LOG NO: 17-01	RD.
ACTION:	
	······································
FTLE NO:	

LONG: 116005'W

# KOKANEE EXPLORATIONS LTD.

# REPORT ON DIAMOND DRILL HOLE E90-3

#### ENG PROPERTY

YAH 1 Claim

FOR STEELE MINING DIVISION

YAHK AREA

# GEOLOGIC MELLIBRANCH ASSESSMENT REPORT

**LAT**: 40°05'N

20 829

OWNER

KOKANEE EXPLORATIONS LTD.

Suite 104, 135 - 10th Avenue South Cranbrook, B.C. V1C 2N1

Work Performed From August 15, 1990 to August 23, 1990

Report by: L. Stephenson Submitted: December, 1990

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#### KOKANEE EXPLORATIONS LTD.

#### REPORT ON DIAMOND DRILL HOLE E90-3

#### YAH 1 CLAIM

#### FORT STEELE MINING DIVISION

# L. Stephenson

December, 1990

#### 1.00 Introduction

This report has been written to outline the exploration drilling work and results on the Eng claim group, at Yahk, British Columbia, 50 kilometres south of Cranbrook.

# 2.00 <u>Claims</u>

The property consists of three 4-post claims (Eng 1=15 units, Eng 2=16 units and Eng 205=20 units) and 206 2-post claims (Eng 3 to Eng 204 and 205 to 209) held directly by Kokanee Explorations Ltd. and eight 2-post claims (Yahk 1 to 8), under option.

#### 3.00 Access and Location

These claims are located astride British Columbia Highway 3/95 around the town of Yahk, in southeastern British Columbia (see Location Map). Kokanee has built access roads into the main areas of the claim groups.

#### 4.00 Regional Geology

The claims lie within the central portion of the Purcell Anticlinorium, which consists of sedimentary argillites, quartzites and related intruded gabbro sills and dykes of the Aldridge Formation. This formation hosts both the Sullivan deposit and the St. Eugene deposit approximately 72 kilometres north and 25 kilometres north respectively.

#### 5.00 Property Geology

The property is located within the Middle Aldridge rocks with the southern portion closely associated with the Lower Aldridge/Middle Aldridge contact (stratigraphic time horizon of the Sullivan Mine) (Map 3).

Limited exploration mapping of the property by Cominco Ltd. and Kenneco Inc. have shown the presence of Moyie gabbro intrusive within the Aldridge quartzites. The reports also indicate presence of quartz veins with sulphides and some disseminated pyrrhotite and sphalerite in samples taken on the northern part of the property.

# 6.00 1990 Work Program

Kokanee commenced exploration work on this project in early July of 1990. The exploration work consisted of base linecutting, soil geochem, geophysical surveying, geological mapping and diamond drilling of five drill holes.

# 7.00 <u>Diamond Drilling</u> (Plates 14 - 17)

Five diamond drill holes were spotted to test the coincident geochem and geophysics anomalies on both the north and south grids and to drill test the Yahk vein at depth. A total of 1550 metres of core was drilled. Geologically, the rocks were typically Middle Aldridge quartzites and argillites.

# 7.10 <u>Drill Hole E90-3</u>

E90-3 -45° 100° Line 5315N, 3210E (Plate 15)

This hole was designed to test below the surface showing to the north of the town of Yahk. Samples from this vein had run up to 2% lead in grab sample. Some thin quartz rich veins with pyrite and arsenopyrite with very minor sphalerite and galena were intersected. Some thin laminae beds with pyrite and pyrrhotite were also intersected. The rock units were much more maroon in colour and with a higher percentage of argillite content. It was interpreted to be lower Aldridge equivalent units. The amount of disseminated sulphide mineralization tends to confirm this interpretation.

Although no distinct correlation of the down dip extension of the vein showing has been confirmed, the presence of similar veins could be related. The presence of major faulting deeper in the hole could also be related to the showing or in displacing the down dip extension of the zone. The repeating of beds (inferred in the hole) is very probably related to the major fault system proposed through the Yahk Valley.

#### 8.00 Conclusion

The work completed to date on the Eng Property has not delineated any substantial zones of mineralization. However, it has outlined two areas for further exploration and confirmed some of the regional geological factors with respect to the vein (Vine, North Star) and stratiform (Sullivan, Star) type mineralization in the area.

LAURENCE STEPHENSON, B.Sc., M.B.A.

P. Eng

# EXHIBIT "A"

# STATEMENT OF EXPENDITURES

# DIAMOND DRILLING PROGRAM (E90-3)

ON YAH 1 CLAIM FT. STEELE M.D.

