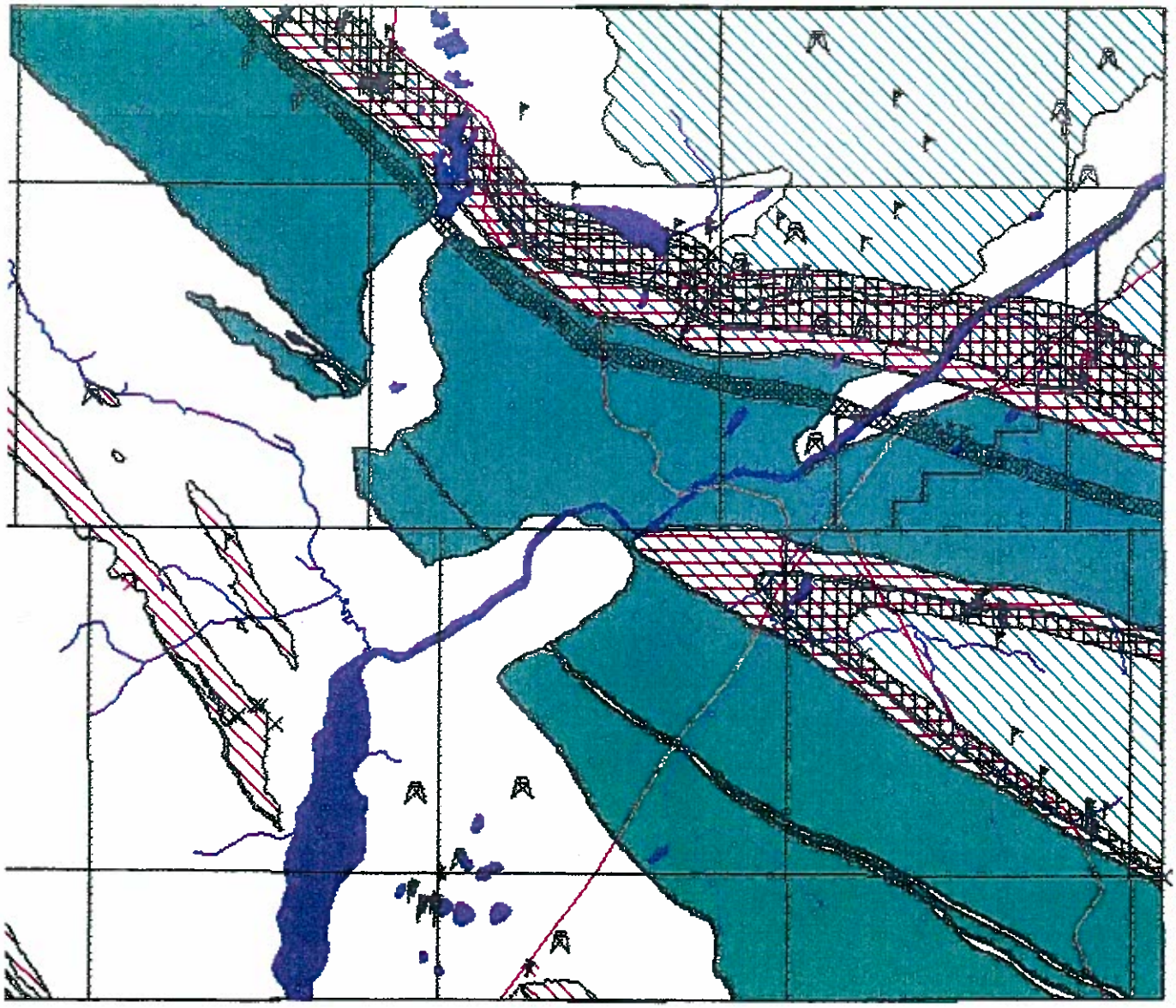
ALBERTA GEOLOGICAL SURVEY - COAL GEOLOGY

COAL COMPILATION PROJECT - ENTRANCE

NTS 83F/5

R. J. H. Richardson, C. W. Langenberg, D. K. Chao and D. Fietz



Coal Compilation Project
Open File Report: 1990-2
Coal Geology Section
Alberta Geological Survey

ALBERTA RESEARCH COUNCIL

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Foreword

The prime objective of the pilot Coal Compilation Project (CCP) is to provide coal resource maps to stimulate and support industry exploration programs, and assist government in matters of resource management. An essential feature of the program is the use of cost effective Geoscience Information System (GSIS) technology that allows the database and various thematic maps to be analyzed, updated, and displayed with complete flexibility at any scale.

Each map set is intended to be a stand alone, unique product contributing to an overall synthesis of information. Maps generated will be at a regional or reconnaissance level. Collection of new data was limited. Data compiled and evaluated will be based on the following principal sources; Alberta Research Council/Alberta Geological Survey (ARC/AGS); Energy Resources Conservation Board (ERCB); Geological Survey of Canada (GSC/ISPG); and information from the coal industry sector. Industry cooperation and support is shown in the making available of unpublished corporate reports to the AGS. The availability of these reports is an essential ingredient for the success of this project.

The CCP will encompass some eighteen 1: 50 000 scale mapsheets to be completed over a three year period.

Custom maps and database searches can be obtained by contacting the Coal Geology Section, Alberta Geological Survey, Alberta Research Council. Raw coal exploration data[1] that are in the 'public' domain can, for a nominal fee, be viewed in microfiche form at the Records Center of the Energy Resources Conservation Board in Calgary, Alberta. Arrangements can also be made to acquire copies of all/selected data.

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[1]specifically, the geophysical logs (and other associated data) of coal exploration drillholes and, as available, analytical data relating to coal quality.

Acknowledgments

The project was partly funded by the Alberta Office of Coal Research and Technology. The Alberta Geological Survey Coal Technical Advisory Sub-Committee provided valuable guidance for the project. Wolfgang Kalkreuth of the Geological Survey of Canada (GSC/ISPG) participated in the field component of the study and provided vitrinite reflectance measurements. D. Goulet and J. Matthie assisted with map digitization. Denison Mines Limited, Esso Canada Resources Limited and Union Oil Company of Canada are thanked for making unpublished reports available to the Alberta Geological Survey.

Executive Summary

The study area of mapsheet NTS 83F/5 (Entrance) is located in west-central Alberta. The community of Hinton is the primary population center in the study area. The area of the mapsheet, located north of the Athabasca River and outside of Jasper National Park, falls within the proposed Yellowhead North IRP. The area of the mapsheet, located south of the Athabasca River, falls within the Coal Branch IRP.

Within the mapsheet 83F/5, coal measures are deposited within thick successions of sandstones, siltstones, shales and conglomerates. These coal-bearing sequences are part of the Lower Cretaceous Luscar Group, Upper Cretaceous Brazeau Formation and Paleocene Coalspur Formations. The present mapsheet contains coal resources and reserves in the the following ERCB-designated Coal Fields: Brule, Coalspur, Jarvis Lake and McLeod River; and, a 'small isolated deposit', Maxwell Lake.

The Luscar Group consists of sandstones, shales, conglomerates and coals, deposited predominantly in nonmarine environments. Strata of the Lower Cretaceous Luscar Group have been subjected to deformation which has produced northwesterly trending thrust faults and folds. As a result, the Luscar Group coal seams are now exposed in a series of northwest trending thrust sheets and associated folds. Often the coal seams have been further locally folded and faulted. Depending on the severity of these local structural complexities, and acknowledging a general discontinuity of coal outcrops in the Inner Foothills, coal seam correlations and evaluations can be extremely difficult. Several seams have been identified within the mapsheet. No correlations could be established for the Luscar Group coal seams. Individual seam thicknesses vary to a maximum of 10 meters. Within the mapsheet 83F/5, three mines produced low to medium volatile bituminous coal from the Grande Cache Member of the Luscar Group.

The Brazeau Formation consists of nonmarine sandstones, conglomerates, shales and coals and lies conformably above the marine Wapiabi Formation. The Brazeau Formation is overlain by the Entrance Conglomerate (or an equivalent sandstone). In the upper 200 meters of the Brazeau Formation, coal seams have been identified. North of the Athabasca River, and located on the mapsheet, one 0.6m Brazeau seam has been located in outcrop. Three thin Brazeau coal seams

have also been identified in a coal drillhole, located north of the Athabasca River. Two of the seams are 0.7m thick each, while the third is 0.75m thick. South of the Athabasca River and located within the mapsheet, Brazeau coal has not been identified in drillholes or outcrops. In the past, however, Brazeau coal was mined at two locations; at one mine (#1257), the seam thickness was 1m, while in the second mine (#1714), the seam thickness ranged from 1.4 to 1.8m. It was not determined whether the mining operations were from the same or different seams.

The Coalspur Formation consists of nonmarine sandstones, siltstones, shales and coals and overlies the Entrance Conglomerate (or an equivalent sandstone). Within the mapsheet area, located north of the Athabasca River, as many as 10 coal seams have been identified within the Coalspur Formation. The seams have an average aggregate thickness of 19.5 meters and are contained within a 300 meter-thick sedimentary sequence. Within the mapsheet area, located south of the Athabasca River, some of the 'type section' Coalspur Formation coals can, with some confidence, be identified and correlated. Up to 6 coal seams/zones have been identified; the coals have an average aggregate thickness of 13.5 meters and are contained within a 210+ meter-thick sedimentary sequence. It is believed that there is a stratigraphic interval of some 300 meters from the Silkstone to the underlying Entrance Conglomerate. Within the mapsheet 83F/5, two mines produced coal from the the Coalspur Formation.

The most north-easterly trend of the Upper Cretaceous Brazeau Formation and the Paleocene Coalspur Formation are located in a gentle monocline that trends in a northwesterly strike direction. Strata dip to the northeast, generally between 5 and 20 degrees. Within the southwest quarter of the mapsheet, the Upper Cretaceous Brazeau Formation and the Paleocene Coalspur Formation comprise the flanks of the Entrance Syncline. The syncline, plunging to the southeast, is asymmetrical. The steeper, southwest limb dips locally to 85 degrees while the shallower northeast limb has an average dip of 35 degrees. The structure extends for some 80 kilometers and averages 8 kilometers in width. The Entrance Conglomerate 'noses out' out south of the Athabasca River near Entrance, located some 6 kilometers southwest of Hinton.

Good coal development in the Coalspur Formation has been established by a number of exploration programs but statigraphic problems (seam correlations) remain to be solved. Additional subsurface geological studies, including the construction of regional cross-sections and seam correlations, are needed both along the strike of the Coal Valley Coal Zone and along the Entrance Syncline. Structural studies in the Brule Lake Coal Field and along the Luscar trend north and south of the Brule Field could be rewarding.

Introduction

Objective

The objective of the pilot Coal Compilation Project (CCP) is to provide coal resource maps on a 1: 50 000 scale, which will

- o stimulate and support industry exploration programs, and
- o assist government in matters of resource management (eg, Integrated Resource Plans) in areas that may have good coal development potential, but have a lack of data or understanding.

Each map set is intended to be a stand alone, unique product contributing to an overall synthesis of information. Maps generated will be at a regional or reconnaissance level. Collection of new data and/or actual time in the field will be limited. Data compilation and evaluation will be based on the following principal sources

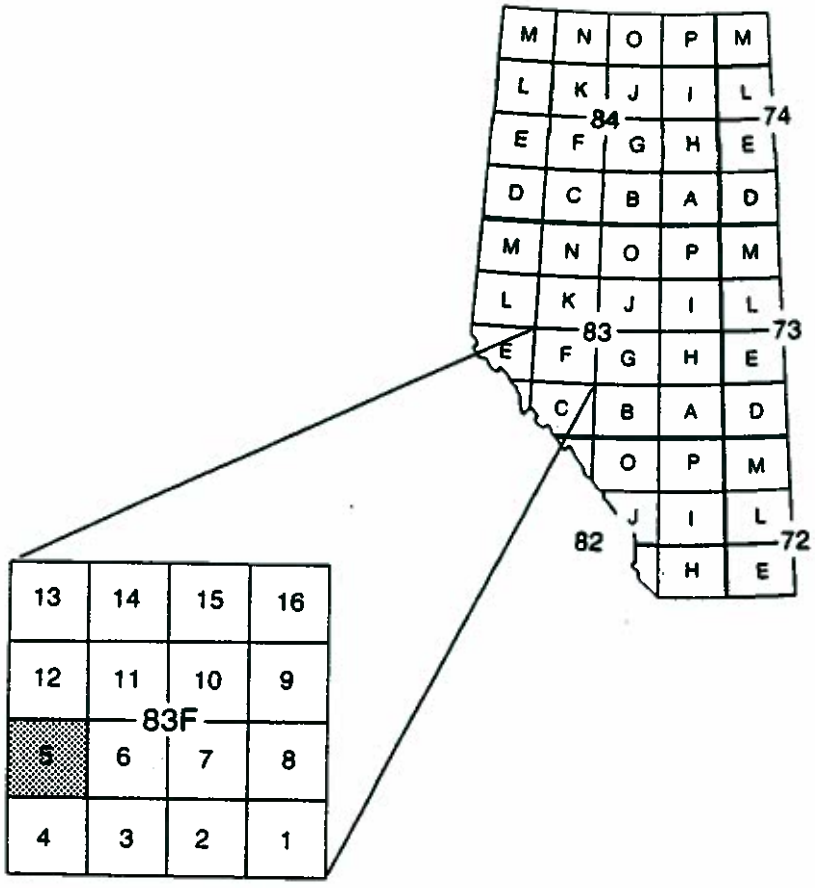
- o Alberta Research Council/Alberta Geological Survey (ARC/AGS)
- o Energy Resources Conservation Board (ERCB)
- o Geological Survey of Canada (GSC/ISPG)
- o cooperation from the coal industry sector.

The CCP will encompass some eighteen 1: 50 000 scale mapsheets to be completed over a three year period.

When completed, the CCP can be evaluated to determine if the project should be expanded province wide. As each map represents a complete product, the technical committee could monitor the progress of the research and react to changing priorities without being committed to spending funds more than one year in advance.

The fiscal year, 1989-90, was the first year of the CCP. The CCP focussed on the Hinton - Grande Cache Corridor and included four contiguous NTS mapsheets (see Figure 1). From

Figure 1. Coal Compilation Project - Entrance NTS 83F/5 : Location



southeast to northwest, they are **83F/5 (Entrance)**, 83E/9 (Moberly Creek), 83E/15 (Pierre Greys Lakes) and 83E/14 (Grande Cache).

For each mapsheet, a product has been generated that includes

- o a coal resource map (scale 1: 50 000)
- o 'snapshot' maps (scale 1: 250 000)
- o supplementary text.

Methodology and Discussion of GIS

Geographic Information Systems (GIS) which encompass spacial data storage, display and analysis by computer have been employed in the municipal, environmental and forestry sectors for many years. The term GIS has been applied to mainly surface or geographic studies and has not as a rule been extended to the 3rd dimension (depth) or temporal aspects (time). A Geoscience Information System (GSIS) goes beyond what is generally thought of as traditional GIS and is focused strongly on subsurface information. An essential feature of the Coal Compilation Project is the use of cost effective Geoscience Information System (GSIS) technology that allows the database and various thematic maps to be analyzed, updated, and displayed with complete flexibility at any scale. In addition custom maps can be produced from the various data and graphic elements that have been entered into the information system.

Much of the present methodology, software and hardware used in this study is described in detail in the Alberta Research Council, Open File Report 1989-03A (Richardson et al., 1989). In general both digital and hardcopy data or graphic elements are entered into a GIS software product (pcARC/INFO) where they can be analyzed, displayed or plotted to hardcopy.

During this first year of the CCP, substantial time was spent in

- o developing the hardcopy, product template, and
- o replicating the above template into the electronic medium of GIS.

Assuming that all/most of the above design work will be utilized for future mapsheets, and that all other factors remain the same, the number of CCP sheets generated during a given year should increase. Rather than spending time on the design of the product, time will be spent on actual product compilation and generation.

Location and Access

The study area of mapsheet NTS 83F/5 (Entrance) is located in west-central Alberta between Latitudes 53° 15' and 53° 30' North, and Longitudes 117° 30' and 118° 00' West (West of the 5th Meridian, between Townships 49 and 52 inclusive, and Ranges 49 to 52 inclusive).

The communities of Hinton (83F/5) and Grande Cache (83E/14) are the primary population centers within/near the study area.

Paved access to and within the area is provided by Highways No. 16 and 40. Numerous all-weather, gravelled wellsite and logging roads also exist. Additional secondary seasonal access is provided by a network of roads, trails and seismic lines.

