Gartner Lee

Yukon Electrical Power Infrastructure and Mineral Resource Maps

Prepared for

Department of Energy, Mines and Resources
Government of Yukon

Prepared by:

Gartner Lee Limited

GLL 22-285

September 2002

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Yukon
Energy, Mines and Resources

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Energy, Mines and Resources
Government of Yukon
Box 2703
Whitehorse, Yukon
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Attention: Lori Walton, Senior Mineral Development Advisor

Dear Ms. Walton,

Re: Yukon Electrical Power Infrastructure and Mineral Resources Maps and Report

Gartner Lee Limited is pleased to provide our report on the above noted project. Deliverables include a set to two maps at 1:2,000,000 scale, this report and an accompanying CD-ROM which includes the original spatial data used to produce the maps.

We appreciate you contacting Gartner Lee Limited to complete this project and look forward to working with you in the future. If we can be of any further assistance, please contact the undersigned at (867) 633-6474.

Yours very truly,
GARTNER LEE LIMITED

Forest Pearson, B.Sc.
Engineering Geologist

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1. Introduction

1.1 Background

The global decline in exploration spending has generated more awareness of potential infrastructure requirements for projects, even at the early exploration stage. Proximity to roads, railroads, rivers, air transport and power may be the decisive factor behind a company's decision to spend exploration dollars in a certain country or option a particular property.

Electrical power infrastructure is an important factor in determining the economics of mineral development projects in the Yukon. Mining companies, prospectors and mine developers need access to maps and reports showing the location of Yukon's existing electrical power infrastructure relative to mineral deposits, occurrences and mineral districts. This information must be easily accessible and available in several formats (paper, digital) and must be available over the internet. The information provided through this project will used for the "Potential Infrastructure Access Corridor" conceptual study, also being completed under the Yukon Regional Mineral Development Program.

1.2 Objectives

The overall objective of this project is to encourage mineral resource investment by providing easily assessable information on Yukon's existing power infrastructure in relation to the location of known mineral resources.

To achieve the objectives, the scope of this project includes:

- a map showing Yukon's mineral resources, including coal and oil and gas basins;
- a map showing the existing electrical infrastructure and generating stations;
- a short summary report; and
- a CD-ROM containing the maps in Adobe Acrobat Portable Document Format (.PDF) and the original spatial data sources in Shape file format (e.g. ArcView).

2. Maps and Spatial Data Sources

The primary focus of this report is to accompany two, 1:2,000,000 scale maps of the Yukon portraying electrical power infrastructure and its relationship to known mineral resources. These maps are:

- **Map 1 – Yukon Mineral Resources** – This map portrays a generalization of the Yukon geology (known as "tectonic elements"), major Yukon mineral deposits, mineral occurrences (Minfile), oil & gas basins, coal licenses and leases, mineral districts, and electrical power infrastructure.

- **Map 2 – Yukon Mines & Electrical Infrastructure** – This map is somewhat simpler, showing distances from existing electrical power infrastructure, potential hydroelectric generation sites, major mineral deposits and former producing mines.

The data elements shown on the maps are described briefly in the following sub-sections. Mineral Districts are described separately in section 3.0 of this report. It is important to note that the following data sources are very generalized for use at one to one million or one to two million scale maps. Therefore, it is not appropriate to use these data at a larger than this unless otherwise noted.

2.1 Mineral Resource Data Sources

2.1.1 Tectonic Elements

The tectonic elements are packages or belts of rocks with similar ages and genesis. Each tectonic element can encompass a wide variety of individual rock types, but overall rocks have a relationship to one another within the package. The tectonic elements are from Wheeler and McFeely's 1991 digital compilation "*Tectonic Assemblage Map of the Canadian Cordillera and adjacent parts of the United States of America*". The mapping is at 1:2,000,000 scale. Some of the names and groupings of the Tectonic Elements shown on Map 1 have been modified slightly from that original 1991 map based on recent consultation with project geologists at the Yukon Geology Program.

An overview of the geological history and framework of the Yukon can be found on the Yukon Geology Program's website at http://www.geology.gov.yk.ca/publications/summaries/framework.html .

