REPORT ON GEOLOGICAL SURVEYS

OTTER CREEK CLAIM GROUP
(DUNCAN & ADAM CLAIMS)

NICOLA MINING DIVISION, BRITISH COLUMBIA

W.R.BERGEY, P.Eng.

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Nicola Mining Division, British Columbia

INTRODUCTION

Previous geological work on the Duncan Claim (Bergey, 2002) focused on the area enclosing the diamond drill holes put down by Tormont Mines Ltd. and Andrew Robertson between 1962 and 1977. This work suggested that granitic intrusive rocks that hosted the mineralization in the drill holes was related to a regional fault zone along the Otter Creek valley. This north-trending zone, which was not tested by the drilling, is reflected in the G.S.C. aeromagnetic survey for a distance of more than 20 kilometres. Accordingly, it was decided to concentrate the 2003-2004 program on detailed mapping of the rocks adjacent to Otter Creek in the area north of the earlier work.

The Adam Claim was staked in 2003 to cover the northward extension of the Otter Creek fault zone. Detailed geological mapping was carried out both in the northern part of the Duncan claim and on a two-kilometre-long belt on the Adam claim.

Following the completion of the Otter Creek work, additional geological mapping was carried out in the western parts of both claims. Because of the scarcity of rock exposures in this area, the mapping was extended well beyond the boundaries of the claims in order to enhance the geological perspective.

LOCATION, ACCESS, CHARACTER OF THE REGION

The Otter Creek property is located in the south-central portion of the Interior Plateau of British Columbia. It lies about 30 kilometre south of the town of Merritt and 180 kilometres east of Vancouver (Figure 1).

The access route to the claims from Merritt follows Highway 5A (Merritt-Princeton Highway) to the junction with Highway 223 (Coalmont Road), six kilometres south of the hamlet of Aspen Grove. The latter highway passes through the western portion of the Adam Claim and ranch roads provide access to the Duncan Claim. The eastern portions of both claims are located within a kilometre of Highway 5A.

Gently rolling till-covered hills occupy the western parts of the claims. The steep-sided Otter Creek valley has been scoured by glacial outwash and contains most of the rock exposures in the area, albeit very small ones in most cases. The claims are bordered on the east by high till-covered ridges nearly devoid of outcrops.

The vegetative cover is mostly pasture, along with patches of open woodland.

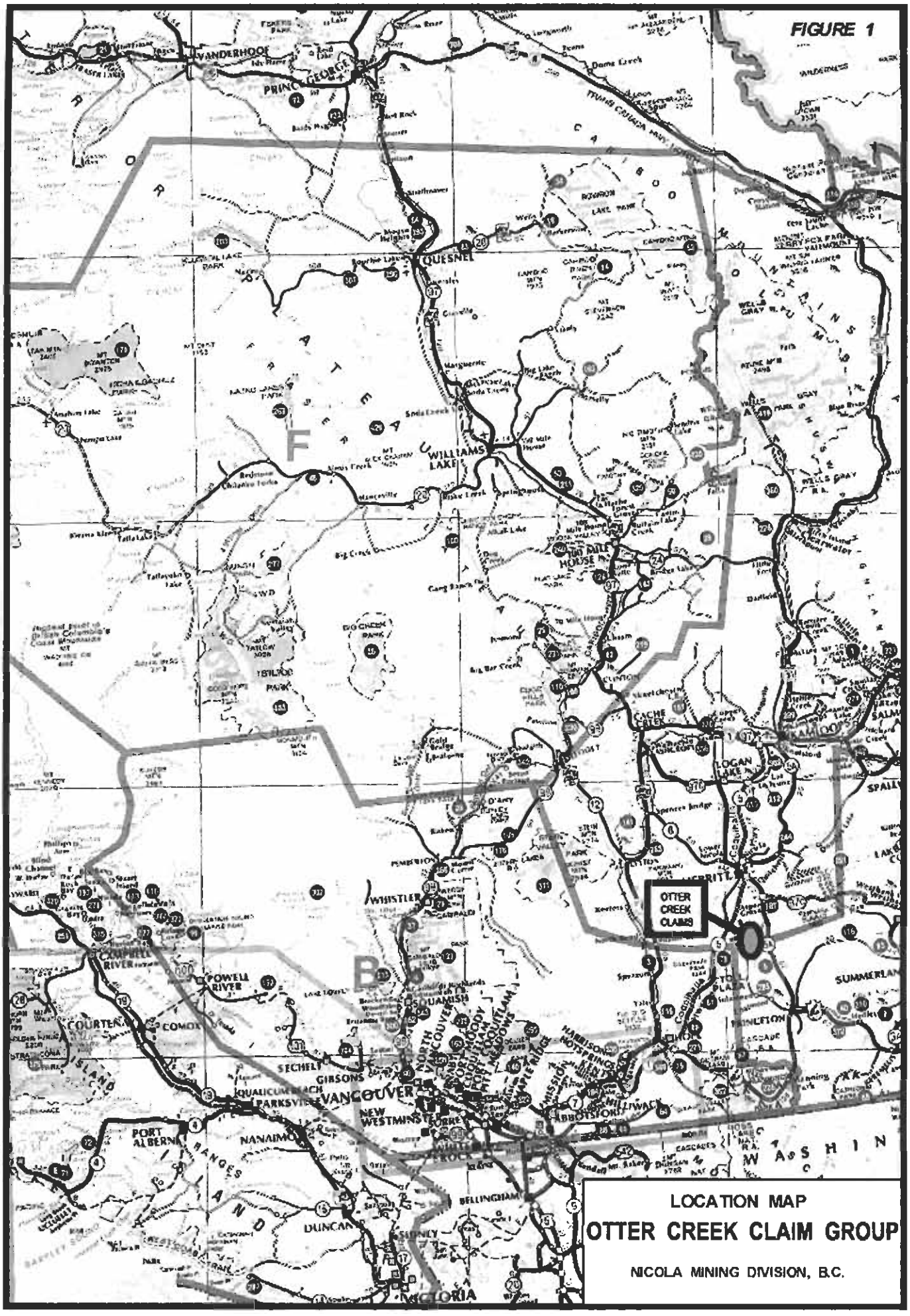


FIGURE 1
OTTER CREEK CLAIMS
LOCATION MAP
OTTER CREEK CLAIM GROUP
NICOLA MINING DIVISION, B.C.

