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EMPLOYMENT

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ASSESSMENT REPORT

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COAL EMPLOYMENT SURVEY  
OF THE  
NORTH EAST REGION  
OF  
BRITISH COLUMBIA

prepared for:

The Ministry of Economic Development

The Ministry of Labour

The B.C. Manpower Sub-Committee  
on  
North East Coal Development

prepared by:

Cornerstone Planning Group Limited

January, 1977

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# 1. INTRODUCTION

MAP 1. North East Study Region

## 1.1 TERMS OF REFERENCE

The Ministry of Economic Development is currently investigating the feasibility of coal development in the North East region of British Columbia. As part of this study, Cornerstone Planning Group Limited was contracted in September, 1976 to survey the residents of the area regarding the employment potential of the local population.

The objectives of this study were:

1. To estimate the proportion of area residents who were available for and interested in employment created by coal development and related opportunities.
2. To obtain information on the demographic, educational and occupational characteristics of the local population with special emphasis on the unemployed, women and native Indians.
3. To determine the training, community and work needs of such residents.

To fulfil these objectives, a questionnaire was designed and administered personally to a sample of approximately 1,350 residents during three weeks of field work. This report presents the results of this survey.

## 1.2 SCOPE OF STUDY

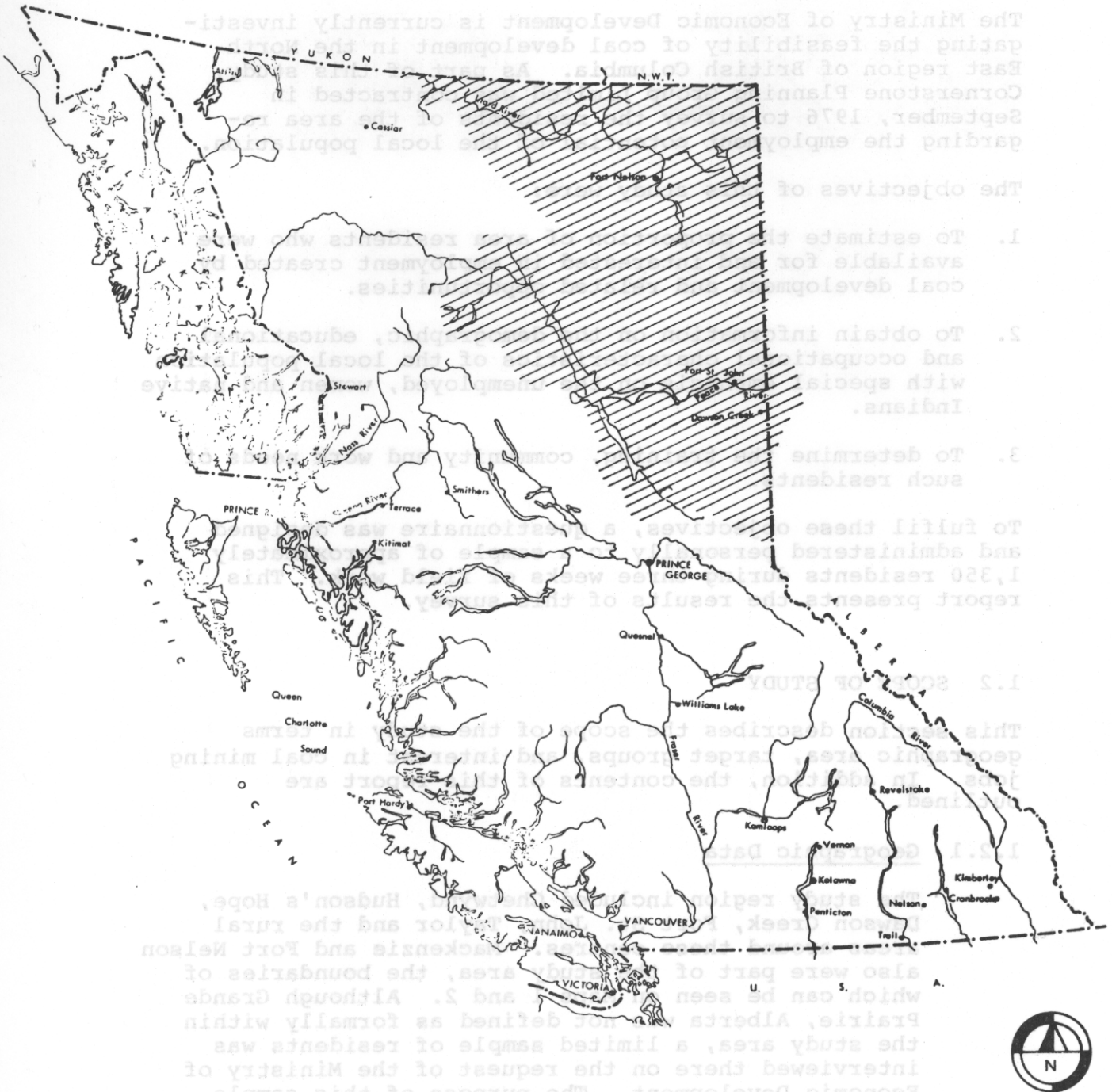
This section describes the scope of the study in terms geographic area, target groups, and interest in coal mining jobs. In addition, the contents of this report are outlined.

### 1.2.1 Geographic Data

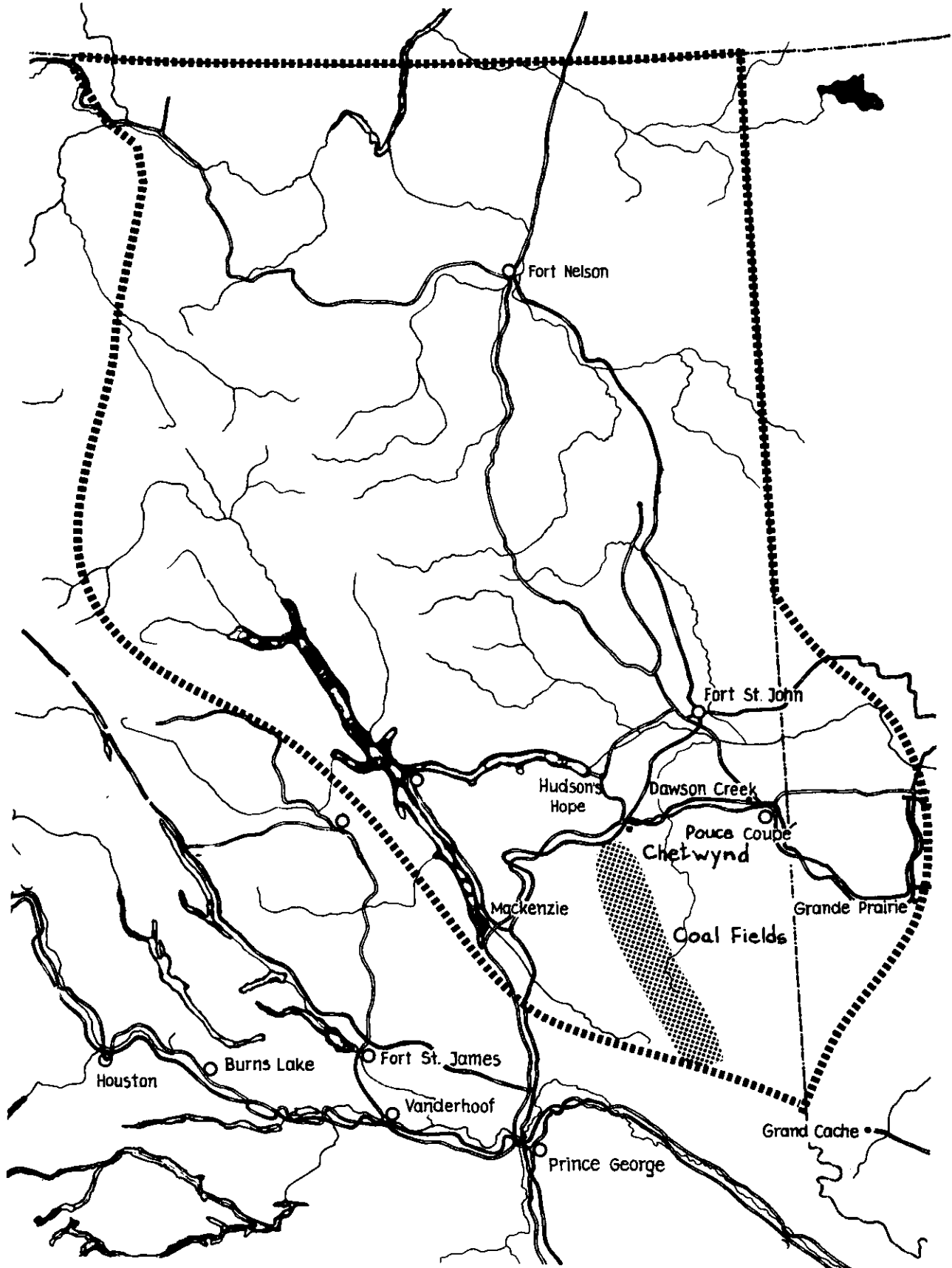
The study region included Chetwynd, Hudson's Hope, Dawson Creek, Fort St. John, Taylor and the rural areas around these centres. Mackenzie and Fort Nelson also were part of the study area, the boundaries of which can be seen on Maps 1 and 2. Although Grande Prairie, Alberta was not defined as formally within the study area, a limited sample of residents was interviewed there on the request of the Ministry of Economic Development. The purpose of this sample was to provide a general indication of the level of interest the Grande Prairie residents had in coal related employment in B.C.



MAP 1. North East Study Region



MAP 2. Detailed View of Study Region



### 1.2.2 Target Groups

This project was concerned with the employment characteristics and job interests of the residents of the study area with emphasis on women, native Indians and the unemployed. These groups were considered an under-utilized resource in the labour force and represent people who may not have fully benefited from resource developments in the past.

### 1.2.3 Interest in Coal Mining Jobs

It was the intent of this study to assess the local resident interest in jobs that may be created by coal development in the North East. The potential jobs were divided into three categories: open pit mining, underground mining jobs and mine related jobs. Specific jobs within each of these categories are defined in Section 5.1, Interest in Coal Related Jobs.

### 1.2.4 Data Constraints

A general word of caution in the use of the data must be noted. Because of the definitions used in this study to determine those eligible for interviewing, the reliance on the responses of the residents themselves, and the sampling and statistical data analysis utilized, a number of biases were introduced into the data results. The major bias affecting the survey results was that the nature of the information sought was future-oriented and, therefore, conditional on a number of variables outside of the control of this study. This is discussed in greater detail in Appendix 1.6, Data Problems, page 71.

### 1.2.5 Contents of the Report

The remainder of this report has been divided into six chapters. Chapter Two provides a summary of the findings of this survey. Chapter Three describes the study population, including the questionnaire response rate, the components of the study population, and an estimation of the parent population in the study area. In all cases, the parent population refers to the total real population in the study area.

In Chapter Four, the findings of the survey are reported with information on the demographic, educational and occupational characteristics of the local population. The training, community and work needs of the residents are described, as well as the residents' attitudes toward the potential coal development. This

information has been organized first as it relates to the entire study population, and then in terms of the target groups.

Chapter Five, the focus of the study, describes local resident interest in employment in the potential coal mining industry. The final chapter consists of the observations and conclusions, followed by appendices describing the survey methodology, the statistical tables, and the field instruments.

#### 1.2.6 Notes Regarding Statistical Tables

As those experienced in research will know, apparent discrepancies in figures and percentages occasionally may occur in tables. Often, percentages are rounded off to the nearest tenth number by the computer, and columns of these figures may not equal 100% exactly. In some cases, "no response" categories are not presented, and only essential features of a table are portrayed. Again, columns may not appear to be precise.

Other disturbing variations may appear in the description of the size of groups in the analysis. For example, one table may show the size of a sample or group as 255, whereas in the next table it may be 225. This is most likely caused when, during the comparison of two aspects of that group, missing responses are eliminated, thus decreasing the number of responses and the apparent size of the group.

These types of discrepancies are visible occasionally in this document, however, each table has been verified.

## 2. SUMMARY

### 2.1 INTRODUCTION

The objective of the North East Coal Employment Survey, commissioned in September of 1976, was to assess the employment potential of the local population in the North East region of British Columbia. Over 1,200 individuals were interviewed in eight towns and surrounding rural areas during three weeks of field work.

The following information provides a summary of the findings of this survey. An overview of the study can be obtained by reading:

Chapter One: Introduction  
Chapter Two: Summary  
Chapter Seven: Conclusions

### 2.2 INTEREST IN EMPLOYMENT IN THE MINING INDUSTRY

- Two-thirds (773) of the respondents expressed some interest in employment in the coal mining industry.
- Over one-fifth (253) of the respondents expressed great interest in such employment. This group could potentially form the major local source of labour in the coal mining industry.
- Of those expressing interest in employment, almost one-half noted the open pit mining jobs, the other one-half were interested in the mine related occupations. Only slight interest was shown in the underground mining jobs.
- Two specific job classifications represented 40% of the job interest; open pit moving equipment operators and the mine related office and clerical jobs.
- Interest in the jobs was very strong among those 15 to 34 years of age. Less interest was shown by those in the older age categories.
- Of those people wishing to work in the coal industry, most preferred full-time steady employment and the majority wanted to work a 40 hour week.
- Interest in the coal mining jobs was sufficient for most people to indicate a willingness to move to the new community, as well as to undertake on-site training.

A large number of native Indians, the women and those currently unemployed, expressed great interest in coal mining employment.

## 2.3 PROFILE OF THE RESPONDENTS

### 2.3.1 Household Characteristics

- Most households were comprised of one family averaging 3.5 persons.
- The occupants of the households were younger than the provincial average. More than two-thirds of the individuals were under 35 years of age.
- There was almost an equal number of males and females.
- Almost one-third of the households reported incomes greater than \$20,000.

### 2.3.2 Individual Characteristics

- As defined in the survey, only respondents between the ages of 15 and 55 were interviewed.
- Three-quarters of the respondents were married.
- Over 92% were Caucasian and 6.6% were native Indians.
- There was a high degree of stability in the North East with 62.6% residing in the study area for more than ten years.
- The majority expressed the desire to remain in the North East rather than moving elsewhere in British Columbia, however, a significant movement of people between the communities within the region was apparent.
- Almost one-half of the residents had completed grades 11-12, while 11% had some post-secondary education.
- Native people in the sample were younger, less educated and earned less income than non-natives. Those native people working were primarily employed in the forest industry.
- The women had similar demographic characteristics as the men, however, fewer held jobs, and when they

did, they earned less income. Of interest was the fact that there was a higher participation rate of women in the North East labour force compared with other regions of the province.

- Characteristics of the unemployed in the region indicated they were younger, more were female, more were single and more had a lower level of education than those employed. Also, the unemployed were more transient than those employed.
- Almost one-quarter of those interviewed had union affiliations. Nearly one-half noted apprenticeship, on-the-job, or other previous training.
- Two-thirds were currently employed, most in their own community. The majority expressed extremely high satisfaction with their jobs and changed jobs infrequently.
- Fort St. John showed the major concentration of primary industries in the study area, while Dawson Creek was noted as the administrative and service centre for the region.
- The primary economic base of Chetwynd and Mackenzie was the forest industry. The current B.C. Hydro dam site construction had a great influence on the economy and employment in the Hudson's Hope area.
- The residents of the single industry town of Mackenzie showed a strong desire to move out of the region and a willingness to move to the new town, as well as very low satisfaction with their present employment.
- Residents preferred year-round work. While many noted work schedules in excess of 40 hours per week, their preferences indicated a desire to work more regular hours, a typical 40 hour week.
- Nearly one-half of the respondents felt that the potential coal development would have some benefits to the community. Concern was expressed about the potential negative environmental effects of the development, especially on recreational pursuits and wildlife.

### 2.3.3 Grande Prairie, Alberta, Respondent Characteristics

- A small sample was interviewed. Most were currently employed, satisfied with their jobs, and had a



similar demographic profile to residents in North East British Columbia.

- Nearly one-half expressed interest in the coal mining jobs with one-fifth expressing great interest, very similar to the response in North East British Columbia.
- A greater proportion were willing to take training away from home at the mine site and also move to the new community compared with those in North East British Columbia.

### 3. DESCRIPTION OF THE STUDY POPULATION

#### 3.1 OVERALL SAMPLE RESPONSE RATE

In discussions with representatives of the Ministry of Economic Development, it was determined that to achieve a representative sample within the study area, it was necessary to survey approximately 600 households. It was assumed that there were approximately two persons eligible for participation in the work force in each household. The actual sample resulted in 605 households being surveyed in B.C. A further 29 households were surveyed in Grande Prairie, Alberta and are documented separately in Chapter 6 of this report.

Table 1 outlines the geographical distribution of the households within B.C. The total draw of 782 households resulted in an 18.5% no contact rate and a 4.09% refusal rate.

TABLE 1. Geographical Distribution of Households

	Households Contacted	No Contact	Refusals	Total Draw
Dawson Creek Pouce Coupe	229	50	9	288
Chetwynd Hudson's Hope	64	10	1	75
Fort St. John Taylor	215	48	3	266
Fort Nelson	33	10	6	49
Mackenzie	64	27	13	104
Total Households	605	145	32	782

### 3.2 DESCRIPTION OF THE SAMPLE

The 605 households surveyed in the B.C. study area consisted of 2,203 individuals. It was determined that the potential labour force available for employment in the coal mining industry most likely were those persons 15 to 55 years of age. All those within this age group in the surveyed households were interviewed. This resulted in a sample of 1,180 individuals, illustrated in Figure 1 and Table 2.