Map 1 also shows a number of geological elements that have been identified separately and consist of the following:

- ***Tombstone/Selwyn Suite Intrusions*** - A belt of mid-Cretaceous age intrusions running through central Yukon. Gold and tungsten mineralization has been related to these rocks (shown in pink on

Map 1). These intrusions they have been the focus of significant gold exploration work in the Yukon over the last ten years.

- ***Wernecke Supergroup*** – a package of rocks deposited on the ancestreral North American platform. The rocks of the Wernecke Supergroup represent two periods of basin subsidence and basinal infilling. Numerous breccia zones known collectively as Wernecke Breccia are present within the Wernecke Supergroup. Considerable mineralization of copper, cobalt, uranium and gold in and around the breccia zones has been an intermittent focus of mineral exploration. The Wernecke Supergroup is shown in grey on Map 1 and is generally found across north central Yukon.

- ***Selwyn Basin*** - a major basin that formed within the ancient North American platform. The basin slowly accumulated muds and biogenic silica that later formed successions of black shale and chert. This shale basin existed from about 800 to 320 million years ago. Rock units in the basin are dominated by: the sandstone, maroon and green shales and rare marble of the Hyland Group; the chert and black shales of the Road River/Rocky Mountain Group and the black shale and chert-pebble conglomerate of the Earn and Imperial Groups. The black shales host numerous deposits of zinc-lead-silver and barite such as those at Faro and Macmillan Pass (Hart 1995). The limits of the Selwyn Basin are illustrated on Map 1 with the black saw-tooth pattern. This line is generalized from that shown on Wheeler and McFeely's 1991 map.

2.1.2 Major Mineral Deposits

Major mineral deposits, shown on both Map 1 and Map 2 are from the Government of Yukon's publication "*Yukon Mineral Deposits*" (2002). They include 72 mineral deposits with reserves. The deposits are shown with varying symbols based on the deposits' type of commodity or commodities. The deposits are identified as point locations and the deposit locations are generally valid to a scale of 1:250,000.

2.1.3 Mines

Yukon mines since 1960 are shown on Map 2 with the crossed hammers symbol. Mines are based on Yukon Minfile (Indian and Northern Affairs Canada 1999) occurrences with either underground or open pit past production. The mines are identified as point locations and the deposit locations are generally valid to a scale of 1:250,000.

2.1.4 Mineral Occurrences

Yukon mineral occurrences are shown on Map 1 as small black dots. Occurrences are from the Yukon Minfile (Indian and Northern Affairs Canada 1999). Mineral occurrences are identified as point locations and the locations are generally valid to a scale of 1:250,000.

2.1.5 Coal Leases and Licenses

Coal leases and licences are shown as black outlined rectilinear areas on Map 1. Leases represent areas of coal exploration, where licences are tenure to coal resources. However, these are not discriminated on the map. The coal leases and licences are shown in order to identify general areas of coal interest and resources. These digital data are provided by DIAND Mining Land (Mining Recorder) and generally valid at a scale of 1:50,000.

2.1.6 Oil & Gas Basins

The oil and gas basins are outlined on Map 1 with green hatching. The Yukon contains eight distinct sedimentary basins with potential to host oil and gas deposits. These digital data are provided by the Government of Yukon's Oil and Gas Management Branch and are generally suitable for use of 1:250,000 or smaller scale.

2.2 Infrastructure Data Sources

2.2.1 Transmission Lines

Electrical transmission lines are shown on Maps 1 and 2 with heavy black lines of varying widths. Locations of the lines were provided by Yukon Energy Corporation. The accuracy of the line locations is unknown, but are assumed to follow the roads as shown on 1:250,000 scale maps. Therefore, these lines should not be used at any scale larger than 1:1,000,000.

Mayo-Dawson Transmission Line

The Mayo to Dawson transmission lines is also shown on the maps. The location of this line is based on the surveyed line Inflection Points, (known as IPs) and therefore is accurate to scale larger than 1:50,000. The IPs were provided by Yukon Energy Corporation.

