilling programs on these showings have uncovered a number of narrow gold intersections.

**Disclaimer**

The work reported in this report is taken from assessment files in the Red Lake District Geologist's Office and reports located in Clark Exploration's office. While the author has made every attempt to accurately convey the content of those files, he cannot guarantee either the accuracy or validity of the work contained within those files. The authors of some of these files were not necessarily "Qualified Persons" within the context of National Instrument 43-101.

**PROPERTY DESCRIPTION and LOCATION**

Solitaire Minerals Corporation holds a recently acquired property consisting of 3 claims totalling 38 claim units, or approximately 808 hectares. The property is located within the Red Lake Mining Division under G-plan numbers G-3745 (Byshe Township) and G-3736 (Heyson Township). Two of the claims (KRL 1244534 and KRL 1244535), are

contiguous in the northwest portion of Byshe Township and border Goldcorp's patented claims to the north along the Balmer–Byshe township boundary. The third claim (KRL 1244518) is located approximately 1200m to the west within Heyson Township.

Solitaire Minerals Corporation has the right to acquire 100% interest in the claims by paying \$72,000 to the property vendor, and issuing 160,000 shares in graduated instalments over four years. In addition, the vendor will retain a 2% NSR, 1% of which can be purchased by the Company for \$600,000.

Access to the property is deemed very good as Highway 125 from Red Lake and Balmertown comes within 700m west of claim KRL 1244534 and some 400m north of claim KRL 1244518. From this highway numerous old 'bush' roads access both claim groups. The Chukuni River and Keg Lake also gives deep-water access to the northern and eastern portions of claims KRL 1244534 & 1244535. Excellent infrastructure exists with Highway 125 and power lines coming close to the properties. Red Lake and Balmertown, both within a few kilometres of the properties, are support communities for mining in the district. Red Lake is located in northwestern Ontario, 140 km north-northeast of Kenora and 435 km northeast of Winnipeg, Manitoba, the nearest major city.

There are no known environmental liabilities or public hazards associated with the property, and work permits are not required in Ontario to perform the work prescribed in this report.

#### ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE and PHYSIOGRAPHY

The region is serviced by all-weather Highway 105, which departs north from the Trans-Canada Highway 17 at Vermillion Bay, Ontario, and, by scheduled airline and bus service from Kenora, Winnipeg and Thunder Bay. Exploration services and supplies are available in Red Lake, as are government support and administrative services. The climate and vegetation here is typical of northern Ontario and the vegetation cover consists of boreal forest. A major forest fire swept through the area in 1980, leaving large areas of cleared burn which is now young to intermediate growth, with irregular areas of swampy ground in relatively flat lying terrain.

## REGIONAL GEOLOGY

The Red Lake greenstone belt is composed of Archean-age metavolcanic, metasedimentary and intrusive rocks, which comprise part of the Uchi Sub-province of the Superior Structural Province of the Canadian Shield.

Supracrustal rocks in the area have been regionally metamorphosed to greenschist facies with higher contact metamorphic grades around the major felsic intrusions.

The dominant regional structure in the camp is a NE/SW trending SW plunging antiform with secondary folds developed along both limbs.

Major deformation zones strike NE and NW cross the belt. Pervasive and often intense carbonate hydrothermal alteration is associated with these deformation zones. The major gold mines and prospects of the district are interpreted as being hosted within these structures.

Gold mineralization occurs in the free state or associated with pyrite, pyrrhotite, arsenopyrite, magnetite, chalcopyrite, sphalerite, galena and sulf-arsenides in quartz-ankerite and/or quartz in veins, stockworks, lenses, stringers and silicified zones. Tourmaline and scheelite occur as accessory minerals in many of the auriferous quartz veins.

Pirie (1981) classifies gold deposits in the camp into three main categories: mafic-hosted (Campbell, Dickenson), felsic intrusive-hosted (Cochenour, Mackenzie) and so-called 'stratabound' (Madsen, Starrat-Olsen).

Gold production from the Red Lake Camp, from 1934 to present, is about 20 million troy ounces with two major producers, Campbell and Dickenson mines producing a total of 14 million ounces of gold since going into production in 1948.