PROPERTY

The claims are located within the southernmost portion of the Nicola Mining Division. The Duncan Claim contains 8 units and the Adam Claim 16 units. The recorded owner is William Richard Bergey of Aldergrove, B.C..

The surface rights to the area enclosing all of the property, except for the westernmost portion of the Adam Claim, are held by Quilchena Cattle Company.

PREVIOUS WORK

The only published geological maps of the area are reconnaissance studies by the Geological Survey of Canada. The most recent of these is the 1:250,000 map compiled by Monger(1989). Unfortunately, the geology shown on this map for the area enclosing the present property is almost entirely incorrect, in large part because the author interpreted the eastern portion of the claims (an area containing perhaps 90% of the rock exposures) to be covered by surficial deposits. The earlier 1:253,440 sheet (Rice, 1947) accurately portrays the geological features of the claim area within the limitations imposed by the small scale and the paucity of previous geological work.

More detailed mapping of the Nicola volcanic belt that extends from Merritt to Princeton was carried out by the B.C. Geological Survey (Preto, 1969). Unfortunately, this valuable study stopped a few metres east of the Otter Creek property (see Figure 4).

The only serious exploration work in the area was carried out within the southern part of the present Duncan claim (formerly part of the PAR Group). Tormont Mines Ltd. completed 2759 metres of diamond drilling in 18 holes between 1962 and 1965. Andrew Robertson drilled an additional hole to a depth of 123 metres during 1975 and 1977. Although the mineral rights have been held almost continuously since that time, no exploration work was recorded prior to my acquisition of the Duncan Claim in 2000. No details of the drilling were made public through Assessment Reports and only a few unlabeled remnants of core were left at the property. Fortunately, I was able to obtain copies of the Tormont core logs, along with a location map of the drill holes.

I carried out detailed geological mapping of the drilling area and its extensions to the north and south along Otter Creek, accompanied by VLF-EM surveying, in 2000 and 2001 (Bergey, 2001, 2002). My earlier exploration work on the Molly Claim Group (Bergey, 1999), which covered an area that included the present Adam Claim, was concerned mainly with geophysical surveying and reconnaissance geological mapping of the felsic volcanic rocks.

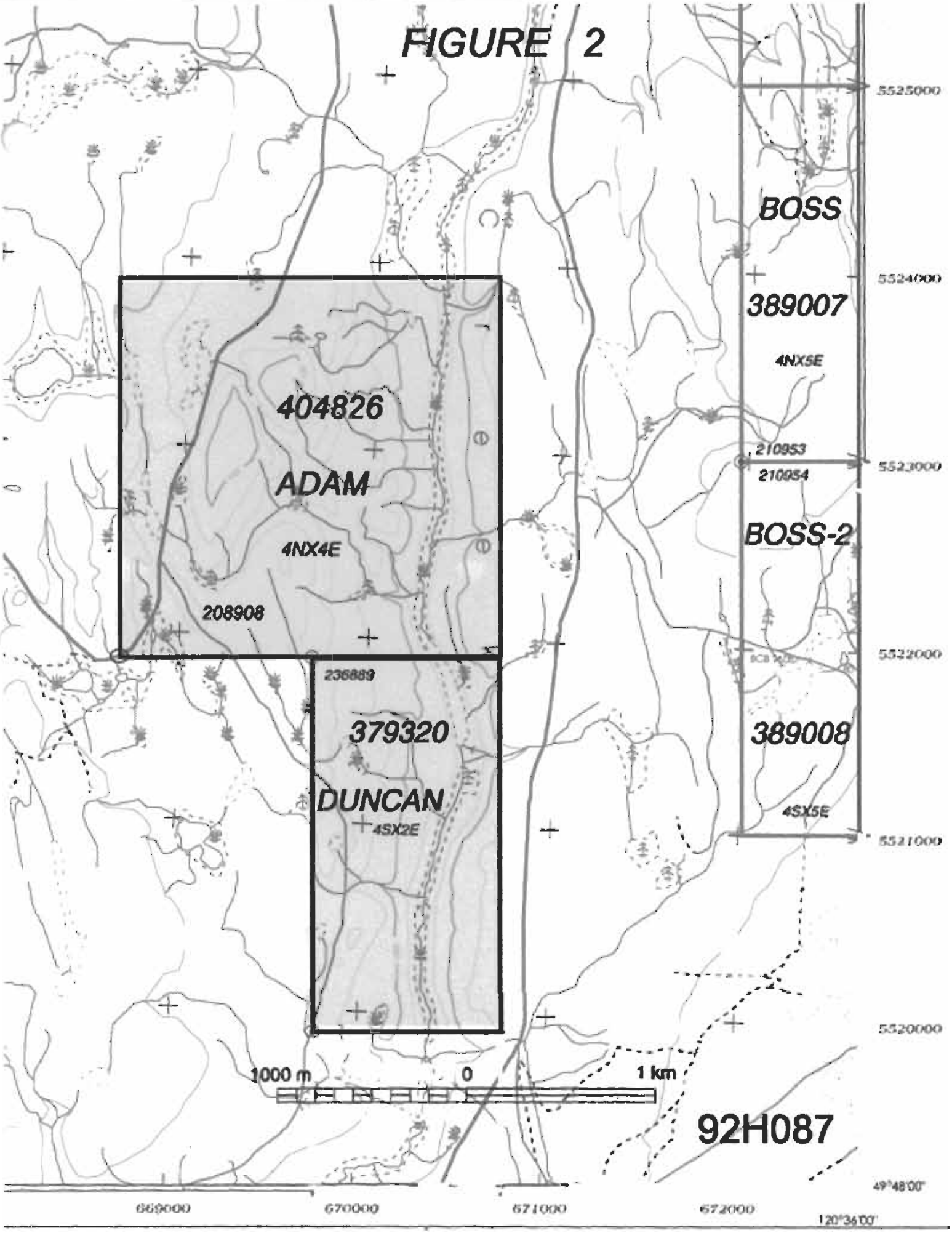


FIGURE 2
5525000
BOSS
5524000
389007
4NX5E
404826
ADAM
4NX4E
208908
210953
210954
5523000
BOSS-2
5522000
236889
379320
DUNCAN
4SX2E
389008
4SX5E
5521000
5520000
1000 m
0
1 km
92H087
49°48'00"
669000
670000
671000
672000
120°36'00"