Covering the period of August 15th to August 23rd, 1990

#### INDIRECT

#### SALARIES:

R. Edmunds - Geologist - Supervision/core
logging, sampling - 9 days @ \$200/day \$ 1,800.00

DOMICILE: 9 days @ \$65/day 585.00

TRANSPORTATION: 1 - 4X4 truck; 9 days @ \$50/day 450.00

# DIRECT

Connor's Drilling Ltd. 2007 West Trans Canada Highway, Kamloops, B.C.

41,138.25

TOTAL INDIRECT AND DIRECT = \$43,973.25

LAUBENCE STEPHENSON B.Sc., M.B.A., P.Eng.

#### IN THE MATTER OF THE

#### B.C. MINERAL ACT

AND

# IN THE MATTER OF A DIAMOND DRILLING PROGRAM

CARRIED OUT ON THE ENG PROPERTY

#### YAHK AREA

in the Ft. Steele Mining Division of of the Province of British Columbia

More Particularily N.T.S. 82G/11W

#### AFFIDAVIT

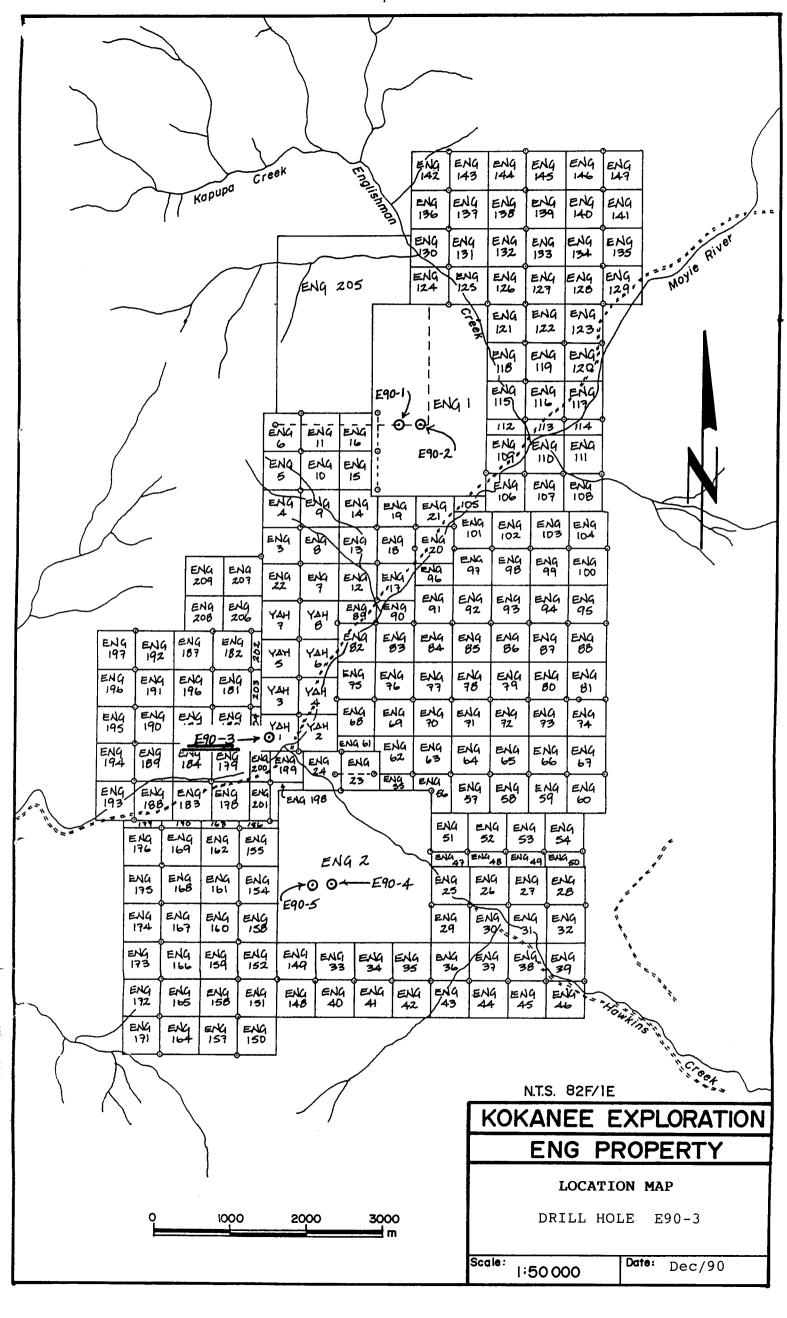
- I, L. Stephenson, of the City of Cranbrook, in the Province of British Columbia, make oath and say:
- 1. That I am employed as a Geologist by Kokanee Explorations Ltd. and as such have a personal knowledge of the facts to which I hereinafter depose:
- 2. That annexed hereto and marked as Exhibit "A" to this my Affidavit is a true copy of expenditures incurred on a diamond drilling program, on the Eng mineral claims;
- 3. That the said expenditures were incurred between the 15th day of August, 1990 and the 23th day of August, 1990 for the purpose of mineral exploration.

