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STAGE I ENVIRONMENTAL IMPACT STUDY FOR TULAMEEN:

PRELIMINARY OUTLINE OF INFORMATION REQUIRED, PROBLEMS, AND METHODS

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# STAGE I ENVIRONMENTAL IMPACT STUDY FOR TULAMEEN:

## PRELIMINARY OUTLINE OF INFORMATION REQUIRED, PROBLEMS, AND METHODS

### 1. BASELINE DATA NEEDED

#### 1.1 CLIMATE

##### 1.1.1 Information Needed:

- daily temperatures (maximum and minimum)
- daily snowfall and rainfall
- wind speeds and directions
- solar radiation
- monthly minimum soil temperatures and depth of frost penetration in winter months.

##### 1.1.2 Purposes For Which Information Is Needed:

- living and operating conditions
- dispersal of airborne pollutants, potential for dust, etc.
- reclamation and revegetation of mine areas.

##### 1.1.3 Acquisition Of Data

- snowfall has been measured near the minesite since 1960
- complete weather information is available for Princeton, but this isn't particularly relevant since Princeton is at a lower elevation and in a different physiographic position
- it may be necessary to set up an automatic weather recording facility at the minesite. These weather stations have to be serviced about once per month and presumably could be acquired through Atmospheric Environment Service or other government agencies.

## 1.2 TERRAIN, SURFICIAL GEOLOGY, AND SOILS

### 1.2.1 Information Needed:

- Surficial geology and physiography
- soils - depth, type, carrying capacity for forestry or agriculture
- potential hazards - avalanches, landslides, flooding.

### 1.2.2 Purposes For Which Information Is Needed:

- engineering considerations: slopes, overburden, stability, sources of material for road building, etc.
- this data is basic to description of biologic environments and potential forestry, agriculture, and other resources
- the information is required to determine methods and means of reclaiming and revegetating mine areas.

### 1.2.3 Acquisition Of Data:

- some data can be acquired from drill holes, trenches, and road cuts
- soil information can be supplemented by hand pits
- some information of a general nature will be available from Department of Agriculture and Department of Forestry sources.

## 1.3 VEGETATION

### 1.3.1 Information Needed:

- map existing plant communities and describe in acceptable ecological terminology
- interpret climax and successional trends for each community type
- interpret sensitivity to disturbance and regenerative capacity of each community type
- determine presence or absence of rare or endangered species or communities.

1.3.2 Purposes For Which Information Is Needed:

- major purpose is to establish pre-operation baseline description of plant environment
- data is necessary to determine other values of environment- i.e. forestry resources, agricultural resources, recreational resources, wildlife habitats, etc.
- information will be of use in selecting species for revegetation of mine dumps and other damaged areas.

1.3.3 Acquisition Of Data:

- some information will be available from government sources
- field mapping and description of vegetation at an acceptable level of detail is likely to be time consuming in terms of field work and library work, and the field work will have to be carried out at various seasons.

1.4 WATER RESOURCES

1.4.1 Information Needed:

- general information is required on positions and seasonal flow in all drainage channels in vicinity of mine developments
- groundwater movement in area of tailings pond should be determined
- detailed studies of flow in Blakeburn Creek should be made
- use of aquatic environments by fish or other fauna should be determined
- water quality in drainages likely to be effected by operation.

1.4.2 Purposes For Which Data Is Needed:

- baseline data before development
- identifying potential pollution problems
- determining best water source for operation
- engineering aspects - groundwater movement into pit, diversion of upper Blakeburn Creek where it crosses proposed pit, etc.

1.4.3 Acquisition Of Data:

- some help may be available from Water Resources Branch personnel for the work on Blakeburn Creek
- the complexity of the problems associated with the tailings pond will depend largely on what chemicals, if any, are present in the effluent.

1.5 WILDLIFE

1.5.1 Information Needed:

- general descriptive qualitative data on fauna present in area permanently or seasonally
- population information on major species or species of recreational value (game birds and mammals)
- presence of rare or endangered species
- value of wildlife resource (i.e. - value for hunting and present utilization).

1.5.2 Purposes For Which Information Is Needed:

- baseline, predevelopment description
- indentification of potential problems: sensitive species, uncommon habitat requirements, migration routes, mineral licks, etc.
- assessment of alternatives for replacing lost habitat.

1.5.3 Acquisition of Data:

- some data may be available from Parks Branch and from Fish and Wildlife Branch
- on-site wildlife studies of a detailed nature, if required, will require specialized skills and equipment and will involve substantial time periods.