FIGURE 1. Description of Sample Population

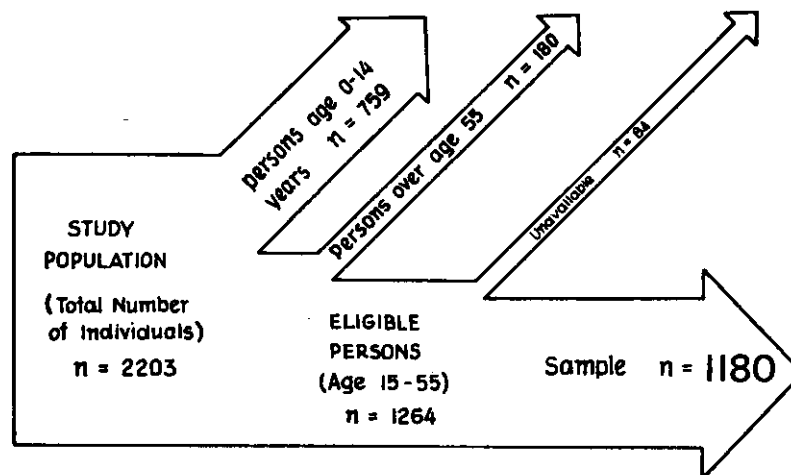


TABLE 2. Description of the Sample Population

Total number of individuals	2,203
minus those under age 15	- 759
minus those over age 55	- 180
<hr/>	
Total eligible sample	= 1,264
minus those unavailable for interviewing	- 84
<hr/>	
Total Sample	1180

It should be noted that the sample of 1,180 individuals forms the basis for all subsequent statistical analysis in this report.

### 3.3 DESCRIPTION OF THE MAJOR SUB-SAMPLE

In accordance with the focus of the study, the major sub-sample was defined as those people expressing interest in employment in the coal mining industry. Of the 1,180 individuals interviewed, 773 (66%) expressed interest in these jobs. The sub-sample is dealt with exclusively in Section 5, Interest in Working in the Mining Industry. Figure 2 and Table 3 outline those interested in work.

FIGURE 2. Interest in Coal Mining

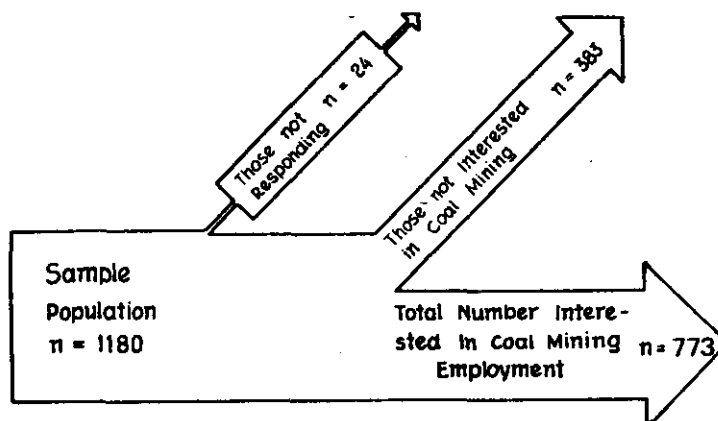


TABLE 3. Interest in Employment in the Mining Industry

Sample	1,180	100.0%
Minus those not interested	- 383	32.5
Minus those not responding	- 24	2.0
Total Interested in Employment	773	65.5%

### 3.4 DESCRIPTION OF OTHER SUB-SAMPLES

Three groups were identified in the Terms of Reference for detailed analysis; women, native Indians and the unemployed.

Tables 4, 5 and 6 outline the number of individuals that were interviewed in each of these target groups. It should be noted that these are not mutually exclusive groups and

exist at the same level as the major sub-sample described above.

TABLE 4. Female Target Group

Females	Sample	1,180
	Minus males	- 611
	Total Females	= 568

FIGURE 3. Females in the Sample

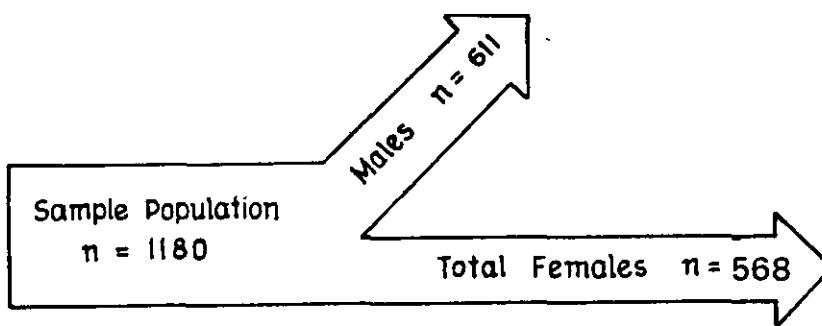


TABLE 5. Native Indian Target Group

Native Indians	Sample	1,180
	Minus Caucasian	- 1,091
	Minus others	- 11
	Total Native Indians	= 78

FIGURE 4. Native Indians in the Sample

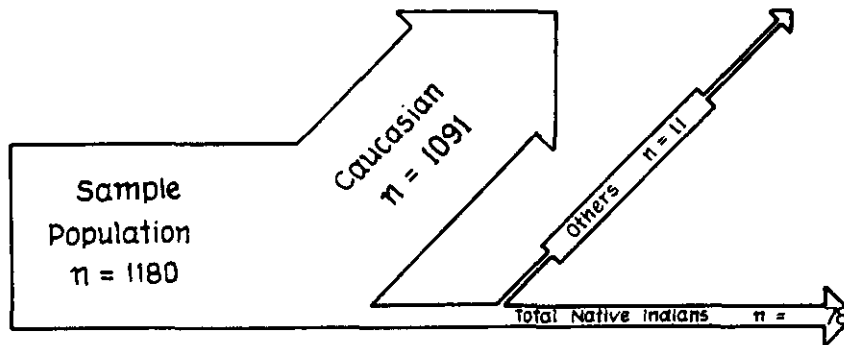
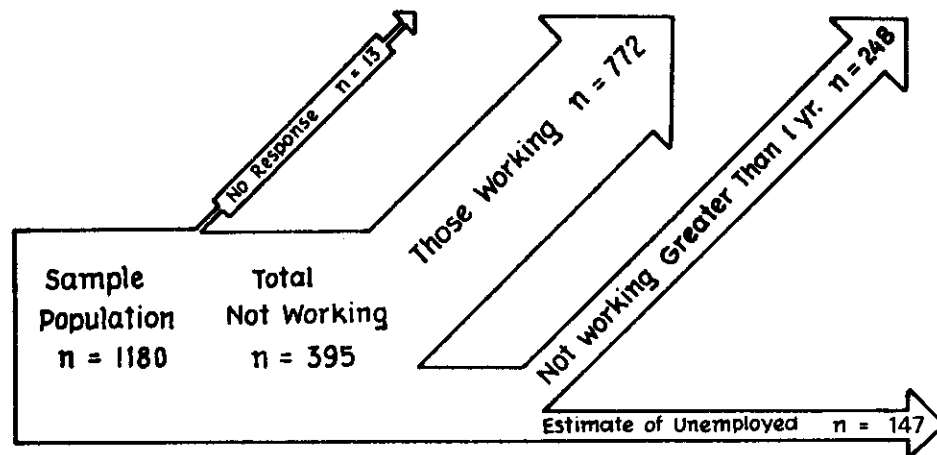


TABLE 6. Unemployed Target Group

Unemployed	Sample		1,180
	Minus those working	-	772
	Minus no response	-	13
	Total not working	=	395
	Minus those not working greater than one year	-	248
	Estimate of Unemployed	=	147

FIGURE 5. Estimate of the Unemployed in the Sample



AGAIN, IT SHOULD BE NOTED THAT THE SAMPLE OF 1,180 INDIVIDUALS FORMS THE BASIS FOR ALL SUBSEQUENT STATISTICAL ANALYSIS IN THIS REPORT.

Of those not working, it was difficult to determine the exact number of unemployed people, that is, those people not working and wanting to work. The definitions which follow should be read carefully as they are not standard. For purposes of this study, the "unemployed" are defined as those people who are currently not working and who have been out of work for less than one year. Two problems exist with this definition: firstly, people who are actually employed could be excluded if they have been unemployed for more than a year and yet are still seeking work; and, secondly, people who are not actually unemployed could be included in the count if they have been out of work for less than a year yet are not currently seeking work. Table 6 provides an estimate of the unemployed in the study area.

### 3.5 ESTIMATION OF THE POPULATION IN THE STUDY AREA

Based on the sample population of 1,180, it is possible to estimate the parent or total actual population in the study area. Statistics provided by the Ministry of Economic Development determined that the population in the study region was 42,852 from 1971 Statistics Canada figures. The estimated 1976 census data indicates an approximate population of 45,983. The geographical distribution of these figures and a description of the development of the weighting factor is detailed in Appendix 1, page

One of the advantages of the systematic proportionate sampling methodology employed in this study is that the resulting data is relatively simple and convenient to handle during the subsequent analysis. This simplicity is achieved because statistics such as means and proportions are "self-weighting". In order to produce equivalent statistics for the parent population, the number in question should be multiplied by the weighting factor of twenty. It should be noted that the resulting numbers must be used with caution. The smaller a number, compared with the total sample of 1,180, the less reliable the data becomes. This is discussed in detail in the following section.

The study population, as described in Section 3.2, represented a total of 2,203 people of all age groups. This total can be expanded to replicate the parent population for the study region as follows:

---

STUDY POPULATION	X	WEIGHTING FACTOR	=	ESTIMATE OF PARENT POPULATION
2,203		20.0	=	44,060

---

This estimate of 44,060 compares closely with the 1976 census estimate of 45,983, a difference of less than 2,000 individuals.

To determine the number of people eligible for employment in the work force, Table 7 was developed.

TABLE 7. Estimated Eligible Work Force in Parent Population

STUDY COMMUNITIES	STUDY SAMPLE	x	WEIGHTING FACTOR	=	ELIGIBLE WORK FORCE IN PARENT POPULATION
Mackenzie	143		20.0		2,860
Dawson Creek Pouce Coupe	443		20.0		8,860
Chetwynd Hudson's Hope	105		20.0		2,100
Fort Nelson	78		20.0		1,560
Fort St. John Taylor	411		20.0		8,220
Total	1,180	x	20.0	=	23,600

In all subsequent data analysis, Pouce Coupe is grouped with Dawson Creek and Taylor is grouped with Fort St. John.

### 3.6 RELIABILITY OF THE DATA

The reliability of the data can be described as the degree of confidence placed in a given estimate. If the reliability level required for all data is the same, the most critical category is the one with the smallest proportion. Therefore, in this study, the most reliable data was that of the study sample of 1,180. The least reliable information, in turn, was for the target group data where the numbers decreased in some instances to fewer than 100 elements.

To illustrate the use of the data and its reliability, the following example has been developed. In the sample population of 1,180 individuals, 773 or 66% expressed interest in employment in the potential coal mining industry. However, this number is not certain because the chances are overwhelming that the sample, being only a small fraction of the total population, may not be exactly representative of the total parent population. Thus, every sample estimate should be accompanied by a reliability estimate. In this case, the reliability estimate is  $\pm 2\%$  of 773, as determined from Table 39, Coefficient of Variation, page 69,



Therefore, the total percentage of the sample who expressed interest in employment in the mining industry is:

$$\begin{aligned} & 66\% \pm (2\% \text{ of } 66\%) \\ & = 66\% \pm 1.32\% \end{aligned}$$

To estimate the parent population from this sub-sample, the following is noted:

Sub-Sample	x	Weighting Factor	+ -	Coefficient of Variation	=	Estimate of Parent Population Expressing Interest in Employment in the Coal Mining Industry
773	x	20.0	±	.02(733 x 20)	=	(773 x 20) ± 309
						= 15,460 ± 309

Therefore, it can be said with reasonable confidence that the true number of people expressing interest in employment in the coal mining industry is between 15,151 and 15,769 individuals. While this provides the possible range, the most likely number is the original estimate of 15,460. Again, it must be emphasized that these numbers must be developed and used with caution as noted in 1.2.4, Data Constraints. The detailed methodology and the tables required to determine the reliability of any given estimate are in Appendix 1, page 67.

## 4. PROFILE OF THE RESPONDENTS

### 4.1 DEMOGRAPHIC CHARACTERISTICS: HOUSEHOLDS

The following section provides a description of the study population (n=2203) by the variables which were measured in the first part of the questionnaire, Household Enumeration. A copy of the questionnaire is located in Appendix 3. The characteristics considered were household size, family size, income, age and sex of household members.

Within each of the surveyed households, there was an average of 3.6 people. It appears that few households (2.5%) in the study region were comprised of more than one family. This figure was substantially lower than the 4.1 persons per family for the North East region from the 1971 census, and yet identical to the 1971 provincial average. It appears that the North East is following the national trend toward smaller family sizes.

Of the households surveyed, only one-fifth (21.1%) had income levels under \$10,000. Almost one-third (30.6%) of the households declared annual incomes above \$20,000, an exceedingly high proportion in comparison to other regions of the province.

In terms of age distribution, the population of the North East was quite youthful. More than two-thirds (68.9%) of the household members were under 35 years of age. Of the settlements in the study region, Fort Nelson, Mackenzie and Hudson's Hope had a work force with the highest proportion in the 19-24 age category.

Looking at the overall study region and considering the employment structure common to a resource based economy, the ratio of females to males (1.00:1.05) was surprisingly equal, particularly in the 25-44 age category. However, as illustrated in Table 6, the differences that do appear fall largely within the young adult (15-24) age group, indicating that there was a larger number of males in, or about to enter, the early employment years. In addition, there were geographic differences, particularly in Hudson's Hope, the location of B.C. Hydro's Site One Dam construction, where almost two-thirds (65.6%) of the population was male

TABLE 8. Age and Sex of Study Population

AGE	MALE	%	FEMALE	%	TOTAL	%
0-14	362	( 32.0)	397	( 36.9)	759	( 34.4)
15-18	124	( 10.9)	97	( 9.0)	221	( 10.0)
19-24	107	( 9.4)	92	( 8.5)	199	( 9.0)
25-34	170	( 15.0)	168	( 15.6)	338	( 15.3)
35-44	128	( 11.3)	129	( 12.0)	257	( 11.6)
45-55	140	( 12.4)	109	( 10.1)	249	( 11.3)
56-64	51	( 4.5)	43	( 4.0)	94	( 4.2)
65+	47	( 4.1)	39	( 3.6)	86	( 3.9)
Total	1,129	(100.0)	1,074	(100.0)	2,203	(100.0)

In summary, the households surveyed were similar to the provincial average in terms of family size. The households had a fairly typical income distribution, although substantially higher than the provincial average.

#### 4.2 DEMOGRAPHIC CHARACTERISTICS: INDIVIDUALS

The purpose of this part of the report is to provide background information on the individual members of the households who completed the second portion of the questionnaire entitled Individual Enumeration. The eligible respondents were those between 15 and 55 years of age, as they were considered potential members of the labour force. As this study is specifically directed towards assessing the residents of the region, the very transient individuals, who may have been residing in hotels or other similar accommodation are not included in the study.

The age and sex breakdown of the respondents was described in the previous section from the Household Enumeration and will not be repeated here. Marital status, ethnicity, length of residency and education will be described.

The statistical profile showed only a very small number (3.2%) of people in the separated, divorced, or widowed category. Almost three-quarters (72.1%) of the respondents were married. This substantiated the strong impression of marital stability experienced by the field interviewers.

In terms of ethnic background, 92.5% were Caucasian and 6.6% were native Indian. The highest proportions of natives were found in the Chetwynd area (31.5%) and the Fort Nelson area (19.2%). These figures refer to both reserve and non-reserve Indians. In this study, no differentiation has

been made between status and non-status Indians.

The data confirmed another strong impression of the field interviewers, that of the stability of residency in the North East. More than half of the respondents (53.4%) indicated that they had lived in the same community for more than 10 years and close to two-thirds (62.6%) had lived in the North East region for at least this period. Table 9 illustrates the small proportion of transient people interviewed.

TABLE 9. Length of Residency

	Same Community	North East Region
Less than 6 months	2.8%	1.4%
6-11 months	3.2	2.3
1-2 years	9.2	7.5
3-5 years	18.7	13.8
6-10 years	12.6	12.5
More than 10 years	53.4	62.6
Total	100.0%	100.0%

Comparing the length of residency within each community, Dawson Creek appeared to have the greatest number (77.7%) of residents who have lived there for more than 6 years, while Mackenzie had the least (14.7%), probably because the town was only developed in the late 1960's to service the forest industry.

In reviewing the educational characteristics, almost one-half (44.0%) of the residents in the North East had completed grade 11 or 12 and a further one-third (29.5%) had obtained grade 9 or 10. In addition, 10.8% completed university or community college programs. Hudson's Hope showed the highest proportion of residents with post-secondary education, probably because of the demand for engineers and management personnel from the B.C. Hydro dam site activity.

In summary, the North East appears to have a stable population in terms of marital status and length of residency. The transiency that would be expected with a resource based economy did not appear to be evident. Approximately half the population had completed high school.

#### 4.3 TARGET GROUP CHARACTERISTICS

In this section, the demographic characteristics of the three target groups, native Indians, women and the unemployed, will be described. The method of presentation will include a brief description of each group followed by tables which illustrate the data base. The variables under consideration were: age, sex, ethnicity, marital status, education, income, and length of residency.

##### 4.3.1 Native Indians (n=78)

The native people who were interviewed were notably younger than the non-natives, had less education and generally, were earning less income. More males and single people appeared in this group than was the case for the non-native sample. Individual native people who were interviewed tended to have resided in the same community, and in the North East, longer than the non-native respondents. This group represents a large, relatively under-utilized labour source which could enter the coal mining industry if adequate training programs and employment incentives were established. See Table 10.

##### 4.3.2 Women (n=511)

Patterns of age and length of residency for the women surveyed were very similar to the men. However, in terms of marital status, more of the women were married. As in the rest of the province, fewer women than men were working, and, if they were employed, their earnings were less than men. However, 46% of the women in the study area were working, a figure much higher than other regions in the province. In educational achievement, more women than men had completed post-secondary schooling or at least had completed grades 11 or 12. See Table 11.

##### 4.3.3 Unemployed (n=147)

About one-half (50.4%) of those people unemployed were under the age of 25 and 40% were single. A higher proportion of the unemployed were single compared with those currently working. Also, a larger percentage of the unemployed were native Indians than in the working population. Although fewer unemployed had any post-secondary experience, the educational background appeared to be similar for both the employed and the unemployed. The proportion of transient people was greater among the unemployed than employed. See Table 12.

