Petrographic Examination of Samples from the Green Giant Claim

Watson Lake Mining District

Yukon

105F07

Longitude 132°53' W  
Latitude 61°17' N

Assessment report on geological work completed between August 18, 2004 and August 17, 2005 on the Green Giant Claim (YC25202)

August 29, 2005

Gregg Jilson
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38 Dawson Road
Whitehorse Yukon Y1A 5T6
Costs associated with this report have been approved in the amount of $200 for assessment credit under Certificate of Work No. QL25832.

[Signature]

A/Mining Recorder
Watson Lake Mining District
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Introduction

The Green Giant claim was staked in 2004 to cover an occurrence of skarn containing small anhedral to locally euhedral crystals of brilliant green garnet. The garnet is of such an intense green colour that there appeared in the field to be some gemstone potential though the samples to date have only shown small and sparse crystals.

The Green Giant claim is located on claim sheet 105F07, 130 km northeast of Whitehorse (Figure 1). Access to the area is by the South Canol Road to km 112 and then by foot to the claim 7 km to the east.

The purpose of this work was to confirm the identity of the skarn minerals and provide information of garnet textures. The property is comprised of one claim with Grant Number YC25202 registered in the name of Gregg Jilson.

Geologic Setting

Figure 2 is a sketch map of the geology of the upper Deer Creek area. Map units are as follows:

**Carbonaceous Argillite ("carb")**

The structurally lowest and presumably oldest unit in the area is a sequence of black siliceous argillite. The unit is generally fissile, laminated and very dark coloured. The rocks typically contain a few percent iron sulphide as pyrite or pyrrhotite and typically weathers with rust coloured surfaces. The unit contains sparse, thin, medium grey, laminated limestone bands. The unit is moderately to strongly hornfelsed and can be quite hard but no alumino-silicate prophyroblasts were seen.

North of Deer Creek the unit consists of fissile, laminated, dark grey to black carbonaceous, siliceous shale to slate with a rusty brown weathering patina. It appears substantially less hornfelsed than on the slopes south of Deer Creek.

The affiliation of this unit is not known. It may represent the Earn Group black shales in the hornfels zone of the granitic intrusive or it may represent the argillite sequences noted to occur in the Anvil assemblage (Gordey & Makepeace, 1999). No chert clast bearing clastic rocks were seen in this unit nor was stratiform barite noted with certainty.

**"Calc-silicate" rocks ("cs")**

This unit consists of very fine grained, very hard, grey, purplish brown, crème and light green variably banded rocks. Rocks of this unit have a characteristic thin white weathering rind and common relief weathering. The unit contains minor disseminated pyrite or pyrrhotite.
Figure 1. Location Map of the Green Giant Claims 130 km. northeast of Whitehorse on claim sheet 105F07.
Figure 2. Sketch map of the geologic setting of the Green Giant Skarn. Contour interval 10 m., major intervals labeled in m ASL. A short description of each unit is provided in the text; Q = unconsolidated alluvium; the red unit in the Green Giant claim is skarn.
A slight calcite content was noted locally and rarely the rocks contain relief weathering calcareous lamina. These rocks can be very hard and commonly have a "glassy tinkle" underfoot. The hardness and fine grain size is suggestiv of meta-cherit but the characteristic rough, off white weathering rind suggests there is a constituent other than quartz present. The rocks are very similar to fine grained calc-silicate rock seen elsewhere by the author but no petrographic work has been done on these rocks.

The affiliation of this unit is also unknown other than it is clearly related to underlying carbonaceous argillites with which it is interbedded.

The unit noted as cs? are of uncertain correlation. Rocks of this area share characteristics of both this unit and the "carb" unit in a more strongly hornfelsed state.

Unit "YTm" may be a textural variant of "cs" as it appears to contain similar rocks but has a more common foliated, mylonitic looking, flaser texture. Also included in this unit is fine-grained biotitic quartzite, possible quartz bearing meta-volcanics and foliated mafic meta-intrusive.