REGIONAL GEOLOGY

The Otter Creek property lies along a the western border of a belt of Upper Triassic volcanic rocks that have been assigned to the Nicola Group. Small- to medium-sized bodies of alkaline intrusive rocks, coeval in part with the volcanism, are widely distributed within the outcrop area of the Nicola rocks. Slightly younger calc-alkaline intrusions related to the Allison Lake batholith are prevalent south and east of the property. Monger (1989) categorized these rocks as granodiorite, but both Rice (1947) and Preto (1979) more correctly noted that they range from gabbro to granite in composition.

The Nicola Belt, a portion of the Quesnellia accreted terrane, extends from Kamloops to the U.S. border south of Princeton. Preto (1979) subdivided the volcanic portion of the belt into three facies – Western, Central, Eastern – separated by north-trending regional faults. (Monger [1989] accepted the division, but he rejected the role of faults as dividers and he denied the existence of the western regional fault; my mapping tends to support Preto's conclusions.

Preto (1979) correlated the fault separating the Central and Western volcanic facies with his Allison fault to the south. However, there was a gap in his mapping, and it is apparent from more recent work (Monger, 1989) that the Allison fault is a younger, northwest-trending structure. I have renamed the fault that forms the boundary between the Western and Central facies as the Otter Creek fault. The evidence for this structure, and for its role in the fundamental division of the volcanic rocks of the Nicola Group, is documented later in this report.

PROPERTY GEOLOGY

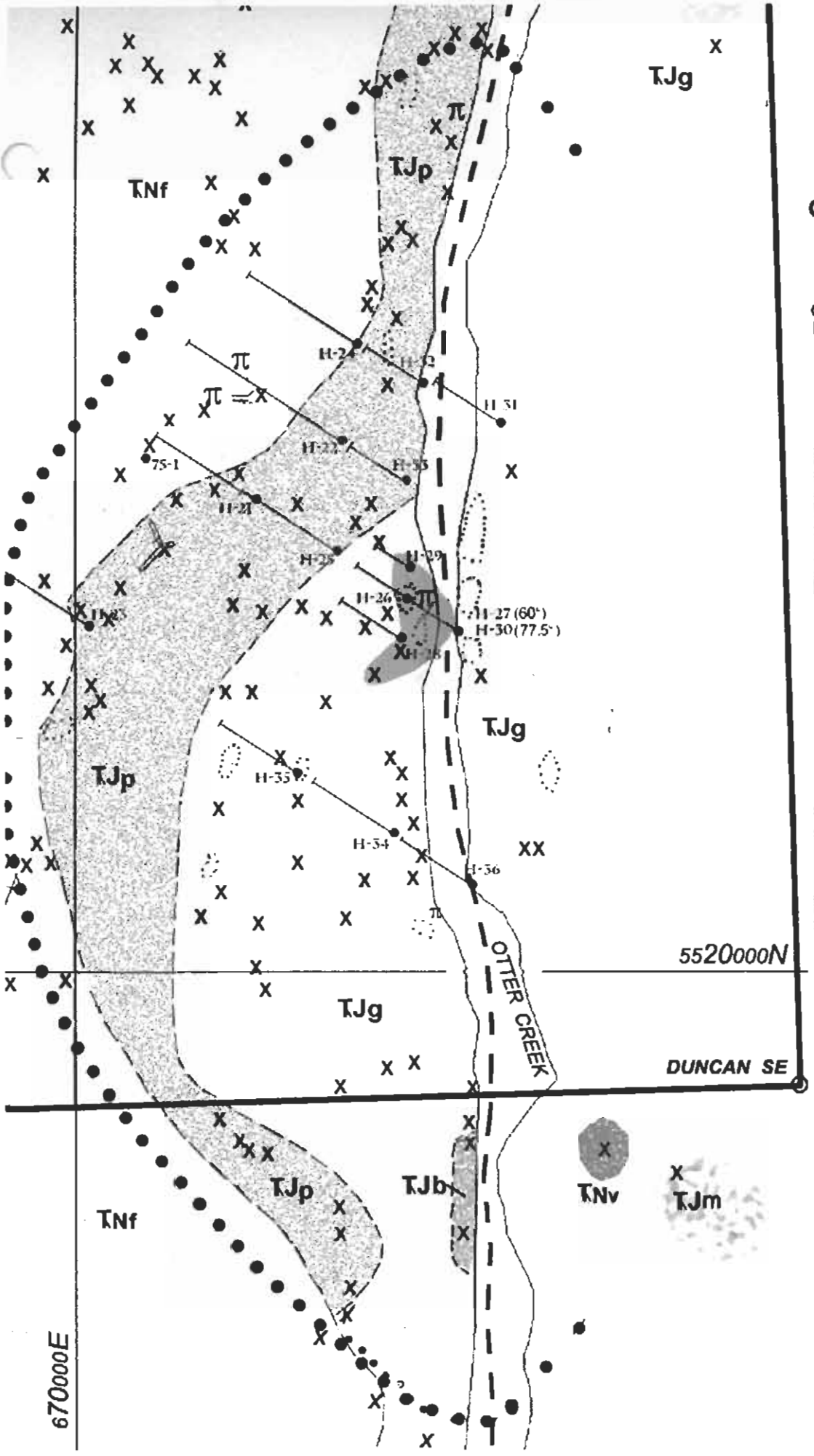
Except within a narrow zone along the eastern margin, the Otter Creek property is underlain by the Western facies of Nicola volcanic rocks. The Otter Creek fault, which separates the Central and Western facies, appears to have controlled the emplacement of a sequence of porphyritic intrusive rocks that host the extensive Cu-Ag-Au mineralization noted in previous diamond drilling. The geological mapping along this fault zone will be covered first, followed by a description of the mapping of the surrounding area in order to provide a regional perspective.