The area is serviced by the Canadian National Railway and the Alberta Resources Railway; the rail lines have the capacity to accomodate coal unit trains. Coal could be shipped to:

- Ridley Island at Prince Rupert, B.C. located
    - 1170 rail-kilometers from Hinton
    - 1310 rail-kilometers from Grande Cache
- Neptune Terminals at Vancouver, B.C. located
    - 1010 rail-kilometers from Hinton
    - 1150 rail-kilometers from Grande Cache.

Geological Setting

Within the mapsheet 83F/5, coal measures are deposited within thick successions of sandstones, siltstones, shales and conglomerates. These coal-bearing sequences are part of the

- Lower Cretaceous Luscar Group
- Upper Cretaceous Brazeau Formation

o Paleocene Coalspur Formation.

Stratigraphic nomenclature for the above strata is shown in Figure 2.

Stratigraphy of Coal-Bearing Units

Luscar Group

The Luscar Group consists of sandstones, shales, conglomerates and coals, deposited predominantly in nonmarine environments. The strata of the Group have been divided into four formations (Langenberg and McMechan, 1985), ie:

o Cadomin Formation, a basal conglomerate

o Gladstone Formation, predominantly nonmarine sandstones and shales

o Moosebar Formation, marine shales and sandstones

o Gates Formation, nonmarine sandstones, shales and coals.

Gates Formation

The Gates Formation can be divided into three members - the Torrens, Grande Cache and Mountain Park members. The Grande Cache Member contains the economic coal seams within the Luscar Group.

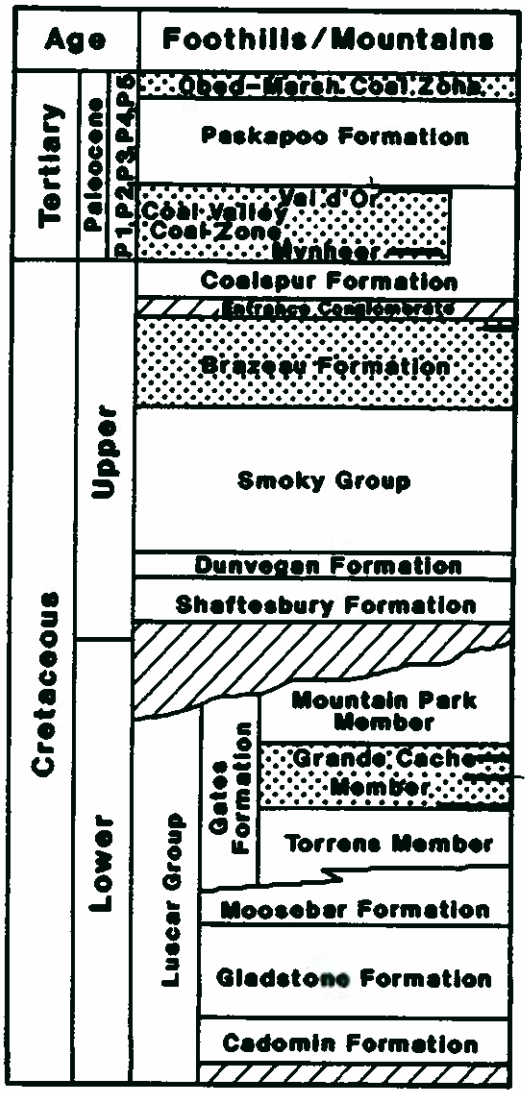
Several seams have been identified within the mapsheet. No correlations could be established for the Luscar Group coal seams. Individual seam thicknesses vary; the maximum seam thickness exceeds 10 meters.

Brazeau Formation

The Brazeau Formation consists of nonmarine sandstones, conglomerates, shales and coals and lies conformably above the marine Wapiabi Formation. Further, the Brazeau Formation is overlain by the Entrance Conglomerate (or an equivalent sandstone).

North of the Athabasca River, and located on the mapsheet, one 0.6m Brazeau seam has been located in outcrop. Three thin Brazeau coal seams have also been identified in a coal drillhole, located north of the Athabasca River. Two of the seams are 0.7m thick each, while the third is 0.75m thick.

Figure 2. Stratigraphic Nomenclature Adopted for the Coal Compilation Project (after Macdonald et al., 1989)



LEGEND

Coal-bearing unit

Major seams

Hiatus or missing interval

Coal Valley Coal Zone
Val d'Or
Arbour
McLeod
McPherson
Silkstone
Mynheer

South of the Athabasca River and located within the mapsheet, Brazeau coal has not been identified in drillholes or outcrops. In the past, however, Brazeau coal was mined at two locations; at one mine (#1257), the seam thickness was 1m, while in the second mine (#1714), the seam thickness ranged from 1.4 to 1.8m. It was not determined whether the mining operations were from the same or different seams.

Coalspur Formation

The Coalspur Formation consists of nonmarine sandstones, siltstones, shales and coals and overlies the Entrance Conglomerate (or an equivalent sandstone).

North of the Athabasca River

Within the mapsheet area, located north of the Athabasca River, as many as 10 coal seams have been identified within the Coalspur Formation. The seams have an average aggregate thickness of 19.5 meters and are contained within a 300 meter-thick sedimentary sequence. Seam designations, originated at the industry level, have been modified and incorporated into this compilation. In stratigraphically descending order, the following seams have been noted:

SEAM DESGNTN	AVE COAL TH (m)	AVE INTERBURDEN (m)	REMARKS
9	0.9		
		8	
8	1.6		
		33	
7	2.2		
		40	
6	2.6		
		25	
5	1.2		
		50	
4	4.3		?...Val d'Or equivalent
		35	
3C	0.9		
		17	
3B	1.8		
		21	
3A	0.8		?...Arbour equivalent

43

1 3.1 ?...McPherson equivalent

It should be noted that some of the 'traditional' Coalspur coal seams (ie, Silkstone and Mynheer) have not been recognized within the mapsheet area. A detailed stratigraphic study is required to prove the merits of the above noted seam equivalencies. These seam correlations are preliminary.

It is believed that there is a stratigraphic interval of 200+ meters from Seam 1 to the underlying Entrance Conglomerate.

South of the Athabasca River

Within the mapsheet area, located south of the Athabasca River, some of the 'type section' Coalspur Formation coals can, with some confidence, be identified and correlated. Up to 6 coal seams/zones have been identified; the coals have an average aggregate thickness of 13.5 meters and are contained within a 210+ meter-thick sedimentary sequence. In stratigraphically descending order, the following seams have been noted:

SEAM / ZONE DESGNTN	AVE COAL TH (m)	AVE INTERBURDEN (m)
Val d'Or	2.4	
		10
Arbour	3.0	
		20
McLeod	1.0	
		28
McPherson	2.5	
		85
Silkstone	3.9	
		50
Mynheer...?	0.6	

It should be noted that there is uncertainity concerning the Mynheer.

It is believed that there is a stratigraphic interval of some 300 meters from the Silkstone to the underlying Entrance Conglomerate.

Structure

Strata of the Lower Cretaceous Luscar Group have been subjected to deformation which has produced northwesterly trending thrust faults and folds. As a result, the Luscar Group coal seams are now exposed in a series of northwest trending thrust sheets. Often the coal seams have been further locally folded and faulted. Depending on the severity of these local structural complexities, and acknowledging a general discontinuity of coal outcrops in the Inner Foothills, coal seam correlations and evaluations can be extremely difficult.

The most north-easterly trend of the Upper Cretaceous Brazeau Formation and the Paleocene Coalspur Formation are located in a gentle monocline that trends in a northwesterly strike direction. Strata dip to the northeast, generally between 5 and 20 degrees. No other major structures were noted from the available outcrop or drillhole data.

Within the southwest quarter of the mapsheet, the Upper Cretaceous Brazeau Formation and the Paleocene Coalspur Formation comprise the flanks of the Entrance Syncline. The syncline, plunging to the southeast, is asymmetrical. The steeper, southwest limb dips locally to 85 degrees while the shallower northeast limb has an average dip of 35 degrees. The structure extends for some 80 kilometers and averages 8 kilometers in width. The Entrance Conglomerate 'noses out' out south of the Athabasca River near Entrance, located some 6 kilometers southwest of Hinton.

Environmental Setting

Integrated Resource Plans (IRP's)

The area of the mapsheet, located north of the Athabasca River and outside of Jasper National Park, falls within the proposed Yellowhead North IRP. In the May, 1989 edition of Planning in Progress (Volume 6, Number 2), the status of the Yellowhead North IRP was capsuled in the following statement...

'Initiation of this plan has been deferred. (Resource Planner: Tom Cottrell)'.

There is no mention of the Yellowhead North IRP in the January, 1990 edition of Planning in Progress (Volume 7, Number 1).

The area of the mapsheet, located south of the Athabasca River, falls within the Coal Branch IRP. In the January, 1990 edition of Planning in Progress (Volume 7 Number 1), the status of the Coal Branch IRP was capsuled by the following statements...

'The Planner's Update was sent to the public January 4, 1990. A ministerial briefing is tenatively scheduled for late January, prior to endorsement by the Cabinet Committee. (Team Coordinator: Toni Hafso)'.

See also Figure 3 for locations/outlines of IRP's in the surrounding vicinity. On Figure 3, a bracketed letter follows the name of the IRP; this letter identifies the status of the IRP as

- o (C); completed
- o (P); in-progress or
- o (F); future.

Resource Management

Coal Dispositions

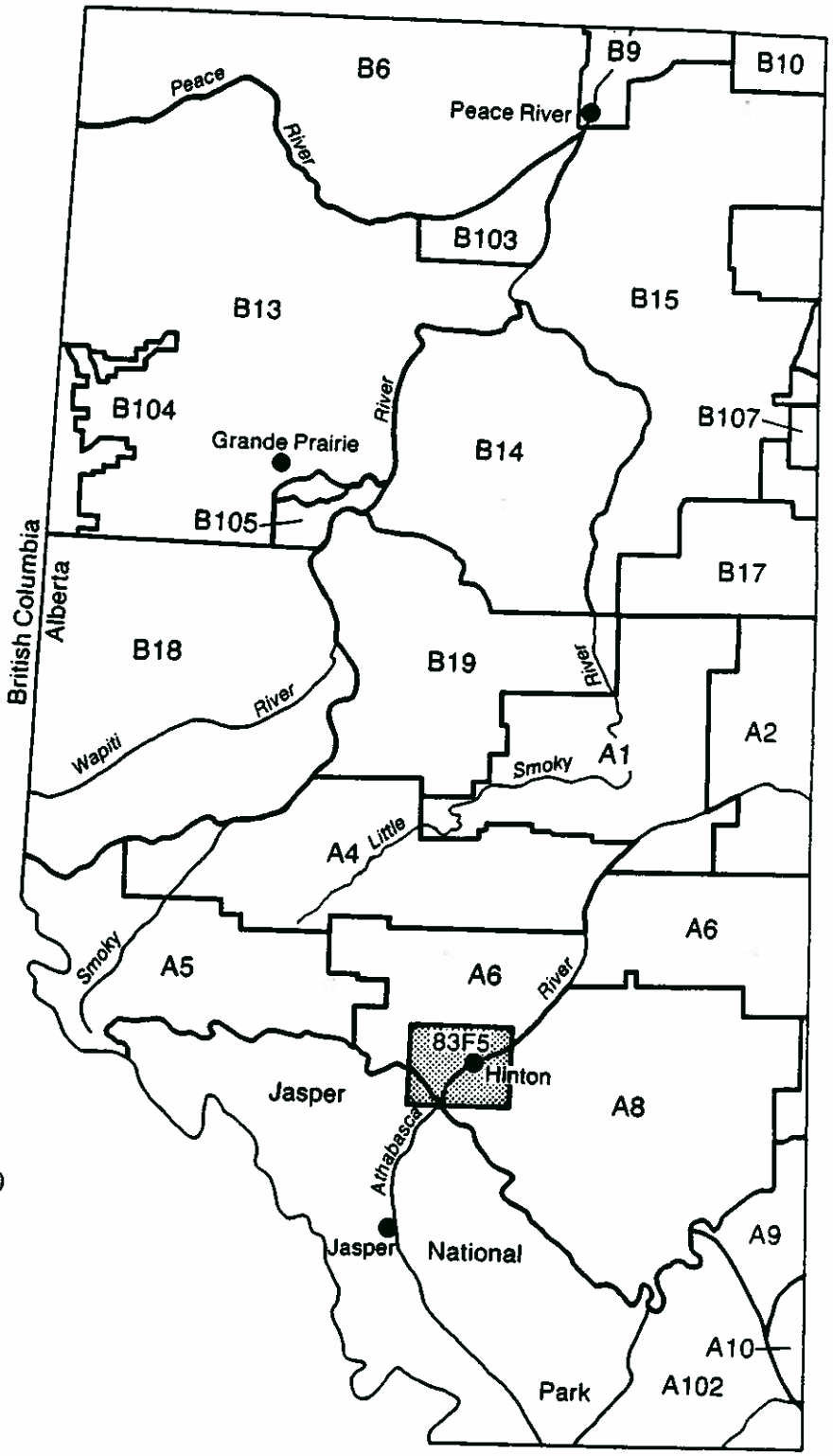
The status of the rights_to_coal within an area can generally be categorized into one of the following

- o Crown coal lease held
- o Crown coal lease under application
- o Areas with registered right of first refusal
- o Freehold coal rights held
- o Coal withdrawn from disposition.

According to a recent (1989-04-13) Alberta Energy Coal Disposition Map of 83F/5, the following 11 companies are involved in one or more of the above activities

- o Dencoke Coal Limited
- o Denison Coal Limited

Figure 3. Locations/Outlines IRP's in the Surrounding Vicinity (1989)



Sub-Regional Plans

Eastern Slopes Region

- A1 Fox Creek-Knight (P)
- A2 Whitecourt-Blue Ridge (F)
- A3 Swan Hills-Ft. Assiniboine (F)
- A4 Berland (P)
- A5 Willmore Wilderness Park (F)
- A6 Yellowhead North (P)
- A7 Cold Creek (F)
- A8 Coal Branch (P)
- A9 Brazeau-Pembina (C)
- A10 Rocky-North Saskatchewan (C)

Peace River Region

- B6 Notikewin (F)
- B7 Keg River (C)
- B8 Buffalo Head Hills (F)
- B9 East Peace (P)
- B10 Red Earth (F)
- B11 Peerless-Graham (F)
- B12 Wabasca (F)
- B13 Saddle Hills (F)
- B14 Sturgeon Lake-Puskwaskau East (C)
- B15 Heart River (F)
- B16 Utikuma (F)
- B17 North Swan Hills (F)
- B18 Kakwa-Wapiti (F)
- B19 Smoky-Simonette (F)

Local Plans

Peace River Region

- B101 Upper Peace Valley (C)
- B102 Lower Peace Valley (P)
- B103 Smoky-Peace Point (C)
- B104 Grande Prairie County West (P)
- B105 Wapiti-Grande Prairie Sand Dunes (C)
- B106 Bear River-Wapiti (C)
- B107 Frost Hills (C)

- o Dentherm Resources Limited
- o Esso Resources Canada Limited
- o Halferdahl and Associates Ltd.
- o Luscar Ltd.
- o Manalta Coal Ltd.
- o Roymac Holdings Ltd.
- o Seaton-Jordan & Assocites Ltd.
- o Tanager Resources Limited
- o Unocal Canada Limited

It should be noted that most of the corporate coal lease activity is concentrated on the first three categories.

Established Coal Resources and Reserves

Coal resources and reserves have been calculated by the ERCB (1989) for the whole of Alberta.

The present mapsheet contains coal resources and reserves in the the following ERCB-designated regions:

- o Mountain Region; contains the Brule Coal Field
- o Foothills Region; contains the Coalspur, Jarvis Lake and McLeod River Coal Fields; and, the Maxwell Lake 'small isolated deposit'.

Only the Coal Field outlines have been included on the GIS plot.

Exploration History

Coal

Coal Exploration Drillholes

Some 104 coal exploration holes have been drilled by 8 companies between 1971 and 1985. Of the holes drilled, 67 holes (64%) intersected coal as per the defined criteria (see Hughes et al., 1988); it follows that 37 holes (36%) did not intersect coal. Hole depths ranged from 6 to 420 meters in depth.

