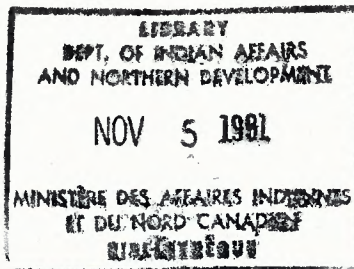


PME EVALUATION OF
THE MUSKRAT DAM FORESTRY OPERATIONS
MUSKRAT DAM, ONTARIO
(INDIAN-ESKIMO AFFAIRS)

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1972



CONFIDENTIAL

PME EVALUATION OF
THE MUSKRAT DAM FORESTRY OPERATIONS
MUSKRAT DAM, ONTARIO
(INDIAN-ESKIMO AFFAIRS)

Program Management Evaluators:

B.E. MacDonald (Team Leader)
E.A. Wilson

PME No. 3(T)-1972
November, 1972.

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EVEN CHART

I. INTRODUCTION

1.1 Background

1. One of the objectives of the Forestry Program is to facilitate Indian endeavours to establish, own and operate viable primary extraction enterprises. In order to identify the effectiveness and efficiency of these enterprises, the Director of the Indian-Eskimo Economic Development Branch requested Program Management Evaluation to undertake the evaluation of certain of these forestry operations, including the one located on the Muskrat Dam Lake Reserve, Ontario.
2. The Muskrat Dam Reserve is located on Muskrat Dam Lake, approximately 230 miles north of Sioux Lookout (see Appendix "A"). The Reserve covers a small area of less than two square miles and the population at the time of the review was under sixty people. The Reserve is not connected by road or rail, but is serviced by air throughout most of the year. The mill was established to provide a source of local lumber and overcome high transportation costs, and to provide training for the Indian people.
3. A small sawmill was purchased by the District Office and set up on the Reserve during the current year. The mill was owned and financed by the Department at the time of the review, but the Band was considering a resolution requesting transfer of

ownership to the Band. The Band plans to cut approximately 10,000 f.b.m. of lumber each year for use in housing and local construction projects. The necessary timber will be cut off the Reserve, but close to the village of Muskrat Dam.

1.2 Scope

1. The purpose of this evaluation was to analyze and assess the existing logging and milling project at Muskrat Dam Lake in order to establish its efficiency and effectiveness, as a basis for future policy planning and decision making. The emphasis has, therefore, been placed on determining the economic viability of the operation and isolating the more significant variables restricting maximum output at minimum cost, rather than attempting to optimize output.
2. The Team made a detailed visit to Muskrat Dam on August 23, 1972. During this visit the Team was accompanied by a member of the Regional Staff and a District Development Officer. Information concerning the wood supply was obtained from the Ontario Department of Lands and Forests Offices in Thunder Bay and Sioux Lookout. The Muskrat Dam Reserve is administered by the Sioux Lookout District and this forestry project was evaluated in conjunction with other sawmills located in the District.

3. A standard format prepared by the Laurentian Institute, consisting of a questionnaire and a model, has been prepared for the Muskrat Dam Lake forestry operations and is attached as Appendix "B". Some minor modifications have been made to the format due to the lack of certain statistics, and the accounting methods carried out at the site of the operations.

1.3 Acknowledgement

1. The PME Team wishes to acknowledge the assistance provided to it by the Ontario Regional Office, the various staff members of the Sioux Lookout District Office, and the Department of Lands and Forests.

II. DISCUSSION

2.1 Wood Supply

1. The total Reserve area is less than two square miles and the village occupies a good proportion of this area, so that there is little timber on the Reserve of any significance.
2. The area within a 60 mile radius of the Reserve boundary has not been surveyed, and no survey is planned for the near future. However, there are sufficient stands of timber along the shoreline of Muskrat Dam Lake, and within a reasonable distance from

the Reserve, to supply the existing mill with timber for the foreseeable future. The timber is not large, but it is of good quality with softwood comprising about 80 per cent of the acreage. The timber in this area is not committed and no commitments are under consideration. The Band has not been charged a stumpage fee for cuts made on Crown Land, and this arrangement is expected to continue as long as the Band cuts for its own use.

