LOG NO: 1025
ACTION:
FILE NO:

ASSESSMENT REPORT

FILMED

DIAMOND DRILLING UNDERTAKEN ON THE TASEKO JOINT VENTURE PROPERTY

BLUFF 2 CLAIM

CLINTON MINING DIVISION

NTS 92 O/3

LATITUDE: 51.10° LONGITUDE: 123.34°

CLAIM OWNERS
WESTMIN RESOURCES LIMITED
ESSO MINERALS CANADA

PROJECT OPERATOR
WESTMIN RESOURCES LIMITED

REPORT BY
RON W. LANE
PROJECT GEOLOGIST
WESTMIN RESOURCES LIMITED

AUGUST 4, 1988

88-620

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,871

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property:

Bluff 1-1283, Bluff 2-1284, Bluff 3-1686, Bluff 4-1682, Bluff 5-1683, Bluff 6-1684, Bluff 7-1685, Bluff 8-1687, Bluff 9-1828, Bluff 10-1829, Bluff 11-2289, Bluff 12-1923, Bluff 13-2277, Bluff 14-2278, Bluff 15-2291, Bluff 16-1924, Bluff 17-1925, Bluff 18-1931, Bluff 19-1932, Bluff 20-1933, Bluff 21-1934, Bluff 22-1935, AN-1219, AN 2-1454, AN 3-1455, AN 4-1456

SUMMARY GEOLOGY

The Taseko property is located within the Intermontane Belt near the southwestern boundary of the Tyaughton Trough. The Trough contains a thick sequence of mid-Jurassic to Upper Cretaceous marine to subaerial volcanic and sedimentary rocks. Granodiorite and porphyry intrusions of the Coast Crystalline Complex, of mid-Jurassic to mid-Cretaceous age, bound the trough to the south in the vicinity of the Taseko property boundary. The Taseko property overlies part of a major 15 km long northwest-southeast trending alteration system that overlaps the volcanic/intrusive contact. The alteration includes advanced argillic assemblages, and hosts the former Taylor Windfall gold mine.

SUB-RECORDER
RECEIVED
OCT 11 1988
M.R. # ..... $.....
VANCOUVER, B.C.

TABLE OF CONTENTS

		Page No.
I.	INTRODUCTION	1
	A. Location, Access, Topography	1
	B. Exploration Targets	1
	C. Tenure	1
II.	GEOLOGY	2
	A. Regional Geology	2
	B. Property Geology	3
	1. Lithology and Alteration	3
	2. Structure	5
III.	DRILLING	5
	A. Diamond Drill Hole T87CH-1	5
	1. Introduction	5
	2. Lithology	6
	3. Alteration and Mineralization	7
	4. Conclusions	7
IV.	EXPENDITURES	8
V.	STATEMENT OF QUALIFICATIONS	8
VI.	ATTACHMENTS	
	Figure 87-1 Regional Location Map, scale 1:2,000,000	
	Figure 87-2 Location of Diamond Drill Hole T87CH-1, scale 1:10,000	
	Figure 87-11 Lake Zone - Section 19,900E, Drill Hole T87CH-1 - Geology, scale 1:500	
	Figure 87-12 Lake Zone - Section 19,900E, Drill Hole T87CH-1 - Analytical Values, scale 1:500	
VII.	APPENDIX	
	A. Diamond Drill Hole Log T87CH-1	
	B. Analytical Values T87CH-1	

Westmin Resources Limited

MINING DIVISION

Work By	
Date Drafted	February 1988
Drafted By	
Date Revised	
Revised By	
N.T.S. Number	92 O/3

TASEKO PROJECT

REGIONAL LOCATION MAP

SCALE 1: 2,000,000 (40 20 0 40 80 120 km)

Figure 87-1

I. INTRODUCTION

A. Location, Access, Topography

The Taseko property is located in southwestern British Columbia, 225 km due north of Vancouver, and 50 km northwest of Goldbridge. Road access is via Williams Lake, a 260 km, 7 hour trip. Float plane access is via Williams Lake or Whistler to Taseko Lake. During 1987 the exploration camp was mainly serviced by helicopter from Pemberton Meadows (round trip - 1 hour).

Relief on the property is moderate to occasionally steep, and mainly sub-alpine to alpine, although it is forest covered at lower elevations. The surrounding area is mountainous.

B. Exploration Targets

The primary 1987 exploration target was high-grade, bonanza-type epithermal Au-Ag, postulated to occur in fault associated stockwork and breccia zones approximately 200-400 m below surface.

A secondary yet important target was stratabound Ag associated with enargite and sphalerite, hosted by leached, porous, fractured and brecciated quartz altered andesites, and often carrying semi-massive to massive pyrite. These pyrite-rich rocks were thought to overlie the postulated stockwork/breccia feeder zones.

C. Tenure

The Taseko property is approximately 4 km wide by 10 km long and consists of 187 claim units (136 are wholly owned Bluff claims, and 51 are AN claims optioned from Andre Pomerleau/Taseko Gold Partnership).

Claim Name	Units	Record No.	Recording Date	Expiry Date
Bluff 1	15	1283	Oct. 25/82	1994
Bluff 2	15	1284	Oct. 25/82	1994
Bluff 3	9	1686	Dec. 7/83	1994
Bluff 4	1	1682	Dec. 7/83	1994
Bluff 5	1	1683	Dec. 7/83	1994
Bluff 6	1	1684	Dec. 7/83	1994
Bluff 7	1	1685	Dec. 7/83	1994
Bluff 8	2	1687	Dec. 7/83	1994
Bluff 9	3	1828	Sept. 21/84	1991
Bluff 10	3	1829	Sept. 21/84	1991
Bluff 11	6	2289	July 22/87	1988
Bluff 12	2	1923	Aug. 28/85	1996
Bluff 13	20	2277	July 14/87	1988
Bluff 14	9	2278	July 14/87	1988
Bluff 15	10	2291	July 14/87	1988
Bluff 16	6	1924	Aug. 28/85	1991
Bluff 17	4	1925	Aug. 28/85	1996
Bluff 18	3	1931	Sept. 23/85	1991
Bluff 19	8	1932	Sept. 23/85	1991
Bluff 20	10	1933	Sept. 23/85	1996
Bluff 21	6	1934	Sept. 23/85	1991
Bluff 22	1	1935	Sept. 23/85	1991
An	9	1219	July 27/83	1996
An 2	18	1454	July 14/83	1996
An 3	6	1455	July 14/83	1996
An 4	18	1456	July 14/83	1996
Windfall*	1	L2643		
Windfall 2*	1	L2644		
Province*	1	L2649		

*Taywin Resources Ltd. Crown Grants. Option Agreement terminated January 15, 1987.

II. GEOLOGY

A. Regional Geology

The Taseko property is located within the Intermontane Belt near the southwestern boundary of the Tyaughton Trough. The Trough contains a thick sequence of mid-Jurassic to Upper Cretaceous marine to subaerial volcanic and sedimentary rocks, that were intermittently shed into the basin from bordering highlands to the northeast and southwest. Granodiorite and porphyry intrusions of the Coast Crystalline Complex, of mid-Jurassic to mid-Cretaceous age, bound the Trough to the south in the vicinity of the Taseko property boundary, and occasionally intrude the volcanic rocks.

The Taseko property overlies part of a major 15 km long northwest-southeast trending alteration system that overlaps the volcanic/intrusive contact. Alteration includes advanced argillic assemblages in the volcanics and sediments and porphyry copper type alteration assemblages in the Coast Crystalline intrusions.

B. Property Geology

1. Lithology and Alteration

The main lithology exposed on the Taseko property consists of Upper Cretaceous Kingsvale andesite volcanic and sedimentary rock. The Taseko property volcanic succession is generally considerably thicker, more variable, and in places, significantly coarser grained than the equivalent regional stratigraphy. The area likely overlies a volcanic vent area active during the Cretaceous.

The lowermost exposed stratigraphy (Units 1-20) is dominated by several hundred meters of andesite pyroclastic rock (mainly tuff, crystal tuff and lapilli tuff), subordinate amounts of porphyritic andesite flows, and occasionally minor to moderate interbedded shale and/or shaley volcaniclastic rock. A 75 m thick interval of red/maroon colored tuff/lapilli tuff appears correlatable within the otherwise light to dark grey/green colored succession.

Unit 21 overlies, and consists of a 60+ m thick succession of tuff (70%) and carbonaceous shale (30%) which in places contains plant fossils (mainly reed and fern-like plants). The lowermost 20-25 m thick portion of the unit is termed the Tuff-Shale Marker. It has distinctive color banding associated with the interlamination of synvolcanic to epigenetic quartz-alunite-pyrophyllite-pyrite-diaspore-rich, white to medium grey, andesite tuff and black carbonaceous shale. The Tuff-Shale Marker is correlatable on the property over distances of at least 1500 m. The upper boundary of Unit 21 is set as the first occurrence of carbonaceous shale and/or shaley volcaniclastic rock beneath feldspar porphyritic andesite flows of Unit 22. In the Quartz Breccia Zone Unit 21 is bounded

both top and bottom by several meters of andesite lapilli tuff. The Unit 21 shales and shaley volcaniclastic rock mark a period of relative quiesence in volcanism. The slow rate of accumulation into a shallow marine sub-basin during this period contrasts with the moderately fast depositional rate for significant portions of the overlying and underlying medium to thick bedded homogeneous volcaniclastic rock. The depositional rate of the volcaniclastic unit is greater to the east, reducing the shaley character of Unit 21, and increasing its thickness. The relative abundance of advanced argillic alteration within Unit 21 is believed to reflect its slower rate of accumulation and resultant increased exposure to synvolcanic alteration. Subsequent on-going epithermal advanced argillic alteration overprinted the synvolcanic alteration within Unit 21 and, also strongly altered portions of Units 20 and 22, especially where they were structurally prepared in fault and breccia zones.

Unit 22 overlies Unit 21, and consists of a thick succession (700 m) of feldspar porphyritic andesite flows and lesser amounts of andesite pyroclastic rock.

Unit 23 succeeds upwards, and consists of a thick succession (>300 m) of andesite epiclastic cobble and boulder conglomerates and agglomerates. Plant fossils (reeds) have also been observed within these rocks near the top of Battlement Ridge.

Diatreme breccia dykes filled with sand and pebble sized clasts from underlying volcanic and sedimentary rocks constitute 1-5% of rock within areas of advanced argillic alteration. Their contacts vary from sharp to somewhat diffuse, and are regular to irregular in attitude. Upper and lower dykes contacts sometimes parallel but more often do not. The dykes vary in width from millimeters to a few tens of meters, but most commonly are a few centimeters to tens of centimeters wide. Their clasts vary in roundness, sphericity, and alteration. Most typically a dyke consists of sub-rounded, sub-spherical pebble-sized clasts, which are supported in a sand-sized matrix. The pebbles and matrix are usually variably (25%-75%) altered with very fine grained quartz.

2. Structure

The Taseko property is situated on the south limb of a large east-west trending syncline whose axis is parallel to and a few hundred metres north of Battlement Ridge and the property's northern boundary. In the Palisade Zone and Quartz Breccia Zone stratigraphy dips at an average of 25° north. Dip of the Tuff-Shale Marker between the Palisade Zone (T87CH-8) and Quartz Breccia Zone (T87CH-16) averages only 19° N because of upward displacements along east-west trending faults. The Quartz Breccia Zone is essentially a dip slope. The Battlement Ridge syncline has no appreciable east-west plunge (max. 2° to east), as evidenced from correlation of the base of the Tuff-Shale Marker between the Lake Zone and Quartz Breccia Zone.

Major faults of several orientations occur on the property, and have been documented in previous reports. Locally, in areas such as the Quartz Breccia Zone, Palisade Bluff Zone and the Lake Zone, drilling and mapping indicate a significant amount of faulting, with estimated displacements of metres to several tens of metres. Some of these faults occur within areas of intense advanced argillic alteration, which was probably in part introduced along the faults.

