



861650

Date: April 9, 1992

To: Rob Pease/Grid File 3681600 **cc:** E.T. Kimura
D. A. Sketchley

From: G. M. Ditson

Re: MINERVA PROPERTY SUBMITTAL; TOODOGGONE/KEMESS AREA

See attached Property Submittal Form which was entered using Q & A.

SUMMARY & RECOMMENDATIONS:

I found nothing in the descriptions and assessment records which lead me to believe that there is a high potential to develop a large-tonnage deposit. There is a lot of smoke in the form of abundant small skarns in limestone, several epithermal to mesothermal zones/veins, and a couple of porphyry-type showings in intrusive and adjacent volcanic rocks. There are no descriptions of widespread disseminated sulphides, and only one reasonably large IP survey (in intrusive rock), which had poor results and didn't even pick up the known showings. There are four areas of Takla volcanics within the claim area which have not been very thoroughly explored, and a large block of claims central to the property which is covered by glacio-fluvial material overlying Takla rocks along the Finlay River. These Takla areas have the potential to host mineralization as buried zones which would probably require exploration by remote sensing methods such as magnetometer and induced polarization. (Kemess South mineralization is restricted to its intrusive host, and no one in this office knows whether or not pyrite extends into the adjacent volcanics.)

The property overlaps the CAS two kilometer Area of Influence at its southern end.

If PDI picks up this property, it is with the understanding that there are no specific targets, but that the area is known to host potentially PDI-acceptable mineralization (Kemess So.), and there are potentially-favourable areas within the claims where a thorough exploration program is required before a more definitive recommendation can be given.

Because the area is so close to the CAS and KEMESS, I'm sure it will be considered in the generative program this year. It's

too bad the property has been submitted at this time, before we know where it fits in with our priorities generated from either the porphyry inventory or the North-Central Generative work.

Of all the showings described on or near the claims, the RIGA area on Drybrough Peak is the most worthy of an examination. It would also be interesting to investigate Au in silicified metasiltsstones in the Grace/VIP area, because nowhere did I see an estimation of size or extent. All areas of Takla volcanics should be investigated one way or another.

DESCRIPTIONS OF MINERALIZED AREAS:

RIGA/Drybrough Peak

A 1.5 km x 250 m pendant of Takla volcanics occurs within a large pluton of quartz monzonite to monzonite to syenite composition. Porphyry-type occurrences of chalcopyrite and molybdenite occur in intrusive rocks; only chalcopyrite is described in volcanics on Drybrough Peak. Propylitic alteration is described as occurring in the intrusion and in volcanics near it. Pyrite accompanies pervasive propylitization. Potassic alteration occurs on abundant fractures in the syenite and monzonite; chalcopyrite is present where intense. Molybdenite appears to occur only in shear zones. Vuggy to massive quartz fracture fillings are common around the intrusive contact, and may contain chalcopyrite and bornite with precious metal values.

Porphyry-type mineralization is said to be localized in two areas of about 700 x 100 m dimensions, along with many much smaller occurrences. Maximum values reported are 5.75% Cu and 0.1% Mo. An IP survey conducted in 1968 to the northwest, west and southwest of the showings revealed three zones of anomalous chargeability, but two are very small and one is linear (700 x 100 m). Richard Cannon examined the data and concluded that it was not the signature of a "porphyry system."

Skarn at the intrusive/marble contact has chalcopyrite, bornite, galena, sphalerite and magnetite. One massive magnetite skarn has negligible gold, but Cu skarns have up to 4.4 oz/t Ag and up to 0.38 oz/t Au.

Grace/VIP

Three pendants of Takla siltstone/metasiltsstone and marblized limestone (Asitka?) in Granodiorite pluton. All rocks are cut by two monzo-syenite porphyry dykes. Cu+Zn+Au skarns at marble/grano-

diorite contacts can get values as high as 0.038 oz/t Au, 1.1% Cu, and 0.48 oz/t Ag. in a 42 x 3 m area and 0.114 oz/t Au, 0.46 oz/t Ag, and 0.13% Cu in a grab sample. Garnet-pyrite skarns with and without magnetite, chalcopyrite and sphalerite are also present. Skarns are shown by drilling to be continuous to >35 m depths, but the only one large enough for a tonnage estimate was stated to represent about 85,000 tonnes.