3. The mill had been on site for less than six months at the time of the evaluation and the logging operation had not established a pattern. Logs were being cut off the Reserve, on an as required basis, about one mile away from the mill. There was no significant inventory of logs on hand, and it was estimated that no more than 5,000 f.b.m. had been cut that year. The Band does not plan to cut more than 10,000 f.b.m. per year for the next few years, and there is adequate timber in the immediate area to satisfy this requirement.

2.2 Organization and Management

1. At the time of this evaluation the mill and the associated equipment was owned by the Department. The District had provided the Band with some funds to cut their requirements of lumber. The Band in turn has managed the forestry operation. Since these operations had produced only 5,000 f.b.m., it is difficult

to assess the competency of local management, but it is considered adequate to operate a small sawmill producing lumber for the Band's requirements, providing technical assistance can be made available as required.

2.3 Facilities

1. The sawmill is located in the village on a cleared site, approximately one acre in size. The mill is constructed so that the logs can be moved direct from the Lake to the saw carriage (see Appendix "C").
2. The mill is new and consists of the following:
 - (a) Belsaw, model 1M 14D: Sawmill capable of sawing logs up to 14 feet long and 18 inches in diameter;
 - (b) Steel carriage, assembly 10 feet long by 40 inches wide, with two head blocks and high speed dogs;
 - (c) Forty inch diameter, inserted tooth saw blade;
 - (d) Thirty foot feed cable;
 - (e) Type Model VF/4H, Wisconsin engine, air cooled 25 hp, c/w clutch assy.
3. The mill has been well set up and the engine is protected by a small shed. The current value of the mill, based on procurement costs, is estimated at \$3,000.00.

4. The sawmill does not have a planer, an edger, nor a trimmer. The Band also lacks heavy equipment, so that considerable manual labour is required to bring the logs to this mill. This lack of equipment restricts the length and size of logs that can be handled, so that production is generally limited to small rough lumber. Since the lumber is not trimmed, planed or graded, its use is restricted accordingly. The maximum production capacity of the mill is estimated to be 3,000 f.b.m. per eight hour day.

2.4 Markets

1. The market for rough lumber is not expected to exceed 10,000 f.b.m. per year, for the next five years. The Reserve is small and plans call for about one new house to be constructed each year. In addition to housing, there will be other Band construction projects that will use rough lumber, but no large construction projects are planned at this time. There are no other communities or industries near Muskrat Dam at the present time, so that there is no off Reserve market for lumber. The cost of the equivalent grade of rough lumber purchased at Pickle Lake Ontario, the closest road head, was \$140.00 per M f.b.m. and transportation charges varied between \$200.00 and \$250.00 per M f.b.m., which brought the cost of dried rough lumber to \$340.00 to \$390.00 per M f.b.m., f.o.b. Muskrat Dam Lake.