TABLE 10. Characteristics of Native Indians Compared With Non-Natives

	Native Indian n=78	Non-Native n=1102
<u>Age</u>		
15-18	24.4%	16.2%
19-24	23.1	14.4
25-34	23.1	27.5
35-44	14.1	20.5
45-55	15.4	21.5
<u>Sex</u>		
Male	61.0	51.2
Female	39.0	48.8
<u>Marital Status</u>		
Married	52.6	73.5
Single	39.7	23.6
Other	7.7	2.9
<u>Education</u>		
No formal schooling	9.0	.1
Grades 1-5	10.3	1.3
Grades 6-8	34.6	11.6
Grades 9-10	32.1	29.4
Grades 11-12	12.8	46.2
College or University	1.3	11.2
<u>Income</u>		
Below \$7,000	64.9	49.5
Above \$7,000	35.1	51.5
<u>Length of Residency in Same Community</u>		
Less than 10 years	30.8	47.7
Greater than 10 years	69.2	52.3
<u>Length of Residency in North East</u>		
Less than 10 years	19.5	38.6
Greater than 10 years	80.5	61.4
<u>Employment Status</u>		
Employed	42.3	67.9
Unemployed	28.2	10.0
Not wanting to work	29.5	22.1

TABLE 11. Characteristics of Women Compared With Men

	Female n=568	Male n=611
<u>Age</u>		
15-18	15.3%	17.9%
19-24	15.3	14.6
25-34	28.4	26.1
35-44	21.5	18.7
45-55	19.4	22.8
<u>Marital Status</u>		
Married	76.2	68.5
Single	19.8	29.1
Other	4.1	2.5
<u>Income</u>		
Under \$7,000	76.3	26.6
Above \$7,000	23.7	73.3
<u>Education</u>		
No formal schooling	.5	.8
Grades 1-5	1.8	2.0
Grades 6-8	9.7	16.4
Grades 9-10	25.8	32.9
Grades 11-12	50.2	38.2
College or University	12.0	9.6
<u>Employment Status</u>		
Employed	46.3	83.1
Unemployed	12.2	8.8
Not wanting to work	41.5	8.0

TABLE 12. Characteristics of the Unemployed Compared with the Employed

	Unemployed n=147	Employed n=793
<u>Age</u>		
15-18	29.3%	15.5%
19-24	21.1	13.9
25-34	20.4	27.5
35-44	12.9	20.7
45-55	15.5	22.3
<u>Sex</u>		
Male	40.8	65.7
Female	59.2	34.3
<u>Marital Status</u>		
Married	54.8	72.2
Single	41.1	24.7
Other	4.1	2.9
<u>Ethnicity</u>		
Natives	15.6	4.3
Others	84.4	95.7
<u>Length of Residency in Community</u>		
Less than 1 year	12.9	4.7
More than 1 year	87.1	95.3
<u>Education</u>		
No formal schooling	2.1	.4
Grades 1-5	2.8	1.4
Grades 6-8	16.8	12.5
Grades 9-10	30.8	28.6
Grades 11-12	43.4	43.9
College or University	4.2	12.9

In summary, a higher proportion of the unemployed were young, female, single or of native origin than of the employed. With a lower education profile, yet a higher level of other training, this group also represents an under-utilized labour resource who could work, if provided with adequate training programs, in the potential coal mining industry.



#### 4.4 OCCUPATION AND INDUSTRY CHARACTERISTICS

The potential labour force, as defined by the study, will be described according to qualifications, current employment trends, income, occupation and industry.

##### 4.4.1 Occupational Qualifications

The training and union membership of the respondents will be discussed in terms of the total North East region, the various communities, and the three target groups.

"Training" has been divided into three major categories: on the job; licensed apprenticeship; and technical, vocational or ongoing apprenticeship programs. Almost half of the residents in the North East (47.9%) had some kind of occupational training with on the job training being the most common form. Interesting differences appeared when the data were analyzed by community as shown in Table 13. While the sample population in Dawson Creek and Fort St. John showed the greatest concentration of trained individuals in the region, the residents of Chetwynd and Hudson's Hope had proportionately more training than those persons elsewhere in the region. Of those who reported that they had received training on the job, the highest proportion lived in Fort Nelson. It is not surprising that the highest percentage of those having completed an apprenticeship (9.4%) was in Hudson's Hope, where the dam construction requires a skilled labour force. An interesting point to note when considering training needs for the mining industry is that the population of Dawson Creek, located near the mine sites, had a low percentage (2.9%) of apprentices whereas the number for Fort St. John, which is further away, was higher (5.8%).

The number of women and unemployed people who had received additional training was lower than the number of men and the number of unemployed. In particular, the number of women journeymen was low. See Table 14.

The native Indians showed a training profile similar to the other target groups. On a whole, fewer native people (19.2%) had taken additional training compared to non-natives (45.7%). Again the proportion of native Indian journeymen was lower than the non-natives.

TABLE 13. Type of Training by Residential Location

	Fort Nelson n=78	Chetwynd n=73	Hudson's Hope n=32	Dawson Creek n=443	Fort St. John n=411	Mackenzie n=143
On the job	24.4	11.0	6.3	20.1	12.2	14.7
Apprenticeship	5.1	5.6	9.4	2.9	5.8	4.9
Tech. Voc. App.	19.2	6.8	12.5	17.3	9.2	14.7
Other	0.0	5.6	.3	9.9	10.7	11.2
Upgrading	1.3	0.0	0.0	.1	0.0	0.0
Combination	5.1	0.0	0.0	4.5	4.3	2.1
No training	44.9	71.2	68.7	43.8	57.2	52.4
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

TABLE 14. Training by Sex, Ethnicity and Employment Status

	Sex		Ethnicity		Employment Status	
	Male n=608	Female n=568	Native Indian n=78	Non-Native n=1103	Employed n=793	Unemployed n=147
No training	47.2%	57.9%	79.5%	50.4%	46.2%	55.8%
Apprenticeship	8.2	.9	1.3	4.9	6.7	.7
Other Training	44.2	41.2	19.2	45.7	47.1	43.5
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Almost a quarter of the sample population were union members. Although the largest number of union members were located in Dawson Creek, the highest proportions of union membership were found in Mackenzie (40.6%) and Hudson's Hope (48.4%).

As expected, women, native Indians and the unemployed showed lower union membership rates than the general population.

TABLE 15. Union Membership by Residential Location

	Fort Nelson n=76	Chetwynd n=72	Hudson's Hope n=31	Dawson Creek n=441	Fort St. John n=406	Mackenzie n=143
Yes	25.0%	29.2%	48.4%	35.1%	20.2%	40.6%
No	75.0	70.8	51.6	64.9	79.8	59.4
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

#### 4.4.2 Employment Trends

The employment characteristics of the study sample (n=1180) are described in terms of number employed, turnover rate and reasons for job changes.

Two-thirds (66.2%) of those interviewed were currently employed. Within the communities, Hudson's Hope showed the highest proportion of residents working and Chetwynd the lowest. This is consistent with the levels of general economic activity that presently characterize those two centres. Of those who were unemployed, most (80%) stopped working during the last six months. As mentioned in Section 4.3, the unemployment rate is higher for women and native people than other members of the population.

More than one-quarter of those currently working had been at the same job for less than one year and more than a third reported leaving their previous job before one year. However, another group, comprising almost

one-third of the labour force, showed employment stability. These people had been employed at the same position for more than five years.

TABLE 16. Length of Time at Current and Previous Job

	Current n=772	Previous n=924
Less than 6 months	21.1%	24.9%
6-11 months	6.0	12.9
1-2 years	17.7	24.2
3-5 years	23.6	19.5
Greater than 5 years	30.6	18.5
Total	100.0%	100.0%

Within each of the communities, Fort Nelson residents showed the highest percentage (32.3%) of those changing jobs within the last 6 months, and Mackenzie showed the lowest (17.2%). However, in the next section on conditions for employment, it is shown that a high percentage of the residents would prefer full-time steady work, suggesting that these figures may be more illustrative of the economic structure of each community rather than the work preferences of the residents.

Comparing the length of employment of women to men, no significant differences were found, except in the "greater than 5 years" category where women were under represented. This probably reflects traditional female family responsibilities. Native people, however, tended to have been employed at their current jobs for a shorter period of time than non-natives. See Table 17 for a comparison of length of employment with ethnicity.

When asked why they left their previous jobs, almost one-quarter of the respondents (23.0%) indicated that they perceived their future jobs to be better in terms of either money or responsibility. Personal reasons, usually marriage or children, were the reasons given by almost a quarter (23.0%) of the sample. Those stating that the reason for leaving their previous job was due to moving, were only 12.7%.

TABLE 17. Length of Employment at Current Job by Ethnicity

	Native Indians n=37	Non- Natives n=742
Less than 6 months	37.8%	21.3%
6-11 months	10.8	5.8
1-2 years	10.8	18.1
3-5 years	21.6	23.7
Greater than 5 years	18.9	31.1
Total	100.0%	100.0%

TABLE 18. Reason for Leaving Previous Job

	Those With Previous Jobs n=924
Better job	23.0%
Personal concerns	23.2
Seasonal factors/laid off	19.2
Moved	12.7
Return to school	10.0
Other	11.9
Total	100.0%

In summary, the data showed that even though two-thirds of all those interviewed were employed, women and native people were under represented in the work force. In terms of turnover, only one-quarter changed jobs during the past year while over one-half of the respondents had been at their jobs for more than three years.

#### 4.4.3 Income Characteristics

In this section, the level and sources of income will be discussed as related to the entire sample (n=1180) and the distribution of income by community will be presented. The income characteristics of the women,

native Indians and the unemployed have been described in Section 4.3 and will only be mentioned briefly here.

Almost one-third (31.4%) of those responding to the question on income indicated that their income, if any, during the past year was less than \$1,000. At the other end of the scale, one-tenth (9.4%) reported incomes above \$20,000. The income distribution is shown on Table 19. It should be noted that the residents over 55 years old are not included in this sample and, therefore, a portion of the actual working population is not represented.

TABLE 19. Income Distribution

Income	Income Distribution n=1144
Under \$1,000	31.4%
Between \$1,000 - \$3,000	7.6
Between \$3,000 - \$5,000	5.8
Between \$5,000 - \$7,000	5.8
Between \$7,000 - \$10,000	9.4
Between \$10,000 - \$15,000	16.7
Between \$15,000 - \$20,000	14.0
\$20,000+	9.4
<b>Total</b>	<b>100.0%</b>

More than one-half (57.8%) of the residents indicated that their major source of income was employment earnings while another one-quarter (25.5%) noted their spouse as the major source of support. Twelve percent of the respondents noted their major support being parents or other relatives. The majority of the respondents were currently in school, aged 15-18. Only 2.5% noted their primary source of income as social assistance, unemployment or workers compensation.

Several communities noted significantly more people with higher salaries than elsewhere in the region. Fifteen percent of those in Fort St. John and 25% of those in Hudson's Hope earned greater than \$20,000. Chetwynd had the lowest incomes with 30% reporting incomes of less than \$7,000 and a further 23.6% indicating no income.

As described previously, the women in the sample population are over represented in the low income levels and under represented in the high income levels. Similar disparities, although not as pronounced, exist for native Indians.

#### 4.4.4 Occupational and Industrial Characteristics

This section includes a description of the current and past occupational and industrial profiles, levels of job satisfaction, and current and past locations of employment. The data is presented for the study region as a whole with further descriptions of the occupational and industrial information by community and target groups. A listing of Statistics Canada categories, capitalized in the text, can be found in Appendix 2, page 75.

Clerical and service were the most frequently reported occupations. These correspond to the industries of commerce, business, personal service and manufacturing, and trade. Table 20 provides a ranking of the occupational groups in which at least 5% of the sample population were employed. Table 21 shows a breakdown of the percentage of respondents employed within the five major industries. It is interesting to note that a very small proportion indicated that they were employed in mining.

TABLE 20. Occupation Distribution of Current and Previous Job

Occupation	Current Job n=787	Previous Job n=923
Clerical	13.0%	15.8%
Service	12.1	18.4
Fabrication	9.0	8.3
Farming	8.8	4.4
Sales	7.2	6.6
Transportation	7.1	6.1
Forestry	7.0	6.7
Management	6.6	4.8
Processing	5.7	6.0
Construction	5.5	6.6
Other	18.0	16.3
TOTAL	100.0%	100.0%

The previous occupation and industry of the sample population are also illustrated on Tables 20 and 21 respectively. When comparing the current job structure to the previous, several trends became clear. In terms of the proportion of the population involved, farming became more important along with managerial positions. The relative number of people in service occupations decreased while 1.4% of the population continued to be employed in mining.

TABLE 21. Industry Distribution of Current and Previous Job

Industry	Current Job n=780	Previous Job n=924
Commerce, Business and Personal Services	21.4%	19.9%
Manufacturing	14.2	10.0
Trade	14.2	9.8
Transportation & Utilities	10.1	6.7
Agriculture	9.1	3.7
Construction	7.8	7.5
Other	23.2	49.9
Total	100.0%	100.0%

If people were employed at two jobs simultaneously, the occupation and industry were noted for both. Only 7.2% of the residents were doing this and the five largest groups are noted below. The data confirmed the interviewers' perception that when people do carry a second job, it is usually with their own farm or their own company, and that the satisfaction derived from these jobs is high. See Table 22.

The current satisfaction levels associated with main jobs and second jobs, if applicable, were recorded as extremely high. More than four-fifths (83.4%) stated that they were satisfied with their work, as demonstrated on Table 23.



TABLE 22. Occupation and Industry Distribution of Second Jobs

	Second Job
<u>Occupation (n=57)</u>	
Farming	28.1%
Mangerial	12.3
Fabrication	10.5
Construction	10.5
Sales	8.8
Other	29.8
	100.0%
<u>Industry (n=52)</u>	
Agriculture	36.5%
Construction	15.4
Commerce, business, personal services	13.5
Manufacturing	9.6
Trade	7.7
Other	17.3
	100.0%

TABLE 23. Occupational Satisfaction

Satisfaction	Job 1 n=780	Job 2 n=52
Very satisfied	54.1%	57.1%
Somewhat satisfied	29.3	28.6
Not satisfied or dissatisfied	7.4	14.3
Somewhat dissatisfied	7.1	0.0
Very dissatisfied	2.1	0.0
Total	100.0%	100.0%

Respondents were asked in which community their current and previous jobs were located. As shown in Table 24, one-tenth (11.8%) were employed outside their own community, most within the North East. There appeared to be inter-community movement within the North East,

suggested by the 15.7% who were last employed in another community within the region.

TABLE 24. Community of Employment

Location	Present Job n=774	Previous Job n=921
This community	88.8%	52.7%
North East	9.4	15.7
Lower Mainland	0.4	1.8
Interior	0.1	6.6
Other B.C. Location	0.5	9.0
Alberta	0.4	1.4
N.W.T. or Yukon	0.8	4.6
Other Canada	0.1	1.5
Total	100.0%	100.0%

It is worthwhile to note the occupation and industry distribution by the communities in the study region. The management and professional occupations were centered in two locations, Dawson Creek and Fort St. John where 17.2% and 14.0% respectively of the workers noted these job types. The clerical and service sector occupations were also dominant in Dawson Creek and Fort St. John because these cities are the major service-distribution centres for the region.

Within the primary industries, 60% of the farm related jobs were located in Dawson Creek with a further 32% in Fort St. John. Forestry jobs were mainly concentrated in two locations, Mackenzie with almost one-half (43.6%) and Chetwynd with another one-quarter (27.3%).

The impact of the B.C. Hydro and Power Authority dam construction was apparent in Hudson's Hope because 40% of those interviewed reported construction and fabrication related occupations. A detailed occupation breakdown by communities is provided in Appendix 2, page 75.

The distribution of industries throughout the study was similar to that of the occupations. Trade, Finance and Real Estate, Commercial, Business Services and Public Administration were located primarily in Dawson Creek and Fort St. John.

Of the primary industries, two-thirds (60.0%) of Farming and Agriculture occurred around Dawson Creek, with a further one-third (33.9%) around Fort St. John. Forestry was centered in two locations with 41.4% located in Mackenzie and a further 25.7% in Chetwynd. The small amount of employment that centered on the mining industry was primarily located in Fort St. John. This city also appeared to have a large base in the manufacturing industry with a third of its residents reporting jobs in this industry. A detailed industry breakdown is provided in Appendix 2, page 75.

In summary, Fort St. John showed the greatest concentration of primary industries and occupations while Dawson Creek was the administration centre for the region. Chetwynd and Mackenzie were primarily tied to the forest industry with the B.C. Hydro and Power Authority dam activity heavily influencing the employment structure of Hudson's Hope.

The following section briefly outlines the occupations and industries in which the target groups worked. Of those working, the majority of the native Indians (n=73) were employed in forestry (34.2%) followed by construction, transportation and processing related jobs at 7.9% each. The actual industries where the native people were employed were Forestry (42.1%), Transportation and Utilities (7.9%) and Manufacturing (5.3%).

The majority of the working women (n=266) noted jobs in several categories; clerical (32.7%), service jobs (20.7%), professional (16.5%) and sales (10.5%). These occupations were concentrated in the following industries; 41.5% in the Commercial, Business and Personal Services industry, 21.9% in Trade, 7.5% in Transportation and Utilities, and 6.4% in Public Administration.

#### 4.5 PREFERENCES FOR EMPLOYMENT

To clearly understand the employment characteristics of the population, information was sought on the preferences concerning the time frame of work, services necessary for employment, and residential and employment location preferences.

Residents of the North East were questioned on their preference in terms of length of employment during the year and hours of work per week. The needs for child care and transportation services were probed, as well as the locational preference for employment either within or outside the North East.

More than two-thirds (71.3%) of the population stated that they preferred to work year-round, with less than a tenth (8.9%) who did not want to work. Little variation was found in the responses of the residents of the various North East settlements. In analyzing this question for the three target groups, the native people followed the pattern of the whole sample population. However, fewer of the women (57.0%) and unemployed (56.5%) appeared to prefer year-round work. A higher proportion of women than men expressed no desire to work. In comparing the unemployed to the employed, more of the unemployed preferred seasonal or short term work to steady year-round work.