## PROPERTY GEOLOGY and GOLD MINERALIZATION

The claims in Byshe Twp are generally underlain by intermediate to felsic volcanics, with associated gabbros and basalts. The gabbros, and other dioritic to intermediate intrusives, are intruded semi-conformably into all types of volcanics, and the gabbros may include coarser grained basalts.

In the trondjemitic to dioritic intrusive complex, locally known as the "Howey Diorite", located in the Northwest corner of Byshe Twp., minor pyrrhotite and chalcopyrite are present as local disseminations, and in quartz veins, in both early and late stage intrusive rocks. Minor cobalt bloom (erythrite) has been noted with this mineralization,

usually in the more sheared, mafic portions of the intrusive complex. Numerous small trenching, pitting and drilling campaigns on these showings have resulted in narrow gold intersections, but little continuity or economic potential. However, the textures, environment, and relationships of the mineralization suggest a possibility of a porphyry copper setting, and the presence of cobalt with the copper is worth noting. More significant zones of this type of mineralization may be present elsewhere in the intrusive, along the contacts with the volcanics, or within the more mineralized, sheared portions of the volcanic pile.

The single claim in Heyson Township is underlain by mafic volcanics and the central to western portion is underlain by felsic volcanics. Several gold showings are reported to the north, and scattered gold and pyrite showings to the west, but no assays are available.

#### INTERPRETATION and CONCLUSIONS

The previous work on the Chukuni property indicates the presence of a gold-mineralized system. The mineralization is generally associated with intermediate intrusions, and occurs within sheared or faulted, silicified and/or sulphide-mineralized zones near the margins of the intrusions. The sheared/fault zones have been shown in the past to occur both parallel and non-parallel to the contacts of the intermediate intrusions.

While the previous work has returned relatively sparse economic gold values, the fact that it has shown the presence of such mineralization at all suggests the potential for the discovery of an economic deposit, given that the property is located within the prolific Red Lake camp. Recent new discoveries within the Red Lake camp have led to a re-thinking of the potential of the entire belt.

Future work by Solitaire Minerals on their Chukuni property should involve a close examination of the recent developments in the camp, and also expanding the area of focus away from the old showings; while noting that the previous work has at least tapped into a gold-mineralized system.

**RECOMMENDATIONS**

An exploration budget of **\$400,000.00** is recommended to further evaluate the Chukuni Property by performing an exploration program of line cutting, mapping and sampling, with particular emphasis on the areas of the previous showings. There are 5 exploration targets that should be followed up:

1. The primary target should be the Hornblende melanodiorite, principally the contacts with the mafic volcanics, and then the Biotite granodiorite. The area where the Cobalt assay was recovered (and gold has been observed in trenches) was originally mapped as mineralized, sheared, mafic volcanics, and this area should be mapped in detail.
2. Secondly, the shear / fault zone that traverses this contact should be mapped in detail, and the old pits and trenches re-mapped and sampled. Several anomalous values (0.19 oz gold per ton / 1 foot, from DDH P-15) were obtained in these trenches and some of the old drill holes.
3. Mapping and sampling should be undertaken in the area of the trench, with the mineralized shear in the northeast corner of the property.
4. The area immediately north of Keg Lake should be investigated, as some highly prospective geophysical anomalies were encountered just off the property in this area.
5. Finally, the Heyson Township claim should be thoroughly prospected, and the contact between the felsic and mafic volcanics mapped and sampled.

Finally, all targets determined from the above work should be drilled.

**1.0 INTRODUCTION and TERMS of REFERENCE**

Clark Exploration Consulting of Thunder Bay, Ontario was contracted by Solitaire Minerals Corporation to author a report to evaluate and provide recommendations for exploration on the Chukuni Property. The report and recommendations are based on:

- 1/ Public data archived at the Ministry of Northern Development and Mines, Red Lake District Geologist's Office, Red Lake, Ontario
- 2/ In-house reference material available in the author's office;
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Within the Howey Diorite, minor pyrrhotite and chalcopyrite are present as local disseminations, and in quartz veins, in both early and late stage intrusive rocks. Numerous small trenching, pitting and drilling programs on these showings have uncovered a number of narrow gold intersections.

