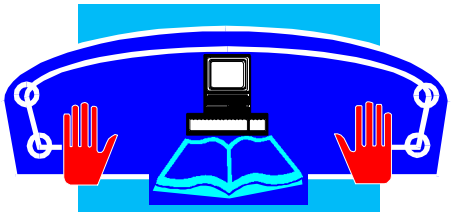

Central Arctic Meat Plant Business Plan
Date of Report: 1991
Author: Rt & Associates
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Table of Contents

EXECUTIVE SUMMARY

In August, 1991 the NWT Development Corporation hired RT & Associates to prepare a Five-Year Business Plan for the Cambridge Bay Meat Packing facility.

The consultants presented the business plan to the corporation on September 16, 1991. Highlights of the business plan are as follows:

Cambridge Bay Economic Overview

Cambridge Bay's unemployment rate is 18%. Given current population growth projections, over the next ten years an additional 184 jobs will be required just to maintain the existing unemployment rate in the community.

Based on community income data, the meat plant has an estimated 11.4% market share of total community red meat sales.

Meat Plant Assessment

The plant was established in 1987, however after four years of operation the project has yet to earn a profit - indeed sales have declined from $169,899 in 1989 to $150,198 in 1991. Identified problems include:

- low revenues and low gross margins;
- lack of continuous and effective management in place;
- poor local employee attendance and production;
- inability to meet customer orders;
- physical plant and storage deficiencies.

Given current trends, it is likely the meat plant will close unless a new plan is developed and implemented immediately.

Regional Consultation

The general consensus by those involved in the project is that the new business plan must find a means of increasing revenues, although product prices cannot be raised beyond current levels. As well, strong and effective management must be in place on a continuous basis. There is also a consensus that the meat plant is constrained by a limited resource base (565 muskox and 175 caribou); low worker productivity; and, since the facility is not federally inspected - the cost to establish a federally inspected facility would be prohibitive given the small number of animals to process - has no current export market for plant products.

Plant Capacity and Potential Throughput

Given the existing quotas of 565 muskox and 175 caribou, existing 25% wastage related to waste bone and gristle, and 50'% shrinkage related to smoking finished jerky product, it is estimated that the plant could produce a maximum of:

jerky:	8,165 kg
other products:	28,156 kg

Total potential revenues from these two product is estimated to be: jerky $261,280; other products $168,936. Thus, total potential revenues could be $430,216.

Market Research

Market research indicates that the following volumes of meat plant products could be sold within the NW'T:

jerky:	12,488 kg
sausage/pepperoni:	2,268 kg
other products:	40,049 kg

Thus, within the NWT, there is an excess demand for Cambridge Bay meat plant products.

Research also indicates that the Kitikmeot Region alone could take virtually all meat plant production, specifically 7,668 kg of jerky, 1,168 kg of sausage and 23,595 kg of other products. Developing the regional market over other markets would also:

- not require a federally inspected harvest; although batch testing would be required to capture the regional Northern Store market;

- ensure a steady supply of meat plant products was maintained within the region, thus reducing regional customer criticism that the meat plant does not provide reliable product supply;

- minimize transportation costs and product costs to consumers.

Products

The meat plant would continue to offer all existing available products but would concentrate on the production of jerky as this one product has the greatest demand and is the most profitable selling for $40 per kg versus an average of $6 per kg for other products.

Operations

A number of physical changes would be required to improve plant production and efficiency. These would include:

- building a new and larger receiving/shipping station;
- installing a carcass washing area;
- installing a flash freezer;

- re-positioning lighting to conform to existing health standards;
- constructing a 12’ by 30’ addition between the reefer trailer and the plant floor;
- installing new hanging rails;
- re-positioning the plant smoker to separate the warm product smoking area from the cool production area;
- and purchasing additional skinning and meat cutting equipment.

Capital Requirements

Total capital requirements would be:

Renovation/Construction	$274,891
Equipment	88,050
Working Capital	90,000
Managers Wage/Benefits Pre-Development	30,000
Total Capital Requirements	$457,941

Ownership, Management and Staffing

It is recommended that ownership be in the form of a joint venture between the NWT Development Corporation, the local Cambridge Bay HTA and the manager hired to operate the meat plant.

The meat plant would be staffed by three full-time employees: the manager, the assistant manager and the retail clerk/bookkeeper. Additional part time employment would also be created.

Batch Testing

Based on market considerations (customers prefer inspected food) and the potential that the meat plant could be sued if a consumer were ever to suffer food poisoning, it is strongly recommended that all product be batch tested on a weekly basis by a southern food science laboratory.

Critical Risks

Competition from Gjoa Haven and Coppermine meat processing projects could reduce potential sales. However, it is assumed that the Cambridge meat plant would

have a competitive edge because of the higher available quotas to process, sound and effective management in place, and high quality control including batch testing that would generate higher consumer appeal.

Should insurance not be obtained the meat plant could face a major lawsuit assuming food poisoning were to ever occur with products sold. Thus, the meat plant will need to obtain required insurance. In this regard, the fact that the meat plant will be batch testing should assist the plant in obtaining insurance.

Financial Analysis

Financial projections assume:

- the meat plant will produce and sell more profitable products - eg. jerky - than in the past, thus, the overall project gross margin will increase from a current 7% to 70%;

- plant staff including the plant manager and assistant manager will be paid higher wages, thus, the meat plant will no longer be considered an employer of last resort in Cambridge Bay;

- annual production and income targets are met or exceeded, the plant manager will have the opportunity to earn a percentage of the meat plant ownership (5% annually), thus generating further incentive to make the meat plant successful;

- there is more demand for meat plant product, especially jerky, in the NWT than the meat plant can satisfy.

Given the above, financial projections indicate:

- over the five year forecast period, revenues would increase from $252,000 to $551,940;

- the business would sustain a loss of $43,575 in Year I of operation but show a profit of $17,513 in Year 3;

- the business would have a positive cash flow throughout the five year period without requiring any annual operating subsidy;

- at the end of Year 5, retained earnings in the business would be $99,852.

Socio -Economic Benefits

Three full-time positions would be created and additional casual part time positions. In terms of income, excluding the meat plant manager who will likely be hired from the south, the project would generate for local residents approximately $1 million.

Five-Year Implementation Plan

The Five-Year plan indicates that the meat plant could be renovated, expanded and fully operational by March, 1992.

INTRODUCTION

The Cambridge Bay Meat Packing Plant is located in Cambridge Bay, NWT. The plant has been in operation since 1987.

In August, 1991 the NWT Development Corporation hired RT & Associates to prepare a Five-Year Business Plan for the facility.

The purpose of the business plan was to assist the Development Corporation in confirming:

- potential project viability;
- required investment;
- jobs and income that would be derived if the corporation were to invest into the project.

It was also expected that the consultant would assess the current operation, provide a detailed and comprehensive marketing and operation plan, identify capital and other requirements, and identify any critical issues that would have to be addressed if the business were to be successful. A Five-Year implementation plan was also to be developed.

In developing the business plan, the consultants were expected to consult with the current meat plant manager and Department of Economic Development and Tourism (ED & T) staff involved in the project to confirm their views on the project's potential viability.

The consultants presented the business plan to the corporation on September 16, 1991.

Overview of Socio-Economic Conditions in Cambridge Bay

As the government administrative center for the Kitikmeot Region, Cambridge Bay is by far the largest community in the region with high income levels, and a comparatively wide range of goods and services available to the local consumer. The community is also well endowed with good housing, municipal services, and has two hotels which have full service restaurant facilities. The community currently has a population of 1027, comprised of 72 percent inuit, 2 percent Dene/Metis and 26 percent non-native people. Most "people in the community are employed in some fashion by various levels of government, with a very small percentage of the labour force actively employed in the relatively small private sector.

Current economic indicators for the community suggest that Cambridge Bay has been a community in transition, moving from a mixed traditional–wage–economy to primarily a wage economy with significant government support+ ither through direct government employment or through income support provided by the GNWT Department of Social Services.

Population and Labour Force

Despite Cambridge Bay's vibrant character as a regional center, there are nonetheless certain pressing economic issues facing the local economy over the next decade. In particular, given current unemployment rates of 18 to 30 percent (mostly native people) and an expected increase in population of almost 400 people over the next ten years, there is a real need to stimulate development of job opportunities. Indeed, new jobs will not only be required to deal with already high unemployment level amongst native people, but to offset a large increase in native unemployment rates expected from additional young, primarily inuit people, entering the active labour force over the years to come.

The following table provides insights into the magnitude of this potential problem in a regional context.

Comparative Community Unemployment Rates

	Labour Force	Participation Rate (%)	Unemployment R (%)
Cambridge Bay	476	71	18
Coppermine	264	47	37
Gjoa Haven	213	54	52
Holman	126	59	13
Pelly Bay	116	58	45
Spence Bay	152	46	32
Bathurst Inlet	51	10	20

From the preceding table, Cambridge Bay's labour force appears to be faring quite well, relative to the balance of Kitikmeot communities. Indeed, compared to Gjoa Haven for example, with an unemployment rate of 54 percent, Cambridge Bay's unemployment rate of 18 percent is much lower. However, a quite different picture emerges when one accounts for what is often termed the "effective unemployment rate", which considers those individuals who have given up looking for work and are thereby not considered in the labour force. Labour force studies have concluded that unemployment rates, especially for native people are at least 25 percent higher than published numbers. Also, in the case of Cambridge Bay, it is indeed difficult to compare published unemployment rates amongst communities because of the disproportionately high ratio of non-native to native people in jobs (primarily high paying government jobs). Thus, when accounting for these factors, native people in

Cambridge Bay may indeed be faced with the same or even higher unemployment rates than those in the smaller regional communities.

Added to this, is the ever increasing pressure the high birth rate has on the labour force and thus unemployment rates. Each year as young Inuit reach the age of 15, the size of the labour force increases correspondingly. And, if additional jobs of the same magnitude are not created, as a result of normal economic growth, or through job creation schemes, the local unemployment rate in Cambridge Bay (and most other regional communities) will continue to tax the existing capacity of the local and regional economy for employment and income.

To highlight the severity and implications of this observation, we have developed the following table which shows the overall growth of the community's labour force relative to current levels of employment.

Projection of New Jobs Required in Cambridge Bay

	1989	1985	2000	2005
Population	1065	1253	1419	1570
Persons 15& Over	671	789	894	989
Labour Force	476	580	634	702
Employed	389	458	518	573
Unemployed	87	102	116	126
Participation Rate	71%	71%	71%	71%
Unemployment Rate	18%	18%	18%	18%
New Jobs Required (From '89 Levels)	0	69	129	184

Based on current labour force data, the above table shows that over the next ten to fifteen years, an additional 184 jobs will be required in Cambridge Bay, just to maintain existing unemployment levels of 18 percent. To completely reduce unemployment in Cambridge Bay, would require an additional 128 jobs, bringing the ***total job requirements to 312 by year 2005.*** From a private sector perspective, this means that, at an average of 5 employees per small business, an additional 63 businesses would be required in Cambridge Bay over the next decade to deal with the impending unemployment situation.

Clearly, given the current limit of resources in the community, the private sector in Cambridge Bay cannot deal with this situation alone. Thus, there is a definite need for continued government intervention in creating a positive environment for economic growth and expansion, by taking direct investment measures to stimulate new businesses, salvaging businesses with potential and creating new ones. Any

measures to support the stabilization or creation of businesses by the N.W.T. Development Corporation and other agencies would be viewed in a positive light.

Community Income

Despite the need for additional job creation in the future, Cambridge Bay nonetheless has a relatively strong consumer income base and represents a real and tangible opportunity for increased sales from the meat plant.

To show the magnitude of community retail potential and to highlight market potential for meat products, in particular, we have developed a preliminary model of growth (see next page) in community income over the past decade. In developing the table we also included projections of consumer disposable income for the 1992-1994 period.

The tabulation and model are based on an assessment of community income and expenditure levels. It is therefore income (demand) driven and incorporates preliminary assumptions about consumer expenditure patterns of the resident population. In developing the model, we have assumed a mixed population with different expenditure levels on food products, with specific attention to red meat products. We have also assumed that a disproportionate share of earned income accrues to the non-native population which has consumption patterns much like those exhibited by non-native populations elsewhere in the Northwest Territories.

Variables considered in our income and market model are outlined as follows:

Total Income: To show community income levels and to estimate the corresponding market potential for red meat products in the community it was necessary to obtain data on income in Cambridge Bay. Using taxation data, with certain adjustments for known local conditions, we were able to provide a reasonable estimate of total reported income. From this information we projected income levels for 1991 through 1994, using adjusted least-squares linear regression calculations with a correlation

Calculation of Consumer Expenditure Potential
Cambridge Bay, Northwest Territories

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Disposable Income Calculation:													
Total Income	$10,761,000	$12,163,000	$13,102,000	$14,382,000	$16,126,000	$19,042,000	$20,715,000	$20,591,000	$22,151,000	$23,711,000	$25,271,000	$26,831,000	$28,391,000
Tax Paid	2,218,000	2,505,000	2,808,000	3,072,000	3,555,000	3,825,000	4,088,000	4,047,000	4,583,031	4,905,795	5,228,558	5,551,321	5,874,084
Tax Rate	20.61%	20.60%	21.43%	21.36%	22.05%	20.09%	19.73%	19.65%	20.69%	20.69%	20.69%	20.69%	20.69%
Disposable Income	8,543,000	9,658,000	10,294,000	11,310,000	12,571,000	15,217,000	16,627,000	16,544,000	17,567,969	18,805,205	20,042,442	21,279,679	22,516,916
Adjustment for Unreported Income	854,300	965,800	1,029,400	1,131,000	1,257,100	1,521,700	1,662,700	1,654,400	1,756,797	1,880,521	2,004,244	2,127,968	2,251,692
Adjusted Disposable Income	9,397,300	10,623,800	11,323,400	12,441,000	13,828,100	16,738,700	18,289,700	18,198,400	19,324,765	20,685,726	22,046,686	23,407,647	24,768,607
Savings Component	469,865	531,190	566,170	622,050	691,405	836,935	914,485	909,920	966,238	1,034,288	1,102,334	1,170,382	1,238,430
Total Consumer Expenditures	8,927,435	10,092,610	10,757,230	11,818,950	13,136,695	15,901,765	17,375,215	17,288,480	18,358,527	19,651,440	20,944,352	22,237,264	23,530,177
Casual Consumer Imports	3,570,974	4,037,044	4,302,892	4,727,580	5,254,678	6,360,706	6,950,086	6,915,392	7,343,411	7,860,576	8,377,741	8,894,908	9,412,071
Sealift Value	892,744	1,009,261	1,075,723	1,181,895	1,313,670	1,590,177	1,737,522	1,728,848	1,835,853	1,965,144	2,094,435	2,223,726	2,353,018
Market Calculation:													
Local Consumer Potential	$4,463,718	$5,046,305	$5,378,615	$5,909,475	$6,568,348	$7,950,883	$8,687,608	$8,644,240	$9,179,264	$9,825,720	$10,472,176	$11,118,632	$11,765,088
Portion Spent on Meat Products	119,338	134,913	143,798	157,990	175,605	212,568	232,264	231,105	245,409	262,692	279,975	297,258	314,541
Casual Meat Imports	89,274	100,928	107,572	118,190	131,367	159,018	173,752	172,885	183,585	196,514	209,444	222,373	235,302
Total Meat Potential	$208,612	$235,840	$251,370	$276,180	$306,972	$371,585	$406,016	$403,989	$428,994	$459,206	$489,418	$519,630	$549,843
Total Red Meat Potential	$125,167	$141,504	$150,822	$165,708	$184,183	$222,951	$243,610	$242,394	$257,396	$275,524	$293,651	$311,778	$329,906

coefficient of .967 and a Durban Watson statistic of 1.6, which compares favorably with other communities in the Northwest Territories.