Of the people preferring not to work year-round (222 or 18.8%), more than one-half chose seasonal work. This preference for regular employment was found to be true in all the surveyed towns and target groups.

About one-fifth (19.7%) of the sample population indicated a preference for work of under 30 hours per week, and more than one-third (35.9%) stated that they would like to work more than a 40 hour week. The largest proportion, 42.7% preferred to work a regular 40 hour work week. It is of interest to note that while nearly two-thirds of the respondents actually worked more than a 40 hour week, the preference was to work less; in this case, a 40 hour week. In Mackenzie, an even higher proportion (58.5%) wished to work longer hours and seemed to be motivated primarily by a desire to improve their economic situation.

The women and native people in the sample population had distinct preferences for the time structure of their work. Where only a small portion (5.1%) of the men preferred a work week under 30 hours, more than one-third (35.2%) of the women chose this option. These figures indicate that perhaps some women would choose to work part-time in order to accommodate their continuing family responsibilities. More of the native people stated a preference for longer working hours than the non-natives.

In addition to preferences for work schedules, residents were asked about their current requirements for child care and transportation. For 181 or 16% of the respondents, child care services were essential in order for the person to work. Comments made to the interviewers indicated that the child care arrangements which had been made were usually with other family members. Many more women than men stated a need for child care, reflecting the conventional division of labour within families.

Approximately 200 people (17.5%) did not have access to a car or truck and expressed the need for transportation. Almost half of these people were already employed, indicating that the present means of getting to and from work, most

commonly with friends or family, was inadequate. A much larger proportion of native people (77.1%) than non-natives (48.0%) expressed a need for transportation. No major differences were observed in the transportation requirements of men and women.

Table 25 illustrates the perceived transportation and child care requirements in each community. For example, almost one-half (46.9%) of those surveyed in Hudson's Hope expressed a need for improved transportation.

TABLE 25. Child Care and Transportation Needs by Community

	Fort Nelson n=78	Chetwynd n=73	Hudson's Hope n=32	Dawson Creek n=443	Fort St. John n=411	Mackenzie n=143	Total n=1180
Percent Requiring Child Care	16.6	21.9	12.5	12.9	12.4	27.9	(100%)
Percent Requiring Transportation	11.5	31.5	46.9	19.4	14.4	9.8	

The residential preferences of the respondents were probed to determine how many people indicated a commitment to staying in the North East. The results showed that in most communities, two-thirds wished to stay, with the exception of Mackenzie where only a third (36.6%) expressed interest in staying in the North East. No significant differences from the norm were found in the responses of the target groups.

In summary, it appears that the residents of the North East prefer year-round, steady work and many currently work longer than a 40 hour week. Their preferences, however, indicated that a shorter, 40 hour work week was desired by many. Members of the target groups had distinct attitudes toward the timing and duration of employment. The women, although preferring year-round work, were less interested in joining the work force than the men, while more of the unemployed preferred to work irregular schedules than the employed. Child care and transportation services, desired particularly by the native Indians and residents of Hudson's Hope, were recorded as needed for approximately one-fifth of the

potential labour force. Finally, there was a strong desire of the residents of most communities to live in the North East.

#### 4.6 ATTITUDES TO THE COAL DEVELOPMENT

The respondents felt that the nature and extent of the impact of the coal mining development in the North East was uncertain. The residents were asked how they felt the coal development would affect their own lives and their community. A five point scale ranging from "very beneficial" to "very harmful" was used. Comments made by the respondents were recorded as well.

A very small number of people (3.2%) perceived that the development would have harmful effects on their own lives. One-quarter (26.7%) of those interviewed said that they felt the development would not affect them at all. The frequency of the positive responses was highest in the towns close to the coal sites such as Chetwynd and Hudson's Hope, and lowest in Fort Nelson which is farther away.

There were similar positive responses toward the effect of the coal development on the various communities. In fact, the proportion of people perceiving the coal development as beneficial was higher in terms of the effects on the community than the effects on the individual. Table 26 illustrates these trends.

TABLE 26. Perceived Effects of the Coal Development

	On an Individual Level (n=1180)	On a Community Level (n=1180)
Very beneficial	18.1%	30.1%
Beneficial	26.2	34.6
No effect	26.7	13.9
Harmful	2.7	2.6
Very Harmful	.5	.4
Don't know	25.9	18.3
Total	100.0%	100.0%

The comments noted by the interviewers provide a fuller insight into the views of the North East residents. The view expressed most often concerned the potential employment opportunities which would accrue to local residents and which

were perceived as a benefit. The need for employing local people was stressed and often detailed explanations were given of the hiring practices at other large construction projects where local hiring had not occurred. Those concerned with manpower planning for the coal development should be fully cognizant of the resentment that has resulted from these hiring practices. Residents felt that employment resulting from the coal development would allow family members both to gain financially and to spend more time closer to home.

Concern was often expressed about the potential negative environmental effects of the project. Many people related these concerns to their own recreation pursuits, particularly hunting and fishing near the proposed coal sites. Although the sentiments on these issues were strong, usually the potential benefits from employment and the general upsurge of the economy were seen to outweigh the possible ecological damage.

Many people mentioned that they believed the communities would benefit through population increases which would encourage more services, stores, and business activity. A few residents expressed concern regarding the impact these changes would have on the social structure of the community, but generally it was felt that economic growth and development were inevitable.

Some people were concerned that the real benefits from the coal development would fall to foreigners if the coal were shipped out of the country. People wondered why Canadians could not process the coal in Canada, building a steel mill in the area if necessary.

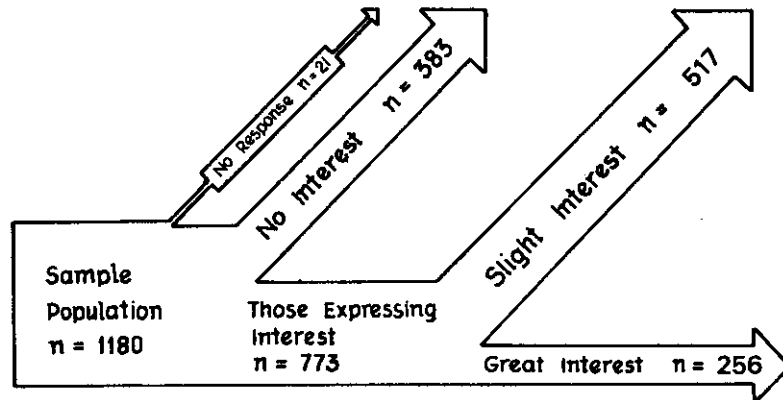
## 5. INTEREST IN THE MINING INDUSTRY

### 5.1 INTEREST IN EMPLOYMENT

The intent of this chapter is to discuss specific characteristics of those people showing interest in the mining jobs. The remainder, those not interested, will not be discussed although they are noted in the tabular data.

Of the 1,180 residents interviewed, approximately two-thirds (66%) expressed interest in the potential jobs in the coal mining industry. Of this, 517 (43.8%) showed slight interest and a further 256 (21.7%) expressed great interest in the potential jobs. This latter group could form a major component of the coal labour force.

FIGURE 6. Interest in the Mining Industry



While the residents of Dawson Creek expressed the greatest interest in terms of actual numbers of people, Chetwynd and Hudson's Hope were the two communities having the greatest proportion of respondents interested in the jobs. Table 27 outlines the geographic distribution.

TABLE 27. Interest in Coal Employment by Community

	n= 1180	Great Interest	Slight Interest	No Interest	Other	TOTAL
Dawson Creek	443	23.2%	46.7%	28.0%	2.3%	= 100%
Chetwynd	73	47.9	19.2	31.5	1.4	= 100%
Hudson's Hope	32	46.9	18.8	34.4	0.0	= 100%
Fort St. John	411	18.9	36.7	42.6	1.9	= 100%
Fort Nelson	78	9.0	73.1	16.7	1.3	= 100%
Mackenzie	143	13.3	58.0	26.2	0.7	= 100%



## 5.2 CHOICE OF JOBS

Of the 773 respondents expressing an interest in the mining industry, nearly one-half (46.2%) selected the open pit jobs, over one-half (51.8%) the mine related jobs, with less than 2% expressing interest in underground mining. Table 28 details the occupational choices identified by the respondents.

It should be noted that two specific job classifications comprised over 40% of the job interest; Open Pit Mining Equipment Operators (18.8%) and Office and Clerical (22.1%). Caution should be used when assessing local resident availability for the other job classifications, especially the underground mining jobs.

The previous data outlined those who expressed some interest in the coal mining jobs, whether it was general or great interest. It is probable that the group most likely to enter the labour force if the coal development proceeded are those who expressed "great interest".

Of the 256 individuals who expressed such interest, nearly 60% noted the open-pit mining jobs, 37.6% the mine related jobs and 2.8% the underground mining jobs. Table 28 provides the detailed breakdown of the job choices. Several specific job classifications comprised a large portion of the job interest: Open Pit Mining Equipment Operators (29.7%), Open Pit Maintenance Tradesmen (13.3%), Driver/Operators (11.2%), and Mine Related Office and Clerical (13.7%). The remaining jobs attracted relatively little interest from the respondents.

It was apparent that a large number of people showed a preference for the open pit and mine related jobs with little desire shown for the underground mining jobs. In the search for underground mine workers, it may be necessary to either attract experienced underground miners from other locations or to encourage those hired for open pit mining to eventually retrain for these jobs.

TABLE 28. Job Choices of Those Expressing Interest in Coal Mining

Occupational Categories	Total Expressing Interest n=773	Those Expressing Great Interest n=256
<b>OPEN PIT</b>		
Moving Equipment Operator	19.8%	29.7%
Stationary Equipment Operator	3.0	3.5
Maintenance Tradesman	11.4	13.3
Mine Labourer	1.9	2.0
Driver Operator	10.1	11.2
<b>UNDERGROUND</b>		
Equipment Operator	0.6	1.6
Maintenance Tradesman	0.8	1.2
Mine Labourer	0.0	0.0
<b>MINE RELATED</b>		
Management	8.4	5.9
Office/Clerical	22.1	13.7
Technical	5.3	4.7
First Aid/Safety	5.0	3.1
Cooking	7.0	5.1
Bus Driving	4.1	5.1
No Response	0.4	0.0
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

### 5.3 AGE

Those interested in the mining occupations generally were from the younger age groups. Individuals up to the age of 34 expressed greatest interest, while those over 35 expressed significantly less. The interest was particularly strong in the school age population, those 15-18 years of age.

TABLE 29. Interest in Coal Employment by Age

	Great Interest n=255	Slight Interest n=516	No Interest n=386	No Response n=24
15-18	25.1%	16.7%	10.7%	25.0%
19-24	22.7	13.8	11.7	8.3
25-34	25.1	28.3	26.6	33.3
35-44	13.3	22.7	21.9	4.6
45-55	13.7	18.6	29.0	29.2
Total	100.0%	100.0%	100.0%	100.0%

#### 5.4 ETHNICITY

Little differentiation was noted between ethnic groups regarding their employment interest. Among the Caucasians, 21.4% expressed "great interest" compared with 24.4% of the native Indians.

TABLE 30. Interest in Coal Employment by Ethnicity

		Great Interest	Slight Interest	No Interest	No Response	Total
Caucasian	n=1091	21.4%	43.8%	32.9%	1.8%	100.0%
Native Indian	n= 78	24.4	43.6	30.8	1.3	100.0%
Other	n= 11	27.3	45.5	27.3	0.0	100.0%

#### 5.5 MARITAL STATUS

Of those who demonstrated "great interest" in coal employment, 57.6% were married while 35.2% were single. Table 31 provides a further breakdown of the interest in coal employment by marital status.

TABLE 31. Interest in Coal Employment by Marital Status

	Great Interest n=255	Slight Interest n=515	No Interest n=386	No Response n=24
Married	57.6%	72.8%	81.2%	66.3%
Single	35.2	23.5	15.4	33.7
Other	2.4	3.7	3.4	0.0
Total	100.0%	100.0%	100.0%	100.0%

#### 5.6 EDUCATION AND TRAINING

Nearly one-half of those expressing interest in the coal mining jobs have a grade 11 or 12 education. A further one-third had a grade 9 to 10 education. This would indicate a sizeable group of people having an adequate "formal" education for beginning an apprenticeship program. It is noteworthy that nearly 10% of those expressing interest had post-secondary education.

Of those with "great interest" one-tenth (9.5%) had their apprenticeship ticket while 21.9% had complete technical or vocational training programs. A further 7.3% had a combination of these two. As documented in Chapter Four, the majority of those having completed apprenticeship or technical/vocational programs were between the ages of 25-34. Very few of the younger age groups had completed either apprenticeship programs or other technical/vocational programs. It should be recalled that only 47.5% of the sample noted any additional training.

Therefore, it appears that, in the North East, there is a large group of relatively unskilled people who are interested in coal mining jobs but who would need training programs to enter the coal labour force.

TABLE 32. Interest in Coal Employment by Education

Schooling	Great Interest n=254	Slight Interest n=513	No Interest n=380	No Response n=24
No formal schooling	0.8%	0.8%	0.5%	0.0%
Grades 1-5	0.4	1.4	3.7	0.0
Grades 6-8	8.7	13.8	15.3	12.5
Grades 9-10	37.4	28.5	25.3	37.5
Grades 11-12	44.5	46.2	40.3	50.0
University or College	8.3	9.4	15.0	0.0
TOTAL	100.0%	100.0%	100.0%	100.0%

TABLE 33. Interest in Coal Employment by Other Training

Training	Great Interest n=137	Slight Interest n=377	No Interest n=138	No Response n=9
On the job	40.9%	32.9%	29.2%	22.2%
Apprenticeship	9.5	9.4	10.9	11.1
Technical/ Vocational	21.9	30.7	28.3	44.4
Combination of above	7.3	9.7	5.8	0.0
Other	20.4	17.4	26.1	22.2
TOTAL	100.0%	100.0%	100.0%	100.0%

## 5.7 MEMBERSHIP IN LABOUR UNION

Of those showing interest, approximately one-quarter (28%) were members of a labour union. This did not vary significantly whether slight or great interest was expressed.

## 5.8 LOCATIONAL PREFERENCE

Approximately two-thirds of all those indicating interest in coal work also expressed a desire, assuming equal job opportunities, to remain in the North East of B.C. If the coal work force were composed of primarily local people, their strong commitment to the North East might result in a stable work force.

TABLE 34. Interest in Coal Employment by Locational Preference

Locational Preference	Great Interest n=251	Slight Interest n=495	No Interest n=330	No Response n=19
North East B.C.	66.5%	64.2%	70.0%	52.6%
Other B.C.	25.9	28.1	25.2	36.8
Don't know	7.6	7.7	4.8	10.5
Total	100.0%	100.0%	100.0%	100.0%

## 5.9 PREFERENCE FOR YEAR-ROUND WORK

Approximately three-quarters of those expressing interest also preferred full-time employment. Of those highly interested, 84.6% would choose full-time employment. One-half (49.4%) of these desired more than 40 hours of work per week and a further 42.7% preferred 30-40 hours per week. Therefore, the majority of local residents who are interested in the coal jobs would prefer full-time year-round employment and some of these would be available for over-time work.

## 5.10 CURRENT OCCUPATIONS AND INDUSTRIES

The majority of those showing a desire to enter the coal mining labour force came from five occupational and

industrial categories. These are shown in the following table.

TABLE 35. Interest in Coal Employment by Current Occupation and Industry

	Percent
<hr/>	
OCCUPATION (n=773)	
Service	13.3%
Construction	11.3
Forestry	9.7
Fabrication/Pulp and Paper	9.1
Transportation	8.6
	<hr/> 54.1%
INDUSTRY (n=773)	
Transportation/Utilities	16.8%
Forestry	12.5
Construction	11.4
Manufacturing	9.8
Commercial and Personal Services	3.6
	<hr/> 64.1%

Appendix 3 provides an explanation of these classifications. The remaining individuals are spread through a variety of occupations as outlined in Appendix 2, page 75.

Assessing the occupations and industries of those currently working, it was apparent that most people interested in coal jobs come from the primary industries. In particular, the coal mining industry could draw a substantial number of employees from the forestry, gas and oil, and construction industries. The implications of this transfer might have deleterious effects on these industries and should be considered when establishing any policy recommendations.

#### 5.11 WILLINGNESS TO UNDERTAKE TRAINING

The majority of the respondents (90%) are willing to take training at the mine site, with 78% willing to undergo training away from home for a few weeks. However, only 54% of the respondents would be interested in programs if participation meant being away from home for over a month.

No differences appeared in the number of men and women who were willing to take training at the mine site. However, only 69.5% of the women were willing to take training away

from home for a few weeks compared with 85% of the men. This number dropped to 43.6% of the women who were willing to be away from home for longer periods of training.

The native Indians were by far the most willing to train at the mine site (90%). A higher proportion of natives (86.5%) were willing to be away from home for a few weeks than non-natives (78%). For training periods of over a month, 72% of the native people were willing to be away compared with 53.7% for other groups.

#### 5.12 WILLINGNESS TO MOVE TO THE NEW COMMUNITY

As described in Chapter Four, the majority of the sample population had lived in the North East part of the province for more than ten years. Although these people seemed hesitant to move away from the region, a willingness to move within the region was apparent. If a new town were to be developed near the coal fields, almost two-thirds (63.4%) stated that they were willing to move to the new community with another 16.7% indicating that, depending on the circumstances, they would also consider moving.

It was interesting to note that 80.4% of those in Mackenzie stated they would move while another 8.8% at least considered the move a possibility. A high percentage of those residing in Chetwynd (75.5%) expressed interest in moving.

A higher proportion of the residents of Hudson's Hope (33.0%) and Dawson Creek (22.3%) demonstrated an unwillingness to move to the new community than in the remainder of the study region (17.0%).

Both men and women showed an equal willingness to move. Native Indians, on the other hand, were more willing to move with 84.6% stating they would move compared to 62.1% for non-native people.

#### 5.13 NEED FOR CHILD CARE SERVICES

Fifteen percent of the sample stated that child care services would be essential to allow that family member to join the coal labour force. This represents a total of 123 people expressing a need for child care services with a further 23 saying that it would be helpful.