2.2.2 Potential Hydroelectric Sites

Potential hydroelectric sites are shown on Map 2 with small blue triangle point symbols. These data were complied by the Yukon Energy Corporation from a variety of reports and sources ranging from 1950 to current. The sites shown are in no way classified as to the state of the hydroelectric site assessment, the potential feasibility of the site. For more information on the sites, contact Yukon Energy Corporation. The locational accuracy of the point locations vary significantly, but are generally suitable at scale between 1:250,000 and 1:1,000,000.

2.2.3 Roads

Roads shown on Map 1 and 2 are from the 1:1,000,000 scale Digital Chart of the World produced by ESRI, Inc. Major all-season highways are shown as well as some of the major non-maintained or seasonal roads (for example the Canol Road).

2.2.4 Other Topographic Data

General topographic data such as the location of towns, rivers, lakes and the Yukon boundary are from Natural Resources Canada's National Atlas of Canada Base Maps. The data is at 1:2,000,000 scale.

3. Yukon Mineral Districts

Yukon mineral districts are shown on Map 1. The mineral districts represent areas hosting mineral occurrences and deposits of a similar nature. The mineral districts in no way represent mineral potential, rather they are areas of well known mineral resources which have either been the focus of significant mineral exploration or mineral development. To a limited degree, the mineral districts encompass areas of similar geology, however the extent of the mineral district is not bounded by the geological contacts.

The mineral districts are classified as to whether the district would produce:

1. a bulk commodity, such as lead-zinc concentrate; or
2. a refined commodity, such as gold d'ore bars or raw copper from an solvent extraction-electrowinning process.

The district classification effects the level of access development required. A bulk commodity has a much more significant road or rail access requirement.

The concept of Yukon mineral districts was derived from the commodity areas or commodity potential maps presented by Abbot in his 1981 summary of Yukon exploration. The mineral districts presented herein were originally presented in the "*Research Services For Yukon Mineral Industry Power Demands*" report prepared in 1997 (Gartner Lee Limited). These mineral districts have been refined for this project based on consultation with the Yukon Geology Program's project geologists. When identifying the mineral districts, consideration was given to the potential viability of development given current and anticipated economic and technological trends over the next twenty years. However, as is the way with geology, these trends can change quickly and radically based on new discoveries and new geological information and interpretations.

As the mineral districts are generalizations, they should not be used on maps larger than 1:1,000,000 scale.

3.1 Dawson Range

The Dawson Range mineral district lies in central Yukon, west of the town of Carmacks. The area streaches along the south side of the Yukon River, running from the Casino deposit (115J 028) in the northwest, to the Mt. Nansen deposits at the south end of the mineral district. This mineral hosts eight known deposits.

This mineral district is dominated by two mineral deposits styles: copper-gold±molybdenum porphyry deposits; and gold vein deposits. Significant deposits from the Yukon Minfile are summarized below:

Table 1. Deposits of the Dawson Range Mineral District

Deposit Name	Minfile Number	Deposit Type	Reserves	Commodities
Antoniuk (Mt. Freegold)	115I 111	Porphyry	4,200,000 (at 1.2 g/t Au)	Au
Cash	115I 037	Porphyry	36,300,000 (geological)	Cu, Mo
Casino	115J 028	Porphyry	178,200,000 (mineable)	Cu, Au, Mo
Williams Creek (Carmacks Copper)	115I 008	Porphyry	14,109,800 (mineable)	Cu, Ag, Au
La Forma (Mt. Freegold)	115I 054	Vein	152,261	Au
Minto (Def)	115I 021	Porphyry	6,510,000 (mineable)	Cu, Au
Mt. Nansen (Webber, Huestis, Flex)	115I 065	Vein	251,100 (mineable) and 220,000 (geological)	Au, Ag
Nucleus	115I 107	Porphyry	4,170,000	Au

