860193

# HAZELTON 93M

## FIREWEED (093M151)

By M.L. Malott

(Fig. B1, No. 22)

LOCATION: Lat. 55° 01′ Long. 126°26′30″ 93M/1W, 2E; 93L/16W, 15E
OMINECA MINING DIVISION. 54 kilometres east-northeast of Smithers.

CLAIMS: GER 1-4; GRR 1-3; FIREWEED 1-3; FW 1-7; MEG 1-4.

ACCESS: The claims are accessible from Smithers via Highway 16 south to Eckman Road which becomes the Babine Road. At kilometre 58 on the Babine Road a logging road extends eastward 7 kilometres to the centre of the claims.

OWNER/OPERATOR: CANADIAN UNITED MINERALS INC.

COMMODITIES: Silver, lead, zinc, copper, gold.

## EXPLORATION HISTORY

The Fireweed property was staked in July 1987. after prospectors discovered float containing anomalous gold. Two mineralized outcrops were identified with promising assay results which prompted Canadian United Minerals Inc. to option the property and begin an exploration program in mid-September 1987 (Holland, 1988). By mid-December 1987, prospecting as well as soil sampling, geological mapping, trenching, VLF-EM, magnetometer and IP surveys had identified a number of targets. From January to August 1988, 32 diamond-drill holes tested these targets while further IP, VLF-EM and