2.5 Finance

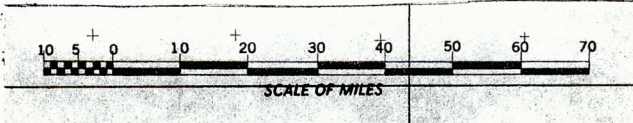
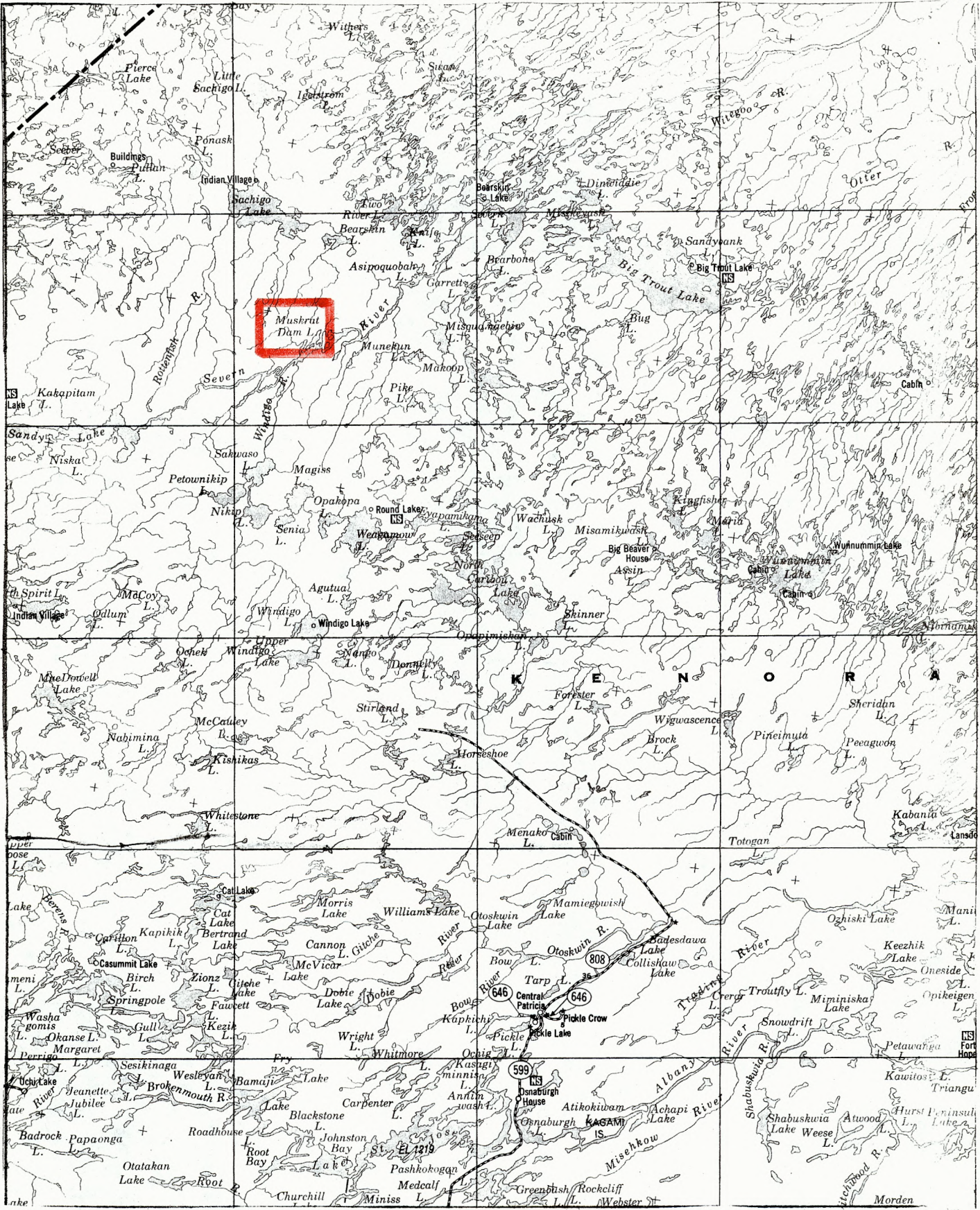
1. The sawmill at Muskrat Dam was purchased through the District Office and the first year's operations have been financed through the Economic Development Branch. Certain expenditures have been recorded at District against the Muskrat Dam forestry operation, but since forestry operations are frequently funded from more than one source, the Team was not able to ascertain with any known degree of accuracy, the cost of production per 1,000 f.b.m. The absence of production records on the Reserve further complicated this task.
2. However, a break even chart for the current year's operation was constructed by using the best data available. Since no degree of accuracy is claimed for the cost and production figures, the results must be treated with caution. The break even chart and supporting data are attached as Appendix "D".
3. The break even chart indicates that the average cost of production at the time of the evaluation in 1972 was \$275.50 per M f.b.m. It further indicates that the break even point was between two and three M f.b.m., and that the operation was viable.

