81-#982..9758

ASSESSMENT REPORT
9758
NO.

NORCEN ENERGY RESOURCES LIMITED

ASSESSMENT REPORT

DRILLING PROGRAM

DAVE GROUP

NELSON MINING DIVISION

BRITISH COLUMBIA

Claims: Dave 1 (216)
Dave 2 (220)
Dave 3 (221)
Dave 4 (222)
Dave 5 (481)
Sandy 1 (15611)
Lot 1739 (Ormonde) (1414)
Lot 1740 (Umpire) (1415)

Location: 45 kilometers east of Nelson, British Columbia

Latitude: 49° 30' N

Longitude: 116° 40' W

NTS: 82F 7,10

October 1981

A. Slingsby, P. Geol.

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Figure 1 Property Location Map (1:250,000)

Map 1 Drill Hole Location Map (1:5000)

I Summary

Drilling was carried out on The Dave Group of claims between July 27, and Aug. 27, 1981. The drilling was performed by Core Enterprises Ltd. of Clinton B.C. using a diesel engine powered Boyle Bros. 15A drill. 478.7 meters of drilling was completed in 7 holes. Helicopter support was required for a portion of the drill program.

The drilling was intended to test geochemical anomalies and known surface showings. Low grade disseminated mineralization was encountered in all holes, generally near the contact of a carbonate unit and an overlying black argillite.

II Introduction

II-1 Location and Access

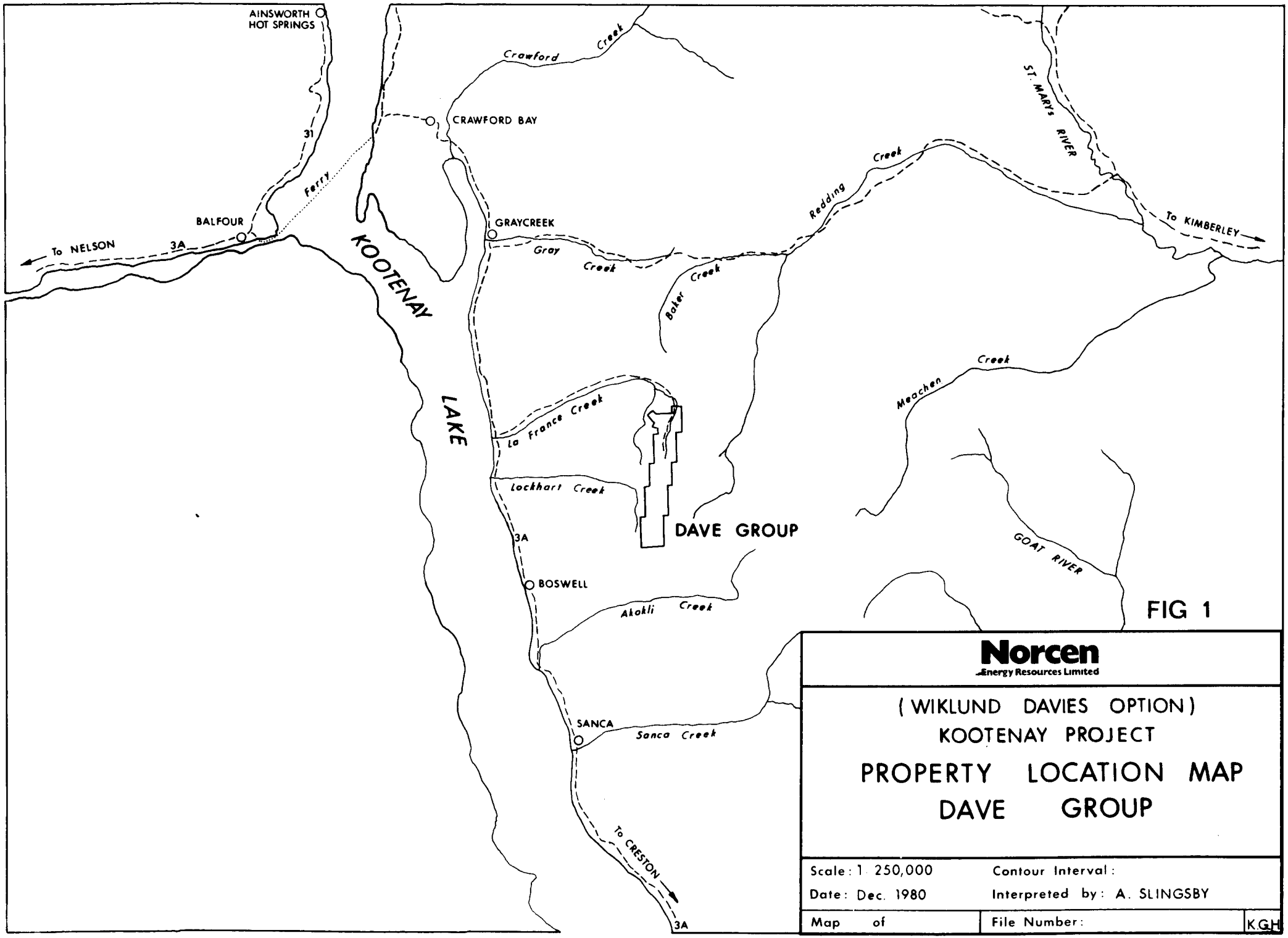
The Dave group is located at the head waters of La France and Lockhart Creeks in the Nelson Mining Division of British Columbia 45 kilometers due east of the city of Nelson. The group straddles the eastern portion of the boundary between NTS sheets 82F 7 and 10. The reference coordinates for the group are lattitude 49° 30' N, longitude 116° 40' N.