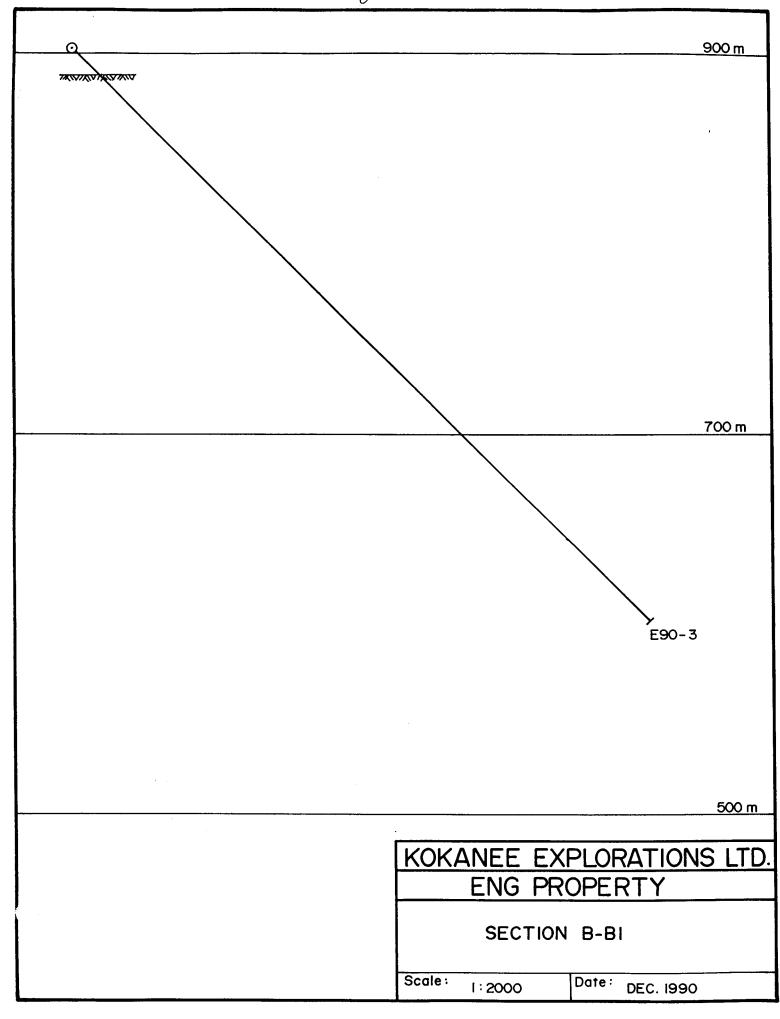
LAURENCE STEPHENSON B.Sc. M.B.A., P. Eng.

#### AUTHOR'S QUALIFICATIONS

- I, Laurence Stephenson, of Cranbrook, B.C., in the Province of British Columbia, do hereby certify that:
- 1. I graduated from Carleton University in 1975 with a Bachelor of Science degree in Geology then, in 1985, graduated from York University with a Masters of Business Administration;
- 2. I am registered as a Professional Engineer for the Province of Ontario (1981) and currently a member in good standing;
- 3. I have had over 23 years experience in the field of mining exploration.

YAUREN STEPHENSON B.Sc., M.B.A., P.Eng.





# KOKANEE EXPLORATIONS LTD.

#### DRILL HOLE RECORD

Page No. 1

Name of Property: ENG

Corr. Dip: -45°

Remarks:

Hole No: E90-3

Length: 427.02m

Location: Yah 1 Claim

Start Date: August 15, 1990

Finish Date: August 23, 1990

Elevation: 900m

Azimuth: 100°

Collar Dip: -45°

Core Size: NQ

Tests at:

increasing below 42.60. 23.06 - 27.00: local zones of short, dark, irregular

Logged by: FRE

Date: Aug.17/90

METERAGE From To	DESCRIPTION	No.	ampl From	To	Au	Aq	Pb	Zn	Cu
		110.	110111		nu ppb	ppm	8	8	ppm
0.00	<u>Casing</u> .				F.F.3	F. F			
23.06 - 51.00	Lower Middle Aldridge: Medium to thick bedded (±1.5m) units 40 - 60% quartzite grading into quartzitic argillites and local argillites. Unstable slope conditions: generally disturbed argillaceous units and rare laminations; load cast bases. High grade of thermal metamorphism (coarsely crystallized biotite, pink garnets, spotting of metamorphic feldspars) locally overprinted by a fabric cleavage = slatly cleavage. Very little fracturing. Frequent patches of pale cream, fine grained, alteration and garnets and feldspar and biotite clots in quartzites. 23.06 - 51.50: occasional rust coated fractures,								