Hydraulic fracturing, brecciation and gas milling of fragments varies from weak to very intense within the extensive areas of strong to intensely silicified advanced argillic alteration.

III. DRILLING

A. Diamond Drill Hole T87CH-1

1. Introduction

Hole T87CH-1 tested the Lake Zone of the Taseko property. The Lake Zone is situated in the northwest corner of the Rae Spur area, at the western end of the 1400 m long, 110° trending zone of advanced argillic alteration known as the Quartz Breccia Zone / Lake Zone. The Lake Zone

area represented an attractive exploration target because of its anomalous soil and rock geochemical values, its strong quartz-rich advanced argillic alteration and associated gas fracturing/brecciation, and an associated VLF conductor.

In 1986, Esso tested the zone in two locations with a total of four holes (T86CH-1, T86CH-4, T86CH-5, T86CH-6) all of which were lost considerably short of their target. The holes were long enough however, to suggest that the area's advanced argillic alteration had only limited depth, and did not contain any appreciably anomalous Au-Ag values.

One of the two 1986 locations (20,150N, 19,900E) was redrilled in 1987 (T87CH-1) to a depth of 249.0 m to test for mineralized feeder zones to the anomalous Au, As, Sb, Ba values occurring in outcrop.

2. Lithology

The Lake Zone area is immediately underlain by stratigraphy constituting the Unit 22/Unit 21 contact. The area is cut by several faults trending 10° to 30° and 115° to 175°; which appear to have moderate vertical displacement of metres to a few tens of metres, resulting in a variable distribution of Unit 22 and Unit 21 stratigraphy in the area. Bedding attitudes in the area are also variable due to the faulting.

In T87CH-1, 15 m thick Unit 22 porphyritic andesite is in fault contact with upper Unit 21 stratigraphy. Unit 21 appears to be approximately 60 m thick, while the underlying Unit 20 is $\geq$ 150 m thick. The exact thickness of Unit 21 is a bit uncertain due to a significantly greater than normal amount of carbonaceous shale and shaley tuff in the section, which makes it difficult to pick the lower Unit 21/Unit 20 contact.

3. Alteration and Mineralization

In T87CH-1 weak to moderately-strong quartz-rich advanced argillic alteration was defined in only a 10 m and a 25 m thick interval, respectively situated 90 m and 125 m below surface. These intervals are overlain and underlain by a thick succession of argillic to propylitic altered stratigraphy. These quartz altered intervals possibly constitute roots to the intense quartz-rich advanced argillic alteration overlying outcrops, although this does not seem particularly likely in light of structural attitudes evident in the core. Results of the 1987 drilling appear to confirm the impression of the zone developed by the 1986 drilling, that there is a stratabound zone of alteration. The 1987 drilling did not define any depth continuity to the intense quartz alteration.

Analytical results from T86CH-1 evaluated the uppermost 50 meters of stratigraphy in the area. Only three marginally anomalous Au values of 23 to 38 ppb were defined, which is not inconsistent with the variable, occasionally anomalous, rock geochemical values defined at surface. The underlying 165 stratigraphic metres was evaluated by analysis of the T87CH-1 core. The interval returned no anomalous Au, Ag and Sb values, only four weakly anomalous Cu values (120-161 ppm) and two weakly anomalous Pb values; but numerous anomalous Zn values (av. 100 ppm - up to 1479 ppm), As values (av. 100 ppm - up to 620 ppm) and Ba (av. 350 ppm - up to 1370 ppm). The lack of anomalous Au-Ag values with the anomalous Zn, As, Ba values downgrades the latter's significance.

4. Conclusions

Results of the Lake Zone drilling indicate the area does not warrant further drill testing.

IV. EXPENDITURES

Drilling		$37,415.45
- meterage: 249.0 m @ $109.91/m	$27,369.50	
- Reaming and stabilization	1,100.00	
- Mud and additives	1,751.50	
- Reducing to NQ	1,780.75	
- Bits	433.70	
- Survey of hole	189.00	
- Core boxes	900.00	
- Lost equipment	3,891.00	
	$37,415.45	
Camp Costs		
- 7 mm @ $50/day for 11 days		3,850.00
Mobilization/demobilization		
- of drill and camp		2,208.00
Analytical		
- 60 core samples @ $15.17 each		910.20
		$44,383.65

V. STATEMENT OF QUALIFICATIONS

I, Ron Lane, of 7673 Sutton Place, North Delta, B. C., graduated fom the University of Alberta, Edmonton, Alberta, in 1971 with a Bachelor of Science - Geology. Since graduation, I have worked on a continuous basis as an exploration geologist in Alberta, British Columbia, Yukon Territory, Northwest Territories, Southern Africa and Italy.

I personally supervised the drill project described in this report.

Ron Lane
Project Geologist
Mining Division
Westmin Resources Limited

VI. ATTACHMENTS

Paul Metcalfe, Geologist
B. Sc. 1977 University of Durham, England
M. Sc. 1981 University of Manitoba
PhD 1987 University of Alberta

VII. APPENDIX

A. Diamond Drill Hole Log T87CH-1

B. Analytical Values T87CH-1

TASEKO JOINT VENTURE

DIAMOND DRILL LOG

Hole Number	:	TCH87-1
Area Drilled	:	Lake Zone
Collar Coordinates	:	20,150N - 19,900E
Date Started	:	July 23, 1987
Date Completed	:	July 29, 1987
Total Length	:	249.01 m
Azimuth	:	0°
Collar Elevation	:	1980 m
Dip at Collar	:	-75°
Contractor	:	D. W. Coates
Core Size	:	HQ/NQ
Core Recovery (Av.)	:	80.2%
Date Logged	:	July - August, 1987
Logged By	:	Ron Lane, 0.0 - 133.4 m
		Dr. Paul Metcalfe, 133.4 - 249.0 m

RWL

PURPOSE: To test for Au - Ag bearing feeder zones to geochemically anomalous intense advanced argillic alteration outcropping at the Lake Zone.

COMMENTS: Au - Ag bearing feeder zones were not intersected. Hole was reduced from HQ to NQ at 112.2 m because of clay rich squeezing ground.

DIP TESTS:

Depth	Dip	Azimuth
121.9 m	-73.2°	356°
243.8 m	-72.9°	357°

DRILL LOG

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION
0.0	9.14	OVERBURDEN
9.14	23.5	PLAGIOCLASE, HORNBLENDE PORPHYRITE ANDESITE - medium grey, fine grained. - 15 to 25% phenocrysts (10-20% plagioclase and 5-10% hornblende) - plagioclase phenocrysts generally euhedral, 104 mm long, and 25% altered to chlorite. - hornblende phenocrysts are subhedral to euhedral, 104 mm long. - core is strongly broken throughout interval - pieces average 1-5 cm in length, longest pieces are 15 cm. Approx. 75% of core appears broken by faulting and 25% by jointing. Approx. 25% of the core consists of gouges which is most common towards the lower contact. - joint attitudes are most commonly 0°, 35° and 65° to core axis (C.A.).
23.5	26.2	SHALE AND MINOR TUFF - TOP OF UNIT 21 - dark grey, with 10% light grey fine grained tuff. - 5% pyrite, dissem., v. fine grained, gives the rock a greenish cast. - unit is intensely broken and mainly consists of rock flour containing 40% mudstone chips <1.0 cm in diameter.
26.2	35.7	ANDESITE LAPILLI TUFF - UNIT 21 - medium grey where least altered, but generally light grey, white, greenish grey, and tan due to alteration to clay, dickite, zeolite and pyrite. - approx. 40% lapilli sized fragments, which average 3 mm in length and commonly range from 2-5 mm in length. Clasts are matrix supported and are mod. - strongly angular and moderately elongate. - pyrite conc. 10%, selectively replaces lapilli and some matrix. Occasionally fills v. fine irregular fractures and thin veins. The pyrite is v. fine-grained and imparts a greenish cast to areas replaced.

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

- 26.5 m to 30.5 m: rock is strongly crushed and fabric is partially destroyed. Rock color varies from off white to light grey with a purplish tint. Intensity of alteration results in uncertainty WRT rock description.

- 30.5 m to 35.7 m: rock is moderately to strongly broken, with pieces averaging 5-10 cm in length. Joint attitudes commonly at 0° and 35° to core axis.

35.7 - 40.8 ANDESITE LAPILLI TUFF - UNIT 21

- light to medium grey-green.

- clay alteration varies from strong to v. strong, resulting in a very soft incompetent rock. Original fabric is identifiable in approx. 25% of core, in remaining 75% the rock is simply erroded away when washed. Lapilli sized clasts range up to 5 cm in dia., and average 2-3 cm in dia. They are concentrated in the upper half of the unit.

40.8 - 47.9 PLAGIOCLASE, HORNBLENDE PORPHYRITIC ANDESITE - UNIT 21

- dark green color where least altered, generally light to med. green due to intense alteration.

- plagioclase phenocrysts constitute 40% of the rock, average 2.5 mm in dia./length, are generally euhedral, and are moderately to strongly altered to clay and minor chlorite.

- hornblende phenocrysts constitute 5% of the rock, average 1 mm long, are subhedral, and are partially altered to chlorite.

- matrix is fine-grained and altered to chlorite and 1-5% very fine-grained pyrite.

- most of the unit is strongly broken, crumbled and incompetent, however porphyritic texture is reasonably recognizable throughout.

47.9 - 52.1 ANDESITE VOLCANICLASTICS AND SHALE - UNIT 21

- Volcaniclastics constitute 80% of unit, shale constitutes 20%. Volcaniclastics are thin-bedded (1-30 cm thick beds) and range in grain size from tuff to lapilli i.e. from <1 mm to 2 cm. Bedding is very well defined and transition from one grain size to another is often quite abrupt.

- Bedding attitudes: 70° to C.A. @ 49.4 m; 68° to C.A. @ 50.0 m, 72° to C.A. @ 51.2 m.

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

- Volcaniclastics are a medium greenish-grey; shale is greyish-black to black.

- Upper contact between shale and overlying porphyritic andesite consists of gouge (shaley rock flour).

- Shales are interbedded with volcaniclastics in a few locations.

52.1 - 85.0 CARBONACEOUS SHALE AND TUFF - UNIT 21, TOP OF TUFF SHALE MARKER

- light grey to black, average color greyish-black.

- laminated, bedding generally laminated very distinct color banding is fairly common. Color variation a function of carbon content (black) versus tuff component (light to medium grey). Distinct laminae <1 mm are discernable.

- bedding attitudes: 80° to C.A. @ 54.9 m, 63° to C.A. @ 63.09 m, 72° @ 66.4 m; 79° to C.A. @ 72.5 m; 75° to C.A. @ 78.6 m; 85° to C.A. @ 82.3 m; 81° to C.A. @ 84.1 m.

- Pyrite constitutes approx. 1-3% of the unit and is very fine-grained. It occurs within discrete laminae which are often a bit coarse-grained and more tuffaceous. It isn't certain whether the pyrite is syngenetic, or simply replaces along the more permeable slightly coarser beds. There are no obvious fractions crosscutting up through the unit to have introduced the pyrite. At first impression the pyrite is syngenetic where assoc. with the individual laminae.

- sedimentary features such as rip up clasts, scour channels bedding and slump breccia occur in a few places, however most bedding is very uniform in its attitude.
- beds of coarse tuff to lapilli tuff occur in a few locations. The most prominent are as follows:
  - 59.4 - 59.6 m : cse tuff with 10% clasts 2 mm in dia., black
  - 75.9 - 76.7 m : lapilli tuff containing 30% angular to subangular fragments averaging 0.75 mm up to 2.5 mm long, greyish black color. Fragments are grey.