A portion of the area of the group has been logged and hence is accessible by a logging road in fair condition that runs along the north side of the main portion of La France Creek and the west side of the south branch. Haulage and skidder roads provide access to the central portion of the claims. The south portion, within the Lockhart drainage, is accessible by foot or helicopter.

II-2 Ownership

Five modified grid claims totalling 26 units, one two post claim and two reverted crown grants have been grouped together to form the Dave group. This group is held under option 100% by Norcen Energy Resources Ltd. of Calgary, Alberta subject to an eight percent carried net profits interest held by the vendors. A summary of these dispositions is given below:

Claim Name	Record No.	No. of Units
Dave 1	216 (6)	4
Dave 2	220 (6)	6
Dave 3	221 (6)	4
Dave 4	222 (6)	6
Dave 5	481 (7)	6
Sandy 1	15,611 (10)	2 post claim
Lot 1739 (Ormonde)	1414 (1)	reverted crown grant
Lot 1740 (Umpire)	1415 (1)	reverted crown grant


AINSWORTH HOT SPRINGS
31
Ferry
BALFOUR
To NELSON
3A
CRAWFORD BAY
Crawford Creek
KOOTENAY LAKE
GRAYCREEK
Gray Creek
Baker Creek
Redding Creek
ST. MARY'S RIVER
To KIMBERLEY
Meachen Creek
La France Creek
Lockhart Creek
DAVE GROUP
GOAT RIVER
3A
BOSWELL
Akokli Creek
SANCA
Sanca Creek
To CRESTON
3A
FIG 1
Norcen
Energy Resources Limited
(WIKLUND DAVIES OPTION)
KOOTENAY PROJECT
PROPERTY LOCATION MAP
DAVE GROUP
Scale: 1: 250,000
Contour Interval:
Date: Dec. 1980
Interpreted by: A. SLINGSBY
Map of
File Number:
KGH

II-3 History

The Dave group was progressively staked by Messrs Davies and Wiklund, beginning in the early 1970's. Initial interest focused on the northern portion of the group but further prospecting and geochemical surveying led to the staking of over 6 kilometers of strike length covered by the Dave 1 to 5 and the Sandy 1. In addition to this the two reverted crown grants were applied for and received. The property was optioned from Messrs Davies and Wiklund by Norcen under the agreement dated August 1, 1980. Work performed by Norcen in 1980 included the following:

- 3.5 kilometers baseline cut.

-14,975 meters of crosslines chained, clinometered and flagged. Crossline spacing 100 meters.

-598 "B" horizon soil samples collected and analyzed for Pb, Zn, Cu, Fe, Mn.
  -33 of these samples were analyzed for Ba.
  -10 of these samples were analyzed for Mo.

-1:2,500 scale geological mapping of grid completed.

-287 stations read with Radem VLF for transmitters Cutler, Maine and Seattle, Washington.

-73 fluxgate magnetometer stations read.

-3 trenches Caterpillar stripped, totalling 120m x 3m.

-12 channel and grab samples taken from trenches.

III Drill Program, 1981

The drill program on the Dave group commenced on July 27, 1981. Drilling was carried out by Core Enterprises Ltd. of Clinton B.C. utilizing a skid mounted Boyle Bros. 15A drill, power by a diesel engine. Core size was NQ (47.6 mm diameter) and the total footage drilled was 478.7 meters in 7 holes. Hole angles were checked by acid dip tests. The following table summarizes the hole azimuth, dip, depth and grid position.