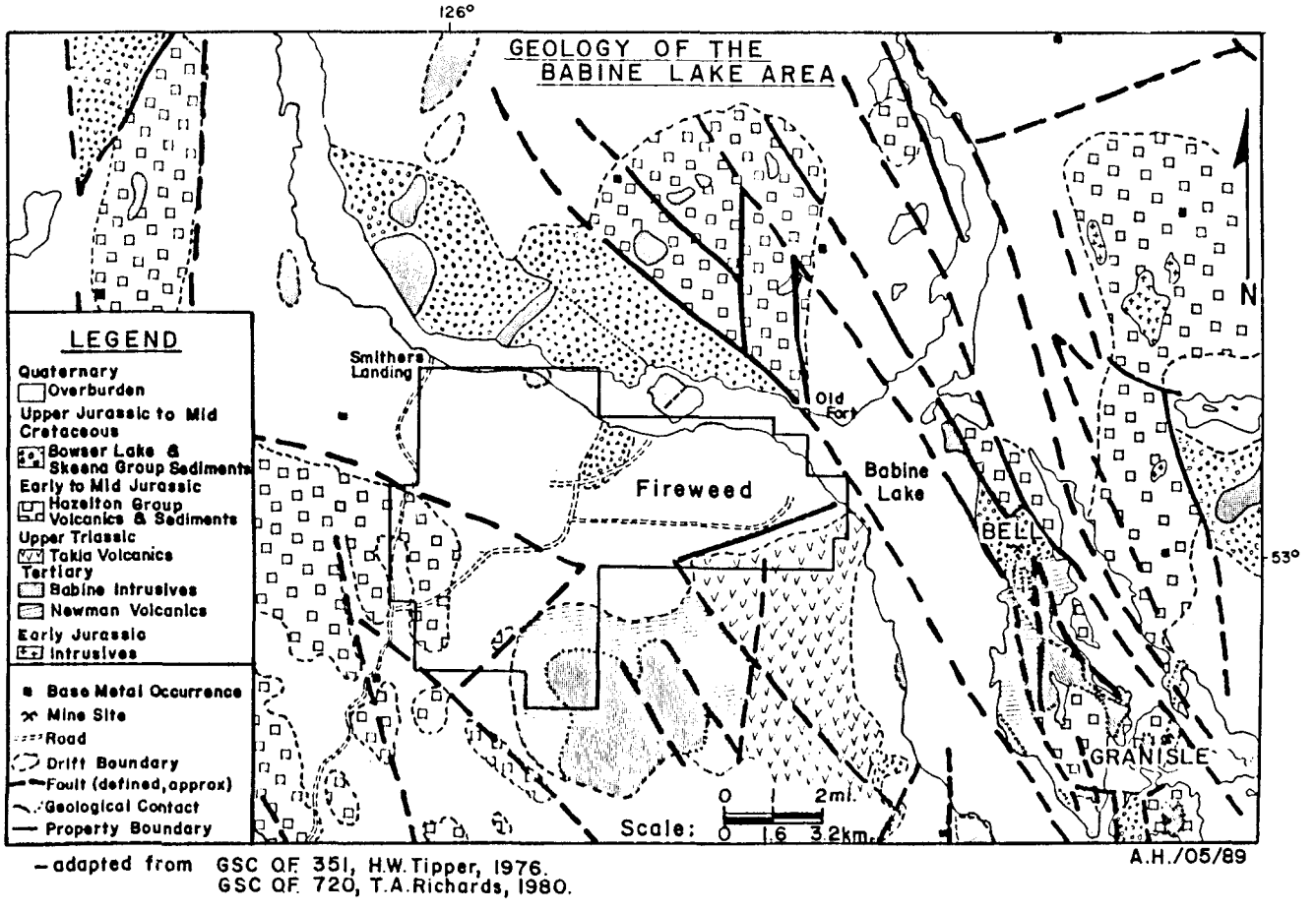


Figure B-22-1. Geology of the Babine Lake area.

magnetometer surveys were completed. Another 27 holes were drilled from September to January 1989, for a total of approximately 10 800 metres.

## REGIONAL SETTING

The Fireweed occurs within the Stikine terrane of the Intermontane Belt (Richards, 1988). The Stikine terrane evolved during a period of island arc volcanism in the late Paleozoic to middle Jurassic. In the Fireweed area upper Triassic Takla volcanics, predominantly augite-feldspar porphyry flows, outcrop along the west shore of Babine Lake south of the West Arm (Figure B-22-1). The last episodes of the arc-volcanism occurred during the early to middle Jurrasic when maroon to green tuffs, sandstones, siltstones and shales of the Hazelton Group were deposited. These rocks are exposed north, east and west of Babine Lake.

After the waning of arc volcanism a molasse stage in the late Middle Jurassic to middle Early Cretaceous created two marine to nonmarine clastic units, the Bowser Lake and Skeena groups. Rocks of this age are found adjacent to the Hazelton Group on the north shore and east and west of Babine Lake.

The welding of the Stikine terrane to the craton in the early Cretaceous produced the regional Omineca uplift to the east. The impingement of the Wrangel and Alexander terranes on the west occurred at about the same time and resulted in the emergence of the Coast crystalline complex. The Stikine terrane was subjected to transtensional continental stresses from the middle Cretaceous through to the Eocene. It was during this time that mainly calcalkaline volcanic rocks, the Babine volcanics and Newman intrusives (both Eocene), were formed in a series of down-dropped volcanic basins. They extend from the Northwest Arm of Babine Lake southeasterly to the Granisle area.

Since the Paleocene, the region has been influenced by uplift, development of basin-and-range morphology and extensive glaciation leaving much of the Fireweed property and surrounding area covered by glacial debris.