- Shearing/faulting has crumbled and powdered approx. 15% of the core. The remainder is very friable, and quickly disintegrates when exposed to air and water.

- 82.3 - 85.2 m : Unit is very carbon rich. In addition, several beds within this interval, which total several tens of cms thick, contain high grade, glassy black, brittle carbon.

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

- Pyrite content (approx. 5%) is noticeably higher in these rocks. It occurs in laminae up to 1-5 mm wide, and occasionally in small clasts which may be replacement of shale chips. No plant fossils observed but similar carbon rich rocks along Battlement Creek are fossiliferous. Only v. rarely are there any pyrite-bearing fine fractures crosscutting bedding.

85.0 - 87.5 CARBONACEOUS SHALE AND ANDESITE LAPILLI TUFF - UNIT 21

- Carbonaceous shale - 65%, andesite lapilli tuff - 35%. Rock is medium grey to black, averages greyish black. Lapilli tuff and coarse tuff mainly occurs in upper half of unit. Lapilli are up to 4 cm long, but average 1 cm.

- Pyrite content approx. 5-10%; considerably greater than in overlying and underlying units. Pyrite occurs in wispy discontinuous laminae, small wispy knots, and occasionally by replacing lapilli sized fragments. The pyrite is v. fine grained, and gives rocks a greenish cast. Genesis could be either syngenetic on early diagenetic.

- Bedding @ 80' to C.A., except where scoured out and infilled by lapilli tuff debris.

  - The unit marks the transition between the thick underlying sequences of lapilli tuffs and the overlying sequence of carbonaceous mudstones.

  - Core is considerably more competent than that of the overlying unit, and occurs in pieces 5-20 cm long. It is not fissile like the overlying unit.

  - Base of Unit 21 at 87.5 m.

87.5 98.8 ANDESITE LAPILLI TUFF AND TUFF

- Light to med. grey, with brown tint and green tint.

- Lapilli tuff constitutes 40% of the unit. It constitutes the upper 2.4 m of the unit, and in the rest of the unit occurs in beds from a few cm to a few tens of cms thick, which are interbedded with tuff.

- Lapilli fragments range in size from a few mm to 3 cm, and average 0.5-1.0 cm in length. They are subrounded and generally a bit darker than the matrix. However some of the fragments are elongated and wispy.

- Bedding is reasonably well defined and is as follows: 85° to C.A. @ 92.0 m.

HOLE NO. T87CH-1
FROM (m) TO (m)

GEOLOGICAL DESCRIPTION

Alteration

Clay - weak to moderate in non siliceous areas, rock easily scratched.

Quartz: 89.9 m to 97.7 m - rocks too hard to scratch with knife, no apparent change of grain size or color of rock across quartz alteration boundary. A few hydraulic breccia zones crosscut from 90.8 m - 92.0 m.

Pyrite: conc. 1-5%, occurs selectively replacing lapilli fragments, and occasionally dissem. in matrix. In a few instances the replaced fragments consist of carbonaceous shale.

Chlorite: weak to moderate in upper 1.0 m of unit.

Structure:

287.5 - 289.0: slickensides @ 0° to core axis coated with dickite and plunge @ 60° to C.A. on the 0° plane.

289.0 - 302: Brecciation (hydraulic fracturing) in a few narrow zones up to 2 cm wide and generally 0° to core axis, but sometimes parallel to bedding or crosscutting bedding. Occurs within zone of quartz alteration. Jointing: @ 15° to C.A., every 2 cm where intense, usually every 10-30 cm; @ 45° to C.A. - every 20-50 cm. Core is relatively competent and in pieces averaging 5-10 cms.

98.8 - 101.5 ANDESITE LAPILLI TUFF AND COARSE TUFF

Lapilli-sized fragments dominate unit. Color is brown-red, cream, and greenish-grey.

Core is competent and scratchable in upper 1.5 m, but becomes completely incompetent and friable towards lower half of unit. This unit marks a transition from overlying competent rock to underlying totally incompetent, friable rock.

Lapilli are spherical to v. elongated, and subrounded to rounded.

Pyrite: <1% disseminated.

101.5 - 104.2 CARBONACEOUS SHALE AND ANDESITE TUFF

Components often intimately intermixed, yet bedding is often quite distinct due to variable amounts of shale and tuff in individual beds.

Bedding: 85° to C.A. @ 101.8 m and 103.6 m.

Core is extremely soft, incompetent and friable in >90% of the unit.

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

Color varies from light green to greyish black.

Joints @ 0° and 20° to C.A. in a few locations.

104.2 - 120.7 ANDESITE LAPILLI TUFF

Color varies from creamy to creamy-green, creamy-red and greyish-red to purplish-red. Red coloration occurs in coarse half of unit. Clast and matrix are often not the same color. Rock is extremely soft and friable, and incompetent in upper half, but is somewhat less so towards base of unit where lowermost 0.61 m is competent and not friable, yet still easily scratched.

Green coloration is due to chlorite alteration, creamy color is associated with clay alteration.

120.7 - 133.4 ANDESITE LAPILLI TUFF

- color creamy white, buff, light to medium grey, brownish-red, blotchy near top of unit.
- fragments average 0.5 cm, range from <1 mm to 2.5 cm, elongate to sub-spherical, mainly sub-rounded but also angular and rounded.
- fragments variably altered, fragments are heterogeneous within relatively narrow range of composition.
- unit is massive, not bedded, but clast orientation gives a sense of bedding.

Alteration

120.7 - 126.5: clay alteration intense, chlorite alteration weak, rocks easily scratched.

126.5 - 133.4: quartz alteration throughout most of unit (>85%) - rock too hard to scratch with knife.

Pyrite:
123.1 m: 3 mm wide pyrite vein @ 20' to C.A.
120.7 - 126.5 m: minor 1-2% pyrite selectively replacing clasts, occasionally fine dissem. in matrix.
126.5 - 133.2 m: Two distinct generations of pyrite, one rims clasts, other partially rims and also replaces parts of the clasts. Pyrite also occurs in crosscutting breccia/shatter zones from 127.7 m 129.5 m where it constitutes 10-15% of rock. Pyrite content from 126.5 to 133.2 m is approx. 3-5%.

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

Structure
127.1 - 130.4 m - zones crosscutting and paralleling bedding are microbrecciated, sheared and shattered. There zones are partially replaced by pyrite.

133.4 - 137.8 ANDESITE LAPILLI TUFF AND CARBONACEOUS SHALE

The unit comprises interbedded volcanogenic and sedimentary material with variable silicification and pyrite content. Fractures are rare.

133.4 - 133.6 CARBONACEOUS SHALE

Thinly laminated with 10-20% pyrite. The subunit is black in colour with bedding at 50°-60° WCA. The top of the subunit is moderately brecciated and silicified; thin veins of fine-grained pyrite fill the irregular fractures. A second fracture set perpendicular to C.A. displaces the pyrite veins.

133.6 - 133.9 ANDESITE LAPILLI TUFF thinly bedded with 5% pyrite. The subunit is grey in colour and comprises coarse tuff with two 10 cm thick lenses of lapilli-rich tuff. Lapilli are angular to subrounded (1-3). Pyrite is associated with thin lenses of carbonaceous material and also occurs as haloes around silicified lapilli.

133.9 - 134.0 ANDESITE LAPILLI TUFF with 10-20% pyrite. The subunit contains 20% carbonaceous material. Lapilli are 0.7 cm in size. Pyrite occurs in fine-grained bands parallel and perpendicular to the long axis of lapilli (? bedding).

134.0 - 135.2 ANDESITE LAPILLI TUFF with 5% pyrite, bedding is at 60° WCA. The subunit is dark grey in colour and comprises coarse tuff with three lapilli rich horizons. The two upper horizons contain pumice fragments, the contains lower subrounded lithic fragments. Pyrite occurs as discontinuous stringers subparallel to bedding. Pumice fragments are pervasively altered to clay minerals.

135.2 - 135.5 CARBONACEOUS TUFF The subunit is dark grey in colour and consists of thinly laminated coarse tuff. Bedding is at 80° WCA. Pumice fragments are absent. Lapilli are minor and are replaced by pyrite. Stringers of quartz and pyrite occur parallel to bedding

135.5 - 136.9 ANDESITIC TUFF AND LAPILLI TUFF, thinly bedded, weakly brecciated, with 3% pyrite. The subunit is dark grey in colour with darker carbonaceous laminae. Grain size is coarse tuff in the upper 1.5 ft (50 cm) increasing to at least cobble size in the lower 15 cm; fragments are angular to rounded. Pumice fragments are absent; lapilli are polymictic. Silver alteration is moderate. Secondary brecciation is restricted to small fractures parallel, or at small angles to the core axis. Pyrite occurs as small lenses, possibly replacing fragments.

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

136.9 - 137.0 CARBONACEOUS TUFF, thinly laminated and weakly sheared parallel to laminations with 7% pyrite. Dark grey at top and bottom (1 cm each in thickness) grey in the centre of the unit. Black top and bottom approximately 10% carbonaceous material with moderate clay alteration. Pyrite occurs as very fine-grained laminae or as a replacement for rare 3 mm angular fragments in the shale. Pyrite also occurs as discontinuous stringers 0.5 cm is length, associated with thin carbonaceous laminae in a grey siliceous part of the horizon. Siliceous alteration in the grey horizon is approximately 20%; the horizon is brecciated into fragments approximately 0.5 cm in size.

137.0 - 137.8 ANDESITE CRYSTAL LAPILLI TUFF, medium bedded and v. weakly brecciated with 3% pyrite. The subunits is grey with one thin sheared carbonaceous horizon 3 cm thick; shearing is in the plane of bedding at 70° W.C.A. Pyrite occurs disseminated (5-10%) in the carbonaceous unit. In the grey siliceous material pyrite occurs as pseudomorphic replacement of rare fern fragments. The basal contact of the unit is gradational.

137.8 - 139.3 POLYMICTIC, MATRIX-SUSPENDED ANDESITIC BRECCIA, moderately (20%) fractured and silicified, with less than 1% pyrite. The unit is light grey in colour and incorporates tuffaceous lenses, 1-3 cm thick, which exhibit normally graded bedding. Fragments are usually of lapillus size but 10% are as large as 10 cm. Fragments are altered to a kaolinite-quartz or quartz fine-grained aggregate. Pyrite occurs solely in ripped-up clasts of carbonaceous siltstone either as primary laminae or as a pseudomorphic replacement of fern fossils. Pumice fragments compose approx. 10% of the whole rock. The unit is fractured parallel and perpendicular to core axis.

139.3 - 141.0 PLAGIOCLASE PORPHYRITIC ANDESITE, pervasively altered and 5% fractured parallel to the C.A. Pyrite is absent. The unit is a buff porphyritic andesite with 15% euhedral to subhedral plagioclase phenocrysts, 1-2 mm in size, in an aphanitic ground mass. Xenoliths are absent. The rock has been subjected to intense kaolinite-quartz alteration (50-25%) related to fractures parallel to the core axis. On one such fracture occur slickensides, at an angle of 80° to the C.A. The unit is interpreted as a dyke.

141.0 - 142.3 POLYMICTIC MATRIX-SUSPENDED ANDESITIC BRECCIA - As described above at 137.8 m - 139.3 m. Unit has experienced moderate (10%) fracturing on planes parallel to core axis and at angles from 70-80° to core axis. Minor pyrite in stringers along these planes. Kaolinite deposited in fractures parallel to C.A.
Fracturing - 30%

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

142.3 - 143.0 CARBONACEOUS ANDESITE LAPILLI TUFF will moderate (30%) brecciation and 5-10% pyrite. The unit is dark grey to black in colour and contains two carbon-rich horizons each 5 cm thick. Lapilli comprise 10% pumice fragments, 1-3 cm. The unit is moderately brecciated, silica replacing 30-40% of primary and secondary fragments. Brecciation is along shear planes parallel to bedding and at 60-70° to core axis. Pyrite occurs disseminated in carbonaceous horizons, as fine-grained stringers 0.5 cm thick, and as fine-grained replacement of primary fragments.