The porphyry deposits vary in type from gold only, to copper gold, to copper molybdenum porphyries. These deposits range from 4.2 million tonnes of the Nucleus and Antoniuk deposits up to the giant 178 million tonnes of the Casino deposit. General Canadian averages for these type of deposits range from 50 to 1000 million tonnes for Cu-Au-Mo porphyries, and 30 to 130 million tonnes for Cu-Au porphyries (Ekstrand, 1984). So, relative to other Canadian deposits, most of these are quite small. This does not imply they are completely unfeasible, as both the Minto/Def project and the Carmacks Copper projects are in advanced permitting, and hope to enter production in the near future. Mining these deposits is typically done in open pit due to the bulk tonnage nature of the deposits. Milling can be accomplished either through conventional milling, as Minto plans, or through Solvent Extraction (SXEW) methods. Using SXEW recovery, power requirements can be substantially reduced from those required for conventional milling.

The vein deposits, though potentially related to the porphyry deposits, represent much smaller, higher grade deposits. The term 'vein' deposits may be somewhat loosely applied to these deposits. The Mt. Nansen mine was recently producing from one such vein deposit. These deposits range from 152,000 tonnes to 648,000 tonnes. These are substantially smaller than the porphyry deposits, and are typically such high grade that underground mining is feasible over a short mine life. Significant Canadian mines of this type produce 1 to 5 million tonnes.

3.2 Keno Hill

The Keno Hill camp is a small mineral district representing the historic Keno Hill mines in the Elsa and Keno City area. The United Keno Hill mine was Canada's longest running silver mine, with continuous production from 1913 to 1988. The primary commodities produced where silver, zinc and silver with a total of 4,872,423 tonnes milled. Currently, plans exist for re-opening the mine to both continue underground mining and reprocess tailings. Reserves are 415,000 tonnes mineable over four years.

The Marg (106D 009) volcanogencic massive sulfide (VMS) deposit has been lumped into this mineral district due to its proximity, but metallogencially it is completely unrelated to the Keno Hill camp. The Marg is a polymetalic deposit with a 5,527,000 tonne geological reserve and may be similar to the deposits of the Finlayson Lake mineral district.

3.3 Selwyn Basin

The Selwyn Basin mineral district represents the sedimentary-exahalitve (Sedex) lead-zinc±silver deposits of the Faro and Macmillan/Howard's Pass areas. These deposits are called 'syngenetic', which means that they formed on or close to the sea floor at the same time as their host rocks. The mineral district is split in two pieces - a western half and an eastern half which capture the bulk of the known occurrences and deposits within Selwyn Basin. The western half of the mineral district represents the Faro camp, and is truncated on the southwest side by the Tintina Trench. The eastern half lies along the Northwest Territories and Yukon border in the Macmillan/Howard's Pass area. A summary of the known deposits is presented below

Table 2. Deposits of the Selwyn Basin Mineral District

Deposit Name	Minfile Number	Reserves	Commodities
Jason	105O 019	14,100,000 (geological)	Pb,Zn,Ag,Ba
Faro	105K 061	0	Zn, Pb, Ag, Au
Grum	105K 056	16,900,000 (mineable)	Zn, Pb, Ag, Au
Vangorda	105K 055	0	Zn, Pb, Ag, Au
Grizzly (Dy)	105K 101	21,356,000 (probable and possible)	Zn, Pb, Ag, Au
Howard's Pass (Summit Lake, XY, Anniv, Op)	105I 012	113,4000,000 (geological)	Zn, Pb
Swim	105K 046	4,750,000 (drill-indicated)	Zn, Pb, Ag, Au
Samovar (Tea)	105O 020	250,000	Ba
Tom	115O 001	9,283,700 (mineable)	Zn, Pb, Ag, Ba
Walt (Cathy)	115O 021	450,000	Ba

The Faro camp has been the major mineral industry power consumer. The Faro mine operated intermittently between 1969 and 1998. Resumption of mining at Faro mine will require extraordinary economic conditions or a significant new discovery. Currently, the Grum deposit contains 4.5 years of mineable reserves and the Grizzly deposit is deeply buried and reserves are not yet defined; the Swim deposit is small and low grade. The Macmillan/Howard's Pass area contains significant reserves in the XY, Anniv, Tom and Jason deposits, but the great distance from infrastructure has rendered them uneconomic to date. World sedex deposit sizes range from 4 to 550 million tonnes, with an average size of 60 million tonnes. (Ekstrand 1984). Therefore, the Yukon sedex deposits, although significant, are small relative to world wide examples, especially considering the 156 million tonnes of reserves developed at the Red Dog Mine in Alaska.