**1.1 Disclaimer**

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**2.0 PROPERTY DESCRIPTION and LOCATION**

Solitaire Minerals Corporation holds a recently acquired property consisting of 3 claims totalling 38 claim units, or approximately 808 hectares. The property is located within the Red Lake Mining Division under G-plan numbers G-3745 (Byshe Township) and G-3736 (Heyson Township). Two of the claims (KRL 1244534 and KRL 1244535), are contiguous in the northwest portion of Byshe Township and border Goldcorp's patented claims to the north along the Balmer–Byshe township boundary. The third claim (KRL 1244518) is located approximately 1200m to the west within Heyson Township. These claims and their status are listed in Table 1.

Solitaire Minerals Corporation has the right to acquire 100% interest in the claims by paying \$72,000 to the property vendor, and issuing 160,000 shares in graduated instalments over four years. In addition, the vendor will retain a 2% NSR, 1% of which can be purchased by the Company for \$600,000.

Access to the property is deemed very good as Highway 125 from Red Lake and Balmertown comes within 700m west of claim KRL 1244534 and some 400m north of claim KRL 1244518. From this highway numerous old 'bush' roads access both claim groups. The Chukuni River and Keg Lake also gives deep-water access to the northern and eastern portions of claims KRL 1244534 & 1244535. Excellent infrastructure exists with Highway 125 and power lines coming close to the properties. Red lake and Balmertown, both within a few kilometres of the properties, are support communities for mining in the district. Red Lake is located in northwestern Ontario, 140 km north-northeast of Kenora and 435 km northeast of Winnipeg, Manitoba, the nearest major city.

There are no known environmental liabilities or public hazards associated with the property, and work permits are not required in Ontario to perform the work prescribed in this report.

Table 1. Chukuni Property Claims

CLAIM NUMBER	SIZE units/hectares	DATE RECORDED	DATE DUE	WORK REQUIRED
KRL 1244518	6/96	Feb. 18, 2002	Feb. 18, 2004	\$2,400
KRL 1244534	16/356	Feb. 18, 2002	Feb. 18, 2004	\$6,400
KRL 1244535	16/356	Feb. 18, 2002	Feb. 18, 2004	\$6,400
<b>TOTALS</b>	<b>38/808</b>			<b>\$15,200</b>

### **3.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE and PHYSIOGRAPHY**

The region is serviced by all-weather Highway 105, which departs north from the Trans-Canada Highway 17 at Vermillion Bay, Ontario, and, by scheduled airline and bus service from Kenora, Winnipeg and Thunder Bay. Exploration services and supplies are available in Red Lake, as are government support and administrative services. The climate and vegetation here is typical of northern Ontario and the vegetation cover is boreal forest. A major forest fire swept through the area in 1980, leaving large areas of cleared burn which is now young to intermediate growth, with irregular areas of swampy ground in relatively flat lying terrain.

Figure 1. Regional-scale location map

Figure 2. Property-scale location map and claim disposition

#### **4.0 PROPERTY HISTORY**

The following summary of the property history is compiled from the Assessment Files located in the Red Lake Resident Geologist's Office.

1946 & 1947: Kilbarry Red Lake Gold Mines Limited did several thousand feet of diamond drilling on their property in the area. During the same period Virginia Red Lake Mines Limited explored their property that adjoined the Kilbarry property to the east. They accomplished 5,110 feet of diamond drilling in 11 holes that are located immediately north of the present claim block KRL 1224535. Kilbarry drilled a felsic porphyry dyke, in mafic volcanics, located 600 feet North of the Western portion of the property. A 600 foot length of the dike returned 1.47% Cu, and 0.65 oz. Au over a width of 5.4 feet. The parallel dike, on the North Central portion of property (northern part of the current property, or immediately to the north), was tested with 2 short drill holes which returned values of 0.08 oz Au / 2 feet, and 0.84 oz Au / 1.1 feet. A possible strike length for the dike of greater than 1000 feet was postulated.

