CROWS NEST RESOURCES LIMITED
TELKWA PROJECT
N.W. BRITISH COLUMBIA, CANADA

CONFIDENTIAL

GEOLOGICAL REPORT

OPEN FILE

AUTHOR: B.W. McKinstry

DATE: March, 1990

Part 1

755

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LIST OF ENCLOSURES

SUMMARY

The Telkwa project is located some 15 kilometers south of the town of Smithers in the northwest part of British Columbia and is approximately 360 kilometers by rail from Prince Rupert and the Ridley Island coal handling facilities. The coal measures are located north and south of the Telkwa river and are Cretaceous in age. To date, eight pit areas have been delineated. Of these, three (Pits 3, 7 and 8) have been identified as having significant low ratio reserve potential. Pit 7 and 8, located north of the river contain 4.8 and 5.1 million tonnes respectively of ROM reserve at average stripping ratios of 3.6 and 4.2 to 1, while Pit 3, south of the river, has an ROM tonnage of 11.4 million tonnes at a stripping ratio of 5.6 to 1. Vertical seam thicknesses for Pit 7 vary from 0.9 to 4.3 meters but average 2.0 meters. Vertical seam thicknesses in Pit 8 vary from 0.5 to 5.1 meters with a mean thickness for all seams of 1.3 meters. Thicknesses for seams in Pit 3 reflect the frequent occurrence of seam splitting with a minimum of 0.1 meters and a maximum of 5.5 meters and an overall average thickness of 1.2 meters. Although quality parameters vary from seam to seam, a marketable product of high volatile bituminous A coal having an average sulphur content of 1.05% (ADB) and calorific value of 7200 Kcal/Kg (ADB) at a clean ash of 11% is obtainable. In addition, opportunities exist in Pit 7 and 8 to mine significant quantities of 'weak' coking coal. The coal measures have been disrupted by both normal and reverse faulting with intensity of deformation more pronounced in Pit 3 and Pit 8. Displacements are variable and can range from a few meters to tens of meters and can be discontinuous both along trend and at depth. The geology within Pit 7 and Pit 8 was recently revised and computer geological models constructed for each pit area to facilitate mine planning and reserve re-calculation.

Results from the 1989 exploration program have required modification to the geological interpretations of both Pit 7 and Pit 8. Data from drilling in Pit 7 has confirmed seam continuity and structural simplicity. However, a more precise definition of the attitude and location of the boundary fault on the east side of the pit has generated additional coal reserves in the northeast corner of the pit. Additional core intersections of all seams has provided a more representative sampling of seams for coal quality characterization. Additional large diameter (6") coring of the seams at four localities within the pit have provided 1.59 tonnes of coal with size consist suitable for washability tests.

Drilling information from Pit 8 has also provided additional data for coal quality characterization. However, the drilling data have demonstrated that depositional environment and variability in coal stratigraphy have had a substantial impact on the geology within Pit 8. The absence and/or thinning of strategic coal seams in an area around hole 923 has effectively separated higher ratio coal to the east from low ratio coal to the west. In addition, re-interpretation of the data has required a shift in location of the northwest trending in-pit fault southward. Further seam thinning and wash-out features in the northwest end of the pit have also required modifications to pit geometry. The net effect of these developments is a reduction in ROM tonnage from previous calculations for Pit 8.

Three areas of additional resource potential have been identified north of the Telkwa River. They include; [1] an area north and west of Pit 8 near borehole DH 809, [2] an area south of Pit 8 near the old Avelling Mine workings (DH 111) and [3] an extension of Pit 7 to the northeast. South of the Telkwa River, four additional areas of resource potential exist. They include; [1] an area immediately northeast of Pit 3, [2] an area between the Tenas and Four Creek drainages containing extensive coal float localities and subcrops of thin coal seams, [3] the Cabinet Creek deposit and [4] limited coal resources identified in Pits 1/2, 4, 5 and 6.

It is expected that resource potential north of the Telkwa River is greatest on the basis of potential tonnage, geological simplicity and integration capability with identified reserve areas.

I INTRODUCTION

(A) Location & Access

The Telkwa project is located 15 km south of the town of Smithers in west central British Columbia (Enclosure 1). Smithers, in turn, is 360 km from the coal handling facilities at Ridley Island. Coal-bearing stratigraphy is located both north and south of the Telkwa River. On the south side of the river, coal measures of economic significance have been identified on both sides of Goathorn Creek and are some 10 kms by road west from the town of Telkwa. North of the river, economic reserves of coal have been located on coal licences 4278 & 4279, located 10 km by road from Smithers.

(B) Tenure

The Telkwa project licences have been subdivided into 3 licence groups. In addition, Shell Canada Limited owns 3 freehold licences in the Goathorn Creek area and hold an option to purchase two freehold licences on the north side of the Telkwa River ('Whalen' option). Collectively, the licences are considered to encompass most of the known coal resource potential for the area (Enclosure 2).