143.0 - 143.9 ANDESITIC TUFF AND LAPILLI TUFF, sparsely brecciated with 3% pyrite. Unit is dark grey and comprises medium to very thinly bedded tuffs and lapilli tuffs. The unit is capped by a light grey normally graded lapilli tuff, 3 cm thick, interpreted as an ashfall deposit. The underlying beds are normally graded with some scour surfaces, and are interpreted as pyroclastic flow deposits. Lapilli are polymictic and angular to subrounded. Bedding is at 60 - 70° to C.A. Brecciation is parallel to and at right angles to bedding. Pyrite occurs as fine-grained discontinuous stringers 1 cm in length, and as a replacement product of primary fragments. The rock is 50 - 60% silicified.

143.9 - 147.2 ANDESITIC LAPILLI TUFF with intense brecciation and 1% pyrite. Unit is light grey in colour, polymictic and includes a bed of andesitic tuff with no discernable fragments. Rock fragments include carbonaceous siltstone, subangular to rounded, angular fragments of pumice and subangular andesitic lapilli. Grain size is less than 64 mm. Siliceous alteration is pervasive. The rock is brecciated by shearing along planes at 60° to C.A. and is fractured parallel to C.A. Fine-grained pyrite occurs as rare discontinuous stringers along the shear zones or as partial replacement of silicified carbonaceous siltstone fragments. Fractures parallel to the core axis host kaolinite.

The unit below 145.8 m is intensely clay altered. All the core not recovered is from this zone. The rock is pervasively leached with 5-10% open space. Koalinite replaces the matrix; silicified fragments are also pervasively altered to clay minerals. Trace disseminated pyrite.

147.2 - 153.9 PORPHYRITIC ANDESITE moderately (10-20%), locally brecciated, with 2-3%, pyrite. The rock is a greenish-grey plagioclase-hornblende phyric rock, composing 15-20% euhedral to subhedral plagioclase phenocrysts (0.5-3 mm), and 5% subhedral prismatic hornblende phenocrysts (0.5-1 mm) in a grey-green, aphanitic groundmass. Vesicles are absent. The rock contains infrequent 1-2 cm inclusions of coarser grained amphibole-plagioclase intergrowth. A zone of autobrecciation occurs at 149.8 ft where rounded fragments of chloritised andesite occur in a silicified matrix.

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

The unit overall is weakly brecciated but zones of moderate secondary brecciation occur at 149.8, 152.1 and 153 m. Fragments are angular, 1-5 m in length and typically exhibit a range in alteration from chloritic at the centre through kaolinitic to a silicified rim. The transition occurs over a distance of approximately 0.5 cm. The matrix of such secondary breccias is silicic with 10-15% fine-grained pyrite. Fractures are at 60-70°, parallel and perpendicular to the C.A. Pyrite is present in the first type only. The unit has a brecciated base, perpendicular to C.A.

153.9 - 161.4 BRECCIATED ANDESITE LAPILLI TUFF AND SHALE moderately (20-40%) to intensely brecciated, with 5-6% pyrite. The unit is medium to dark grey in colour, and comprises 90% andesitic tuff with 5% lapilli rich beds and 5% beds with (30%) carbonaceous content. Bedding is medium to thin and at 70° to C.A. Graded bedding is infrequent. The unit is moderately (20-30%) brecciated by shearing parallel to the bedding. Kaolinite is developed along fractures. Pyrite occurs as discontinuous stringers in the more carbonaceous beds. Siliceous alteration varies from 40-70%.

161.4 - 163.1 ANDESITE LAPILLI TUFF, SILICIFIED, with weak (10%) brecciation and 3% pyrite. The unit is light grey in colour and comprises 30% flattened silicified pumice fragments (0.5-10 cm); 5% rounded to subrounded carbonaceous fragments (0.5-1 cm); and 10-20% subangular siliceous fragments (0.5-1 cm). Bedding and weak shearing are at 70° to core axis. Pyrite is fine-grained, disseminated in matrix and silicified fragment and also partially replaces carbonaceous fragments.

163.1 - 163.4 ANDESITE, LAPILLI TUFF, KAOLINITISED with approximately 5% pyrite. The rock is equivalent in colour and primary textures to that overlying it. The rock is sufficiently incompetent that the extent of brecciation, if any, is hard to estimate. Medium-grained disseminated pyrite occurs in the matrix. Fine-grained pervasive pyrite alteration of carbonaceous fragments. Bedding appears to be 60°-70° to C.A.

163.4 - 166.4 ANDESITE TUFF, LAPILLI TUFF AND BRECCIA with 5-10% pyrite. The rock is light grey in colour grading downhole to light brown and then to greenish grey. The entire unit is intensely kaolinitized and brecciation is impossible to determine. Shearing occurs parallel to bedding. Fragments consist of 10% carbonaceous siltstone and chloritized andesite (40%). Pumice is not visible. Pyrite occurs as fine- to medium-grained pyritohedon and as fine-grained replacement of carbonaceous fragments.

166.4 - 168.9 ANDESITE LAPILLI TUFF WITH CARBONACEOUS FRAGMENTS, moderately 30% fractured and silicified, with 1% pyrite. The rock is light grey in colour and competent. Fragments consist of 35% angular pumice (0.5-5 cm), flattened parallel to bedding; 20% subangular to subrounded carbonaceous siltstone and breccia fragments (0.5-2 cm), some partially

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

replaced by pyrite and 15-20% andesite fragments. Pumice exhibits kaolinitic alteration; the rock fragments are silicified. The clasts are matrix-suspended in a light grey silicic matrix. Pyrite is disseminated or as a fine-grained replacement of some carbonaceous fragments. The rock is bedded at 90-60° to C.A. and fractured parallel to C.A. Slickenslides on one fracture make an angle of 40° with C.A.

168.9 - 177.2 ANDESITE CRYSTAL LAPILLI TUFF with pervasive clay and moderate to weak chloritic alteration. The unit contains 1% pyrite altered to limonite, and concentrated near its base. Bedding at 60° to C.A. Fragments comprise 30% chloritized porphyritic andesite (0.5-5 cm in size), 10% carbonaceous siltstone and 10% silicified fragments. All fragments are subrounded to subangular. The matrix is pervasively altered (70%) to clay minerals with secondary development of talc and gypsum in the centre of the unit and of limonite after disseminated pyrite in the base of the unit. Hematite weakly (approx. 5-10%) replaced andesite fragments in the centre of the unit. Slickensides on shear surfaces are at an angle of 60° to C.A.

177.2 - 177.3 CARBONACEOUS SHALE AND TUFF sheared and incompetent, with 20-30% graphite, 60-70% clay minerals and trace pyrite altered to limonite. The unit is black in colour, thinly laminated and extremely incompetent.

177.3 - 178.2 ANDESITE CRYSTAL LAPILLI TUFF - as per 168.9 m - 177.2 m.

178.2 - 180.6 CARBONACEOUS SHALE with two thin beds of reworked andesitic lapilli tuffs. The shale is sheared, with pervasive clay alteration and 20-25% pyrite. The unit is dark grey to black in colour, and except for the tuff beds, comprises laminated carbonaceous shale with 10% quartz and 30-40% clay minerals. Thick laminae of nearly pure graphite comprise 1-2% of the shale. Unindentifiable fragments, possibly plant fragments, comprise a further 5-10%. Bedding is at 70-80° to C.A. Pyrite occurs as very fine-grained laminae in the shale and as a fine-grained pervasive replacement of fragments.

Two 10 cm thick beds of coarse sand-sized tuffaceous material occur near the top and bottom of the shale unit. They are sheared and contain 1-2% pyrite. The beds are moderately kaolimitised and do not exhibit any graded bedding, cross bedding or other sedimentary features.

The shale unit is interpreted as a stagnant shallow-water sediment with two influxes of reworked, immature volcanic material.

180.6 - 183.6 CARBONACEOUS TUFF, CRYSTAL TUFF AND LAPILLI TUFF, unbrecciated with 5-15% pyrite. Unit is dark grey in colour, except medium grey at the base. Carbonaceous content increases from 0 to 20% upward through the unit. The unit is medium bedded, individual beds are normally graded.

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

The base of the unit is a gravel-sized pumaceous lapilli tuff incorporating 10-20% carbonaceous material. Two light brown kaolinitized horizons, at 182.5 m are interpreted as ash fall deposits, partially reworked by water. Bedding is at 45-50° to C.A. Fine-grained pyrite occurs in thin laminae in more carbonaceous horizons, and as fine to medium-grained replacements of silicified fragments. Unit has 10-20% replacement by silica and 15-25% replacement by clay minerals.

183.6 - 187.0 ANDESITE LAPILLI TUFF, unbrecciated, with 2-5% pyrite. The rock is brownish grey in color and darker grey in the upper 20 cm, where it incorporates minor carbonaceous material. The rock comprises 30% flattened angular pumice (0.3 to 10 cm), replaced by kaolinite, 25% subangular to subrounded andesite replaced by clay minerals, and <5% carbonaceous shale and siltstone fragments. All of these lithic fragment types are less than 2 cm in size. Bedding is at 50° to C.A. The unit is medium bedded and exhibits normal and reverse graded bedding. Fractures run perpendicular to bedding and host minor kaolinite. Pyrite occurs as a disseminated phase in a 40% silicified sand-size matrix.

Unit is interpreted as a series of pyroclastic flows with very little reworking by water.

187.0 189.0 ANDESITE TUFF AND LAPILLI TUFF unbrecciated with 2-3% pyrite. The unit is dark grey in overall colour changing to a brownish grey near its base. Bedding is at approximately 45° to C.A. Pyrite is finally disseminated in an altered matrix (40% clay). Slickenslides 65° to C.A.

The unit is interpreted as a pyroclastic flow.

189.0 190.2 ANDESITE LAPILLI TUFF, pervasively altered to clay minerals, with 1-2% pyrite. The unit is light purplish-grey in the upper portion due to weak haematitic alteration, greenish-brown in the central portion, due to chlorite and limonite alteration, and brown at the base. The rock is extremely incompetent and comprises approximately 20-30% fragments with pervasive (50-70%) alteration to clay minerals. Pyrite occurs finely disseminated at top and base of the unit. In the basal portion is is replaced by limonite.

190.2 191.1 CARBONACEOUS SHALE AND SANDSTONE, weakly fractured with 3-4% pyrite. The unit is dark grey to black in colour. The rock comprises thinly laminated carbonaceous shale and thinly bedded carbonaceous sandstone. Cross laminations occur in the shale. Carbonaceous material comprises 30-40% of the unit. Bedding is at 50° to C.A. Carbonaceous pebbles are common, possibly plant material. Fractures are infrequent, parallel and perpendicular to bedding. They contain kaolinite and, less frequently, gypsum. Pyrite is finely disseminated or in rare lenses associated with fracture zones.

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

The unit is interpreted as a shallow water sediment with volcanogenic material.

191.1 - 194.5 ANDESITE CRYSTAL LAPILLI TUFF, weakly brecciated with traces of pyrite only. The unit is greenish-yellow in colour grading to dark grey at the base. Three main flow units are present. Each unit is thin to medium bedded, exhibits graded bedding and comprises 5-10% plagioclase crystals and 35-55% lithic fragments in a fine-grained matrix. Fragments are subangular to rounded. Bedding is at 40-45 to C.A. Fractures parallel to and at 70°-80° to bedding host clay alteration and limonite. The upper half of the unit is chloritised.

The unit is interpreted as a sequence of 3 pyroclastic flows.