Hole No.	Grid Coordinates	Azimuth	Dip	Casing (m)	Total Depth(m)
81K-1	6+12N 0+55E	100°	-45°	4.6	96.0
81K-2	4+22N 0+12E	100°	-45°	6.4	56.4
81K-3	2+68N 0+28W	100°	-45°	3.7	42.7
81K-4	2+68N 0+28W	100°	-60°	6.1	38.4
81K-5	5+23S 2+74W	120°	-45°	7.6	65.8
81K-6	5+23S 2+74W	120°	-60°	4.9	97.2
81K-7	5+23S 2+74W	165°	-49°	9.1	39.6

Drill holes 81K-1 to 81K-4 are accessible by truck and the drill was moved by cat. Holes 81K-5 to 81K-7 were drilled from one site, which required the drill move and crew changes to be performed by helicopter.

Drill holes 81K-1 to 81K-4 were designed to test geochemical anomalies from the 1980 survey. Holes 81K-5 to 81K-7 were drilled to test surface showings discovered by the original owners.

The core is stored at the residence of K.C. Schaub, Boswell B.C.

IV Conclusions and Recommendations

The drilling encountered small, disseminated amounts of galena and sphalerite in a carbonate close to the contact with an overlying argillite. That contact is gradational and mineralization is also seen associated with calcareous intercalations within the overlying argillite. From these and other observations it is assumed that mineralization is of the structurally controlled replacement type. It is recommended that more drilling be performed in an area to the north of the 1981 drilling.

APPENDIX I

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DIAMOND DRILL RECORD

Hole No. 81K-1

Hole No.	81K-1	Length	99.8 m	Commenced	
Property	Dave claims B.C.	Bearing	100°	Completed	
Township		Dip	-45°	Drilling Co.	Core Enterprises
Location	82 F-7,10	Objective	to determine stratigraphic package	Core Size	NQ
Logged By	A. Slingsby			Casing Left in Hole	Casing and shoe removed
Core Location	Kootenay Lake				

Dip: Collar -47°

Etch Test	Depth	Rdg.	True
81K-1	97.5m	50°	42°

Location Sketch

North

Claim No.

Scale: 1" =

Remarks

Footage From m	Footage To m	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	(m) Length
0	4.5	CASING					
4.5	15.5	SHALE black laminated laminations .5-5 mm, thin white and thick black lamelli, some disseminated pyrite, ironoxides along bedding planes.	bedding at 45° to core axis small crenulations.				
15.5	24.7	SHALE grey laminated lamelli of argillaceous and weathered material. Small bed of altered blue dolomite at 23.8m. Very poor recovery from 15.54 to 19.51	bedding at 70° to core axis at 21.3m				
24.7	27.3	DOLOMITE blue medium grained. Sericitic or argillic beds at 25.6 and 26.9 Disseminated pyrite in cleaner layers. Argillaceous layers slightly altered. Strongly altered at base.					
27.3	28.1	SERICITIC PHYLLITE yellow buff initially, grey at base. Thinly bedded.	bedding at 40° to core axis foliation appearent at 15° to core axis				

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DIAMOND DRILL RECORD

Hole No. 81K-1
Sheet No. 2

Footage From m	Footage To m	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
28.1	35.0	DOLOMITE blue grey initially altered. Contains sericite for first meter. Below sericitic material disseminated pyrite - 2%. Quartz veining common. Strongly altered section at 30.5 with associated quartz vein. Qtz. vein at 0° to core axis. Sericite parting 10 cm at 32.5. Alteration 10 cm on either side. Qtz. vein at 33.6 with 30 cm buff dolomite below. To base a grey green very fine grained dolomite with very fine grained disseminated pyrite. Sharp contact at base.	galena and sphalerite associated with fractures 40° to core axis. Galena and sphalerite in illdefined fractures and qtz veins. Bedding at base at 45° to core axis.				
35.0	42.1	DOLOMITE buff laminated to thin bedded. Dendritic manganese common from fractures. 60 cm qtz vein with galena at 36.7. Vug calcite lined 20 cm below. Color change to darker buff, alteration around fractures increases steadily toward base.	Occasional galena in qtz filled fractures at 40° and 20° to core. Appears disseminated along bedding in places.				
42.1	62.8	DOLOMITE BRECCIA buff fragments in white calcite matrix. Fragments 2 to 20 mm. Clast supported grading rapidly to matrix supported, buff clasts in brown matrix. At 50.6 qtz clasts matrix supported in brown matrix, entire section vuggy with dendritic manganese. Clast buff speckled and laminated. Matrix is calcitic while clasts are to	43.5 to 44.5 imbricated, laminated bedding angle 45°				