Page 2

Property: ENG

Hole No.: E90-3

Location: Yah l

METERAGE DESCRIPTION Sample From To No. From To Pb Zn Au Αq Cu ppb ૠ ppm ppm hairline cracks occasionally containing

pyrite - principally biotite or biotitic Low trace pale pyrite chlorite. disseminated through quartzites and quartzitic argillites. 35.90 - 36.82: semi-fluidized disaggregation for 60%. Frequent networks of hairline fractures at ~50 to bedding containing cream clay mineral (sericite?). 36.82 - 38.55: laminated argillite of strongly sericitized (cream) and grey material. 38.55 - 39.00: coarsely slumped fragmental; pervasive on. 42.15 - 42.35: incipient sericitization. longitudinal stylolitic quartz veinlet at ~100 to bedding, associated with conjugate rusty cracks containing pyrite aggregates. These cracks, and those at 23.06 - 27.00 indicate compressive strain. 44.83 - 45.83: unusually rusty fracture zone with 8cm gouge and chips at 45.58. Within this zone, bedding abruptly becomes parallel to core axis. 48.68 - 51.62: as above. Fracture zone approximately parallel core. rusty and coated with a chalky clay mineral that reacts mildly and becomes pale green with HCl. Apparently open space fill, but very minor striation on

Property: ENG

Page 3

Hole No.: E90-3

90-3 Location: Yah 1

METERAGE DESCRIPTION Sample From To From Αg Pb Zn Cu ppb ppm % ppm some faces, approximately parallel core axis. Looks like a carbonate clay mineral aggregate. 51.00 - 70.00 Base of Quartzite: actually runs along core for about 1m. Quartzitic Argillite: argillaceous quartzite variation. Metamorphic fabric with coarse biotite and evenly distributed specks of decomposed feldspar phenocrysts (~0.5mm). Lamination mostly disaggregated by incipient slumping and fluidization. Sericitization of argillaceous sections throughout. Unit bases represented by slightly more quartzitic sections and no load casting. Below 56.78 disturbed intervals between 5cm and 20cm (true) amount to ~35% and coarse (up to 4cm) laminated quartzitic argillite and argillite predominate. 58.30 - 63.11: sections of cracks as 42.15 - 42.35. Coarser and more dense locally. Trend is about 10° to bedding in argillaceous rocks; perpendicular or irregular in the more quartzitic sections. Rare visible pyrite is pale or arsenopyrite. Sporadic repetition below. 65.45 -65.55; 66.92 - 3cm; 67.60 - 67.68; 68.30 - 4cm; 69.00 - 69.15: cracks as above limited to quartzitic sections, where

Page 4

Property: ENG

Hole No.: E90-3

From To		No.	From	To	Au	Ag	Pb	. Zn	Cu
					ppb	ppm	8		ppm
	more dense and irregular network and								
	associated with increasing pyrite,								
	arsenopyrite and fine, grey metallic								
	(possibly galena). 69.15: faintly								
	laminated, completely sericitized								
	argillite, grading out below 70.00 into								
	quartzitic argillite. Frequent seams of								
	cream clay mineral parallel bedding. +								
	1mm veins of the crack-fill described								
	above at $10^{\circ}$ to bedding.								
	Transition over interval 65.00 - 70.00.								
70.00 - 78.70	No shows but including this guarteit.								
70.00 - 78.70	As above, but including thin quartzite bases to units (+20%)(+20cm). Downward								
	The state of the s								
	<ul> <li>increasing sericitization of argillaceous component, with local</li> </ul>								
	development of feldspar phenocrysts (<1mm, <3%), biotite. Chlorite absent.								
	Subtle increase in fine and coarse crack								
	network as 58.30 - 63.11, concentrated								
	in quartzitic argillites and quartzites,								
	with pyrite, pyrrhotite or very fine								
	pyrite, and arsenopyrite (+ grey								
	metallic). 72.00: brittle fracture	1007	71.0	72.0	/	_	.005	.01	62
	zone in quartzite. Principal trend ~50°		72.0	73.0	;	_	.005	.01	34
	to core - 8cm. Pyrite and arsenopyrite	1009	13.0	74.0	,	-	.005	.01	45
	open space fill. 73.26: gouge and		74.0	75. <b>6</b>	,	/	,02	. 02	34 45 28
	chip-filled 6cm fracture associated with	,0,0		, 3.0	,	,		- <b>-</b>	
	very fine pyrite in streaks and								
	disseminations. 75.55: 7mm sulphide	}							