194.5 - 194.8 CARBONACEOUS SHALE AND SILTSONE, unbrecciated, with 5-7% pyrite. The shale is black and dark grey in colour. The lower half is a thinly laminated, and contains with 30-50% carbonaceous material. The upper siltstone is thinly bedded and contains 20-30% carbonaceous material and 15-20% volcanogenic material. Bedding is at 42° to C.A. Pyrite occurs as thin fine-grained laminae and as fine-grained replacement of carbonaceous fragments.

194.8 - 199.9 ANDESITE BRECCIA AND TUFF BRECCIA, unbrecciated with trace pyrite. The unit is grey-green in colour. The unit is thinly to thickly bedded, fine-grained material occuring in thinner beds. Normally graded bedding is present in several beds. Seven flow units were identified with flow tops at 194.8, 194.9 195, 195.2 196, 195.4 and 196.6 m. Bedding is at 40° to C.A.

The breccias and tuff breccias occur in the first, second and fourth flows from the base of the unit. Pumice is rare except in the basal unit where it pervasively altered to clay minerals. Lithic fragments are almost monomictic and comprise aphyric and porphyritic andesite (30-40% of the rock). The lower flow contains as much as 10% carbonaceous siltstone, with alteration to clay minerals. Fragment size varies from 0.5 to 15 cm in the andesite fragments. All fragments are subangular to subrounded. A weak size gradation exists in the breccias.

The rock is pervasively (50-70%) altered to clay mineral. Trace disseminated pyrite.

The unit is interpreted as a pyroclastic flow succession.

199.9 - 200.9 CARBONACEOUS SHALE AND SANDSTONE, unbrecciated, 5-7% pyrite, black in colour. Unit consists of thinly laminated shale with one lapilli-rich bed 3 cm thick and one sandstone bed 3 cm thick 25 and 50 cm,

HOLE NO. T87CH-1
FROM (m) TO (m) GEOLOGICAL DESCRIPTION

respectively, above the base of the unit. The sandstone is fine-grained and includes mostly volcanogenic material. The breccia is a pebble breccia, matrix suspended, and includes 50% subangular to subrounded volcanic fragments, altered to clay minerals. The balance is carbonaceous material. Bedding is at 30° to C.A. The shale contains 50-60% carbon. Fine grained pyrite occurs as thin laminae, as a halo 1 mm thick around fragments, and as a fine-grained replacement of clasts in the breccia.

299.9 - 203.5 ANDESITE LAPILLI TUFF, weakly brecciated with 2-3% pyrite. The unit is grey-green in colour and consists of lapilli tuff separated by a carbonaceous shale 0.5 cm thick.

The unit is interpreted as a pyroclastic flow deposit. uphole. Malachite staining at 202.1 m.

203.5 - 205.1 CARBONACEOUS ANDESITIC TUFF weakly brecciated with 1-2% pyrite. The unit is dark grey is colour and comprises thinly-bedded, normally-graded tuffs with 10% carbonaceous material. Bedding is parallel to the core axis. The unit is fractured parallel and perpendicular to bedding. In the centre of the unit pyrite is fine-grained and disseminated along fractures associated with clay alteration.

The unit is interpreted as an epiclastic flow sequence.

205.1 - 206.8 ANDESITIC TUFF AND LAPILLI TUFF, weakly brecciated, with 1-2% pyrite. The unit is medium to light grey in colour and consists of three thicker to medium-bedded flows, each normally graded. Flow tops are at 205.1, 205.4, 206.6, 206.9 m. Direction of transport uncertain. Rock consists of 30% rock fragments, 25% andesite fragments and 5% carbonaceous shale fragments. Fragments are subrounded and do not exceed 0.5 cm in size. Matrix and fragments have experienced moderate clay alteration. The unit is fractured parallel and perpendicular to bedding, the latter at 10-25° to C.A. Pyrite occurs as fine grained lenses adjacent to flow tops near the centre of the unit.

206.8 - 207.6 CARBONACEOUS ANDESITIC CRYSTAL TUFF - The unit is very dark grey in colour and comprises thin to medium-bedded crystal tuffs, with rare pumice and lithic fragments less than 1 cm in size. Crystals are euhedral to anhedral plagioclase 1-2 mm in size. Matrix consists of 10% carbonaceous material and 20% clay. Bedding is at 45° to C.A. Pyrite is fine-grained and disseminated.

207.6 - 212.3 ANDESITIC LAPILLI TUFF AND TUFF-BRECCIA - The unit is greenish and reddish-grey in colour, and comprises 50 cm of graded lapilli tuff overlying very poorly sorted lapilli tuff and tuff-breccia. Fragments comprise 10% andesite with haematitic alteration, 30% andesite with chloritic alteration, and 20% with clay alteration. All lithic fragments are subangular to subrounded (2-3) and as much as 5 cm in

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

size. Rip-up clasts of fine-grained crystal tuff are present 12 feet above the base of the unit the matrix and fragments have moderate clay alteration. Bedding is at 25-30° to C.A. The unit to pervasively fractured along planes from 20° to 90° WRT C.A. Pyrite is a fine-grained disseminated phase in fragments and in the matrix.

212.3 - 213.1 CARBONACEOUS LAPILLI TUFF moderately fractured, with 3-5% pyrite, moderate clay alteration. The unit is dark grey in colour, except black at top and base. The top and bottom of the unit comprise thinly laminated carbonaceous shale and very thinly-bedded siltstone with 10% plant fragments and 20% fine-grained volcanic material. Bedding sags occur under lapilli. Bedding is at 55° to C.A. The unit is moderately fractured; fractures are preferentially parallel to bedding but occur at any angle to C.A. Pervasive clay alteration occurs along these fractures with development of carbonate and, possibily, alunite. Pyrite occurs as a replacement product of plant fragments and, at the base of the unit, as fine-grained laminae.

213.1 - 215.6 ANDESITE TUFF AND MINOR LAPILLI TUFF, weakly fractured with trace pyrite. The unit is competent and grey-green in colour and comprises an upper unit of crystal lapilli tuff, 0.45 m thick, overlying a sequence of thinly bedded tuffs with cross bedding and normal size grading. Bedding is at 35° to C.A. Fragments are 10-20% angular pumice and 80-90% subangular to subrounded andesite. Fragment size rarely exceeds 3 mm. Clay alteration increases with average fragment size in a bed, commonly as much as 60% at the base of the bed. The unit is fractured parallel and perpendicular to bedding with pervasive clay alteration along fractures. Carbonate and possibly alunite are present in fractures parallel to bedding. Pyrite occurs as a fine-grained disseminated phase. The unit is interpreted as a series of ash-flow tuffs with negligible reworking.

215.6 - 216.0 CARBONACEOUS TUFF AND TUFF with moderate to intense fracturing and 1-3% pyrite in the lower 30 cm. The unit is black in the lower 30 cm and very light buff grey at its top. Both are thinly laminated and cross laminated. Bedding is at 45° to C.A.

The junction between the carbonaceous ash and the overlying ash is marked by a disturbed surface with fiammi of black sediment indicating a down-dip surge. The unit grades upwards over a depth of 10 cm into the base of the overlying lapilli tuff. Irregular fractures in the black ash host small stringers of fine-grained pyrite. The unit is interpreted as a base-surge deposit.

216.0 - 219.2 ANDESITE LAPILLI TUFF, moderately fractured with traces of pyrite only. The unit is grey-green in colour and comprises three thick-bedded lapilli tuffs. The tuffs comprise 30-40% andesite fragments, 5% angular pumice, and in the base of the lowest bed, 1-2% carbonaceous siltstone. The unit is bedded at 45° to C.A. 1% hematite alteration

HOLE NO. T87CH-1

FROM (m)	TO (m)	GEOLOGICAL DESCRIPTION

and 25% chlorite alteration of fragments, moderate to intense clay alteration.

219.2 - 219.9 CARBONACEOUS SHALE AND TUFF moderately fractured, with 7-10% pyrite. The unit is dark grey to black in colour. Unit consists of interbedded shale and tuff (3 beds of each). Alteration by clay minerals is moderate (30-40%).

The shale beds are thinly laminated and contain fossil fern fragments. Both tuffs and shales have bedding at 35° to C.A. Pyrite occurs in bands parallel to bedding and associated with fern fossils.

219.9 - 220.7 ANDESITE TUFF, pervasively fractured with trace pyrite. The unit is massive and consists of fragments of andesite as much as 2 mm in size and angular to subrounded (1-3). 30-40% chlorits alteration and 20-30% clay alteration. The lower half of the unit is fractured at 20° to C.A. with pervasive (70-80%) alteration to clay minerals. Pyrite is disseminated through the matrix.

220.7 - 249.0 MASSIVE CRYSTAL TUFF, moderately fractured with trace pyrite. Unit is red to green in colour and consists of 1-30% plagioclase crystals in an apharitic matrix. Lithic fragments are rare and less than 5 mm in size. Plagioclase varies in size from 0.5 to 3 mm. Trace clay alteration except intense in pervasive fracture zones.

Analytical Results

Chemex Labs Ltd.
Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To: WESTMIN RESOURCES LIMITED

P.O. Box 49066, The Bentall Centre
VANCOUVER, B.C.
V7X 1C4

A8720590

Comments: CC: RON LANE

CERTIFICATE

WESTMIN RESOURCES LIMITED
PROJECT : TASEKO
P.O.# : 56197

Samples submitted to our lab in Vancouver, BC.
This report was printed on

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION

• NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	79	Au ppb: Fuse 10 g sample	FA-AAS	5	10000
921	79	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
922	79	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	200
923	79	As ppm: 32 element, soil & rock	ICP-AES	5	10000
924	79	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
925	79	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
926	79	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
927	79	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
928	79	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
929	79	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
930	79	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
931	79	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
932	79	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
933	79	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
951	79	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
934	79	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
935	79	La ppm: 32 element, soil & rock	ICP-AES	10	10000
936	79	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
937	79	Mn ppm: 32 element, soil & rock	ICP-AES	1	10000
938	79	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
939	79	Na %: 32 element, soil & rock	ICP-AES	0.01	5.00
940	79	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
941	79	P ppm: 32 element, soil & rock	ICP-AES	10	10000
942	79	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
943	79	Sb ppm: 32 element, soil & rock	ICP-AES	5	10000
952	79	Se ppm: 32 element, soil & rock	ICP-AES	10	10000
944	79	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
945	79	Ti %: 32 element, soil & rock	ICP-AES	0.01	5.00
946	79	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
947	79	U ppm: 32 element, soil & rock	ICP-AES	10	10000
948	79	V ppm: 32 element, soil & rock	ICP-AES	1	10000
949	79	W ppm: 32 element, soil & rock	ICP-AES	5	10000
950	79	Zn ppm: 32 element, soil & rock	ICP-AES	1	10000

DATE : 02-09-88
TIME : 08:48:58

WESTMIN RESOURCES LTD.