Coal exploration drilling activities were carried out by a number of companies. A summary follows

COMPANY	NUMBER OF HOLES DRILLED
Denison Mines Ltd.	24
Esso Resources Canada Limited	28
Granby Mining Company Limited	17
Lexco Testing Limited	1
Manalta Coal Limited	3
McGregor Construction Company Limited	15
Pacific Petroleum Limited	8
Union Oil Company of Company Limited	8

Based on the April, 1989 version of the ERCB Coal Hole File, details of the coal exploration drillholes are given in Appendix 1 and includes information on:

- o SITID; the assigned Site Identification Number within the AGS Coal Database
- o CAT_ID; the assigned Catalogue Identification Number within the ERCB Coal Hole File (April, 1989 version)
- o ORIG; the Original Identification Number of the Datapoint (ie, drillhole number)

o EDITED; within the ERCB Coal Hole File, the equivalent to ORIG has been limited to 6 spaces; this, in some cases, has not been sufficient to record the ORIGinal corporate assigned drillhole number; within the AGS Coal Database, ORIG has been allocated 11 spaces; a 'X' in the EDITED column identifies those drillholes whose ORIG's were truncated; drillholes listed in the ORIG column of the listing have been edited and now reflect the 'true' Original Identification Numbers.

o NCinDH; a 'NC' in the column indicates that no coal thicker than 0.5m was intersected in the drillhole; this implies that thin coal seams less than 0.5m may be present.

o M; Meridian

o T; Township

o R; Range

o S; Section

o RSEC; Reference Section

o RCNR; Reference Corner

o METN; Metres north or south from the reference corner

o METE; meters east or west from the reference corner

o ELEV; Ground or surface elevation of the datapoint (drillhole)

o TD; Total depth of drillhole reported in meters

o CORPNUM; the assigned Corporation Number within the AGS Coal Database

o CPDT; completion date of the datapoint (drillhole); date coded as yymmdd

o COMPANY; identifies the company that generated the datapoint (drillhole).

Oil and Gas Wells

Within the study area, 16 oil and gas wells have been drilled. Of the wells drilled,

- o 10 have been abandoned
- o 4 are flowing gaswells
- o 1 is a capped gaswell
- o 1 is a suspended gaswell.

See Appendix 2 for additional data. The Appendix is based on queries from the ERCB oil and gas database (April, 1989 version).

Sand and Gravel Resources

An Aggregate Resource inset map (modified from Fox and Edwards, 1988) was added to the Entrance Regional Coal Map (RCM4; in pocket) to demonstrate how other resource information can be included as a layer or theme in GIS mapping. In this example the coal explorationist can also see on both the Geologic and Aggregate maps the trace of not only the modern Athabasca River system but also an ancestral thalweg trending north of Brule Lake to William A. Switzer Provincial Park.

Coal Occurrences

Coal Exploration Drillholes

On both Appendix 1 and the map, coal exploration drillholes have been identified as either

- o coal thicker than 0.5m intersected in the drillhole

or

- o no coal thicker than 0.5m intersected in the drillhole.

Coal is defined as greater than 50% carbonaceous material by weight and more than 70% carbonaceous material by volume as estimated from geophysical logs. The exclusion of coal seams thinner than 0.5m is consistent with Hughes et al. (1988), who exclude seams thinner than 0.5m in resource determination.

Coal intersections, per coal exploration drillhole, have been included in Appendix 3. The listing includes

- o SITID; the AGS Coal Database identification number
- o CAT_ID; the ERCB catalogue identification number
- o ORIG; the original company-assigned drillhole number
- o M T R S ; Dominion Land Survey (DLS) information; ie, Meridian, Township, Range and Section
- o TOP DEPTH; depth to top of coal in meters
- o BOT DEPTH; depth to bottom of coal in meters
- o THICK; thickness of the coal seam in meters
- o SEAM; Correlated Coal Seam Name/Number (if known); a '0' indicates that the seam has not been correlated
- o MIN; Mineral Matter content of the coal (often a best-estimate from geopyhsical log interpretation); a '0' indicates that the mineral matter of the coal was not available and/or not derived.
- o REGOLITH; thickness, in meters, of the regolith
- o PIKNUM; the geological pick identification number as stored in the AGS Coal Database
- o REMARKS.

Coal Outcrops

Combined the AGS and the GSC have identified 6 coal outcrops within the mapsheet 83F/5.

Union Oil Company of Canada Limited has also identified a number of coal outcrops within the mapsheet 83F/5. Based on their

- o 1979 field program; eleven coal outcrops were identified; the maximum thickness of coal in outcrop is 4 meters.
- o 1980 field program; fourteen coal outcrops were identified; the maximum thickness of coal in outcrop is 6.7 meters.

Coal seam outcrop locations have been identified on the GIS plot.

Coal Quality Summary

Coal Rank

Within the mapsheet 83F/5, the rank of the coal varies from

- o high volatile bituminous C in both the Paleocene Coalspur Formation and the Upper Cretaceous Brazeau Formation to
- o low to medium volatile bituminous in the Lower Cretaceous Luscar Group.

Coal Exploration Drillholes

Twenty six drillholes, within the mapsheet 83F/5, contain coal quality information. Three are in the Luscar Group and twenty three are in the Coalspur Formation. Coal quality data generated includes

- o 268 complete Proximate Analyses from 18 drillholes
- o 21 analyses of Moisture and Ash from 3 drillholes
- o 304 analyses of Sulphur from 18 drillholes
- o 67 analyses of Heating Value (as-received basis) from 5 drillholes
- o 241 analyses of Heating Value (air-dried basis) from 15 drillholes
- o 29 analyses of Heating Value (dry basis) from 7 drillholes.

- o 41 analyses of FSI from 9 drillholes.
- o 2 analyses of Ash Analysis from 1 drillhole
- o 2 analyses of Ash Fusibility from 1 drillhole
- o 28 analyses of Equilibrium Moisture from 4 drillholes
- o 1 analysis of Hardgrove Grindability Index (HGI) from 1 drillhole
- o 1 analysis of Specific Gravity from 1 drillhole.

Weighted averages of proximate analyses for the Luscar Group coals (raw) have been generated for 12 drillholes. Results are presented in Appendix 4. The weighted average Volatile Matter (dry, ash-free basis) values for the 12 drillholes are presented on the GIS plot.

Weighted averages of proximate analyses for the Paleocene Coalspur Formation coals (raw) have been generated for 3 drillholes. Results are presented in Appendix 5. The weighted average Volatile Matter (dry, ash-free basis) values for the 3 drillholes are also presented on the GIS plot.

Coal Outcrops

Ten outcrops, within the mapsheet 83F/5, have been sampled. Coal quality data generated from the samples include

- o 6 analyses of vitrinite reflectance from 6 outcrops; samples were collected by the ARC/AGS and the GSC/ISPG between 1987 and 1989; reflectance values range between 0.64 and 1.58%.
- o 4 analyses of palynology from 4 outcrops; information is limited to location only; samples were collected by Union Oil Company of Canada Limited during the 1979 and 1980 field season.

Operating and Abandoned Coal Mines

Within the mapsheet 83F/5, there are 7 abandoned mines which produced coal.

Three of these mines produced low to medium volatile bituminous coal from the Grande Cache Member of the Luscar Group:

MINE#	MINE NAME	U/G or S	YRS of OPERATION	PRODUCTION(10^3 tonnes)
310	Brule Lake	U/G	1911-13	1.4
429	Brule Lake	U/G	1914-28	1684.4
832	-	U/G	1919-36	0.7

The remaining four mines produced high volatile bituminous coal.

Two mines produced coal from the Brazeau Formation:

MINE#	MINE NAME	U/G or S	YRS of OPERATION	PRODUCTION(10^3 tonnes)
1257	Hinton	U/G	1927-41	577.1
1714	Yellowhead	U/G	1950-56	4.8

Two mines produced coal from the the Coalspur Formation:

MINE#	MINE NAME	U/G or S	YRS of OPERATION	PRODUCTION(10^3 tonnes)
1296	Jasper	U/G & S	1929-45	214.9
1653	Red Glow	U/G	1946-50	1.7

Where known, the thickness of the mined coal seam has been included as part of the GIS database.

Further locational details of the abandoned coal mines have been included in Appendix 1.

Coal Resource Development Potential

A semiquantitative and subjective evaluation of the potential of coal development in the map area is based on limited data. It is based on mainly geological criteria and does not take into account governmental restrictions on coal development or evaluate actual economic constraints

to development now or in the future. The three criteria that have been used are Coal Potential, Mining Potential, and Data Availability (discussed in more detail below). Areas in Green on the companion map (thematic inset 'Coal Development Potential') reflect higher level of knowledge and potential for development of coal than the blue (medium) or red areas (low). Areas rated in blue indicate more information is needed to determine the coal development potential. Areas colored red indicate some potential for development. The remaining uncolored areas have no data available often because the coal, if present, is at depth under non coal-bearing rocks.

Coal Potential

Resources

The amount of data is too small for a quantitative evaluation of coal resources except in those limited areas with drilling. The ERCB (1989) provides estimates of in-place resources for the Brule, Coalspur, Jarvis Lake and McLeod River Coal Fields; and for the 'small isolated deposit' of Maxwell Lake.

Coal Quality

Little coal quality data is available but where test results are present the potential of the coal for development is strengthened. In general where a sample has been collected and analyzed the coal has an inherent development potential.

Mining Potential

Overburden

An evaluation of overburden for surface mining and depth for underground mining has been made. (The 'Mining Potential' criteria did not take into account governmental restrictions on coal development or evaluate actual economic constraints to development now or in the future.)

Geotechnical

Geotechnical considerations included an evaluation of structural setting both simple and complex with the possibility of structurally thickened seams. Consideration was given to infrastructural concerns related to site, environment and potential mining problems.

Data Availability

Very little coal data is available in the map area but where present the potential of the coal for development is strengthened. In general, where a sample, drillhole, mine or outcrop is present the coal has an increased development potential. Some value was given to areas containing sediments that typically include coal.

Future Work

In general, from a coal resource/exploration point of view, the map area has a good exploration database relative to other areas along the Alberta foothills. Additional coal quality data needs to be collected and detailed stratigraphic and/or structural studies are needed in most areas.

Good coal development in the Coalspur Formation has been established by a number of exploration programs but stratigraphic problems (seam correlations) remain to be solved. Additional subsurface geological studies, including the construction of regional cross-sections and seam correlations, are needed both along the strike of the Coal Valley Coal Zone and along the Entrance Syncline. Stuctural studies in the Brule Lake Coal Field and along the Luscar trend north and south of the Brule Field could be rewarding. Some structural work on the Entrance Syncline should also be done.

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1 Confidential corporate report on loan to the Alberta Geological Survey.

Appendix 1. 83F/5 - Coal Drillholes and Coal Mines

FILENAME: 83F5.GBM

NOTE: 1. 'ORIG' that has been edited...ie, ERCB Coal Hole File did not present 'true' original drillhole number; ORIG now represents 'true' original drillhole number.

2. No coal in drillhole as per criteria of Hughes, Mudry & Nikols in GSC Paper 88-21, 'A Standarized Coal Resource/ Reserve System for Canada'; geology picks have been modified from the AGS Coal Database April, 1989 version of the ERCB Coal Hole File.

DWF 891206

SITID	CAT-ID	ORIG	EDITED(1)	NC	inDH(2)	M	T	R	S	RSEC	RCNR	METN	METE	ELEV	TD	CORPNUM	CPDT	COMPANY
			V	V						V	V					V		
1036735	295394	00000000310			5	49	26	29	29	NE		-780.000	-800.000	1095.000		102	0	MINE;NORTH ALTA COAL SYNDICATE
1036739	295410	00000000731			5	49	27	36	36	NE		-243.800	-832.000	1120.000	129.800	48	730300	GRANBY MINING CO. LTD.
1036740	295428	00000000732			5	49	27	36	36	NE		-365.800	-877.500	1120.000	168.900	48	730300	GRANBY MINING CO. LTD.
1036741	295436	00000000733		NC	5	49	27	36	36	NE		-137.000	-777.200	1120.000	172.800	48	730300	GRANBY MINING CO. LTD.
1036742	295444	00000000734		NC	5	49	27	36	36	NE		-984.500	-137.200	1152.000	124.400	48	730300	GRANBY MINING CO. LTD.
1036743	295451	00000000735			5	49	27	36	36	NE		-563.900	-182.900	1152.000	30.500	48	730400	GRANBY MINING CO. LTD.
1036744	295469	00000000736		NC	5	49	27	36	36	NE		-624.800	-228.600	1152.000	128.900	48	730400	GRANBY MINING CO. LTD.
1036745	295477	00000000737		NC	5	49	27	36	36	NE		-502.900	-152.400	1153.000	75.600	48	730300	GRANBY MINING CO. LTD.
1036746	295485	00000000738		NC	5	49	27	36	36	NE		-504.400	-153.700	1153.000	33.200	48	730400	GRANBY MINING CO. LTD.
1036747	295493	00000000739			5	49	27	36	36	NE		-609.600	-487.700	1151.000	153.300	48	730400	GRANBY MINING CO. LTD.
1036748	295501	00000000741			5	49	27	36	36	NE		-658.400	-472.400	1151.000	152.000	48	740300	GRANBY MINING CO. LTD.
1036749	295519	00000000742			5	49	27	36	36	NE		-774.200	-548.600	1151.000	202.400	48	740300	GRANBY MINING CO. LTD.
1036750	295527	00000000743		NC	5	49	27	36	36	NE		-896.100	-615.700	1152.100	195.100	48	740300	GRANBY MINING CO. LTD.
1036751	295535	00000000744			5	49	27	36	36	NE		-566.900	-414.500	1151.000	170.100	48	740300	GRANBY MINING CO. LTD.
1036752	295543	00000000747			5	49	27	36	36	NE		-591.300	-525.800	1149.000	140.100	48	740400	GRANBY MINING CO. LTD.
1036753	295550	00000000748			5	49	27	36	36	NE		-573.000	-524.300	1149.000	120.700	48	740400	GRANBY MINING CO. LTD.
1038354	421503	00000D80131			5	50	25	1	1	NE		-162.000	-1177.000	1424.400	152.400	37	801000	DENISON MINES LIMITED
1038355	421511	00000D80133			5	50	25	1	1	NE		-240.000	-1163.000	1422.400	152.400	37	801000	DENISON MINES LIMITED
1038356	421529	00000D80130			5	50	25	1	1	NE		-81.000	-1188.700	1432.000	152.000	37	801000	DENISON MINES LIMITED
1038357	433284	00CDR-80138	X	NC	5	50	25	1	1	NE		-337.000	-1179.000	1418.900	25.900	37	801000	DENISON MINES LIMITED
1038358	306183	00000007111			5	50	25	11	11	NE		-243.800	-1005.800	1371.600	137.200	37	711000	DENISON MINES LIMITED
1038359	421537	00000D80113			5	50	25	12	12	NE		-1496.000	-1302.000	1435.800	151.000	37	800900	DENISON MINES LIMITED
1038360	421545	00000D80118			5	50	25	12	12	NE		-1433.000	-1317.000	1439.000	150.000	37	801000	DENISON MINES LIMITED
1038361	421552	00000D80122			5	50	25	12	12	NE		-1368.000	-1328.000	1442.200	145.000	37	801000	DENISON MINES LIMITED
1038362	421560	00000D80127		NC	5	50	25	12	12	NE		-1251.000	-1346.000	1454.200	140.000	37	801000	DENISON MINES LIMITED
1038363	421578	00000H80144			5	50	25	12	12	NE		-1138.000	-1341.000	1463.600	150.000	37	801000	DENISON MINES LIMITED
1038364	422154	00CDR-80146	X	NC	5	50	25	12	12	NE		-1090.000	-1278.000	1471.600	117.000	37	801000	DENISON MINES LIMITED
1038365	422162	00000D80149		NC	5	50	25	12	12	NE		-1220.000	-826.000	1494.300	152.000	37	801000	DENISON MINES LIMITED
1038366	306175	00000007102			5	50	25	15	15	NE		-780.300	-152.400	1341.100	106.700	37	711000	DENISON MINES LIMITED
1038367	422170	00000H80102			5	50	25	27	27	NE		-186.000	-1160.000	1173.400	151.000	37	800900	DENISON MINES LIMITED
1038368	422188	00000H80105			5	50	25	27	27	NE		-267.000	-1243.000	1167.600	148.000	37	800900	DENISON MINES LIMITED
1038369	422196	00000H80109			5	50	25	27	27	NE		-353.000	-1354.000	1160.500	154.000	37	800900	DENISON MINES LIMITED
1038370	422204	00CHR-80112	X	NC	5	50	25	27	27	NE		-84.000	-1075.000	1178.100	154.000	37	800900	DENISON MINES LIMITED
1038371	422212	00000H80125			5	50	25	27	27	NE		-694.000	-1627.000	1152.500	152.400	37	801000	DENISON MINES LIMITED
1038372	422220	00000H80148			5	50	25	27	27	NE		-383.000	-588.000	1245.100	122.000	37	801000	DENISON MINES LIMITED
1038373	422238	00000H80134			5	50	25	27	27	NE		-768.000	-501.000	1257.600	152.000	37	801000	DENISON MINES LIMITED
1038374	422246	00000H80140			5	50	25	27	27	NE		-596.000	-565.000	1254.600	152.000	37	801000	DENISON MINES LIMITED
1038375	422253	00000H80142		NC	5	50	25	27	27	NE		-982.000	-464.000	1273.900	150.000	37	801000	DENISON MINES LIMITED
1038376	422261	00CHR-80150	X	NC	5	50	25	27	27	NE		-1315.000	-626.000	1281.000	148.000	37	801000	DENISON MINES LIMITED
1038377	435933	00000H80123			5	50	25	27	27	NE		-530.000	-1533.000	1153.400	152.400	37	801000	DENISON MINES LIMITED
		00000001653			5	50	25	29	29							102	0	MINE;WOODLEY BROTHERS