Otter Creek Area

The portion of this zone mapped previously (Bergey, 2002) extended from the north-central part of the Duncan Claim south to the major bend in Otter Creek, a distance of 2.5 kilometres. The fault could not be traced south of this point either on the ground or in the aeromagnetic data. The recent mapping extended the detailed mapping to the north for 2.5 kilometres.

The fault zone itself is not exposed within the mapped area due extensive damming of Otter Creek by beavers. Typically the concealed area is 50 metres in width. However it appears that granitic rocks of the Allison Lake suite have intruded along the fault zone for almost the entire five-kilometre length of the map area. The intrusive rocks (except for the quartz porphyry) are extensively sheared along the margins of Otter Creek, but there is no evidence of significant

FIGURE 3a



GEOLOGICAL MAP OF OTTER CREEK AREA
DUNCAN & ADAM CLAIMS

SCALE 1 : 5000

0 250

Metres

EXPLANATION

TRIASSIC AND / OR JURASSIC

- TJb — *Fine-grained mafic intrusive rock*
- π — *Quartz porphyry; mainly small bodies*
- TJp — *Mainly quartz-feldspar porphyry*
- TJg — *Coarse-grained granite*
- TJm — *Monzonite, diorite, quartz diorite*
- TJd — *Diorite*

TRIASSIC

NICOLA GROUP

Western volcanic facies

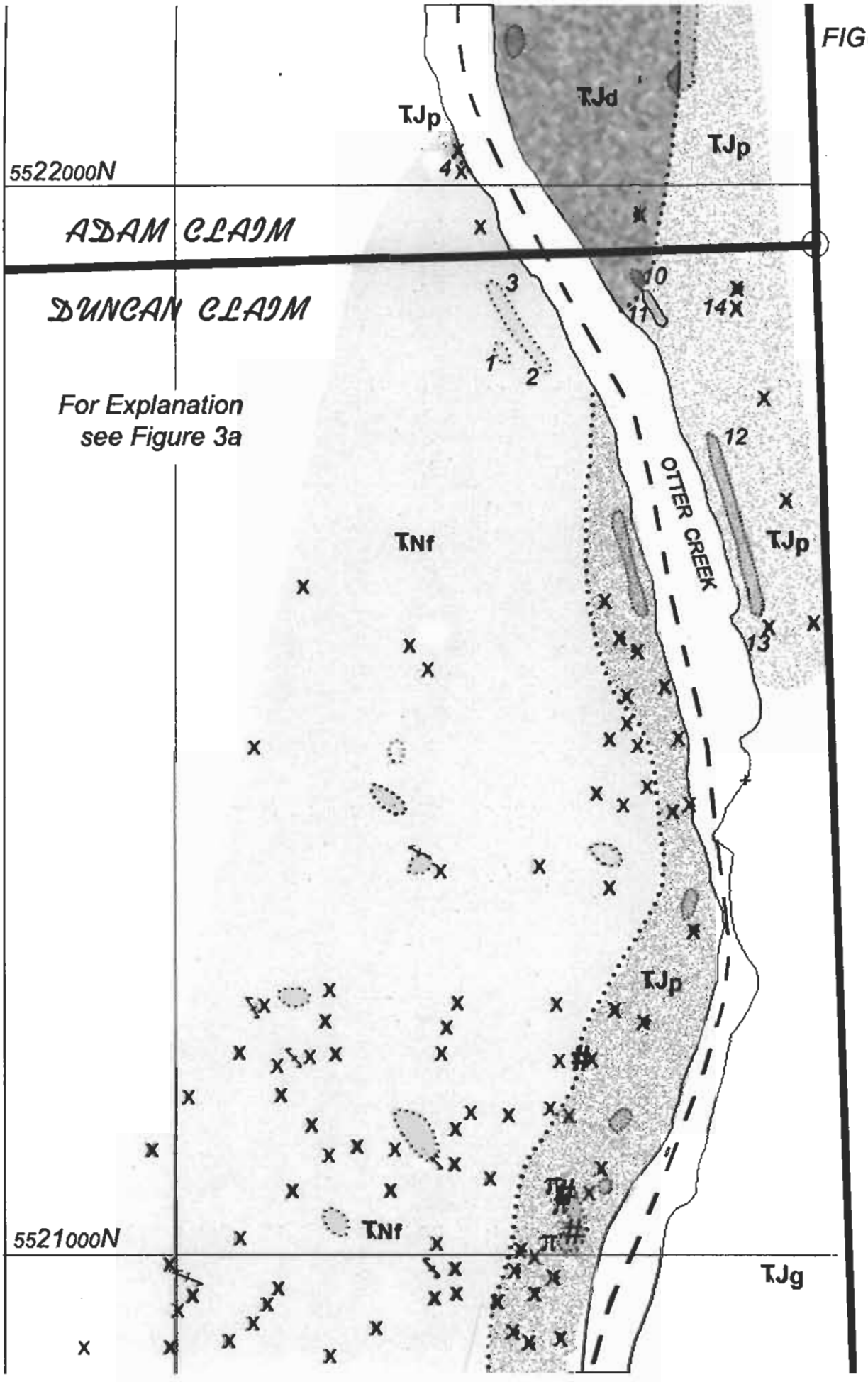
- TNf — *Felsic and intermediate volcanic rocks*
- TNa — *Andesite*

Central volcanic facies

- TNm — *Mafic volcanic rocks*

- X — *Small outcrop*
- *Outcrop area*
- H-31 — *Diamond drill hole*
- *Otter Creek Fault*
- *Outline of zone of intense brecciation*
- # — Ferruginous breccia (surficial)

FIGURE 3b


TJd
TJp
TJp
5522000N
ADAM CLAIM
DUNCAN CLAIM
For Explanation
see Figure 3a
1
2
3
4
10
11
12
13
14
OTTER CREEK
TNf
TJp
TJp
TNf
5521000N
TJg