II REGIONAL GEOLOGY

The coal-bearing stratigraphy in the Telkwa area is part of the Cretaceous Skeena Group, a sequence of interbedded marine and non-marine sediments and volcaniclastics. The assemblage was deposited within a successor basin with sediments being derived from an uplifted Pinchi-belt - Columbian orogen. Mesozoic successor basins such as the Skeena are considered to have been rapidly subsiding troughs subject to both marine and continental depositional environments. Coal bearing clastics often accumulated in areas of dip-slip and strike-slip faulting within these troughs.

In the Telkwa area, Skeena sediments unconformably overlie Jurassic Bowser Lake sediments and Jurassic Hazelton volcanics (Enclosure 3). The nature of the unconformity is irregular reflecting the undulating terrain associated with Hazelton volcanics. It is suspected that this depositional setting induced further faulting of the Skeena sediments.

III TELKWA GEOLOGY

(A) Historical Perspective

Coal was discovered in Telkwa about 1900, but mining in the Goathorn Creek area did not commence until 1918. Production from the MacNeil (Avelling) Mine, north of Telkwa River, and at Bulkley Valley Collieries around Goathorn Creek became significant after 1930 as underground operations were initiated. Production since that time has been sporadic with underground operations often curtailed by inadequate pre-development exploration and structural complications.

The area has been prospected by a variety of companies since 1950 including a government survey in 1951, a drill program on the Telkwa north licences in 1969 (Canex Aerial Ltd.) and a drill program within the Telkwa south licences in 1977-1978 (Cyprus Anvil Mining).

Crows Nest Resources/Shell Canada began an active program in the area in 1979 and except for one year, has initiated exploration activity each year since then.

(B) Stratigraphy

The rocks of the Skeena Group in the Telkwa River area consist of interbedded marine and non-marine sediments and volcaniclastics. The sediments comprise mudstones, siltstones, shales and minor sandstones. Volcaniclastics are primarily found close to the volcanic basement and include tuffaceous sediments, fine-grained flows and breccias. Porphyritic Tertiary intrusive dykes and sills commonly disrupt the Skeena stratigraphy. A large Tertiary granodiorite plug has intruded the Skeena sediments north of the Telkwa River. Outcrops are usually found in stream valleys which have cut through glacially derived till with few exposures evident away from the creeks until the higher elevations are reached. The Skeena-Hazelton unconformity is drift-covered over most of the area and heavily timbered making delineation of the areal extent of the coal measures very difficult. However, study of the drill core has enabled a composite Skeena section to be constructed for stratigraphy on both the north and south side of the

Telkwa River (Enclosure 4). A paleontological study of two drill cores has indicated that deposition commenced in Necomian times in a marine depositional environment. The presence of Seam 1 is the first evidence of a marine regression. The development of peat swamps at this time appears to have been both localized and irregular. Seam 1 attains a thickness of between 2-5 meters along the north side of the Telkwa River but becomes a zone of thin (less than 1 meter) coal plies northeast of Goathorn Creek. Up to 150 meters of non-coal bearing section overlies Seam 1. This section is believed to represent a long-lasting shallow, low energy marine environment with occasional regressive/transgressive cycles.

Seams 2 through to 10 form the integral basis for economic coal development in Telkwa. East of Goathorn Creek, these nine upper seams have an average aggregate thickness of 14 meters over a section thickness of 85 meters. The coal seams reflect a history of irregular swamp development with seam thickness and continuity quite variable. These factors along with structural complexities have made seam correlation difficult in places. Typically, however, seam thickness varies from 0.7 to 4.0 meters with an average of 1.8 meters. Correlation between Telkwa south (Goathorn Creek Area) and Telkwa north is possible but with some variations. To the north, 5 and 6 Seams become a zone of two or three coal plies, while Seams 8 to 10 are limited in areal extent. In addition, the 10-15 m sandstone units present between 3 and 4 Seams and 7 and 8 Seams respectively in the south are absent north of the river (Enclosure 4).

(C) Structural Geology

The structural geological history in the Telkwa area has involved both compressional and tensional elements. This is particularly evident in the structures south of the Telkwa River. Brittle rather than ductile deformation is prevalent with high angle faulting the primary structural element. Orientation of faults tend to be parallel to strike with the down thrown block to the west. There is also a series of northeast-east trending faults which further disrupt the geology. Age relationships of faulting are difficult to discern due to extensive till cover. Evidence of compressional force is in the form of moderate angled reverse faulting parallel to strike, at the south end of Pit 3 and a fold plunge of 10° north to the Pit 3 stratigraphy. The rather intense faulting has in effect established a mosaic of structural blocks that have been rotated and tilted into present configurations. Bedding typically dips 20° east but variations in dip from 8-60° have been recorded. In particular, steeper dips have been noticed in close proximity to the faults. North of the Telkwa River, the structural geology has been complicated by the presence of a large Tertiary intrusive. However, faulting intensity is less than in the Goathorn Creek Area. No specific orientation to the faulting has been discerned, but there appears to be a crude relationship to the boundaries of the intrusive. Displacements on many faults contain both a dip and strike component (strike-slip) with throws from few meters to over 150 meters. It has also been observed that these faults can be discontinuous both along trend and at depth.