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DIAMOND DRILL RECORD

Hole No. 81K-1
Sheet No. 3

Footage From	Footage To	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
		varying degrees dolomitic. At 57.5 clasts of greenstone appear. At 58.6 greenstone as matrix. Greenstone disappears by 60 m. Clasts laminated or thinly bedded.					
62.8	67.1	DOLOMITE buff laminated to thinly bedded with green argillaceous layers. Some narrow breccia layers within. Appear to follow bedding and also crosscut. Strongly bedding controlled. Contact with dyke tale-like over 20 cm.					
67.1	75.5	LAMPROPHYRE 60-70% biotite, possibly some chlorite, carbonatized (10% calcite), slightly coarser grained to center.					
75.5	77.9	LIMESTONE initially greenish white, laminated (50%) becomes buff colored and dolomitic toward 77 m.					
77.9	80.5	GREENSTONE DYKE altered crystals of magnetite? gives orange red spotted appearance. Magnetic. Strongly carbonatized at base.					
80.5	82.9	CARBONATE thinly bedded, greenish red, buff in places, Calcite, qtz vein at 82.0 with minor fine grained greenstone.					
82.9	84.5	GREENSTONE DYKE fine grained, altered, carbonatized, non-magnetic.					

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DIAMOND DRILL RECORD

Hole No. 81K-1
Sheet No. 4

Footage From	Footage To	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length						
84.5	87.3	CARBONATE brecciated but laminated. Progressively less brecciated and more argillaceous towards base.	bedding 40° to core axis										
87.3	94.1	SHALE sericitic, green, foliated, thin bedded											
94.1	96.9	LIMESTONE laminated, buff. Incipient brecciation in places.	bedding 45° to core axis										
96.9	97.5	SHALE green, sericitic. Either sharp contact or core misplaced.	bedding 50° to core axis										
97.5	99.8 end	LIMESTONE buff laminated to thinly bedded.	bedding 40° to core axis										

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DIAMOND DRILL RECORD

Hole No. 81K-2

Hole No.	81K-2	Length	62.8m	Commenced		Dip: Collar	-47°
Property	Dave claims B.C.	Bearing	100°	Completed		Etch Test	Depth / Rdg. / True
Township		Dip	-45°	Drilling Co.	Core Enterprises	81K-2	61.0 / 49° / 42°
Location	82 F-7, 10	Objective	Test contact zone	Core Size	NQ		
Logged By	A. Slingsby			Casing Left in Hole	Casing and shoe removed		
Core Location	Kootenay Lake						

Remarks

Location Sketch — North

Claim No.

Scale: 1" =

Footage From	Footage To	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
0.	6.4	casing					
6.4	36.6	SHALE black grey laminated for most part. Pyritic along bedding and in fractures. Pyrite becoming more common towards base with intercalations of altered calcareous beds and laminations. Greater than 50° core lost between 27.7 and 35.3m due to calcareous beds. Base highly weathered has narrow pale greenish grey section.	crenulated bedding 50° to core axis				
36.6	43.1	DOLOMITE blue recrystallized, highly altered to red brown mud in places, especially near top. Minor qtz stringers. Some argillite sections. Some sections of poor recovery but generally good below highly altered xone. Minor disseminated pyrite in fresh zone up to 2% Qtz veining at base. Fragments altered. 10cm section sericitic phyllite, altered below for 5cm.	minor galena, appears disseminated				
43.1	47.9	QUARTZ VEIN, initially grades to qtz veining in siliceous buff dolomite. Calcite veining more common around 45.5					

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DIAMOND DRILL RECORD

Hole No. 81K-2
Sheet No. 2

Footage From	Footage To	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
47.9	59.3	CARBONATE grades toward dark buff laminated limestone with with rare patches of pale grey dolomite. Alteration common along laminations. Some small layers altered. Thin qtz veining less than 2mm common.	thin qtz veins with minor galena. Bedding at 60° to core axis.				
59.3	62.8 end	CARBONATE buff laminated limestone with incipient brecciation, stronger towards bottom. Buff speckled fragments in white calcite matrix.					