Tax Paid: Based on available Revenue Canada data, we deducted taxes paid to calculate a base level of disposable income for the community population. We assumed that income reported on tax forms, less tax paid, plus unreported income, would represent a fair approximation of the amount of money available for purchases of consumer goods and services (with meat products as a target). In this analysis, we assumed that the marginal propensity to consume would be nearly 1.0, i.e. there are virtually no savings in the community. As such, although a few individuals undoubtedly save, most community income is spent on goods and services in one way or another.

Tax Rate: The tax rate provided in the income model to illustrate the nominal change in personal taxes over the reference period. Since the rate has not changed materially over the period, we have assumed a tax rate of 20.69 percent for the 1991-1994 projection period.

Disposable Income: The disposable income calculation is divided into two part. First, to arrive at first-round disposable income we have deducted income tax paid for each year of the reference and forecast periods. Accordingly, we have shown base levels of community disposable income ranging from $8.5 million for 1982 to an estimated $22.5 million for 1994. With adjustments for unreported or accounted income, these figures are much higher and highlight the magnitude of growth in the local consumer market over the past nine years and for the next four years.

Adjustments for Unreported Income: In the income and market model we adjusted the base level of disposable income upward by a factor of 10 percent to reflect unreported income accruing to local residents. We assumed unreported income would be cash payments, which for whatever reasons, are not reported on income tax forms each year. We have based this assumption on our current knowledge of the local and northern economy. Thus, we have added an additional $1.8 million to base

level disposable income for 1991 and 10 percent to each subsequent year's base levels thereafter.

Adjusted Disposable Income: Following the above assumption we have estimated that adjusted disposable income for the community would increase from $20.6 million in 1991 to $24.7 million in 1994.

Savings Component: Based on discussions with long - time residents of Cambridge Bay, we have included a 5 percent savings factors on community income. While this assumption has not been tested empirically, we feel it is reasonable in light of known expenditure patterns in the community.

Total Consumer Expenditures: In the model we show a figure for total consumer expenditures. This variable is essentially the "effective" disposable income level for the community and represents the total amount of money available for purchase of goods and services, regardless of origin (imports and local sales).

Casual Consumer Imports: Like most northern communities, residents (aside from local purchases) import goods from other northern centres like Yellowknife and from communities in south. Purchases from the south are usually done by catalogue orders, or when residents are traveling south on business or for vacation. Again, based on discussions with local residents, we have assumed that 40 percent of disposable income is spent on what we have termed casual imports. The range of imported products include: clothing, sports equipment, food items (including meat and fresh produce) and liquor.

Sealift Value: To show the effects of imports by sealift we have assumed that 10 percent of community disposable income accrues to southern suppliers through **sealift** orders.

Local Consumer Potential: Using the above variables and corresponding assumptions, we estimate consumer spending on local markets will increase from $9.8 million in 1991 to $11.7 million by 1994.

Estimated Value of Red Meat Sales: To show the potential market for meat plant production in Cambridge Bay, alone, we provide estimates of the value of red meat consumed in the community. Red meat consumption is calculated as follows. We have assumed that approximately 75 of income is earned by non-native residents and that (according to surveys of northern non-native people) non-native people spend, on average, 12.18 percent of disposable income on food products. Of this, 25.1 percent is spent on meat products. And, of the meat product expenditure, approximately 60 percent is spent on red meat.

For the native component of the market, we have assumed they receive 25 percent of community disposable income. Given the availability of country foods we have adjusted native expenditures on meat products downward to reflect lower consumption levels of imported southern meat products. Accordingly, we assume native residents of Cambridge Bay consume half the amount of imported red meat that non-native residents consume.

Therefore, on this basis, we estimate red meat potential in the local market will increase from $275,524 in 1991 to $329,906 by 1994.

Indeed, with only 25 percent of meat plant revenues generated by local sales ($37,549/257,396 = 11.4% market share) there is significant potential for increasing market penetration in the community.

In summary, while Cambridge Bay is the regional center for the Kitikmeot Region and is well positioned in terms of community infrastructure and basic municipal services, it does require additional support in terms of job and income creation, especially for the native residents. Thus, the continuation of the meat plant in a revised format would be a real asset to the community, since it largely employs

native people and contributes to the income of local hunters and trappers who provide raw materials for processing and sale.

Also, from a retail perspective, Cambridge Bay, and the entire region for that matter, has significant consumer disposable income that is currently being spent on red meat products from southern markets. While it is recognized that some local residents purchase product from the meat plant, there is no doubt that additional market penetration could be achieved by implementing measures that would increase productivity at the plant and increase consumer confidence in the product line. Indeed, with estimated consumer expenditures totalling $935,335 on red meat products in Cambridge Bay from 1992 through 1994, the market potential ***(relative to previous production levels)*** for the meat plant is great.

Background and Review of Historical Operations

In 1987 Central Arctic Meats Ltd. became incorporated under the laws of the Northwest Territories as the Territories' most northerly country food processing and retail facility. With its head office and operations located in Cambridge Bay, N. W.T., the plant has been owned and operated by the Cambridge Bay Hunters and Trappers Association for approximately three and half years.

Despite significant financial support from GNWT loans and contributions for operating subsidies, the plant has been plagued with numerous fundamental management and structural business problems and has reached a point, financially, where operations under its present corporate and operational structure is not possible. Indeed, Central Arctic Meats Ltd. is a dysfunctional corporation with no plan or capacity to retire its long term debt (GNWT) and no permanent, on-site managerial or technical capacity to continue operations in a viable and meaningful fashion.

Over its brief operational history, numerous reviews, business plans and business evaluations have been conducted in an attempt to guide the plant's operations towards its eventual goal of financial "viability" or at least "near - viability". Common to all of these reviews and studies are the following observations:

- Since the plant's inception, Central Arctic Meats has had difficulty maintaining continuity of management and trained staff at the processing plant;

- Given less than desirable employee attendance rates and relatively low productivity, even when professional management was available, the plant never reached optimal production and sales levels;

- Constraints imposed by current Federal Meat Inspection Regulations have restricted the plant's market to the N.W.T. where guidelines concerning the sale of meat to the public are less stringent than in southern markets;

- As a result of low productivity, many buyers in the north are skeptical about the plant's ability to provide a steady supply of meat product to the northern marketplace;

- No detailed cost-accounting has ever been done on the current product mix to determine their respective profitability and overall contribution to operating margins;

- Since the plant's construction, numerous operational and plant deficiencies have materialized, including: cracks in the floor membrane, poor drainage under the stainless steel cutting tables, removal and repositioning of fluorescent lighting banks to conform to existing health standards, inadequate docking space for receiving whole or partial carcasses, mechanical problem with air conditioning, inadequate storage space for dressed meat, problems with auto- shut off switches with the smoking units and a host of other smaller, but nonetheless important areas for improvement.

In she% from an operational perspective, there are numerous physical, production and management improvements which need to be addressed before the plant can achieve financial viability. The most notable of these, of course is the requirement for a well trained, experienced and dedicated on-site operations manager who would stimulate production and ensure customer orders were filled on a consistent and timely basis.

Review of Central Arctic Meats Ltd.'s Financial History

Given the above operational problems, there is much to explain the Company's current financial situation and the relatively poor performance in the recent past. To illustrate, we have prepared a table on the following page, which summarizes Central Arctic Meats Ltd.'s profit and loss statements since its first full operating year end as at June 30th, 1988. The reader should note that we have not included financial results

for 1987, since the plant only commenced full operations in November of that year, thus making it difficult, if not impossible for a meaningful comparison among the entire four operating periods.

Central Arctic Meats Ltd.
Financial Performance: 1989-1991

	1991	1990	1989
Revenue			
sales	$150,198	$127,693	$169,899
cost of sales:			
Purchases and Supplies	$57,399	$51,338	$83,732
Wages and Benefits	$99,455	$66,518	$74,223
Gross Margin	($6,656)	$9,837	$11,944
Government Subsidies	$67,195	$0	$38,274
Total Funds Available	$60,539	$9,837	$50,218
Expenses:			
Utilities	$13,432	$11,752	$14,331
Bad Debts	$0	$6,166	$4,500
Interest on Debt	$5,426	$5,634	$5,326
Professional Fees	$1,355	$5,490	$3,160
Insurance	$210	$3,500	$3,768
Advertising	$658	$999	$1,849
Bank Charges	$2,014	$577	$1,085
Telephone	$2,959	$376	$1,802
Repairs and Maintenance	$165	$300	$0
Licences and Fees	$80	$295	$125
Office	$388	$171	$764
Fuel	$6,756	$0	$0
Honoraria	$0	$0	$600
Travel/Training	$0	$0	$7,756
GST	$1,421		
Amen'n of Gov't Assist.	($18,364)	($21,534)	($24,657)
Depreciation	$21,747	$25,580	$30,279
Total Expenses	$38,247	$39,306	$50,688
Pre-Tax Income	$22,292	($29,469)	($470)

Observations

During the meat plant's first full operating year, 1989 during which time Central Arctic Meats Ltd. had a professional manager/butcher, Mr. Bill Tarr, the meat plant sustained a small operating loss of $470. After his departure in 1990, the plant's revenue base steadily declined from sales of $169,899 to $127,693.

When Mr. Tarr was encouraged to return to assist in revitalizing operations in 1991, the plant's financial performance once again improved to result in gross sales of $150,198 in 1991, with pre-tax income of a positive $22,292 for the first time in the plants history. However, in 1991 a significant government contribution ($67,195) was required to sustain the facility; as such, the meat plant's real profit picture (measured in conventional terms) was significantly less than indicated. In fact, with the reduction of the 1991 operating subsidy, the plant would have shown a further loss of $44,903 ($22,292 in pre-tax profits minus $67,539 in GNWT subsidies). Also, the fact that the plant had a negative gross margin of $6,656 in 1991, points to some serious problems in the composition of the plant's direct and final cost of production.

The 1991 results may be explained by the fact the plant still did not benefit from the much needed on-site management and technical expertise provided by trained professionals, such as Mr. Bill Tarr. Indeed, during 1991, Mr. Tarr was primarily engaged as a technical/managerial "damage control" consultant wherein his main role was to visit the facility in Cambridge Bay every other month and to salvage operations, as best he could. During his periodic visits to the community, he would spend the required time at the meat plant, re-establish necessary controls, collect outstanding receivables, pay outstanding payables, initiate supply contracts with former customers and to the best of his abilities put the business back on track. At the end of his short, periodic visits he would return to his own employer in southern Canada.

From supporting financial data in meat plant files and accounting records, it is not possible to isolate the contribution margin of each particular product line at the plant,

nor is it possible to isolate or determine relevant cost-accounting data for determining an optimal production mix and schedule. However, the following could be stated:

Gross margins have ranged from minus 7.4 percent during the 1988 start up year to approximately 7 percent in 1989, 7.7 percent in 1990, to minus 4.4 percent in 1991. Viewed from a slightly different perspective, total costs of production during the lifespan of the meat plant have ranged anywhere from 92.3 percent to 107.4 percent of sales.

Over the past three years of operation, sales have generally followed a downward trend, while labour (largely management fees) as a percentage of total sales has increased steadily. For example, labour as a direct cost of production in 1989 was 43.7 percent of total plant sales. By comparison, labour costs for 1990 and 1991 were 52.09 percent and 66.22 percent respectively. In short, variations in labour costs highlight the need for a well trained, motivated and productive team on the plant floor.

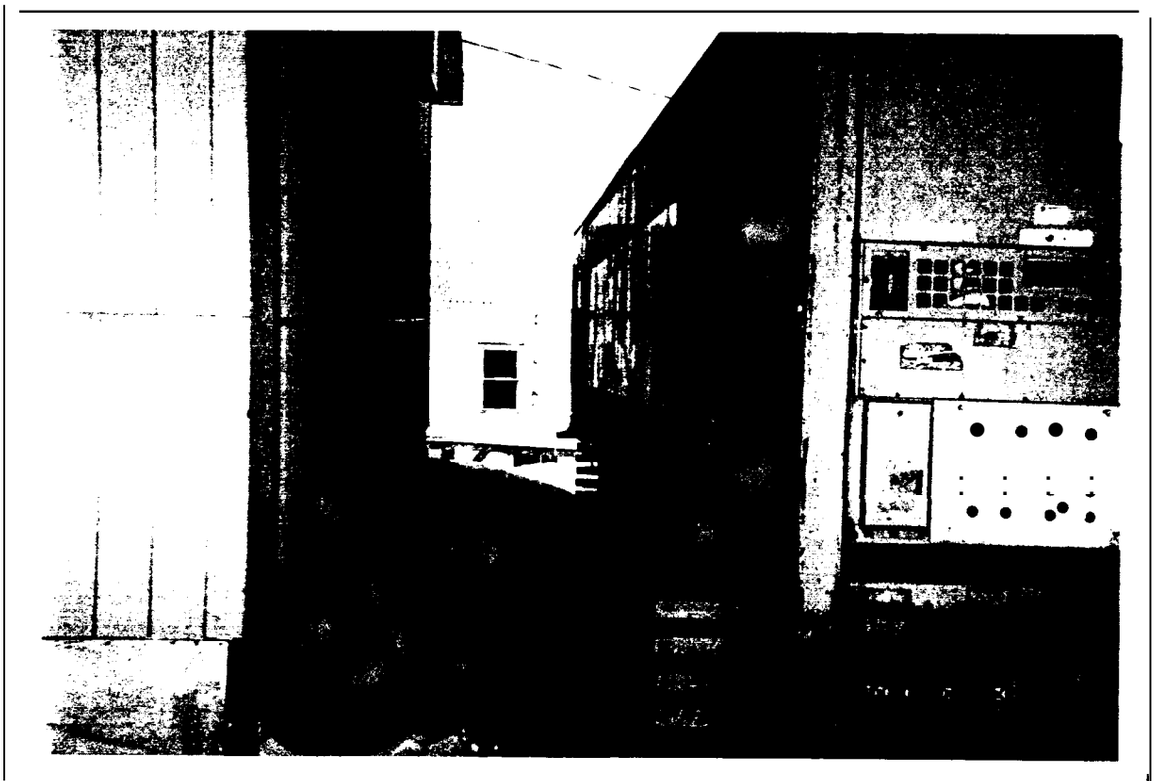
Central Arctic Meats currently has:

- Outstanding long term debt of $38,742 (due in January 1992) , along with trade payables and accrued liabilities of $10,082;
- Cash and accounts receivables of $24,237;
- Inventory at net realizable book value of $8,000;
- Net book value of fixed assets of $209,131;
- $3,600 due from Sports Hunts;
- A retained earnings deficit of $7,456;

Given the above, it is clear that over the past four years, Central Arctic Meats Ltd. has not been able to operate profitably. Even with significant GNWT capital and operating contributions, the plant has not achieved viability. In short, given its current operational mode of intermittent management, no real production capacity and no

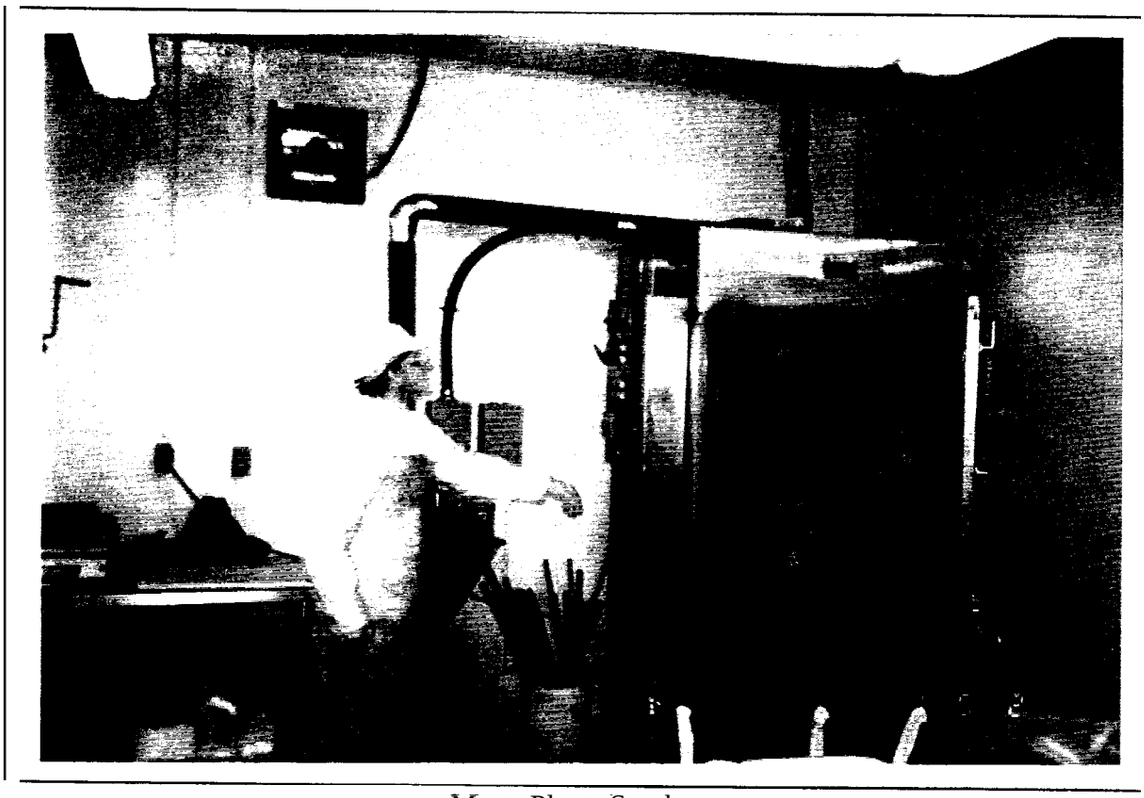
clear direction regarding future operations, it is indeed likely the company will be wound up if, a revitalization plan is not developed and implemented immediately.