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Property: ENG

Hole No.: E90-3

rom To		No.	From	To	Au	Ag		Pb Zn	Cu
					ppb	mqq	%	8	ppm
	88.65 - 90.05: predominantly quartzitic	ļ							
	argillite, rare faint lamination,	İ							
	containing network of short cracks, as								
	above, filled with very fine pyrite, at								
	10° to bedding. Occasional aggregations								
	along bedding planes. 89.65: 2.5cm								
	bed, 30 - 40% pyrite as very fine masses								
	and coarser grained aggregates to 1.5mm								
	in plane of bedding. Aggregates								
	frequently rimmed with cream clay								
	mineral (sericite?). $95.00 - 95.32$ :								
	tight crush zone at ~80° to bedding, 47°								
	to core axis, associated with pale cream								
	alteration, garnets and facings of								
	sericite (?). About 1m of moderate								
	fracturing on either side. Cavities								
	suggest low confining pressure. 96.94 -	1							
	98.08: Well laminated, fine laminated								
	argillite. Occasional incipient	1							
	fracture seams of cream clay mineral	ł							
	(sericite?) @ 10° to core axis;								
	occasional dark cracks in same								
	direction.	1							
8.08 - 156.10	Medium to Thick Bedded Quartzites:								
	(80%)(1.5m - 2m true thickness) topped	1							
	by well laminated - fine laminated								
	biotitic, sericitic argillites.								
	Occasional spectacular patches of								
	concretion quartz material (garnets and	1							
	biotite aggregates to 4mm in a <1mm	Į.							

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Property: ENG

Hole No.: E90-3

METERAGE DESCRIPTION	S	ampl	е					
From To	No.	From	Тo	Au	Ag	Pb	Zn	Cu
				ppb	ppm	8	ૠ	ppm
quartz-feldspar matrix. <u>101.88                                  </u>								
<u>104.30</u> : as 85.42 - 98.08, thin bedded								
quartzite sequence with short (5cm)								
sections of dense dark cracks of very								
fine pyrite in five of the quartzites.								
<u>106.00</u> : 15cm fracture zone with core of								
crushed rock and muddy gouge. Low								
confining pressure. <u>107.52 - 111.83</u>								
frequent short sections of pyrite	4							
bearing cracks as described above.	l .							
<u>110.19</u> (9cm); <u>110.53</u> (1cm): dense network of very fine cracks as above and								
~20% pyrite as disseminated aggregates								
to 0.5mm. <u>111.03</u> (5mm); 111.19 (3mm);								
111.27 (4mm): bedding plane seams of								
quartz, cream clay mineral, aggregates								
of pyrite and rare chalcopyrite to 3mm,								
113.12 - 118.15: unit size +2m								
argillite content <5%. 122.68 - 123.70		122.5	123.5	į		- 005	.01	85
pyrite bearing cracks through quartzitie		,,,,,,		,			•01	00
argillite $@ \pm 10^{\circ}$ to bedding. Cracks are								
coarser than above; 0.5mm wide and								
exceed core in length, 48° to core axis.	1							
124.10 - 127.10: core very blocky.								
Much of the breakage is along fine								
planes in quartzite bordered by whitish								
quartz ( $<<0.5$ mm) @ $60^{\circ}$ to core axis.								
Probably bedding. More argillaceous	1							
sections display soft-rock convolution.	1.					<i>~</i> ~/		
<u>127.25 - 153.00</u> : more or less as above.		140.1	141.2	7		.003	.01	25
Very fractured, but no coatings. In	1013	141.2	142.4	1		.005	.01	41

- 142.38:

zone. Appears about 2cm wide. 140.14

direction in plane of bedding, with encrustations of pyrite and coats of cream clay mineral on faces. No indications of movement. 140.55 -141.40: quartz vein @ 80 to core axis and 88° to bedding; maximum width of about 4cm. Walls frozen, planar.

strong fracturing, one

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Property: ENG

Hole No.: E90-3

Location: Yah 1

METERAGE DESCRIPTION Sample From To No. From To Pb Zn Cu Au Αq ppb ppm ppm more massive quartzites, planes appear In argillaceous rocks both parallel bedding and in plane of the locally developed cracks - i.e. 100 from bedding. Increasing in severity downwards. 127.84 - 128.25: angular vuggy cavities to 1cm parallel fracture direction. 129.47 (5cm): crush zone, pyrite encrustations on faces and coatings of cream chalky clay mineral. 130.05 - 130.30: zone of dark pyritebearing cracks. 130.98; 131.65; 132.20; 133.80 (4cm): local crush zones with gouge and fragments. 132.64 - 133.30: incipient breccia with strong pale alteration. 133.45 (4cm): crush zone with cavities as 127.84 - 128.25. 134.00 - 134.15: incipient breccia with hairline crack network of cream clay mineral. 136.00 +: centre of gouge