TASEKO JOINT VENTURE

TRAVERSE/HOLE NUMBER ----------> T87CH1

N.B. Negative number indicates an assay less than the detection limit
n.a. indicates no assay entered for data

ASSAY FIELDS

P ---> Primary value
S ---> Sub-prime value
1 ---> Rerun of original pulp
2 ---> Resplit of sample
A ---> Field average value

FROM	TO	SAMPLE	AU	AG	CU	PB	ZN	AS	SB	BA	HG	FE	S.G	SAMPLE	ROCK
(M)	(M)	NO.	PPB	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	CONST	TYPE	TYPE
...12	53.64	9551 P	-1.0	0.2	51.0	20.0	31.0	30.0	5.0	100.0	-1.0	2.24	2.700	HF-CORE	XXXX
53.64	56.69	9552 P	-1.0	0.2	54.0	18.0	47.0	55.0	5.0	240.0	-1.0	3.00	2.700	HF-CORE	XXXX
56.69	62.79	9553 P	-1.0	0.2	53.0	8.0	45.0	50.0	10.0	160.0	-1.0	3.39	2.700	HF-CORE	XXXX
62.79	68.88	9554 P	-1.0	0.2	61.0	-1.0	47.0	100.0	5.0	150.0	-1.0	3.05	2.700	HF-CORE	XXXX
68.88	74.37	9555 P	-1.0	-1.0	63.0	14.0	70.0	105.0	10.0	100.0	-1.0	4.27	2.700	HF-CORE	XXXX
74.37	80.16	9556 P	-1.0	-1.0	58.0	12.0	126.0	110.0	5.0	120.0	-1.0	3.87	2.700	HF-CORE	XXXX
80.16	85.19	9557 P	-1.0	-1.0	52.0	2.0	268.0	140.0	5.0	20.0	-1.0	6.95	2.700	HF-CORE	XXXX
85.19	87.48	9558 P	-1.0	-1.0	161.0	2.0	81.0	70.0	-1.0	-1.0	1.0	4.21	2.700	HF-CORE	XXXX
87.48	90.22	9559 P	-1.0	-1.0	59.0	6.0	8.0	95.0	5.0	260.0	-1.0	1.00	2.700	HF-CORE	XXXX
90.22	93.57	9560 P	-1.0	-1.0	54.0	4.0	17.0	145.0	10.0	110.0	1.0	1.17	2.700	HF-CORE	XXXX
93.57	97.69	9561 P	-1.0	-1.0	27.0	2.0	-1.0	50.0	-1.0	20.0	1.0	0.50	2.700	HF-CORE	XXXX
97.69	98.76	9562 P	-1.0	-1.0	79.0	2.0	26.0	35.0	-1.0	70.0	1.0	1.21	2.700	HF-CORE	XXXX

DATE : 02-09-88
TIME : 08:49:01

TRAVERSE/HOLE NUMBER ----------> T87CH1 PAGE : 2

FROM (M)	TO (M)	SAMPLE NO.	AU PPB	AG PPM	CU PPM	PB PPM	ZN PPM	AS PPM	SB PPM	BA PPM	HG PPM	FE %	S.G CONST	SAMPLE TYPE	ROCK TYPE
98.76	101.50	9563 P	-1.0	-1.0	24.0	-1.0	102.0	-1.0	-1.0	310.0	-1.0	2.81	2.700	HF-CORE	XXXX
101.50	104.24	9564 P	-1.0	-1.0	83.0	6.0	341.0	55.0	-1.0	90.0	-1.0	4.02	2.700	HF-CORE	XXXX
104.24	110.34	9565 P	-1.0	-1.0	46.0	-1.0	188.0	-1.0	-1.0	350.0	-1.0	5.09	2.700	HF-CORE	XXXX
110.34	116.43	9566 P	-1.0	0.2	51.0	-1.0	297.0	10.0	5.0	200.0	-1.0	6.53	2.700	HF-CORE	XXXX
116.43	120.70	9567 P	-1.0	0.4	39.0	2.0	230.0	-1.0	-1.0	120.0	-1.0	6.19	2.700	HF-CORE	XXXX
120.70	126.64	9568 P	-1.0	-1.0	41.0	4.0	4.0	30.0	-1.0	140.0	-1.0	1.62	2.700	HF-CORE	XXXX
126.64	129.84	9569 P	-1.0	0.4	71.0	4.0	3.0	135.0	-1.0	-1.0	-1.0	4.08	2.700	HF-CORE	XXXX
129.84	133.41	9570 P	-1.0	0.2	35.0	-1.0	5.0	80.0	-1.0	-1.0	-1.0	1.06	2.700	HF-CORE	XXXX
133.41	135.33	9571 P	-1.0	0.2	44.0	6.0	33.0	490.0	-1.0	10.0	-1.0	2.58	2.700	HF-CORE	XXXX
135.33	135.64	9572 P	-1.0	0.2	43.0	6.0	29.0	620.0	-1.0	-1.0	-1.0	4.99	2.700	HF-CORE	XXXX
135.64	137.77	9573 P	-1.0	-1.0	32.0	-1.0	-1.0	75.0	-1.0	20.0	-1.0	1.10	2.700	HF-CORE	XXXX
137.77	139.29	9574 P	-1.0	-1.0	28.0	-1.0	1.0	40.0	-1.0	40.0	-1.0	0.59	2.700	HF-CORE	XXXX
139.29	140.97	9575 P	-1.0	-1.0	4.0	2.0	67.0	-1.0	-1.0	230.0	-1.0	0.25	2.700	HF-CORE	XXXX
140.97	142.34	9576 P	-1.0	-1.0	32.0	10.0	-1.0	55.0	-1.0	240.0	-1.0	1.39	2.700	HF-CORE	XXXX
142.34	142.95	9577 P	-1.0	0.2	48.0	4.0	5.0	215.0	-1.0	130.0	-1.0	2.62	2.700	HF-CORE	XXXX
142.95	145.85	9578 P	-1.0	-1.0	39.0	4.0	2.0	45.0	-1.0	90.0	-1.0	0.79	2.700	HF-CORE	XXXX
145.85	147.22	9579 P	-1.0	0.2	18.0	6.0	24.0	15.0	-1.0	430.0	1.0	0.82	2.700	HF-CORE	XXXX
147.22	152.86	9580 P	-1.0	0.4	6.0	6.0	143.0	-1.0	-1.0	420.0	-1.0	4.15	2.700	HF-CORE	XXXX
152.86	153.31	9581 P	-1.0	0.4	34.0	10.0	74.0	35.0	-1.0	400.0	-1.0	2.27	2.700	HF-CORE	XXXX
153.31	153.86	9582 P	-1.0	0.4	9.0	2.0	130.0	15.0	-1.0	150.0	-1.0	1.60	2.700	HF-CORE	XXXX

DATE : 02-09-88
TIME : 08:49:24

TRAVERSE/HOLE NUMBER ----------> T87CH1 PAGE : 3

FROM (M)	TO (M)	SAMPLE NO.	AU PPB	AG PPM	CU PPM	PB PPM	ZN PPM	AS PPM	SB PPM	BA PPM	HG PPM	FE %	S.G CONST	SAMPLE TYPE	ROCK TYPE
153.86	161.39	9583 P	-1.0	-1.0	42.0	6.0	4.0	85.0	-1.0	70.0	-1.0	1.27	2.700	HF-CORE	XXXX
161.39	163.07	9584 P	-1.0	-1.0	33.0	-1.0	111.0	55.0	-1.0	330.0	-1.0	1.03	2.700	HF-CORE	XXXX
163.07	166.42	9585 P	-1.0	-1.0	63.0	2.0	305.0	30.0	-1.0	50.0	-1.0	2.59	2.700	HF-CORE	XXXX
166.42	168.86	9586 P	-1.0	0.2	19.0	2.0	76.0	45.0	-1.0	490.0	-1.0	1.08	2.700	HF-CORE	XXXX
168.86	173.13	9587 P	-1.0	0.2	58.0	-1.0	133.0	-1.0	-1.0	810.0	-1.0	3.65	2.700	HF-CORE	XXXX
173.13	178.16	9588 P	-1.0	0.2	53.0	8.0	174.0	25.0	-1.0	80.0	-1.0	3.79	2.700	HF-CORE	XXXX
178.16	180.44	9589 P	-1.0	0.4	33.0	8.0	36.0	85.0	-1.0	10.0	-1.0	6.84	2.700	HF-CORE	XXXX
180.44	183.64	9590 P	-1.0	0.4	109.0	4.0	248.0	100.0	-1.0	20.0	-1.0	4.66	2.700	HF-CORE	XXXX
183.64	186.99	9591 P	-1.0	0.2	25.0	4.0	11.0	5.0	-1.0	160.0	-1.0	0.88	2.700	HF-CORE	XXXX
186.99	190.20	9592 P	-1.0	-1.0	113.0	6.0	73.0	15.0	5.0	250.0	-1.0	1.97	2.700	HF-CORE	XXXX
.20	191.11	9593 P	-1.0	-1.0	38.0	28.0	805.0	125.0	-1.0	130.0	-1.0	3.13	2.700	HF-CORE	XXXX
191.11	194.46	9594 P	-1.0	-1.0	44.0	4.0	209.0	25.0	-1.0	290.0	-1.0	5.56	2.700	HF-CORE	XXXX
194.46	194.77	9595 P	-1.0	-1.0	80.0	50.0	1479.0	170.0	10.0	20.0	1.0	3.19	2.700	HF-CORE	XXXX
194.77	199.95	9596 P	-1.0	-1.0	52.0	-1.0	193.0	20.0	5.0	120.0	-1.0	3.66	2.700	HF-CORE	XXXX
199.95	200.86	9597 P	-1.0	-1.0	68.0	8.0	296.0	160.0	-1.0	60.0	-1.0	3.73	2.700	HF-CORE	XXXX
200.86	203.45	9598 P	-1.0	0.2	47.0	14.0	148.0	50.0	5.0	30.0	-1.0	3.31	2.700	HF-CORE	XXXX
203.45	206.96	9599 P	-1.0	0.2	43.0	8.0	117.0	40.0	5.0	40.0	-1.0	2.60	2.700	HF-CORE	XXXX
206.96	207.57	9600 P	-1.0	0.2	54.0	18.0	163.0	95.0	5.0	40.0	-1.0	3.75	2.700	HF-CORE	XXXX
207.57	212.29	10501 P	-1.0	-1.0	34.0	2.0	97.0	50.0	10.0	200.0	3.0	3.71	2.700	HF-CORE	XXXX
212.29	213.06	10502 P	-1.0	-1.0	48.0	6.0	101.0	135.0	5.0	100.0	-1.0	3.73	2.700	HF-CORE	XXXX

TRAVERSE/HOLE NUMBER ----------> T87CH1 PAGE : 4

FROM (M)	TO (M)	SAMPLE NO.	AU PPB	AG PPM	CU PPM	PB PPM	ZN PPM	AS PPM	SB PPM	BA PPM	HG PPM	FE %	S.G CONST	SAMPLE TYPE	ROCK TYPE
213.06	215.65	10503 P	-1.0	-1.0	30.0	4.0	80.0	25.0	5.0	160.0	-1.0	2.91	2.700	HF-CORE	XXXX
215.65	215.95	10504 P	-1.0	-1.0	70.0	8.0	49.0	20.0	5.0	50.0	-1.0	2.13	2.700	HF-CORE	XXXX
215.95	219.15	10505 P	-1.0	-1.0	34.0	-1.0	99.0	-1.0	5.0	1370.0	1.0	4.14	2.700	HF-CORE	XXXX
219.15	224.64	10506 P	-1.0	-1.0	71.0	-1.0	113.0	45.0	5.0	660.0	1.0	4.79	2.700	HF-CORE	XXXX
224.64	230.73	10507 P	-1.0	-1.0	35.0	-1.0	96.0	-1.0	5.0	540.0	-1.0	3.93	2.700	HF-CORE	XXXX
230.73	236.83	10508 P	-1.0	0.2	42.0	16.0	79.0	10.0	10.0	110.0	-1.0	3.00	2.700	HF-CORE	XXXX
236.83	242.93	10509 P	-1.0	-1.0	37.0	2.0	67.0	-1.0	5.0	130.0	-1.0	2.97	2.700	HF-CORE	XXXX
242.93	249.02	10510 P	-1.0	0.2	33.0	14.0	75.0	5.0	10.0	380.0	-1.0	2.92	2.700	HF-CORE	XXXX

DATE : 12-04-87
TIME : 11:36:21

FASERO JOINT VENTURE

TRAVERSE/HOLE [redacted] ----------> T87CH1

N.B. Negative number indicates an assay less than the detection limit
n.a. indicates no assay entered for data