1038378	306191	00000000745		NC	5	50	27	1	1	NE	-1586.500	-15.200	1164.000	55.200	48	740300	GRANBY MINING CO. LTD.
1038379	306209	00000000746		NC	5	50	27	1	1	NE	-1342.600	-15.200	1151.000	62.500	48	740300	GRANBY MINING CO. LTD.
		00000000429			5	50	27	9	9						102	0	MINE;BLUE DIAMOND COAL COMPANY
		00000000429			5	50	27	16	16						102	0	MINE;BLUE DIAMOND COAL COMPANY
		00000000832			5	50	27	31	31						102	0	MINE;MOUNT CAVELL COLLIERIES
1038380	467225	00000BR82-1		NC	5	50	27	33	33	NE	-200.800	-1097.700	1217.700	345.300	62	820300	LEXCO TESTING LTD.
1041122	517920	00000CH8584			5	51	24	17	17	NE	-99.000	-1021.000	1162.600	127.600	43	850200	ESSO RESOURCES CANADA LIMITED
1041123	309583	00000001296			5	51	24	18	18	NE	-450.000	-1300.000	1095.000		102	0	MINE;JASPER COAL COMPANY LIMITED
1041124	309617	00000001296			5	51	24	19	19	NE	-1408.200	-1005.800	1065.000		102	0	MINE;JASPER COAL COMPANY LIMITED
1041125	309625	00000001296			5	51	24	19	19	NE	-900.000	-603.500	1065.000		102	0	MINE;JASPER COAL COMPANY LIMITED
1041126	309633	00000001296			5	51	24	19	19	NE	-1005.800	-201.200	1065.000		102	0	MINE;JASPER COAL COMPANY LIMITED
1041127	309666	00000001296			5	51	24	19	19	NE	-603.500	-800.000	1035.000		102	0	MINE;JASPER COAL COMPANY LIMITED
1041128	517888	00000084-81			5	51	24	19	19	NE	-1438.000	-93.000	1119.000	93.000	43	841100	ESSO RESOURCES CANADA LIMITED
1041129	517813	00000084-74			5	51	24	20	20	NE	-1027.000	-1320.000	1105.900	157.000	43	841100	ESSO RESOURCES CANADA LIMITED
1041130	517938	00000085-85			5	51	24	20	20	NE	-1133.000	-1427.000	1107.100	140.400	43	850300	ESSO RESOURCES CANADA LIMITED
1041139	309724	00000001257			5	51	25	10	10	NE	-500.000	-201.200	1035.000		102	0	MINE;HINTON COLLIERIES LIMITED
1041140	309732	00000001257			5	51	25	10	10	NE	-400.000	-420.000	1035.000		102	0	MINE;HINTON COLLIERIES LIMITED
1041141	309740	00000001257			5	51	25	10	10	NE	-201.200	-900.000	1005.000		102	0	MINE;HINTON COLLIERIES LIMITED
1041142	309757	00000001257			5	51	25	10	10	NE	-201.200	-603.500	1005.000		102	0	MINE;HINTON COLLIERIES LIMITED
1041143	309765	00000001257			5	51	25	10	10	NE	-201.200	-201.200	1035.000		102	0	MINE;HINTON COLLIERIES LIMITED
1041144	309773	00000001257			5	51	25	11	11	NE	-550.000	-1400.000	1035.000		102	0	MINE;HINTON COLLIERIES LIMITED
1041145	309781	00000001257			5	51	25	11	11	NE	-300.000	-1408.200	1035.000		102	0	MINE;HINTON COLLIERIES LIMITED
1041146	309799	00000001714			5	51	25	11	11	NE	-1100.000	-603.500	1095.000		102	0	MINE;WOODLEY AND SCHNURR
1041147	309815	00000001257			5	51	25	15	15	NE	-1500.000	-1005.800	975.000		102	0	MINE;HINTON COLLIERIES LIMITED
		00000001204			5	51	25	15	15						102	0	MINE;J.D. MCMILLAN
1041148	309682	00000007439			5	51	25	29	29	NE	-600.000	-1000.000	1155.000	123.400	96	740300	UNION OIL COMPANY OF CANADA LIMITED
1041149	309674	00000007435			5	51	25	30	30	NE	-550.000	-1075.000	1335.000	152.400	96	740200	UNION OIL COMPANY OF CANADA LIMITED
1041150	446823	00000007434		NC	5	51	25	30	30	NE	-925.000	-1475.000	1326.000	5.800	96	740200	UNION OIL COMPANY OF CANADA LIMITED
1041151	309708	0000NH-3-74		NC	5	51	25	31	31	NE	-804.700	-79.200	1271.000	100.600	66	741200	MANALTA COAL LTD.
1041152	309690	00000007449			5	51	25	33	33	NE	-1450.000	-1000.000	1100.000	134.100	96	740300	UNION OIL COMPANY OF CANADA LIMITED
1041153	309716	000000078-1		NC	5	51	25	33	33	NE	-520.000	-75.000	1146.000	97.500	78	780900	PACIFIC PETROLEUMS LTD.
1041154	309856	0000NH-2-74	X	NC	5	51	26	24	24	NE	-804.700	-1127.800	1289.300	106.700	66	741200	MANALTA COAL LTD.
1041155	309864	0000NH-1-74	X	NC	5	51	26	24	24	NE	-481.600	-966.200	1292.400	78.000	66	741200	MANALTA COAL LTD.
1041156	309823	00000007433			5	51	26	25	25	NE	-1325.000	-325.000	1326.000	152.400	96	740200	UNION OIL COMPANY OF CANADA LIMITED
1041157	309849	00000007450			5	51	26	34	34	NE	-550.000	-1325.000	1244.000	91.400	96	740300	UNION OIL COMPANY OF CANADA LIMITED
1041158	309831	00000007440			5	51	26	36	36	NE	-1000.000	-1300.000	1253.000	189.000	96	740300	UNION OIL COMPANY OF CANADA LIMITED
1041159	309872	00000000789			5	51	26	36	36	NE	-1150.000	-350.000	1262.000	320.000	78	781000	PACIFIC PETROLEUMS LTD.
1041160	309880	0000000789A			5	51	26	36	36	NE	-950.000	-450.000	1253.000	304.800	78	781200	PACIFIC PETROLEUMS LTD.
1041161	309898	00000000793			5	51	26	36	36	NE	-950.000	-425.000	1250.000	365.000	78	790100	PACIFIC PETROLEUMS LTD.
1041728	314294	00000000783		NC	5	52	25	3	3	NE	-270.000	-850.000	1213.000	104.300	78	780900	PACIFIC PETROLEUMS LTD.
1041729	314260	00000007445		NC	5	52	25	9	9	NE	-609.600	-114.300	1338.000	121.900	96	740300	UNION OIL COMPANY OF CANADA LIMITED
1041730	314286	00000000782		NC	5	52	25	12	12	NE	-1440.000	-250.000	1100.000	91.500	78	780900	PACIFIC PETROLEUMS LTD.
1041734	314443	00000000791			5	52	26	3	3	NE	-1600.000	-900.000	1265.000	335.000	78	790100	PACIFIC PETROLEUMS LTD.
1041735	314328	00000000874		NC	5	52	26	7	7	NE	-125.000	-1274.100	1307.600	8.800	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED
1041736	314336	00000000974		NC	5	52	26	7	7	NE	-341.400	-1403.600	1307.600	9.800	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED
1041737	314344	00000000031			5	52	26	7	7	NE	-567.000	-1417.000	1211.300	149.500	43	781100	ESSO RESOURCES CANADA LIMITED
1041738	314377	00000000052			5	52	26	7	7	NE	-157.000	-1335.000	1200.700	143.400	43	781100	ESSO RESOURCES CANADA LIMITED
1041739	384313	00000000080			5	52	26	7	7	NE	-180.000	-1447.000	1216.500	63.000	43	800200	ESSO RESOURCES CANADA LIMITED
1041740	384321	0000000080C			5	52	26	7	7	NE	-176.000	-1440.000	1216.100	30.500	43	800300	ESSO RESOURCES CANADA LIMITED
1041741	384339	0000000093A		NC	5	52	26	7	7	NE	-193.000	-1502.000	1219.900	64.000	43	800200	ESSO RESOURCES CANADA LIMITED
1041742	384388	00000000094			5	52	26	7	7	NE	-211.000	-1578.000	1223.200	91.000	43	800200	ESSO RESOURCES CANADA LIMITED
1041743	314450	00000000792			5	52	26	9	9	NE	-1000.000	-800.000	1286.000	420.500	78	790100	PACIFIC PETROLEUMS LTD.
1041744	314351	00000000032			5	52	26	18	18	NE	-454.000	-1300.000	1208.900	151.000	43	781100	ESSO RESOURCES CANADA LIMITED
1041745	314385	00000000474			5	52	26	18	18	NE	-850.400	-1207.000	1310.600	79.200	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED
1041746	314393	00000000574			5	52	26	18	18	NE	-978.400	-1225.300	1310.600	79.200	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED
1041747	314401	00000000674			5	52	26	18	18	NE	-1313.700	-1252.700	1307.600	54.900	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED
1041748	314419	00000000774			5	52	26	18	18	NE	-1502.700	-1252.700	1307.600	79.200	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED
1041753	314484	00000000174		NC	5	52	27	11	11	NE	-554.700	-502.900	1402.100	88.400	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED
1041754	314492	00000000274		NC	5	52	27	11	11	NE	-638.600	-527.300	1408.200	73.200	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED
1041755	314500	00000000374		NC	5	52	27	11	11	NE	-725.400	-630.900	1414.300	67.100	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED
1041756	314468	00000001074			5	52	27	12	12	NE	-13.700	-362.700	1313.700	80.800	69	740300	MCGREGOR CONSTRUCTION COMPANY LIMITED

1041757	314476	00000001174		5	52	27	12	12	NE	-368.800	-19.800	1313.700	80.800	69	740300 MCGREGOR CONSTRUCTION COMPANY LIMITED
1041758	384347	00000000090	NC	5	52	27	12	12	NE	-317.000	-422.000	1245.100	66.000	43	800200 ESSO RESOURCES CANADA LIMITED
1041759	384354	00000000091		5	52	27	12	12	NE	-285.000	-283.000	1242.300	81.000	43	800200 ESSO RESOURCES CANADA LIMITED
1041760	384362	0000000091C		5	52	27	12	12	NE	-284.000	-282.000	1243.000	25.100	43	800300 ESSO RESOURCES CANADA LIMITED
1041761	384370	00000000092		5	52	27	12	12	NE	-249.000	-128.000	1238.700	89.200	43	800200 ESSO RESOURCES CANADA LIMITED
1041762	385740	0000000099C		5	52	27	13	13	NE	-29.000	-809.000	1249.000	35.000	43	810200 ESSO RESOURCES CANADA LIMITED
1041763	385757	00000000099		5	52	27	13	13	NE	-30.000	-810.000	1249.100	66.600	43	810200 ESSO RESOURCES CANADA LIMITED
1041764	385781	0000000096C		5	52	27	13	13	NE	-803.000	-1385.000	1300.500	52.000	43	810300 ESSO RESOURCES CANADA LIMITED
1041765	385799	00000000096		5	52	27	13	13	NE	-796.000	-1381.000	1298.300	110.000	43	810200 ESSO RESOURCES CANADA LIMITED
1041766	386052	0000000100C		5	52	27	13	13	NE	-394.000	-1081.000	1260.000	48.000	43	810200 ESSO RESOURCES CANADA LIMITED
1041767	386102	00000000100		5	52	27	13	13	NE	-395.000	-1082.000	1260.300	60.000	43	810200 ESSO RESOURCES CANADA LIMITED
1041768	386110	00000000097		5	52	27	13	13	NE	-274.000	-992.000	1253.500	73.000	43	810200 ESSO RESOURCES CANADA LIMITED
1041769	386128	00000000098		5	52	27	13	13	NE	-129.000	-881.000	1250.500	149.800	43	810200 ESSO RESOURCES CANADA LIMITED
1041770	314567	00000000051	NC	5	52	27	14	14	NE	-222.000	-1055.000	1405.000	42.700	43	781100 ESSO RESOURCES CANADA LIMITED
1041771	384396	00000000053	NC	5	52	27	14	14	NE	-25.000	-902.000	1380.800	109.700	43	800100 ESSO RESOURCES CANADA LIMITED
1041772	384545	00000000054	NC	5	52	27	14	14	NE	-186.000	-1027.000	1400.400	71.600	43	800100 ESSO RESOURCES CANADA LIMITED
1041773	502518	00000GL8302		5	52	27	14	14	NE	-700.000	-1500.000	1430.000	139.000	69	830200 MCGREGOR CONSTRUCTION COMPANY LIMITED
1041774	502526	00000GL8303	NC	5	52	27	14	14	NE	-200.000	-1200.000	1420.000	151.200	69	830200 MCGREGOR CONSTRUCTION COMPANY LIMITED
1041775	502500	00000GL8301	NC	5	52	27	15	15	NE	-1000.000	-200.000	1430.000	150.000	69	830200 MCGREGOR CONSTRUCTION COMPANY LIMITED
1041776	502534	00000GL8304	NC	5	52	27	15	15	NE	-1150.000	-350.000	1425.000	30.000	69	830200 MCGREGOR CONSTRUCTION COMPANY LIMITED
1041782	384412	00000000068		5	52	27	23	23	NE	-1519.000	-812.000	1376.300	41.000	43	800100 ESSO RESOURCES CANADA LIMITED
1041783	384420	0000000068C		5	52	27	23	23	NE	-1522.000	-815.000	1374.500	40.000	43	800200 ESSO RESOURCES CANADA LIMITED

Appendix 2. 83F/5 - Oil and Gas Wells: Status and Formation Tops

Site ID: 75239 Source ID: 00/06-28-049-26W5/0

Latitude: 53.264680 Well Length: 4637.000
Longitude: 117.753727
KB Elevation: 1237.500

Well Name: SHELL HOME BRULE 6-28-49-26

Status: Abandoned

Note: Indented data lines represent true vertical depths;
Aligned data lines represent as-drilled depths.