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DIAMOND DRILL RECORD

Hole No. 81K-3

Hole No.	81K-3	Length	46.9 m	Commenced		Dip: Collar	-47°		
Property	Dave Claims, B.C	Bearing	100°	Completed					
Township		Dip	-45°	Drilling Co.	Core Enterprises	Etch Test	Depth	Rdg.	True
Location	82F-7, 10	Objective	To test contact zone	Core Size	NQ	81K-3	42.7m	52°	45°
Logged By	A. Slingsby			Casing Left in Hole	Casing and shoe removed				
Core Location	Kootenay Lake								

Remarks

Location Sketch — North — Claim No. — Scale: 1" =

Footage From m	Footage To m	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
0	4.6	CASING					
4.6	7.3	SHALE grey black laminated almost 0 core recovery					
7.3	11.9	SHALE dolomitic dark blue grey argillite. Disseminated pyrite 1-3%. Laminated. Grading towards argillitic dolomite. Some alteration. Dolomitic zones from 7.5-8.0m and 8.8-9.5m.	Bedding 40° to core axis				
11.9	13.1	CARBONATE argillitic dolomitic Abundant fine grained pyrite Initially dark blue becomes lighter towards base.					
13.1	17.7	CARBONATE limestone initially pale blue grades towards buff. Fine disseminated pyrite. Small qtz veins common.	Poorly laminated, bedding at 45° to core axis. Some rare galena in qtz veins.				

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DIAMOND DRILL RECORD

Hole No. 81K-3
Sheet No. 2

Footage From	Footage To	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length						
17.7	36.6	CARBONATE yellow pale buff limestone. Poorly laminated. Small qtz veins common, in places sericitic. Shows some alteration starting at 20.1 becomes more common below 21.6m Pervasive below 24.7m Qtz veining becoming more common below brecciated section 27.7-28.3m Another breccia section 29.0-31.1m Some clasts very strongly altered. Below poorly laminated.											
36.6	47.9 end	CARBONATE breccia From 36.6-41.1m clasts are strongly altered to red brown. 41.1 to end buff clast supported in white clacite matrix. Calcite lined vugs throughout.											

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DIAMOND DRILL RECORD

Hole No. 81K-4

Hole No.	81K-4	Length	44.5m	Commenced		Dip: Collar	-60°
Property	Dave Claims, B.C.	Bearing	100°	Completed			
Township		Dip	-60°	Drilling Co.	Core Enterprise	Etch Test / Depth / Rdg. / True	
Location	82F-7,10	Objective	To test contact zone.	Core Size	NQ	81K-4 / 42.7m / 65° / 58°	
Logged By	A. Slingsby			Casing Left in Hole	casing and shoe removed		
Core Location	Kootenay Lake						

Remarks

Location Sketch

North

Claim No.

Scale: 1" =

Footage From m	Footage To m	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
0.	6.1	CASING					
6.1	6.25	CARBONATE pyritic argillaceous dolomite	minor disseminated sphalerite				
6.25	7.6	SHALE grey to black laminated pyritic argillite	bedding at 35° to core axis				
7.6	10.3	CARBONATE dark grey pyritic dolomite. Argillaceous bands Qtz. and calcite veined.	Disseminated sphalerite				
10.3	12.4	SHALE dark grey pyritic argillite Limy and graphitic sections.	bedding at 20° to core axis				
12.4	14.25	CARBONATE dark blue argillaceous dolomite. Red-brown weathering argillaceous zones. Qtz. calcite veins.					
14.25	17.5	SHALE dark grey, laminated, pyritic, limy argillite. Calcareous bands common.	bedding at 30° to core axis				
17.5	17.85	SHALE light grey, fine grained sericitic phyllite.					

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DIAMOND DRILL RECORD

Hole No. 81K-4
Sheet No. 2

Footage From m	Footage To m	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
17.85	19.7	CARBONATE pale blue grading into buff dolomite. Qtz, calcite veining common. 15 cm thick qtz vein at 18.2 m.	minor Pb, Zn, Cu.				
19.7	44.5 end	CARBONATE laminated buff dolomite at top grading into a spotty brecciated buff dolomite at base. Highly fractured qtz and calcite veins common. Some ankerite in veins Blue dolomite coloration in top 4 m. Vuggy porosity near bottom. Some very limy sections of limestone/limestone breccia. Bottom 4 m spotty intermittant patches of brecciation.					

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DIAMOND DRILL RECORD

Hole No. 81K-5

Hole No.	81K-5	Length	73.5m	Commenced	
Property	Dave Claims, B.C.	Bearing	100°	Completed	
Township		Dip	-45°	Drilling Co.	Core Enterprises
Location	82F-7,10	Objective	To test contact zone	Core Size	NQ
Logged By	A. Slingsby			Casing Left in Hole	casing and shoe removed
Core Location	Kootenay Lake				

Dip: Collar -47°

Etch Test	Depth	Rdg.	True
81K-5	67.1 m	53°	45°

Location Sketch

North

Claim No.