The responses from residents of Mackenzie and Chetwynd were higher with 25.5% in the former and 22.5% in the latter stating that child care was essential.



As to be expected, 30% of the females stated the service was necessary while only 5.2% of the men responded in a similar manner.

Approximately the same percentage of native Indians (18.4%) expressed a need for child care services as non-natives (16%).

#### 5.14 INTEREST EXPRESSED BY NATIVE INDIANS (n=78)

Of the native Indian respondents, 98% expressed interest in coal employment. The number responding with great interest (24.4%) was higher than for the non-natives (21.5%). The majority of the native Indians (64.1%) chose the open pit mining jobs, primarily moving equipment operator (28.3%) and the driving jobs (22.6%). Based on these figures, it is reasonable to assume that a portion of the labour force could be comprised of native Indians.

#### 5.15 INTEREST EXPRESSED BY FEMALES (n=568)

Of the women who were interviewed, almost 60% indicated some interest in coal jobs. However, only half as many females expressed as great an interest as males. Those expressing slight interest were evenly divided between males and females, while 57% of those showing no interest were females.

TABLE 36. Interest in Coal Employment by Sex

	Great Interest n=256	Slight Interest n=517	No Interest n=383	No Response n=24
Male	68.2%	50.1%	42.8%	41.6%
Female	31.8	49.9	57.2	58.4
Total	100.0%	100.0%	100.0%	100.0%

Approximately 16% of the women who did express interest preferred the open pit mining jobs, primarily moving equipment operator and driver. Most of the remaining women expressed interest in the mine related occupations of office and clerical (46%) and cooking (14.2%). These figures indicate that it would be possible to employ a number of women not only in the mine related work, but also in the open pit mining operations.

### 5.16 INTEREST EXPRESSED BY THE UNEMPLOYED (n=147)

Almost three-quarters (72.6%) of those presently unemployed expressed some interest in working in coal related jobs. A third (29.3%) of these were keenly interested, representing a proportion similar to the employed population. One-half (54.2%) of those unemployed expressed interest in open pit jobs, and 44.7% expressed interest in the mine related jobs.

As described in Chapter One, the definition in this study of unemployed excludes those people who have been unemployed for over a year. The interest of those unemployed for more than one year will be described here, keeping in mind that they have not had recent employment experience.

One-half (49.0%) of those who had been unemployed for more than a year expressed interest in coal jobs. Of these, only a tenth (10.9%) expressed a keen interest, mostly in mine related jobs. See Appendix 2 for more detail.

TABLE 37. Interest in Coal Employment by Employment Status

	Great Interest n=256	Slight Interest n=517	No Interest n=382	No Response n=24
Those currently working	23.6%	45.6%	29.0%	58.3%
Unemployed	29.3	43.5	23.1	25.0
Not working greater than 12 months	10.9	38.0	49.4	16.6
Total	100.0%	100.0%	100.0%	100.0%

### 5.17 SUMMARY

With two-thirds of the sampled population expressing an interest in employment in the coal industry, it is clear that at least a portion of the potential coal labour force could be drawn from the local residents. Of greater significance were the 21.7% who responded with "great interest". This group would be the most likely to seriously consider employment in the coal mining industry. In terms of absolute numbers of employees, Dawson Creek and Fort St. John residents could provide the largest input to the labour force. However, when the number of people expressing interest is considered in terms relative to the size of the sampled

communities, the response was highest in Chetwynd and Hudson's Hope.

An equal number of people were interested in open pit mining jobs as in mine related jobs. Only a small portion of respondents expressed interest in underground mining. A significant point was that the majority were interested in two specific job types. Open Pit Moving Equipment Operators and Mine Related Office and Clerical Workers together represented 40% of all the job interest. While this indicates a good supply of labour for these categories, special attention may have to be placed on locating and training local residents for the other job categories, especially underground mining.

The majority of people who were interested in coal jobs were under 35 years of age and married. Although more had completed grade 11 or 12 than not, most had not taken any further training. Few had any union affiliations.

The majority of those currently working and expressing great interest in coal mining employment came from the primary industries, gas, oil and forestry related occupations. If a transfer from these primary industry jobs into the coal industry occurs, special problems may have to be considered for the loss and/or replacement of needed manpower in these industries.

Of those people wishing to work in the coal industry, most preferred full-time steady employment and the majority of those wanted to work at least 40 hours a week, if not longer. The interest in the coal jobs was strong enough for most people to indicate that they were both willing to move to the new community and undertake on-site training.

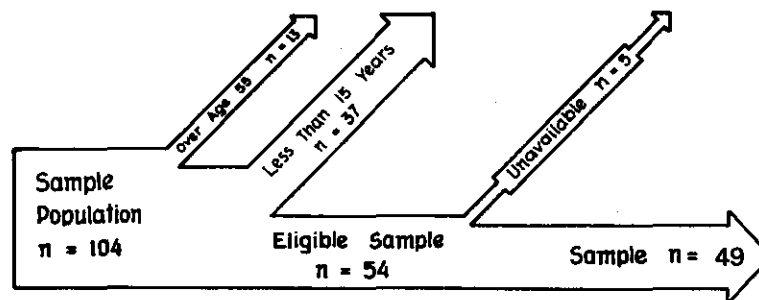
When the target groups were analyzed in terms of their interest in potential jobs, a large portion of the native people, women, and unemployed stated that they desired coal employment.

In conclusion, it is clear that with sensitive manpower planning, many of the local residents could join the coal labour force.

## 6. CHARACTERISTICS OF GRANDE PRAIRIE

The Terms of Reference called for a brief profile of Grande Prairie, Alberta. This is primarily due to its close relationship with the North East study region, located on the east-west transportation link between B.C. and Alberta. Only a very small number of households were sampled as indicated in Figure 7.

FIGURE 7. Description of Breakdown of Sample Population



With such a small sample, the data were not statistically significant and, therefore, only a few indicators will be discussed.

Of the 49 respondents within the eligible age bracket, 81.6% were currently employed with the remainder unemployed. Of those working, one-half indicated satisfaction with their jobs, a proportion significantly less than in the North East of B.C. From the respondents, a demographic profile was developed which corresponded closely to that of the study region.

The service related occupations represented nearly 15% of the employment base and the major industry was Trade, in which one-fifth of the respondents were employed. This may be due to Grande Prairie's central location on the east-west transportation axis between the study area in B.C. and Edmonton, Alberta.

Interest was expressed in the potential coal mining jobs by nearly one-half (49%) of those interviewed. Nearly one-fifth (18.4%) expressed "great interest". This indicates that some of the Grande Prairie residents represent a potential source of labour and might compete with B.C. residents for the coal jobs. Of those expressing interest, one-third chose

the open pit mining jobs, while the remaining two-thirds showed interest in the mine related jobs, primarily office/ clerical and management occupations.

The willingness to take training programs was higher than in B.C. with almost all willing to take training at the mine site, over 90% willing to take programs away for a few weeks and 85% willing to train for even longer durations.

The respondents showed a very stable residency pattern, with almost one-half living in Grande Prairie for greater than 10 years and nearly three-quarters living in the Peace River area for a similar duration. Nonetheless, nearly three-quarters responded that they would move to the new community if jobs were available. This may support the trend noted in the North East that people wished to stay in the region but were willing to move among the various communities.

The general belief was that the coal industry would not have a great effect on the individual respondents. However, the coal development would have a beneficial economic effect on Grande Prairie.

In summary, it would seem that there is a potential labour force, size undetermined, in the Peace River region of Alberta. Due to the close east-west ties between this area and North East British Columbia, this group may, in fact, be a competitive work force, as some seem very interested in the jobs, are more willing to train and are more willing to move to the new town if the project proceeded.

## 7. OBSERVATIONS AND CONCLUSIONS

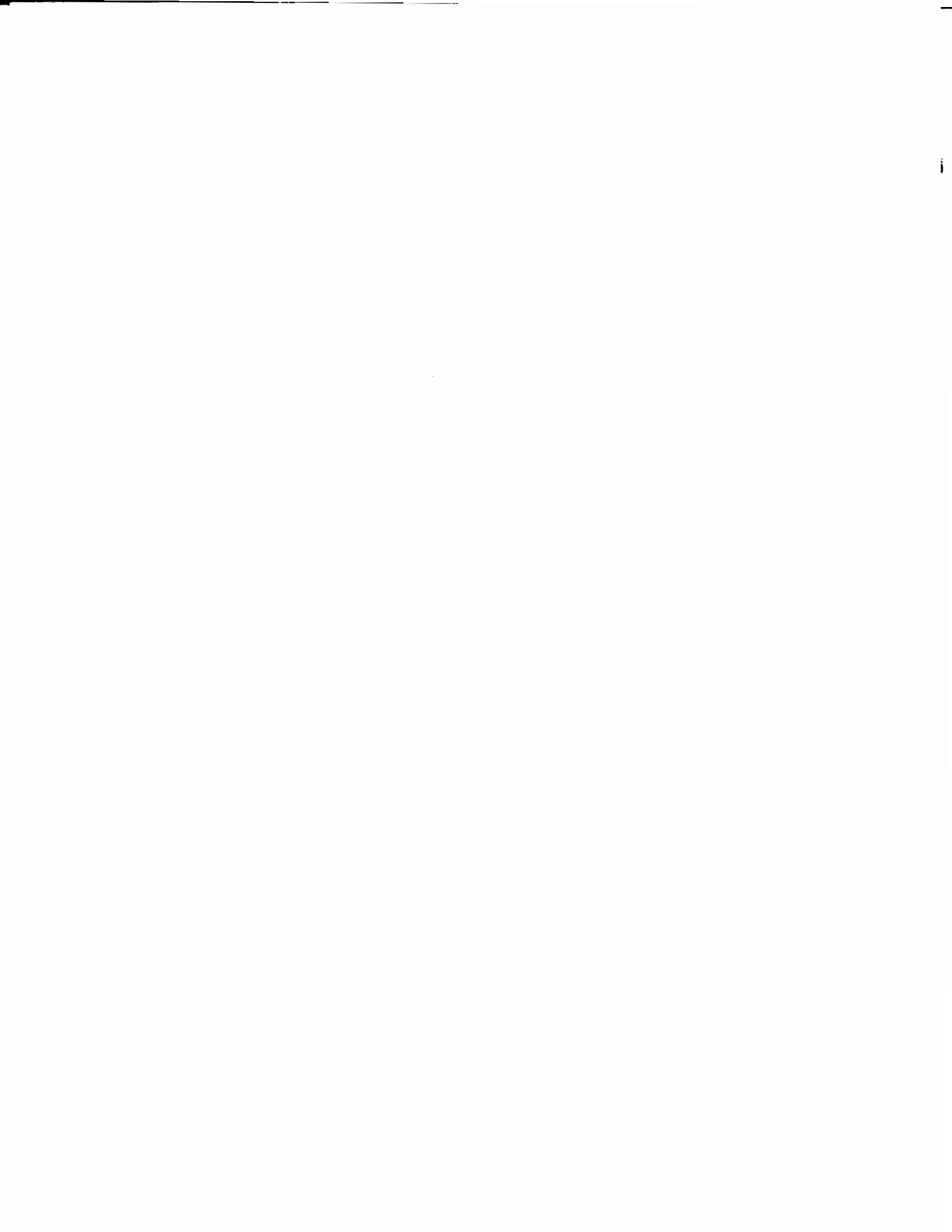
- There is a potential local labour force available for participation in the coal development in the North East of British Columbia.
- Native Indians, the unemployed, and the women in the region are a potential source of labour for the coal industry.
- Those who may not be employed directly in the coal industry may be suitable for the indirect and induced jobs created by the development.
- There is a potential labour source of particular interest in those unskilled persons wanting employment in the coal industry and expressing a willingness to train.
- Because interest was expressed mainly for the open pit and mine site support jobs, special job incentives, training, and education may have to be provided for the other jobs, especially those in the underground mining category.
- The coal industry may be more desirable than other primary industries because it is likely to offer steady, year-round employment.
- The desirability of employment in the coal development may draw the labour force from other resource sectors causing shortages in those industries.
- There should be a monitoring of employment patterns in the region to detect any shift in labour force employment in the primary industries, if development proceeds.
- Recruitment and training programs may be needed for other industries in the region.
- Hiring of the local population may assist in the creation of a stable workforce in the coal industry.

- The job opportunities available during the coal development may draw young people out of the education system before completion of secondary school.
- There may be competition for the coal mining jobs in North East British Columbia by the residents of the Peace River region of Alberta.
- An economic and social drain may occur in the small communities in the region, especially Chetwynd, if people move to the new town to participate in the coal development.
- The concerns of the single industry town of Mackenzie may warrant special study if a single industry town is being planned to serve the coal development.

# APPENDICES

1. Methodology
2. Statistical Tables
3. Field Instruments





# APPENDIX ONE      METHODOLOGY

## 1.1    QUESTIONNAIRE DESIGN

Because the goal of the study was to interview those defined as the "potential labour force", as well as to identify representative characteristics of the regional population, a two stage questionnaire format was designed. This included a household enumeration followed by the administration of an individual questionnaire to those within the household who were defined as eligible for employment in the potential coal mine labour force.

The household enumeration identified several major household characteristics: residential status, age, sex, and income. From this, those determined as eligible for the potential labour force were administered the individual enumeration. The objective of this enumeration was to provide a demographic profile of the individuals, identify their employment opportunities, as well as their attitudes toward the coal development.

To reduce administration time, the questionnaire was designed in a self-coding format thus avoiding the necessity of transferring the data to coding sheets and then keypunching. In addition to the administrative efficiency, this self-coding reduced the error factor in transposing the data prior to the analysis.

In a number of cases, however, the questions were of an open-ended nature. The questionnaire was designed to accept additional coding of data following the field work. This is discussed in Section 1.4, page 66, Statistical Analysis. An example of the questionnaire is included in Appendix 3.

A pretest of the questionnaire was completed, but due to the time frame constraints, the pretest was administered to a limited sample in the Lower Mainland rather than in the study area. This resulted in a lack of clarity in two questions, invalidating them. They were eliminated from the final data analysis.

## 1.2    SAMPLING PROCEDURE

### 1.2.1    The Sampling Frame

The sampling procedure used for the Coal Employment Survey was based on a computer listing. This listing documented all dwellings served by electricity in North East B.C. and was provided by B.C. Hydro and Power Authority. While there were a number of options open from which to draw the sample, it was decided to

use the Hydro list for the following reasons:

- . availability of the listing
- . accuracy and currency of the listing - the listing was run for September, 1976 Hydro customers
- . coverage of the North East region - it was estimated by B.C. Hydro District Managers that only 3% of the dwellings were not serviced by power.

The other sources considered were:

- . B.C. Telephone listings - too many households may not have telephones necessitating a number of supplementary samples
- . Postal Code - it was too difficult to assess the codes, also there would have been difficulty in drawing the sample
- . Voter Registration - while only recently compiled in November, 1976, not enough information was provided on the listing for the needs of the survey.

There were several problems associated with the B.C. Hydro listing of residential dwellings that had to be resolved. These were:

- . Double entries - It was assumed that a number of duplications would occur in cases where a person owned and used more than one residence. For example, an occupant could live in one residence and own a summer residence, both serviced by power. Realizing that a sampling frame is perfect only if all entries are mutually exclusive, duplications were excluded whenever they were encountered during the field work.
- . Missing elements - It was estimated by B.C. Hydro that 3% of the dwellings in the North East were not serviced by electricity. Discussion of the method to account for this factor can be found in Section 1.3.5, page 65.
- . Additional elements - In reviewing the listing, it was noted that some commercial establishments were included. When it was determined during the field work that the commercial establishment did not include a residence, it was eliminated. Oversampling compensated for this problem.

From the sampling frame, it was estimated that there were approximately 12,330 households in the region. This figure approximated that of Statistics Canada 1971 census and provided a population estimate of approximately 44,000 people in the study region.

In discussion with the Ministry of Economic Development, it was decided that for purposes of this study, those interviewed would be between 15 and 55 years of age. This resulted in an estimate of 24,755 individuals eligible for the potential labour force.

### 1.2.2 Derivation of the Sampling Fraction

The Ministry of Economic Development determined the appropriate sample size of 500 to 600 households. Based on an estimated 2.31 eligible persons per household, it was determined that 1,150 to 1,380 individual interviews would be completed. From these figures, it was estimated that a sampling fraction of 1/20 would be appropriate. This was applied to the estimated labour force and resulted in an estimate of 1,230 individual interviews. The calculation was:

$$N = 24,755 \times \frac{1}{20} = 1,238$$

### 1.2.3 Sampling Fraction Adjustments

The sampling fraction of 1/20 must be adjusted for the estimated inadequacies in the sampling frame. These were defined by the consultants as follows:

- . The Expected Coverage Rate: Experienced sample designers recommend an average of no greater than 90%.
- . The Eligibility Rate: In this study, there were two,
  - households of individuals all outside the sample age restriction of 15-55,
  - elements that are not households.Based on Statistics Canada age profiles for the region, a 15% ineligibility rate was established.
- . The Expected Response Rate: A representative of Statistics Canada estimated that, based on their employment surveys, the refusal rate would be no greater than 10%.

### 1.2.4 The Adjusted Sampling Rate

The adjusting equation is as follows:

$$F = \frac{n'}{N} = \frac{n'}{(N \times \text{response rate} \times \text{coverage rate} \times \text{eligibility rate})}$$

The adjusted sampling fraction was therefore:

$$\begin{aligned} F &= 615 / (12,330 \times .90 \times .85 \times .90) \\ &= \frac{615}{8489.2} \\ &= 1/14 \end{aligned}$$

The final sampling fraction of 1/14 provided that every 14th dwelling noted on the B.C. Hydro listing

would be included in the sample selection.

#### 1.2.5 Selection of Dwellings

For the purposes of this study, a proportionate sample of the population in the communities in the North East of B.C. was selected. Furthermore, for reasons of administrative simplicity, it was decided to use a systematic rather than random selection technique. This entailed:

- . Requesting B.C. Hydro to run their computer listing of serviced dwellings by individual community within the study area.
- . Determining the initiation point for each community listing.
- . Selecting the dwellings from this point throughout the listing.