## 1.6 AGRICULTURAL RESOURCES

### 1.6.1 Information Needed:

- past and present value of agriculture resources at minesite and at loading facility, in economic terms if possible
- potential agricultural use of development sites given natural constraints of climate and physiography.

### 1.6.2 Purposes For Which Information Is Needed:

- value of agricultural resource lost because of mine development
- compatibility of mine operation and facilities with agricultural use.

### 1.6.3 Sources of Information:

- Department of Agriculture
- other aspects of these environmental studies (climate, soils, etc)

## 1.7 FORESTRY RESOURCES

### 1.7.1 Information Needed:

- inventory of economic species present
- past and present exploitation of forestry resource
- potential production of timber, given constraints of climate and soil.

### 1.7.2 Purposes For Which Information Is Needed:

- present and potential values of forest resource lost because of mine development (including "green belts" or other areas left forested for aesthetic reasons)
- compatibility of mine operation and facilities with forestry (especially applies to road use).

### 1.7.3 Acquisition of Data:

- B. C. Forest Service can probably provide information of a general nature

- local logging companies may be able to provide some information on past or present production
- some information on forest composition and production can be collected during the course of vegetation studies.

## 1.8 RECREATIONAL RESOURCES

### 1.8.1 Information Needed:

- recreational values of specific development area (hunting, hiking, camping, or whatever)
- recreational resources of the area as a whole which might be effected by development: present use of these facilities or features (examples:- Otter Lake Park, semi-"ghost towns" of Tulameen and Coalmont and ghost towns of Granite Creek and Blakeburn, sport fishing resource at Lodestone Lake, alpine meadows and skidoo trails between Lodestone Mountain and Whipsaw Creek, etc.

### 1.8.2 Purposes For Which Information Is Needed:

- possible downgrading of values of recreational resources because of "visual pollution" of mine development or loading facility
- possible upgrading of specific recreational sites because of better access or, conversely, conflicts of road use because of coal hauling to Coalmont
- extra pressure on recreational facilities because of increased population at Princeton (probably insignificant).

### 1.8.3 Sources Of Information:

- Department of Parks and Recreation, Wildlife Branch, Fisheries, local commercial recreational establishments.



1.9 HERITAGE RESOURCES

- potential archeological sites
- potential damage to historical sites or buildings
- Provincial Museum should have any necessary information.

2. ENVIRONMENTAL IMPLICATIONS OF SPECIFIC OPERATIONS

2.1 CONSTRUCTION PHASE

- clearing and site preparation of pit, dump, mill, and tailings pond area
- diversion of upper Blakeburn Creek
- resevoir construction on Blakeburn Creek for water supply intake
- road construction through Fraser Gulch
- construction of loading facility in Coalmont.

The only environmental problems unique to the construction phase are likely to be silting pollution in Blakeburn Creek and in creeks along the projected route of the Fraser Gulch road. Construction of the loading facility in Coalmont may also involve some noise or dust pollution and may cause other disruptions within the Coalmont village site.

2.2 OPERATING PHASE

- mining, hauling, and dumping activities (possible dust problems because of dry climate)
- mill operation and power generation (no obvious environmental problems)
- tailings pond (potential hazards will depend on what chemicals are present and proximity to drainage channels)
- water removal from Blakeburn Creek (amount of water required for operation is not likely to be sufficient to effect significantly any downstream water use)
- hauling of clean coal to Coalmont (possible problems:- noise and dust pollution along haul route - especially in occupied areas close to Coalmont; conflict of road use with other traffic; cattle on road)

- loading facility (possible problems:- noise pollution during hauling and loading operations; dust problems during loading or because of wind; aesthetic pollution of Coalmont and surrounding countryside; alienation of valuable valley bottom land from other uses).

2.3 POST OPERATING PHASE

- open pit - must be dealt with in some manner
- removal of mill and other structures
- recontouring, stabilization, and revegetation of tailings pond, waste dumps, haul roads, and other mine areas
- removal of water intake structure on Blakeburn Creek and re-establishment of natural channel and vegetation
- removal of loading facilities in Coalmont and restoration of land for other uses. (If the railway owns the facility then this may not be our problem).

3. ENVIRONMENTAL IMPLICATIONS OF OFFSITE ACTIVITIES

- increased population in Princeton (probably only amounts to 20 or 30 families)
- increased road traffic between Princeton and Coalmont (crew changes)
- increased rail traffic on C.P.R. route between Coalmont and Fraser Gulch (~100 rail cars per week).

There appears to be no significant environmental implications related to any of the above offsite effects of the development.

Respectfully submitted,

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March 16, 1978.