Depth Meters	Depth Feet	Horizon Name	
918.400	3013.124	DUNVEGAN FM	DUNV
918.800	3014.436	DUNVEGAN FM	DUNV
959.800	3148.950	SHAFTESBURY FM	SHFT
960.200	3150.263	SHAFTESBURY FM	SHFT
1062.600	3486.220	MOUNTAIN PARK FM	MTN PK
1065.000	3494.094	MOUNTAIN PARK FM	MTN PK
1184.600	3886.483	LUSCAR FM	LUSK
1185.000	3887.795	LUSCAR FM	LUSK
1667.300	5470.145	CADOMIN FM	CADM
1673.500	5490.486	CADOMIN FM	CADM
1678.500	5506.890	NIKANASSIN FM	NIKA
1685.000	5528.215	NIKANASSIN FM	NIKA
1938.200	6358.924	FERNIE GRP	FERN
1955.000	6414.042	FERNIE GRP	FERN
2068.700	6787.074	ROCK CREEK MBR	RKCK
2091.000	6860.236	ROCK CREEK MBR	RKCK
2102.700	6898.622	FAULT	FLT
2103.000	6899.606	ROCK CREEK MBR	RKCK
2126.400	6976.378	FAULT	FLT
2126.700	6977.362	ROCK CREEK MBR	RKCK
2130.200	6988.845	FAULT	FLT
2130.500	6989.830	ROCK CREEK MBR	RKCK
2155.000	7070.210	FAULT	FLT
2155.300	7071.195	ROCK CREEK MBR	RKCK
2218.900	7279.855	NORDEGG MBR	NORD
2229.500	7314.633	SPRAY RIVER GRP	SPRY R
2247.000	7372.047	NORDEGG MBR	NORD
2258.000	7408.137	SPRAY RIVER GRP	SPRY R
2319.100	7608.59	FAULT	FLT
2319.300	7609.25	SPRAY RIVER GRP	SPRY R
2351.300	7714.239	FAULT	FLT
2351.600	7715.224	SPRAY RIVER GRP	SPRY R
2387.900	7834.317	RUNDLE GRP	RUND
2422.900	7949.147	RUNDLE GRP	RUND
2477.100	8126.969	SHUNDA FM	SHUN
2515.500	8252.953	SHUNDA FM	SHUN
2562.400	8406.824	PEKISKO FM	PEK
2603.800	8542.651	PEKISKO FM	PEK
2610.900	8565.945	BANFF FM	BNFF
2654.000	8707.350	BANFF FM	BNFF
2772.600	9096.457	EXSHAW FM	EX
2775.200	9104.987	WABAMUN GRP	WAB
2820.600	9253.938	EXSHAW FM	EX
2823.300	9262.796	WABAMUN GRP	WAB
2997.900	9835.630	WINTERBURN GRP	WINT

3049.000	10003.281	FAULT	FLT
3049.300	10004.266	WABAMUN GRP	WAB
3051.900	10012.795	WINTERBURN GRP	WINT
3104.000	10183.728	FAULT	FLT
3104.300	10184.712	WABAMUN GRP	WAB
3115.800	10222.441	WINTERBURN GRP	WINT
3167.000	10390.420	FAULT	FLT
3167.300	10391.404	WINTERBURN GRP	WINT
3171.800	10406.169	WINTERBURN GRP	WINT
3219.500	10562.664	FAULT	FLT
3219.800	10563.648	WINTERBURN GRP	WINT
3224.000	10577.428	FAULT	FLT
3224.300	10578.412	WINTERBURN GRP	WINT
3273.800	10740.814	FAULT	FLT
3274.100	10741.799	BANFF FM	BNFF
3278.500	10756.234	FAULT	FLT
3278.800	10757.219	WINTERBURN GRP	WINT
3333.800	10937.665	FAULT	FLT
3334.100	10938.649	BANFF FM	BNFF
3443.000	11295.932	FAULT	FLT
3443.300	11296.917	BANFF FM	BNFF
3503.500	11494.423	EXSHAW FM	EX
3508.000	11509.187	WABAMUN GRP	WAB
3509.000	11512.468	FAULT	FLT
3509.300	11513.452	BANFF FM	BNFF
3572.500	11720.801	EXSHAW FM	EX
3577.000	11735.564	WABAMUN GRP	WAB
3643.000	11952.101	FAULT	FLT
3643.300	11953.085	NIKANASSIN FM	NIKA
3659.000	12004.594	FERNIE GRP	FERN
3706.000	12158.793	ROCK CREEK MBR	RKCK
3718.000	12198.163	FAULT	FLT
3718.300	12199.147	NIKANASSIN FM	NIKA
3734.000	12250.656	FERNIE GRP	FERN
3769.000	12365.486	FAULT	FLT
3769.300	12366.471	SPRAY RIVER GRP	SPRY R
3782.000	12408.137	ROCK CREEK MBR	RKCK
3833.000	12575.460	RUNDLE GRP	RUND
3849.000	12627.953	FAULT	FLT
3849.300	12628.938	SPRAY RIVER GRP	SPRY R
3915.000	12844.488	RUNDLE GRP	RUND
3919.000	12857.612	FAULT	FLT
3919.300	12858.597	NORDEGG MBR	NORD
3926.000	12880.578	SPRAY RIVER GRP	SPRY R
3992.600	13099.082	FAULT	FLT
3992.900	13100.065	SPRAY RIVER GRP	SPRY R
4005.000	13139.765	FAULT	FLT
4005.300	13140.749	NORDEGG MBR	NORD
4013.000	13166.011	SPRAY RIVER GRP	SPRY R
4056.800	13309.712	RUNDLE GRP	RUND
4082.600	13394.357	FAULT	FLT
4082.900	13395.342	SPRAY RIVER GRP	SPRY R
4149.800	13614.829	RUNDLE GRP	RUND
4150.000	13615.486	SHUNDA FM	SHUN
4209.000	13809.056	FAULT	FLT
4209.300	13810.039	RUNDLE GRP	RUND
4246.000	13930.446	SHUNDA FM	SHUN
4250.000	13943.570	SHUNDA FM	SHUN
4307.000	14130.578	FAULT	FLT
4307.300	14131.562	RUNDLE GRP	RUND
4331.000	14209.318	PEKISKO FM	PEK

4348.000	14265.093	SHUNDA FM	SHUN
4376.700	14359.253	BANFF FM	BNFF
4433.000	14543.964	PEKISKO FM	PEK
4478.700	14693.898	BANFF FM	BNFF
4531.000	14865.486	TOTAL DEPTH	TD

Site ID: 79058 Source ID: 00/06-06-050-26W5/0

Latitude: 53.285092 Well Length: 3211.700
Longitude: 117.796008
KB Elevation: 1158.200

Well Name: CDR UNION BRULE 6-6-50-26

Status: Abandoned

Depth Meters	Depth Feet	Horizon Name	
350.500	1149.934	MOUNTAIN PARK FM	MTN PK
414.500	1359.908	LUSCAR FM	LUSK
836.100	2743.110	CADOMIN FM	CADM
843.700	2768.045	NIKANASSIN FM	NIKA
1143.900	3752.953	FERNIE GRP	FERN
1388.400	4555.118	ROCK CREEK MBR	RKCK
1516.400	4975.066	NORDEGG MBR	NORD
1552.700	5094.160	TRIASSIC SYSTEM	TRIA SYS
1713.000	5620.079	RUNDLE GRP	RUND
1807.500	5930.118	SHUNDA FM	SHUN
1891.600	6206.037	PEKISKO FM	PEK
1940.700	6367.126	BANFF FM	BNFF
2111.000	6925.853	EXSHAW FM	EX
2112.900	6932.086	PALLISER FM	PALL
2327.100	7634.843	ALEXO FM	ALEX
2441.400	8009.842	MOUNT HAWK FM	MT HK
2535.000	8316.930	PERDRIX FM	PERD
2626.800	8618.110	BANFF FM	BNFF
2626.800	8618.110	FAULT	FLT
2659.700	8726.050	EXSHAW FM	EX
2661.800	8732.940	PALLISER FM	PALL
2891.600	9486.877	ALEXO FM	ALEX
3030.600	9942.914	MOUNT HAWK FM	MT HK
3081.500	10109.908	PERDRIX FM	PERD

Site ID: 79059 Source ID: 00/12-08-050-26W5/0

Latitude: 53.303179 Well Length: 3672.800
Longitude: 117.770221
KB Elevation: 1204.000

Well Name: HOME ET AL BRULE 12-8-50-26

Status: Abandoned

Depth Meters	Depth Feet	Horizon Name	
457.200	1500.000	BLACKSTONE FM	BKST
859.500	2819.882	FAULT	FLT
963.900	3162.402	LUSCAR FM	LUSK
1136.900	3729.987	FAULT	FLT
1246.600	4089.895	FAULT	FLT
1255.800	4120.079	LUSCAR FM	LUSK
1960.500	6432.087	FERNIE GRP	FERN
2026.900	6649.935	NORDEGG MBR	NORD
2209.800	7250.000	LUSCAR FM	LUSK
2548.100	8359.909	CADOMIN FM	CADM
2572.500	8439.961	NIKANASSIN FM	NIKA
2607.600	8555.119	ROCK CREEK MBR	RKCK
2613.700	8575.132	FAULT	FLT
2614.000	8576.116	LUSCAR FM	LUSK
2623.100	8605.972	CADOMIN FM	CADM
2701.700	8863.846	FERNIE GRP	FERN
2755.100	9039.043	ROCK CREEK MBR	RKCK
2769.100	9084.975	NORDEGG MBR	NORD
2831.600	9290.027	FAULT	FLT
2831.900	9291.011	LUSCAR FM	LUSK

Site ID: 79060 Source ID: 00/07-12-050-27W5/0

Latitude: 53.302056 Well Length: 2906.000
Longitude: 117.814800
KB Elevation: 1071.100

Well Name: PACIFIC ET AL BRULE 7-12-50-27

Status: Abandoned

Depth Meters	Depth Feet	Horizon Name	
845.200	2772.966	CADOMIN FM	CADM
857.400	2812.992	NIKANASSIN FM	NIKA
1130.800	3709.974	FERNIE GRP	FERN
1247.400	4092.520	FAULT	FLT
1247.500	4092.848	NIKANASSIN FM	NIKA
1430.100	4691.929	FERNIE GRP	FERN
1614.800	5297.900	ROCK CREEK MBR	RKCK
1725.200	5660.105	NORDEGG MBR	NORD
1763.900	5787.074	TRIASSIC SYSTEM	TRIA SYS
1940.700	6367.126	RUNDLE GRP	RUND
2040.900	6695.866	SHUNDA FM	SHUN
2146.100	7041.011	PEKISKO FM	PEK
2207.100	7241.142	BANFF FM	BNFF
2450.900	8041.010	EXSHAW FM	EX
2453.900	8050.853	PALLISER FM	PALL
2531.400	8305.118	FAULT	FLT
2531.500	8305.446	SHUNDA FM	SHUN
2536.900	8323.163	PEKISKO FM	PEK
2587.400	8488.845	BANFF FM	BNFF
2811.500	9224.082	EXSHAW FM	EX
2814.200	9232.939	PALLISER FM	PALL

Site ID: 81282 Source ID: 00/10-20-051-25W5/0

Latitude: 53.419750 Well Length: 3080.000
Longitude: 117.645107
KB Elevation: 1074.500

Well Name: TEXACO ET AL HINTON 10-20-51-25

Status: Flowing Gaswell (830525)

Depth Meters	Depth Feet	Horizon Name	
1797.000	5895.669	WAPIABI FM	WPBI
1868.000	6128.609	CHINOOK MBR	CHNK
2144.000	7034.121	BADHEART FM	BADH
2259.600	7413.386	CARDIUM FM	CARD
2313.000	7588.583	CARDIUM SD	CARD SD
2350.000	7709.974	BLACKSTONE FM	BKST
2970.000	9744.095	DUNVEGAN FM	DUNV
3056.500	10027.888	SHAFTESBURY FM	SHFT

Site ID: 81283 Source ID: 00/11-21-051-25W5/0

Latitude: 53.419616 Well Length: 3085.000
Longitude: 117.627725
KB Elevation: 1109.600

Well Name: TEXACO ET AL HINTON 11-21-51-25

Status: Flowing Gaswell (830525)

Depth Meters	Depth Feet	Horizon Name	
1991.600	6534.121	WAPIABI FM	WPBI
2294.300	7527.231	BADHEART FM	BADH
2400.700	7876.313	CARDIUM FM	CARD
2453.700	8050.197	CARDIUM SD	CARD SD
2481.500	8141.404	BLACKSTONE FM	BKST
2652.000	8700.788	SECOND WHITE SPECKLED S	H2WS
2988.700	9805.446	DUNVEGAN FM	DUNV

Site ID: 81284 Source ID: 00/06-29-051-25W5/0

Latitude: 53.431153 Well Length: 3288.800
Longitude: 117.654753
KB Elevation: 1178.100

Well Name: SKELLY TEX PAC ENTRANCE 6-29-51-25

Status: Abandoned

Depth Meters	Depth Feet	Horizon Name	
2083.900	6836.942	WAPIABI FM	WPBI
2111.000	6925.853	CHUNGO MBR	CHUN
2445.400	8022.966	BADHEART FM	BADH
2541.700	8338.911	CARDIUM FM	CARD
2590.800	8500.000	CARDIUM SD	CARD SD
2615.800	8582.021	BLACKSTONE FM	BKST
3062.600	10047.901	DUNVEGAN FM	DUNV
3194.300	10479.987	BASE FISH SCALES ZONE	BFSC
3212.600	10540.027	MOUNTAIN PARK FM	MTN PK

Site ID: 81285 Source ID: 00/11-30-051-25W5/0

Latitude: 53.435245 Well Length: 5649.500
Longitude: 117.679551
KB Elevation: 1344.200

Well Name: TPOC A2 ENTRANCE 11-30-51-25

Status: Flowing Gaswell (840307)

Depth Meters	Depth Feet	Horizon Name	
2246.400	7370.079	WAPIABI FM	WPBI
2529.800	8299.869	FAULT	FLT
2530.100	8300.854	WAPIABI FM	WPBI
2686.500	8813.977	BADHEART FM	BADH
2782.200	9127.953	CARDIUM FM	CARD
2820.900	9254.921	CARDIUM SD	CARD SD
2856.000	9370.079	BLACKSTONE FM	BKST
3264.400	10709.974	DUNVEGAN FM	DUNV
3444.200	11299.869	BASE FISH SCALES ZONE	BFSC
3513.700	11527.888	MOUNTAIN PARK FM	MTN PK
4200.100	13779.856	CADOMIN FM	CADM
4212.600	13820.867	NIKANASSIN FM	NIKA
4308.300	14134.843	FERNIE GRP	FERN
4398.000	14429.135	NORDEGG MBR	NORD
4440.300	14567.913	TRIASSIC SYSTEM	TRIA SYS
4547.600	14919.948	TURNER VALLEY FM	TV
4602.500	15100.066	ELKTON MBR	ELTN
4642.100	15229.987	SHUNDA FM	SHUN
4718.300	15479.986	PEKISKO FM	PEK
4770.100	15649.936	BANFF FM	BNFF
4940.800	16209.974	EXSHAW FM	EX
4942.900	16216.863	WABAMUN GRP	WAB
5172.500	16970.145	WINTERBURN GRP	WINT
5265.400	17274.936	LEDUC FM	LED
5592.500	18348.098	BEAVERHILL LAKE FM	BH LK

Site ID: 81286 Source ID: 00/06-32-051-25W5/0

Latitude: 53.442962 Well Length: 3490.000
Longitude: 117.656532
KB Elevation: 1240.000

Well Name: TEXACO HINTON 6-32-51-25

Status: Flowing Gaswell (830525)

Depth Meters	Depth Feet	Horizon Name	
2410.500	7908.465	WAPIABI FM	WPBI
2695.500	8843.504	BADHEART FM	BADH
2791.900	9159.777	CARDIUM FM	CARD
2843.600	9329.396	CARDIUM SD	CARD SD
2877.400	9440.289	BLACKSTONE FM	BKST
3204.000	10511.812	BASE FISH SCALES ZONE	BFSC
3356.500	11012.140	DUNVEGAN FM	DUNV

Site ID: 81287 Source ID: 00/06-25-051-26W5/0

Latitude: 53.431263 Well Length: 3480.800
Longitude: 117.701900
KB Elevation: 1276.200

Well Name: TPOC ET AL ENTRANCE 6-25-51-26

Status: Abandoned

Depth Meters	Depth Feet	Horizon Name	
2189.400	7183.071	WAPIABI FM	WPBI
2567.600	8423.885	BADHEART FM	BADH
2676.100	8779.856	CARDIUM FM	CARD
2680.700	8794.947	CARDIUM SD	CARD SD
2769.100	9084.975	BLACKSTONE FM	BKST
3104.400	10185.039	FAULT	FLT
3104.700	10186.023	BLACKSTONE FM	BKST
3374.100	11069.883	DUNVEGAN FM	DUNV

Site ID: 81288 Source ID: 00/06-17-051-27W5/0

Latitude: 53.401735 Well Length: 1455.100
Longitude: 117.950892
KB Elevation: 1207.600

Well Name: SHELL SOLOMON CREEK NO. 1

Status: Abandoned

Depth Meters	Depth Feet	Horizon Name	
189.000	620.079	LUSCAR FM	LUSK
1085.100	3560.039	CALCAREOUS MBR	CALC
1341.100	4399.935	CADOMIN FM	CADM