Gold also occurs in siliceous zones and chlorite veins with coarse pyrite in pyritic metasilstone. These occurrences would require more time to research them, since not all assessment reports for this property were reviewed.

One of the pendants has four soil lines covering a 200 x 600 m area with abundant Mo results >10 ppm and \leq 27 ppm. Cu values are commonly >100 ppm and rarely over 1000 ppm. Again, this area has not been completely researched.

Some quartz breccia zones in volcanic rocks outside the intrusion to the northeast are also described.

Fire/Steel Area

This property was given a cursory look by DuPont in 1981 and Skylark in 1988. DuPont encountered a carbonatized shear in Takla volcanics with pyrite and pyrrhotite, but no significant assay results. Skylark described local disseminated and fracture filling pyrite and narrow isolated quartz/chalcopyrite veins with sporadic Cu and/or Au, Mo, or Ag values across 1-2 cm widths. DuPont's program was follow-up to a heavy mineral survey with anomalous Au. The detail follow-up did not confirm the HM results.

Bell Area

This is outside the claims, but within the intrusion. Malachite and bornite occur as fracture fillings accompanied by potassic and propylitic alteration. No assays available.

Cairn/Arc Area

This area is underlain predominantly by Takla volcanics with small limestone lenses. At the south edge of the claims are a few small Cu-Pb-Zn-Ag skarns and one showing of Cu-Ag in andesite to a 6 m depth from surface. Drilling and very localized IP surveys showed mineralization to be very restricted in nature. IP/mag lines by D. L. Cooke on Cas 1 and Cas 4, adjacent to this area, were negative.

Wrich/Norad/Awesome Area

All of these showings are hosted by Toodoggone volcanics. The Wrich hosts chalcopryrite/galena/sphalerite/barite/molybdenite in quartz veins in a gossanous clay/chalcedony/manganese \pm quartz \pm alunite \pm pyrophyllite zone. The Norod showing hosts galena with quartz, chlorite, epidote and pyrite in a narrow shear zone. The Awesome hosts a quartz breccia vein with pyrite and amethyst in a silicified and argillized zone central to a propylitic alteration zone. The best value from trenching was 1.5 m of 550 ppb Au and 1.4 oz/t Ag.

Attachments: PDI Property Submittal Form (3 pages)
 1:250,000 Map of Geology and Claims
 1:250,000 Archer, Cathro map with annotations
 1:250,000 Map of Claims relative to CAS and Main Mineralized Areas
 Archer, Cathro descriptions of 94E(3), (22), (26), (27), (39), (47), (58), (80), (89), (92), (93), (94), (95), (108), (115), (119)
 Geology Map of RIGA property from A.R. 1802 (1968) showing location of IP survey
 Geology Map of Grace property from A.R. 7649
 Various other miscellaneous maps from assessment reports

PROPERTY SUBMITTAL

Reviewed by: G. Ditson

Examined by:

Date: Apr 9, 1992

Date:

Property Name: Minerva's Toodoggone Properties

Commodities: Cu, Pb, Zn, Au, Ag

Country: Canada State/Prov.: B. C. Dist.:

Min. Inv. 1#: 94E(3) AC

Mining Division: Omineca

Min. Inv. 2#: 94E(47) AC

Nearest Town: Ware is 80 km ENE of Drybrough Peak

Min. Inv. 3#: 94E(93) AC

Location: Between North Kemess and Black Lake strip

PDI File No.: 3681600 (new)

Access The Omineca Mine Road cuts through part of the property, but most access requires helicopter from Sturdee Strip, 6 km E of northern end.

NTS: 94E/2 Lat: 57 3.5 Long: 126 55 UTME: 626000 UTMN: 633400 Elev.: 1500 m

Conclusions & Recommendations: The property at this time has no specific targets worthy of aggressive pursual. It is, however, close to the Kemess deposits, and contains a few areas of poorly explored Takla volcanic rocks.

Submitted by: J. Paul Sorbara

Phone No.:

Owner: Minerva Gold Mines Ltd.

Company:

Address 1030-609 Granville St.

Vancouver, B.C. V7Y 1G5

Principals: Ron Philp, President

Phone No.:

Fax No.:

Reports submitted: "Report on the Toodoggone Project Claims," by P. G. Dasler for Minerva Gold Mines Ltd., December 30, 1991, 17 p.