III. CONCLUSIONS

1. It is concluded that:

- (a) there is sufficient good timber in the immediate vicinity of Muskrat Dam to supply the forestry operations there for the foreseeable future;
- (b) the local labour and management are sufficiently skilled to operate the current sawmill operations, provided technical advice can be made available when required;
- (c) the mill is in good condition and capable of cutting sufficient lumber to meet local requirements;
- (d) the annual market will not exceed 10 M f.b.m. per year for the next few years, and that expenditures for additional capital equipment would not be warranted at this time.
- (e) the forestry operations are viable, but only on the premise that the lumber produced by the mill satisfies a legitimate need and that the lumber would otherwise be purchased from outside sources;

- (f) the mill should be retained at its present level, turned over to the Band, and continue to cut for Band use. The mill should be financed through Band funds or on a one-time operating grant, and all lumber obtained from the mill by individuals or agencies should be on a purchase basis;
- (g) production and cost accounts should be maintained by the forestry enterprise.



MUSKRAT DAM LAKE, ONTARIO

QUESTIONNAIRE AND MODEL TO ASSESS ECONOMIC VIABILITY
OF DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT'S
OWNED AND/OR OPERATED FOREST ENTERPRISES

ECONOMIC VIABILITY OF DEPARTMENT OF INDIAN AFFAIRS
AND NORTHERN DEVELOPMENT'S OWNED
AND/OR OPERATED FOREST ENTERPRISES

I. WOOD SUPPLY (POTENTIAL)

1. On-Reserve

(a) Total forested area 1.8 Sq. Miles

(b) Total accessible forested area 1.8 Sq. Miles

(c) Forest distribution (acres)

Cover Type	Mature Acres	Immature Acres	Young Acres	Total
Softwood	<i>Not available by acreage distribution. Estimated by average square mile.</i>			60 %
Mixedwood				25 %
Hardwood				15 %
Total				100 %

(d) Species composition -- percentage estimates from mill run if inventory not available.

Black Spruce	}	60 %
White Spruce		
Jack Pine		15 %
Balsam Fir		1 %
White Poplar		15 %
Black Poplar		3 %
White Birch		6 %

- (e) Cords per acre: estimates using forest distribution table in (c).

-- *Not available by age distribution, average net merchantable cords per acre is estimated at 10.*

(f)

	White & Black Spruce	Jack Pine	White Poplar
Age at Maturity	130	100	80
Height at Maturity	55-60	55	55
Mean Annual Increment, cu.ft./acre	Approximately 15 cu.ft. per acre for softwood		

- (g) Estimate in acres any significant losses due to fire, insects, blowdown, etc. and the year of occurrence.

-- *None significant*

- (h) Estimate annual cut in past 5 years.

-- *No significant cut.*

(i) Estimate annual cut for next 5 years.

-- *NIL*

2. Off-Reserve (information based on the average square mile)
(within a 60 mile radius of the Reserve boundary)

(a) Ownership -- Crown ALL square miles
-- Private NIL square miles
-- Water 30%

(b) Is there a possibility of obtaining cutting rights, and if so, what would be the contractual basis?

-- *Yes, from the Ontario Provincial Government on a short term lease.*

(c) Total forested area.

-- *60% of the total area is considered to be forested.*

(d) Total accessible forested area.

-- *Only that area of the forest that is accessible to the Reserve by water.*

(e) Forest distribution (acres)

Cover Type	Mature Acres	Immature Acres	Young Acres	Average Sq. Miles
Softwood	<i>Not available in detail by acreage distribution. Estimate is by average square mile.</i>			60 %
Mixedwood				25 %
Hardwood				15 %
Total				100 %

- (f) Species composition -- percentage estimates from mill run if inventory not available.