3.4 Selwyn Gold/Tungsten Belt

The Selwyn Gold/Tungsten Belt mineral district is found along the Yukon-Northwest Territories borders, overlapping with the eastern half of the Selwyn Basin mineral district, but stretching south to encompass the Cantung deposit. This district is very similar to the Tombstone Gold Belt mineral district, but to date, only the significant tungsten deposits have been recognized in this district as opposed to gold reserves. The Selwyn Suite intrusives are similar to those that are associated with the Brewery Creek mine (116B 160), but the tungsten skarns associated with the intrusives have been the target of historical exploration. The deposits recognized in this mineral district are:

Table 3. Deposits of the Selwyn Gold/Tungsten Belt

Deposit Name	Minfile Number	Reserves	Commodity
Cantung	105H 062	700,000 +	W
Mactung	105O 002	30,000,000	W

The Mactung deposit is a world class size deposit, but again, due to its extreme remoteness, compounded with modern low tungsten prices has caused a lack of development for this deposit. Recently, the Cantung mine has resumed production with plans to produce 900,000 tonnes over the next three years.

3.5 Southern Yukon

The Southern Yukon mineral district represents the gold-silver vein deposits of Montana Mountain and the Weaton River valley. These deposits are typically small tonnage, high grade deposits and have historically been mined with underground methods. The Mt. Skukum mine operated the 98,800 tonne deposit from 1986 to 1988. The Venus Mine has operated briefly in the 70's on the 100,000 tonne Venus deposit. A summary of the deposits in this district is presented below:

Table 4. Deposits of the Southern Yukon Mineral District

Deposit Name	Minfile Number	Reserves	Commodity
Mt. Skukum	105D 158	98,885 (oxide ore)	Au, Ag
Goddell	105D 025	900,000 (mineable)	Au, Sb, Ag
Mt. Reid (Skukum Cr.)	105D 022	1,105,730 (mineable)	Au, Ag
Venus	105D 005	100,000	Au, Ag, Pb

These are all small deposits, but again if grades are high enough, they may warrant mining. Although this mineral district is very close to the WAF power grid, the small size and short lives of these deposits have not warranted grid power. Specifically, the Mt. Skukum Mine opted for leased diesel generators rather than a power line. There is a line running to the Venus mine site which was constructed in the 1970's.

3.6 Southwestern Yukon

The Southwestern Yukon mineral district is a long thin area that runs parallels to the Alaska Highway from the Alaska border to the northeast side of Kluane park. This district is characterized by ultramafic deposits bearing nickel, copper, and platinum group elements. The Wellgreen deposit was mined briefly in the 1970's, but was closed promptly after opening. The two deposits with known reserves in the district are:

Table 5. Deposits of the Southwestern Yukon Mineral District

Deposit Name	Minfile Number	Reserves	Commodity
Canalask	115F 045	390,235	Ni, Cu
Wellgreen (Quill Cr.)	115G 072	50,032,466 (geological)	Ni, Cu, PGE

Typical Canadian tonnages are 1 to 3 million tonnes, so the Wellgreen is sizable relative to average deposits of this type. But, the cost of production of nickel in the Yukon is substantially higher than the world nickel price, thereby making the deposit currently un-economic. The latest pre-feasibility study for the deposit has set the requirement for a smelter on site, which would have a 35MW power demand.