IV PRESENT STATUS

Exploration work by Crows Nest Resources personnel has delineated three areas in the Telkwa Region having potential for low-ratio coal reserves. These areas are located both south and north of the Telkwa River near its confluence with Goathorn Creek. Economical coal measures south of the Telkwa River are evident both east and west of Goathorn Creek. Geology in this area is characterized by east-dipping Skeena sediments unconformably overlying Hazelton volcanic basement with bedding disrupted by high angle faulting. East of Goathorn Creek, faulting has tended to upthrow successive blocks of Skeena sediments to the east. West of Goathorn Creek, intense faulting has created a mosaic of small faulted blocks containing limited volumes of low ratio coal reserve. To date, five pit areas have been outlined including a combined Pits 1/2 and Pits 3, 4, 5, and 6. Of these areas, Pit 3 located on the east side of Goathorn Creek contains the majority of low ratio reserves. In Pit 3, approximately 4 kilometers of northwest to north-trending upper Skeena sediments have been disrupted by a series of north-trending high angle faults. At the north end of the pit, the measures are further disrupted by a series of late east, northeast and southeast trending high angle faults which have made seam correlation difficult. To the south, a series of west directed low to moderate angled reverse faults have stacked successive thrust slices of upper Skeena strata. Coal stratigraphy in the pit encompasses Seams 2 through 10. Splitting of seams and partings within seams is common in the lower part of the section and only Seams 4, 5, and 8 exceed an average of 1.8 meters in vertical thickness. On the other hand, interburden between seams is thin except for two 15-20 meter thick fine grained sandstone units developed between seams 3 and 4 and Seams 7 and 8, and these units have been named 3 Sandstone and 7 Sandstone respectively. In addition to fault complexities, stratigraphic variation in seam thickness and extent is evident. Seam thickness diminishes eastward and two areas have been identified that contain little or no coal development. These features will have a pronounced effect on pit design.

North of the Telkwa River and east of Pine Creek, two additional areas of open-pit coal reserves have been identified as Pits 7 and 8 (Enclosures 5 & 7). Skeena sediments have been intruded by a Tertiary granodiorite with the sediments having been locally faulted and rotated. However, deformation appears to be less intense and coal rank has been minimally affected. In Pit 7, the sediments trend north towards the intrusive and dip eastward (Enclosure 6). Faulting to the south, west and east and an intrusive contact to the north confine the extent of Pit 7. However, drilling in 1989 has provided additional information to constrain the boundary fault on the east side of the coal measures. This fault trends in a northeast - southwest fashion and has offered opportunities of establishing additional coal measures in the northeast corner of the pit area (Enclosure 9). As well, a drill intersection within 50 meters of the intrusive contact established the presence of Seams 8, 9 & 10 within Pit 7. 1989 drilling also reaffirmed the 1988 geological interpretation and provided additional quality data for upper seams. Seam thickness variability is minimal, with only Seam 6 exhibiting a "shaling" out nature in the northwest part of the pit area.

Further west along the slope of the hill is Pit 8. Seam stratigraphy is very similar to that in Pit 7. The coal measures trend in a northwest-southeast direction and dip to the northeast. They are bounded by a granodiorite intrusive to the northeast, faulting to the northwest and subcrop to the southwest. Structural complications include a fault trending parallel to bedding which bisects the coal measures and displays increasing displacement to the northwest (Enclosure 8). The upthrown block is to the northeast. A smaller fault trending north-south has upthrown strata to the east in the eastern area of the pit. However, it is considered that stratigraphic variability and coal seam depositional history are the major influences on the geology within Pit 8. Seam thinning, wash-outs and areas of non-deposition have significant impact on pit geometry, reserve estimation and coal quality (Enclosure 10). The challenges imposed by this variability are similar to those recognized in Pit 3 near Goathorn Creek.

V COAL QUALITY

Analytical results from drilling activity in 1989 are to be found in Enclosure 12. Only diamond drill core were analyzed as it was found that excessive contamination was evident in the rotary chip samples. A review of this data for both Pits 7 and 8 provide the following observations:

1) The higher sulphur averages (>1.5%) on a clean air dried basis are clearly attributable to seams 8, 9, and 10.

2) Thinner seams (<1.0m) generally exhibit higher clean ash averages. However, the relationship of clean sulphur to seam thickness is less distinct. In a general sense, thicker intersections of a seam (e.g. >3m) tend to have less sulphur content than thinner intersections.

3) There appears to be a consistent high raw sulphur content in samples obtained at the roof of coal seams. This sulphur content appears to continually decrease with incremental sampling towards the seam floor. The implication is that within the Telkwa area coal swamp development was often arrested by a brackish to marine transgressive event.

   An examination of the sulphur content remaining in the composite sample after washing indicates that this high sulphur concentration in the seam roof is largely pyritic in composition and is removed during the washing process.