Black Spruce	}	60 %
White Spruce		
Jack Pine		15 %
Balsam Fir		1 %
White Poplar		15 %
Black Poplar		3 %
White Birch		6 %

- (g) Cords per acre: estimates using forest distribution table in (e).

-- *Not available by age distribution. The average Merchantable cords per productive acre is estimated at 13.*

- (h)

	Black & White Spruce	Jack Pine	Poplar
Age at Maturity	130	100	80
Height at Maturity	55-60	55	55
Mean Annual Increment, cu.ft./acre	10-12	10-12	10-15

- (i) Estimate in acres any significant losses due to fire, insects, blowdown, etc. and the year of occurrence.

-- *None Recorded*

- (j) Estimate annual cut in past five years.

-- *3-5,000 f.b.m.*

- (k) Estimate annual cut for next five years.

-- *10,000 f.b.m.*

II. FOREST MANAGEMENT (ON-RESERVE)

1. Inventories & Plans

	Completed		In Process	
	Yes	No	Yes	No
(a) Photo - reconnaissance	Yr. Completed	XX	Yr. to be Completed	XX
(b) Survey - with field work		XX		XX
(c) Management plans and/or recommendations		XX		XX
(d) Operating plans		XX		XX
(e) Sponsoring Agency		XX		XX

Fed. Govt. _____ Prov. Govt. _____ Band _____ Private _____

2. Silviculture -- past five years

(a)

Treatments	Acres Treated	Species Involved	Age Trees	Year Treated	Objectives of Treatment	Est. Cost Per Acre
Seeding						
Planting						
Cleaning						
Thinning			- - - N I L - - -			
Pruning						
Fertiliza- tion						
Other -- specify						

(b) Sponsoring Agency N/A

Fed. Govt. _____ Prov. Govt. _____ Private _____ Band _____

(c) Are treatments required on the reserve at the present time?

-- N/A

(d) If so, what are the priorities?

-- N/A

(e) If so, what is the purpose of this treatment?

-- N/A

- (f) Are there any treatments schedules for the next five years?
If so, fill out table as in (a).

Treatments	Acres Treated	Species Involved	Age Trees	Year Treated	Objectives of Treatment	Est. Cost Per Acre
Seeding						
Planting						
Cleaning						
Thinning						
Pruning						
Fertiliza- tion						
Other -- specify						

- (g) In your opinion, what sectors of a forest management plan should receive short term priority?

i) Growing Stock:

protection N/A

regulation

silviculture

ii) Transportation:

road development N/A

(c) Is the current operation conducted on a seasonal basis?

-- *No, on an as required basis.*

(d) What has been the average number of months in operation over the past five years?

-- *This mill has been on site for less than six months.*

(e) Do you think that the operation could be improved by further mechanization or modernization?

-- *No, not for the small amounts to be cut.*

(f) If yes, what type of changes would you recommend?

-- *N/A*

(g) How would you expect this to affect employment and production?

-- *N/A*

(h) What in your opinion are the most significant variables working against minimizing production costs on this operation?

Check below: --

Labour:

- | | | |
|-----|--------------------------|-----------------|
| i) | Skill level - low | _____ |
| | - medium | _____ <i>XX</i> |
| | - high | _____ |
| ii) | Low wages or rates | _____ |

- iii) Lack of motivation _____
- iv) Unavailable on a continuous basis _____
- v) Other - specify _____

Management:

- i) No or poor leadership _____
- ii) No incentives given to labour ... _____
- iii) No training provided XX
- iv) No cost control XX
- v) No production control XX
- vi) Other - specify _____

Equipment:

- i) Antiquated equipment thus high maintenance costs and low productivity _____
- ii) Non-integrated system XX

Logging Chance:

- i) Terrain _____
- ii) Small Wood XX

- (c) Is the present operation conducted on a seasonal basis?
Specify months in operation.