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Property: ENG

Hole No.: E90-3

METERAGE	DESCRIPTION	s	ampl	e					
From To		No.	From	To	Au	Ag		Pb Zn	Cu
					ppb	mqq	ૠ	8	ppm
	Contains coarse, inward growing, clear								
	quartz, aggregates of pyrite and of								
	bronze biotite to about 5mm. 140.88:								
	crossed by 1cm "bedded" quartz band of								
	same material as above. 141.25: vein								
	is offset 8mm on 4mm "bedded" quartz								
	band, as above. Here, main vein								
	sheeted, with core of pyrite encased in								
	biotite. <u>143.00 - 143.95</u> : gouge seams								
	in plane of bedding <1cm. 146.20 -								
	146.35: patch of concretionary material	i							
	contains pyrite aggregates with the								
	coarse biotite and pale pink garnets.								
	Units becoming thicker: e.g. <u>145.90</u> -								
	149.76 with a 15cm laminated argillite								
	top. <u>152.70</u> : encrustation of fine								
	<pre>pyrite on two intersecting fracture</pre>								
	faces.								
156.10 - 171.68	Medium Bedded Units: (+lm) about 40%								
	medium grained quartzites. Argillites								
	are well and fine laminated with								
	biotitic/sericitic alteration.								
	Occasional short sections of dark								
	cracks, occasional patches of								
	concretionary material in quartzites.								
	Fractures are faced with chalky and								
	cream clay minerals, rarely containing								
	fine pyrite. Apparently decreasing								
	metamorphic effects.								

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Property: ENG

Hole No.: E90-3

METERAGE	DESCRIPTION	S a	mpl e	e					
From To		No.	From	То	Au	Ag	Pb	Zn	Cu
	161.30 - 163.25: largely laminated argillite as described; occasional quartzitic bases 5cm - 10cm thick. 163.65: CAVE recorded within quartzite; but no apparent gap in core. 166.65 and 166.90: balling of silty units within thin bedded sequence. Unit thickness and content of medium grained quartzite increases below 167.00 to 2 - 3m and 80%. Possible candidate for base of Middle Aldridge Formation.				ppb	ppm	8	<b>%</b>	ррт
171.68 - 190.00	Thin to Medium Bedded Argillites: 5cm - 50cm, well bedded sequence of argillites and quartzitic argillites. Lamination is coarse (1 - 4cm) frequent sections containing the dark, pyrite-bearing cracks described previously. Commonly about 10 - 15° to bedding, locally variable. 171.68: 16cm of intense sericitization of argillite. 175.55 - 176.70: dark homogeneous argillite containing local sections of dark cracks and about 2% pyrite throughout as an even dissemination of occasionally bedded aggregates to 1.5mm in length. 176.70 (6cm): pyrite bearing concretion. 176.84: pyrite aggregates to 1cm long and 1mm wide form two bedded	1014	175.5	176.7	1	_	, 01	·62	34

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Property: ENG

Hole No.: E90-3

From To		No.	From	To	Au	Ag	РЬ	Źn	C
					ppb	ppm	8	8	ppm
	bands about 1mm thick and 1cm apart.								
	181.20: 1.5cm band of quartz and cream								
	clay mineral in plane of bedding.								
	188.66: 2cm vuggy crush zone parallel								
	bedding. 189.89: 10cm of mild								
	alteration (silicification?) with 15 -								
	20% irregularly distributed aggregates								
	of pyrite to 3mm, patches of fine								
	pyrite, a 2cm patch containing								
	aggregates of chalcopyrite to 3mm long.								
90.00 - 221.00	Transitional From Above: as from 156.10								
	to 171.68. But the sericitization and								
	biotite development is less obvious.								
	Quartzites are dark grey and fine to								
	medium grained. Frequent batches of								
	concretionary material. 195.00 -								
	197.50: principally laminated								
	argillite. Fractured, mainly in bedding								
	plane, with loci at 196.00 and 197.10.				_		_		
	<u> 198.95 - 201.20</u> : similar to 175.55 -	1015	199.0	201.20	2	<del></del> .	07	.02	40
	176.70. Dark, siliceous argillite								
	streaked with bedded aggregates and very								
	fine lenticular laminae of very fine								
	pyrite to about 3%. Incipient								
	development of dark cracks as described								
	<pre>previously. 200.10: 6cm bed of quartz-</pre>								
	sericite (? = decayed feldspar?) veined								
	with ultra-fine pyrite bordered with 1cm								
	- 2cm of maroon argillite.								
	<u> 204.52 - 205.56</u> : CAVE								