Site ID: 81289 Source ID: 00/06-17-051-27W5/2

Latitude: 53.401735 Well Length: 3452.500
Longitude: 117.950892
KB Elevation: 1211.900

Well Name: SUPERIOR ET AL SOLOMON CREEK NO. 1

Status: Abandoned

Depth Meters	Depth Feet	Horizon Name	
189.000	620.079	LUSCAR FM	LUSK
1085.100	3560.039	CALCAREOUS MBR	CALC
1341.100	4399.935	CADOMIN FM	CADM
1460.000	4790.026	NIKANASSIN FM	NIKA
1697.700	5569.882	FERNIE GRP	FERN
1894.300	6214.896	NORDEGG MBR	NORD
1947.700	6390.092	TRIASSIC SYSTEM	TRIA SYS
2104.600	6904.856	RUNDLE GRP	RUND
2200.700	7220.145	FAULT	FLT
2200.700	7220.145	TRIASSIC SYSTEM	TRIA SYS
2321.100	7615.158	RUNDLE GRP	RUND
2577.100	8455.053	BANFF FM	BNFF
2773.700	9100.065	EXSHAW FM	EX
2776.700	9109.908	PALLISER FM	PALL
3029.700	9939.961	ALEXO FM	ALEX
3104.400	10185.039	MOUNT HAWK FM	MT HK
3264.400	10709.974	PERDRIX FM	PERD
3438.800	11282.152	GHOST RIVER FM	GH R

Site ID: 82760 Source ID: 00/06-06-052-24W5/0

Latitude: 53.457759 Well Length: 2764.600
Longitude: 117.532328
KB Elevation: 1026.900

Well Name: CHIEFCO ET AL HINTON 6-6-52-24

Status: Capped Gaswell

Depth Meters	Depth Feet	Horizon Name	
2005.000	6578.084	BELLY RIVER GRP	BR
2309.000	7575.459	LEA PARK FM	LP
2372.500	7783.793	COLORADO GRP	COLO
2572.000	8438.320	BADHEART FM	BADH
2667.000	8750.000	CARDIUM FM	CARD
2718.000	8917.323	CARDIUM SD	CARD SD

Site ID: 139149 Source ID: 00/07-18-052-24W5/0

Latitude: 53.487061 Well Length: 4969.000
Longitude: 117.523887
KB Elevation: 1186.700

Well Name: CDN-SUP ET AL HINTONN 7-18-52-24

Status: Abandoned

Note: Indented data lines represent true vertical depths;
Aligned data lines represent as-drilled depths.

Depth Meters	Depth Feet	Horizon Name	
2169.900	7119.094	BELLY RIVER GRP	BR
2170.000	7119.423	BELLY RIVER GRP	BR
2391.900	7847.441	LEA PARK FM	LP
2392.000	7847.769	LEA PARK FM	LP
2657.900	8720.145	BADHEART FM	BADH
2658.000	8720.473	BADHEART FM	BADH
2756.400	9043.307	CARDIUM FM	CARD
2756.500	9043.636	CARDIUM FM	CARD
2806.200	9206.693	CARDIUM SD	CARD SD
2806.300	9207.021	CARDIUM SD	CARD SD
2845.400	9335.302	BLACKSTONE FM	BKST
2845.500	9335.630	BLACKSTONE FM	BKST
3351.100	10994.423	BASE FISH SCALES ZONE	BFSC
3351.600	10996.063	BASE FISH SCALES ZONE	BFSC
3386.500	11110.564	PEACE RIVER FM	PR
3387.000	11112.205	PEACE RIVER FM	PR
3409.300	11185.368	HARMON MBR	HARM
3409.800	11187.009	HARMON MBR	HARM
3421.100	11224.082	SPIRIT RIVER FM	SPRT R
3421.600	11225.723	SPIRIT RIVER FM	SPRT R
3661.000	12011.155	GETHING FM	GETH
3661.800	12013.780	GETHING FM	GETH
3736.000	12257.218	CADOMIN FM	CADM
3737.000	12260.499	CADOMIN FM	CADM
3746.500	12291.667	NIKANASSIN FM	NIKA
3747.500	12294.948	NIKANASSIN FM	NIKA
3837.200	12589.239	FERNIE GRP	FERN
3838.300	12592.849	FERNIE GRP	FERN

3880.500	12731.300	ROCK CREEK MBR	RKCK
3881.800	12735.564	ROCK CREEK MBR	RKCK
3894.400	12776.903	POKER CHIP SH	PK C SH
3895.600	12780.841	POKER CHIP SH	PK C SH
3911.600	12833.334	NORDEGG MBR	NORD
3912.800	12837.271	NORDEGG MBR	NORD
3961.800	12998.032	MONTNEY FM	MONT
3963.000	13001.969	MONTNEY FM	MONT
4062.400	13328.084	DEBOLT FM	DBLT
4063.600	13332.021	DEBOLT FM	DBLT
4116.200	13504.595	ELKTON MBR	ELTN
4117.500	13508.858	ELKTON MBR	ELTN
4132.700	13558.729	SHUNDA FM	SHUN
4139.000	13579.396	SHUNDA FM	SHUN
4206.200	13799.870	PEKISKO FM	PEK
4207.500	13804.135	PEKISKO FM	PEK
4245.900	13930.118	BANFF FM	BNFF
4247.200	13934.385	BANFF FM	BNFF
4410.500	14470.145	EXSHAW FM	EX
4411.800	14474.409	EXSHAW FM	EX
4411.900	14474.737	WABAMUN GRP	WAB
4413.200	14479.004	WABAMUN GRP	WAB
4641.200	15227.035	WINTERBURN GRP	WINT
4642.600	15231.628	WINTERBURN GRP	WINT
4746.500	15572.507	IRETON FM	IRE
4748.000	15577.429	IRETON FM	IRE
4790.100	15715.552	LEDUC FM	LED
4791.600	15720.474	LEDUC FM	LED
4967.400	16297.244	TOTAL DEPTH	TD
4969.000	16302.494	TOTAL DEPTH	TD

Site ID: 82766 Source ID: 00/08-12-052-25W5/0

Latitude: 53.474239 Well Length: 150.000
Longitude: 117.544051
KB Elevation: 1119.700

Well Name: CDN-SUP HINTON 8-12-52-25

Status: Abandoned

Depth Meters	Depth Feet	Horizon Name	
150.000	492.126	NONE IDENTIFIED	NONE IDEN

Site ID: 82768 Source ID: 00/10-17-052-25W5/0

Latitude: 53.491703 Well Length: 3174.000
Longitude: 117.647774
KB Elevation: 1369.500

Well Name: CHIEFCO ET AL HINTON 10-17-52-25

Status: Suspended Gaswell (851123)

Depth Meters	Depth Feet	Horizon Name	
2355.000	7726.378	BELLY RIVER GRP	BR
2669.000	8756.562	LEA PARK FM	LP
2769.000	9084.646	COLORADO GRP	COLO
2938.000	9639.108	BADHEART FM	BADH
3030.000	9940.945	CARDIUM FM	CARD
3078.000	10098.426	CARDIUM SD	CARD SD
3121.000	10239.502	TOTAL DEPTH	TD

Appendix 3. 83F/5 - Coal Intersections of the Coal Drillholes

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CURRENT FILENAME: 83F5_PX.DAT
ORIGINAL FILENAME: [agscdb.regional]P_A.DAT 890824
MAPSHEET: NTS 83F/5

NOTE: Geology picks have been modified from the AGS Coal Database April, 1989 version of the ERCB Coal Hole File.
See GSC Paper 88-21 (Hughes, Mudry & Nikols) for the details of criteria.
DWF 891204

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LEGEND:
VLDR: VAL D'OR
ARBR: ARBOUR
MCLD: MCLEOD
MCPH: MCPHERSON
USLK: UPPER SILKSTONE
LSLK: LOWER SILKSTONE
MNHR: MYNHEER
KBZ: BRAZEAU
DLO: DRILLER'S LOG ONLY

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SITID	CAT_ID	ORIG	M	T	R	S	TOP DEPTH	BOT DEPTH	THICK	SEAM	MIN	REGOLITH	PIKNUM	REMARKS
1036739	295410	000731	5	49	27	36	62.470	73.150	10.680	0	0	26.000	0	
1036739	295410	000731	5	49	27	36	74.980	75.760	0.780	0	0	26.000	240189	
1036740	295428	000732	5	49	27	36	88.500	89.900	1.400	0	0	27.000	0	
1036743	295451	000735	5	49	27	36	18.290	23.320	5.030	0	0	18.000	240194	
1036747	295493	000739	5	49	27	36	83.520	88.650	5.130	0	0	25.000	0	
1036747	295493	000739	5	49	27	36	90.220	90.880	0.660	0	0	25.000	240205	
1036747	295493	000739	5	49	27	36	99.360	99.960	0.600	0	0	25.000	240207	
1036748	295501	000741	5	49	27	36	34.750	43.280	8.530	0	0	30.000	0	
1036748	295501	000741	5	49	27	36	89.290	97.120	7.830	0	0	30.000	0	
1036748	295501	000741	5	49	27	36	115.210	117.650	2.440	0	0	30.000	240220	
1036749	295519	000742	5	49	27	36	119.470	120.090	0.620	0	0	34.000	240221	
1036749	295519	000742	5	49	27	36	189.880	190.450	0.570	0	0	34.000	240222	
1036751	295535	000744	5	49	27	36	134.710	135.300	0.590	0	0	29.000	240223	
1036752	295543	000747	5	49	27	36	63.750	69.810	6.060	0	0	31.000	0	
1036752	295543	000747	5	49	27	36	105.440	107.520	2.080	0	0	31.000	0	
1036752	295543	000747	5	49	27	36	111.500	117.350	5.850	0	0	31.000	0	
1036753	295550	000748	5	49	27	36	36.000	44.460	8.460	0	0	29.000	0	
1038354	421503	D80131	5	50	25	1	33.300	35.700	2.400	ARBR	0	12.200	0	
1038354	421503	D80131	5	50	25	1	39.200	39.850	0.650	ARBR	15	12.200	0	
1038354	421503	D80131	5	50	25	1	41.050	42.300	1.250	ARBR	0	12.200	0	
1038354	421503	D80131	5	50	25	1	43.050	45.600	2.550	ARBR	0	12.200	0	
1038354	421503	D80131	5	50	25	1	48.850	50.000	1.150	MCLD	0	12.200	0	
1038354	421503	D80131	5	50	25	1	50.500	51.000	0.500	MCLD	15	12.200	0	
1038354	421503	D80131	5	50	25	1	54.000	55.450	1.450	MCPH	0	12.200	0	
1038354	421503	D80131	5	50	25	1	140.100	141.750	1.650	USLK	0	12.200	0	
1038355	421511	D80133	5	50	25	1	54.370	56.250	1.880	USLK	0	9.100	0	
1038355	421511	D80133	5	50	25	1	100.300	100.900	0.600	LSLK	35	9.100	0	
1038355	421511	D80133	5	50	25	1	125.300	126.100	0.800	0	15	9.100	260427	
1038356	421529	D80130	5	50	25	1	114.950	115.500	0.550	0	0	26.000	260434	
1038358	306183	007111	5	50	25	11	70.200	70.680	0.480	0	0	0.000	260437	
1038359	421537	D80113	5	50	25	12	28.500	29.000	0.500	VLDR	0	11.000	0	
1038359	421537	D80113	5	50	25	12	29.550	30.000	0.450	VLDR	0	11.000	0	
1038359	421537	D80113	5	50	25	12	30.500	31.000	0.500	VLDR	0	11.000	0	
1038359	421537	D80113	5	50	25	12	31.400	31.900	0.500	VLDR	0	11.000	0	
1038360	421545	D80118	5	50	25	12	78.600	79.100	0.500	VLDR	0	10.400	0	
1038360	421545	D80118	5	50	25	12	79.650	81.250	1.600	VLDR	0	10.400	0	

1038360	421545	D80118	5	50	25	12	122.000	122.550	0.550	0	0	10.400	260454
1038361	421552	D80122	5	50	25	12	136.750	137.700	0.950	VLDR	0	6.100	0
1038361	421552	D80122	5	50	25	12	138.300	138.700	0.400	VLDR	0	6.100	0
1038363	421578	H80144	5	50	25	12	86.350	87.100	0.750	0	0	6.000	260464
1038366	306175	007102	5	50	25	15	23.130	24.110	0.980	0	0	7.000	260468
1038366	306175	007102	5	50	25	15	42.210	44.410	2.200	0	0	7.000	260477
1038366	306175	007102	5	50	25	15	44.780	45.810	1.030	0	0	7.000	260478
1038366	306175	007102	5	50	25	15	61.600	62.790	1.190	0	0	7.000	0
1038367	422170	H80102	5	50	25	27	25.000	26.000	1.000	0	0	8.800	0
1038367	422170	H80102	5	50	25	27	45.350	46.000	0.650	0	0	8.800	260496
1038368	422188	H80105	5	50	25	27	32.900	33.950	1.050	0	0	6.100	0
1038368	422188	H80105	5	50	25	27	84.250	84.900	0.650	0	15	6.100	260507
1038368	422188	H80105	5	50	25	27	101.400	102.000	0.600	MNHR	0	6.100	0
1038369	422196	H80109	5	50	25	27	29.750	31.000	1.250	USLK	0	7.900	0
1038369	422196	H80109	5	50	25	27	32.950	33.400	0.450	USLK	20	7.900	0
1038369	422196	H80109	5	50	25	27	33.850	35.300	1.450	USLK	0	7.900	0
1038369	422196	H80109	5	50	25	27	36.000	37.700	1.700	USLK	0	7.900	0
1038369	422196	H80109	5	50	25	27	39.200	40.000	0.800	USLK	25	7.900	0
1038369	422196	H80109	5	50	25	27	93.650	94.450	0.800	0	10	7.900	0
1038369	422196	H80109	5	50	25	27	143.700	144.400	0.700	0	25	7.900	0
1038371	422212	H80125	5	50	25	27	12.050	13.200	1.150	VLDR	0	3.700	0
1038371	422212	H80125	5	50	25	27	13.750	14.500	0.750	VLDR	0	3.700	0
1038372	422220	H80148	5	50	25	27	28.200	29.350	1.150	USLK	0	3.100	0
1038372	422220	H80148	5	50	25	27	32.900	34.800	1.900	USLK	0	3.100	0
1038372	422220	H80148	5	50	25	27	35.300	37.600	2.300	USLK	0	3.100	0
1038372	422220	H80148	5	50	25	27	39.000	39.900	0.900	USLK	0	3.100	0
1038372	422220	H80148	5	50	25	27	94.600	95.500	0.900	0	0	3.100	0
1038373	422238	H80134	5	50	25	27	101.300	102.300	1.000	VLDR	5	2.400	0
1038373	422238	H80134	5	50	25	27	102.800	104.100	1.300	VLDR	0	2.400	0
1038374	422246	H80140	5	50	25	27	24.300	25.800	1.500	VLDR	10	3.100	0
1038374	422246	H80140	5	50	25	27	26.400	27.750	1.350	VLDR	0	3.100	0
1038377	435933	H80123	5	50	25	27	7.400	8.500	1.100	0	0	9.100	260605
1038377	435933	H80123	5	50	25	27	9.200	9.650	0.450	0	0	9.100	260606
1038377	435933	H80123	5	50	25	27	110.000	110.500	0.500	VLDR	0	9.100	0
1038377	435933	H80123	5	50	25	27	113.900	115.200	1.300	VLDR	0	9.100	0
1038377	435933	H80123	5	50	25	27	115.700	117.200	1.500	VLDR	0	9.100	0
1038377	435933	H80123	5	50	25	27	117.800	118.900	1.100	VLDR	0	9.100	0
1041122	517920	CH8584	5	51	24	17	33.600	34.600	1.000	VLDR	10	16.000	0
1041122	517920	CH8584	5	51	24	17	35.100	36.600	1.500	VLDR	0	16.000	0
1041122	517920	CH8584	5	51	24	17	45.500	46.500	1.000	ARBR	20	16.000	0
1041122	517920	CH8584	5	51	24	17	49.600	50.400	0.800	ARBR	15	16.000	0
1041122	517920	CH8584	5	51	24	17	76.700	77.100	0.400	MCLD	15	16.000	0
1041122	517920	CH8584	5	51	24	17	105.900	106.400	0.500	0	15	16.000	0
1041122	517920	CH8584	5	51	24	17	111.100	112.300	1.200	MCPH	15	16.000	0
1041122	517920	CH8584	5	51	24	17	115.400	116.200	0.800	MCPH	20	16.000	0
1041128	517888	84-81	5	51	24	19	46.800	47.200	0.400	MCLD	15	20.000	0
1041128	517888	84-81	5	51	24	19	77.600	78.400	0.800	0	20	20.000	0
1041128	517888	84-81	5	51	24	19	81.000	82.250	1.250	MCPH	15	20.000	0
1041128	517888	84-81	5	51	24	19	83.000	84.600	1.600	MCPH	0	20.000	0
1041128	517888	84-81	5	51	24	19	85.500	86.400	0.900	MCPH	15	20.000	0
1041129	517813	84-74	5	51	24	20	66.000	66.800	0.800	VLDR	10	18.000	0
1041129	517813	84-74	5	51	24	20	67.300	68.800	1.500	VLDR	15	18.000	0
1041129	517813	84-74	5	51	24	20	80.200	80.800	0.600	ARBR	15	18.000	0
1041129	517813	84-74	5	51	24	20	84.000	84.800	0.800	ARBR	15	18.000	0
1041129	517813	84-74	5	51	24	20	110.800	111.400	0.600	MCLD	25	18.000	0
1041129	517813	84-74	5	51	24	20	113.200	113.600	0.400	MCLD	25	18.000	0
1041129	517813	84-74	5	51	24	20	114.300	114.800	0.500	MCLD	25	18.000	0
1041129	517813	84-74	5	51	24	20	142.400	143.200	0.800	0	20	18.000	0
1041129	517813	84-74	5	51	24	20	147.700	148.900	1.200	MCPH	15	18.000	0
1041129	517813	84-74	5	51	24	20	150.500	151.000	0.500	MCPH	15	18.000	0
1041129	517813	84-74	5	51	24	20	152.000	152.800	0.800	MCPH	20	18.000	0