Meat Plant Building & Entrance

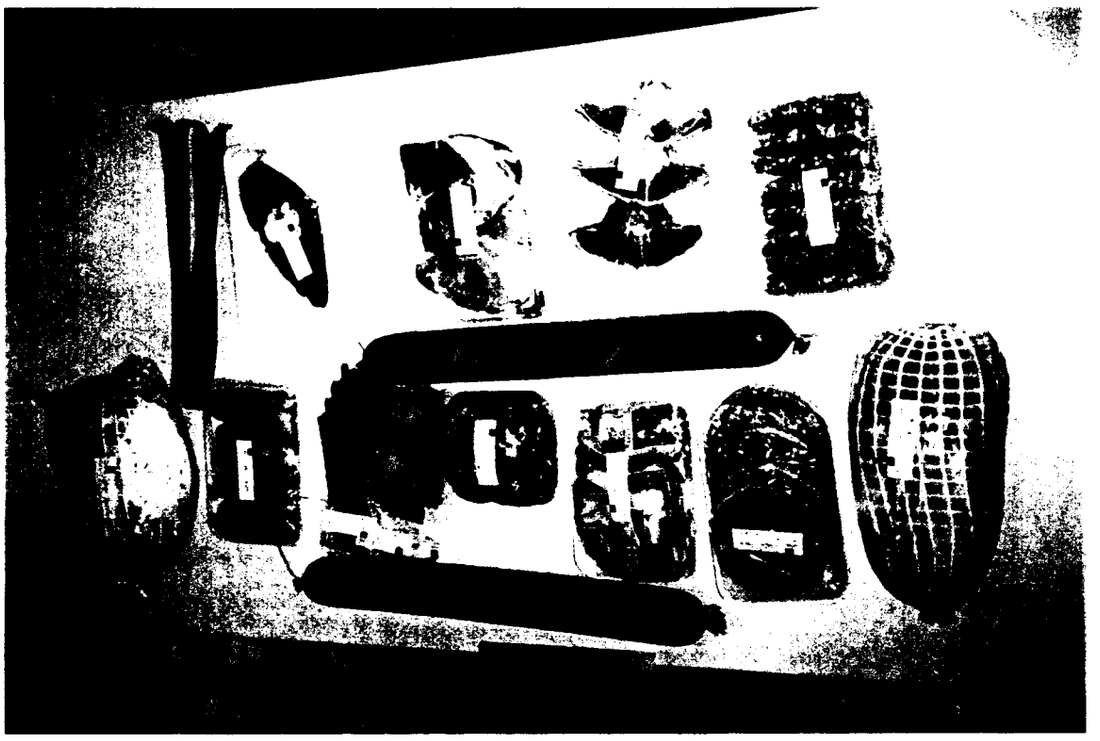


Space Between Meat Plant Building & Reefer

Meat Plant Processing Area



Meat Plant Smoker



Meat Plant Products

REGIONAL CONSULTATION

Discussions were held with Department of Economic Development and Tourism officials in the region involved in funding and directing Central Arctic Meats Ltd (Regional Superintendant and Renewable Resource Officer) and those involved in the direct day to day management of the project (Plant Manager and Assistant Manager). This section provides a summary of their comments.

The general belief shared by those interviewed is that without sound management the project will fail to succeed regardless of the level of investment provided. It was noted by both the Regional Superintendent, the Renewable Resource Officer and the Assistant Manager that when the present manager was in place (Mr. Bill Tarr) revenues were high and customers were satisfied, which was not the case in 1989 when another manager was in place.

It was also noted that because of family obligations Mr. Tarr was not able to work on a full time basis in the project and was now traveling to Cambridge Bay from his home in Saskatoon to work for three to four weeks at a time before leaving again. However it was also pointed out that Mr. Tarr brought to the project a strong commitment to the project, hard work, effective communication skills with both staff and customers, and experience as a butcher. In short, Mr. Tarr was successful, when on site, because of a number of skills and it would be necessary to find someone equally talented if he was to be replaced and the project to succeed over the long term.

Those interviewed also made the following points:

Low Revenues: It was generally agreed that meat plant revenues were too low to cover relatively high fixed costs including the need for high management wages. It

was felt that a new plan would have to address ways and means of increasing revenues.

Price Ceiling: It was felt that within the region prices on products generally could not be increased without meeting strong customer resistance, however this might not be the case with customers outside the region—eg. in Yellowknife.

Limited Resource Base: The quota on musk-ox and caribou was set in the region; however there might be opportunity to obtain additional animals on the "mainland" and/or Banks Island. This would have to be confirmed with the Department of Renewable Resources.

Low Productivity: Local residents hired to work in the meat plant were often unreliable and showed low productivity. Other employers in the community (eg. local co-op) complained of the same problems.

Regulatory Constraints: the need to have meat federally inspected was a major obstacle to exporting meat outside the NWT. Further, the cost to build a meat processing and storage facility in the region that would meet federal standards was prohibitive given the small annual number of musk-ox (565) and caribou (175) that would be processed. A possible solution might be to follow the example of IDC and the corporation's slaughter of Banks' Island musk-ox. The approach involved using a portable abattoir that would meet federal standards, slaughtering over a short time frame, having a federal meat inspector present during the slaughter, and exporting carcasses directly outside the NWT for much higher prices than could be obtained in the NWT.

RESOURCE AVAILABILITY

The following information on available caribou and musk-ox resources in the region and usable meat from animals harvested for meat plant production was obtained in discussions with the Cambridge Bay Renewable Resource Officer and the meat plant manager.

Allowable Commercial Quotas

The current annual commercial quotas for musk-ox and caribou that Cambridge Bay and the meat plant can draw upon are:

- musk-ox 565 animals
- caribou 175 animals

The meat plant also buys a percentage of the allowable Bay Chimo caribou which has an allowable quota of 50 animals.

Musk-ox

It is estimated that 26% or 150 animals of the allowable commercial musk-ox quota is harvested annually and sold to the meat plant.

The cost to the meat plant in harvesting musk-ox is $1 per lb or $2.2 per kilogram which is paid to the hunters.

Typically a hunter can harvest two musk-ox on a one day hunt and since each animal can generate an average of between 200 lbs and 250 lbs (90.9 kg. and 113.6 kg.) of meat the hunter can earn approximately $400 to $500 for the two animals. The

amount earned is generally considered to be sufficient to motivate hunters to harvest the animals for the meat plant.

It is expected that additional musk-ox could be harvested by the hunters if the meat plant manager were to motivate the hunters sufficiently.

Caribou

The 175 caribou quota is currently fully utilized by the meat plant. A break down of the quota indicates that 100 animals are from the mainland and 75 animals are from Victoria Island. In addition, as mentioned, caribou are obtained from the Bay Chimo quota of 50 animals.

The average amount of meat obtained from a caribou is 100 lbs (45.4 kg) from mainland and Bay Chimo animals, and 80 lbs (36.3 kg) from Victoria Island animals.

Hunters are paid $1 per lb or $2.2 kg for caribou and it is generally considered to be a fair price sufficient to motivate hunters to harvest the total allowable quota for the meat plant.

Harvest Season

Musk-ox can be hunted between November 1st and April 15th and between September 1st and October 30th. Hunting is not permitted between July 1st and August 30th.

The effective harvest period for musk-ox is between November 1st and April 15th, a 5 1/2 month harvest period. From April 15th to July 1st the musk-ox harvest season is closed. During the summer months the animals can be harvested but it is more difficult requiring the use of All Terrain Vehicles and small hunting parties versus individual hunters.

Caribou are harvested throughout the year.

Potential for increased Quotas

The area musk-ox population has in recent years been increasing and likely the allowable commercial quota could be increased without negatively impacting the herd; however it is doubtful that Renewable Resources would increase the musk-ox quota since only 30% of the allowable quota is now being used.

The caribou harvested from the area are part of the Bathurst Caribou herd which is considered to be a healthy growing herd that could likely sustain an increase in the allowable annual commercial quota. Renewable Resources is currently involved in consolation with the Dene Conservation Board, Class B Outfitters and the **Kitikmeot HTA** to confirm the level of increased quota that would be acceptable. Indications are that once consultation has been completed the allowable quota could be doubled, thus increasing Cambridge Bay's quota from 175 caribou to 350 caribou and providing the meat plant with additional caribou to draw upon.

RESOURCE IMPLICATIONS FOR PLANT CAPACITY AND THROUGHPUT

Drawing from the previous section concerning resource availability, and discussions with the plant manager, we can draw the following conclusions on the maximum amount of meat that can be processed in the facility and maximum revenues earned.

Current Plant Capacity

According to the plant manager, the meat plant processed 175 caribou carcasses and approximately 150 musk-ox carcasses last year, a total of 17,500 lbs or 7,954 kg of caribou and 30,000 lbs or 13,636 kg of musk-ox.

The plant manager also said that the plant has the capacity to process the total allowable quota of 175 caribou and 565 musk-ox; however, additional space would be required and committed/motivated staff hired to process the product.

Usable Meat

With caribou and musk-ox there is a 20%-25% shrinkage factor related to waste bone and grissle. Thus, assuming average carcass size of 200 lbs per musk-ox and 100 lbs per caribou the following usable meat can be obtained from animal carcasses purchased from hunters:

Average Usable Meat

	Musk-ox	Caribou
	lbs	
Carcass	200	100
Less:		
Shrinkage (20-25%)	50	25
Total Usable Meat	150	75

Assuming 565 musk-ox and 175 caribou were harvested for the meat plant total usable meat would be:

Musk-ox: 565 X 150 lbs = 84,750 lbs or 38,522 kg
Caribou: 175 X 75 lbs = 13,125 lbs or 5,965 kg

Production Shrinkage

With caribou, because of the high percentage of lean meat, 80% of the available meat can be used to make such products as jerky with the balance used for other products such as hamburger, steaks and roasts. However, with musk-ox, because of the much higher fat content, only 30% can be used to make such products as jerky with the balance used for other products.

During production of jerky there is a 50% shrinkage of useful meat during the smoking process.

The total available meat for making jerky and other products from the available meat would therefore be:

Jerky:

Musk-ox: 38,533 kg X 30%X 50%= 5,779 kg
Caribou: 5,965 kg X 80%X 50%= 2,386 kg
Total maximum jerky production: 8,165 kg

Other products:

Musk-ox: 38,533 kg X 70%= 26,963 kg
Caribou: 5,965 kg X 20% = 1,193 kg
Total maximum other product: 28,156 kg

Jerky Production Run

The meat plant currently takes four hours to process one run or 15 kg of finished jerky. The manager said that two runs or 30 kg of finished jerky can be produced each day over an 8 hour period utilizing existing equipment. Thus, to process the 8,165 kg of jerky would require 8,165 kg divided by 30 kg per day = 272 days.

Potential Revenue

Assuming the meat plant were to operate over a full year and process the entire allowable quota of 565 musk-ox and 175 caribou;

Assuming the meat plant were to sell jerky at the current price of $40 per kg less a 20% commission paid to stores;

Assuming other products were to sell at an average price of $6 per kg;

Total potential revenues would be:

Jerky: 8,165 kg X $40 less 20% commission = $326,600-$65,320 = $261,280

Other products: 28,156 kg X $6 = $168,936

Total potential meat plant revenues: $430,216.

MARKET RESEARCH AND STRATEGY

'I'he following information was obtained by interviewing: the plant manager; managers of coop stores in the communities of Spence Bay, Gjoa Haven, Holman Island, Coppermine, Cambridge Bay, and Rankin Inlet; managers of northern stores in the communities of Coppermine, Cambridge Bay, Inuvik, Iqaluit, and Rankin Inlet; managers of hotels in the communities of Coppermine and Holman Island; senior food buyers for Northern Stores in Edmonton; managers or food buyers in the Yellowknife Super A, IGA, Bums, Yellowknife Co-op, and Yellowknife Wholesale; and food buyers for the Stanton Hospital and Akaitcho Hall in Yellowknife.

Current Markets Served

The plant sells approximately 75% of all production within the region and the remaining 25% outside the region.

Customers in the region consist primarily of the co-op stores and walk-in plant sales.

Walk-in sales account alone for 25% of total plant sales and are mostly to residents of Cambridge Bay.

Customers outside the region are primarily those in Yellowknife including the Explorer Hotel, Yellowknife Inn and Stanton Hospital, although some sales have been made to hotels in Norman Wells (Mackenzie Inn) and Fort Simpson (Nahanni Inn).

A break-down of sales by products indicates that approximately 30% of total sales are generated by jerky and the remaining 70% by other products.

A breakdown of products sold by location indicates that jerky, sausages, salami and pepperoni are only sold in the Kitikmeot region while all other products are sold both in the region and other parts of the NWT (see Table 1).

The meat plant does not advertise and all marketing is done through word of mouth or the plant manager calling customers to solicite orders. The main reason the plant does not promote is over concern that it might not be able to fill orders placed.

Table 1

Meat Plant Sales 1990-91
Breakdown by Product Category

Product	Percentage of Total Sales	Location of Sales
Jerky	30%	Only Region
Steaks	20%	Region & NWT
Burger & Patties	20%	Region & NWT
Sausages, Salami & Pepperoni	15%	Only Region
Roasts & Ribs	15%	Region & NWT

Walk-in Plant Market

Walk-in sales which account for about 25% of total meat plant sales were $37,549 in 1991.

Primary source of customers for walk-in sales are local Cambridge Bay residents, although some travelers passing through Cambridge Bay take the opportunity to buy meat plant products.

All meat plant products are available to walk-in customers.

Cambridge Bay residents buy meat plant products because of their low price—for example, a T-bone beef steak at the local co-op sells for between $18 and $21 per kg whereas a caribou or musk-ox steak sells for only $9.35 per kg. Meat plant hamburger is also much cheaper than southern imported beef hamburger.

Travelers passing through Cambridge Bay buy meat products primarily because products are often unavailable in their home communities-eg. musk-ox steaks.