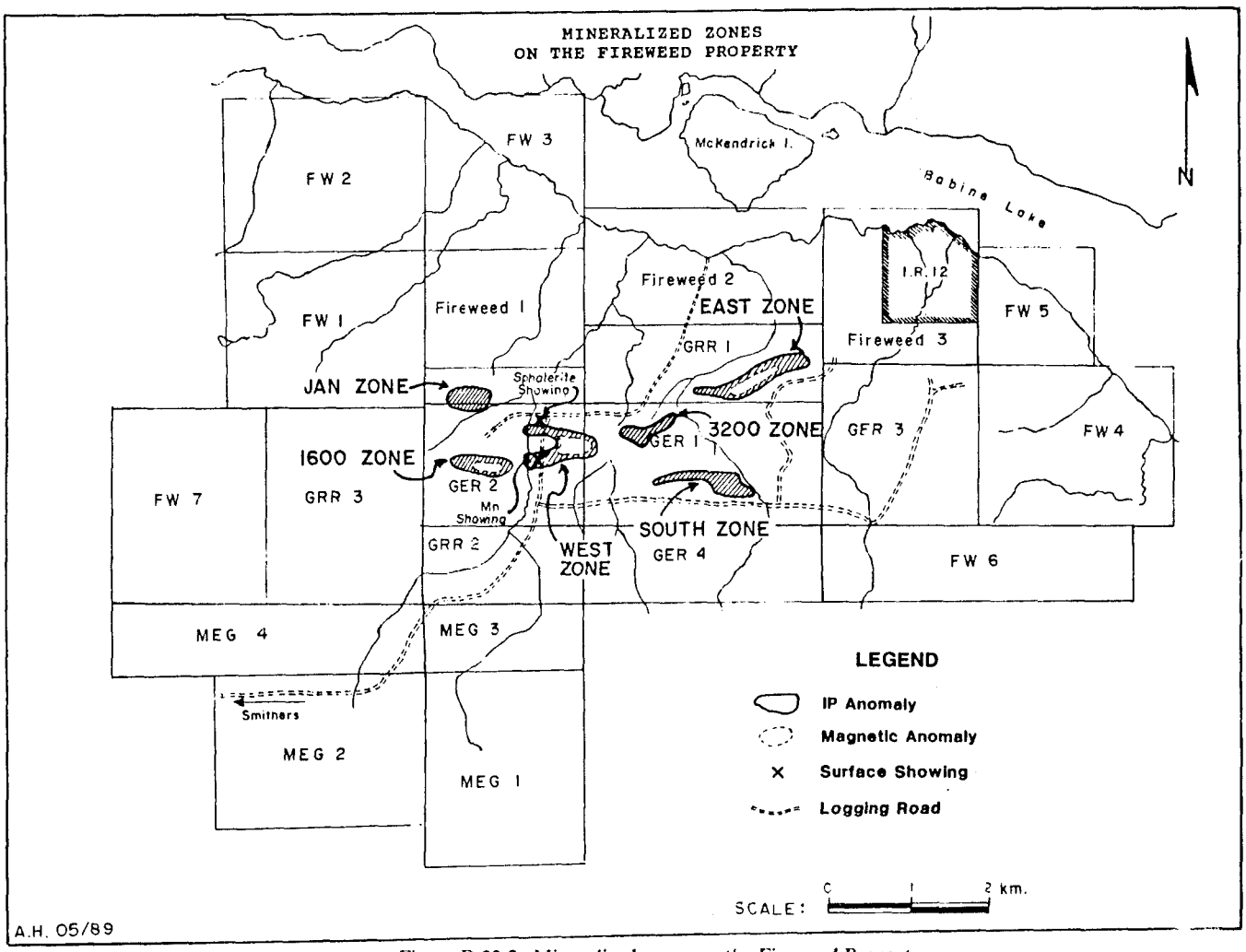


Figure B-22-2. Mineralized zones on the Fireweed Property.

## PROPERTY GEOLOGY

An extensive blanket of glacio-lacustrine clay, as thick as 40 metres, covers 95 per cent of the claim area; a factor which undoubtedly delayed discovery of the mineralization.

The oldest rocks known on the property are lower to middle Jurassic Hazelton volcanics (Holland, 1988) and are exposed in a number of small outcroppings on the south side. On the GER 4 and FW 6 claims the volcanics are commonly fine grained, maroon to green andesitic to dacitic tuffs and lapilli tuffs. On the GRR 2 claim the rocks are green to light green dacite-rhyolite tuffs with some pale green chert interbeds, outcropping primarily in creek beds.

Interbedded mudstones, siltstones and sandstones of a thick deltaic sequence, which appears to underlie much of the claim group, are exposed in the central part of the property. These sediments are thought to belong to the Kitsun Creek member of the late Cretaceous Skeena Group. The sediments commonly strike 070-080 degrees and dip subvertically. Locally the strike varies to 020-030 degrees as at the discovery outcrop, the Mn showing, which is along a creek in the middle of the claim block.

Several drill holes have cut sills of strongly altered feldspar-porphyritic latite. These may well be related to the Eocene volcanics and Babine intrusions mapped by Tipper (1976) and Richards (1980).