1041130	517938	85-85	5	51	24	20	47.900	48.800	0.900	VLDR	10	35.600	0
1041130	517938	85-85	5	51	24	20	49.300	50.800	1.500	VLDR	0	35.600	0
1041130	517938	85-85	5	51	24	20	61.000	61.600	0.600	ARBR	15	35.600	0
1041130	517938	85-85	5	51	24	20	64.000	64.500	0.500	ARBR	35	35.600	0
1041130	517938	85-85	5	51	24	20	65.000	65.800	0.800	ARBR	20	35.600	0
1041130	517938	85-85	5	51	24	20	91.900	92.300	0.400	MCLD	30	35.600	0
1041130	517938	85-85	5	51	24	20	94.000	94.400	0.400	MCLD	20	35.600	0
1041130	517938	85-85	5	51	24	20	121.300	121.800	0.500	0	20	35.600	0
1041130	517938	85-85	5	51	24	20	128.800	129.900	1.100	MCPH	15	35.600	0
1041130	517938	85-85	5	51	24	20	131.500	132.000	0.500	MCPH	15	35.600	0
1041130	517938	85-85	5	51	24	20	132.800	133.700	0.900	MCPH	25	35.600	0
1041148	309682	007439	5	51	25	29	35.660	36.520	0.860	7	10	17.000	0
1041148	309682	007439	5	51	25	29	36.970	38.040	1.070	7	0	17.000	0
1041148	309682	007439	5	51	25	29	58.700	59.380	0.680	0	20	17.000	0
1041148	309682	007439	5	51	25	29	60.960	62.510	1.550	6	0	17.000	0
1041148	309682	007439	5	51	25	29	63.400	64.310	0.910	6	30	17.000	0
1041148	309682	007439	5	51	25	29	65.620	66.110	0.490	6	25	17.000	0
1041148	309682	007439	5	51	25	29	93.390	94.180	0.790	5	0	17.000	0
1041148	309682	007439	5	51	25	29	94.700	95.400	0.700	5	30	17.000	0
1041149	309674	007435	5	51	25	30	42.980	43.560	0.580	9	25	12.000	0
1041149	309674	007435	5	51	25	30	44.010	44.560	0.550	9	35	12.000	0
1041149	309674	007435	5	51	25	30	50.660	52.430	1.770	8	0	12.000	0
1041149	309674	007435	5	51	25	30	91.140	92.050	0.910	7	10	12.000	0
1041149	309674	007435	5	51	25	30	135.060	135.940	0.880	6	20	12.000	0
1041149	309674	007435	5	51	25	30	136.860	137.770	0.910	6	25	12.000	0
1041149	309674	007435	5	51	25	30	139.110	139.600	0.490	6	30	12.000	0
1041152	309690	007449	5	51	25	33	120.000	120.490	0.490	9	20	14.000	0
1041152	309690	007449	5	51	25	33	121.010	121.620	0.610	9	15	14.000	0
1041152	309690	007449	5	51	25	33	126.800	128.750	1.950	8	0	14.000	0
1041156	309823	007433	5	51	26	25	53.400	54.680	1.280	4	15	6.000	0
1041156	309823	007433	5	51	26	25	55.780	56.690	0.910	4	20	6.000	0
1041156	309823	007433	5	51	26	25	57.330	59.280	1.950	4	0	6.000	0
1041156	309823	007433	5	51	26	25	95.710	96.620	0.910	3C	0	6.000	0
1041156	309823	007433	5	51	26	25	115.060	116.250	1.190	3B	0	6.000	0
1041156	309823	007433	5	51	26	25	117.290	117.960	0.670	3B	25	6.000	0
1041156	309823	007433	5	51	26	25	139.290	139.960	0.670	3A	25	6.000	0
1041157	309849	007450	5	51	26	34	27.370	28.800	1.430	8	0	20.000	0
1041157	309849	007450	5	51	26	34	79.400	81.440	2.040	7	0	20.000	0
1041158	309831	007440	5	51	26	36	60.170	60.660	0.490	0	35	24.000	0
1041158	309831	007440	5	51	26	36	90.950	91.680	0.730	9	20	24.000	0
1041158	309831	007440	5	51	26	36	98.720	100.250	1.530	8	0	24.000	0
1041158	309831	007440	5	51	26	36	134.110	135.970	1.860	7	0	24.000	0
1041159	309872	00 789	5	51	26	36	70.000	70.500	0.500	0	40	36.000	0
1041159	309872	00 789	5	51	26	36	103.800	105.300	1.500	9	0	36.000	0
1041159	309872	00 789	5	51	26	36	112.250	113.900	1.650	8	0	36.000	0
1041160	309880	00789A	5	51	26	36	70.300	70.850	0.550	0	30	30.000	0
1041160	309880	00789A	5	51	26	36	100.000	100.500	0.500	9	25	30.000	0
1041160	309880	00789A	5	51	26	36	110.250	112.000	1.750	8	0	30.000	0
1041160	309880	00789A	5	51	26	36	145.750	146.450	0.700	7	50	30.000	0
1041160	309880	00789A	5	51	26	36	146.950	150.050	3.100	7	0	30.000	0
1041160	309880	00789A	5	51	26	36	198.800	202.250	3.450	6	0	30.000	0
1041160	309880	00789A	5	51	26	36	232.600	234.250	1.650	5	0	30.000	0
1041160	309880	00789A	5	51	26	36	285.250	287.150	1.900	4	0	30.000	0
1041160	309880	00789A	5	51	26	36	287.800	289.250	1.450	4	25	30.000	0
1041160	309880	00789A	5	51	26	36	289.750	291.500	1.750	4	0	30.000	0
1041161	309898	000793	5	51	26	36	66.750	67.250	0.500	0	30	32.000	0
1041161	309898	000793	5	51	26	36	97.500	98.100	0.600	9	25	32.000	0
1041161	309898	000793	5	51	26	36	107.750	109.000	1.250	8	0	32.000	0
1041161	309898	000793	5	51	26	36	144.500	147.750	3.250	7	0	32.000	0
1041161	309898	000793	5	51	26	36	192.500	193.000	0.500	0	30	32.000	0
1041161	309898	000793	5	51	26	36	194.750	197.200	2.450	6	0	32.000	0

1041161	309898	000793	5	51	26	36	197.500	199.250	1.750	6	0	32.000	0	
1041161	309898	000793	5	51	26	36	199.800	200.500	0.700	6	40	32.000	0	
1041161	309898	000793	5	51	26	36	229.400	229.900	0.500	5	40	32.000	0	
1041161	309898	000793	5	51	26	36	230.200	231.000	0.800	5	30	32.000	0	
1041161	309898	000793	5	51	26	36	282.000	283.750	1.750	4	0	32.000	0	
1041161	309898	000793	5	51	26	36	284.500	285.900	1.400	4	25	32.000	0	
1041161	309898	000793	5	51	26	36	287.000	288.000	1.000	4	20	32.000	0	
1041161	309898	000793	5	51	26	36	323.150	323.900	0.800	3C	0	32.000	0	
1041161	309898	000793	5	51	26	36	339.500	341.350	1.850	3B	0	32.000	0	
1041734	314443	000791	5	52	26	3	124.800	126.500	1.700	8	0	15.000	0	
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1041734	314443	000791	5	52	26	3	213.500	214.500	1.000	6	20	15.000	0	
1041734	314443	000791	5	52	26	3	215.200	216.150	0.950	6	0	15.000	0	
1041734	314443	000791	5	52	26	3	217.700	218.200	0.500	5	35	15.000	0	
1041734	314443	000791	5	52	26	3	253.200	253.850	0.650	5	35	15.000	0	
1041734	314443	000791	5	52	26	3	297.900	300.150	2.250	4	0	15.000	0	
1041734	314443	000791	5	52	26	3	300.750	302.400	1.650	4	0	15.000	0	
1041734	314443	000791	5	52	26	3	303.400	304.800	1.400	4	0	15.000	0	
1041737	314344	000031	5	52	26	7	24.100	24.690	0.590	3A	25	10.000	0	
1041737	314344	000031	5	52	26	7	66.390	67.840	1.450	1	0	10.000	0	
1041737	314344	000031	5	52	26	7	68.200	69.990	1.790	1	0	10.000	0	
1041738	314377	000052	5	52	26	7	35.100	36.490	1.390	4	0	15.000	0	
1041738	314377	000052	5	52	26	7	37.190	38.190	1.000	4	35	15.000	0	
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1041738	314377	000052	5	52	26	7	127.150	128.200	1.050	3A	30	15.000	0	
1041739	384313	000080	5	52	26	7	18.600	20.560	1.960	4	0	12.000	0	
1041739	384313	000080	5	52	26	7	21.220	22.400	1.180	4	0	12.000	0	
1041739	384313	000080	5	52	26	7	23.120	25.100	1.980	4	0	12.000	0	
1041740	384321	00080C	5	52	26	7	20.190	22.720	2.530	4	0	14.000	0	
1041740	384321	00080C	5	52	26	7	23.200	24.290	1.090	4	0	14.000	0	
1041740	384321	00080C	5	52	26	7	25.640	27.370	1.730	4	0	14.000	0	
1041742	384388	000094	5	52	26	7	81.800	82.800	1.000	3A	30	15.000	0	
1041743	314450	000792	5	52	26	9	225.400	226.500	0.900	8	0	42.000	0	
1041743	314450	000792	5	52	26	9	314.800	317.400	2.600	6	0	42.000	0	
1041743	314450	000792	5	52	26	9	399.650	401.400	1.750	4	0	42.000	0	
1041743	314450	000792	5	52	26	9	401.900	403.250	1.350	4	25	42.000	0	
1041743	314450	000792	5	52	26	9	404.450	405.800	1.350	4	0	42.000	0	
1041744	314351	000032	5	52	26	18	41.700	43.290	1.590	7	0	10.000	0	
1041744	314351	000032	5	52	26	18	79.800	80.900	1.100	6	0	10.000	0	
1041744	314351	000032	5	52	26	18	81.580	83.190	1.610	6	0	10.000	0	
1041744	314351	000032	5	52	26	18	117.050	117.600	0.550	5	45	10.000	0	
1041745	314385	000474	5	52	26	18	10.360	10.970	0.610	0	0	0.000	279123	DLO
1041745	314385	000474	5	52	26	18	48.160	48.770	0.610	0	0	0.000	279125	DLO
1041746	314393	000574	5	52	26	18	35.110	35.910	0.800	0	0	5.000	279129	DLO
1041747	314401	000674	5	52	26	18	25.480	26.210	0.730	0	0	10.000	279136	DLO
1041748	314419	000774	5	52	26	18	54.250	56.390	2.140	4	0	18.000	0	DLO
1041756	314468	001074	5	52	27	12	70.410	72.850	2.440	1	0	0.000	0	DLO
1041757	314476	001174	5	52	27	12	40.840	44.500	3.660	0	0	0.000	0	DLO
1041757	314476	001174	5	52	27	12	50.290	50.750	0.460	0	0	0.000	0	DLO
1041757	314476	001174	5	52	27	12	56.080	59.280	3.200	1	0	0.000	0	DLO
1041759	384354	000091	5	52	27	12	16.510	18.120	1.610	1	0	9.000	0	
1041759	384354	000091	5	52	27	12	18.600	20.000	1.400	1	0	9.000	0	
1041760	384362	00091C	5	52	27	12	17.500	19.190	1.690	1	0	13.000	0	
1041760	384362	00091C	5	52	27	12	19.690	21.790	2.100	1	0	13.000	0	
1041761	384370	000092	5	52	27	12	32.000	32.660	0.660	3A	50	16.000	0	
1041761	384370	000092	5	52	27	12	76.500	77.590	1.090	1	0	16.000	0	
1041761	384370	000092	5	52	27	12	78.170	79.900	1.730	1	0	16.000	0	
1041762	385740	00099C	5	52	27	13	22.820	23.790	0.970	6	0	16.000	0	
1041762	385740	00099C	5	52	27	13	24.520	25.560	1.040	6	0	16.000	0	
1041763	385757	000099	5	52	27	13	22.400	23.390	0.990	6	0	16.000	0	
1041763	385757	000099	5	52	27	13	23.910	25.190	1.280	6	0	16.000	0	

1041764	385781	00096C	5	52	27	13	38.480	39.820	1.340	1	0	30.000	0
1041764	385781	00096C	5	52	27	13	40.300	42.100	1.800	1	0	30.000	0
1041765	385799	000096	5	52	27	13	43.190	44.610	1.420	1	0	25.000	0
1041765	385799	000096	5	52	27	13	45.050	46.160	1.110	1	0	25.000	0
1041766	386052	00100C	5	52	27	13	35.410	37.080	1.670	4	0	7.000	0
1041766	386052	00100C	5	52	27	13	37.700	38.600	0.900	4	0	7.000	0
1041766	386052	00100C	5	52	27	13	39.790	41.240	1.450	4	0	7.000	0
1041767	386102	000100	5	52	27	13	35.100	36.800	1.700	4	0	7.000	0
1041767	386102	000100	5	52	27	13	37.400	38.450	1.050	4	0	7.000	0
1041767	386102	000100	5	52	27	13	39.200	40.880	1.680	4	0	7.000	0
1041768	386110	000097	5	52	27	13	62.200	63.820	1.620	4	0	7.000	0
1041768	386110	000097	5	52	27	13	64.400	65.280	0.880	4	0	7.000	0
1041768	386110	000097	5	52	27	13	66.360	67.940	1.580	4	0	7.000	0
1041769	386128	000098	5	52	27	13	85.590	87.200	1.610	4	0	8.000	0
1041769	386128	000098	5	52	27	13	87.790	88.690	0.900	4	0	8.000	0
1041769	386128	000098	5	52	27	13	90.000	91.400	1.400	4	0	8.000	0
1041773	502518	GL8302	5	52	27	14	43.900	44.600	0.700	KBZ	0	1.000	0
1041773	502518	GL8302	5	52	27	14	58.850	59.600	0.750	KBZ	0	1.000	0
1041773	502518	GL8302	5	52	27	14	90.100	90.800	0.700	KBZ	0	1.000	0
1041782	384412	000068	5	52	27	23	32.080	35.650	3.570	1	0	14.000	0
1041783	384420	00068C	5	52	27	23	29.200	32.400	3.200	1	0	16.000	0

Appendix 4. Weighted averages of proximate analyses, Luscar Group coals, ERCB dataset (raw coal) for the mapsheet 83F/5

Appendix 4. Weighted averages of proximate analyses, Luscar Group coals, ERCB dataset (raw coal) for the mapsheet 83F/5.