Scale: 1" =

Remarks

Footage From	Footage To	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
0.	7.62	CASING					
7.62	20.0	SHALE black laminated argillite pyritic and graphitic sections. Minor poorly laminated calcareous bands. Some sections strongly altered.	bedded gn, sp at 14.50m and 16.70m insmall calcareous laminations. Bedding 55° to core axis at 25.3m				
20.0	20.6	CARBONATE dark grey pyritic dolomite.	Minor Pb, Zn				
20.6	25.2	SHALE grey limy argillite	.5cm thick bedded Pb, Zn at 25.05m				
25.2	27.7	SHALE grey limy, red brown weathering limy zones.	Minor bedded sulfides				
27.7	59.9	CARBONATE grey pyritic dolomite with intermittant buff-brown sections. 37.6 to 41.8 mainly buff colored with minor blue sections. Very coarse pyrite (2-20mm) disseminated, 2-4%. Abundant qtz veins, some with fluorite or calcite. Minor ankerite in veins. Buff appears to be an alteration of blue dolomite.	Minor amounts of galena in upper part of section. Bedding apparent in grey carb. but not in buff. Both disseminated and veined Pb, Zn common but erratic from 50.9 to 53m and from 58.0 to 58.8 m.				

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DIAMOND DRILL RECORD

Hole No. 81K-5
Sheet No. 2

Footage From	Footage To	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
59.9	60.9	GREENSTONE DYKE dark green minette lamprophyre Non-foliated, non-magnetic. Coarse biotite crystals. Carbonatized. Shart contact with sediments.					
60.9	68.0	CARBONATE grey blue pyritic dolomite with intermittant buff zones. Qtz, calcite veined.	Pb, Zn disseminated in a grey dolomite from contact to 65.5m with replacement textures.				
68.0	71.2	CARBONATE buff dolomite Spotty manganese staining. Qtz, ankerite veins.					
71.2	72.6	CARBONATE grey blue silicified dolomite.	disseminated Pb, Zn				
72.6	73.6 end	CARBONATE buff spotty dolomite.					

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DIAMOND DRILL RECORD

Hole No. 81K-6

Hole No.	81K-6	Length	102.1m	Commenced		Dip: Collar	-60°		
Property	Dave Claims, B.C.	Bearing	120°	Completed					
Township		Dip	-60°	Drilling Co.	Core Enterprises	Etch Test	Depth	Rdg.	True
Location	82F-7,10	Objective	To test contact zone and showings	Core Size	NQ	81K-6	97.5	64°	57°
Logged By	A. Slingsby			Casing Left in Hole	4.9m casing left in hole				
Core Location	Kootenay Lake								

Remarks

Location Sketch

North

Claim No.

Scale: 1" =

Footage From m	Footage To m	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
0	4.9	CASING					
4.9	31.8	SHALE grey to black pyritic argillite. Calcareous bands and laminations common. Pyrite disseminated and along laminations. Base grades to more calcareous and less laminated.	bedded sulfides common in calcareous laminations bedding 70° at 24.8m and 40° at 25.7m				
31.8	34.15	SHALE grey pyritic sericitic phyllite. Laminated to thinly bedded.	Fine pyrite and galena disseminated and along bedding. About 1% sulfides more abundant towards base.				
34.15	60.8	CARBONATE grey blue pyritic dolomite. Coarse pyrite cubes (2-20mm) disseminated close to contact. Qtz, calcite veins common. Abundant sericite partings from 55to 60m.	Minor galena bearing veins. Bedding at 65° at 48.8m and 45° at 53.2m				
60.8	63.3	CARBONATE buff dolomite Qtz, ankerite veins small but common.	Thin bedding vaguely appaarent				

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DIAMOND DRILL RECORD

Hole No. 81K-6
Sheet No. 2

Footage From	Footage To	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
63.3	92.0	CARBONATE grey pyritic dolomite with intermittant buff zones. Large section from 77.2 to 83.7m pinkish buff dolomite. Qtz, calcite veins. Pyrite disseminated throughout usually as very fine clusterings in fractures and laminations. Large qtz veins and pink buff colored at base.	Pb, Zn approx. 2% over.5 from 64.1-.6m Disseminated galena from 70.7-76.8 less than 1%. .5m section from 87-87.5 approx. ½% Pb				
92.0	92.9	GREENSTONE DYKE dark green minette lamprophyre. Non-magnetic, non-foliated. Coarse biotite, carbonatized.					
92.9	99.5	CARBONATE grey blue dolomite with major pink buff zones. Qtz veins common. Pyrite not as common as opposite side of dyke.	Disseminated galena approx. ½% immediately east of dyke in grey dolomite.				
99.5	102.1 end	CARBONATE buff dolomite with qtz, ankerite veins.					