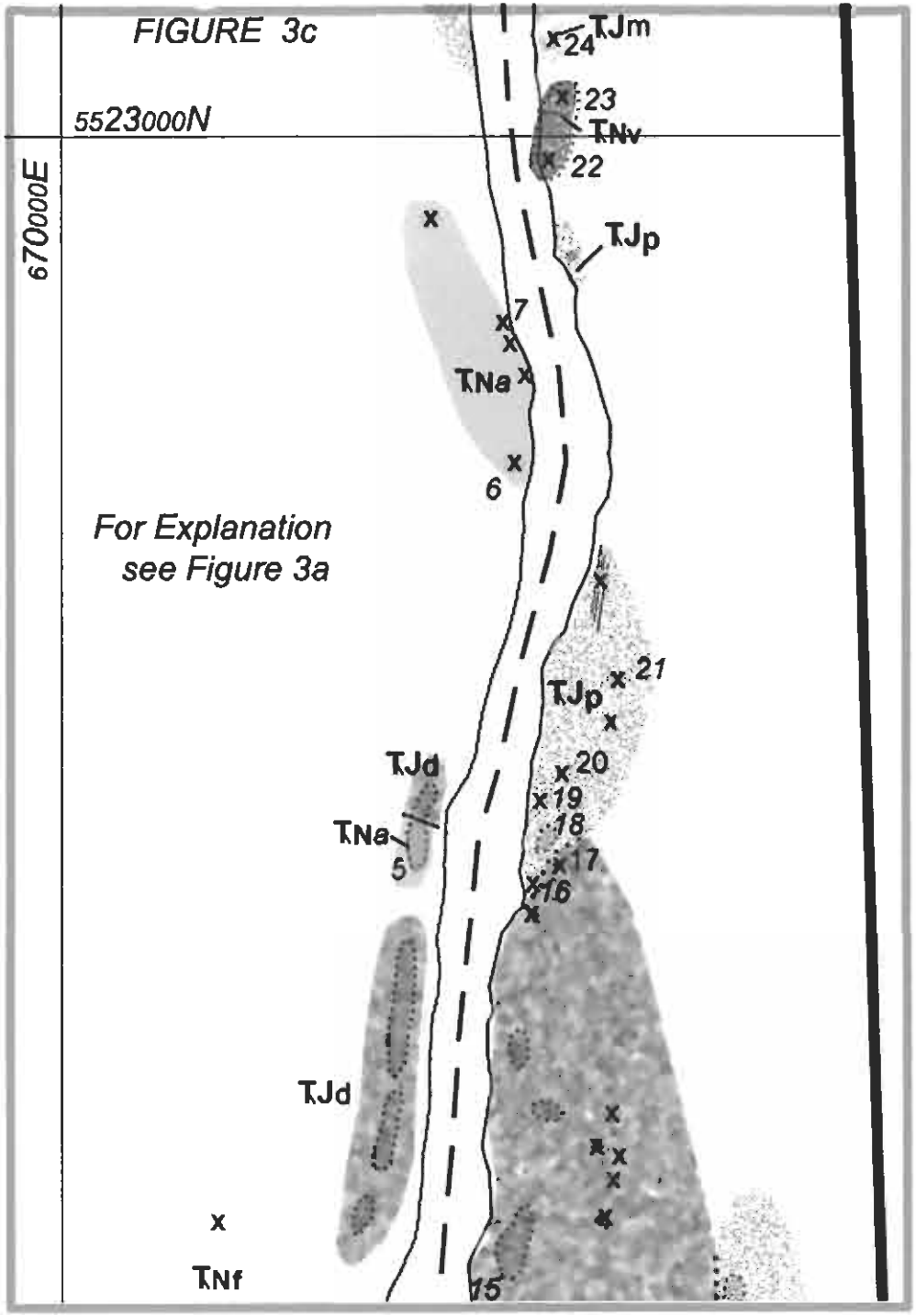


FIGURE 3c
5523000N
670000E
TJm
24
23
TNv
22
TJp
7
TNa
6
For Explanation
see Figure 3a
TJp
21
TJd
20
19
TNa
18
5
17
16
TJd
TNf
15