ASSAY FIELDS

P ---> Primary value
S ---> Sub-prime value
1 ---> Rerun of original pulp
2 ---> Resplit of sample
A ---> Field average value

FROM (M)	TO (M)	SAMPLE NO.	Al %	Ca %	K %	Na %	Ti %	Mg %	Mn PPM	Mo PPM	Co PPM	W PPM	S.G CONST	SAMPLE TYPE	ROCK TYPE
52.12	53.64	9551 P	1.59	1.87	0.2	0.03	-1.00	0.44	424.0	1.0	9.0	-1.0	2.700	HF-CORE	SATX
53.64	56.69	9552 P	2.24	2.92	0.2	0.04	-1.00	0.72	744.0	-1.0	10.0	-1.0	2.700	HF-CORE	SATX
56.69	62.79	9553 P	1.81	2.68	0.1	0.02	-1.00	0.71	611.0	1.0	11.0	-1.0	2.700	HF-CORE	SATX
62.79	68.88	9554 P	1.73	2.97	0.2	0.03	-1.00	0.57	637.0	2.0	12.0	-1.0	2.700	HF-CORE	SATX
68.88	74.37	9555 P	1.54	1.86	0.1	0.02	-1.00	0.50	583.0	1.0	14.0	-1.0	2.700	HF-CORE	SATX
74.37	80.16	9556 P	1.64	2.52	0.1	0.02	-1.00	0.80	986.0	1.0	17.0	-1.0	2.700	HF-CORE	SATX
80.16	85.19	9557 P	0.97	0.13	0.1	0.01	-1.00	0.06	251.0	-1.0	22.0	-1.0	2.700	HF-CORE	SATX
85.19	87.48	9558 P	0.95	0.01	0.0	-1.00	-1.00	-1.00	31.0	-1.0	54.0	-1.0	2.700	HF-CORE	SALT
87.48	90.22	9559 P	0.72	-1.00	0.0	-1.00	-1.00	-1.00	11.0	2.0	13.0	-1.0	2.700	HF-CORE	ALTX
90.22	93.57	9560 P	0.61	-1.00	0.1	0.02	-1.00	-1.00	7.0	3.0	13.0	-1.0	2.700	HF-CORE	ALTX
93.57	97.69	9561 P	0.70	-1.00	0.2	0.04	-1.00	-1.00	6.0	2.0	4.0	-1.0	2.700	HF-CORE	ALTX
97.69	98.76	9562 P	0.80	-1.00	-1.0	-1.00	-1.00	-1.00	3.0	2.0	13.0	-1.0	2.700	HF-CORE	ALTX

TRAVERSE/HOLE NUMBER ----------> TB/CH1 PAGE : 2

FROM (M)	TO (M)	SAMPLE NO.	Al %	Ca %	K %	Na %	Ti %	Mg %	Mn PPM	Mo PPM	Cu PPM	W PPM	S.G CONST	SAMPLE TYPE	ROCK TYPE
98.76	101.50	9563 P	0.99	0.06	0.1	-1.00	-1.00	0.05	118.0	-1.0	6.0	-1.0	2.700	HF-CORE	ALTX
101.50	104.24	9564 P	1.82	0.20	0.2	0.03	-1.00	0.18	267.0	3.0	39.0	-1.0	2.700	HF-CORE	SATX
104.24	110.34	9565 P	2.51	0.99	0.2	0.04	-1.00	0.27	395.0	-1.0	13.0	-1.0	2.700	HF-CORE	ALXX
110.34	116.43	9566 P	2.68	0.21	0.3	0.01	-1.00	0.35	652.0	-1.0	11.0	15.0	2.700	HF-CORE	ALXX
116.43	120.70	9567 P	1.96	0.14	0.3	0.01	-1.00	0.29	681.0	-1.0	7.0	-1.0	2.700	HF-CORE	ALXX
120.70	126.64	9568 P	0.24	-1.00	0.0	-1.00	-1.00	-1.00	7.0	-1.0	9.0	-1.0	2.700	HF-CORE	ALXX
126.64	129.84	9569 P	1.03	0.01	0.3	0.08	-1.00	-1.00	18.0	7.0	93.0	-1.0	2.700	HF-CORE	ALXX
129.84	133.41	9570 P	0.58	-1.00	0.2	0.06	-1.00	-1.00	15.0	20.0	14.0	-1.0	2.700	HF-CORE	ALXX
133.41	135.33	9571 P	1.00	-1.00	0.3	0.05	-1.00	-1.00	41.0	12.0	28.0	-1.0	2.700	HF-CORE	SALB
135.33	135.64	9572 P	0.45	-1.00	0.2	0.01	-1.00	-1.00	49.0	14.0	23.0	-1.0	2.700	HF-CORE	SALB
135.64	137.77	9573 P	1.99	-1.00	0.4	0.26	-1.00	-1.00	13.0	4.0	25.0	-1.0	2.700	HF-CORE	SALB
137.77	139.29	9574 P	0.54	-1.00	0.1	0.06	-1.00	-1.00	9.0	5.0	8.0	-1.0	2.700	HF-CORE	ALGS
139.29	140.97	9575 P	2.89	0.18	0.5	0.01	-1.00	0.06	16.0	-1.0	2.0	-1.0	2.700	HF-CORE	APFX
140.97	142.34	9576 P	2.05	0.01	0.3	0.19	-1.00	-1.00	26.0	10.0	25.0	-1.0	2.700	HF-CORE	ALGS
142.34	142.95	9577 P	1.59	-1.00	0.1	0.02	-1.00	-1.00	66.0	30.0	67.0	-1.0	2.700	HF-CORE	ALSX
142.95	145.85	9578 P	0.56	-1.00	0.1	0.07	-1.00	-1.00	19.0	3.0	18.0	-1.0	2.700	HF-CORE	ATLX
145.85	147.22	9579 P	0.61	0.06	0.3	-1.00	-1.00	0.02	9.0	3.0	5.0	-1.0	2.700	HF-CORE	ALSX
147.22	152.86	9580 P	1.33	0.52	0.4	0.02	-1.00	0.44	950.0	-1.0	8.0	-1.0	2.700	HF-CORE	APFX
152.86	153.31	9581 P	0.70	0.14	0.3	0.01	-1.00	0.12	302.0	4.0	10.0	-1.0	2.700	HF-CORE	APFX
153.31	153.86	9582 P	1.57	0.24	0.4	0.01	-1.00	0.16	271.0	1.0	6.0	-1.0	2.700	HF-CORE	APFX

DATE : 12-04-87
TIME : 11:38:54

TRAVERSE/HOLE NUMBER ----------> T87CH1 PAGE : 3

FROM (M)	TO (M)	SAMPLE NO.		Al %	Ca %	K %	Na %	Ti %	Mg %	Mn PPM	Mo PPM	Co PPM	W PPM	S.G CONST	SAMPLE TYPE	ROCK TYPE
153.86	161.39	9583	P	0.49	-1.00	0.1	0.03	-1.00	-1.00	11.0	5.0	21.0	-1.0	2.700	HF-CORE	ATLS
161.39	163.07	9584	P	1.43	-1.00	0.0	-1.00	-1.00	-1.00	4.0	1.0	5.0	-1.0	2.700	HF-CORE	ALGX
163.07	166.42	9585	P	1.62	0.20	0.2	0.03	-1.00	0.10	145.0	1.0	19.0	-1.0	2.700	HF-CORE	ATLX
166.42	168.86	9586	P	1.57	0.15	-1.0	-1.00	-1.00	-1.00	82.0	1.0	4.0	-1.0	2.700	HF-CORE	ATLS
168.86	173.13	9587	P	2.71	1.45	0.3	0.08	-1.00	0.45	840.0	-1.0	11.0	-1.0	2.700	HF-CORE	ALCS
173.13	178.16	9588	P	1.94	0.97	0.2	0.04	-1.00	0.44	647.0	1.0	34.0	-1.0	2.700	HF-CORE	ALCS
178.16	180.44	9589	P	0.67	0.08	0.0	0.01	-1.00	0.02	103.0	-1.0	19.0	-1.0	2.700	HF-CORE	SALX
180.44	183.64	9590	P	1.28	0.02	0.0	-1.00	-1.00	-1.00	129.0	1.0	41.0	-1.0	2.700	HF-CORE	ATCS
183.64	186.99	9591	P	0.52	-1.00	-1.0	-1.00	-1.00	-1.00	5.0	1.0	2.0	-1.0	2.700	HF-CORE	ALSX
186.99	190.20	9592	P	1.17	0.26	0.1	0.01	-1.00	0.03	84.0	-1.0	29.0	-1.0	2.700	HF-CORE	ATLG
190.20	191.11	9593	P	1.02	0.49	0.2	0.01	-1.00	0.11	317.0	6.0	200.0	-1.0	2.700	HF-CORE	SVXX
191.11	194.46	9594	P	1.50	0.75	0.1	0.01	-1.00	0.33	1126.0	-1.0	40.0	-1.0	2.700	HF-CORE	ALCX
194.46	194.77	9595	P	0.86	1.05	0.2	0.01	-1.00	0.19	472.0	14.0	220.0	-1.0	2.700	HF-CORE	SVXX
194.77	199.95	9596	P	1.35	2.40	0.2	0.03	-1.00	0.58	915.0	-1.0	55.0	-1.0	2.700	HF-CORE	ALGT
199.95	200.86	9597	P	1.29	1.31	0.1	0.01	-1.00	0.44	402.0	10.0	91.0	-1.0	2.700	HF-CORE	SVAL
200.86	203.45	9598	P	1.71	3.10	0.2	0.02	-1.00	0.78	820.0	1.0	37.0	-1.0	2.700	HF-CORE	ALSX
203.45	206.96	9599	P	1.40	2.35	0.1	0.01	-1.00	0.69	667.0	3.0	43.0	-1.0	2.700	HF-CORE	ATSX
206.96	207.57	9600	P	1.76	1.79	0.2	0.02	-1.00	0.74	573.0	11.0	80.0	-1.0	2.700	HF-CORE	ACTS
207.57	212.29	10501	P	1.92	2.92	0.1	0.02	-1.00	0.99	966.0	-1.0	31.0	-1.0	2.700	HF-CORE	ALXX
212.29	213.06	10502	P	1.42	1.99	0.1	0.02	-1.00	0.78	632.0	3.0	46.0	-1.0	2.700	HF-CORE	ALSX

TRAVERSE/HOLE NUMBER ----------> TB7DH1 PAGE : 4

FROM (M)	TO (M)	SAMPLE NO.	Al %	Ca %	K %	Na %	Ti %	Mg %	Mn PPM	Mo PPM	Co PPM	W PPM	S.G CONST	SAMPLE TYPE	ROCK TYPE
213.06	215.65	10503 P	1.85	2.51	0.1	0.03	-1.00	0.99	729.0	-1.0	39.0	-1.0	2.700	HF-CORE	ALTX
215.65	215.95	10504 P	1.65	0.98	0.2	0.04	-1.00	0.58	259.0	9.0	39.0	-1.0	2.700	HF-CORE	ATSX
215.95	219.15	10505 P	2.44	1.70	0.2	0.03	-1.00	1.04	733.0	-1.0	27.0	-1.0	2.700	HF-CORE	ALXX
219.15	224.64	10506 P	2.66	2.12	0.2	0.03	-1.00	1.16	711.0	2.0	42.0	-1.0	2.700	HF-CORE	SATX
224.64	230.73	10507 P	2.09	2.40	0.2	0.02	0.01	1.11	701.0	-1.0	28.0	-1.0	2.700	HF-CORE	ACXX
230.73	236.83	10508 P	1.73	2.41	0.2	0.02	-1.00	0.92	540.0	-1.0	27.0	-1.0	2.700	HF-CORE	ACXX
236.83	242.93	10509 P	1.76	1.55	0.2	0.02	-1.00	0.94	458.0	-1.0	27.0	-1.0	2.700	HF-CORE	ACXX
242.93	249.02	10510 P	1.68	2.85	0.2	0.02	0.01	1.08	589.0	-1.0	26.0	-1.0	2.700	HF-CORE	ACXX