1950: Woodward Syndicate conducted geological mapping and a magnetometer survey on claims west of the Chukuni River.

1964: Peterson Red Lake Mines Limited acquired the ground after it reverted to the Crown. Limited trenching was performed as well as a total of 1,422 feet of diamond drilling with 8 holes. The majority of this drilling was performed immediately north of the present claim boundaries.

1966: Peterson Red Lake Mines Limited conducted trenching and diamond drilling in the project area and to the north in Balmer Township. The total drill footage according to Pirie was 3,037 feet in 37 drill holes. Nine of these drill holes are located north central and central to claim KRL 1244534, and described briefly in 'Property Geology'. Previously "a 75 foot long trench was dug along a northerly trending fault zone. The fault displaces an 8-foot thick, interflow horizon of rhyolite some 55 feet to the left. The fault zone carries quartz veinlets from 2 to 6 inches wide which are mineralised by auriferous pyrite and grab samples have returned up to 0.08 ounces gold per ton". (See Compilation Map.)

1973: Hudson Bay Exploration drilled a single hole as follow up to a ground electromagnetic anomaly west of Keg Lake (exact location is unknown).

Charles Peterson continued to work the ground until recently, and although he uncovered many areas of favourable geology, and several prospective targets for exploration, there have been few samples of interest reported.

Rubicon Minerals held the ground until it lapsed in 2001. Subsequently, it was optioned to Sunridge Gold Corp., in March 2002. Sunridge, however, were unable to secure any financing for work on this and other properties they held, and they reverted to the vendor in December, 2002.

The claim in Heyson Twp has seen limited work, and from the records available, no assays of significance were reported. The claim was part of a larger group covered by a geophysical survey, and at some point (1989?) a total of 8 trenches were dug in the northern part of claim 1244518. No assays were reported, and very limited geology.

## **5.0 GEOLOGICAL SETTING**

### **5.1 REGIONAL GEOLOGY and DEPOSIT TYPES**

The Red Lake East Gold Property is underlain by rocks of the Archean Red Lake greenstone belt, part of the Uchi Subprovince, Superior Province, Canadian Shield (Figures 3 and 4). Many previous workers including Horwood (1945), Pirie (1981), and Andrews and Wallace (1983) have described the geology of this area.

The Red Lake greenstone belt is composed of Archean-age metavolcanic, metasedimentary and intrusive rocks, which comprise part of the Uchi Sub-province of the Superior Structural Province of the Canadian Shield.

M. Sanborn-Barrie et al (2000) describe the Red Lake Belt as follows: The Red Lake greenstone belt records a 300 Ma history of episodic volcanism, sedimentation, deformation and mineralization. The Balmer assemblage, host to current and past-producing gold mines, consists of tholeiitic and komatiitic lava flows intercalated with 2.98-2.96 Ga felsic volcanic, clastic, and chemical sedimentary rocks. The Ball assemblage comprises crustally contaminated komatiite, tholeiitic basalt, 2.94-2.92 Ga calc alkaline, felsic volcanic rocks and stromatolitic carbonate. The Slate Bay sedimentary assemblage of wacke, conglomerate and less than 2.91 Ga quartzose arenite records accumulated Balmer- and Ball-age material, prior to the 2.89 Ga intermediate pyroclastic volcanism and sedimentation of the Bruce Channel assemblage. The Confederation assemblage rests unconformably on the Balmer, and consists of basal conglomerate, 2.74 Ga FIII-type rhyolite and tholeiitic basalt with volcanogenic- massive-sulphide-style alteration-mineralization, and younger 2.73 Ga calc-alkaline pyroclastic rocks. Polyphase deformation involved pre-Confederation tilting and at least two episodes of post -Confederation deformation reflected by folds and fabrics of low to moderate finite strain.

Supracrustal rocks in the area have been regionally metamorphosed to greenschist facies with higher contact metamorphic grades around the major felsic intrusions.

The dominant regional structure in the camp is a NE/SW trending SW plunging antiform with secondary folds developed along both limbs.