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Property: ENG

Hole No.: E90-3

METERAGE	DESCRIPTION	S	ampl	е					
From To		No.	From	То	Au	Ag		Pb Zn	Cu
					ppb	ppm	8	8	ppm
	reported - apparently within quartzite.	ł							
	Does not appear related to fracturing.								
	206.00 - 207.50: moderate soft sediment								
	effects. 209.60 - 210.10: dense								
	network of fine fractures faced with	ļ							
	cream clay mineral (sericite?) within	i							
	zone of pale alteration and								
	sericitization. 214.50 - 221.00:								
	occasional development of fairly coarse								
	(2mm maximum width) pyrite-bearing								
	cracks, at 10 - 12° to bedding.								
	Quartzitic sections are medium to fine								
	grained, argillaceous sections								
	moderately sericitized, fractures								
	frequently encrusted with fine pyrite.								
	••								
221.00 - 234.30	Fine Grained Quartzites: 50% to 60% in								
	units 30cm to 1m thick. Tops of beds								
	argillaceous quartzite; rarely well								
	laminated argillite. Core is chopped.								
	Otherwise, as above.								
234.30 - 249.50	<u>Lithology</u> : as above. Medium bedded								
	units; 50% fine grained, dark								
	quartzites; 45% very faintly laminated								
	argillaceous quartzite; 5% sericitized,								
	laminated argillite. Lozenge network								
	breccia, principally confined to								
	quartzites, variable intensity and								
	healed-coherent-frozen fragments close								
	packed, i.e. no real matrix - just								
		•							

Property: ENG

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Hole No.: E90-3

Location: Yah l

 METERAGE
 DESCRIPTION
 Sample

 From To
 No. From To

No. From To Au Ag Pb Zn Cu ppb ppm % % ppm

hairline fractures, angular, lozenge shaped, up to 4cm in length. Local suggestion of jostling and rotation. Fractures faced with cream clay mineral (sericite?); some display a polish = movement. Trend of fracture fabric is constant over small regions, but varies from parallel to perpendicular to core. The breccia fabric starts as sporadic patches and increases downwards, culminating between 258.00 and 260.00. Locally the breccia contains cavities oriented parallel to the trend, so it is a low confining pressure Mesozoic effect. Dominant trend is parallel bedding. 237.38: 6cm of crush and (apparently sericitized) mylonization (?) parallel bedding. Throughout this brecciation, sedimentary features are obscure. However, there is a moderate amount of soft rock disaggregation within argillaceous units. 247.80 -256.10: dark pyrite bearing cracks locally developed in argillaceous quartzites with a very low content of fine disseminated pyrite in host. Their orientation (5 - 100 to core axis) is parallel to the trend of the brecciation. At about the same point, the brecciation becomes "dry" - no matrix or fracture facing.

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Property: ENG

Hole No.: E90-3

METERAGE	DESCRIPTION	s	ample	•					
From To		No.	From	To	Au	Ag		Pb Zn	Cu
249.50 - 256.10	Thin Bedded, Laminated Argillites and Quartzitic Argillites: with a maroon or purple cast. Locally rather dark and hard. Specked throughout with aggregates of feldspar and pyrite to 0.5mm. Trace of fine pyrite or pyrrhotite disseminated through matrix. Local, moderate intensity brecciation parallel bedding as described at 234.30 - 249.50. Occasional fractures encrusted with fine pyrite. Bedding parting often striated with slickensiding. 254.30 (@150 to bdg) and 254.39: seams or fractures bordered by few mm sericitization. 254.75 - 254.90: crush zone and gouge at 254.82 parallel bedding, followed by brecciation as 234.30 - 249.50.				ppb	ppm	8	<b>Q</b> 6	mgg
256.10 - 260.45	Quartzites: 5% short argillite sections as previous. Intense brecciation as 234.30 to 249.50. Frequent short sections of whitened, garnetiferous, biotitic concretionary material. Very difficult to identify a trend to the breccia fabric. Locally there is a fine (<5mm) grind and the development of matrix. Another possible candidate for base of Middle Aldridge Formation.								

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Property: ENG

Hole No.: E90-3

METERAGE	DESCRIPTION	s	ampl	e					
From To		No.	From	To	Au	Ag		Pb Zn	Cu
	$\frac{257.57}{1}$ : impregnation of fine pyrite along fracture displacing different textures of breccia (@33° to core axis).				ppb	ppm	<u>8</u>	8	ppm
260.45 - 260.91	<u>Fracture Zone - Possible Fault</u> : flakes and gouge seams suggest approximately parallel to bedding, 60 - 70° to core axis. Possible repetition of 254.00 - 260.45.								
260.91 - 262.86	<u>As 249.50 - 256.10</u> : possible repeat. Strongly fractured. Thin bedded argillites.								
262.86 - 267.03	As 256.10 - 260.45: top 4m possible repeat. Quartzites, less intensely brecciated than above. Lower contact appears a minor, bedding parallel slip. Brecciation terminates abruptly.								
267.03 - 275.55	Thin to Medium Bedded Sequence: (5 - 50cm) of rare, thin quartzites (20%) grading to coarse laminated argillites and quartzitic argillites. Occasional, very mild brecciation in thin quartzite sections.								
275.55 - 335.92	Medium to Thin Bedded Quartzites: (20 - 90cm) + 70% and well laminated to coarse laminated biotitic argillites. Minor, incipient breccia as 234.30 - 249.50,								