4) There is no clearly defined relationship between raw sulphur content and raw ash values as evidenced in the quality data, from sampling of roof, floor and seam parting material.

5) An examination of the spatial distribution of clean sulphur content for each seam in Pits 7 and 8 suggests there are specific trends of increasing sulphur concentration within some seams. However, any interpretation of trend must be tempered with the evidence of substantial nugget effect associated with individual sulphur values as well as the problem of low sampling density.

VI 1989 EXPLORATION PROGRAM

(A) Objectives:

In order to complete the feasibility study of the Telkwa project, an exploration program was carried out in 1989. Objectives of this study included the following;

i) Further assess and confirm the geology and reserve potential of Pits 7 and 8 north of the Telkwa River.

ii) Obtain additional coal quality information from these two pit areas.

iii) Obtain bulk samples from coal seams in Pit 7 using a 6" coring technique.

iv) Test the suitability of areas selected for plant site location and rock waste disposal from Pits 7 and 8.

v) Install piezometers at appropriate locations to gain a better understanding of the hydrology regime north of the Telkwa River.

(B) Logistics

Initial activity involved DC-resistivity profile surveys across the trend of seams within Pit 7 and in areas selected for plant site location and spoil pile development. These dumping sites include the area between Pit 7 and Pit 8, the land immediately east of Pit 7 and the region south and downslope from Pit 8. After this information was processed, a combined rotary and diamond drilling program was initiated to test anomalous responses on the profiles. As well, drilling targets were selected to provide additional geological and coal quality information within Pits 7 and 8. A combination of 13 diamond drill holes totalling 1,021 meters of core and 18 rotary drill holes comprising of 1,505 meters of cuttings were completed. 15.7 kilometers of cut line were required for the DC resistivity survey. All diamond drill samples were analyzed in Calgary. Moreover, four 6" core holes in Pit 7 provided 1.59 tonnes of coal sample from 4 seams. These holes were spatially located to ensure a representative sampling of the principal seams within the pit. To provide access to the drill sites, an additional 1.7 kilometers of road was constructed. At program completion, piezometers were installed in four holes to monitor hydrology over the combined Telkwa north pit areas.

(C) Results

i) DC-Profiling; Plant Site Area

A pattern of six survey lines (lines 1-6 inclusive, Enclosure 15), each line approximately one kilometer in length, was established over the selected plant site area. The lines were oriented at approximate right angles to the interpreted regional trend. Subsequent dip meter data proved the pattern to have a correct orientation. Several distinct anomalies were identified on four of the six lines. Follow-up drilling of four holes identified these resistivity anomalies as either anomalies within extrusive rocks of the Hazelton Group or as an indication of thin coal development characteristic of Seam 1, observed east of Pit 7. In summary, no pronounced consistent resistivity anomaly was detected and no appreciably thick coal seam stratigraphy has been intersected in the plant site area.

ii) DC-Profiling; Pit 7 Area

A series of four survey lines were constructed over the Pit 7 coal measures (lines 7-10 inclusive, Enclosure 15). Each line was oriented perpendicular to strike and sufficient length was added east and west of the coal measures to profile areas suitable for waste dump development. All lines exhibited a pronounced anomaly over the coal measures with remarkable resistivity anomalies present on the two southernmost lines. Away from the coal measures, the resistivity response was flat. Comparison of the anomalies with borehole information provides an excellent fit of the data. The flat resistivity response away from the coal measures on each line coupled with supportive drilling confirm the suitability of these areas for waste dump development.

iii) DC-Profiling; Pit 8 Area

A pattern of four resistivity profile lines oriented south and downslope of Pit 8 was developed to test the appropriateness of this area for spoil pile development (lines 11-14 inclusive, Enclosure 15). Except for the extreme south end of lines 12 and 14, all lines exhibited a flat resistivity response. It is considered that overburden thickness in this area does not exceed 20 meters and should not significantly affect the survey response. This being the case, the area should prove suitable for waste dump development.

iv) Drilling; Pit 7

Except for the pilot holes drilled for the 6" coring program, all drilling activity within the pit area was of a coring nature. All the holes intersected the full mining coal section, providing additional coal quality information and geological control. Drill spacing is now approximately 150 meters. The current geological model is considered an accurate representation of the exploration data obtained to date. The coal measures trend in a north-south direction and dip eastward. They are constrained by a northeast-southwest trending high angle fault to the east. This fault exhibits considerable displacement juxtaposing thin coal seams characteristic of seam 1 on the east against the upper coal seams to the west. Within Pit 7, the coal section increases northward towards a granodiorite intrusive contact such that at hole 904, the full upper coal section (seams 2-10 inclusive) have been intersected. The coal seams subcrop to the west and south (Enclosure 5). Minor low angle reverse faulting is suspected in the region of holes 931, 904, 930 and 604. These holes contain evidence for the repetition of seam 5. Depositional features such as seam washouts are apparent in the north end of the pit (e.g. holes 907 and 930).

v) Drilling; Pit 8

Previous drilling activity indicated an area of low ratio coal potential west from Pit 7. This area has been subsequently identified as Pit 8. The coal measures trend in a northwest-southeast direction and dip to the northeast. The coal seams subcrop to the southwest and are constrained to the northeast by a granodiorite intrusive and to the northwest by an area of intense faulting (Enclosure 7). 1988 exploration activity determined the presence of an in-pit fault trending parallel to the coal measures. This fault displayed increasing displacement to the northwest, with the upthrown side to the north. Drilling results from the 1989 exploration program have modified this initial interpretation. New data has shifted the location of this in-pit fault further to the southwest. An additional small fault, trending north-south further complicates the geology at the east end of the pit area.