Major deformation zones strike NE and NW cross the belt. Pervasive and often intense carbonate hydrothermal alteration is associated with these deformation zones. The major gold mines and prospects of the district are interpreted as being hosted within these structures.

Gold mineralization occurs in the free state or associated with pyrite, pyrrhotite, arsenopyrite, magnetite, chalcopyrite, sphalerite, galena and sulf-arsenides in quartz-ankerite and/or quartz in veins, stockworks, lenses, stringers and silicified zones. Tourmaline and scheelite occur as accessory minerals in many of the auriferous quartz veins.

Pirie (1981) classifies gold deposits in the camp into three main categories: mafic-hosted (Campbell, Dickenson), felsic intrusive-hosted (Cochenour, Mackenzie) and so-called 'stratabound' (Madsen, Starrat-Olsen).

Gold production from the Red Lake Camp, from 1934 to present, is about 20 million troy ounces with two major producers, Campbell and Dickenson mines producing a total of 14 million ounces of gold since going into production in 1948.

Figure 3: Regional Geology

**Table 2. Table of Lithologic Units for the Red Lake Area**  
(modified from Wallace et al 1986.)

QUATERNARY

Recent  
Lake, stream and swamp deposits  
Pleistocene  
Sand, gravel

*Unconformity*

PRECAMBRIAN

PROTEROZOIC

Late Mafic Intrusive Rocks  
Diabase dykes

*Intrusive Contact*

ARCHEAN

Intrusive Rocks  
Felsic Intrusive Rocks  
Granitic rocks; granodiorite, quartz diorite, quartz  
monzonite, granite gneiss, syenite, quartz & feldspar  
porphyries, pegmatite

*Intrusive Contact*

Mafic and Ultramafic Intrusive Rocks  
Gabbro, anorthositic gabbro, peridotite, hornblendite,  
lamprophyre

*Intrusive Contact*

Confederation Assemblage (2750 to 2730 Ma)

Metasediments

Greywacke, arkose, quartzite, slate, conglomerate, biotite  
schist, iron formation, chemical sediments

Metavolcanics

Tholeiitic to calc-alkalic mafic to felsic metavolcanics,  
agglomerate, amphibolite, chlorite schist and mica schist

Figure 4. Property Geology

## **5.2 PROPERTY GEOLOGY and MINERALIZATION**

The claims in Byshe Twp are generally underlain by intermediate to felsic volcanics, with associated gabbros and basalts. The gabbros, and other dioritic to intermediate intrusives, are intruded semi-conformably into all types of volcanics, and the gabbros may include coarser grained basalts.

In the trondjhemitic to dioritic intrusive complex, locally known as the “Howey Diorite”, located in the Northwest corner of Byshe Twp., minor pyrrhotite and chalcopyrite are present as local disseminations, and in quartz veins, in both early and late stage intrusive rocks. Minor cobalt bloom (erythrite) has been noted with this mineralization, usually in the more sheared, mafic portions of the intrusive complex. Numerous small trenching, pitting and drilling campaigns on these showings have resulted in narrow gold intersections, but little continuity or economic potential. However, the textures, environment, and relationships of the mineralization suggest a possibility of a porphyry copper setting, and the presence of cobalt with the copper is worth noting. More significant zones of this type of mineralization may be present elsewhere in the intrusive, along the contacts with the volcanics, or within the more mineralized, sheared portions of the volcanic pile.

The single claim in Heyson Township is underlain by mafic volcanics and the central to western portion is underlain by felsic volcanics. Several gold showings are reported to the north, and scattered gold and pyrite showings to the west, but no assays are available.

## **6.0 EXPLORATION**

As of the writing of this report, the issuer (Solitaire Minerals Corp.) had not yet performed any exploration on the Chukuni Property. B. Nelson performed a property visit on May 26<sup>th</sup>, 2003, during which six samples were taken. The sample descriptions and assays are listed in Appendix I.