-- Operated on an as required basis.

- (d) What is the average number of months worked per annum?

-- This mill has been onsite for less than six months.

- (e) Do you think that the operation could be improved by further mechanization or modernization?

-- No, not for the amount of lumber required.

- (f) If yes, what type of changes would you recommend?

-- N/A

- (g) How would you expect these changes to affect employment and production?

-- N/A

- (h) What in your opinion are the most significant variables working against minimizing production costs on this operation?

Check below: --

Labour:

- i) Skill level - low
- medium XX
- high
- ii) Low wages or rates

- iii) Lack of motivation _____
- iv) Unavailable on a continuous basis .. _____
- v) Other _____

Management:

- i) No or poor leadership _____
- ii) No incentives given to labour _____
- iii) No training provided XX
- iv) No cost control XX
- v) No production control XX
- vi) Other _____

Equipment:

- i) Antiquated equipment thus high maintenance costs and frequent downtime _____
- ii) Non-integrated system XX
- iii) Other _____

Sawing Chance:

- i) Large wood _____
- ii) Small wood XX
- iii) Bad environment - specify _____
- iv) Other _____

(i) What is your estimate of the potential output per month if the two most significant constraints were eliminated?

-- *Output of this mill is limited by its size*

(j) Is it feasible to eliminate these constraints?

-- *NO*

(k) If so, what should be done and what would be the approximate cost?

-- *N/A*

(l) Estimate how this would affect production, operating costs, and employment.

-- *N/A*

(m) What do you think or understand were the objectives of setting up the operation in the first place?

- *i) Provide local lumber for the Reserve.*
- *ii) Train Indian people.*

(n) Do you think these objectives are good or sound objectives?

-- Yes

(o) If no, what do you think the objectives should be?

-- N/A

(p) If yes, do you think that the objectives are being met?

-- Yes

(q) Are there other opportunities which would employ as many or more people at the same level of capital investment? Please elaborate.

-- No, the capital investment is under \$3,000.00.

(r) Do you think that the current operation or investment represents the best opportunity in lieu of the benefits (monetary and social) received by the people involved?

-- Yes

(s) If answer to (r) is yes, what improvements could be made in the current operation? Please elaborate.

-- None, it is meeting its objectives.

(t) If answer to (r) is no, what alternate investment would you recommend?

-- N/A

V. QUESTIONS CONCERNING THE PRODUCTION MANAGEMENT VARIABLE

(a) How is the present operation organized?

- i) cooperative _____
- ii) partnership _____
- iii) government supervision - yes _____
(specify who and
sources of funding) - no No, (DIAND funds)
- iv) entrepreneurial (people working
for and paid by a leader other
than a government official) _____
- v) other (specify) *DIAND owned*
Band operated

(b) What are the motives of present management?

- i) maximize profits _____
- ii) supply domestic needs XX
- iii) employ as many people as possible ... _____
- iv) training XX
- v) supply open market _____

VI. MARKETING

(a) What per cent of total production (annual) is sold off the reserve?

— — — *NIL*

(b) To whom is this sold and at what price per 1,000 f.b.m.?

-- N/A

(c) Do you anticipate a potential (next five years) market off the reserve?

-- NO

(d) If answer to (c) is yes, where and at what price per cord or M f.b.m.?

-- N/A

(e) Who are or would be competitors?

-- N/A

(f) Can the proposed operation compete without government subsidization?

-- *No, it was not intended to be a profit making enterprise.*

(g) If no, list main reasons why it cannot compete.

-- *It is limited by size and capacity.*

(h) Are there institutional constraints restricting sales off the reserve? If yes, please specify.

-- NO

(i) Do you think local industry would guarantee purchases of wood or timber on an annual or monthly basis?

-- NO

(j) What are the estimated requirements for wood?