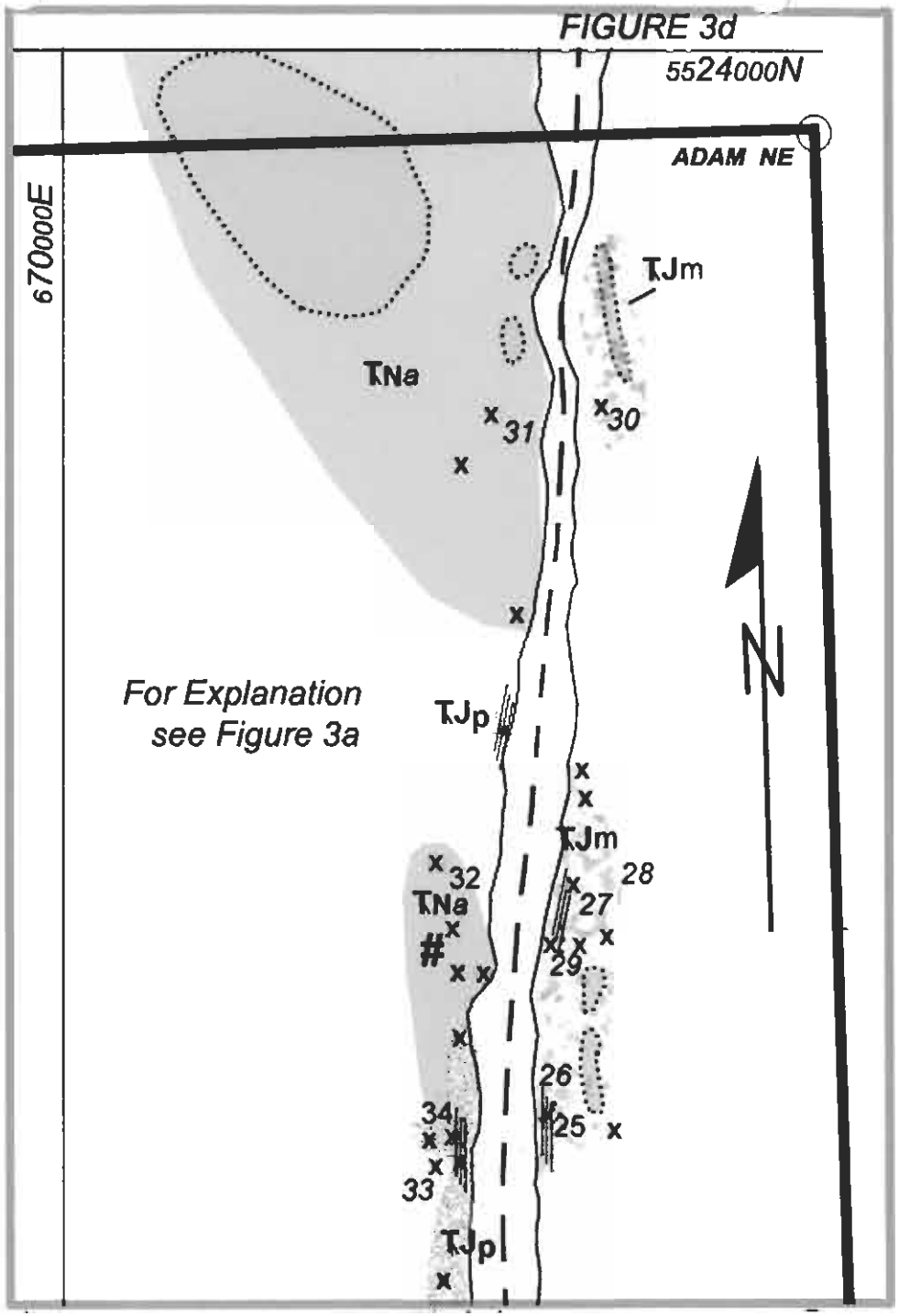


FIGURE 3d
5524000N
ADAM NE
670000E
TJm
TNa
31
30
For Explanation
see Figure 3a
TJp
TJm
32
28
TNa
27
29
26
34
25
33
TJp

displacement of the granitic rocks.

Since granitic intrusive rocks form the core of the study area they will be treated first, despite being the youngest consolidated rocks in the area, commencing with a recapitulation of the results of the previous mapping. The drilling area covered a zone approximately 250 metres in width in the southern part of the Duncan Claim west of the fault. This area lies close to the greatest exposed width of coarse- grained granite. This is a very siliceous biotite granite that is characterized by large (to 1 cm.+) quartz phenocrysts. Quartz porphyry containing large quartz "eyes" intrudes the coarse-grained granite and all other units in the area. The largest exposed body, at least 100 metres in diameter, lies along the fault zone close to the center of the drilling area (and adjacent to the best mineralization). Two drill holes were collared in quartz porphyry east of Otter Creek and continued in this rock through the projected position of the Otter Creek fault. A third hole that commenced east of Otter Creek was lost in fault gouge vertically below the creek.

A partial "collar" of quartz-feldspar porphyry envelopes the coarse-grained granite to the north and west. An assemblage of felsic to intermediate volcanic rocks of the Nicola Group crops out west of the porphyry. Copper-rich skarn mineralization is found locally in this rock close to the intrusive contact. Apparently, this provided the stimulus for the drilling programs; intrusive rocks apparently were never identified in the drilling.

The entire drilling area is enclosed within an ovoid zone of intense brecciation that extends for more than a kilometre along the valley. This deformation has affected all of the rocks in the area except for the quartz porphyry. The copper mineralization plausibly was related to the brecciation and to the intrusion of the quartz porphyry, but the drill logs are all but indecipherable. (For example, the granitic rocks are variously described as "arkose", "sandstone", "tuffs" and "underdeveloped skarn.")

North of the drilling area the coarse-grained granite is restricted to the area east of Otter Creek, where rock exposures are very scarce. The quartz-feldspar porphyry occupies the narrow, steep-sided Otter Creek valley as far as the northern boundary of the Duncan Claim and is found intermittently along the margins of the creek for nearly two kilometres beyond that point.

Exposures of pyroxene diorite occur on both sides of Otter Creek close to the south boundary of the Adam Claim. Those east of the creek are much more extensive. The diorite is in contact with quartz-feldspar porphyry in the southern part of the Adam claim but no evidence of their age relationship was observed. The diorite presumably is related to the alkaline intrusive suite that is believed to be coeval with the lower part of the Central Volcanic facies of the Nicola Group.

Quartz-poor intrusive rocks, probably correlative with the monzonite-syenite [Unit 6] of Preto (1979), crop out along the east bank of Otter Creek in the northern part of Adam Claim. Medium-textured monzonite predominates, but there is a considerable variation in composition locally. A single outcrop area close to the north boundary of Adam claim yielded samples of monzonite,

diorite, syenite, quartz diorite and microdiorite. Quartz-feldspar porphyry is locally in contact with monzonite along the edge of the creek. Contact relationships suggest that the porphyry is the younger intrusion.

The felsic to intermediate lapilli tuffs that are found within a 400-metre-wide outcrop belt west of the granitic intrusive rocks on Duncan Claim are supplanted on most of Adam Claim by andesitic volcanic rocks. The latter are mainly dark green lapilli tuff and tuff breccia, with local intercalations of lava. East of Otter Creek, rock exposures are confined to a narrow belt along the valley and are composed almost entirely of intrusive rocks except for isolated outcrops of basaltic lava,

The outcrops of volcanic rocks, particularly those on Duncan Claim, tend to be extremely small and easily overlooked. Structural indications are not obvious except for an ubiquitous north-northeast foliation in the felsic tuffs that probably represents axial-plane cleavage. Massive tuff and tuff breccia that characterize the larger exposures of andesite in the northern part of the map area lack obvious indications of stratification. I was unable to decipher any distinct mappable units within the volcanic rocks.