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DIAMOND DRILL RECORD

Hole No. 81K-7

Hole No.	81K-7	Length	48.8m	Commenced		Dip: Collar	-49°
Property	Dave Claims, B.C.	Bearing	165°	Completed			
Township		Dip	-49°	Drilling Co.	Core Enterprises	Etch Test / Depth / Rdg. / True	
Location	82F-7,10	Objective	To test contact and showings.	Core Size	NQ	81K-7 / 42.7m / 53° / 45°	
Logged By	A. Slingsby			Casing Left in Hole	casing and shoe removed		
Core Location	Kootenay Lake						

Remarks: Hole caved and abandoned at 48.8m

Location Sketch — North ↑ — Claim No. — Scale: 1" =

Footage From m	Footage To m	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
0	9.1	CASING					
9.1	14.3	SHALE black laminated, slightly graphitic, limonite staining on fracture surfaces.	bedding 50° to core axis.				
14.3	15.5	CARBONATE argillaceous dark grey, red altered, some crenulated laminations. Disseminated pyrite cubes to 2mm					
15.5	33.2	SHALE black to dark grey. Laminated to thin bedded in places. Crenulated throughout. Some calcareous interbeds show as lighter grey. pyrite cubes disseminated throughout. At base becomes lighter grey with bedding not as obvious.	at 18.3 bedding 30° to core axis at 24.4 bedding 30° to core axis pyrite and red sphalerite along rare bedding planes near 31.1m.				
33.2	33.5	Quartz vein.	small amount of galena at upper contact.				

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DIAMOND DRILL RECORD

Hole No. 81K-7
Sheet No. 2

Footage From	Footage To	Lithology and Alteration	Mineralization and Structure	Sample No.	From	To	Length
33.5	36.9	SHALE light grey sericitic phyllite. Laminated. Some alteration along fractures.	at 34.4 bedding 40° to core axis at 36.6 bedding 60° to core axis galena visible along fractures and bedding planes and disseminated estimated approx. 1%				
36.9	43.3	CARBONATE pale grey, fine grained dolomite, silicified with abundant calcite veins and some qtz veins. Fine grained disseminated pyrite. Patches of buff carbonate near base.	galena associated with calcite veins and disseminated, also with qtz veins.				
43.3	48.8 end	CARBONATE pale buff dolomite, non siliceous. Calcite stringers common. Some grey patches with galena. Some zones altered to orangy broken core.					

APPENDIX II

Statement of Expenditures

Cost of diamond drilling on the Dave group of mineral claims, Lockhart Beach area, Nelson Mining Division, British Columbia, from July 27 to August 27, 1981.

Salaries

A. Slingsby	10 days @$120/day	$1,200.00
R. Wasylyshyn	32 days @$80/day	$2,560.00

Field Costs

Food and Accommodation	42 mandays @$20.00/day	$840.00

Transportation

Truck Rental	32 days @$25.00/day	$825.00
Helicopter	26.2hr @$475.00/hr	$12,445.00

Drilling (invoice attached)

	478.7m @103.50/m	$49,545.45
	TOTAL	$67,390.45

signed: A. Slingsby - P. Geol.

STATEMENT OF QUALIFICATIONS

I, Arthur E. Slingsby, of the City of Calgary in the Province of Alberta, do hereby state:

1. I am a graduate of the University of Saskatchewan, Saskatoon with a B. Sc. (1975) degree in Geology.

2. I have been involved with mineral exploration in many areas of Canada.

3. I personally supervised exploration work on the Dave Group (Dave 1 to 5, Sandy 1, Ormonde and Umpire).

4. I am the holder of the valid Free Miner's Certificate numbered 224345.

5. I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

A.E. Slingsby

KOOTENAY PROJECT

Period of July 27 to August 27, 1981

Statement of Drill Hole Footage and Costs per Agreement:

Casing and Coring:

Hole Number	Casing	Coring
Hole # 81 - K - 1	0' - 15' = 15'	15' - 330' = 315'
# 81 - K - 2	0' - 21' = 21'	21' - 206' = 185'
# 81 - K - 3	0' - 12' = 12'	12' - 154' = 140'
# 81 - K - 4	0' - 20' = 20'	20' - 146' = 126'
# 81 - K - 5	0' - 25' = 25'	25' - 241' = 216'
# 81 - K - 6	0' - 16' = 16'	16' - 335' = 319'
# 81 - K - 7	0' - 30' = 30'	30' - 160' = 130'
	Total Casing =139'	Total Coring =1431'