		Volume (f.b.m.)	
		<u>1971-72</u>	<u>1973-75</u>
i)	<u>Local</u> (reserve or settlements)		
	houses	10,000	10,000 per year
	docks		
	fishing camps		
	other		
ii)	<u>Other Government Agencies</u>		
	education - schools		
	health and welfare		
	-- hospitals		
	other		
iii)	<u>Export</u> (off-reserve)		
	industry - mines		
	- mills		
	- tourists		
	consumer - briquettes,		
	decorations		
Total five year requirements - volume (f.b.m.)			50,000 f.b.m.
Total value of requirements (estimated)			\$15,000.00

The following questions relate to marketing management.

(a) Has there been any attempt to market the product via advertising, promotion or other commercial media?

-- NO

(b) If yes, what are the approximate costs?

-- N/A

(c) In your opinion, has this promotion been effective?

-- N/A

GENERAL INFORMATION

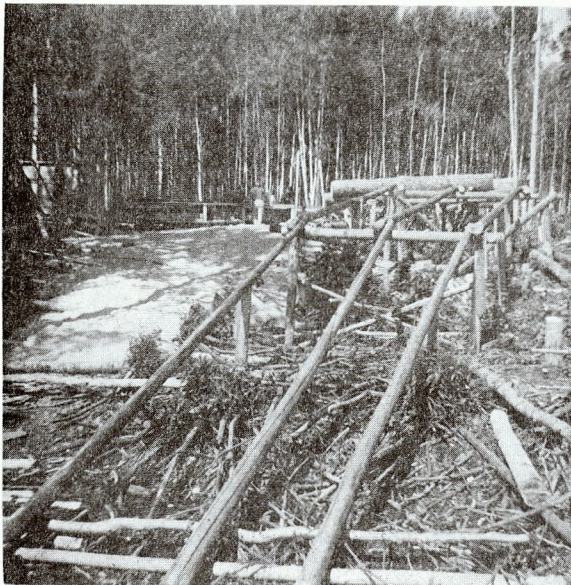
The purpose of this section is to yield information on the physical and cultural setting within which the forestry operation exists.

1. Area Name: *MUSKRAT DAM LAKE*
2. Agency: *SIOUX LOOKOUT*
3. Total Area: *1.8 SQUARE MILES*
4. Population: *56*
5. Number of Family Units: *8*
6. Number Children Per Family: *5*
7. Labour Force: *10*
8. Ethnic Origin: *CREE*
9. Net Income Per Family: *\$1,500-1,800 NOT INCLUDING WELFARE*
10. Net Welfare Income Per Family: *\$1,800*
11. List the present area of employment: *TRAPPING, HANDICRAFT, GOVT EMPLOYMENT*
12. List the potential areas of employment: *AS ABOVE*
13. What are the more significant problems of the Band: elaborate: *ISOLATION
SMALL SIZE*

MUSKRAT DAM, ONTARIO
FORESTRY OPERATIONS



Muskrat Dam Sawmill
Showing Engine Shed



View of Sawmill from
Shoreline of Lake



Main Saw and Carriage

MUSKRAT DAM, ONTARIO
FORESTRY OPERATIONS AS OF SEPTEMBER 1, 1972

VARIABLE COSTS

Purchase of logs	\$ 300.00
Grease	11.47
Transportation - gas and oil	360.00
Gasoline	166.28
* Wages	250.00
Total Variable Costs	<u>\$1,087.75</u>

FIXED COSTS

Depreciation of plant (\$3,000 X 10%)	\$ 300.00
Total Fixed Costs	<u>\$ 300.00</u>
TOTAL COSTS	<u><u>\$1,387.75</u></u>

- (a) Production estimated to be 5,000 f.b.m.
 (b) Average Cost per M f.b.m. = \$ 275.50.
 (c) Cost per M f.b.m. for equivalent lumber f.o.b. Muskrat Dam = \$ 340.00

* Estimated

BREAK EVEN CHART
MUSKRAT DAM, ONTARIO
1972 FORESTRY OPERATIONS