## **7.0 DRILLING**

Records on the previous diamond are incomplete, and assays are generally not included for the older drilling. At this time Solitaire has performed no diamond drilling of their own, and propose to drill approximately 1000 metres in the proposed budget (section 12.1 below)

### **8.0 SAMPLING METHOD and APPROACH**

Since the reports on the previous work were written previous to the introduction of National Instrument 43-101, there is no discussion of such parameters as “sample quality”, “recovery factors” etc. There was also no discussion of any particular procedure for laying out samples, and it can only be assumed that the standard procedure was to identify zones of interest (i.e. zones of alteration and mineralization) in both drill core and at surface, and sample them accordingly. The previous work indicates the presence of anomalous gold mineralization on the property, but would not suggest any specific volume or tonnage of any deposit.

B. Nelson took six grab samples during his property visit. Grab samples are samples taken indiscriminately more or less at any place. They are usually taken of mineralized and altered material where possible in order to gain an indication of anomalous values.

### **9.0 SAMPLING PREPARATION, ANALYSIS, and SECURITY**

As mentioned above, there is no description of sample preparation, analysis and security for the majority of the work contained in this report, and only a few assay certificates were available for the older work. Samples taken by B. Nelson were delivered to Accurassay Laboratories in Thunder Bay, Ontario, for fire assay. Accurassay is registered ISO 17025, and their fire assay procedure is as follows:

The samples are dried, if necessary, and then jaw crushed to –8 mesh, riffle split and pulverized to 90% -150 mesh, and then matted to ensure homogeneity. Silica sand is used to clean out the pulverizing dishes between each sample to prevent cross-contamination.

The homogeneous sample is then fired in the fire assay lab. The sample is mixed with a lead-based flux and fused for an appropriate length of time. The fusing process results in a lead button, which is then placed in a cupelling furnace where all of the lead is absorbed by the cupel and a silver bead, which contains any gold, platinum and palladium, is left in the cupel. The cupel is removed from the furnace and allowed to cool. Once the cupel has cooled sufficiently, the silver bead is placed in an appropriately labelled small test tube and digested using a 1:3 ratio of nitric acid to hydrochloric acid. The samples are bulked up with 1.0 ml of distilled deionised water and 1.0 ml of 1% digested lanthanum solution. The total volume is 3.0 ml. The samples are vortexed and allowed to settle.

Once the samples have settled they are analyzed for gold using atomic absorption spectroscopy. The atomic absorption spectroscopy unit is calibrated for each element in an air-acetylene flame. The results for the atomic absorption are checked by the technician and Quality Control Coordinator and then

forwarded to data entry by means of electronic transfer and a certificate is produced. The Laboratory Manager checks the data and validates it if it is error free. The results are then forwarded to the client by fax, e-mail, floppy or zip disk, or by hardcopy in the mail.

### **10.0 DATA VERIFICATION**

The data presented in this report has all come from the assessment files at the Red Lake District Geologist's Office; the authors can verify that the information has been presented accurately, to the best of their abilities, as it exists in those files. They cannot verify the accuracy or validity of that information, however. B. Nelson can verify that the assay information for his own samples, taken during the property visit, is accurate.

B. Nelson (one of the authors of this report) conducted a property visit on May 26<sup>th</sup>, 2003, and verified the geology of the property and took 6 samples to verify the presence of anomalous gold mineralization (see Appendices I & II). These assays returned a high of 82 ppb Au; which, while low, at least indicates the presence of anomalous gold.

### **11.0 INTERPRETATION and CONCLUSIONS**

The previous work on the Chukuni property indicates the presence of a gold-mineralized system. The mineralization is generally associated with intermediate intrusions, and occurs within sheared or faulted, silicified and/or sulphide-mineralized zones near the margins of the intrusions. The sheared/fault zones have been shown in the past to occur both parallel and non-parallel to the contacts of the intermediate intrusions.

While the previous work has returned relatively sparse economic gold values, the fact that it has shown the presence of such mineralization at all suggests the potential for the discovery of an economic deposit, given that the property is located within the prolific Red Lake camp. Recent new discoveries within the Red Lake camp have led to a re-thinking of the potential of the entire belt.

Future work by Solitaire Minerals on their Chukuni property should involve a close examination of the recent developments in the camp, and also expanding the area of focus away from the old showings; while noting that the previous work has at least tapped into a gold-mineralized system.