3.7 Tombstone Gold Belt

The Tombstone Gold Belt mineral district is a long belt encompassing Tombstone Suite (or Selwyn Suite) intrusives that are found between the Tombstone Mountains in the north and the Keno area to the south. The Tombstone intrusives are similar to the Fort Knox deposit outside of Fairbanks, Alaska. Low grade, bulk tonnage gold deposits associated with granitoid rocks is the dominant deposit type. The

Brewery Creek mine was one such deposit. The other major deposit is the Dublin Gulch property near Mayo. A summary of these deposits is presented below:

Table 6. Deposits of the Tombstone Gold Belt

Deposit Name	Minfile Number	Reserves	Commodity
Brewery Creek	106D 160	920,000	Au
Dublin Gulch	106D 025	50,400,000 (minable)	Au

These deposits are made economically viable with the use of cyanide leaching technologies. If the mineral deposit has been significantly oxidized, ore processing may require very minimal milling and the use of heap leaching, and therefore very minimal power loads. For example, the Brewery Creek mined some 6,500 tonnes of oxide ore per day, but only requires 3MW of power. For comparison the 160 million tonne Fort Knox mine, which is mining a granite hosted deposit consumes 35MW of power for its crushing and milling circuit.

3.8 Wernecke Breccias

The Wernecke Breccias are unusual rocks which contain occurrences of copper, uranium and gold. They occur in the Ogilvie Mountains north of Dawson City and in the Wernecke Mountains in the Bonnet Plume River area. The breccias have been the focus of intermittent mineral exploration for 25 years. They are large, widespread and similar in character and age to the giant Olympic Dam copper-gold-cobalt and uranium deposit in Australia. The breccias have significant potential, but no deposits with reserves have been identified. The breccias are remote, far from existing power infrastructure, and would require extensive infrastructure development.

3.9 Finlayson Lake

The Finlayson Lake mineral district has been the focus of recent intense mineral exploration. The Yukon-Tanana terrane rocks of the Finlayson Lake area, south of Ross River, have been recognized has hosting polymetalic Volcanogenic-Massive Sulfide (VMS) deposits. These deposits have produced significant ore fields elsewhere in Canada, such as the Noranda and Bathurst camps. Recent exploration efforts have outlined five deposits in this district:

Table 7. Deposits of the Finlayson Lake Mineral District

Deposit Name	Minfile Number	Reserves	Commodity
Fyre	105G 034	15,400,000 (drill-indicated)	Cu, Au, Co
GP4F	105I 012	1,500,000	Pb, Zn
Ice	105G 118	4,561,800 (drill-indicated)	Cu, Au, Ag, Co
Kudz Ze Kayah	105G 117	11,300,000 (mineable)	Cu, Pb, Zn, Au, Ag
Wolverine	105G 072	3,470,000 (drill-indicated)	Cu, Pb, Zn, Au, Ag

The average size of deposits in the Abitibi Belt are 3.98 million tonnes, and for the VMS deposits in the Bathurst, N.B. camp the average tonnage is 5.72 million. So, relative to Canadian examples, these deposits are significant, but again due to their extreme distance from a saltwater port, better metal prices will be required to mine these deposits. Feasibility studies and permitting have been completed for the Kudz Ze Kayah and GP4F deposits. Current mine development plans include the co-development of these deposits and the Wolverine deposits using a central mill.

The deposits would probably require some open pit mining, and underground mining. This combined with conventional milling methods would imposed power demands in the range of 5 to 10 MW. Potentially, a central mill could be built to service all the deposits in the district, and therefore only one mill's power demand would be required.

There are two other deposits near the Finlayson Lake mineral district, the Grew Creek deposit and the Ketza River mine, but both of these are in tectoncially unrelated rocks and are different deposit types. Therefore, they have not been included into the mineral district even though they are proximal to it.

4. Data Structure and Formats

This section of the report provides a summary of the digital spatial data provided in the accompanying CD-ROM. This disk presents the electrical infrastructure and generalized mineral resource data sets in digital format for the Yukon that were compiled as part of this project. All of this data was previously available in digital format and have simply been compiled for this project. A subset of a public domain 1:2,000,000 topographic data provided by Natural Resources Canada is included for georeference purposes.

All data is provided in two coordinate systems:

1. Geographic (Latitude and Longitude); and
2. Yukon Albers Projection.

Data files are presented in ArcView® Shapefiles (*.shp) format. Many commercial GIS and desktop mapping software can readily read and/or import this file format.