Sales to local residents occur mainly between 5 and 6 p.m daily when government offices close and workers heading home stop at the meat plant to buy meat products for supper.

Most sales are made on Saturdays and it is not uncommon to record $700 on any given Saturday, however when the current meat plant manager is away the plant is often not open on Saturdays and the opportunity to make significant sales is lost.

Regional Co-op Market

Spence Bay: The co-op can sell meat plant caribou and musk-ox jerky, sausages, salami and pepperoni very easily, although prices are a little high and a drop of 10-15% would be well received by consumers.

Meat plant caribou jerky sells better than musk-ox jerky.

The co-op could easily sell 20 kg of jerky, 5 1/2 kg of salami/sausages and 3 1/2 kg of pepperoni per week; a total demand of 1,040 kg of jerky, 286 kg of salami/sausages and 182 kg of pepperoni per annum.

Some recently purchased caribou jerky and pepperoni was not sealed properly and this should be monitored by meat plant staff.

Gjoa Haven Coop: The co-op sells primarily jerky and pepperoni, although the local hotel buys meat plant roasts through the coop store.

Meat plant jerky has the highest local demand, however it is difficult for the co-op to obtain a steady reliable supply—indeed, the co-op could easily sell 20% more jerky, if it were available.

Besides jerky, the co-op would be interested in selling hamburger and steaks.

Meat plant prices are considered reasonable.

The co-op rarely buys southern beef or pork products.

Holman Island **Co-op:** The co-op can obtain all required country foods from local hunters, however they are interested in purchasing jerky from the meat plant. Currently the co-op sells 100 kg of jerky but could sell 200-300 kg per annum, if it was available.

The co-op has tried meat plant sausage products but found little interest from co-op customers in purchasing the product.

Meat plant prices are considered reasonable, packaging and products good.

Coppermine Co-op: The co-op is interested in carrying meat plant products, including jerky, but has no available space including freezer space to store additional products. The co-op may be interested in purchasing additional products next year after the co-op has been expanded.

The co-op is familiar with meat plant products and considers them to have excellent quality and sales potential.

Cambridge Bay **Co-op:** The co-op currently buys meat plant caribou and musk-ox jerky, pepperoni and sausages, and assorted other plant products. The co-op estimates that 70 kg of caribou and 82 kg of musk-ox products are purchased per month. In addition, the co-op purchases between 40 and 80 kg of meat plant products per month for the co-op hotel in the community - thus, on an annual basis, the co-op buys for itself approximately 1,000 kg of jerky, sausages and pepperoni and for the co-op hotel 720 kg of products.

The biggest problem for the co-op, however, rests in obtaining a reliable supply of product from the meat plant. Indeed this has been a frustrating issue since the co-op could have a display area for meat plant products and increase product sales. In this regard, the co-op may establish a smoker operation to produce product rather than rely on meat plant supplies.

The co-op considers the main problem with the meat plant to be one of production and not lack of markets - in fact, from the co-op's experience it is easier to buy meat from the south that from across the street.

Meat plant product quality is considered to be excellent with prices reasonable. The co-op could sell considerably more product if it were available.

Pelly Bay **Co-op:** the co-op buys mostly jerky and some sausage and salami. Up to $1,000 per month of product is sold to the co-op.

Regional Northern Store Market

Northern Stores would be very interested in carrying meat plant products, especially jerky, hamburger and patties, however, although not a government regulation in the NWI', products should be tested to insure consumer safety. The company agrees that batch testing samples of meat plant products by a southern food science laboratory would be a good step in this direction.

Northern Stores believes the product with the highest demand would be jerky and note that in Gjoa Haven and Spence Bay jerky, including southern jerky, sells like 'candy'.

Meat plant prices for jerky and other products are reasonable and price competitive.

The demand for jerky, hamburger and patties in the region alone is considerable and could absorb a high percentage of meat plant production. Northern Stores would have an estimated regional demand of 4,500 kg of jerky, and 13,500 kg of patties and hamburger per annum.

Northern Stores also believes there would be strong demand for jerky in a number of other NWT communities, especially if batch testing were done on products, labelling and packaging were effective, and a consistent and reliable supply ensured.

Other Region Market

The Coppermine Inn does not serve wild meat because most customers have eaten enough wild meat by the time they arrive in the community. Also, the available wild meat in the community is too poorly cut and handled for the Inn to be interested in purchasing product. Regardless of these objections, the Inn would be interested in testing some meat plant products on a trial basis. Inn management believes there would be strong demand for jerky, especially from tourists and sports hunters.

Ikaluit, Rankin Inlet, and **Inuvik** Market

Inuvik: Country food is available from Ulu Foods in the community, and the best market for the Cambridge Bay meat plant would be with those products that are unavailable from Ulu Foods such as jerky and sausage.

Local Northern Store management believe that tourists to the community would also be a good target market.

Rankin: Since local caribou is available from community hunters, the co-op store would only be interested in musk-ox products and processed products like jerky, sausage and pepperoni, which they believe would likely sell well.

One reason musk-ox might sell is that musk-ox would be much cheaper to buy than imported beef products - for example musk-ox steak sells for $9.35 per kg versus beef T-bone steaks for $21.93 per kg; and musk-ox ribs sell for $5.00 per kg vs pork chops at $10.91 per kg, Thus, even with transportation added on to meat plant products (about $1.50 per kg), meat plant products would be cheaper to buy.

Musk-ox products would have to be sold frozen and vacuum packed to achieve consumer satisfaction.

Co-op management believe there would be demand for 30 kg of jerky per week and 10 kg of sausages per week, or a total of 1,500 kg of jerky and 500 kg of sausage per annum.

All meat plant products should be pre-priced and labelled as this would make it easier for the co-op to unpack and display products.

Given the local availability of caribou, the Northern Store would also not be interested in buying caribou products from the meat plant; however the store would be interested in musk-ox products.

Since southern jerky sold like 'hot cakes' in the community, the Northern Store would be interested in carrying meat plant jerky as well as sausage.

Given that shipping was expensive, the Northern Store would prefer to buy musk-ox carcasses from the meat plant to butcher while buying jerky and sausage as finished products.

The store estimates demand for 250 lbs of musk-ox per month or about 1,363 kg of musk-ox products per annum and about 780 kg of jerky per annum.

The store considers the jerky price of $40 per kg to be reasonable.

The lack of federal inspection is not considered to be a problem with selling meat plant products; however, products would have to be promoted with proper price lists and local advertising.

Iqaluit: Given the availability of local caribou including caribou jerky and sausage, the Northern Store would be only interested in musk-ox products. They also believe that musk-ox would not be a "hot seller" with local residents but rather would only appeal to tourists.

The store would prefer to have all musk-ox vacuum packed in one kilogram size or smaller packages.

Smaller stores in the community might be interested in carrying jerky products.

Yellowknife Market

IGA Store: The Store would be interested in carrying meat plant products, however they know little about plant products and product prices. It was recommended that the meat plant do more advertising.

The store prefers meat products to be frozen and cryovac packed. Products should also be clean and quick frozen to maintain colour, moisture and freshness.

Meat plant products could be a priced higher than domestic beef products, since meat plant products would be sold as "exotic" meat. For example, musk-ox could sell for between $15 and $17 per kg versus his existing price of $9.36 per kg.

Jerky and sausage would be good sellers, especially to native customers.

The store could sell 100 lbs of meat plant products per week or about 2,400 kg of meat products per annum.

In order to sell to the store, meat plant products would have to be federally inspected and assurance given that products would be available and shipped on a regular and reliable basis.

Super A Store: The store would be interested in selling meat plant products if the meat plant were federally inspected.

Store management could not predict overall consumer reaction to meat plant products but did note that when the store tried to sell reindeer meat in 1976 the product sold poorly. Also, the is growing consumer reluctance to purchase dark meat.

If federally inspected, the store would be interested in testing jerky since the store currently buys southern jerky for $43.75 per kg and sells 10 kg per week, or total sales of 520 kg per annum.

Burns Meat: The wholesaler indicated limited interest in carrying meat plant products given that products were not federally inspected, the existing 'black market' with country food, and the lack of consistent and reliable meat product supply.

Yellowknife Co-op: The co-op had very limited facilities and space to consider carrying new products, however when they did expand (about 1 years time) they might be interested in carrying plant products.

The co-op now sold 50 lbs of pepperoni and 30 lbs of jerky per week or about 1,181 kg of pepperoni and 709 kg of jerky per annum.

Yellowknife Wholesale: The wholesaler only dealt with southern meat products and was not interested in carrying NWT wild game meat.

Yellowknife Inn & Explorer "Hotel: Both hotels buy frozen meat products including loins, burger and hips on a regular basis. A 1988 report by Deloitte Haskins & Sells, estimated annual demand from the two hotels at: caribou 3,227 kg; and musk-ox 2,727 kg.

North Country Foods: The retail store buys frozen musk-ox and musk-ox carcasses. They tend to buy as cheaply as they can and to process all meat themselves.

Yellowknife Institutional Market

Stanton Hospital: The hospital is a regular buyer of meat plant products and believes that product quality and price are good, however they often cannot buy all products they want—in fact, the hospital's last order could not be filled because the meat plant had a lack of product and this was because no one was out hunting.

The Hospital now only orders fish and caribou products and orders quarterly so they have enough inventory to plan and prepare meals reliably.

Akaitcho Hall: Akaitcho Hall does not use country food in their meals because they require all meat to be federally inspected. Akaitcho Hall currently buys all meat products through Bums Foods.

Akaitcho Hall's demand for meat products is about 200 lbs of ground meat per week and 80 lbs of other meat products per week, a total of approximately 4,700 kg of ground meat and 1,900 kg of other meat products per annum.

Other NWT Markets

Some frozen meat products are sold to the hotel in Norman Wells (Mackenzie Hotel), Fort Simpson (Nahanni Inn), Echo Bay Mines and Coast Guard ships; however orders are received on an irregular basis.

Export Market

The Inuvialiut Development Corporation (IDC) has for a number of years harvested and sold Banks Island musk-ox to southern buyers. They have been able to do so by having a federally inspected slaughtering program.

Based on discussions with the ED & T Director of Renewable Resources, the IDC harvests 400 musk-ox and sells carcasses for about $700 per carcass. Assuming 200 lbs or 91 kg per carcass, the IDC obtains approximately $7.69 per kg.

The Director also indicated that potential exists to harvest a significant number of Victoria Island musk-ox (1,000 animals) for export. The Director believes the harvest could be undertaken as a joint venture between the meat plant and the IDC.

Market Size

Excluding the potential export market, the total market for meat plant products in the NWT is estimated as follows:

Cambridge Bay: Cambridge Bay residents and to a lesser extent travelers to the community purchased last year an estimated total $37,549 in meat products through walk-in sales. As indicated in the economic overview section Cambridge Bay

residents will purchase for 1991/92 an estimated $275,524 of red meat products; thus, given the advantage of lower prices over southern beef products, there is opportunity to sell additional meat plant products to residents in the community, especially if promotion and marketing is more aggressive and the store opens every Saturday and not on an infrequent basis.

Given the above, we assume a total of $75,000 in walk-in sales (or 27% of total red meat sales in the community) as a potential market for Year I. Since most sales are currently non-jerky sales we assume that 75% of walk-in sales will be from other products and 25% from jerky sales. Thus, product volume would be:

Other products: 75% X $75,000 divide by average $6 per kg = 9,375 kg.

Jerky: 25% X $75,000 divide by $40 per kg = 468 kg

Other Regional Communities: Based on interviews with co-op store managers we can assume a minimum regional co-op store market of:

Community	- (kg) - Jerky	Sausage Pepperoni	Other Products
Cambridge Bay	700	300	720
Holman Island	300	nil	negligible
Gjoa Haven	500	300	negligible
Spence Bay	**1,040**	**468**	negligible
Coppermine	- interested in buying next year -		
Pelly Bay	200	100	negligible
Total	2,700	1,168	720

In addition, based on discussions with the Northern Store District Manager we can assume a regional Northern Store market of 4,500 kg of jerky and 13,500 kg of other products.

Other NWT Communities: Based on discussions with Co-op and Northern store managers we can assume the following volumes:

	- (kg) -		
Community	Jerky	Sausage	Other Products
Inuvik	400	200	negligible
Iqaluit	nil	nil	500
Rankin Inlet	2,400	500	1,500
Other Communities	500	300	2,000
Total	3,300	1,100	4,000

Yellowknife: Based on interviews with Yellowknife store and institutional buyers and review of ealier reports we can assume the following minimum volumes:

	- (kg) -	
	Jerky	Other products
IGA	500	2,000
Super A	520	2,000
Co-op	500	1,000
Hotels	nil	5,954
North Country	nil	500
Hospital	nil	1,000
Total	1,520	12,454

Summary: The following are volumes that could be sold to identified NWT markets:

Market	Jerky	- (kg) - Sausage Pepperoni	Other Products
Walk-in	468		9,375
Regional Coop	2,700	1,168	720
Regional Northern Store	4,500		13,500
Other NWT Communities	3,300	1,100	4,000
Yellowknife	1,5201		2,454
Total	12,488	2,268	40,049

Given available quotas and production shrinkage the meat plant can only produce 8,164 kg of jerky and 28,158 kg of other products, thus, based on the above, there is an excess demand for meat plant products in the NWT.

Identified Target Market

Analysis indicates that the Kitikmeot Region alone could take almost all meat plant production, specifically 7,668 kg of jerky, 1,168 kg of sausage and 23,595 kg of other products. Developing the regional market would also provide the following advantages over developing other markets:

- a federally inspected harvest would not be required, although batch testing would be required to capture the regional Northern Store market;

- a steady supply of meat plant products could be supplied to customers within the region, thus reducing regional customer criticism that the meat plant does not provide a reliable supply;

- transportation costs and product costs to consumers would be minimized;
- a unique product unavailable in other parts of the NWT would be supplied to regional communities;
- the Kitikmeot would be further defined as a unique region in the NWT, thus generating more tourism appeal;
- all Kitikmeot residents would be provided with access to their own resource.

The balance of product could be then be sold to a select number of other NWT customers willing to pay a premium price and who do not require that meat be federally inspected-eg. Yellowknife hotels.

In the future, if a federally inspected harvest were developed, consideration could be given to exporting product, although the cost/benefit of selling raw carcasses at $7.69 per kg would have to be compared with producing and selling finished products such as jerky in the NWT at $40 per kg,

Products

The meat plant would continue to produce and sell the existing range of products including: steaks, burger, ribs, stew, roasts, hips, loins, paddies, jerky, sausages, pepperoni, salami and smokies. Liver, heart, tongues and whole ribs would also be available as would the meat cutting and wrapping service. New product offerings would not be considered for at least the first year of operation.

Pricing

The meat plant would continue to offer existing prices for products (including the 20% commission to stores in the region for selling jerky). Prices would be as follows:

	($ per kg)	
	Caribou	Musk-ox
Steak	9.35	9.35
Burger	5.00	5.00
Ribs	5.00	5.00
Stew	6.00	6.00
Paddies	7.50	7.50
Jerky	40.00	40.00
Sausages	8.00	8.00
Roast	9.00	9.00
Pepperoni	14.00	14.00

	Caribou & Musk-ox (same price)
Salami, Smokies and Garlic Sausages	12.10
Hips	3.95
Loins	5.75
Liver, Heart, tongues	4.40
Whole ribs	4.00
Meat Cutting and wrapping	.75
Just meat cutting	.25

Competition

Competition in the region consists of:

- caribou harvested by local hunters and provided directly to residents;
- southern imported beef products;
- in Coppermine and Gjoa Haven where musk-ox is harvested, meat cutting/grinding projects are starting;
- Country food stores in Inuvik , Ikaluit & Yellowknife.

Since the meat plant will process 80% of all caribou meat into jerky, there will be little caribou available for sale as other products. Thus, the meat plant can likely sell all caribou meat products through walk-in sales without having to compete with local caribou products available in other communities.