"Overview on the Toodoggone Project Claims," by C. M. Rebagliati for Minerva Gold Mines Ltd., January 20, 1992, 8 p.

Claims/Expiry Dates: Fifty-six claims comprising 565 units; complete listing not submitted, but some expire on April 16, 1992.

Work History: The Grace/VIP pendants received constant attention in the 1970's and 80's; by 1989, 7 DDHs and 92 PHs had been drilled. The Riga porphyry/skarn showings were worked in the 1964-1987 period; 5 DDHs have been drilled. Other showings have received minimal attention.

Host Rocks: Takla, Toodoggone, Asitka, Omineca Age: Perm, Tr, Ju %Outcrop: var.

Regional Geology: The property is at the south end of the Toodoggone, where older Takla volcanics begin to dominate relative to younger Toodoggone volcanics which host mineralization in the mines and properties to the north. Permian Asitka limestone occurs amongst Takla rocks, and lower to middle Jurassic Omineca intrusions invade all rock types. Porphyry-type occurrences are found in Takla rocks, skarns in the Asitka Group, and epithermal/mesothermal veins in Toodoggone volcs.

Property Geology: The claims largely cover Omineca intrusions, Takla volcanics and Asitka limestones. In the northern sector, a single large quartz monzonite/granodiorite intrusion contains pendants of Takla and Asitka groups, and is surrounded by Takla rocks. The central portion lies along the Finlay River and is underlain by glacio-fluvial material. The southern sector hosts more complex geology with all rock types. Deposit Type & Character: The Riga area at Drybrough Peak is a porphyry occurrence in the main intrusion. The Grace/VIP area covers three pendants with abundant skarns. Veins are scattered about.

Metamorphism:

Weathering:

Structural Geology & Attitudes:

Alteration:

Ore Minerals:

Ganque:

Geochemical Expression:

Geophysical Expression: The only IP survey of significance was done in 1969 on the Riga claims; only small and/or linear anomalies were found within the intrusion. The survey did not extend into the volcanics. Pertinent Assays: Minerva's report states tht 5% Cu and 0.015% Mo occurs over a 1.3x0.15 km area, which could represent 75 mill tonnes (!), but I found nothing in the Assessment to support that. In fact, the IP survey didn't even pick up known showings. The above must be local high grades. Labs:

Ore Reserves: One of the skarns on the Grace/VIP property is stated to contain about 85,000 tonnes.

Potential & Exploration Significance: The area hosts an abundance of showings of all types which suggest a metalliferously-rich district. Said showings may be indicators of larger, buried deposits, perhaps like Kemess South. The area is worthy of work on a regional generative scale. Development: No known workings on the claims, but many of the showings have been trenched.

Equipment & Mining Facilities: None on the property.

Infrastructure: Sturdee strip is only 6 km away; the Shas, Baker and Cheni mines are 2.5, 9 and 16 km to the NW, resp. Omineca Road present.

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Economics:

Political Climate:

Environment, Climate, Terrain & Physiography: Terrain varies from flat along the Findlay River to rugged in the Drybrough Peak area in the north. Winters are severe.

Native Land Claims:

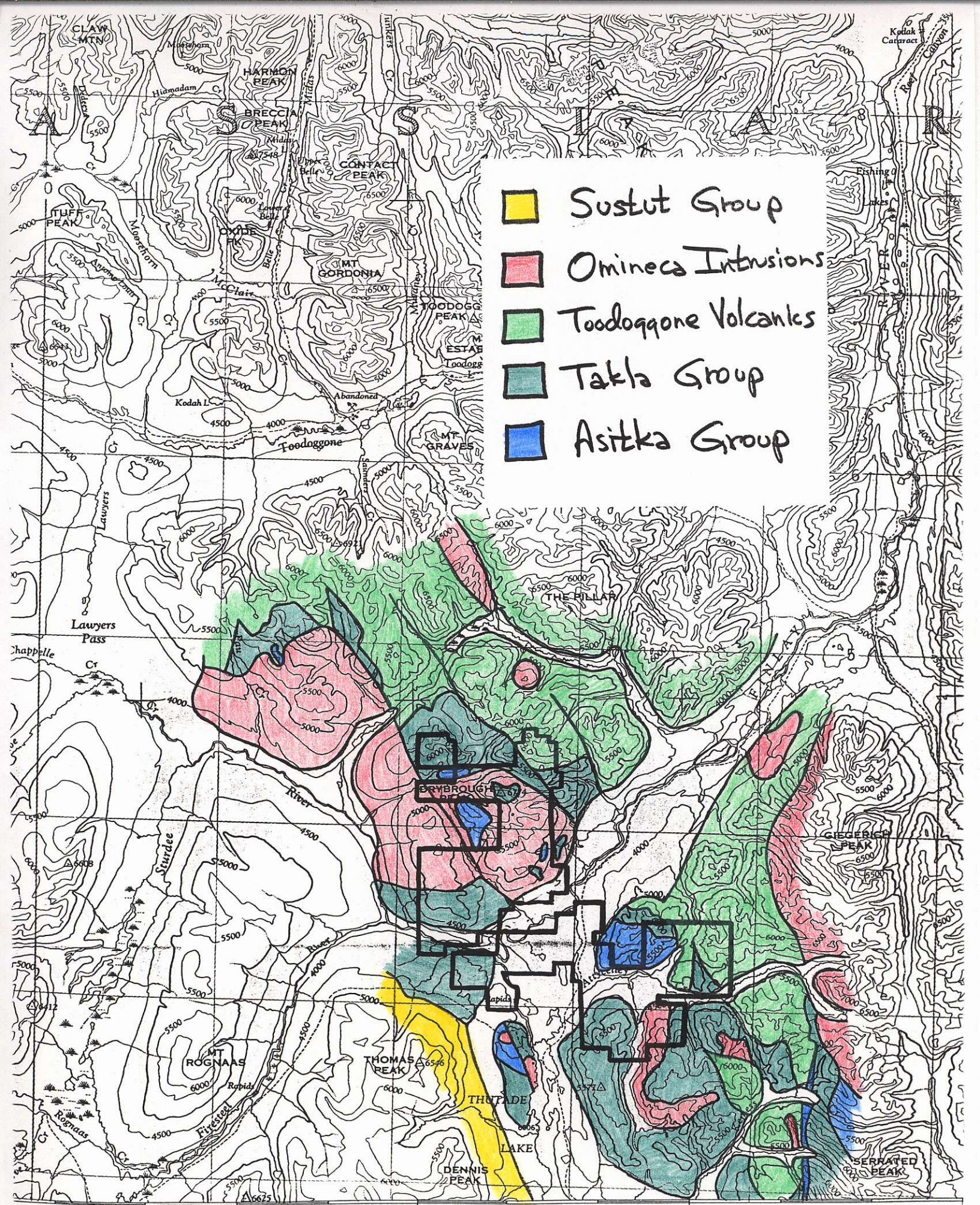
Expected Terms:

Comments: Property submitted to Rob Pease, who informed Paul Sorbara on April 8th that we must regretfully decline the property at this time, but may do an examination in the summer if it is still available at that time.

Refer to attached memorandum for additional comments on the potential of the property and descriptions of the mineralized areas. Attachments, Location Maps: 1:250,000 maps showing geology, claims, known mineralized showings/areas. Archer, Cathro descriptions.

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- Sustut Group
- Omineca Intrusions
- Toodoggone Volcanics
- Takla Group
- Asitka Group

60 15' 61 62 127°00' 63 45' 64 65 31

(3) RIGA

Takla felsic-mafic volcanic flows

Asitka ls
Irreg. intr's of sy + mZ stocks + dks
widespread py
D 75x50m area of diss/FF cp + mo in
small MZ lobe in volcs
2) volcs w/ extensive mal, minor cp + bo FFs
3x200m area - grab - 6 Cu 10g Ag
also scattered sy dks w/ diss mal, cp
minor gal, sph in qz-chl-spec frags (wide-
spaced)
in volcs adji. intr.
small mag SKRN w/ minor cp, bo, gal, sph
- drilled 1987 by Cheni
- mag + cp w/ Au
A.R. 1802, 2307, 4870, 5854, 9308, 9466,
11106
IP in 1969
5 DDHs in 1987

(119) Foghorn QZ-CB VN STOKS

up R Takla ands + Omineca GADI-QZ/VN
propylitic athn
STOK QZ-carb VNS w/ Ag, Au (cp, gal)

(26) Bell - Porphyry

1J GADI intrudes 1J Tooodagone
younger QZMZ + hbrd PP DKS
mal + bo FFs in GADI
local K + prop athn

Barry (3683100)

Jurassic QZMZ/GADI
extensive faulting
R volcs on So boundary
py assoc. w/contact + faults in intr.
rocks ≤ 340 ppb Au
gossan in creekbed w/ high charge.