**12.0 RECOMMENDATIONS**

An exploration budget of **\$400,000.00** is recommended to further evaluate the Chukuni Property by performing an exploration program of line cutting, mapping and sampling, with particular emphasis on the areas of the previous showings. There are 5 exploration targets that should be followed up:

1. The primary target should be the Hornblende melanodiorite, principally the contacts with the mafic volcanics, and then the Biotite granodiorite. The area where the Cobalt assay was recovered (and gold has been observed in trenches) was originally mapped as mineralized, sheared, mafic volcanics, and this area should be mapped in detail.
2. Secondly, the shear / fault zone that traverses this contact should be mapped in detail, and the old pits and trenches re-mapped and sampled. Several anomalous values (0.19 oz gold per ton over 1 foot, from DDH P-15) were obtained in these trenches and some of the old drill holes.
3. Mapping and sampling should be undertaken in the area of the trench, with the mineralized shear in the northeast corner of the property.
4. The area immediately north of Keg Lake should be investigated, as some highly prospective geophysical anomalies were encountered just off the property in this area.
5. Finally, the Heyson Township claim should be thoroughly prospected, and the contact between the felsic and mafic volcanics mapped and sampled.

Finally, all targets determined from the above work should be drilled,

**12.1 PROPOSED BUDGET**

## PHASE 1

**Geophysics**

Line Cutting	
20 kms @ \$400/km .....	8,000.00
Magnetometer and Electromagnetic Survey (VLF-EM)	
20 kms @ \$150/km .....	6,000.00

**Prospecting and Sampling**

Geologist 10 days @ \$400/day.....	8,000.00
Assistant 10 days @ \$300/day.....	6,000.00
Quad runner .....	1,000.00
Room and Board .....	1,500.00
Truck 3000 km @ \$0.40/km .....	1,200.00
Assaying 100 @ \$20/sample .....	2,000.00
Supplies .....	1,800.00

**Diamond Drilling**

1600 meters @ \$100/m (all inclusive).....	160,000.00
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Reports, Maps and Interpretation .....	4,500.00
--	----------

Subtotal.....	200,000.00
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## PHASE 2

**Diamond Drilling**

2000 meters @ \$100/m (all inclusive).....	200,000.00
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<b><u>Total Budget .....</u></b>	<b><u>\$400,000.00</u></b>
----------------------------------	----------------------------

**13.0 DATE**

This report is respectfully submitted this day of the 6<sup>th</sup> of June 2003.

Brian Nelson  
June 6<sup>th</sup>, 2003

Desmond Cullen  
June 6<sup>th</sup>, 2003

**14.0 REFERENCES**

Assessment Files, Red Lake Resident Geologist's Office, Ministry of Northern Development and Mines; Red Lake, Ontario.

Andrews A.J., Wallace H. (1983). Alteration, metamorphism, and structural patterns associated with Archean gold deposits-preliminary observations in the Red Lake area, Ontario Geological Survey, Miscellaneous Paper MP110.009

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CERTIFICATE of AUTHOR

I, Brian Nelson, H.B.Sc., do hereby certify that:

1. I am currently self-employed as a consulting geologist.
2. I graduated with a degree of Honours Bachelor of Science from Lakehead University, Thunder Bay, in 1984.
3. I am a member of the A.P.G.O. (#303), a Fellow (F5851) of the Geological Association of Canada and a member of the Ontario Prospectors Association.
4. I have worked as a geologist for a total of 18 years since my graduation from university.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant experience; I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I co-authored and reviewed the entire body of the technical report to which this certificate is attached titled “A Report to Evaluate and Recommend an Exploration Program on the Chukuni Property of Solitaire Minerals Corporation” and dated June 6<sup>th</sup>, 2003 (the “Technical Report”) relating to the Chukuni property. I believe that it has been prepared from reliable information and that it presents an accurate description of the Chukuni Property and its potential. I visited the Chukuni property on May 26<sup>th</sup>, 2003 for one day.
7. I have not had prior involvement with the property that is the subject of the technical report.
8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