In regards, to southern beef products the meat plant will have a competitive edge in terms of price and freshness.

In regards to the Coppermine and Gjoa Haven meat processing projects, it would appear that stiff competition may exist. Indeed, according to the ED & T Renewable Resource Officer in the region the Gjoa Haven project has the capability to produce jerky and could, because of no transportation costs, have a price advantage over Cambridge Bay meat plant jerky. Moreover, if the Gjoa Haven project were to obtain additional quotas beyond the 60 animals allowed the community, the project could in time generate significant regional competion. The same would be true for the Coppermine project if it started smoking and jerky production.

Since country food stores in Inuvik, Ikaluit and Yellowknife do not process musk-ox products, it is expected that competition would be limited to caribou products.

Market disruption would appear to be restricted to Coppermine and Gjoa Haven.

Promotion and Marketing Strategy

All products in the region (except those available through walk-in sales at the meat plant) will be sold and distributed thought the Co-ops and Northern Stores. In order to maximize product sales, the following initiatives will be undertaken:

- All regional Co-op and Northern Store managers will be contacted to establish the level of standing orders each store requires, method of shipment, delivery schedule and whether products should be pre-priced by the meat plant;

- All store managers will be contacted on a regular weekly basis to confirm overall satisfaction with products shipped and received;

- Each store will receive promotional material to enhance product sales including: a printed colour posture; jerky display stand; monthly special flyers;

- All products will be labelled with a distinctive logo to enhance product identification. All labels will include a description of product contents, date of manufacture and batch testing;

- All labels and promotional material will emphasize that products are batch tested and have excellent nutritional value.

The meat plant will take the following initiatives to enhance walk-in sales:

- The existing closed freezers and refrigerator will be replaced by open upright display coolers and freezers so that customers can visually inspect available products without having to open fridges and freezers;

- A jerky display stand will be placed in a prominent area of the retail store;

- Posters advertising meat plant products will be placed prominently on walls;

- A large well-lighted sign will be placed outside the meat plant's retail store entrance;

- All meat plant products will be available to customers at the meat plant retail store;

- The retail store will be open every Saturday from 9:30 am to 6 pm and on weekdays from 9 am to 6:30 pm.

For customers outside the region, arrangements will be made with existing customers for standing order arrangements and customer requirements concerning method of shipment and delivery schedule. Customers outside the region will be contacted on a regular basis to confirm product and supply satisfaction.

Operations and Production Elements

With the renovations and improvements outlined in the Capital Requirements section of this report, the meat plant will be more efficient and productive (see drawings in this section). Proposed major (physical and structural) changes to plant layout include:

- Designing and constructing a larger, more efficient receiving station for raw product delivered by local hunters;

- Extending the receiving area to cap the end of the reefer trailer. This would eliminate the need to haul “cleaned carcasses” or “finished product” down a flight of stairs and back up to the level of the existing trailer unit. Also, extending the building to cap the trailer would accomplish two objectives: provide more efficient access to the reefer and provide space for a “flash freezer”. In addition, a docking bay, along with a proper hoist mechanism would be constructed to improve loading conditions;

- As noted above, a “flash freezer” unit would be incorporated into an enclosed area in front of the doors to the reefer unit. Again, benefits to be gained here include: - providing blast freezer capacity which the plant does not currently have and second a backup system in the event of mechanical failure of the reefer unit in the trailer. Additional benefits from the blast freezer include improving the visual appeal of prime cuts. Without blast freezing, prime cuts tend to bleed, (if the carcasses have not been hung long enough) resulting in blood pending in the bottom of their packaging material;

- Re-positioning fluorescent lighting to conform to existing health standards (according to current regulations, light banks may not be positioned directly above cutting areas, because of the potential for bacteria growth);

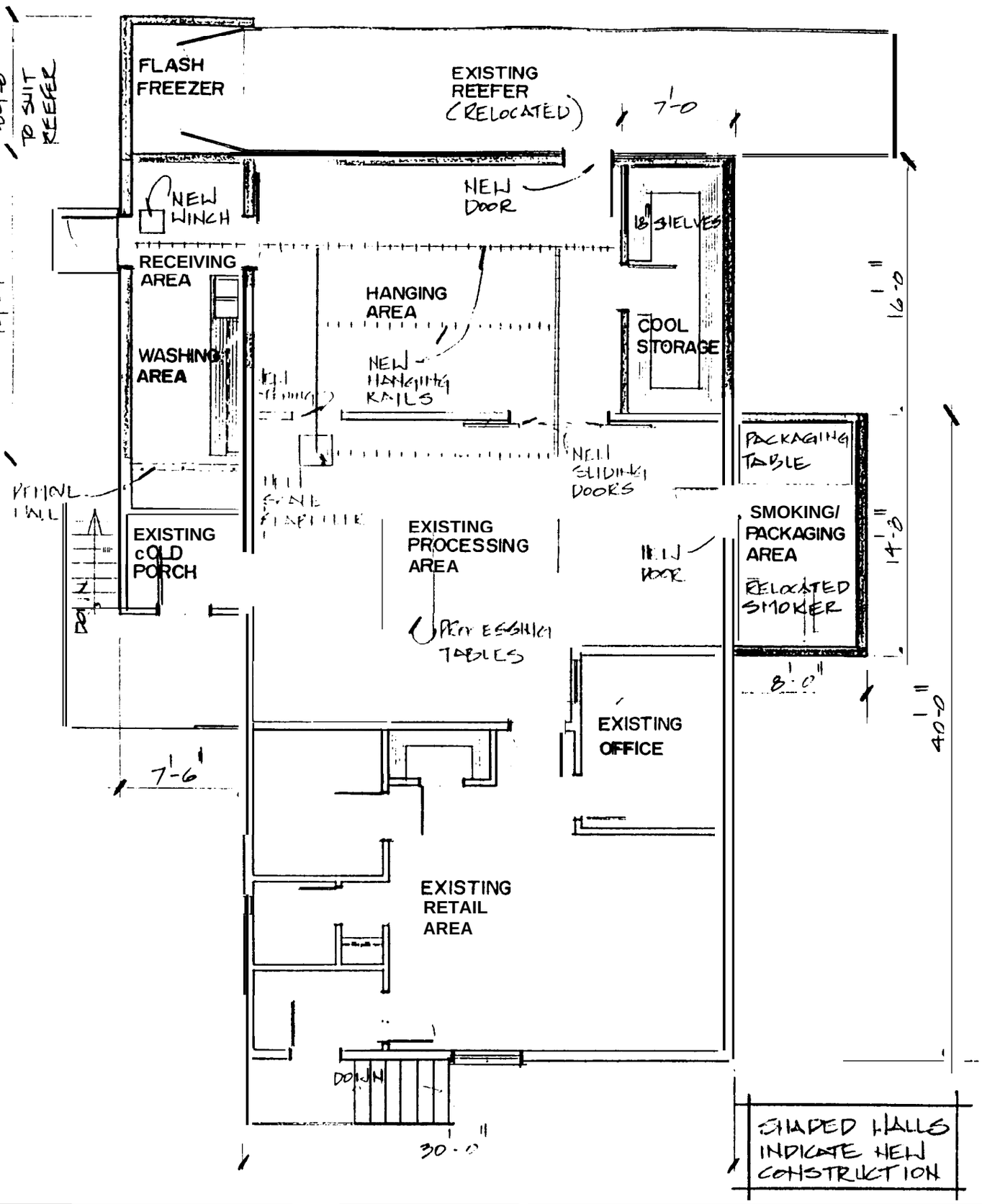
- Constructing a 12’ by 30’ addition between the current reefer trailer and the plant floor, connected by large, beam supported, passage-ways with swinging doors. This would provide space for an additional rail system (parallel, but connected with proper rail switches to the existing rails (see drawings) in the main processing area. Mid-point between the new rails and existing rails would be an in-line scale which would be used to weigh the carcasses and determining payment to the hunters. The additional rails would also be used to hang animals for at least 24 hours prior to cutting; ;

- Repositioning the smoker unit to increase plant capacity for “jerky” products. The smoker would be moved from its present location in the main cutting area of the plant to a separate room, approximately 8’ x 12’ in size. Two things would be accomplished here. First, temperature (maximum temp. allow is 40 degrees Fahrenheit) in the main cutting and processing room would be easier to control with the smoker moved. Currently, heat loss from the unit increases the processing room temperature, necessitating additional cooling from the air conditioning system (which also requires servicing). Second, with increased space for a separate smoker room, all packaging, could be consolidated in that area to increase handling and production efficiency;

- Install electric skinning knives on the main cutting and floor to facilitate easier cutting and trim work;

- Install a suspended, electric saw for splitting carcasses at the splitting area near the beginning of the cutting area;

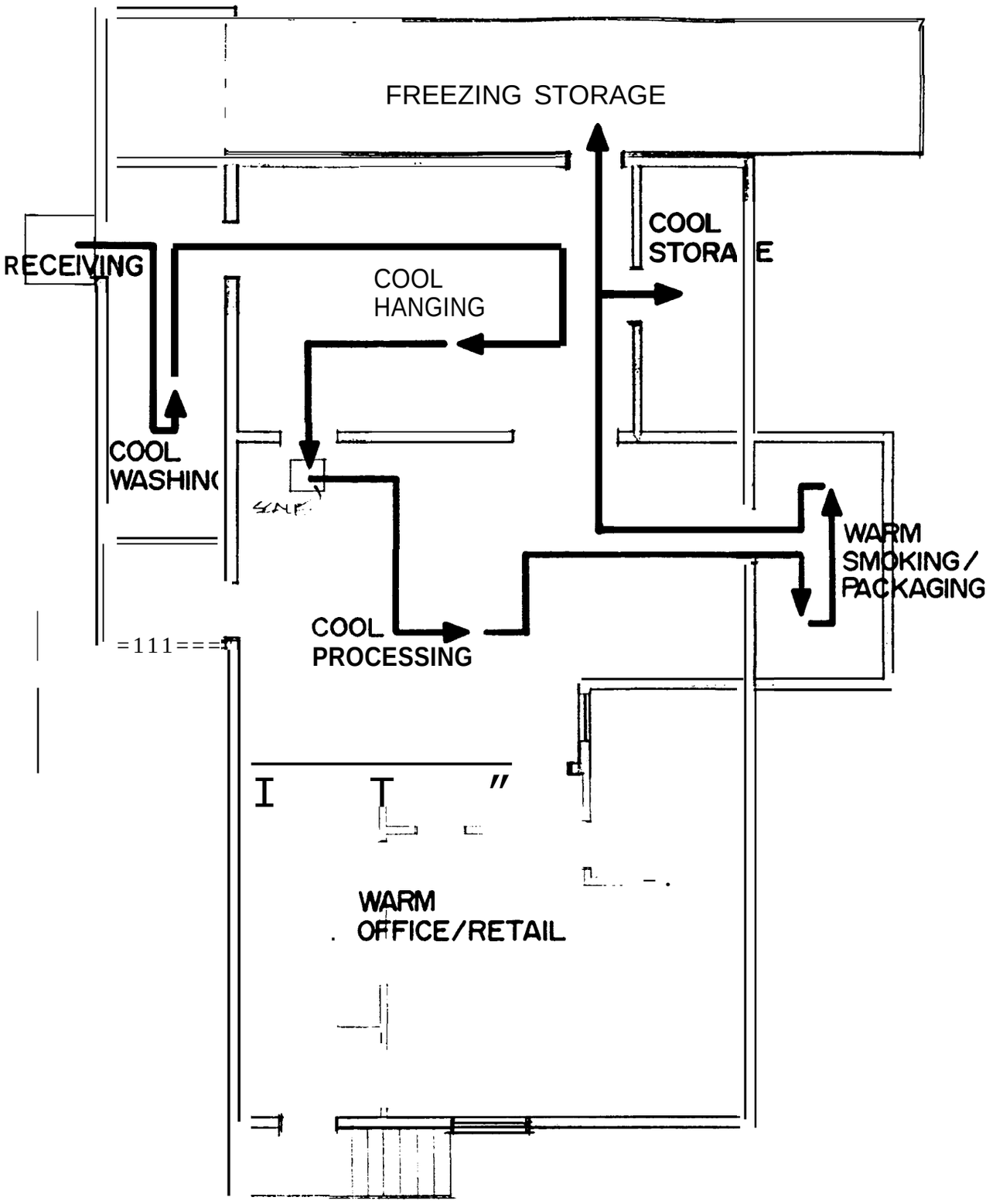
- An enlarged washing facility would be constructed near the receiving area to facilitate better initial processing of the carcasses.



MEAT PROCESSING PLANT
CAMBRIDGE BAY, N.W.T.

FLOOR PLAN
1/8" = 1'-0"

SEPT 9 1991
R. HICKSON.



MEAT PROCESSING PLANT CAMBRIDGE BAY, NWT.	FLOW CHART 1/8" = 1'-0"	SEPT 9 1991 R. HICKSON

Functional Attributes and Plant Flow

With the above changes in effect, the plant would be more efficient and throughput (assuming labour is available) would be enhanced significantly. For example, with the suggested changes, the plant would be streamlined and divided into six functional areas, outlined as follows. We would refer the reader to the drawings on the previous pages for details regarding plant layout and interdependencies of each work station.

Receiving Station

As noted earlier, with a proper receiving station with hoists and washing facilities, connected to a cool hanging station, initial processing of musk-ox and caribou carcasses would be vastly improved over existing operations. When carcasses would be delivered to the plant, they would be immediately hoisted on an entry rail system (connected to the balance of plant rails) in the entry preparation area; here carcasses would be washed and hides removed.

Hanging and Cooling Station

Once each **cascass** was cleaned, it would be moved down the rail system into the cooling and hanging station. The purpose of this area would be to allow each carcass to adequately cool and hang for a period, not less than 12 hours, so that subcutaneous and **intra-muscular** fluids would have an opportunity to gel. The hanging and cooling station would be maintained at 40 degrees F. **(max),** which would provide interim storage/hanging space, if required, for up to one week. After one week, the carcasses would either be moved to the processing floor for breaking down and rendering or to the blast freezer/reefer for longer term storage. The reader should note, that despite the availability of the cooling and hanging work station, management's goal should be to maximize the number of animals processed in the "fresh", state. This would ensure that only the best product would be available for production purposes.

If the meat requires freezing (that is, when it has exceeded or is about to exceed the seven day holding period), the quality of the finished meat products, once processed, will be somewhat less than can be achieved using fresh, but hung meat. Some problems with processing, once frozen meat include dehydration (although this can be arrested to some degree using blast freezing methods) and freezer bum, if the freezer unit temperature is not controlled properly.

Processing Floor

Following the process diagram, the carcasses are then moved from the hanging and cooling work station to the plant's central processing area for breaking down, grinding and preparation for further cutting into raw product for jerky production or prime cuts.

In terms of the rendering process, given that only 30 percent of (in the main) musk-ox is useable (due to high fat content) for the production of jerky (primary product), musk-ox would be used for both jerky and prime cuts, such as steaks, ground, stew meat, etc. Caribou, on the otherhand, would be almost completely rendered for the production of jerky, due to its correspondingly low fat content to total body weight.

Smoking and Packaging Station

Once raw product has either been rendered into prime cuts or ground meat for further extrusion into jerky strips, it would then be moved into the smoking and packaging room where the vacuum packing, weighing and labelling equipment would be located. In the case of jerky, product would be placed on smoking trays and loaded into the smoker unit for processing (approximately 30 kg. for four hours, with a 50% weight loss in final product). For other cuts, product would be vac-packed, weighed labelled and transported to either the adjacent cool holding facility (for orders for fresh, prime cuts) or to the blast freezer and reefer unit for longer term storage.