(29) Leghorn - Cu-Ag VN lots

up R Takla GIP ands pp
Omineca intr's: GADI, QZDI-sy
narrow QZ-carb VNS w/ cp, ga, elov
Energex property
A.R.'s - 11525, 14167, 17298

(58) Amlao

Up Pal Asitka GIP ls inlier in 1J multiphase
QZMZ pluton
1-VNs of gal, sph, cp, m, bo, bar, mal
2-Au-bearing cp-bo-mal in mag-diop-ep-gar
A.R. 6762, 10236, 14025 skarn

(27) Steel

weakly min'd shear w/ py, pp
up R Takla volc flows, volastics, seeds
1J QZMZ bath
Au in geochem unexplained
A.R. 9272

(115) Ark

Au geochem over fault + SKRN
thrust separates R Takla ands/ls w/ls
and R Asitka ls, sh, chert
gossan soils have anom Au, Cu, Zn, Ag
along thrust
SKRN to SW
A.R. 13023, 14175

(39) Xmas

15cm QZVN w/ cp, bo, mal in
shattered, altered, p'd zone
up R Takla ands/ls flows at contact
w/ rusty low-mid J Tooodagone volcs
A.R. 1940, 10345

(108) Silver Reef

QZ VNS, STOK, repl
vuggy white QZ VNS, STOKS, lenses
w/ tetrahedrite
mid J Tooodagone volcs alt'd, SIF
A.R. 8781

(92) Ambo

Epith
several gossans w/ $\leq 5\%$ py and QZVNS
with minor gal, sph, cp
Tooodagone + Takla b'stands flows, bx's
A.R. 13273, 14783, 15310

(80) Wrich

Epith
up R Takla volcs + 1J Tooodagone l'p'ts
1J QZMZ
gossan in Tooodagone has cy-chalced-
MnOx-FeOx/QZ + alun I
pyrophyllite
cp-ga-sph-bar-mal-az(-mo)
in QZ VNS
A.R. 10705, 14069, 16470

(94) Norod Lake

Pb in shear
Ga in QZ-chl-ep-py in narrow
mid J Tooodagone welded dacite
ash flow tufts

(93) Awesome

Epith VN
fault in 1/mid J volcaniclastic Tooodagone
py + amylth in SIF
QZ BX w/ hem, perv SIF
- good grab samples
- low grade panel samp's
A.R. 11174

(22) Attycelley

up R Takla flows
gal-sph-cp-ba in QZ VNS
QZ-Sulphide gossans near VNS have py, trq
also a QZ-Py-Mag-Cp-Hem VN to sw
A.R. 1956, 3694, 6650, 8013, 9038, 10113,
10742, 11174

(47) VIP, Grace

up R Takla metasiltst } pendants in
up Pal Asitka limest } 1J GADI
various Cu \pm Zn \pm Au SKRNS
Cp-Ay gash VNS in metasiltst at intr.
Au-rich VNS in SIL zones in PMd metasiltst
Au in BX'd, SIF Tooodagone volcs
up to 3gt Au in Cu SKRNS
and 2.9 g/t across 20m
in PMic metasiltst
A.R. 5144, 7649, 9494, 13057, 15202,
15375, 16307, 17459

CLASSIFICATION OF DEPOSITS

Table with 2 columns: Deposit Type (VEN, SHR, FRX, BRX) and Description (fissure vein, mineralized shear zone, fracture fillings, mineralized breccia, magmatic segregation, sedimentary exhalative, volcanic exhalative, Mississippi Valley Type).