**Ulramafic rocks ("um")**

This unit consists of massive to slightly foliated, dark green-grey, dense serpentinitized rocks probably derived from peridotites. Rocks of the unit commonly have a rough, dun coloured weathering surface. Some variants of this unit appear to be composed of densely packed fine-grained rosettes of green-grey actinolite. Diabase occurs locally in the unit.

A common minor constituent of this unit, particularly near contacts, is a very coarse mottled white and black rock that appears to consist of light greenish grey plagioclase and black hornblende. This unit appears to be a mafic pegmatite or hydrothermally altered and recrystallized rock derived from the mafic and/or ultramafic rocks.

**Granitic rocks (Kgr)**

The typical granitic rock of the upper Deer Creek area consists of blocky, massive, coarse to medium grained biotite granite. The unit generally contains white k-feldspar phenocrysts up to 3 cm. long. The rock consists of 20-30% clear and smoky grey, anhedral quartz, 60-80 % white feldspar (most as groundmass feldspar but about ¼ as phenocrysts) and 5 -10 % black biotite.

Within and near the granitic rocks are dikes of fine-grained, massive, sucrosic textured, light crème coloured, aplite. Locally the aplite contains minor disseminated pyrite and pyrrhotite. Some aplite bodies contain thin lenses of micropegmatite. The lenses are parallel to the aplite contacts and about 1 to 2 cm. thick with comb textured euohedral quartz and feldspar and a central cavity. Local fluorite was noted. Aplite float is widespread but minor in the granitic area.
of upper Deer Creek and locally this material is associated with float of coarse pegmatitic quartz and feldspar vein material. Minor muscovite but no other minerals such as beryl or tourmaline were noted.

Contacts of the granitic body on the ridge east of upper Deer Creek are sharp and flat lying but descend into the valley of Deer Creek in a series of stepwise pitches and flats. The Deer Creek body is assumed to extend beneath the ridge between Deer and Canol Creeks (to the south) and connect with the similar body north of Canol Creek.

**Skarn (dark red on map)**

The skarn in upper Deer Creek is up to several m. thick and has been traced for about 250 m. trending about 135° and dipping steeply SW. The skarn appears to be developed in a grey laminated limestone bed but little of the limestone is preserved near the showing. The skarn mineralogy is uncertain but appears to consist of coarse radiating rosettes of actinolite near its contacts passing inwards to convergent radiating aggregates and compact masses of moderately hard, dense, brownish pistachio green mineral, originally thought to be epidote but shown to be diopside as a result of this study. The blades of diopside converge on patches of vuggy white calcite that is associated with small (generally 3mm. or less) aggregates or dodecahedrons of bright green garnet. The overall impression is of a nearly complete space filling texture with the calcite and garnet the final phases. Minor fluorite and a few specks of molybdenite were noted with the calcite.

The garnets are the primary interest in the skarn, while small, the intense colour and brilliant lustre of the garnets suggests there may be gemstone potential. A large vug about 25 cm. in diameter was found in one outcrop. The vug contains coarse-grained euhedral quartz and the largest garnet dodecahedrons. Though the garnets are still small, vugs of this sort have potential for coarser garnet that need to be investigated further.

The carbonaceous rocks hosting the skarn layer are strongly hornfelsed and are inferred to be close to the quartz monzonite body but it does not crop out due to overburden cover. A cluster of ultramafic boulders occurs across Deer Creek from the skarn but there is no confirmed outcrop.

**Samples Selected for Study**

Two samples were selected for petrographic examination. Sample 1 is a typical example of the coarse skarn consisting of radiating blades of a coarse grained yellowish green mineral, white calcite and near the interface of these minerals, green garnet. Sample 2 is from the largest known quartz lined vug within the skarn. Figure 3 shows the samples before submission for thin sectioning. The samples are from the vicinity of station CCN-035 (Figure 2).
Sample 1 – This sample typifies the coarse skarn consisting mainly of radiating blades of light yellowish green diopside, white calcite and near the interface small disseminated bright green garnet.