Again, it is important to stress that management keep finished product inventories to a minimum, (except during the summer months) so that plant cash flow is maintained and that only the freshest product is sold in the market place. During the summer months, it is conceivable that the plant would have two months of goods in process or finished goods for sale during the spring and summer when caribou and musk-ox are not harvested.

Cool Storage

As noted above, the cold storage unit adjacent to the smoker and reefer unit would serve as an intermediary holding area for finished goods. It would not be used for goods in processor for rendered, unprocessed, raw materials.

Blast Freezer and Reefer Unit

With the additional space created by adding a space for a blast freezer and tying the reefer unit to the main facility (on the same level), the freezing becomes much more accessible and efficient compared to previous methods of handling unprocessed and processed meat.

At the present time, carcasses are loaded—without the benefits of a proper hoist—onto an outside deck where they are dragged into the plant for skinning and cleaning. Afterwards, they are washed and either put into production or hung over night, weighed and carried back outside, down a flight of stairs, up another set of steps and loaded into the reefer unit. As additional animals are required for processing the animals are retrieved from the reefer unit via the same stairs and steps and reloaded up into the processing plant for thawing and cutting.

Retail and Shipping

Once finished product is available, it would be placed in upright freezers, with glass display doors in the existing retail space outlined in the concept drawings.

Essentially, the Office/Retail area would serve as a retail space and a shipping and packing space for off premise orders. It would also continue to be used for off the street sales to local residents and visitors to the community.

Systems and Procedures

In addition to the above noted changes to the existing plant, we recommend that funding be made available for designing and implementing a computerized system (essentially a micro-computer and off-the-shelf software) for management purposes. Such a system should, at the very least, be capable of tracking raw material and finished goods inventory, product pricing, customer orders and shipping information, basic accounting of the meat plant and productivity measures for the operation. These could include: number of and type of animals processed each month (range of finished product), payments to harvesters, indicators of animal quality, staff attendance and productivity bonuses (if implemented), cost accounting for each product produced and sold from the plant, and profitability indicators.

To develop and implement a computerized system we recommend that management engage the services of a firm specializing in the development of micro-computer systems for small businesses. Such a firm would necessarily require not only small systems expertise, but an excellent understanding of the concepts of cost-accounting for manufacturing and processing. We estimate the total cost of the system, including hardware would be in the order of $13,750 broken down as follows:

a.) Evaluation of System Requirements -$750
b.) Selection and Purchase of Hardware and Software -$3500
c.) Installation of Hardware and Software $750
d.) Development and Implementation of Management Information System $5,000
e.) Staff Training and Implementation -$750
f.) Travel and Occupancy -$3,000

Estimated Total Cost: $13,750

CAPITAL REQUIREMENTS

Based on discussions with ED & T Regional staff, the current plant manager and a review of an earlier report prepared by ED & T Headquarters staff we have prepared the following capital plan for an expanded meat plant facility. We have also obtained equipment supplier quotes (Butchers & Packers, Edmonton) on those items not included in the ED & T headquarters report but deemed necessary in the current plan.

Renovation/Construction Costs

The existing meat plant building is 30' X 40' or a total of 1,200 sq.ft. The renovation to the building would result in the following additional space:

- smoking/packaging area: 8' X 14.8' or 118.4 sq.ft;
- receiving/washing area: 19.4' X 7.6' or 147.4 sq.ft;
- flash freezer: 2.9' X 7.6' or 22 sq.ft;
- new meat hanging and cold storage area: 16' X 30' or 480 sq.ft.

Total new additional space: 767.8 sq.ft.

In the earlier ED & T report it is assumed that renovation/construction of the meat plant would cost in the order of $300 per sq.ft. If we use the same estimate then total cost of the additional space would be: 767.8 sq.ft X $300 = $230,340

Since materials may have to be flown-in if renovation/construction occurs during the winter, and special flooring will have to be used, and possibly other measures taken once detailed specifications are deveioped, we have factored an additional 15%

contingency factor for additional costs. We have also factored $10,000 to have detailed architectural drawings and specifications prepared as well as to hire someone for project management during the period of construction.

Thus, total renovation/construction is estimated to be:

Renovation/Construction estimate	$230,340
Plus:	
15% Contingency Factor	34,551
Detailed Drawings and Specifications and Project Management Costs	**10,000**
Total	$274,891

Equipment Costs

Equipment to be purchased will include:

1 X Hussman Reach-in Cooler (42 cu.ft)	3,000
3 X Hussman Reach-in Freezer Cooler (44 cu.ft)	20,000
1 X Flash Freezer (including Installation)	15,000
Overhaul Smoker Cost	2,000
1 X Vacuum Packer (counter top X 200 Comet) plus digiscale/labeler/pricer	18,000
1 X Stainless Steel Table for the Smoking Room	2,000
1 X Heavy Duty Pressure Washer	2,500
1 X Winch for Receiving Area	2,000
1 X Weigh Scale	2,000
3 X Electric Skinning Knives ($150 each)	450
1 X Weighted Splitting Saw	1,800
1 X Knife/Grinder	300
Additional Hanging Rails (beyond ED& T estimate)	3,000
Miscellaneous	2,500
Total	$74,550

In addition, a management information system (see operation section) will be purchased. The cost including hardware, software, system development and training would be an estimated $13,500.

Total equipment costs will be: $88,050

Working Capital

The meat plant will require in Year I and Year 2 sufficient working capital to cover initial raw material purchases and accounts receivables. This has been calculated at

$75,000 for raw material purchases and for accounts receivables, about 75% of one months sales or $15,000. Thus, total working capital requirements are $90,000.

Managers Wage Before Start-up

It is recommended that the meat plant manager be hired in November (four months before renovation/construction is completed and the meat plant is fully operational in April) in order to oversee purchase of equipment; hire the assistant manager and retail clerk/manager; visit all major customers and arrange promotion and marketing initiatives including standing orders with customers; visit the southern food science laboratory to confirm testing procedures that will be followed; confirm NWT Development Corporation reporting arrangements; and to establish the financial controls that will be in place once production starts.

Thus, we have calculated four months of wages and benefits as pre-development costs: 4 x $7,500= $30,000.

Outstanding BLF Loan

An outstanding Business Fund Loan (BLF) of $38,742 is due and payable in 1992. It is expected that the loan would be paid off in its entirety once the meat plant is taken over by the NW'T' development Corporation.

Summary

Total Capital Requirements wil be:

Renovation/Construction	$274,891
Equipment	88,050
Working Capital	90,000
Managers Wage/Benefits Pre-Development	30,000
BLF Loan	38,742
Total Capital Requirements	$521,683

OWNERSHIP, MANAGEMENT & STAFFING

Ownership

We recommend that ownership be in the form of a joint venture between the NWT Development Corporation, the local Cambridge Bay HTA and the manager hired to operate the meat plant. We recommend this structure so that the Development Corporation can share overall risk and opportunity with its sole supplier (the HTA) and the individual responsible for production (the manager).

We further recommend that the Development Corporation hold 90% of the ownership in the company with the HTA holding 10%, and that in Year I, Year II and Year III, the manager be given annually 5% of the ownership if revenue and income projections are met or exceeded. Thus, at the end of Year III, assuming the manager meets or exceeds targets, the ownership structure would be 7570 held by the Development Corporation, 10% by the HTA and 15% by the manager. At the end of Year III, the corporation could consider possible sell of additional ownership to the manager and/or the HTA.

Inter-corporate Relationship

We recommend that the relationship between the joint venture partners be in the form of an investors and operating agreement. The agreement would address such issues as the agreed targets for the manager and the percentage of ownership to be transferred to the manager. It would identify how the business affairs of the joint venture company would be carried out, along with the roles and responsibilities of the partners. The agreement should also identify default triggers which would provide for disputes-settlement mechanisms, and the timing and amounts of withdrawals from the company. Also, the methods of disposing shares and issuing new shares would need to be fully outlined in the agreement.

Management Structure

The meat plant manager will report to the NWT Development Corporation's General Manager on a day-to-day basis.

Meat Plant Manager's Job Description

See Appendix I for a detailed job description for the meat plant manager's position.

Meat Plant **Staffing**

The meat plant will be staffed by three full-time employees: the manager, the assistant manager and the retail clerk/bookkeeper.

The manager will have overall responsibility for directing the meat plant while heavily involved in production.

The assistant manager will assist primarily in production and shipping/receiving. The assistant manager will also have responsibility for all batch testing.

The retail clerk/bookkeeper will have responsibility for answering the phone, taking phone orders, handling walk-in retail sales, and maintaining financial records.

An additional 1.3 person years of employment will be created in part time employment once the meat plant has reached the point where all available quotas are being processed.

CRITICAL RISKS

Competition from Gjoa Haven and Coppermine meat processing projects could reduce potential sales. However, it is assumed that the Cambridge meat plant will have a competitive edge because of the higher available quotas to process, effective management in place, and high quality control including batch testing.

Should insurance not be obtained the meat plant could face a major lawsuit assuming food poisoning were to ever occur with products sold. Thus, the meat plant will need to obtain required insurance. In this regard, the fact that the meat plant will be batch testing should assist the plant in obtaining insurance.

Meat Processing Regulations and Health Issues

Although the GNWT is currently considering regulatory options, at the present time there are no specific regulations for the harvesting and processing of wild game meat for sale to the public. There are regulations concerning the handling of generic food products, which are enforced by the Environmental Health Division of the GNWT Health Department, however, they are generic in nature and do not deal specifically with meat processing and inspection. Therefore, game meat may be sold anywhere in the N.W.T. without inspection and regulation.

However, for game meat to be sold outside the N.W.T. it must be Federally inspected, which means each animal must be physically examined by a qualified meat inspector immediately after it is killed. The inspection process ensures that each animal is in good condition and is disease free at the time of kill. The site and kill/processing facility must also meet guidelines established under the Federal Meat Inspection Act. Also, any export destined meat must be stored in a Federally approved storage and handling facility. Except for Federally approved portable abattoirs in use in the Inuvik region, there are no approved storage facilities at the present time in the N.W.T. For this reason, most exporters of game meat ship their product, immediately after the kill, to Federally approved facilities in the south where product may be held until sold in the marketplace.

Regarding the future for N.W.T. meat inspection, the GNWT is currently evaluating options for designing and implementing territorial meat regulations. The current thinking is that, in all likelihood, meat inspection regulations will be largely based on those developed and implemented by the Alberta Department of Agriculture. However, since the Alberta regulations are designed for agricultural conditions not found in the N.W.T. the GNWT is considering a “tiered structure”, whereby game meat for intersettlement trade in the regions may not be subject to the same degree of scrutiny as those products destined for the consumer market in larger centers throughout the north.

As for when these regulations may be finally developed and brought into force, it is not known at this point, however, officials of the GNWT Department of Renewable Resources suggest that one could expect game meat regulations within two to three years.

In the absence of territorial meat regulations and given current retailer sensitivity regarding the sale of game meat (see marketing section), we recommend that the meat plant adopt a random, batch testing approach to ensure each product meets the highest standards possible and is disease or contaminant free.

The reader should note that although the GNWT has assumed responsibilities for general health issues (with the recent transfer of Medical Services) the responsibility for inspecting food products and processing plants remains with the Federal Department of Health and Welfare, Health Protection Branch and the Federal Department of Agriculture. This agency operates under the authorities granted by the Canadian Act Respecting Food, Drugs, Cosmetics, and Therapeutic Devices, commonly known as the Food and Drug Act (December 12,1988).

According to the Health and Welfare Canada Food and Drug Inspection Branch in Edmonton, Alberta, the minimum tests that should be conducted to ensure safe product and to lessen concerns about biological pathogens in meat products include:

1.) Test for Choloform Count

The purpose of the Choloform count is to identify the general levels of choloform bacteria in the meat. Choloform is normally derived from human or animal waste products. Results from testing should be considered a ***"first - round indicator"*** since the test only gives levels of total choloforms in the product being tested. Detailed choloform bacterial analysis may be warranted if general levels are higher than standards tolerances set by the Health Department. Aside from general marketability

of product the main reason for testing for choloform bacterial is to prevent consumers from gastro-intestinal infection (non-lethal, but none the less aggravating).

2.) Standard Plate Count

Testing for standard plate counts (heterotrophic plate count) would provide an indication of the general level of bacteria in each meat sample. When done at various stages of the production process, management would be able to pin-point problem areas in each functional area of the plant. Once baseline data for the "plate count" has been established, periodic sampling, say once a week or two, would provide excellent control over plant hygiene.

3.) Test for Salmonella

Although more commonly found in the poultry industry, salmonella has been detected in red meat processing facilities, as well. While not generally lethal, salmonella poisoning can be extremely serious and is highly susceptible to cross-contamination in most settings.

4.) Test for Listeria Monocytogenes

Listeria Monocytogenes is a biological pathogen which is found in mammalian milk and tissue and cause severe gastro-intestinal problems in its victims. The resulting human ailments are far worse than those resulting from salmonella. Listeria Monocytogenes has been recently identified as a major health risk if not detected in the domestic meat industry and is now being screened for during routine meat inspection and testing. As for the transmissibility of the pathogen to wild game very little is known at present, however, cross-contamination could occur if given the opportunity.

All of the above tests, including the choloform count and heterotrophic plate count are key indicators of bacterial contamination. If tested for, they would provide an

indication of the sanitation of the plant and workers, how well temperatures are controlled in meat handling areas, and how well the products have been handled from slaughter to final product. As noted above, salmonella is another pathogen that should be monitored to ensure consumer safety. In particular, batch testing of jerky products and any fresh products should be done on a regular basis. As well, Health and Welfare suggested that musk-ox and caribou products be tested for Listeria Monocytogenes, a bacteria, which is presently widespread in the domestic meat industry in southern Canada and the United States.

All of the food scientists contacted suggested that batch testing would be an excellent method of preventing transmission of potential disease amongst the plant's customer base and to ensure overall quality control at the plant. They also suggested that plant management pay particular attention to products which are based on ground product. Evidently, ground products are easily contaminated because, unlike whole carcasses or prime cuts, the bacteria cannot be washed off. Even fecal choloforms resulting from gut punctures can be removed by proper cleaning methods. However, this is not true for ground products resulting from contaminated raw product. Unfortunately during the grinding process, the surficial microbe population is driven through the tissue of the animal, resulting in a completely contaminated product. Jerky, sausage, and other products using ground raw product should be a prime target for monitoring.

Testing Procedures

Regarding testing procedures, we recommend that random "batch" tests be done at least weekly on all products made in the plant. A batch recording system could be established whereby the labelling of the product could include a date marker that would correspond with lab analysis data prepared at a food science laboratory in Edmonton, Alberta.

Batch testing should be done at each stage of the production process (at least initially) so that bench mark bacterial data may obtained at the beginning of plant (revised) production. With intermediate sampling, management would also be able to

determine (if bacterial counts are increasing) at what stage, if any, contamination is occurring and corrective measures that need to be taken.

A recent survey of private food science labs in Edmonton suggests that it would cost approximately $125 per week for testing of meat samples of the plant. The only other costs would be the purchase of sterile containers for samples and minor shipping charges to Edmonton. Containers are estimated at $10 per week and shipping costs are estimated to be $25 per week, on average. This means for a weekly batch testing program the plant would need to budget an additional $7,680 annually for this service.

In sum, with the above "batch testing" procedures in place, we are confident (based on our market research) that meat plant products would significantly increase their acceptance in regional markets (Nothern Stores) and larger markets such as Yellowknife, where retailers and restaurants are more sensitive to the issue of Federally inspected product. If plant management adopts a batch testing procedure, we also recommend that each product contain, either on the label or in its shipping material or container, a bulletin indicating the product has been tested to certain standards by a certified Canadian food science lab. For major accounts, the plant may want to include a short description of the bacterial pathogens that have been screened in each batch.