**Brian Nelson - CERTIFICATE of AUTHOR (page 2)**

9. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and any other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 6<sup>th</sup> day of June, 2003

“Brian Nelson”

Brian Nelson, P. Geo

**Desmond Cullen, P.Geo.  
Address: 1000 Alloy Drive  
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CERTIFICATE of AUTHOR

I, Desmond Cullen, H.B.Sc., do hereby certify that:

1. I am currently self-employed as a consulting geologist.
2. I graduated with a degree of Honours Bachelor of Science from Lakehead University, Thunder Bay, in 1988.
3. I am a member of the A.P.G.O. (#0164), and am also a member of the Ontario Prospectors Association.
4. I have worked as a geologist for a total of 14 years since my graduation from university.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I co-authored and reviewed the entire body of the technical report to which this certificate is attached titled “A Report to Evaluate and Recommend an Exploration Program on the Chukuni Property of Solitaire Minerals Corporation” and dated June 6<sup>th</sup>, 2003 (the “Technical Report”) relating to the Chukuni property. I believe that it has been prepared from reliable information and that it presents an accurate description of the Chukuni Property and its potential. I have not visited the Chukuni Property.
7. I have not had prior involvement with the property that is the subject of the technical report.
8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

**Desmond Cullen - CERTIFICATE of AUTHOR (page 2)**

9. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and any other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 6<sup>th</sup> day of June, 2003

“Desmond Cullen”

Desmond Cullen, P. Geo.

**Appendix I**

**Author's Sample Descriptions and Assays**

Solitaire Minerals Corp. property visit by Brian Nelson on May 26, 2003

Sample Number	Claim Number	Location	Sample Description	Assay (ppb Au)
SC-03-1	1244534	East side of trench 5 metres southeast of Sample SC-03-2	Quartz - Iron Carbonate - Chlorite Schist, non-magnetic, no sulphide mineralization	11
SC-03-2	1244534	North end of trench at GPS co-ordinates 0447993E / 5651065N, (NAD 27)	Silicified Felsic Dyke, faint feldspar crystals, strong iron carbonate, trace fine grained disseminated pyrite	77
SC-03-3	1244534	Middle of large east-west trending stripped outcrop at GPS co-ordinates 0448041E / 5651007N (NAD 27)	Quartz Vein - white quartz, rusty coated fractures / iron carbonate, minor, medium grained blebby pyrite	37
SC-03-4	1244534	Five metres west of sample SC-03-3	Silicified Felsic Dyke, fine grained, minor, fine grained disseminated pyrite, trace chalcopyrite	42
SC-03-5	1244534	Same location as SC-03-4	Quartz Vein - white quartz, rusty coated fractures / iron carbonate, minor, medium grained blebby pyrite	82
SC-03-6	1244534	Ten metres east of sample SC-03-3	Quartz Vein - glassy white-grey quartz, no sulphides, minor host rock inclusions	<5 Check: <5

**Appendix II**  
**Author's Assay Certificate**

AL903-0049-06/03/2003 05:02 PM  
 Certified By: [Signature]  
 PROCEDURE CODE: ALTAU3

Accurassay #	Client Id	Au	ppb	Au	oz/t	Au	g/t (ppm)
29216	SC-03-1	11	<0.001	0.011			
29217	SC-03-2	77	0.002	0.077			
29218	SC-03-3	37	0.001	0.037			
29219	SC-03-4	42	0.001	0.042			
29220	SC-03-5	82	0.002	0.082			
29221	SC-03-6	<5	<0.001	<0.005			
29222	SC-03-6	<5	<0.001	<0.005			

Tuesday, June 03, 2003  
 Clark Consulting  
 1000 Alloy Dr.  
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 P7A6G5  
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 Email gjclark@tbaytel.net

Date Received : 30-May-03  
 Date Completed : 03-Jun-03  
 Job # 200340518  
 Reference : Byshe/Heyson  
 Sample #: 6  
 Rock

### Certificate of Analysis

1070 LITHIUM DRIVE, UNIT 2 THUNDER BAY, ONTARIO P7B 6G3  
 PHONE (807) 626-1630 FAX (807) 623 6820  
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