The current data suggests seam thickness variability and continuity are major concerns within the Pit 8 area. In particular, in-fill drill holes 908, 923 and 924 have defined an area of rapidly changing conditions for coal seam development. The thinning and/or lack of coal seams in this region effectively isolates high-ratio coal resources in the east end of the pit (identified in boreholes 502, 925 and 814) from low ratio reserves to the west. This feature has had a significant impact on reserve estimation from previous studies. Seam variability is also important in the northwest end of the pit. Seam 2 thickness varies considerably over small distances while seam 4 and 5 both ply into two thinner seams. In effect, the coal measures appear to be a product of a rapidly changing depositional environment and this variability has imposed constraints and complications to pit geometry and coal quality respectively.

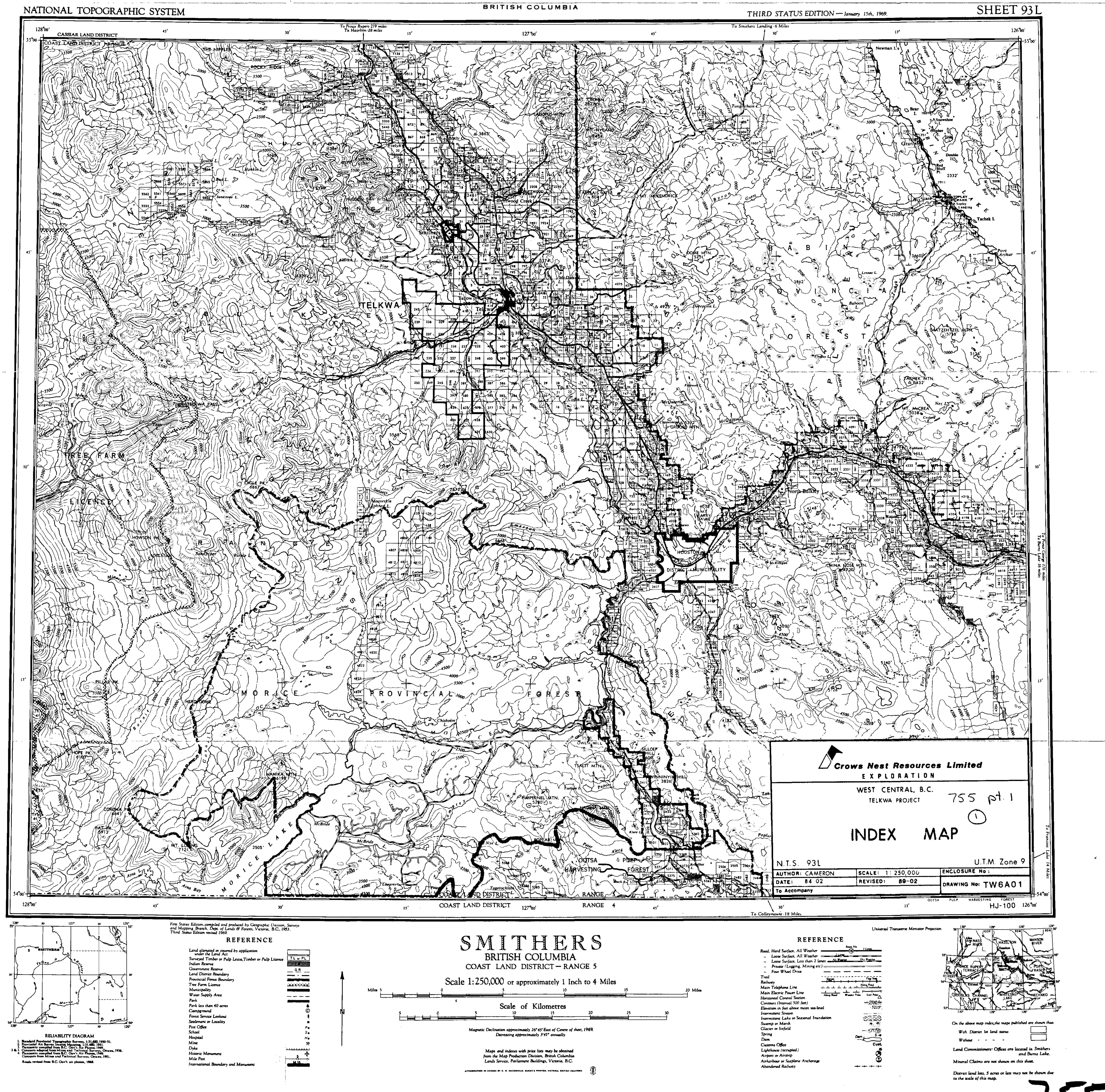
VII CONCLUSIONS

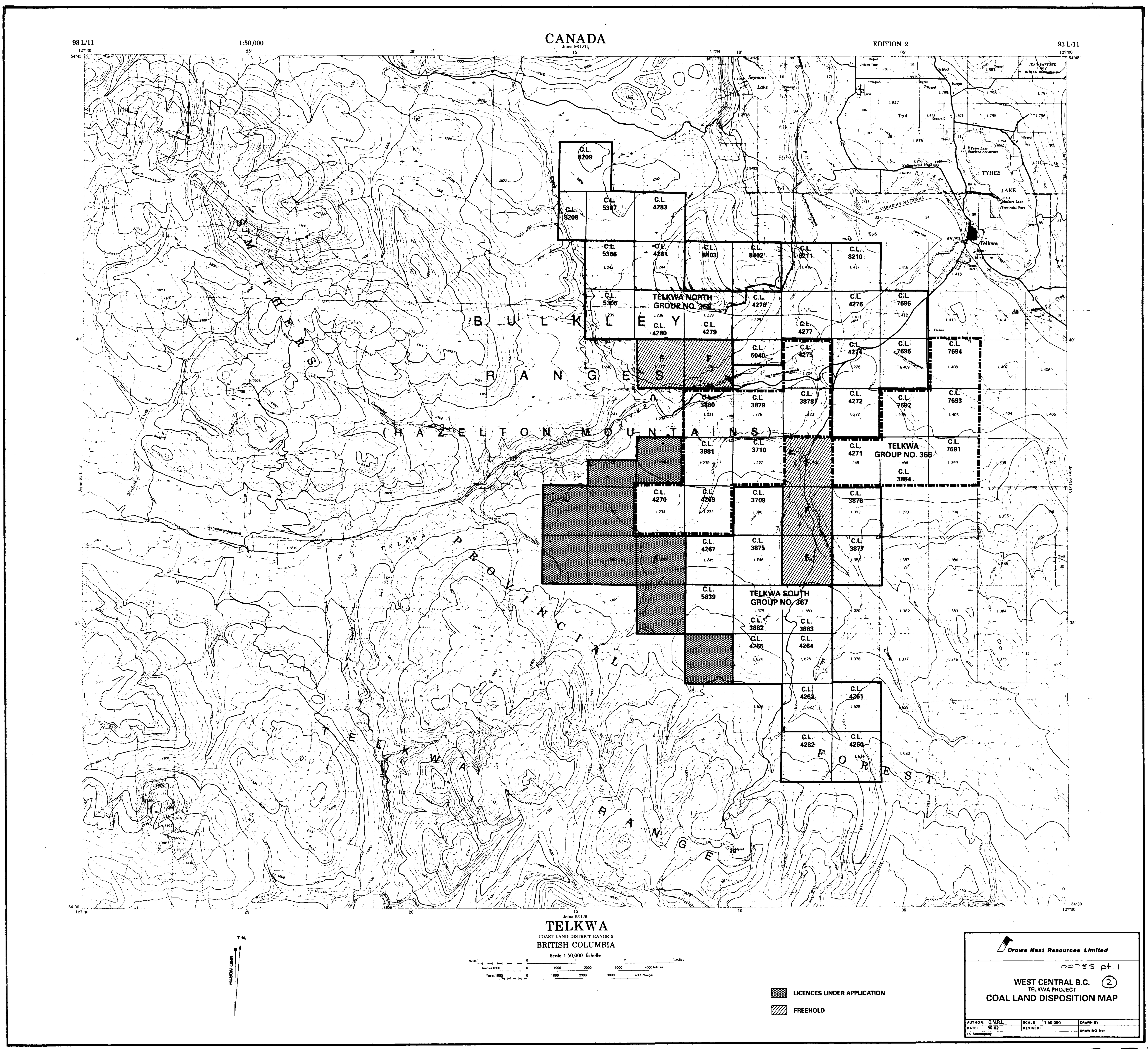
Results from the 1989 exploration program have aided in further definition and refinement of the geology within the Skeena Group north of the Telkwa River. In particular, the geology within two identified areas having low ratio coal reserves (ie. Pits 7 and 8) has been adequately delineated. Furthermore an area east of Pit 7 has been confirmed as suitable for the location of a coal preparation plant. A combination of drilling, DC-Resistivity profiling and local backhoe trenching has determined the lack of economic coal measures and the existence of suitable unconsolidated material for tailings pond construction.

Drilling data from Pits 7 and 8 also reaffirmed the Red Rose formation stratigraphy north of the Telkwa River. Generally this stratigraphy is characterized by the existence of ten coal seams, with the upper nine being separated from the lowest seam by approximately 150 meters of section. These upper nine seams provide the most attractive exploration target. However, this stratigraphy can be extensively faulted and coal seam continuity can be influenced by washouts, seam plying, lateral facies changes and seam thickness variation.