As a final note, we recommend that, in the event the Central Arctic Meat Plant is revitalized, that floor plans and equipment layout be inspected by the Federal Health Protection Branch of the Department of Health and Welfare Canada. Also, (at the suggestion of the Meat Hygiene Branch of the Alberta Department of Agriculture) we recommend that the drawings be review by their staff as well, before final approval and construction occurs.

Financial Analysis

Based on our market research and assessment of the current operations of the Central Arctic Meat plant, we have developed financial projections (attached pages) for the proposed take over of the plant by the N.W.T. Development Corporation. These projections are based on certain organizational and operational assumptions which are outlined at the end of this section.

Underlying our analysis is the fundamental assumption that market demand for finished product has never been a constraint for plant operations; markets are large and enduring in the N.W.T. and the entire plant production at maximum capacity can be easily consumed by the local, regional and N.W.T. markets. Historically, the main reason for low productivity and thus non-profitability has been the lack of reliable production labour and continuing skilled management over the past three and half years of operations. Thus, our projections are based on the premise that, given adequate financial incentives to attract and retain reliable and skilled plant labour and management, the business could indeed be profitable within a relatively short period of time. On the basis of our research and analysis, we estimate this could easily be achieved by the fifth year of operations (under the control of the N.W.T. Development Corporation).

Financial projections also assume that since the N.W.T. Development Corporation (is a crown corporation, the meat plant, a subsidiary, would not be expected to pay corporate taxes. Thus, the following projections do not account for corporate taxes and offsetting capital costs allowances which are normally considered a cost of doing business.

As well, we have only shown the starting fixed (buildings and equipment) asset base of the new company at the purchase price of Central Arctic Meats assets. For this we have assumed that $38,742 would be paid to Central Arctic Meats Ltd. In turn, Central Arctic Meats Ltd. would use these funds to retire their GNWT business loan which is due and payable January 1992. Any outstanding shareholders loans due to

members of the Hunters and Trappers Association would be foregone, in consideration of the purchase price

Accordingly, we summarize financial requirements for the proposed take over of the Central Arctic Meat plant, as follows:

Financial Requirements for Take- over of Central Arctic Meats Ltd.

Renovation and Construction	$274,891
Equipment Purchases	$ 88,050
Working Capital	$90,000
Pre-Development Costs (Mgm't)	$ 30,000
Purchase Price (HTA Pays Loan)	$ 38,742
Total Investment Required	$521,683

As outlined above (and in the capital and operations section of this report), to adequately revise the meat plant a total investment of $521,683 would be required from the N.W.T. Development Corporation. Of this amount, $90,000 would be used for working capital. As well, a front-end injection of $90,000 in cash would leave the new meat plant with sufficient capital to meet second year inventory requirement in March and April, when higher than average inventory levels are acquired to carry plant operations during the spring and summer months when harvesting does not occur.

Increased Production and Margins as the Basis for Profitability

As noted above, our financial forecast draws heavily from the extensive market research conducted during the course of this assignment. As such, our plan is *market -driven* and financial results are outlined accordingly.

The following table shows the basis for revenue projections contained in the projected financial statements.

Revenue Base Calculations

	1992	1993	1994	1995	1996
# Harvested:					
Caribou	175	175	175	175	175
Muskox	275	350	425	500	550
Carcass Weights:					
Caribou (kg.)	7962.50	796250	7962.50	786250	7962.50
Muskox (kg.)	24997.50	31815.00	366323	45450.00	49995.00
Total Meat (kg.)	32s60.00	39777s0	46595.00	53412.50	57957.50
Meat for Processing:					
Caribou (kg.)	5971.88	5871.66	5871.6a	5971.88	5971.88
Muskox (kg.)	18746.13	23661.25	26874.36	34087.50	3748625
Total Meat (kg.)	24720.00	29833.13	34846.25	40059.38	43468.13
Products:					
Caribou Jerky (kg.)	2,388.75	2,388.75	2,388.75	2366.75	2&6.75
Other Caribou Cuts (kg.)	1,194.38	1,184.38	1,194.36	1,184.36	1,184.36
Muskox Jerky (kg.)	281222	3,579.19	4,34&16	5,113.13	5,624.44
Other Muskox Cuts (kg.)	13,123.69	16,702S3	20,282.06	23,861.25	26,247.36
Total Jerky (kg.)	5,200.97	5,867.84	6,734.91	7,501.66	8,013.19
Total Other **Products** (kg.)	14,318.06	17,697,25	21,476.44	25,055.63	27,441.75
Retail Values:					
Jerky ($)	$166,431.00	$204,342.18	$246,745.41	$294,083.82	$336,116.93
Other Cuts ($)	$85,908.38	$114,900.35	$147,530.24	$164,165.31	$215,623.22
Total Value **($)**	$252,339.38	$319242.53	$3s4275.65	$476249,13	$551,940.15

As the above table shows, under revised operating conditions, we have projected plant throughput from a total of 32,960 kg. of processable meat in the first year of operations to 57,957kg. by year five. By year five we expect the plant would be

harvesting almost all of the current quotas for both caribou and muskox in the immediate area. These harvest and production levels translate into a projected revenue stream (adjusted for annual inflation) increasing from $252,339 for year one to a high of $551,940 for year five. According to interim plant manager, Mr. Bill Tarr and ED&T departmental staff in the Kitikmeot Region, these harvest and processing levels are well within the limits of both the resource and the plant capacity. As noted earlier, the challenge in reaching targets will be the retention of reliable and productive staff on the production floor.

It is on this basis that we have developed the following projections. The succeeding pages provide a projected monthly cash flow statement for the first year of operations, a five year annual profit and loss statement, a five year annual cash flow statement and a five year balance sheet.

Projected Monthly Cash Flow
Central Arctic Meat Plant

	Mu-92	Apr-92	May-92	Jun-92	Jul-92	Aug-92	Oct-92	Nov-92	Dec-92	Jan-92	Feb-92	Totals
Sources of Cash:												
Opening Cash Balance	0	62407	40462	42462	44932	460s5	46825	43935	41219	37870	34506	
Total Monthly Sales	21000	21000	21000	21000	21000	21000	21000	21000	211X)0	210C4J	21000	252000
Cash Sales	6300	6300	6300	8300	S300	6300	6300	6300	6300	6300	6300	75600
Receivables Collected	0	14700	14700	14700	14700	14700	14700	147W	14700	14700	14700	161700
Operating subsidy	90000											
Total Cash Available	96300	S3407	61462	63462	65932	69085	67625	64935	62219	56870	55506	237300
Uses of Cash:												
Inventory	12082	24184	0	0	0	0	6041	6041	6041	6041	6041	72492
Management Wages	7500	7500	7500	7500	7500	75(XI	7500	7500	7500	7500	7500	90000
Assist, Mgr. Wages	3750	3750	3750	3750	3750	3750	3750	3750	3750	3750	3750	45000
Bookeeper Wages	2063	2083	2063	2063	2083	2063	2083	2083	2083	2063	2083	24996
Casual Wages	1000	1000	300	300	300	300	300	300	300	300	300	5000
Advertising	150	150	150	*150*	150	150	150	150	150	150	150	1800
Bad Debt Allowance	315	315	3t5	315	315	315	315	315	315	315	315	3760
Bank Charges	25	25	25	25	25	25	25	25	25	25	25	300
Fuel	900	900	450	270	270	270	720	900	1350	1350	1350	9000
Electricity	675	1370	2739	2449	1793	2729	1318	964	1147	1162	579	19537
Water ● nd Sewer	56	5s	5s	58	21	21	58	5s	56	56	56	565
Insurance	3525											3525
Product Testing	500	500	500	600	500	500	500	500	500	500	500	6000
Freight	100	100	100	100	100	100	100	100	100	100	100	1200
Licences ● nd Feea	30	30	30	30	30	30	30	30	30	30	30	360
Accounting/Legal	250	250	250	250	250	250	250	250	250	250	250	3000
Office Supplies	250	250	250	250	250	250	250	2s0	250	250	250	3000
Communications	300	300	300	300	300	300	300	300	300	300	300	3600
Repairs/Maintenance	200	200	200	200	200	200	200	200	200	200	200	2400
Total Outflows	33693	42645	19000	16530	17637	18773	23690	23716	24348	24364	23781	295575
Net Cash	62407	40462	42462	44932	46095	50322	43935	41219	37870	34506	31725	
Ending Caeh Balance	62407	40462	42462	44932	46095	60322	43935	41219	37870	34506	31725	

Projected Annual Cash Flow
Central Arctic Meat Plant

	1992	1993	1994	1995	1996
Sources of Cash:					
Opening Cash Balance	0	31,725	11,754	24,890	75,791
Current Revenues	237,300	300,618	371,275	450,350	519,743
Collected Receivables	0	14,700	18,622	22,999	27,897
Working Capital Contribution	90,000				
Total Cash Available	327,300	347,043	401,651	498,239	623,431
Applications of Cash:					
Current Operations	295,575	335,289	376,761	422,448	465,778
Total Funds Applied	295,575	335,289	376,761	422,448	465,778
Ending Cash Balance	31,725	11,754	24,890	75,791	157,653

Projected **Income Statement**
Central Arctic Meat Plant

	1992	1993	1994	1995	1996
Gross Revenues	252000	319242	394275	478249	551940
Cost Of Goods Sold:					
Inventory Purchases	72492	93635	117337	143951	167135
Total Cost of Goods Sold	72492	93635	117337	143951	167135
Gross Margin	179508	225607	276938	334298	384805
Gross Margin %	70??	70%	70%	70%	70?!
Expenses:					
Management Wages	90,000	96,300	103,041	110,254	117,972
Assist, Mgr. Wages	45,000	48,150	51,521	55,127	58,986
Bookeeper Wages	24,996	26,746	28,618	30,621	32,765
Casual Wages	5,000	7,500	8,025	8,587	9,188
Advertising	1,800	1,926	2,061	2,205	2,359
Bad Debt Allowance	3,780	4,789	5,914	7,174	8,279
Bank Charges	300	383	473	574	662
Fuel	9,000	9,630	10,304	11,025	11,797
Electricity	19,537	20,905	22,368	23,934	25,609
Water and Sewer	585	626	670	717	767
Insurance	3,525	3,772	4,036	4,318	4,621
Product Testing	6,000	6,420	6,869	7,350	7,865
Freight	1,200	1,284	1,374	1,470	1,573
Licences and Fees	360	385	412	441	472
Accounting/Legal	3,000	3,210	3,435	3,675	3,932
Office Supplies	3,000	3,210	3,435	3,675	3,932
Communications	3,600	3,852	4,122	4,410	4,719
Repairs/Maintenance	2,400	2,568	2,748	2,940	3,146
Total Outflows	223,083	241,655	259,424	278,497	298,644
Net Profits	-43,575	-16,048	17,514	55,801	86,161

Note: $1.00 Differences between Net Profits and Retained Earnings Carried Forward are Due to Rounding

Projected Balance Sheet
Central Arctic Meat Plant

	1992	1993	1994	1995	1996
Assets:					
Current Assets					
- Cash	31,725	11,754	24,890	75,791	157,653
- Accounts Receivable	14,700	18,624	23,001	27,900	32,199
Total Current	46,425	30,378	47,891	103,691	189,852
Fixed:					
Buildings	343,633	343,633	343,633	343,633	343,633
Equipment	88,050	88,050	88,050	88,050	88,050
Total Fixed	431,663	431,683	431,663	431,683	431,683
Total Assets	478,108	462,061	479,574	535,374	621,535
Liabilities & Equities:					
- Long Term Debt	0	0	0	0	0
Equities:					
- Dev't Corp Investment	521,683	521,663	521,663	521,683	521,683
Retained Earnings:					
Beg. Balance	0	-43,575	-59,622	-42,109	13,691
Net Income	-43,575	-16,047	17,513	55,800	86,161
Retained Earnings	-43,575	-59,622	-42,109	13,691	99,852
Total Liabilities & Equities	478,108	462,061	479,574	535,374	621,535

Observations on the Projected Financial Statements:

To fully appreciate the impact of the plan (outlined in previous sections of this report) on the meat plant's financial performance , we must emphasis the following points:

- Under the previous operating regime, production was not continually targetted at the products with the highest margins. As outlined in the section dealing with historical operations, the highest margins ever achieved were in the order of 7 percent. With the production of "Jerky Products" dominating the product mix, gross margins are expected to be 70 percent;

- With adequate salaries for plant staff, current management believes production targets are achievable. Because of low wage rates, the meat plant was considered an employer of last resort in Cambridge Bay;

- Given the critical importance of technically competent management (a manager with general management and meat processing skills) competent management, we feel that plant production and sales could be increased significantly and that profitability can be achieved within a reasonable (five year) period;

- Above all, there are no constraints to selling good quality country food product (especially jerky) throughout the N.W.T.; the only constraints are plant capacity and available resource quotas.

On the assumption that the N.W.T. Development Corporation follows the financial plan outlined, and that skilled plant management is retained on a long-term basis— not less than two to three years, and that a reliable work force can be retained during peak production periods (March and April), we estimate:

- Over the five year forecast period, gross revenues would increase from $252,000 to $551,940;

- With proper management and production targets gross margins of 70 percent would be achieved throughout the forecast period;

- On an accounting basis, the business can expect to sustain a loss of $43,575 in the first year of operations with losses decreasing gradually until year three where a profit of $17,513 has been projected;

- Profits from year three to five have been forecasted to increase from $17,513 to $86,161 respectively;

- On a cash basis, the business (with front - end working capital of $90,000) will sustain a positive cash balance of $31,725 in the first year of operations. Thereafter, cash balances remain positive increasing from $11,754 in year two to $157,653 by the fifth year of operations;

. As well, over the forecast period, the business's year - end retained earnings balances improve from a negative position of $43,575 to a position of $99,852 by year five;

- Over the same period, wage and harvesting payments (in nominal dollars) to local residents would be approximately $1 million.

As a concluding comment, the foregoing analysis assumes that the assets purchased by the N.W.T. are posted in an asset account at cost ($38,742 plus renovations and equipments purchases equalling $431,683). Therefore, the net realizable value of the assets are technically understated on the new balance sheet, since the net book value of fixed assets on Central Arctic Meat Ltd.'s balance sheet are shown at $209,130 as @ June 30, 1991, but are recorded at cost by the new company.

However, if in the future, the N.W.T. Development Corporation divests itself of part or all of its ownership of the operation, an appraisal of the business should be

undertaken to evaluate its true "worth". Ideally, this should be done using both an "income" and an "asset" approach. In short, in the event of a liquidation, the N.W.T. Development Corporation could realize a significant capital gain, over and above increases in the good will achieved by the new subsidiary company.

Notes to the Financial Statements

As background to the foregoing projected financial statements, we provide the following notes.

1.) Revenue Projections

Refer to previous section and marketing section for a detailed discussion on the basis for projected sales. The reader should note that sales for years 2 through 5 have been price adjusted by an estimated inflation level of 7 percent per annum. Operating costs have also been adjusted by the same estimated inflation rate.

2.) Gross Margins

Following our market research, we have assumed that jerky would be the plant's primary product. With prices of $40 per kilogram and relatively low input costs (compared to other previously produced products) we have assumed a 70 gross margin on sales could be achieved.

3.) Inventory

Since harvesting of caribou and muskox will largely be concentrated during an eight month period from September to the end of April, we have made provisions for purchasing additional inventory during March and April of each year. These levels would allow the plant to continue operations during the summer months and maintain relatively constant sales levels throughout the summer months.

4.) Management Wages

As noted earlier in this report, we have included an annual budget of $90,000 for management wages and benefits. In years 1992 through 1995 we have also upwardly

adjusted management wages by 7 percent per year to account for increases in the annual cost of living.

5.) Assistant Manager **Wages**

In the operating plan we recommend that an assistant manager be hired to complement plant management. For this position we estimate an annual wage and benefit package of $45,000. For each year beyond 1992, we have adjusted the wages rate by 7 percent to account for expected increases in the cost of living.