There is no direct evidence of the offset of rock units by the Otter Creek fault. Support for the existence of this structure is based on the following indications:

1) The obvious topographic linear that follows Otter Creek for several kilometres;
2) The coincident aeromagnetic "low" that extends to the north for a number of kilometres beyond the topographic evidence;
3) The well-defined and consistent ground magnetic "low" that follows Otter Creek on Adam Claim, enclosing a variety of rock types (Bergey, 1999);
4) The shearing encountered in diamond drill hole 31, and the abundant evidence of shearing, fracturing and alteration along the margins of Otter Creek on Adam Claim;
5) The apparent north-south structural control of the felsic intrusive rocks in the vicinity of Otter Creek;
6) The dichotomy between the felsic to intermediate volcanic rocks west of Otter Creek and the mafic volcanic rocks east of the creek, and the restriction of the monzonitic rocks to the west side of Otter Creek; these features are particularly well defined on a regional scale.

The intrusion of quartz-feldspar porphyry appears to be particularly closely controlled by the Otter Creek fault in the central and northern part of Adam Claim. Although the rocks in the vicinity are highly sheared and fractured, there is no evidence of a significant amount of movement along the fault during this phase of the deformation.

The quartz porphyry does not appear to have been affected by the shearing along the fault or by the intense brecciation that affected all of the other rock types in the drilling area. The drill logs are extremely hard to decipher, but it appears that the mineralization also postdated the brecciation. It is not unreasonable to suggest that both the brecciation and the mineralization were related to the intrusion of the quartz porphyry.

Remainder of the Claim Group

The following description includes the western parts of the claims as well some of the surrounding area. The rock units shown east of the property are taken from Preto (1979).

The dichotomous nature of the Nicola volcanic rocks and associated sub-volcanic intrusions on opposite sides of Otter Creek is well illustrated, with mafic lavas and monzonitic intrusions apparently confined to the eastern side. This tends to confirm the contention of Preto (1979) that the Otter Creek fault [his Allison fault] separates the Central and Western facies of the Nicola volcanic assemblage. However, it should be noted that a moderately strong magnetic anomaly in the till-covered area in the central part of Adam Claim could reflect mafic volcanic rocks (Bergey, 1999).

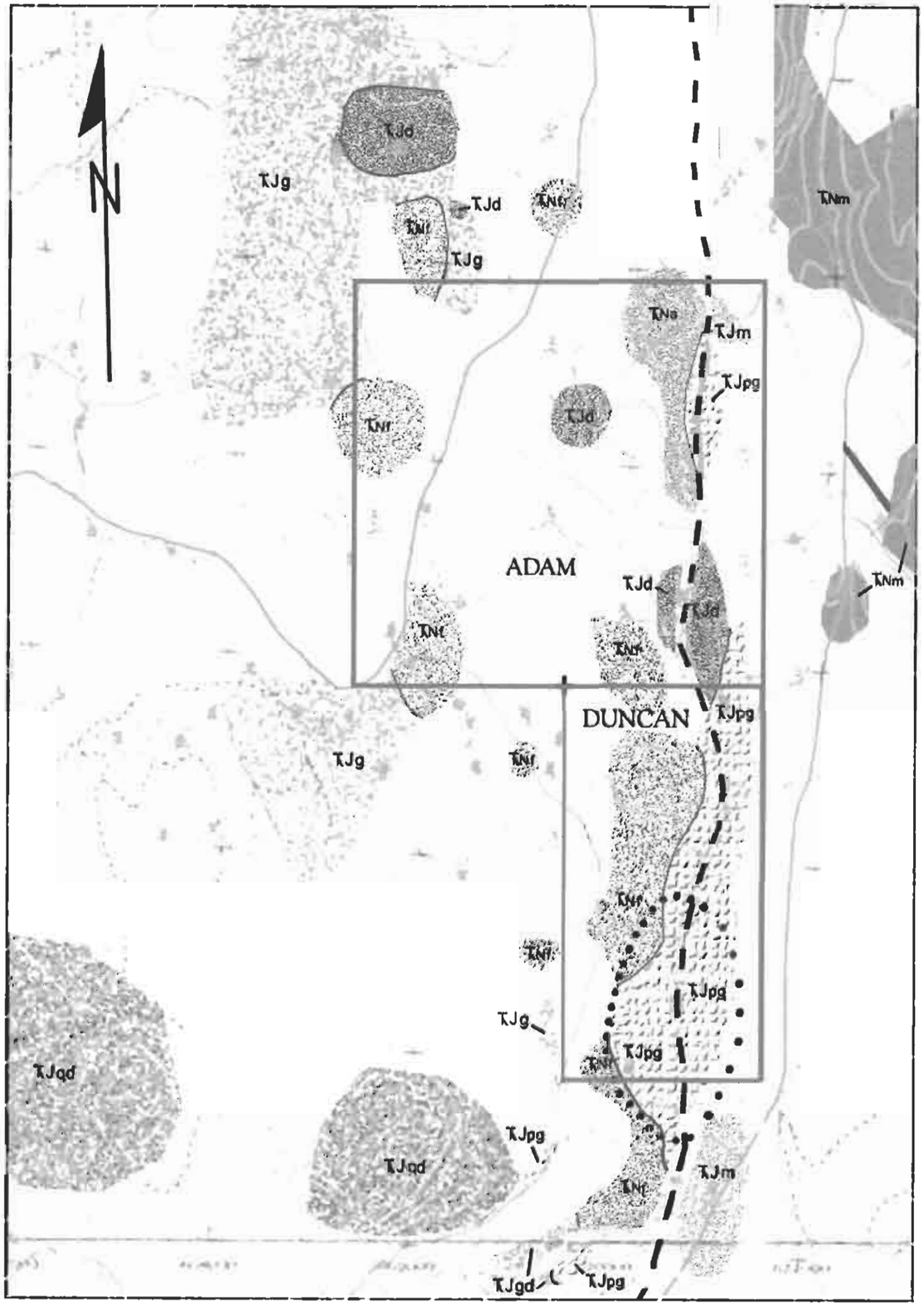
The diorite that appears to form a single body along Otter Creek poses a dilemma since this rock type appears to be equivalent in age to the lower part of the Nicola volcanic assemblage and is believed to be older than rocks of the monzonite-syenite suite. Possibly the diorite on opposite sides of the creek represent separate bodies and the juxtaposition is fortuitous. However, there is no evidence that the diorite west of the fault is significantly different from that to the east. The body of diorite north of Adam Claim contains small dikes of monzonite, suggesting an affinity with the alkaline intrusions in the Central Belt.