Coal seam quality information from diamond drill cores within Pit 8 when compared with similar information from Pit 3, south of the Telkwa River, indicate good correlation of quality parameters on a seam by seam basis. In contrast, coal quality within Pit 7 is moderately improved from these other areas due to excellent seam continuity, a general lack of facies changes and above average seam thickness for all seams.

Areas adjacent to Pits 7 and 8 were examined using the DC-Resistivity profiling survey technique and supportive drilling. No additional economic coal reserves have been identified and these areas should prove suitable as waste disposal areas.


NATIONAL TOPOGRAPHIC SYSTEM
BRITISH COLUMBIA
THIRD STATUS EDITION — January 15th, 1969.
SHEET 93L
Crows Nest Resources Limited
EXPLORATION
WEST CENTRAL, B.C.
TELKWA PROJECT
755 pt. 1
1
INDEX MAP
N.T.S. 93L
U.T.M. Zone 9
AUTHOR: CAMERON
SCALE: 1: 250,000
ENCLOSURE No:
DATE: 84 02
REVISED: 89-02
DRAWING No: TW6A01
To Accompany
HJ-100
To Colleymount · 18 Miles
COAST LAND DISTRICT
RANGE 4
First Status Edition, compiled and produced by Geographic Division, Surveys and Mapping Branch, Dept. of Lands & Forests, Victoria, B.C., 1953.
Third Status Edition revised 1969.
REFERENCE
Land alienated or covered by application under the Land Act
Surveyed Timber or Pulp Lease, Timber or Pulp Licence
Indian Reserve
Government Reserve
Land District Boundary
Provincial Forest Boundary
Tree Farm Licence
Municipality
Water Supply Area
Park
Park less than 40 acres
Campground
Forest Service Lookout
Settlement or Locality
Post Office
School
Hospital
Mine
Dyke
Historic Monument
Mile Post
International Boundary and Monument
SMITHERS
BRITISH COLUMBIA
COAST LAND DISTRICT — RANGE 5
Scale 1:250,000 or approximately 1 Inch to 4 Miles
Scale of Kilometres
Magnetic Declination approximately 26°45′ East of Centre of sheet, 1969.
Decreasing approximately 3′41″ annually
Maps and indexes with price lists may be obtained from the Map Production Division, British Columbia Lands Service, Parliament Buildings, Victoria, B.C.
Universal Transverse Mercator Projection
REFERENCE
Road, Hard Surface, All Weather
Loose Surface, All Weather
Loose Surface, Less than 2 lanes
Private (Logging, Mining etc)
Four Wheel Drive
Trail
Railway
Main Telephone Line
Main Electric Power Line
Horizontal Control Station
Contours (Interval 500 feet)
Elevation in feet above mean sea-level
Intermittent Stream
Intermittent Lake or Seasonal Inundation
Swamp or Marsh
Glacier or Icefield
Spring
Dam
Customs Office
Lighthouse (occupied)
Airport or Airstrip
Airharbour or Seaplane Anchorage
Abandoned Railway
On the above map index, the maps published are shown thus:
With District lot land status
Without
Land Commissioners' Offices are located in Smithers and Burns Lake.
Mineral Claims are not shown on this sheet.
District land lots, 5 acres or less may not be shown due to the scale of this map.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C.L. 5305
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C.L. 7696
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C.L. 4261
C.L. 4282
C.L. 4260
BULKLEY RANGES
(HAZELTON MOUNTAINS)
SMITHERS
TELKWA PROVINCIAL FOREST
TELKWA RANGE
Seymour Lake
TYHEE LAKE
Telkwa
TELKWA
COAST LAND DISTRICT RANGE 5
BRITISH COLUMBIA
Scale 1:50,000 Échelle
T.N.
GRID NORTH
LICENCES UNDER APPLICATION
FREEHOLD
Crows Nest Resources Limited
00755 pt 1
WEST CENTRAL B.C. (2)
TELKWA PROJECT
COAL LAND DISPOSITION MAP
AUTHOR: C.N.R.L.
SCALE: 1:50 000
DATE: 90-02
DRAWN BY:
REVISED:
DRAWING No:
To Accompany

755

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

APPLICATION TO EXTEND TERM OF LICENCE

1. I, Crows Nest Resources Limited (Name) agent for Shell Canada Limited (Name)

P.O. Box 2699, Station 'M' (Address) — 400 - 4th Avenue S.W. (Address)

Calgary, Alberta T2P 3Y9 — Calgary, Alberta

Valid FMC No. 207568

hereby apply to the Minister to extend the term of Coal Licence(s) No(s). (Group 368) 4272, 4274, 7695, 7696, 4276, 4277, 4278, 4280, 6040, 4281, 4283, 5305, 5306, 5307, 8208, 8209, 8210, 8211, 4279
for a further period of one year.