*N.B. -1.0 = missing data

AGS SITID	ERCB Cat Id	UTM Location East	North	Depth(m) Upper	Lower	H2O AR	H2O AD	<—Dry Basis— Ash	VM	CV	FC	<—Dry Ash Free— VM	CV	FC
1036748	295501	445974	5902795	36.88	118.57	-1.00	0.84	19.04	17.64	-1.00	63.31	21.86	-1.00	78.14
1036748	295543	445922	5902863	64.47	118.41	-1.00	0.73	14.54	20.29	-1.00	65.17	23.77	-1.00	76.23
1036753	295550	445924	5902881	36.88	44.81	-1.00	0.69	20.45	18.11	-1.00	61.44	22.94	-1.00	77.06

Appendix 5. Weighted averages of proximate analyses, Coalspur Formation coals, ERCB dataset (raw coal) for the mapsheet 83F/5

Appendix 5. Weighted averages of proximate analyses, Coalspur Formation coals, ERCB dataset (raw coal) for the mapsheet 83F/5.

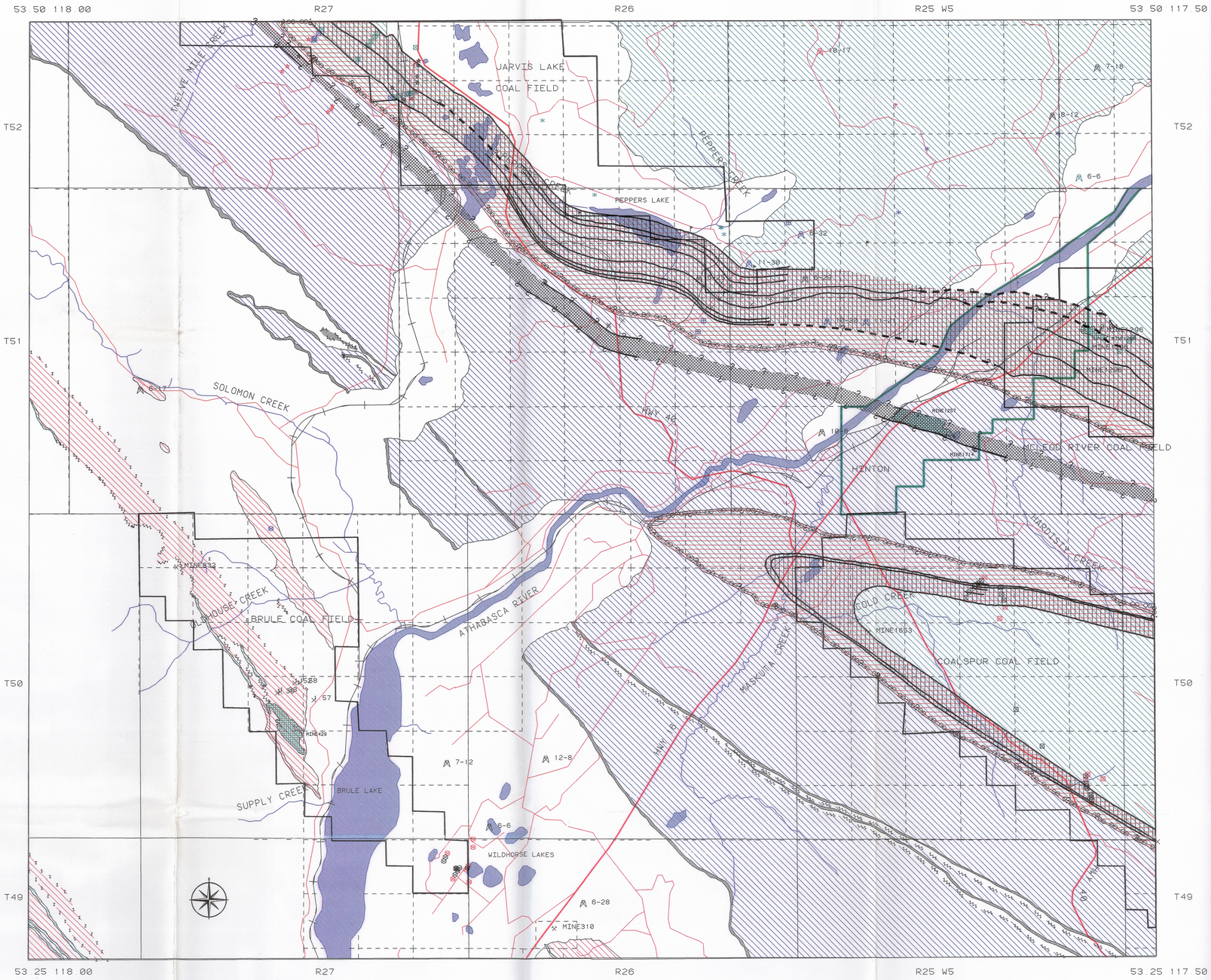
*N.B. -1.0 = missing data

AGS SITID	ERCB Cat Id	UTM Location East	North	Depth(m) Upper	Lower	H2O AR	H2O AD	Dry Basis Ash	VM	CV	FC	Dry Ash Free VM	CV	FC
1041122	517920	466481	5917693	25.75	116.30	8.68	4.26	29.36	29.23	18.11	41.41	41.48	18.93	58.52
1041129	517813	466186	5918376	63.00	151.00	32.47	2.00	45.60	22.80	16.06	31.60	41.89	29.55	58.11
1041161	309898	454054	5921791	282.90	287.90	5.77	-1.00	24.28	29.49	24.00	46.23	39.07	31.67	60.93
1041740	384321	444922	5925900	20.13	27.58	11.04	4.85	42.35	23.47	18.38	34.19	40.70	31.87	59.30
1041745	314385	445166	5926852	10.36	10.97	-1.00	4.05	25.51	32.61	27.41	41.88	43.78	36.79	56.22
1041746	314393	445146	5926724	35.11	35.91	-1.00	3.86	36.00	26.32	20.22	37.68	41.13	31.59	58.88
1041747	314401	445115	5926389	24.99	26.21	-1.00	3.88	30.44	28.74	22.36	40.82	41.32	32.14	58.68
1041748	314419	445113	5926200	36.88	56.39	-1.00	2.98	38.43	23.36	18.73	38.21	37.98	30.38	62.02
1041756	314468	444374	5926067	70.41	72.85	-1.00	3.33	35.54	24.18	20.43	40.28	37.51	31.69	62.49
1041760	384362	444452	5925796	17.20	21.46	11.45	4.74	24.95	28.84	23.12	46.21	38.43	30.80	61.57
1041766	386052	443670	5927324	35.61	41.42	-1.00	4.36	30.13	27.09	21.44	42.78	38.77	30.69	61.23
1041783	384420	442311	5927822	28.88	32.42	10.11	4.21	32.49	26.80	21.13	40.71	39.70	31.30	60.30

REGIONAL COAL MAPPING - ENTRANCE
NTS 83F/5

R.J.H. RICHARDSON, W. LANGENBERG, D.K. CHAO, D. FIETZ

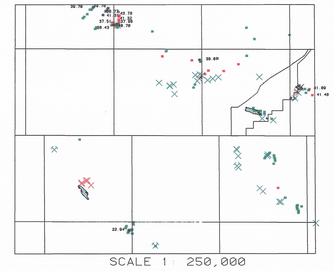
SCALE 1:50,000



1:50,000 LEGEND

- COAL OUTCROP LOCATION & REFLECTANCE VALUE (%)
- COAL SEAM
- COAL ZONE (ASSUMED)
- FAULT (DEFINED)
- FAULT (APPROXIMATE)
- FAULT (ASSUMED)
- PASKAPOO FORMATION
- COALSPUR FORMATION
- COAL VALLEY COAL ZONE
- ENTRANCE CONGLOMERATE
- ENTRANCE CONGLOMERATE (ASSUMED)
- BRAZEAU FORMATION
- BRAZEAU FORMATION COAL ZONE
- SOLOMON SANDSTONE (BASE OF BRAZEAU FORMATION)
- LUSCAR FORMATION
- CADOMIN FORMATION
- E.R.C.B. COAL FIELD OUTLINE
- OIL & GAS LOCATION (CAPPED)
- OIL & GAS LOCATION (ABANDONED)
- OIL & GAS LOCATION (SUSPENDED)
- OIL & GAS LOCATION (FLOWING)
- MINE SITE
- OUTLINE OF UNDERGROUND COAL MINE WORKINGS
- DRILLHOLE, UNION OIL COMPANY OF CAN. LTD. (COAL INTERSECTED)
- DRILLHOLE, UNION OIL COMPANY OF CAN. LTD. (NO COAL INTERSECTED)
- DRILLHOLE, MANALTA COAL LTD (COAL INTERSECTED)
- DRILLHOLE, MANALTA COAL LTD (NO COAL INTERSECTED)
- DRILLHOLE, DENISON MINES LIMITED (COAL INTERSECTED)
- DRILLHOLE, DENISON MINES LIMITED (NO COAL INTERSECTED)
- ESSO RESOURCES CANADA LIMITED (COAL INTERSECTED)
- ESSO RESOURCES CANADA LIMITED (NO COAL INTERSECTED)
- GRANBY MINING CO. LTD (COAL INTERSECTED)
- GRANBY MINING CO. LTD (NO COAL INTERSECTED)
- LEXCO TESTING LTD (COAL INTERSECTED)
- LEXCO TESTING LTD (NO COAL INTERSECTED)
- PACIFIC PETROLEUM LTD (COAL INTERSECTED)
- PACIFIC PETROLEUM LTD (NO COAL INTERSECTED)
- MCGREGOR CONSTRUCTION COMPANY LTD (COAL INTERSECTED)
- MCGREGOR CONSTRUCTION COMPANY LTD (NO COAL INTERSECTED)
- LAKE & RIVER
- HINTON OUTLINE
- ROAD & TRAIL
- HIGHWAY 16 & 40
- RAILWAY

REGIONAL COAL MAPPING - ENTRANCE
NTS 83F/5
COAL EXPLORATION DATA INFORMATION



SCALE 1:250,000

- COAL DRILLHOLE, WITH COAL QUALITY & WEIGHTED AVERAGE VOLATILE MATTER (DAF)
- COAL DRILLHOLE, NO COAL QUALITY
- COAL OUTCROP, WITH COAL QUALITY
- COAL OUTCROP, NO COAL QUALITY
- COAL SURFACE MINE
- COAL UNDERGROUND MINE
- OUTLINE OF UNDERGROUND COAL MINE WORKINGS

REGIONAL COAL MAPPING - ENTRANCE
NTS 83F/5
INDEX TO SPECIFIC REFERENCE DOCUMENTS

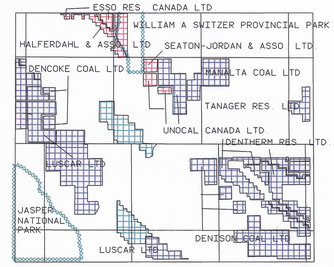
SCALE 1:250,000

INDEX to SPECIFIC REFERENCE DOCUMENTS for the MAPSHEET NTS 83F5

1. Lang, A.H. 1947. Brule and Entrance Map Areas, Alberta. Geological Survey of Canada. Memoir 244.
   Lang, A.H. 1945. Entrance mapsheet. Geological Survey of Canada. Map 843A. Scale 1:63360. Outline identified as 1A on GIS plot.
   Lang, A.H. 1946. Brule mapsheet. Geological Survey of Canada. Map 905A. Scale 1:63360. Outline identified as 1B on GIS plot.
2. ! Horgan, J. Entrance/Pinto Creek Evaluation - 1985-92. Esso Canada Resource Limited - Coal Division, contains 1:50000 topographic map showing lines of seam outcrop. Outline identified as 2 on GIS plot.
3. ! Peach, A.R. Entrance - 1981 Exploration Report. Esso Canada Resources Limited - Coal Division, contains 1:20000 topographic map showing lines of seam outcrop. Outline identified as 3 on GIS plot.
4. ! Norwest 1988-12 - Consultants Ltd. Prepared for Esso Resources Canada Limited - Entrance Coal Property - Entrance Coal Project - Preliminary Feasibility Study. Outline identified as 4 on GIS plot.
5. ! Peach, A.R. 1979-10. Proposed Exploration Program on Entrance Coal Property. Esso Minerals Canada - Coal Department. Outline identified as 5 on GIS plot.
6. ! Suaren, S. 1978-06-21. Entrance - Proposed Exploration. Esso Minerals Canada - Coal Department. Outline identified as 6 on GIS plot.
7. ! Jet Coals Ltd. 1977-09. Gregg Lake Coal Project from Esso Canada Resources Limited - Coal Division Files. Outline identified as 7 on GIS plot.
8. Lexco Testing Ltd. 1981-12-31. Coal Exploration Program Brule - 1982. ERCB Coal Application No. 820014. Fiche of Application from ERCB Records Center. Outline identified as 8 on GIS plot.
9. Esso Resources Canada Limited. 1983-12-28. Coal Exploration Application for Lease Drill Permit Hinton West - 84 Program. ERCB Application No. 840015. Fiche of Application obtained from ERCB Records Center. Outline identified as 9 on GIS plot.
10. Dencoke Coal Limited - Denison Mines Limited. 1983-04-20. Coal Exploration Application for Wildhay (1983) Project. ERCB Application No. 830370. Fiche of Application from ERCB Records Center. Application contains geological maps. Outline identified as 10 on GIS plot.
11. Denison Mines Limited. 1982-05-26. Coal Exploration Application for the Wildhay Area. ERCB Application No. 820524. Fiche of Application from ERCB Records Center. Outline identified as 11 on GIS plot.
12. ! Dencoke Coal Limited - Denison Mines Limited. 1982-04. Wildhay Project Geological Report. Report contains 1:25000 geological maps. Outline identified as 11 on GIS plot.
13. ! Denthern Resources Limited - Denison Mines Limited. 1982-08. Coalspur Feasibility Study - Volume 2 - Geology. Report contains reduced regional map, approximate scale of reduced map 1:90000. Outline identified as 13 on GIS plot.
14. ! Woodley, M. 1979-09. Bighorn Project-Geological Evaluation. Union Oil Company of Canada Limited - Mineral Department. Report contains 1:25000 detailed regional geological maps. Outline identified as 14 on GIS plot.

! Industry cooperation and support exemplified by sharing of knowledge... unpublished corporate reports on-loan to the Alberta Geological Survey.

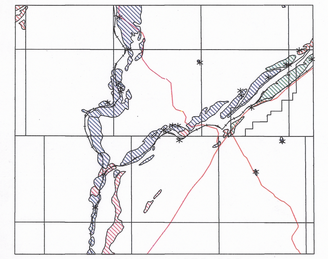
REGIONAL COAL MAPPING - ENTRANCE
NTS 83F/5 COAL DISPOSITIONS



SCALE 1:250,000

- COAL LEASE
- COAL LEASE APPLICATION
- COAL LEASE, AREA WITH REGISTERED RIGHT OF 1ST REFUSAL

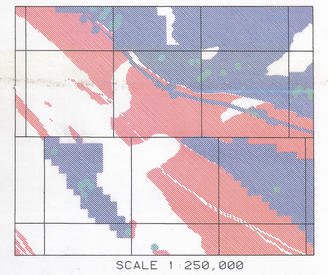
REGIONAL COAL MAPPING - ENTRANCE
NTS 83F/5 AGGREGATE RESOURCES



SCALE 1:250,000

- ACTIVE OR INACTIVE PIT
- SAND
- GRAVEL
- SANDY GRAVEL & GRAVELLY SAND

REGIONAL COAL MAPPING - ENTRANCE
NTS 83F/5 COAL DEVELOPMENT POTENTIAL*



SCALE 1:250,000

- HIGH POTENTIAL
- MEDIUM POTENTIAL
- LOW POTENTIAL
- NO DATA AVAILABLE

* Coal Development Potential is a semiquantitative and subjective evaluation of the potential of coal development based on limited data.

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DATE : MAY 3, 1990
ALBERTA RESEARCH COUNCIL MAP RCM4

RELIABILITY AND USE

Information contained on this map sheet has been derived from a large number of different sources, scales, and formats (digital and hard copy). Every attempt has been made to compile the data as accurately as possible. However, this map is intended to provide a basic compilation and overview of Coal Resources; for more specific informational needs please contact the Head, Coal Geology Section, Alberta Geological Survey, Alberta Research Council, P.O. Box 8330, Station F, Edmonton, Alberta.

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ALBERTA RESEARCH COUNCIL
COAL GEOLOGY SECTION
ALBERTA GEOLOGICAL SURVEY