Total Casing = 42.3 metres Total Coring = 436.4 metres

(a) Total cost of Casing @ $103.50 per metre x 42.3 metres = $ 4,378.05

(b) Total cost of Coring @ $103.50 per metre x 436.4 metres= $45,167.40

Total cost of Drill Footage = $49,545.45

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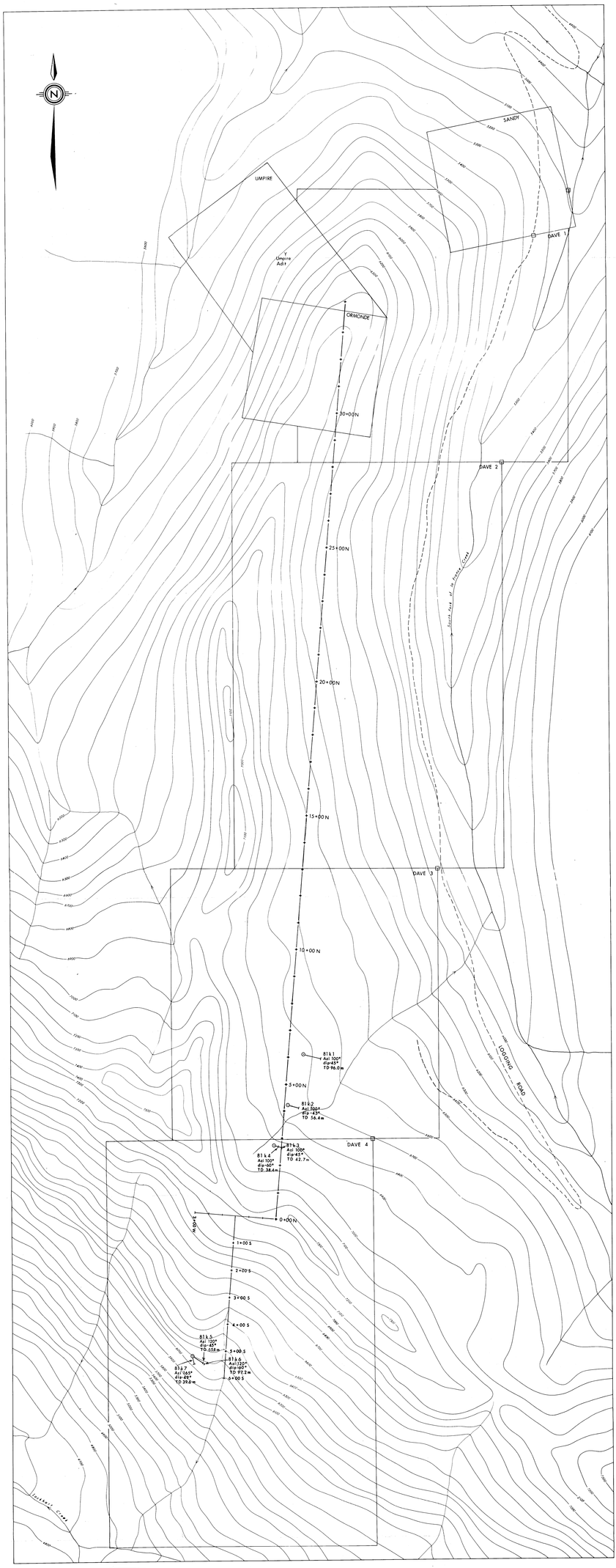
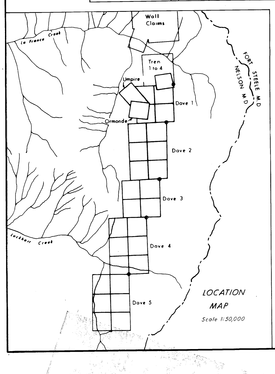
019-004





LOCATION MAP
Scale 1:30,000

LEGEND:

- CLAIM BOUNDRY
- LEGAL CORNER POST
- BASE LINE
- DRILL HOLE azimuth, dip and total depth indicated

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Norcen
Energy Resources Limited

(WIKLUND DAVIES OPTION)

KOOTENAY PROJECT
DRILL HOLE LOCATIONS

Scale: 1:5,000	Contour Interval: 100'	
Date: Oct., 1981	Interpreted by: A. SLINGSBY	
Map of	File Number:	K.G.H.