2. Property name Telkwa

3. I am allowing the following Coal Licence(s) No(s). to forfeit none

4. I have performed, or caused to be performed, during the period September 13 to November 20, 19 89, work to the value of at least $ 578,506.50

on the location of coal licence(s) as follows:

CATEGORY OF WORK

	Licence(s) No(s).	Apportioned Cost
Geological mapping		
Surveys: Geophysical	4277-4279	41,675.00
Geochemical		
Other		
Road construction	4277-4279	39,978.03
Surface work	4277-4279	8,000.00
Underground work		
Drilling	4277-4279	355,770.09
Logging, sampling and testing	4277-4279	25,781.82
Reclamation	4277-4279	16,100.00
Other work (specify) Piezometers	4278-4279	20,000.00
Off-property costs		578,506.50

5. The work performed on the location(s) is detailed in the attached report entitled Telkwa Project 1989 Geological Assessment Report

March 14, 1990
(Date)

[signature]
(Signature)

Staff Geologist
(Position)

(FORMS AND REPORT TO BE SUBMITTED IN DUPLICATE)

755

GEOLOGICAL MAPPING Yes ☐ No ☒

	Area (Hectares)	Scale	Duration
Reconnaissance			
Detail: Surface			
Underground			

Other* (specify)

Total Cost $

GEOPHYSICAL/GEOCHEMICAL SURVEYS Yes ☒ No ☐

Method: DC-resistivity profiling - 15.7 kms

Grid

Topographic

Other* (specify)

Total Cost $ 41,675.00

ROAD CONSTRUCTION Yes ☒ No ☐

Length 17.20 m Width 7 m

On Licence(s) No.(s) 4277-4279

Access to New drillsites

Total Cost $ 39,978.03

SURFACE WORK Yes ☒ No ☐

	Length	Width	Depth	Cost
Trenching	120 m	1 m	3.5 m	8,000.00
Seam Tracing				
Crosscutting				

Other* (specify)

Total Cost $ 8,000.00

UNDERGROUND WORK Yes ☐ No ☒

	No. of Adits	Maximum Length	No. of Holes	Total Metres	Cost
Test Adits					

Other workings*

Total Cost $

DRILLING Yes ☒ No ☐

	Hole Size	No. of Holes	Total Metres	Cost
Core: Diamond				
Wireline	NQ	13	835.5	154,869.21
Rotary: Conventional				
Reverse circulation		18	1465.0	46,031.68
Other* (specify) 6" coring		4	315.0	154,869.21

Contractor SDS Drilling - rotary, JT Thomas - diamond

Where is the core stored? Telkwa core storage site

Total Cost $ 355,770.09

LOGGING, SAMPLING AND TESTING Yes ☒ No ☐

Lithology: Drill samples ☒ Core samples ☒ Bulk samples ☐

Logs: Gamma-neutron ☒ Density ☒

Other* (specify)

Testing: Proximate analysis ☒ FSI ☒ Washability ☒

Carbonization ☒ Petrographic ☒ Plasticity ☒

Other* (specify)

Total Cost $ 25,781.82

RECLAMATION Yes ☒ No ☐

Details - See 1989 reclamation report, Telkwa Total Cost $ 16,100.00

OTHER WORK (Specify details) Yes ☒ No ☐ Cost

Piezometer installation in 4 holes (holes 905, 906, 913, 604A) 20,000

Total Cost $ 20,000

OFF-PROPERTY COSTS Yes ☒ No ☐

Details Consultant costs, accommodation, supervision, supplies, etc. Total Cost $ 71,201.56

Total Expenditures $ 578,506.50

March 14, 1990
(Date)

(Signature)

Staff Geologist
(Position)


SKEENA GROUP
TERTIARY INTRUSIVE
TERTIARY INTRUSIVE
SKEENA GROUP
L228
L410
L411
HAZELTON VOLCANICS
HAZELTON VOLCANICS
SKEENA GROUP
L221
L224
L225
AVELLING MINE
HAZELTON VOLCANICS
L226
L223
L222
HAZELTON VOLCANICS
500 KV
500 KV
TRUE NORTH
GRID NORTH
LEGEND
OLD MINE WORKINGS
POWER LINE
NATURAL GAS LINE
GEOLOGICAL CONTACT (ASSUMED)
REVERSE FAULT (TEETH ON HANGING WALL SIDE)
NORMAL FAULT (TEETH ON HANGING WALL SIDE)
BORE HOLE
0 .25 .50 .75 1.0
SCALE IN km
1:10,000
McNEIL MINE
SKEENA GROUP
SKEENA GROUP
BULKLEY VALLEY COLLERIES
TEST PIT
HAZELTON VOLCANICS
SKEENA GROUP
SKEENA GROUP
HAZELTON VOLCANICS
Crows Nest Resources Limited
TELKWA PROJECT
0755 pt. 1
3
GEOLOGY
AUTHOR: McKINSTRY
SCALE: 1:10,000
DRAWN BY: K. PASCOE
DATE: 1990-02-26
REVISED:
DRAWING No:
To Accompany
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