Step One: B.C. Hydro's listings were divided into the following communities: Chetwynd, Hudson's Hope, Dawson Creek, Fort St. John, Taylor, Mackenzie, and Fort Nelson. The rural farms and areas were grouped with the appropriate community. It should be noted that Grande Prairie, Alberta was treated separately and is discussed later in this section.

Step Two: To retain a totally random selection of households, a starting point between 1 and 14 was selected from a table of random numbers. This number was used to commence each of the community strata in question.

Step Three: Each strata was treated separately. The starting point was determined and then every fourteenth household was selected until the list was completed. It was felt that the sampling fraction of 1/14 was conservative and would result in a larger sample than actually required. As this sampling fraction allowed for 135% of the actual sample that was desired, this oversample of 35% would be divided into two interview draws. The first, and major draw, would represent 125% of the sample. It was felt that this would probably provide the necessary sample required. The remaining 10% was held for use as a supplementary sample should the survey fall short. This was proven to be true and the 10% supplementary sample

was not utilized. This approach reduced the time required to complete the field work, hence reducing the administration and field costs of the study.

#### 1.2.6 Supplementary Samples

Realizing that the sampling frame would not account for areas without power or groups of households serviced by a single Hydro meter, procedures were set up to compensate for this problem by drawing supplementary samples in the field. This approach is discussed in Section 1.3, Field Procedures.

#### 1.2.7 Sampling Procedures for Grande Prairie, Alberta

It was determined that an indication of interest from the residents of Grande Prairie, Alberta would be beneficial in determining their potential participation in the coal industry labour force. As only trends were desired with no statistical reliability, it was decided that a random sample based on the telephone directory would be satisfactory. Forty-six households were drawn for the sample. This provided for a greater "no contact" and "refusal" rate as our data source was somewhat outdated, being based on a 1975 listing. These assumptions were confirmed and documented in Chapter Six, page 53, of the study.

### 1.3 FIELD PROCEDURES

#### 1.3.1 Introductory Letter

Once the sample was drawn, master lists were prepared for each community and for each interviewer. As an introduction to the survey and the field personnel, a letter was prepared and mailed to all households to be surveyed. The letter was sent under the auspices of the Ministry of Economic Development. The letter outlined the project and requested the cooperation of the residents. The individuals' names and addresses were included on the envelope and in the letter to make it a more personal request from the Department. This letter went to all households that had been drawn in the sample. A copy of the letter is included in Appendix 3.

#### 1.3.2 Field Workers

The field team consisted of nine interviewers plus a coordinator. Four interviewers were hired from the

communities in the North East, the remainder were provided through the consultant's office.

### 1.3.3 Field Training

A one day training seminar was held in Dawson Creek for all the interviewers. The field instruments were distributed and a thorough review of the questionnaire and its contents was undertaken. Pilot interviews were held, where the interviewers administered the questionnaire to each other as part of the familiarization. An information package was distributed which included an outline of examples of the objectives of the study, interviewing techniques, introductory telephone and at-the-door scripts, questionnaire, supplementary sampling procedures and definitions and terminology. The final task was the establishment of a scheduling and monitoring system to obtain regular feedback on the progress of all interviewers.

### 1.3.4 Interviewing Procedures

Once the interviewing commenced, all interviewers used the master lists for their assigned community. Where phone numbers were listed, contact was initially made by telephone so that a convenient interview time could be established. Of those with no telephones, contact was made at the doorstep. If no one was home, a calling card was left, indicating when and where the interviewer could be contacted to arrange a meeting. Three return calls at different times of the day were made before assuming a no contact for that household.

The B.C. Hydro listing contained postal as well as actual addresses. In the event that an address was difficult to locate, the B.C. Hydro Regional Office was contacted and provided the interviewers with assistance in locating the household. This approach also was used with the R.C.M.P. offices in the region.

Once an interviewer arrived at the house, the introductory remarks included a discussion of the objective of the study. Following this, the household enumeration was completed. This enumeration included documentation of all those residing in the household, their age and sex. From this, the interviewer then determined those defined as eligible for the potential labour force; those aged 15-55. Individual enumerations were then completed for each of the eligible individuals in the household.

Administration was relatively straight forward. Section C of the individual enumeration, Job Interest in the Coal Mining Industry, was somewhat more involved.

An introduction to the coal jobs was provided along with a map illustrating the location of the coal fields and a listing of the types of potential jobs. This was supplemented with two sheets of photographic montages of people working in mining jobs. This was an attempt to break down some of the preconceptions regarding employment in the coal industry. Samples of the questionnaire and photograph montages are included in Appendix 3.

#### 1.3.5 Procedures for Drawing Supplementary Samples in the Field

As noted in Section 1.2, page 59, it was assumed that there would be a number of occasions where B.C. Hydro's listing of metered dwellings would provide inadequate coverage. Three cases developed while in the field. In conjunction with representatives of the Ministry of Economic Development, the following procedures were implemented to accommodate them.

- . A meter serviced address where more than one household was located. The procedure in this case was to count the number of households and then interview the following proportion of households:

1-3	households	-	100% coverage
4-5	households	-	75% coverage
6-10	households	-	50% coverage
11+	households	-	25% coverage

- . Where a number of households were serviced with power, while others were not, as on a number of Indian reserves, those having power were interviewed if their name appeared on the B.C. Hydro listing. Those households without power were then listed and every fourteenth household was interviewed following the prescribed sampling procedures.
- . At the B.C. Hydro Site One dam construction near Hudson's Hope, the following procedure was adopted:
  - A list of all the construction workers was obtained from the foreman.
  - Every 14th name was sampled as normal.
  - From the sample, all those living in town with families serviced by power were eliminated.
  - From the sample, all those normally residing outside the region were eliminated.
  - The remainder were interviewed in the prescribed procedure.



#### 1.4 STATISTICAL ANALYSIS

On completion of the field work, coding of the written responses was completed. In all cases, coding was based on Statistics Canada format and codes, thus allowing for comparison between the two sets of data. The occupation and industry categories were coded to the most detailed level (3 digit level) and grouped into the major groupings as defined by Statistics Canada. This approach allows more detailed analysis of the industry and occupational categories at a future date if desired. See Appendix 2, page 75.

Several sets of computer runs were initiated. The purpose of the first run was to examine the total data set to determine the overall response to each question of data and to group insignificant data categories before the major analysis occurred. In the second run, the data were cross tabulated by the major communities in the region. Following this, a series of cross tabulations were made with the sub-samples and target groups including those interested in employment in the coal industry, the women, the native Indians and the unemployed. Based on the data analysis, it was assumed that there may be up to a 1% error in coding and keypunching of the final data.

#### 1.5 ESTIMATION OF THE PARENT POPULATION

##### 1.5.1 Introduction

The study area as defined in our Terms of Reference is defined in Table 38. The information was based on Statistics Canada data provided by the Ministry of Economic Development.

TABLE 38. 1971 and 1976 Population for the Study Area Based on Statistics Canada Census Estimates

	1971 Statistics Canada E.A. Data	1976 Statistics Canada Preliminary Estimation
Mackenzie	2,332	5,316
Dawson Creek	11,885	10,316
Hudson's Hope	1,741	1,307
Fort St. John	8,264	8,837
Chetwynd	1,260	1,462
Fort Nelson	2,280	2,820
Pouce Coupe	595	492
Taylor	605	592
Subdivision A (partial)	( 13,420	( 14,061
Subdivision B (partial)	(	(
Indian Reserves	461	780
<b>Total</b>	<b>42,852</b>	<b>45,983</b>

### 1.5.2 Development of the Weighting Factor

In the sampling frame, an overall sampling fraction of 1 in 20 was developed. Sampling was based on a systematic proportionate sampling procedure. The extent of sampling within each community was therefore based on the actual population. Using this approach, it was possible to use the same weighting factor for all communities. In this case, the weighting factor was equal to the sampling fraction. As the non contact/refusal rate resulted in 23.4%, this was + .6% less than the total 25% oversample. This resulted in a reduction of the weighting factor as follows:

$$\begin{aligned} \text{Weighting Factor} & \times \left( \frac{\text{Estimated Oversample} - \text{Actual Oversample}}{\text{Estimated Oversample}} \right) \\ & = 20 \times \left( \frac{1}{\frac{125\% - 122.6}{125}} \right) \\ & = 20 \times .998 \\ & = 19.96 \end{aligned}$$

The sample, therefore, needed only to be multiplied by 19.96 to estimate the parent population. The difference between the estimate and the actual sample was insignificant and the weighting factor of 20 was used throughout this analysis.

### 1.5.3 Determination of Sampling Factor

To determine the statistical error in the study sample, it was necessary to calculate the coefficient of variation. The simplified formula used to calculate the coefficient of variation is:

$$\begin{aligned} n & = (1-f) \frac{pq}{2} \\ \sigma^2 & = (1-f) \frac{pq}{n} \end{aligned}$$

Where p = proportion of the category in question

$$q = 1 - p$$

$$f = \text{fraction sampled} = n/N$$

$$n = \text{sampled size (total responses)}$$

$$\sigma^2 = \text{variance of the sample}$$

$$= (\text{coefficient of variation} \times p)^2$$

$$\text{Therefore: } \left( \frac{\text{coefficient of variation}}{p} \right)^2 = (1-f) \frac{pq}{np^2}$$

$$= (1-f) \frac{q}{np}$$

$$\text{coefficient of variation} = \left( \sqrt{(1-f) \frac{q}{p}} \right) \cdot \frac{1}{\sqrt{n}}$$

Table 39, Coefficient of Variation, provides the variation that can be expected for a number of sample sizes.

#### 1.5.4 Development of Confidence Levels for the Study Data

As developed in normal statistical procedures, it is desirable to determine the reliability of data for several levels of confidence. In this study, it has been established that two levels of confidence will be utilized: the 70% level of confidence and the 95% level of confidence. These are used to indicate that if a complete census was taken at this time in the study area rather than only a sample, the data developed in this study would be within a certain range.

As developed in Section 3.5, the parent population generated from "those interested in the mining jobs" was as follows:

Sub	x	Weighting	+	Coefficient	=	Estimation of
Sample		Factor		of Variation		Parent Population
						Interested in Em-
						ployment in the
						Mining Industry

$$(773 \times 20.0) \pm 2\% \text{ of } 773 \times 20.0 = (773 \times 20.0) \pm 309$$

$$= 15,460 \pm 309$$

To determine the 70% and 95% levels of confidence, the following methodology was used:

$$70\% \text{ confidence} = 15,460 \pm 309 = 15,151 \text{ to } 15,769$$

$$95\% \text{ confidence} = 15,460 \pm 2 \times 309 = 14,842 \text{ to } 16,078$$

Therefore, from the data developed in this study, it is 70% sure that the true number of those interested

in employment is between 15,151 and 15,769 individuals,

or:

it is 95% sure that the true number of those interested in employment is between 14,842 and 16,078.

While the range of figures developed will provide the level of confidence within which one can predict the parent population, the most likely estimate will be the number without any variation, in this case, 15,460. This reliability takes into account only the statistical errors. In Table 39, the levels of confidence have been developed for a number of the sub-samples utilized in this study.

## 1.6 DATA PROBLEMS

In this section, minor problems with the data resulting from the sampling procedures and questionnaire design will be discussed. In any social science research, it would be impractical not to expect some data problems and in this study, it is felt that the biases have not affected the validity of the results.

Although the listing of B.C. Hydro customers provided the best method to obtain a listing of residents in the North East study region, it is obvious that a small proportion of the population is not using electrical power. Estimates by B.C. Hydro personnel indicate that only a small number of residents were excluded, approximately 3% of the households in the North East.

Another bias has been introduced because not all people who were classified as "eligible" (see Chapter Three for definition) were actually interviewed. These people, numbering 84 or 7% of the study population, were unavailable during the three week field survey. A portion of these probably were those who were employed away from their place of residence on construction, mining or oil and gas sites. Although it is impossible to verify, it is expected that some of these people would be interested in working in coal related jobs closer to their homes. Therefore, the number of local residents who would be interested in employment created by the coal development could be somewhat underestimated. Assuming that a similar proportion of the unavailable people would be interested in coal jobs as those who were interviewed, the figure of 773 could be underestimated by 55. However, this underestimation would be balanced by the natural bias of respondents noting interest in jobs which were not immediately forthcoming. The nature of the information which was sought in this survey was future oriented and therefore conditional on several variables which were undefined. For example, an individual's

future job choice might depend on factors such as working conditions, fringe benefits, wage scales, family situation, all of which are difficult if not impossible to predict at this time. Therefore, it should be noted that respondents answered questions on Job Interest and Job Interest in the Coal Mining Industry, Sections B and C of the questionnaire, with different perceptions and assumptions of the future, none of which could be controlled. Assuming the coal development goes ahead, a more intensive study should be made of child care and transportation needs, willingness to undergo training, willingness to move to the new community, and interest in specific coal related jobs, when the details of these conditions are known.

It should be noted that two questions were eliminated from the analysis because of problems with interpretation by both the interviewers and respondents. The first was Question 5 in the Household Enumeration which asked how many people were attending school or working. The second was Question 16 of the Individual Enumeration which was phrased "If you were to take a new but similar job, what minimum yearly salary would you expect?". Although the data problems were not considered to have affected the validity of this survey, some could be avoided in future surveys as discussed in the next section.

#### 1.7 SUGGESTIONS FOR FUTURE SURVEYS

In the event that another survey and questionnaire is designed for use by the Ministry of Economic Development or the Ministry of Labour, the following suggestions should be considered.

In dealing with interest in potential jobs, a list of wages should be included in addition to photographs. This was particularly needed where the suggestion was made that women may take traditionally male-oriented jobs. Most often, the attraction in the jobs was not only in the nature of the work (which was shown by photographs) but in the wage levels that were involved. The technique of using photographs was felt to enhance the respondents' conceptions of the mining jobs and is recommended for future surveys of this type.

Some of the wording in the questionnaire was unnecessarily formal and reflected the urban bias of the questionnaire designers. "Work" could be used in place of "employ" in cases such as "where were you last employed?". Another example of word improvement was with "vehicles" which could be replaced with the more cumbersome, but easily understood, "cars or trucks".

It was clear to the interviewers that the range of salaries earned in the North East was greater than what can be meaningfully represented by the Statistics Canada definitions. Additional categories are suggested so that incomes up to at least \$30,000 are separately categorized.

TABLE 39. Coefficient of Variation

Sampling Fraction = 0.068  
 Response Rate = 96%

Fraction in the Sample	P	$\sigma^2 = \frac{(1 - 0.068)^2}{P}$	$\sqrt{\sigma^2}$	SAMPLE SIZE (N)												
				2200	1180	1000	750	500	450	400	300	200	150	100	75	50
				$\sqrt{n} = 46.9$	34.35	31.60	27.40	22.40	21.20	20.00	17.30	14.14	12.25	10.00	8.66	7.07
1%	.01	92.3	9.61	20	28	30	35	43	45	48	56	58	78	96	111	136
2%	.02	45.7	6.76	15	20	21	25	30	32	34	39	48	55	68	78	96
3%	.03	30.1	5.49	12	16	17	20	25	26	27	32	39	45	55	63	78
5%	.05	17.7	4.21	9	12	13	15	19	20	21	24	30	34	42	49	60
7%	.07	12.4	3.52	8	10	11	13	16	17	18	20	25	29	35	41	50
10%	.10	8.4	2.90	6	8	9	11	13	14	15	17	21	24	29	33	41
15%	.15	5.3	2.30	5	7	7	8	10	11	12	13	16	19	23	27	33
20%	.20	3.73	1.93	4	6	6	7	9	9	10	11	14	16	19	22	27
30%	.30	2.18	1.48	3	4	5	5	7	7	7	9	10	12	15	17	21
40%	.40	1.40	1.18	3	3	4	4	5	6	6	7	8	10	12	14	17
50%	.50	.93	0.96	2	3	3	4	4	5	5	6	7	8	10	11	14
60%	.60	.62	0.79	2	2	3	3	4	4	4	5	6	6	8	9	11
70%	.70	.40	0.63	1	2	2	2	3	3	3	4	4	5	6	7	9
80%	.80	.23	0.48	1	1	2	2	2	2	2	3	3	4	5	6	7
90%	.90	.10	0.32	1	1	1	1	1	2	2	2	2	3	3	4	5

TABLE 40. Confidence Levels for Data Analysis

	Sample	%	Weighting Factor x 20.0	Coefficient of Variation %	Parent Population Estimate	Confidence Levels	
						70% Confidence n = variance	95% Confidence n = 2 x variance
Fort Nelson	78	6.6	1560	10	1560 + 156	1404 to 1760	1248 to 1872
Chetwynd	73	6.2	1460	10	1460 + 146	1314 to 1606	1168 to 1752
Hudson's Hope	32	2.7	640	16	640 + 102	538 to 742	436 to 844
Dawson Creek/ Pouce Coupe	443	37.6	8860	3	8860 + 266	8594 to 9126	8328 to 9392
Fort St. John/Taylor	411	34.8	8220	3	8220 + 247	7973 to 8467	7726 to 8714
Mackenzie	143	12.1	2860	8	2860 + 289	2571 to 3149	2282 to 3438
<b>TOTAL</b>	<b>1180</b>	<b>100.0%</b>	<b>23600</b>				

	Sample	%	Weighting Factor x 20.0	Coefficient of Variation %	Parent Population Estimate	Confidence Levels	
						70% Confidence n = variance	95% Confidence n = 2 x variance
Sample Population	1180	100.0%	23600				
Subsample: Those interested in employment	773	66.0%	15460	2	15460 + 309	15151 to 15769	14842 to 16078
Target Groups:							
Women	568	48.0%	11360	3	11360 + 340	11020 to 11700	10680 to 12040
Native Indians	78	7.0%	1560	10	1560 + 156	1404 to 1716	1248 to 1872
Unemployed	147	12.0%	2940	8	2940 + 235	2705 to 3175	2470 to 3410

To offset the urban bias of interviewers employed from Vancouver, half of the interview team was composed of individuals from the North East study region. This proved successful, not only to quell suspicion of the use of non-local consultants, but also because the local interviewers were able to share a personal knowledge of the area and its residents. This technique is recommended for future studies of this nature.