Dating of a sample of granite of the Allison Lake suite a short distance southeast of the map area gave an age of about 200 Ma (Preto,1979). This date suggests that it is equivalent in age to part of the Nicola volcanic assemblage. If the granite that intrudes the Otter Creek fault correlates with the dated rock, it would tend to support the assertion that the fault is the result of an old system of major deep-seated crustal fractures that operated during the Nicola volcanism (Preto, 1979). However, it should be pointed out that the porphyritic granite and quartz porphyry are largely confined to a zone along Otter Creek and may be representative of a much younger intrusive suite.

Calc-alkaline intrusive rocks that appear to be more clearly related to the Allison Lake suite underlie a wide belt along the west side of the property. They vary from quartz diorite on the west to granite and quartz monzonite in the vicinity of the property. The granite, mainly salmon-pink in colour, is equigranular and more closely resembles the material used in the age dating than does the porphyritic granite that underlies much of the Otter Creek valley.

FIGURE 4

GEOLOGICAL MAP
OF AREA IN VICINITY OF DUNCAN & ADAM CLAIMS
NICOLA MINING DIVISION, B.C.



SCALE 1 : 25000

0 500 1000 Metres

EXPLANATION

TRIASSIC and/or JURASSIC

- TJpg — Porphyritic granite
- TJg — Granite, quartz monzonite
- TJgd — Granodiorite
- TJqd — Quartz diorite
- TJm — Monzonite, diorite, quartz diorite
- TJd — Diorite

TRIASSIC

NICOLA GROUP

Western Volcanic facies

- TNf — Felsic & intermediate volcanic rocks
- TNa — Andesite

Central Volcanic facies

- TNm — Mafic & intermediate volcanic rocks [After Preto (1979]

Otter Creek Fault

Outline of zone of intense brecciation

MINERALIZATION

An earlier report (Bergey, 2001) included a discussion of the Cu-Ag-Au mineralization encountered in the Tormont diamond drilling. Unfortunately, the logging was carried out very incompetently, and a geological assessment of the mineralized zones is mainly guesswork. The assaying was carried out by a reputable laboratory and the results are assumed to be accurate within the limits of the techniques utilized. However, low-grade gold was not of interest at the time and the fire assaying procedure was not capable of accurate gold determinations within the range of the values encountered.

It appears that disseminated pyrite and chalcopyrite are present throughout the central part of the drilling area. Locally, there are "massive impregnations" that may represent sulphides deposited between fragments in the breccia. The mineralization appears to be most intense within the area surrounding the largest quartz porphyry body, but the porphyry itself contains only very minor amounts of pyrite and no detectable copper values.

Skarn mineralization occurs in volcanic rocks marginal to the quartz-feldspar porphyry. Mineralization in the trenches consists of heavily disseminated pyrite along with a minor amount of chalcopyrite and patches of magnetite. Diamond drilling and VLF-EM surveying indicate that the skarn zone is of limited extent..

No drilling was carried out east of Otter Creek and the Otter Creek fault was not penetrated. Holes 27 and 30 were drilled under the creek, but they intersected quartz porphyry throughout the projected fault zone. Hole 34 was lost in apparent fault gouge below the creek. [This hole returned the highest indicated gold grade in the program – 1.5 metres @ 0.6 grams/tonne.]

North of the drilling area secondary gossans (ferruginous breccias) were noted close to small exposures of quartz porphyry. VLF-EM anomalies in the same area follow the contact of quartz-feldspar porphyry with volcanic rocks.

Sheared, fractured and hydrothermally altered rock, generally limonitized along fractures, is common along the margins of Otter Creek in the central and northern part of Adam Claim. Less weathered samples contain disseminated pyrite and very minor chalcopyrite.

RECOMMENDATIONS

1) It is recommended that induced polarization surveys be carried out to cover the zone of intemse brecciation east of Otter Creek. Some of the lines should extend west of the creek in the vicinity of the mineralization indicated in the diamond drilling, and also to test some of the strongest VLF-EM anomalies.

2) VLF-EM surveying is recommended to explore for sulphide zones along the Otter Creek fault in the central and northern part of Adam Claim.

REFERENCES

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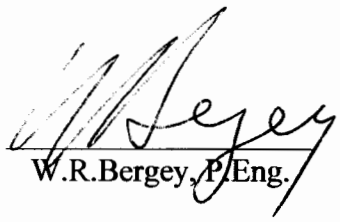
Rice, H.M.A., **Princeton, British Columbia:** Geol. Surv., Canada, Map 888A.

Respectfully submitted,



W.R.Bergey, P.Eng.

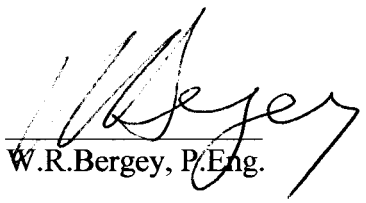
STATEMENT OF COSTS

Type of Work	Dates	Days	Cost/day	Cost
Geological mapping	29/08/03-31/08/03	3	$400	$1200
	12/07/04-15/07/04	4		1600
Map & Report Preparation		3		1200
			Sub-total	$4000
Accommodation				$400
Vehicle expense				400
			Sub-total	$800
			TOTAL COST	**$4800**

STATEMENT OF QUALIFICATIONS

I, William Richard Bergey of 25789 - 8th Ave., Aldergrove , B.C., do hereby certify that:

1. I am a Professional Engineer (Geological) in the Province of British Columbia.
2. I have been employed in mining and mineral exploration for the past 57 years.
3. I have carried out geological mapping related to mineral exploration on many occasions.
4. I personally conducted all of the work described in the above report.



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