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,871

RWL

Westmin Resources Limited MINING DIVISION	
Work By R.L. Hine E.S.	TASEKO PROJECT
Date Drafted April 1988	20,000E GRID - EAST SHEET
Drafted By R.S.Hiley	Location of Drillhole T87CH-1
Date Revised	
Revised By	
N.T.S. Number 92O/3	Figure 87-2

100 50 0 400 300 500m
Scale 1:10,000

20,100N | 20,150N | 20,200N | 20,250N | 20,300N

SOUTH — NORTH

2000 m

ANOMALOUS GOLD ROCK GEOCHEMISTRY

ANOMALOUS GOLD SOIL GEOCHEM

ANOMALOUS ANTIMONY SOIL GEOCHEM

ANOMALOUS ARSENIC SOIL GEOCHEM

T87CH-1

ALTERATION

OVBD

OVERBURDEN

Outcrop: INTENSE ADVANCED ARGILLIC ALTERATION (± QUARTZ, ALUNITE, PYROPHYLLITE, DIASPORE)

UNIT 22

PORPHYRITIC ANDESITE

SHALE AND MINOR TUFF

ANDESITE LAPILLI TUFF

ANDESITE LAPILLI TUFF

PORPHYRITIC ANDESITE

ANDESITE VOLCANICLASTICS AND SHALE

CARBONACEOUS SHALE, ANDESITE TUFF, MINOR LAPILLI TUFF

- top of Tuff-Shale Marker @ 82.1 m

Cont. T86CH-1

UNIT 21

1960 m

80 m

TUFF-SHALE MARKER UNIT 21

1900 m

CARBONACEOUS SHALE AND ANDESITE LAPILLI TUFF

- base of Tuff-Shale Marker @ 87.5 m

ANDESITE LAPILLI TUFF AND TUFF

ANDESITE LAPILLI TUFF AND COARSE TUFF

CARBONACEOUS SHALE AND ANDESITE TUFF

ANDESITE LAPILLI TUFF

UNIT 20

100 m

1850 m

ANDESITE LAPILLI TUFF AND CARBONACEOUS SHALE

ANDESITE LAPILLI TUFF, TUFF AND AGGLOMERATE

FELDSPAR PORPHYRITIC ANDESITE DYKE

ANDESITE LAPILLI TUFF, TUFF AND AGGLOMERATE

CARBONACEOUS ANDESITE LAPILLI TUFF AND SHALE

ANDESITE TUFF AND LAPILLI TUFF

ANDESITE LAPILLI TUFF AND TUFF - BRECCIATED

PORPHYRITIC ANDESITE

150 m

ANDESITE LAPILLI TUFF, MINOR TUFF, MINOR SHALE

- 5% of beds contain 30% carbonaceous shale.

ANDESITE LAPILLI TUFF AND AGGLOMERATE

ANDESITE LAPILLI TUFF AND AGGLOMERATE - BRECCIATED

ANDESITE TUFF AND LAPILLI TUFF

- 10% carbonaceous siltstone fragments.

ANDESITE CRYSTAL LAPILLI TUFF

CARBONACEOUS SHALE AND TUFF

ANDESITE CRYSTAL LAPILLI TUFF

CARBONACEOUS SHALE AND MINOR LAPILLI TUFF

CARBONACEOUS TUFF, CRYSTAL TUFF AND TUFF BRECCIA.

ANDESITE LAPILLI TUFF

ANDESITE TUFF AND TUFF - BRECCIA

ANDESITE LAPILLI TUFF

CARBONACEOUS SHALE AND SANDSTONE

ANDESITE CRYSTAL LAPILLI TUFF

CARBONACEOUS SHALE AND SILTSTONE

ANDESITE BRECCIA AND TUFF - BRECCIA.

200 m

CARBONACEOUS SHALE AND SANDSTONE

ANDESITE LAPILLI TUFF

CARBONACEOUS ANDESITE TUFF

ANDESITE TUFF AND LAPILLI TUFF

CARBONACEOUS ANDESITE CRYSTAL TUFF

ANDESITE LAPILLI TUFF AND TUFF - BRECCIA

CARBONACEOUS LAPILLI TUFF

ANDESITE TUFF AND MINOR LAPILLI TUFF

CARBONACEOUS TUFF AND TUFF

ANDESITE LAPILLI TUFF

CARBONACEOUS SHALE AND TUFF

ANDESITE TUFF

CRYSTAL TUFF

249.0 E.O.H.

1750 m

UNIT 22

T86CH-4

OVERBURDEN AND BROKEN ROCK

Top of Unit 21

UNIT 21

PORPHYRITIC ANDESITE

SHALE

SHALE

CARBONACEOUS SHALE AND SUBORDINATE TUFF

top of Tuff-Shale Marker

TUFF-SHALE MARKER UNIT 21

base of Unit 21

ANDESITE LAPILLI TUFF

SYMBOLS

Qtz/Q	Quartz
Clay/C	Clay
Py	Pyrite
Dk	Dickite
AA	Alunite, Pyrophyllite, Diaspore
Chl	Chlorite
Pro	Propyllitic
Hem	Hematite
Mag	Magnetite
DBx	Diatreme Breccia
HBx	Hydraulic Breccia
Sh	Shear
Ft	Fault - definite
Ft	Fault - indefinite
Fg	Fault with gouge
Fr	Fracture
Vn	Vein
Cnt ——	Contact - definite
Cnt ---	Contact - indefinite
Scnt	Subcontact
Bd	Bedding

88-71

GEOLOGICAL BRANCH ASSESSMENT REPORT

17,871 RWL

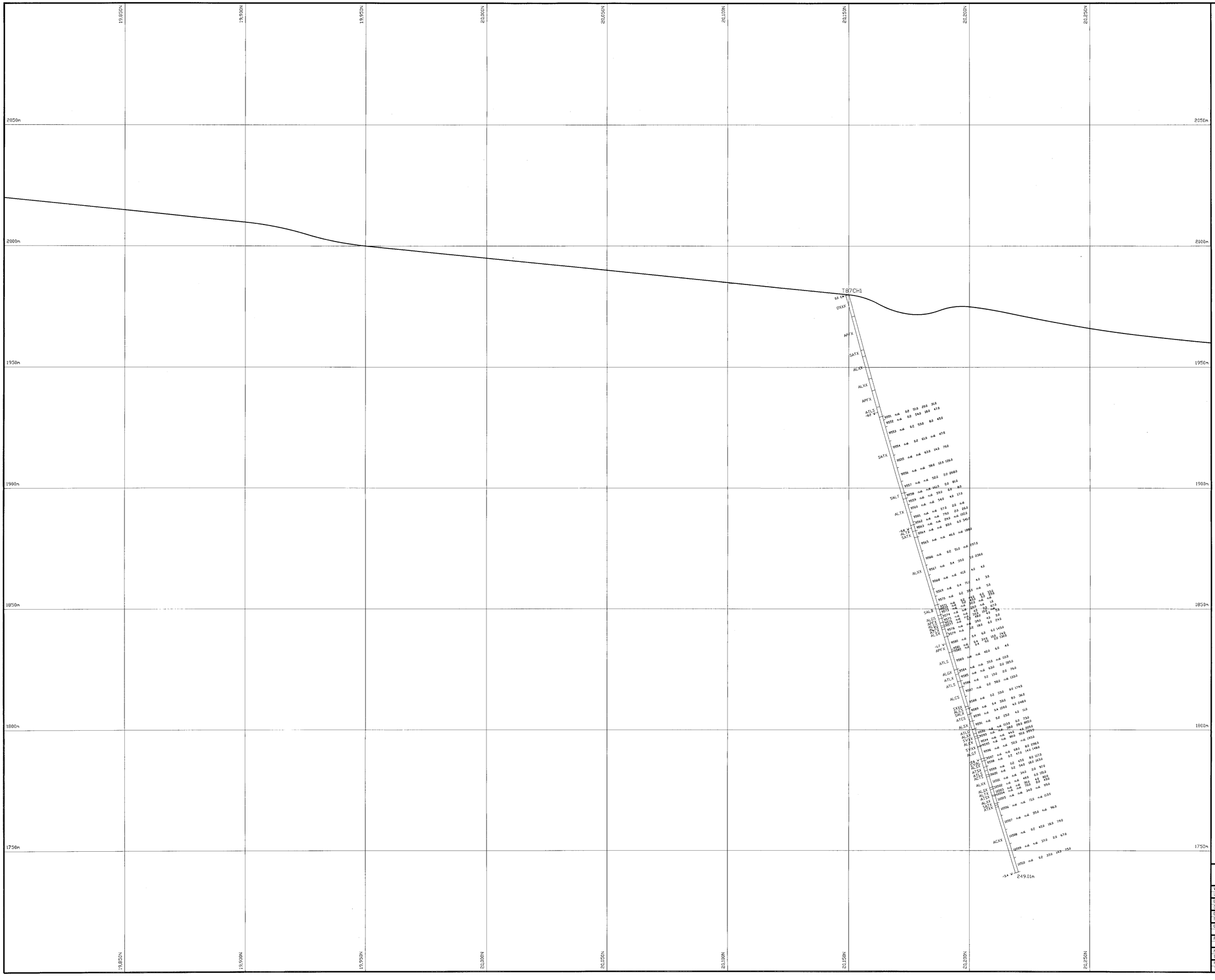
WESTMIN RESOURCES LTD

WORK BY	RON LANE
DATE DRAFTED	DEC, 1987
DRAFTED BY	RON LANE
DATE REVISED	
REVISED BY	
NTS	92 O/3

TASEKO JOINT VENTURE
LAKE ZONE
SECTION 19,900E
T87CH-1
GEOLOGY

0 10 20 30 40 m
SCALE 1:500

FIGURE 87-11



ROCK TYPE ABBREVIATIONS

A	ANDESITE
B	BASAL BRECCIA
C	CRYSTAL TUFF
D	DIATREME BRECCIA
E	DACITE
F	LAVA FLOW
G	AGGLOMERATE AND/OR VOLCANIC BRECCIA
H	APHYRIC
K	DYKE
L	LAPILLI TUFF
M	MARKER
N	LAPILLISTONE
O	OVERBURDEN
P	PORPHYRY/PORPHYRITIC
S	SHALE - black, carbonaceous, often intermixed with andesite tuff and lapilli tuff; also as fine to coarse rip-up clasts.
T	TUFF
U	TUFF BRECCIA
V	SANDSTONE/SILTSTONE - volcaniclastic.
X	NOT CERTAIN/NOT APPLICABLE
Y	PYRITE (>25%)
Z	LATITE

NOTE: Constituents listed left to right in decreasing order of abundance.

ASSAY DATA

Sample No. Au(ppb); Ag, Cu, Pb, Zn(ppm)

n.d. Below Detection

Au	5.0ppb
Ag	0.2ppm
Cu	1.0ppm
Pb	2.0ppm
Zn	1.0ppm

NOTE:

Maximum printable analytical value is 999.9

Measurements spaced every 50m down hole refer to distance east (E) or west (W) that hole is projected to section.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,871

Westmin Resources Limited
MINING DIVISION

Work By	Lane/Metcalfe
Date Drafted	Dec. 1987
Drafted By	R.A. Ivany
Date Revised	
Revised By	
N.T.S. Number	92 O/3
File Name	TSK1990E

TASEKO PROJECT

Lake Zone

SECTION 19,900E

T87CH-1
Analytical Results

10 5 0 10 20 30m
SCALE 1 : 500

Figure 87-12