## APPENDIX TWO STATISTICAL TABLES

The following tables provide the detailed support data referenced in the text of this study. Tables 41 and 42 provide the occupation and industry codes used in the data analysis. These correspond to the Statistics Canada classification system.

TABLE 41. Industry Codes Used in Data Analysis

MAJOR GROUP - AGRICULTURE

- 1 Farms (except experimental and institutional)
- 2 Services incidental to agriculture

MAJOR GROUP - FORESTRY

- 3 Logging
- 4 Forestry services

MAJOR GROUP - FISHING & TRAPPING

- 5 Fishing
- 6 Fishery services
- 7 Hunting and Trapping

MAJOR GROUP - MINING

- 8 Metal mines
- 9 Mineral fuels
- 10 Non-Metal mines (except coal mines)
- 11 Quarries and sand pits
- 12 Services incidental to mining

MAJOR GROUP - MANUFACTURING

- 13 Food and Beverage industries
- 14 Tobacco products industries
- 15 Rubber and plastics products industries
- 16 Leather industries
- 17 Textile industries
- 18 Knitting mills
- 19 Clothing industries
- 20 Wood industries
- 21 Furniture and fixtures industries
- 22 Paper and allied products
- 23 Printing, Publishing and allied industries
- 24 Primary metal industries
- 25 Metal fabricating industries (except Machinery and Transportation Equipment industries)
- 26 Machinery industries (except electrical machinery)
- 27 Transportation equipment industries
- 28 Electrical products industries
- 29 Non-Metallic Mineral Products industries
- 30 Petroleum and coal products industries
- 31 Chemical and chemical products industries
- 32 Miscellaneous manufacturing industries

MAJOR GROUP - CONSTRUCTION

- 33 General contractors
- 34 Special trade contractors

MAJOR GROUP - TRANSPORTATION

- 35 Transportation
- 36 Storage
- 37 Communication
- 38 Electric power, gas and water utilities

MAJOR GROUP - TRADE

- 39 Wholesale trade
- 40 Retail trade

MAJOR GROUP - FINANCE

- 41 Finance industries
- 42 Insurance carriers
- 43 Insurance agencies and real estate industry

MAJOR GROUP - COMMUNITIES, BUSINESS AND PERSONAL SERVICE

- 44 Education and related services
- 45 Health and welfare services
- 46 Religious organizations
- 47 Amusement and recreation services
- 48 Services to business management
- 49 Personal services
- 50 Accommodation and food services
- 51 Miscellaneous services

MAJOR GROUP - PUBLIC ADMINISTRATION AND DEFENSE

- 52 Federal administration
- 53 Provincial administration
- 54 Local administration
- 55 Other government offices

MAJOR GROUP - UNSPECIFIED

- 56 Industry unspecified or undefined

TABLE 42. Occupation Codes Used in Data Analysis

MAJOR GROUP - MANAGERIAL, ADMINISTRATIVE AND RELATED OCCUPATIONS

- 11 Officials and Administrators Unique to Government
- 12 Other Managers and Administrators
- 13 Occupations Related to Management and Administration

MAJOR GROUP - OCCUPATIONS IN NATURAL SCIENCES, ENGINEERING AND MATHEMATICS

- 14 Occupations in Physical Sciences
- 15 Occupations in Life Sciences
- 16 Architects and Engineers
- 17 Other Occupations in Architecture and Engineering
- 18 Occupations in Mathematics, Statistics, Systems Analysis and Related Fields

MAJOR GROUP - OCCUPATIONS IN SOCIAL SCIENCES AND RELATED FIELDS

- 19 Occupations in Social Sciences
- 20 Occupations in Social Work and Related Fields
- 21 Occupations in Law and Jurisprudence
- 22 Occupations in Library, Museum and Archival Sciences
- 23 Other Occupations in Social Sciences and Related Fields

MAJOR GROUP - OCCUPATIONS IN RELIGION

- 24 Occupations in Religion

MAJOR GROUP - TEACHING AND RELATED OCCUPATIONS

- 25 University Teaching and Related Occupations
- 26 Elementary and Secondary School Teaching and Related Occupations
- 27 Other Teaching and Related Occupations

MAJOR GROUP - OCCUPATIONS IN MEDICINE AND HEALTH

- 28 Health Diagnosing and Treating Occupations
- 29 Nursing, Therapy and Related Assisting Occupations
- 30 Other Occupations in Medicine and Health

MAJOR GROUP - ARTISTIC, LITERARY, PERFORMING ARTS AND RELATED OCCUPATIONS

- 31 Occupations in Fine and Commercial Art, Photography and Related Fields
- 32 Occupations in Performing and Audiovisual Arts
- 33 Occupations in Writing

MAJOR GROUP - OCCUPATIONS IN SPORT AND RECREATION

34 Occupations in Sport and Recreation

MAJOR GROUP - CLERICAL AND RELATED OCCUPATIONS

35 Stenographic and Typing Occupations

36 Bookkeeping, Account-Recording and Related Occupations

37 Office Machine and Electronic Data-Processing

38 Material Recording, Scheduling and Distributing Occupations

39 Library, File and Correspondence Clerks and Related Occupations

40 Reception, Information, Mail and Message Distribution Occupations

41 Other Clerical and Related Occupations

MAJOR GROUP - SALES OCCUPATIONS

42 Sales Occupations, Commodities

43 Sales Occupations, Services

44 Other Sales Occupations

MAJOR GROUP - SERVICE OCCUPATIONS

45 Protective Service Occupations

46 Food and Beverage Preparation and Related Service Occupations

47 Occupations in Lodging and Other Accommodation

48 Personal Service Occupations

49 Apparel and Furnishing Service Occupations

50 Other Service Occupations

MAJOR GROUP - FARMING, HORTICULTURAL AND ANIMAL-HUSBANDRY OCCUPATIONS

51 Farmers

52 Farm Management Occupations

53 Other Farming, Horticultural and Animal-Husbandry Occupations

MAJOR GROUP - FISHING, HUNTING, TRAPPING AND RELATED OCCUPATIONS

54 Fishing, Hunting, Trapping and Related Occupations

MAJOR GROUP - FORESTRY AND LOGGING OCCUPATIONS

55 Forestry and Logging Occupations

MAJOR GROUP - MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS

56 Mining and Quarrying Including Oil and Gas Field Occupations

MAJOR GROUP - PROCESSING OCCUPATIONS

- 57 Mineral Ore Treating Occupations
- 58 Metal Processing and Related Occupations
- 59 Clay, Glass and Stone Processing, Forming and Related Occupations
- 60 Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations
- 61 Food, Beverage and Related Processing Occupations
- 62 Wood Processing Occupations, Except Paper Pulp
- 63 Pulp and Papermaking and Related Occupations
- 64 Textile Processing Occupations
- 65 Other Processing Occupations

MAJOR GROUP - MACHINING AND RELATED OCCUPATIONS

- 66 Metal Machining Occupations
- 67 Metal Shaping and Forming Occupations, Except Mining
- 68 Wood Machining Occupations
- 69 Clay, Glass, Stone and Related Materials Machining Occupations
- 70 Other Machining and Related Occupations

MAJOR GROUP - PRODUCT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS

- 71 Fabricating, and Assembling Occupations, Metal Products, n.e.c.
- 72 Fabricating, Assembling, Installing and Repairing Occupations: Electrical, Electronic and Related Equipment
- 73 Fabricating, Assembling and Repairing Occupations, Wood Products
- 74 Fabricating, Assembling and Repairing Occupations, Textile, Fur and Leather Products
- 75 Fabricating, Assembling and Repairing Occupations, Rubber, Plastic and Related Products
- 76 Mechanics and Repairmen, n.e.c.
- 77 Other Product Fabricating, Assembling and Repairing Occupations

MAJOR GROUP - CONSTRUCTION TRADES OCCUPATIONS

- 78 Excavating, Grading, Paving and Related Occupations
- 79 Electrical, Power, Lighting and Wire Communications
- 80 Other Construction Trades Occupations

MAJOR GROUP - TRANSPORT EQUIPMENT OPERATING OCCUPATIONS

- 81 Air Transport Operating Occupations
- 82 Railway Transport Operating Occupations
- 83 Water Transport Operating Occupations
- 84 Motor Transport Operating Occupations
- 85 Other Transport Operating Occupations

MAJOR GROUP - MATERIAL HANDLING AND RELATED OCCUPATIONS

86 Material Handling and Related Occupations

MAJOR GROUP - OTHER CRAFTS AND EQUIPMENT OPERATING

87 Printing and Related Occupations

88 Stationary Engine and Utilities Equipment Operating

89 Electronic and Related Communications Equipment  
Operating

90 Other Crafts and Equipment Operating

MAJOR GROUP - OCCUPATIONS NOT ELSEWHERE CLASSIFIED

91 Occupations not elsewhere classified



TABLE 43. Current Occupation by Geographical Location

Occupation	Fort Nelson n=61	Chetwynd n=45	Hudson's Hope n=25	Taylor n=28	Dawson Creek n=307	Fort St. John n=220	Mackenzie n=100
Managerial	13.1%	2.2%	8.0%	0.0%	7.2%	7.3%	3.0%
Professional	6.6	2.2	8.0	10.7	14.0	7.3	14.0
Clerical	14.8	20.0	8.0	10.7	13.4	13.2	9.0
Sales	8.2	4.4	4.0	3.6	6.8	9.5	6.0
Service	6.6	11.1	12.0	7.1	13.0	14.1	10.0
Fishing, Hunting, Farming	0.0	4.4	8.0	21.4	13.7	7.7	1.0
Forestry	4.9	33.3	0.0	10.7	2.0	1.8	24.0
Mining	1.6	0.0	4.0	0.0	1.0	3.6	0.0
Proc. Machinery	16.4	2.2	8.0	3.6	0.3	11.8	16.0
Fabrication	9.8	2.2	20.0	14.3	8.8	10.0	5.0
Construction	4.9	4.4	20.0	3.6	4.6	5.5	6.0
Transportation	11.5	13.3	0.0	3.6	8.5	6.4	2.0
Equipment Operator	1.6	0.0	0.0	7.1	5.9	0.9	4.0
Unclassified	0.0	0.0	0.0	3.6	1.0	0.9	0.0
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

TABLE 44. Current Industry of Employment by Geographical Location

Industry	Fort Nelson n=62	Chetwynd n=45	Hudson's Hope n=25	Taylor n=28	Dawson Creek n=304	Fort St. John n=216	Mackenzie n=99
Agriculture	0.0%	6.7%	8.0%	21.4%	13.8%	8.3%	0.0%
Forestry	9.7	40.0	4.0	10.7	2.6	2.3	29.3
Mining	1.6	0.0	0.0	7.1	3.0	8.3	1.0
Manufacturing	24.2	0.0	4.0	10.7	4.9	18.5	36.4
Construction	11.3	4.4	8.0	14.3	9.9	7.4	0.0
Transportation/ Utilities	14.5	13.3	60.0	3.6	9.2	8.3	2.0
Trade	21.0	6.7	4.0	3.6	15.8	16.2	8.1
Finance/Real Estate	1.6	6.7	0.0	0.0	2.6	5.1	3.0
Business/Personal Services	14.5	15.6	8.0	25.0	27.0	19.4	18.2
Public Admin.	1.6	4.4	4.0	0.0	10.2	5.6	2.0
Unspecified	0.0	2.2	0.0	3.6	1.0	0.5	0.0
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

TABLE 45. Interest in Employment in the Coal Mining Industry By Current Industry of Employment

Current Industry of Employment	Great Interest n=184	Slight Interest n=361	No Interest n=224	No Response n=10
Agriculture	7.6%	9.4%	8.9%	30.0%
Forestry	12.5	10.0	4.5	10.0
Mining	4.9	3.0	4.9	0.0
Manufacturing	9.8	16.9	13.4	10.0
Construction	11.4	7.5	5.8	0.0
Transportation/Utilities	16.8	8.0	8.0	10.0
Trade	13.0	14.4	13.8	20.0
Finance/Real Estate	2.2	3.9	3.6	0.0
Commercial, Personal Services	13.6	21.9	27.2	20.0
Public Administration	6.5	4.4	9.4	0.0
Unspecified	1.6	0.6	0.4	0.0
Total	100.0%	100.0%	100.0%	100.0%

TABLE 46. Interest in Employment in the Coal Mining Industry By Current Occupation

Occupation	Great Interest n=186	Slight Interest n=362	No Interest n= 227	No Response n=11
Managerial	2.7%	6.6%	10.1%	0.0%
Professional	5.9	8.0	18.5	9.1
Clerical	9.1	15.5	12.3	9.1
Sales	6.5	7.2	7.5	18.2
Service	13.4	12.4	11.0	0.0
Fishing, Hunting, Farming	7.5	9.4	8.4	27.3
Forestry	9.7	8.0	3.5	0.0
Mining	2.7	0.8	2.2	0.0
Proc. Machinery	6.5	6.9	7.5	18.2
Fabrication	9.1	10.8	6.6	0.0
Construction	11.3	3.3	4.4	0.0
Transportation	8.6	7.5	4.8	18.2
Equipment Operator	5.9	2.8	2.6	0.0
Unclassified	1.1	0.8	0.4	0.0
Total	100.0%	100.0%	100.0%	100.0%

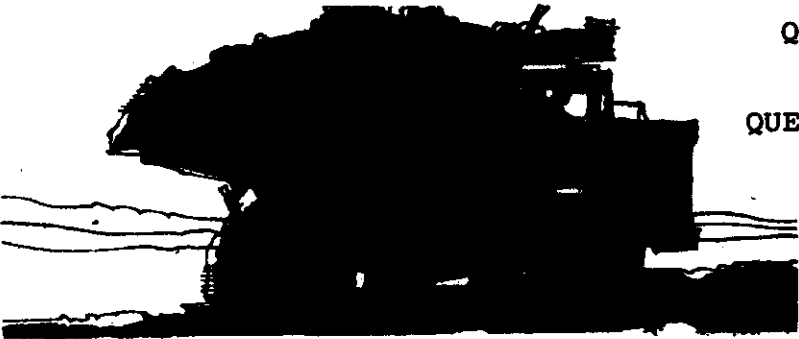
TABLE 47. Choice of Job of Those Expressing Interest  
by Geographical Location

Job Choice	Fort Nelson n=64	Chetwynd n=49	Hudson's Hope n=21	Taylor n=25	Dawson Creek n=306	Fort St. John n=203	Mackenzie n=102
<b>OPEN PIT</b>							
Moving Equipment Operator	12.5%	26.5%	28.6%	28.0%	19.9%	18.7%	18.6%
Stationary Equip. Operator	6.3	2.0	0.0	0.0	3.9	1.0	3.9
Maintenance Tradesman	6.3	6.1	23.8	12.0	10.5	12.8	13.7
Mine Labourer	4.7	2.0	0.0	0.0	2.3	1.0	2.0
Driver	10.9	18.4	4.8	8.0	11.4	8.4	5.9
<b>UNDERGROUND</b>							
Equipment Operator	1.6	0.0	4.8	0.0	0.0	0.5	2.0
Maintenance Tradesman	1.6	0.0	4.8	4.0	0.3	0.0	2.0
Mine Labourer	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>MINE RELATED</b>							
Management	15.6	6.1	4.8	0.0	4.9	12.3	10.8
Office/Clerical	21.9	28.6	9.5	16.0	22.9	21.3	23.5
Technical	4.7	0.0	0.0	4.0	7.8	3.9	4.9
First Aid/Safety	7.8	0.0	14.3	12.0	2.9	6.4	5.9
Cooking	3.1	8.2	4.8	8.0	7.2	8.9	4.9
Bus Driving	3.1	2.0	0.0	8.0	5.6	4.4	1.0
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

## APPENDIX THREE FIELD INSTRUMENTS

The study utilized a number of field instruments which are discussed in Chapter Three, Description of the Study Population, and Appendix 1, Methodology. Included are the following field instruments:

- . self-coding questionnaire
- . photographic montage which accompanied questionnaire
- . Letter of Introduction



QUESTIONNAIRE TYPE  
 LOCATION  
 QUESTIONNAIRE NUMBER

1

**COAL  
 EMPLOYMENT  
 SURVEY**

**HOUSEHOLD ENUMERATION**

I would like to ask you some general questions about yourself and the other people in your house.

1. How many people live here?

--	--

2. Are there any people living here that are not members of your family?

--

- 1. yes (go to No. 3)
- 2. no

3. If yes, how many people?  
 how many families?


4. What are the ages of the members of your family?  
 (INTERVIEWER: code actual age)

Males

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_
- 5. \_\_\_\_\_
- 6. \_\_\_\_\_

Females

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_
- 5. \_\_\_\_\_
- 6. \_\_\_\_\_


5. Of those who are 15 years or older, how many are:  
 Attending school full-time  
 Working - full-time  
 - part-time  
 Not working  
 Never worked


6. Is the yearly income of your family:

1. under \$1,000
2. between \$1,000 - \$3,000
3. between \$3,000 - \$5,000
4. between \$5,000 - \$7,000
5. between \$7,000 - \$10,000
6. between \$10,000 - \$15,000
7. \$15,000 and over
8. no response



QUESTIONNAIRE TYPE  
 LOCATION  
 QUESTIONNAIRE NUMBER

										2

INDIVIDUAL ENUMERATION

In addition to the questions I have just asked about your family, I would like to ask you some questions about the kind of work you have done in the past as well as the work you are now doing.

A. Employment History

1. Are you presently working? 
  1. yes (go on to No. 3)
  2. no (go on to No. 2)
  
2. How long have you not been working? 
  1. less than 6 months
  2. 6-12 months
  3. 1-2 years
  4. 3-5 years
  5. greater than 5 years
  6. no response
  
3. During 1976, how many full-time jobs have you had?   
 how many part time jobs?   
 how many times were you unemployed?
  
4. During 1974 and 1975, how many full-time jobs have you had?   
 how many part-time jobs?   
 how many times were you unemployed?
  