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Hole No.: E90-3

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DESCRIPTION Sample METERAGE Pb Zn То Cu From Au Αq From To No. 9ૂ 9ઠ daa mag ppm

locally intense in quartzites. Argillites occasionally mildly sericitic and rarely disturbed by soft sediment disaggregation. Rare sections of fine, pyrite bearing cracks in argillaceous 276.27 - 280.00: relatively rocks. intense brecciation as described above, gradually dying out downwards. 282.06 -282.36: fracture or slip zone. Minor gouge, but frequent dark chlorite, striated slip faces. Majority at about 20° to bedding and 50° to core axis. 290.48 - 295.26: single composite turbidite - 98% quartzite. Occasional quartzite bed to about 2m thick below here. 310.95 - 312.53 and 313.45 -314.25: fracture zones of variable brecciation as 234.30 - 240.50, minor gouge seams and fractured core with occasional striated face. prevailing trend appears approximately parallel to bedding. 315.08 - 316.90: as above, but less intense. At 316.16, 15cm band in which feldspars of quartzite completely sericitized. 317.35 - 326.14: blocky, fractured. One fracture direction is parallel bedding. The other is between 8 and 15° of core axis - about 90° to bedding. The former are striated faces of slip. The section is 95% quartzite

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METERAGE	DESCRIPTION	s	ampl	e					
From To		No.	From	To	Au	Ag		Pb Zn	Cu
	in 1 - 1.5m units. Occasional gouge seams <0.5cm parallel bedding. $326.72 - 329.24$ and $332.06 - 333.57$ : coarse laminated argillites as tops to cycles; lower boundaries transitional.				dqq	ppm	<b>%</b>	<u> </u>	mqq
335.92 - 427.02	Thin Bedded Quartzites: (40%, 5 - 30cm) interbedded with argillite bedded on same scale. Lithology as previous but more argillite and thinner units. Current cut bases to fine to medium grained quartzites. Argillites seldom well laminated; generally current worked and slightly disturbed. Local mild load casting and convolution. Rare, short patches of concretionary material in arenites. Rare sections of dark cracks, as those filled with fine pyrite, but no longer at ~10° and ~35° to core axis, with intersection @ ~50° to bedding, faced with cream-light grey clay mineral. 341.18 - 344.50: quartzite unit as found towards base of 275.55 - 335.92. 341.60 - 343.50: fracture zone or crush zone in quartzites centred on vuggy breccia for 20cm @ 342.60. General trend @ ~15° to 30° to core axis, steepening to centre (342.60). 352.00 and 353.00: irregular fractures faced with encrustations of pyrite. 353.15 - 354.05: zone of								

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 METERAGE
 DESCRIPTION
 Sample

 From To
 No. From To
 Au Ag
 Pb Zn
 Cu

 ppb
 ppm
 %
 ppm

moderate fracturing  $@ 30 - 50^{\circ}$  to core 360.10: 3cm bed or band of silica containing pyrite aggregates and fracture fill. 373.95, 374.40, 377.00 -377.50: vuggy crush zones in plane of bedding associated with moderate fracturing and occasional slip surface. 388.30 - 389.70: set of fractures @ 25° to core axis associated with strong sericite alteration, sericite coatings of fracture faces and coarse cavities: e.g.  $1 \text{cm} \times 3 \text{cm} \times 4 \text{mm}$ . 391.30 - 393.75: fine biotite developed in bands crossing bedding @ 50° probably appears as crenellation cleavage in outcrop. 393.75 - 394.50: zone of sericite faced fractures @ 25 - 40° to core axis around 30cm of crush breccia and gouge centred on 394.00. With increasing depth, the dark, pyrite filled cracks become more numerous, more irregular and thicker (to 2mm max); and pink garnets become more frequent in concretionary material. 401.25 - 401.55; 402.60 - 403.00; 403.20 - 404.90: zones of fracturing, principal faces at 10 to 200 to core, coated with chalky grey clay mineral and local pyrite crusts. Subordinate cross fractures, parallel bedding display slickensiding. 407.57 - 410.00: two quartzite units, no argillite, heavily

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METERAGE	DESCRIPTION	Sample							
From To		No. From To	Au	Ag	Pb Zn	Cu			
	fractured as above on planes @ 5 to to core axis. Slickensiding is in plane of the hole. Below 400 quartzites increase in size to a maxim of 1.5m; still 30% to 40%. 417.00 END: larger quartzitic sections moderately to severely fractured 401.25 to 401.55, etc. Frequent pyrencrustation patches on faces. 418.1 418.50: crush zone or breccia quartzite. Cavities imply low confining pressure.	25° che Om, num - all as .te 5 - in	ppb		8	mqq			
427.02	END OF HOLE.								