Skeena Group sediments are the dominant unit encountered in drilling. The sediments are dark and medium to light grey. They vary from mudstone and siltstone to fine and coarse-grained sandstone. Cycles are not apparent and bedding can be massive of variable thickness, changing gradually or abruptly to finely laminated. Bedding features such as rip-up clasts, load casts and crossbedding are common. The beds are cut by numerous faults, many of them strongly graphitic. Drilling indicates Skeena Group sediments are in fault contact with Hazelton volcanics and strongly sericitized and carbonitized latite dykes cut the sediments.

## GEOCHEMISTRY

In the fall of 1987, 3300 samples were collected from B-horizon soils and analysed for copper, lead, zinc, silver and arsenic (Holland, 1988). Results indicate a few small anomalies but overall the geochemical results were not encouraging, most likely the consequence of the thick cover of glacial drift.

## GEOPHYSICS

VLF-EM surveys did not prove helpful; however, detailed magnetometer and IP surveys outlined a number of anomalous areas. A very low magnetic background, 100 gammas relief or less, characterizes the areas surveyed. Low background chargeability and resistivity values were also noted in the IP surveys.

The three main zones identified by geophysics are the West zone, the East zone and the South zone (Figure B-22-2). The first two zones contain coincident magnetometer and IP highs, whereas the South zone has an IP chargeability and resistivity high with no magnetic correlation (Holland, 1988). The West zone is coincident in part with the Mn showing. Three other zones identified by geophysics are the 1600, 3200 and Jan.

## SURFACE DRILLING

One of the first eight holes, out of a total of 38, testing the Mn showing and West zone anomaly returned encouraging silver values. Six diamond-drill holes were put down on the East zone and four on the South zone. In early 1989, the Jan and 1600 zones were being drilled.

It is inferred, from drilling and geophysics, that the strike of the sediments is generally 070-080 degrees.

## MINERALIZATION

Mineralization generally occurs in one of three forms:

(1) Breccia zones, strongest in the core of the IP anomalies on the West and East zones, are fractured or brecciated sediments infilled with fine to coarse-grained massive pyrite-pyrrhotite and lesser amounts of sphalerite, chalcopyrite and galena.

(2) Disseminated sulphides occur as fine to very fine-grains which are lithologically controlled within coarser-grained sandstones. The pyrite, marcasite, sphalerite, galena and minor tetrahedrite are usually found interstitial to the sand grains.

(3) Massive sulphides, which are fine-grained, commonly banded, containing rounded quartz-eyes and fine sedimentary fragments, occur as distinct bands within fine-grained sediments. The massive sulphides generally contain alternating bands of pyrite/pyrrhotite and sphalerite/galena. They are associated with the breccia zones and are commonly sandwiched between altered quartz-latite dykes.

Alteration in the sediments occurs in the groundmass and appears associated, with the porous, coarse sandstones. Common secondary minerals are quartz, ankerite, sericite, chlorite, kaolinite and sulphides (Holland, 1988).

### Mn Showing

The Mn showing is seen in outcrop on the east side of a creek on the GER 2 claim. Fine to medium-grained sandstone with a heavy manganese coating lies in massive beds with a subvertical dip and a local strike of 30 degrees. At the showing, the sandstone is quartz-carbonate-sericite cemented and shows some rusty iron staining from minor amounts of pyrite. Five trenches reveal a coarse sandstone bed, 9 to 12 metres wide, which is part of a fine-grained sandstone and siltstone sequence. The most westerly 4 to 6 metres, of the coarse sandstone, are strongly manganiferous with greater than 10 per cent manganese in some instances. Minor pyrite, sphalerite and galena are associated with the increased manganese content. Assays show silver values ranging from 0.4 to 139.5 grams per tonne over widths up to 4.6 metres (Holland, 1988).

Diamond-drill holes testing the Mn showing returned assays of up to 68.6 grams per tonne silver, 3.5 per cent zinc, 0.6 per cent copper, 2 per cent lead and anomalous gold (GCN, 1988, No. 37, page 1).