5. Was your income last year: 
  1. under \$1,000
  2. between \$1,000 - \$3,000
  3. between \$3,000 - \$5,000
  4. between \$5,000 - \$7,000
  5. between \$7,000 - \$10,000
  6. between \$10,000 - \$15,000
  7. \$15,000 and over
  8. no response

6. During the past year, what were your major sources of income?

Source 1

Source 2

(INTERVIEWER: Code source of greatest income first)

- 1. income from employment
- 2. spouse's income
- 3. parents or relatives
- 4. social assistance
- 5. Unemployment insurance
- 6. Workers Compensation
- 7. pension
- 8. Family Allowance
- 9. other (specify) \_\_\_\_\_

INTERVIEWER: Ask next question if respondent is presently working. If not presently working but has had a job in the past, go to question No. 8.

Now I would like to ask some questions about your current job or jobs. (INTERVIEWER: Ask how many jobs respondent presently holds and code for the two most time consuming.)

7. a) In what community are you employed?

Job 1

Job 2

- 1. in this community
- 2. in northeast B.C. (specify community) \_\_\_\_\_
- 3. Lower Mainland
- 4. Interior
- 5. other B.C. location
- 6. Alberta
- 7. Northwest Territories or Yukon
- 8. other Canadian location
- 9. outside Canada

b) What kind of work do you do? (specify occupation)

Job 1

Job 2

Job 1. \_\_\_\_\_

Job 2. \_\_\_\_\_

c) In what industry do you work? (specify industry)

Job 1

Job 2

Job 1. \_\_\_\_\_

Job 2. \_\_\_\_\_

(INTERVIEWER: 7b and 7c will be coded later)

d) How long have you been working at these jobs?

Job 1

Job 2

- 1. less than 6 months
- 2. 6-11 months
- 3. 1-2 years
- 4. 3-5 years
- 5. 6 years or greater

cc32





B. Job Interest

9. Do you prefer year-round work?

1. yes (go on to No. 11)
2. no (go on to No. 10)
3. no work at all (go on to No. 10)
4. no response (go on to No. 11)

10. Do you prefer short term or seasonal work?

1. short term
2. seasonal
3. other (specify) \_\_\_\_\_
4. don't know
5. no response

11. How many hours a week would you like to work?

1. less than 30
2. 30 - 40
3. 40 or greater
4. don't know
5. no response

12. For you to take a job now, how essential is it that child care is available?

1. essential
2. helpful but not essential
3. unnecessary
4. would not use
5. not applicable
6. no response

13. Do you have a vehicle available for your own use?

1. yes (go on to No. 15)
2. no (go on to No. 14)

14. For you to take a job now, do you need transportation?

1. yes
2. no
3. no response

15. If you were offered a new job similar to the one you have now in this area or elsewhere in B.C., which location would you choose?

1. this area (northeast)
2. elsewhere in B.C.
3. don't know
4. no response

cc53

16. If you were to take a new but similar job, what minimum yearly salary would you expect?

- 1. under \$1,000
- 2. between \$1,000 - \$3,000
- 3. between \$3,000 - \$5,000
- 4. between \$5,000 - \$7,000
- 5. between \$7,000 - \$10,000
- 6. between \$10,000 - \$15,000
- 7. \$15,000 and over
- 8. no response

C. Job Interest in Coal Mining Industry

This section deals with your interest in particular jobs in the coal mining industry. Here are a series of pictures of the type of jobs that may be available. These pictures will give you some idea of what modern coal mining is like. Most of the jobs will be above ground. Most of modern coal mining is no more dirty, strenuous or dangerous than other industrial work. The majority of the work could be done by either men or women.

Here is a list of the types of jobs that may be available at the mines or related to them.

(INTERVIEWER: give the prepared card to the respondent)

17. Would any of these jobs be of interest to you?

- 1. no interest (go to Section D)
- 2. slight interest (go to No. 18)
- 3. great interest (go to No. 18)
- 4. no response (go to Section D)

Choice 1

18. What type of job would be of interest to you?

(INTERVIEWER: code from the following list)

- A. Open Pit Mining Jobs
  - 1. Moving equipment operator or assistant
  - 2. Stationary equipment operator or assistant
  - 3. Maintenance tradesman
  - 4. Mine maintenance/labourer
  - 5. Driver
- B. Underground Mining Jobs
  - 6. Equipment operator or assistant
  - 7. Maintenance tradesman
  - 8. Mine maintenance/labourer
- C. Mine Related Jobs
  - 9. Management
  - 10. Office/clerical
  - 11. Technical
  - 12. First aid/safety
  - 13. Cooking
  - 14. Bus driving or other transportation

Choice 2

19. Would you be willing to undertake training programs for these jobs?

a) While you are working at the mine site?

- 1. yes
- 2. possibly
- 3. no
- 4. don't know
- 5. no response

Why not? \_\_\_\_\_

b) For a few weeks in a class away from home?

- 1. yes
- 2. possibly
- 3. no
- 4. don't know
- 5. no response

Why not? \_\_\_\_\_

c) For a longer period away from home?

- 1. yes
- 2. possibly
- 3. no
- 4. don't know
- 5. no response

Why not? \_\_\_\_\_

As I mentioned before, there will be a new town constructed near the mine sites.

20. Would you and your family be willing to move to the new community if you found suitable work?

- 1. yes (go on to No. 22)
- 2. possibly (go on to No. 22)
- 3. no (go on to No. 21)
- 4. don't know (go on to No. 21)
- 5. no response (go on to No. 22)

21. If no, why not? \_\_\_\_\_

(INTERVIEWER: write in response to be coded later)

22. For you to take a job in the new community, how essential is it that child care is available?

- 1. essential
- 2. helpful but not essential
- 3. unnecessary
- 4. would not use
- 5. not applicable
- 6. no response

cc65

D. Background

The last few questions will provide information that will help us understand your background.

23. How old are you?

1. 15 - 18
2. 19 - 24
3. 25 - 34
4. 35 - 44
5. 45 - 55

24. What is your marital status?

1. married (includes cohabitation)
2. single (never married)
3. other (separated, divorced, widowed)

25. How many children do you have?

26. How long have you lived in this community?

1. less than 5 months
2. 6-11 months
3. 1-2 years
4. 3-5 years
5. 6-10 years
6. more than 10 years
7. no response

27. How long have you lived in the northeast?

1. less than 5 months
2. 6-10 months
3. 1-2 years
4. 3-5 years
5. 6-10 years
6. more than 10 years
7. no response

28. How much schooling have you had?

1. no formal schooling
2. grades 1-5
3. grades 6-8
4. grades 9-10
5. grades 11-12
6. community college or university (specify program \_\_\_\_\_)

29. Have you completed any other training?

(INTERVIEWER: read categories)

If no, code 0

If yes, what type?

1. on the job training (specify \_\_\_\_\_)
2. apprenticeship (specify \_\_\_\_\_)
3. technical, vocational, or apprenticeship program  
(specify \_\_\_\_\_)
4. other (specify \_\_\_\_\_)

30. Do you belong to any labour union?

(INTERVIEWER: to be coded later)

Specify \_\_\_\_\_  
\_\_\_\_\_

31. For general interest, I am curious if you think the coal development will affect your life.

a) How beneficial do you feel it will be to you personally?

1. very beneficial
2. beneficial
3. no opinion
4. harmful
5. very harmful
6. don't know

b) How beneficial do you feel it will be to your community?

1. very beneficial
2. beneficial
3. no opinion
4. harmful
5. very harmful
6. don't know

Thank you very much for your cooperation. As I mentioned at the beginning of this interview, this information will be kept in the strictest confidence. Your cooperation has been greatly appreciated.

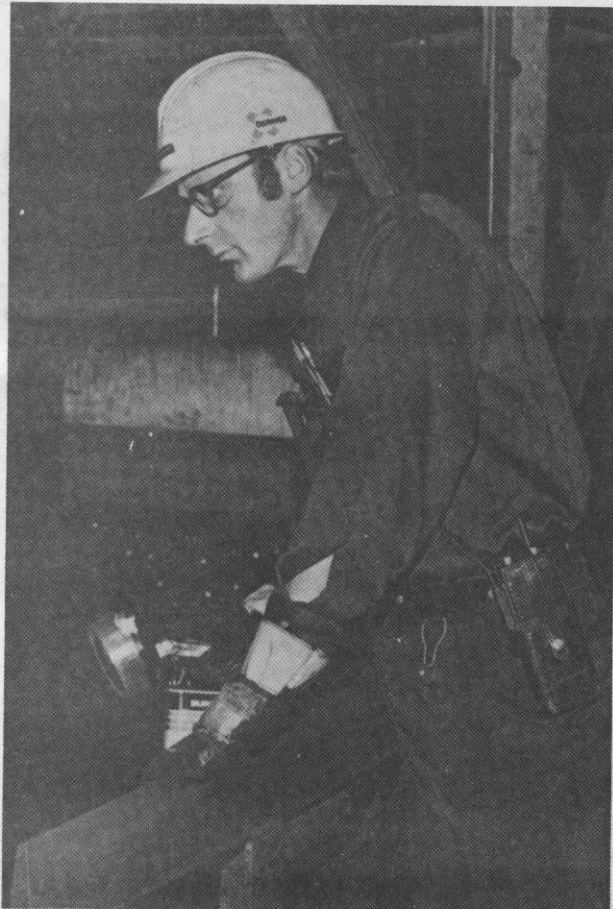
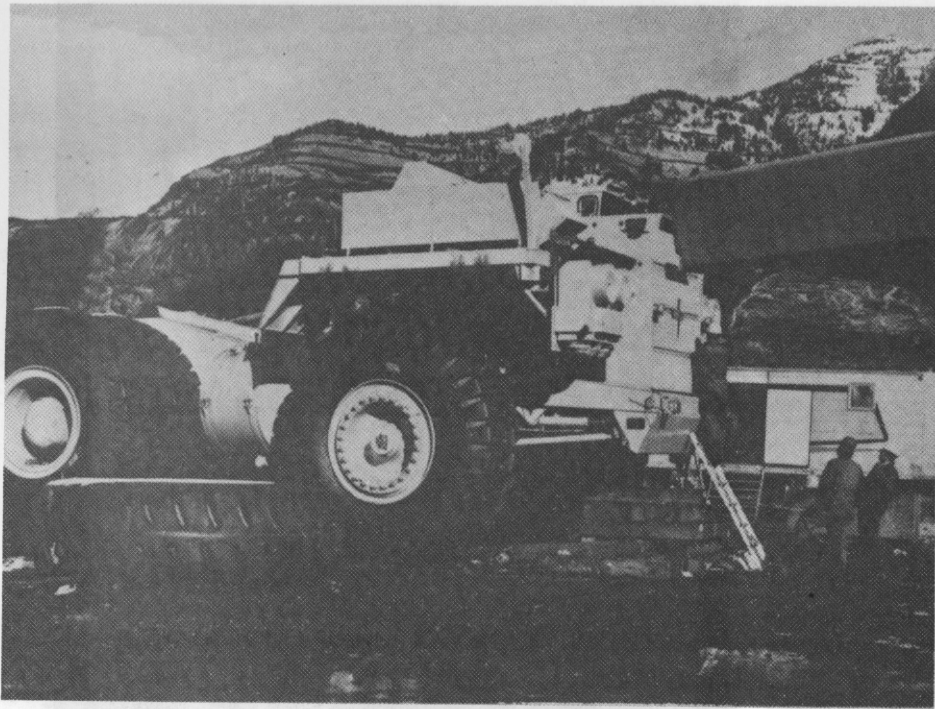
TO BE COMPLETED BY INTERVIEWER:

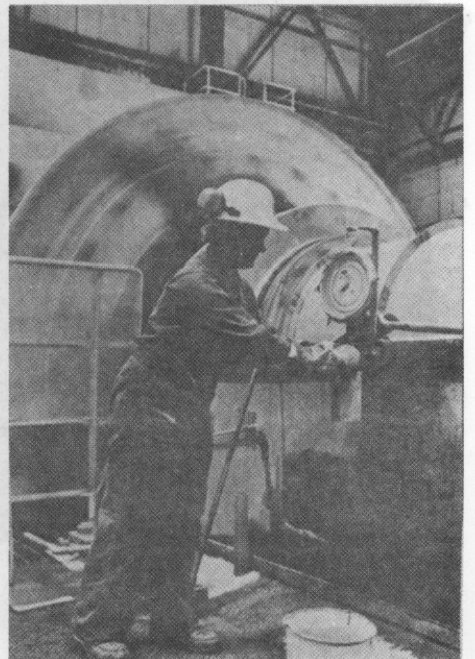
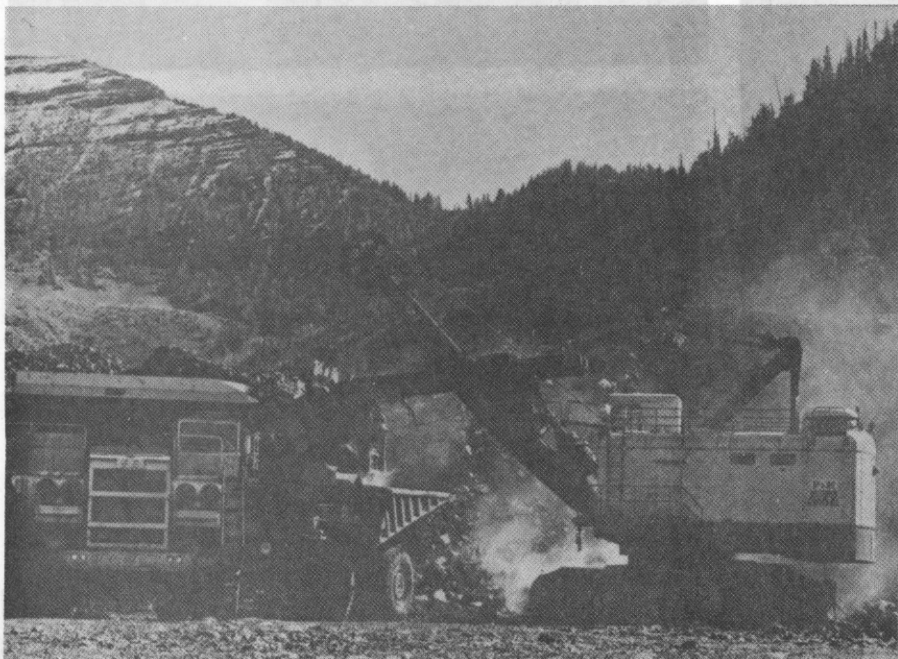
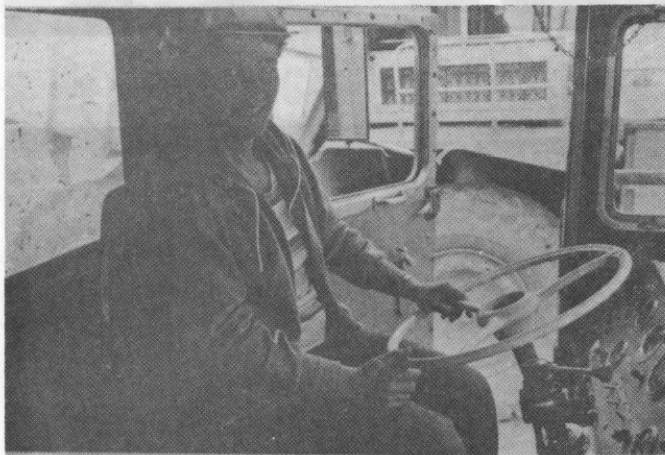
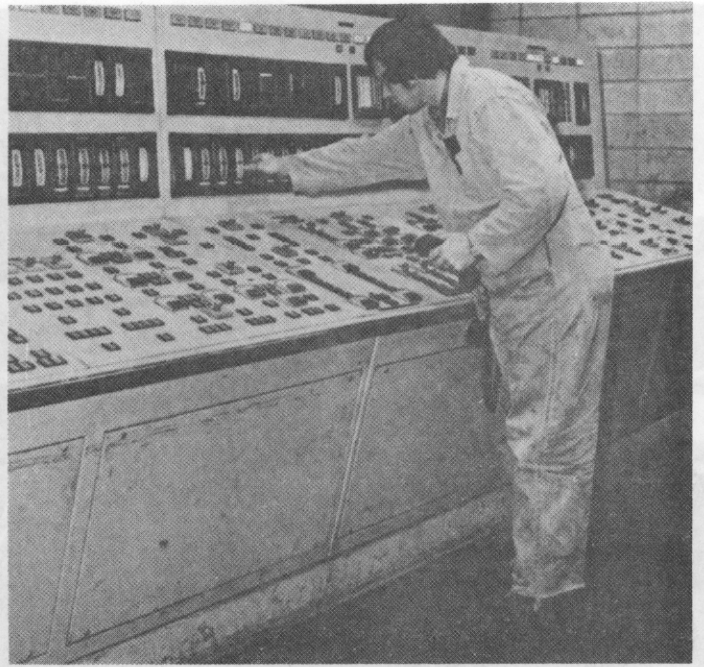
32. Ethnic background:

1. Caucasian
2. Native Indian
3. other

33. Sex of respondent:

1. male
2. female









VICTORIA

October 21, 1976

The Government of British Columbia is looking into the potential development of coal resources in the area south of Chetwynd and Dawson Creek. We are trying to find out how many jobs could be filled by local residents.

Your household has been selected to participate in this study. It is important that we talk with you. It is necessary to find out what you, who reside in the region, feel about possible coal development and related job opportunities. It is essential that your views and opinions on this topic be obtained.

WE NEED YOUR CO-OPERATION.

A member of our survey team will be in your community during the next three weeks and will contact you to arrange a meeting.

Thank you very much. We look forward to having you participate.

Yours sincerely,

A.L. (Sandy) Peel,  
Deputy Minister.

NORTH EAST COAL EMPLOYMENT SURVEY  
STUDY TEAM

CORNERSTONE TEAM MEMBERS

Richard Roberts, Partner in Charge  
Ann Walkey  
Jill Davidson  
Barbara Lindsay  
Dave Whetter  
Yvonne Small  
Nadine Wong

FIELD INTERVIEWERS

Zylpha Alexander  
Shirley Ann Giesbrecht  
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