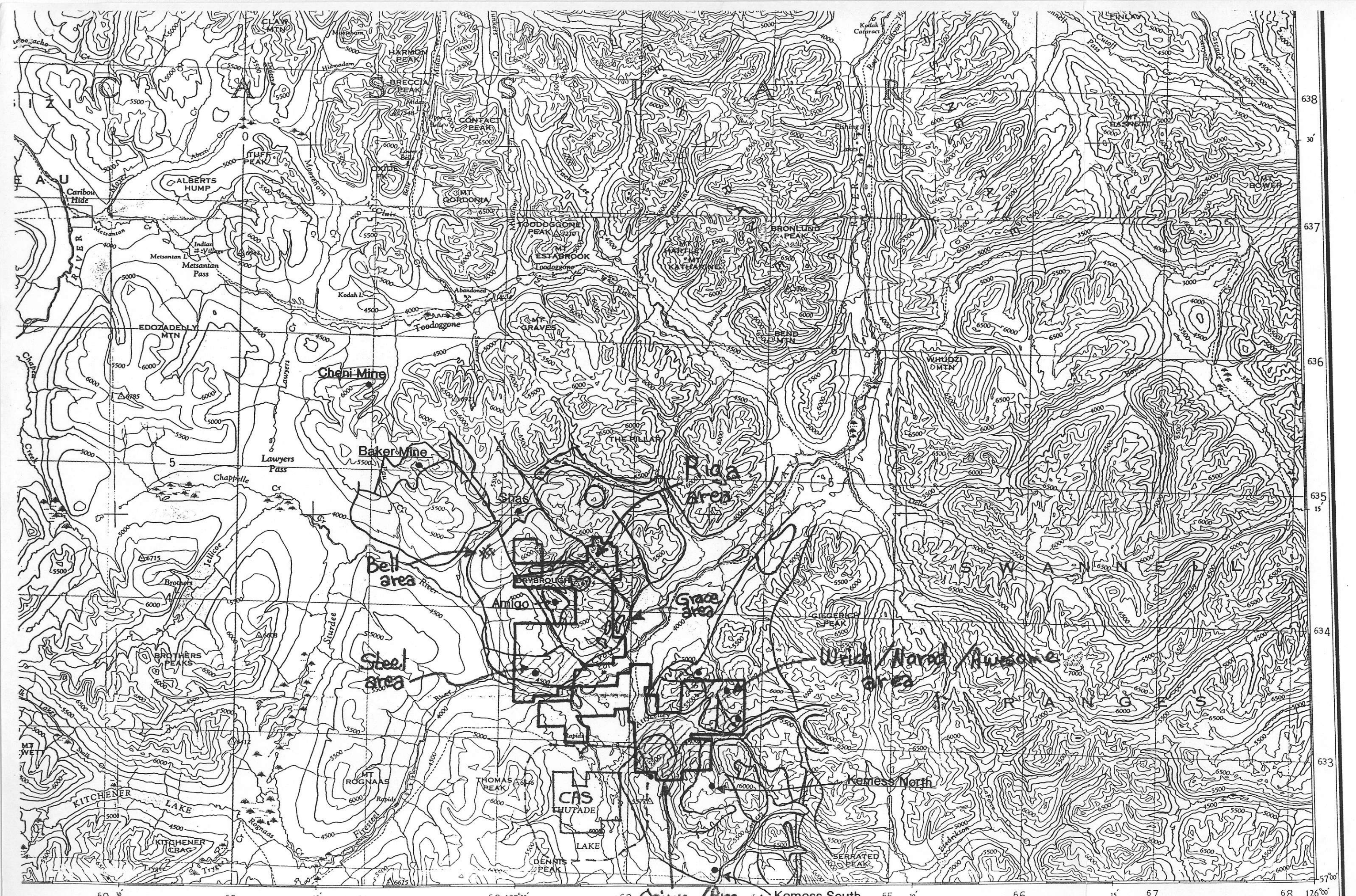
REFERENCE

- All weather road
4-wheel drive or seasonal road
Airstrip (length in metres, if known)
Mining Division boundary

Schroeder, 1984b

ENT OF ENERGY, NTS 94E

SPATSIZI TOODO RIVI



638
30
637
636
635
15
634
633
57'00"

59 30 60 15 61 127'00" 63 Cairn/Arc area 64 Kemess South 65 30 66 15 67 68 126'00"

GRID ZONE DESIGNATION
9V
100,000 M. SQUARE 10E1

WQ	XQ
WP	XP

60

IGNORE THE SMALLER & grid number; these are the full coordinates. Use the LARGER figures of the grid number.
example: 57000

UNIVE