Sample 2 – from a vug in the skarn. The vug is lined with coarse quartz crystals and the garnet occurs near quartz – skarn interface. The vugs host the largest, most euhedral and intensely green garnets.

**Figure 3.** Photographs of the hand specimens selected for thin section. The scale in each photograph is in cm.
Conclusions and Recommendations

The results of this study have confirmed the identity of the bright green mineral as garnet and shown it is hosted in a diopside – quartz – calcite skarn assemblage. The corroded, inclusion filled, garnet typical of the main skarn suggests little potential to yield gemstone quality garnet. The quartz lined vug(s) offers the best potential to yield the largest, euhedral, inclusion free garnet that offer gemstone or specimen potential.

The skarn is overall poorly exposed and the vug filling specimen was found at the last minute during the 2004 field season. As can be appreciated from Figure 3 the Sample 2 material is heavily weathered and friable. The skarn should be exposed by trenching to attempt to obtain better samples of less weathered vug filling material and determine if the vug is unique of a common constituent of the skarn.

A modest programme of hand trenching near existing outcrops is recommended.

Respectfully Submitted,

Gregg Jilson
Appendix I

Petrographic Reports

By J.F. Harris
August 8, 2005
38 Dawson Rd.,
WHITEHORSE,
Yukon Territory
V1A 5T6
Report 050523
August 8, 2005

Samples:

2 small rock samples (numbered #1 and #2) were submitted by Gregg Jilson. Work requested was for petrographic description, with special reference to the presence of skarn minerals - in particular green garnet.

Each sample was prepared for microscopic examination as a polished thin section.

Summary:

Sample 1 is a skarn consisting dominantly of a crystalline aggregate of diopside. Accessory calcite and quartz occur as an interstitial phase and as scattered, pockety segregations. The green material of special interest is a minor accessory, estimated to make up about 1% of the rock overall. It occurs mainly as "spongy" clusters of tiny granules, 30 - 300 microns in size, and rarely as more homogenous grains. Cores of an opaque oxide (probably chromite) are common.

This mineral has the morphology and optical properties of skarnic garnet. The strong green colour is unusual, and suggests that it may be the chromiferous variety uvarovite. However, speciation of garnet is not possible by optical means alone.

Sample 2 consists of compact, coarse-grained quartz forming a matrix to euhedral grains, and grain clumps, of diopside and the green garnet. The diopside shows partial alteration to an indeterminate brown secondary product.

The garnet grain size in Sample 2 is typically in the range 0.3 - 1.0 mm. It commonly contains more or less abundant inclusions of probable chromite and/or carbonate.

Individual sample descriptions and illustrative photomicrographs are attached.

J.F. Harris Ph.D.
This rock is a skarn consisting dominantly of a non-foliated, varigranular aggregate of prismatic diopside. Grain size of the diopside typically ranges from 0.2 - 3.0 mm.

The principal accessories are calcite and quartz. These occur in sporadic interstitial relation to the diopside, and locally form more or less extensive pockety segregations. The calcite occurs in coarse sparry form and, less commonly, as fibroacicular intergrowths with quartz. The bulk of the quartz forms varigranular aggregates of grain size 0.1 - 1.0 mm.

A minor accessory, mainly occurring in, or on the contacts of the quartz/carbonate segregations, is a distinctive green mineral which has the morphology of garnet. It typically lacks the isotropy characteristic of most garnet but, rather, shows complex zonal areas of anomalous birefringence - a feature often seen in skarnic garnets.

The green garnet occurs as spongy clumps of small granules, 30 - 300 microns in size. Most of the garnet clumps have cores of an opaque to sub-opaque brown oxidic mineral which is probably a Cr-bearing spinel.