### Sphalerite Showing

The sphalerite showing is 300 metres to the north and on the east bank of the same creek as the Mn showing. The outcrop is characterized by a strong, rusty yellow stain with sphalerite stringers crosscutting mudstone and sandstone (Holland, 1988). Thick overburden prevented tracing the mineralization further.

There is scant published drill information except for the West zone. The East zone is known to have a strike length of at least 400 metres and a 40 metre thickness containing sulphide-cemented breccia and veining. Mineralization is in the form of pyrite and pyrrhotite with lesser sphalerite and chalcopyrite.

### West Zone

The West zone straddles the GER 1 and GER 2 claims and is defined by an east trending, "horseshoe-shaped" IP anomaly. The anomaly is 800 metres long by 250 metres wide containing a magnetic anomaly measuring 75 by 200 metres. The original outcrop discoveries, the Mn and the sphalerite showings, lie at the westerly end of each of the prongs of the horseshoe. The coincident magnetometer and IP highs lie east of the showings. Drilling within the area of the coincident geophysical anomalies defined a mineralized area 300 metres long which is open along strike and at depth. Mineralization has been found in the Skeena Group sediments to 200 metres depth although the majority of the 27 intersections are at less than 100 metres.

Selected assays of drill core from the West zone include (Northern Miner, 1989, Vol. 74 No. 52):

| Width metres | Ag g/t | Pb % | Zn % |
|---|---|---|---|
| 1.1 | 120.6 | 0.25 | 0.35 |
| 4.1 | 425.1 | 0.80 | 2.07 |
| 7.9 | 635.3 | 2.26 | 3.02 |
| 10.8 | 388.8 | 1.35 | 2.14 |

The bulk of the mineralization is hosted by a coarse sandstone in two parallel southwest-plunging shoots which combined are 30 to 60 metres wide (GCN, 1989, No. 66, page 1).

In the latter part of December 1988, drilling defined a flat-lying, funnel shaped "feeder" zone near the eastern limits of the West zone. It covers an area of 90 by 90 metres and extends to a depth of 75 metres but does not outcrop. Sandstone and shales interfinger throughout this area. Pyrrhotite, pyrite, sphalerite and chalcopyrite occur as massive sulphide mineralization associated with breccia and veins which cement mudstone and sandstone fragments that are millimetres to several metres in size (R. Holland, personal communication, 1989).

These zones of mineralization grade into unbrecciated or weakly veined areas. The sulphide content is variable and there are two distinct generations of veining. One contains massive sphalerite, the other massive pyrite and pyyrhotite. The breccia veins cut sericitized, latite dykes. The "feeder" zone also contains minor gold and copper. Selected assays (Northern Miner, 1989, Vol. 74, No. 52, GCN, 1989, No. 19, page 2) are as follows:

| Width metres | Ag g/t | Zn % | Pb % | Cu % | Au g/t |
|---|---|---|---|---|---|
| 14.0 | 68.6 | 3.94 | 1.73 | 0.08 | 0.6 |
| 10.5 | 6.2 | 3.46 | 0.94 | 0.08 | 1.1 |
| 6.2 | 124.1 | 7.25 | 3.32 | 0.13 | 0.8 |
| 7.4 | 23.7 | 4.26 | 0.18 | 0.20 | 0.5 |

## ACKNOWLEDGMENTS

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## REFERENCES

Holland, R. (1988): Geological, Geophysical, Geochemical and Trenching Report on the Fireweed Mineral Claim Group, *B.C. Ministry of Energy, Mines and Petroleum Resources*, Assessment Report 17774.

Richards, T. (1980): Hazelton, B.C. 93M, *Geological Survey of Canada*, Open File Map 720.

_____ (1988): Geologic Setting of the Stikine Terrane, in Abstracts of the Geology and Metallogeny of Northwestern British Columbia Workshop, Smithers, B.C. *Smithers Exploration Group and Geological Association of Canada, Cordilleran Section*.

Tipper, H. (1976): Smithers, B.C. 93L, *Geological Survey of Canada*, Open File Map 351.