4.1.1 Directories

The top level or root directory of the CD, contains the following files, primary directories and subdirectories as shown on Table 8:

Table 8. Disk Directories and Subdirectories

Category	Directory	Subdirectories	Files and Description
Documentation	\ (root)	N/a	**Readme.txt** - General introduction to the CD **1ra0903.pdf** – this document in Adobe Portable Document Format (PDF). **Map1.pdf** – Yukon Mineral Resources Map (at 1:2,000,000 scale) in PDF format. **Map2.pdf** – Yukon Mines & Power Infrastructure Map (at 1:2,000,000 scale) in PDF format.
Data	\data	\LatLong	**.shp, .dbf, .shx** - *ArcView* shapefiles in geographic format (latitude and longitude).
		\Albers	**.shp, .dbf, .shx** - *ArcView* shapefiles in Yukon Albers projection.
Software	\software	N/a	**Aeclient.exe** – *ArcExplorer* data viewer application for Microsoft Windows. **Arcexplorer.pdf** - *ArcExplorer* data viewer documentation in PDF format.

4.2 Data Layers

Data files are stored within each of the \data subdirectories, i.e. \Albers, or \LatLong, and are based on the data coordinate system. Both sets of directories contain the same data, only the projection varies.

Each subdirectory contains the project data with each data type as a unique file or set of files which is often referred to as a *layer* or *theme.* Each data file(s) has been given a unique name derived from a concatenation of codes for the four parameters: data scale, geographic extent, theme, and its file type (extension). These codes are summarized in Table 9 and a few examples are given below.

Examples:

- **qyt_dep**: quarter million scale data of all the Yukon Territory, mineral **dep**osits in **shp** (*ArcView* shapefile) format.
- **myt_pwl**: one **m**illion scale data of all the Yukon Territory, **p**ower **l**ines in **shp** (ArcView shapefile) format.

Table 9 . Codes for Naming Files

Scale		Extent		Theme		File Extension
l	Fifty thousand (1:50,000)	**yt_**	All of Yukon Territory..	**cle**	Coal lease	**shp (dbf, shx)** *ArcView* Shapefile
				cli	Coal licence	
q	Quarter million (1:250,000)			**dep**	Mineral deposits	
				min	Mineral occurrences	
				mi6	Mines (since 1960)	
				ogb	Oil & gas basins	
m	Million (1:1,000,000)			**mid**	Mineral districts	
				pwg	Power generating stations	
				pwl	Power lines	
				tec	Tectonic elements (bedrock geology)	
				rds	Roads	
b	Two million (1:2,000,000)			**bdy**	Yukon Territory political boundary	
				cit	Cities and towns	
				lks	Lakes	
				mid	Mineral districts	
				riv	Rivers	

The data layer, or theme, representing known potential hydroelectric sites is not provided on this CD-ROM, but can be obtained by contacting the Yukon Energy Corporation directly.

4.3 Projection

All of the spatial data on the CD-ROM are provided in both the Albers Equal Area Conic projection (\data\Albers), and the geographic (latitude and longitude) coordinate system (\data\LatLong).

Data are provided in the geographic coordinate system as this is the common working projection for many geographical information systems and desktop mapping software. The geographic project is commonly supported and is readily transformable to other projection systems.

The Albers projection allows viewing of a contiguous map across the entire Yukon. Its parameters (Table 10) are chosen to minimize distortion on paper copy maps relative to the same area plotted at the same scale in geographic coordinates. The Albers projection, with the parameters indicated, is also used by the Yukon Territorial Government for compilation of other Territory-wide data sets.

Table 10. Albers Equal Area Conic Project Parameters

Parameter	Value
Datum	NAD83
Spheroid	GRS80
1st Standard Parallel	68 degrees 00 minutes 00 seconds N
2nd Standard Parallel	61 degrees 40 minutes 00 seconds N
Central Meridian	132 degrees 30 minutes 00 seconds W
Projection Origin	59 degrees 00 minutes 00 seconds N
Units	meters
False easting (metres)	500000
False northing (metres)	500000

5. References

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