This garnet has the strong green colour of the variety uvarovite. Garnet species are not able to be distinguished definitively on the basis of optical properties, but can be identified chemically by SEM or electron probe microanalysis.
**SAMPLE #2**

Estimated mode

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This sample consists of coarse-grained quartz (of grain size up to 1 or 2 cm) as a matrix to clusters of euhedral crystals of diopside and - less abundantly - green garnet.

The garnet occurs as individual crystals, 0.3 - 1.0 mm in size, and as small polygranular clumps of the same. The garnet grains almost all incorporate inclusions of opaque oxides (probably chromite) and/or carbonate, as cores, diffuse dust, or concentric shells in growth zones (see photos).

The diopside grains in this sample commonly show partial alteration (as rims and cleavage or fracture-related replacements) to a brown, fibrous material which may be mainly a form of secondary amphibole.
Appendix II

Photomicrographs

By J.F. Harris
August 8, 2005
Sample 1

All photos are at a scale of 1 cm. = approximately 170 microns. Each set of photos shows the same field of view with plane light at top and crossed nicols at bottom.
Neg. 562-16A: High-relief granular aggregate (upper half of field) is diopside. Low relief, colourless areas at lower left are calcite and quartz. Green grains are clusters of garnet. Black (opaque to sub-opaque) inclusions in the garnet are probable chrome spinel.

Neg. 562-17A: Same field as 562-16A in cross-polarized light. Prismatic grains showing strong birefringence (colours) are diopside. Tan-coloured area with rhombohedral cleavage (lower left) is calcite. Adjacent granular aggregate (white-grey-black) is quartz. The garnet clusters show partial isotropism.
Neg. 562-18A: Another example of the green garnet, showing "spongy" varigranular clustered habit and abundant chromite inclusions (opaque; black). The matrix in this case is dominantly carbonate, with scattered grains of diopside (colourless, prismatic, higher relief).

Neg. 562-19A: Same field as 562-18A in cross-polarized light. The scattered diopside grains show strong birefringence (colours). The garnet shows partial anisotropism (blue green colour, rather than the black of normal isotropic garnet in cross-polarized light).
Sample 2

All photos are at a scale of 1 cm. = approximately 170 microns. Each set of photos shows the same field of view with plane light at top and crossed nicols at bottom.
Neg. 562-20A: Group of garnet grains (green) in quartz. Note euhedral outlines. The central grain is relatively free of inclusions. The other two grains incorporate inclusions of probable chromite. The colourless grain at centre top is diopside showing alteration to brown secondary products.

Neg. 562-21A: Same field as 562-20A in cross-polarized light. Shows the patchy partial anisotropism characteristic of these garnets.
Neg. 562-22A: Another view of part of a garnet cluster. Note substantially larger grain size of the garnets in Sample 2 compared with Sample 1.

Neg. 562-23A: Same field as 562-22A in cross-polarized light. Shows concentric/segregated pattern of anomalous birefringence (white/greys) in the larger garnet grain. Inclusions in this grain include carbonate (tan colours) as well as chromite (black). These inclusions are a deleterious factor.
Appendix III

Statement of Costs and Invoice

Statement of Costs

Vancouver Petrographics Ltd. (invoice 050523)..............................$470.80

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We appreciate your prompt payment.

| GST       | 30.80 |
| PST       | 0.00  |
| TOTAL     | Can$470.80 |
Appendix IV

Statement of Qualifications
Statement of Qualifications

I, Gregg Jilson, of 38 Dawson Road Whitehorse Yukon certify that:

- I am a graduate of the University of California, Davis Campus, with a Bachelor of Science degree in Geology granted in 1972.
- I have been engaged in mineral exploration in Yukon since 1969.
- I am the President of G.A. Jilson & Associates Inc.
- I organized, authorized and supervised the work described in this report.
- I wrote this report with the exception of the Pertographic Report in Appendices I and II.
- The description of the property is based on a site visit by me in July 2004.
- I am the registered owner of the Green Giant claim.

Gregg Jilson
August 11, 2005