6.) Book keeper **Wages**

To provide on-going day-to-day administrative support we have included $24,996 in wages for a book keeper. As above, future year wages have been adjusted by a 7 percent cost-of-living factor.

7.) **Casual Wages**

To provide additional support during heavy production periods (March, April and May) we have included $5,000 for casual labour.

8.) Advertising

Current market intelligence indicates that there is a significant demand for jerky products which could be produced at the plant. As such, we have include only a modest budget for advertising. As the business matures (and when needed) more resources for advertising and promotion may be required, however, at this stage, no major advertising expenditures are foreseen.

9.) Allowance for Bad Debts

With good management in place we estimate bad debts should not exceed 2 percent of gross sales.

10.) Bank Charges

To cover the costs of operating a current account we have budgetted $25 per month.

11.) Fuel

Based on an analysis of historical fuel consumption and accounting for increased building size (resulting from the renovation program) we estimate annual fuel costs would be $9,000. For future years we have increased fuel costs by an expected inflation rate of 7 percent.

12.) Electricity

Again, based on an analysis of historical electrical consumption of both the meat plant and the reefer (N.W.T. Power has two accounts for the operation) and taking into account the increased load resulting from additional equipment, increased building size and increased production, we estimate annual electricity costs to be $19,537 for the first year of operations. For subsequent years we have increased electrical costs by the annual rate of inflation, but we have not adjusted consumption as a function of production. We feel that peak load demand would have been reached during the first year of operation and as such there would be little change in electrical costs in future years (except for price increases).

13.) Water and Sewer

Annual water and sewer costs of $585 are based on an analysis of historical costs. Like other business in the community, the plant current receives a significant water and sewer subsidy.

14.) Insurance

At the present time, Central Arctic Meats Ltd. has an insurance policy with Wilson Risk Management (Alberta) Ltd. Although their premium has not been paid for the past year, according to company officials, they do have coverage. Based on planned renovations of the facility insurance for the plant would cost $3525 annually. This would include $1 million in liability and building replacement.

15.) Product Testing

As outlined in the section dealing with Inspection and Health issues, we recommend that an aggressive testing program be implemented as soon as the N.W.T. Development Corporation (or any ower for that matter) take control of the meat plant's operations. Product testing will be an essential component to build the required quality assurances required by major buyers throughout the N.W.T. Based on detailed discussion with the Health Protection Branch of the Federal Government and private food science labs in Edmonton, Alberta we estimate that food testing would cost approximately $6,000 per year with an additional $1,200 for shipping.

16.) Licenses and Fees

Following previous levels we estimate an annual cost of $360 for licenses and fees.

17.) Accounting and Legal

For professional services throughout the year we estimate a total of $3000 for the first year of operation.

18.) Office Supplies

To cover the costs of paper supplies, etc. we have estimated an annual cost of $3000 for office supplies.

19.) Telephone and Communications

For this cost we have estimated an annual amount of $3600, based on historical costs, with adjustments for increased production and sales levels.

20.) Repairs and Maintenance

An average monthly cost of $200 or $2400 has been budgetted for routine maintenance. We have assumed that, with a regular, progressive maintenance program in place, larger periodic maintenance costs would be avoided.

21.) Travel

Lastly, the reader should note we have not included a cost for travel since we did not feel that significant travel (if any) would be required to operate the facility. Should a modest amount of travel be required, such activties could be funded from existing cash flow. However, we recommend that for the first year of operation% little or no travel occur and that management efforts be directed towards gearing up production and sales, both of which do not require any travel outside Cambridge Bay.

SOCIO-ECONOMIC BENEFITS

Three full-time positions would be created and additional casual part time positions. In terms of income, excluding the meat plant manager who will likely be hired from the south, the project would generate for local residents approximately $1 million, calculated as follows:

Income Earned by Hunters	$594,550
Assistant Managers Wages	258,781
Bookeeper Wages	143,743
Casual Wages	38,298
Total Income	$1,035,372

If additional caribou and muskox quotas were obtained and additional meat processed by the plant there would be opportunity for local hunters to earn more income and for the meat plant to employ a greater number of local residents.

A successful meat plant would also provide regional consumers with a meat product that was less expensive than southern imported beef, thus consumers would save on meat purchases.

FIVE-YEAR IMPLEMENTATION PLAN

Year I Project Implementation Schedule

The following table presents the Year I schedule for implementing the meat plant business plan.

As indicated, the implementation schedule assumes that the business plan is approved by the NWT Development in October, 1991.

In November, an agreement is reached between the Development Corporation and the local HTA to purchase the meat plant and form a new company that will own and operate the meat plant as a joint venture between the Development Corporation, HTA and meat plant manager to be hired.

In November, the meat plant manager is hired and an agreement is reached with the manager.

In November an architectural firm is hired to prepare detailed architectural drawings and specifications.

In December, a tender is called for the renovation and construction of the meat plant and a contract is let to the company chosen.

In January and February construction and renovation is started and completed. It is expected that the meat plant would be closed during the two month construction/renovation period.

From the time the meat plant manager is hired in November to when construction/renovation is completed and production starts in March (a four month

period), the manager oversees the purchase of equipment; hires the assistant manager and retail clerk/manager; visits all major customers and arranges promotion and marketing initiatives including standing orders with customers; and visits the southern food science laboratory to confirm the testing procedure that will be followed.

In March the meat plant starts production.

In March and April, the meat plant buys sufficient raw meat supplies from local hunters to meet all meat plant production requirements for the period March to September.

Starting in March product is sold, however accounts receivables are only collected a month later in April.

In July and August, plant maintenance and cleaning is done. During the summer, the meat plant manager and plant staff take annual summer holidays.

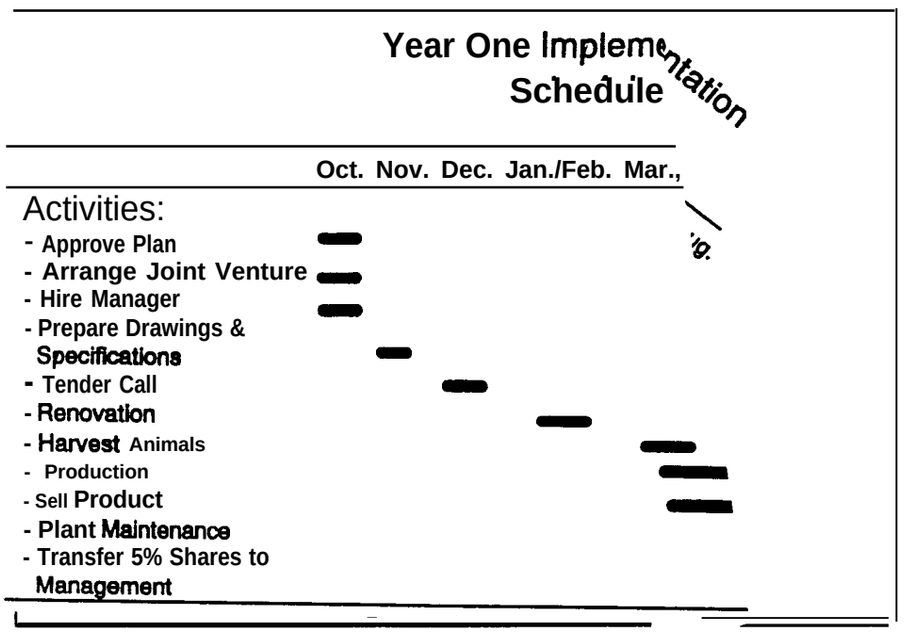
In September, the meat plant again starts buying raw meat plant from the local hunters, at a time when hunting can be done efficiently.

At the end of the 12-month period, assuming all targets have been met, 5% of the joint venture company's ownership is transferred to the meat plant manager.

The major milestones in the Year I implementation schedule are:

* October:	Obtain Development Corporation Approval
* November:	Hire Plant Manager
* January/February:	Renovation Construction
* March/April:	Purchase 6 Month Supply of Raw Meat

The following graphic illustrates the sequence of the first year implementation program.



Year 2 to 5 Project Implementation

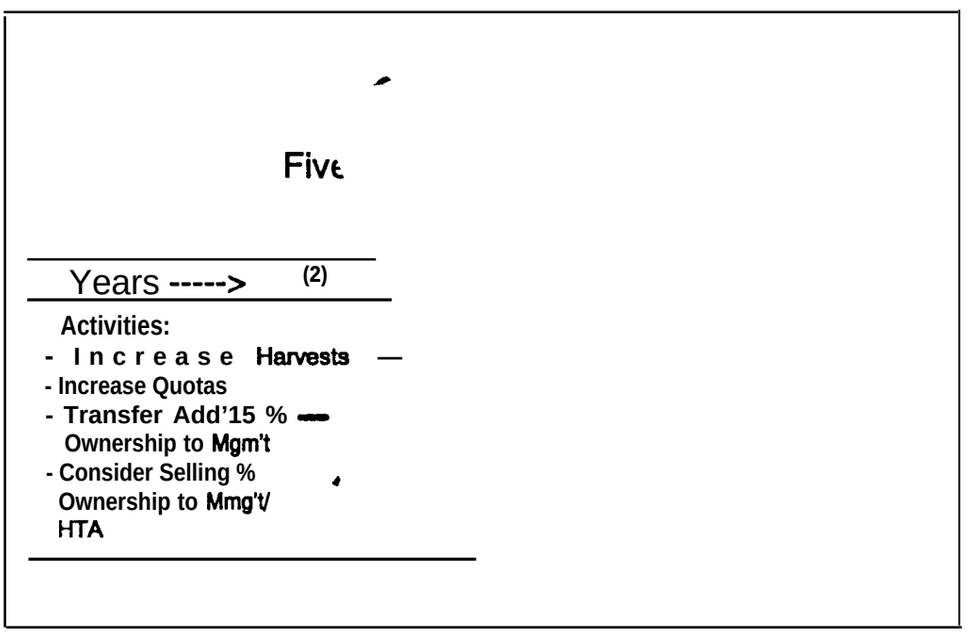
The diagram on the next page shows the Year 2 -5 schedule for implementing the meat plant business plan.

As indicated, the plan assumes that there is increased annual harvesting of animals until by Year 5 the entire available quota is utilized. In Year 5 it is assumed that the meat plant will request additional commercial quotas to draw upon for Year 6 and beyond.

In Year 2 and Year 3, assuming targets are met, 5% of the joint venture company's ownership is transferred to the meat plant manager.

At the end of Year 3, consideration is given to selling an additional portion of the ownership to the manager and the local HTA. Alternatively, a profit sharing arrangement could be developed.

To illustrate the implementation schedule for years 2 through 5 we have provided the following diagram.



APPENDIX I

Meat Manager’s Job Description

Job Title: Meat Plant Manager

Position Description: The manager is responsible for directing the day-to-day activities of the Cambribge Bay meat plant including marketing, supply, production, financial control, staffing, and quality control. The manager is also responsible for meeting annual revenue, income, production and other targets established by the NWT Development Corporation, the major shareholder in the meat plant. The manager reports directly to the NWT Development Corporation's General Manager.

Areas of Responsibility:

The manager is responsible for the following areas:

1. Marketing: Ensuring that meat plant products are effectively promoted and marketed. Effective measures that would be taken include: maintaining weekly contact with major customers; ensuring customer satisfaction with products sold and shipped; establishing standing order agreements with customers; establishing effective promotion to ensure product appeal with consumers; directing development of promotional aids for products; overseeing all retail store promotion and marketing.

2. Supply: In order to obtain adequate meat supplies the manager will have to establish and maintain effective communication with the local HTA membership and Cambridge Bay Renewable Resource Officer to ensure hunts are organized on a regular planned basis to supply the meat plant. The manager will also have to ensure hunters are provided with sufficient incentive to hunt for the meat plant.

3. Production: The incumbent will direct all production and be involved in the actual processing of meat plant product. Tasks expected to be undertaken by the incumbent with the staff include: washing down carcasses, butchering, preparing finished products for smoking (jerky, pepperoni and sausage), weighing finished product, vacuum packing, labelling, pricing, storage, shipping and receiving. The manager is also expected to train staff in required skills.

4. Financial Control: The incumbent will ensure that effective financial controls are established and maintained including accounts payables, accounts receivable, payroll, inventory records, monthly cash flow forecast, monthly bank reconciliation, and quartery income statements. Product costing and pricing will also be analyzed on a regular basis. In undertaking these tasks, the manager will be assisted by the NWT Development Corporation comptroller and the retail clerk/bookeeper.

5. Staffing: The incumbent will direct a full time staff of two employees (assistant manager and retail clerk/bookeeper) and considerable part time staff. It is expected that all staff will be hired from the local community of Cambridge Bay or the Kitikmeot region, unless required personnel are not available.

6. Quality Control: effective quality control measures will be established and maintained to ensure safe and hygenic products are produced. In order to meet this requirement the incumbent will ensure that all meat plant products are batch tested by a southern food science laboratory on a weekly basis and that test records are maintained and communicated to the NWT Development Corporation and major customers.

Qualifications: Five years of demonstrated experience in managing a small scale meat plant facility. Direct experience in day-to-day meat plant production and butchering. Demonstrated marketing and promotion skills. Demonstrated communication skills in a cross-cultural environment.

APPENDIX II

Code of Practice
General Principles of Food Hygiene

CODE OF PRACTICE

GENERAL PRINCIPLES OF FOOD HYGIENE

SECTION I - SCOPE

1.1 This Code recommends general hygienic practices for use in the handling (including growing and harvesting, preparation, processing, packaging, storage, transport, distribution and sale) **of food** for human consumption in order to ensure a safe, sound and wholesome product.

1.2 It is further intended to provide a basis for establishing codes of hygienic practice for individual commodities or groups of commodities which have specific requirements relating to **food hygiene.**

SECTION II - DEFINITIONS

2. For the purposes of this Code the following expressions have the meaning stated:

2.1 Adequate - sufficient to accomplish **the** intended purpose of this code.

2.2 Cleaning - the removal of soil, **food residues, dirt, grease or other** objectionable matter.

2.3 Contamination - the occurrence **of any objectionable matter in the** product.

* 2.4 Critical Control **Points - those factors** in the processing where lack of control may cause, allow, or contribute to a hazard in the finished **food.**

2.5 Disinfection - the reduction, without adversely affecting **the food, by means of hygienically satisfactory chemical agents and/or physical methods, of the number of microorganisms to a level that will not lead to harmful contamination of food.**

2.6 Establishment - any building(s) or area(s) in which **food is handled after harvesting and the surroundings under the control of the same management.**

2.7 **Food Handling - any operation** in the growing and harvesting, preparation, processing, packaging, storage, transport, distribution and sale **of food.**

2.8 **Food Hygiene - all measures necessary to ensure the safety, soundness and wholesomeness of food at all stages from its growth, production or manufacture until its final consumption.**

2.9 Packaging Material - any containers **such as cans, bottles, cartons, boxes, cases and sacks, or wrapping and** covering material such as foil, film, metal, paper, wax-paper and cloth.

* added definition

2.10 Pests - any animals capable of directly or indirectly contaminating **food.**

SECTION III - HYGIENE REQUIREMENTS IN PRODUCTION/HARVESTING AREA

3.1 **Environmental Hygiene** in areas from **which raw materials are derived**

3.1.1 **Unsuitable growing or harvesting areas**

Food should not be grown or harvested where the presence of potentially harmful substances **would lead to an unacceptable level** of such substances in the **food.**

3.1.2 Protection from contamination by wastes

3.1.2.1 Raw food materials should be protected from contamination by human, animal, domestic, industrial and agricultural wastes which may be present at levels likely to be a hazard to health. Adequate precautions should be taken to ensure that these wastes are not **used and are not disposed of in a manner** which may constitute a health hazard through the **food.**

3.1.2.2 Arrangements for the disposal of domestic and industrial wastes in areas from **which raw materials are derived should be acceptable to the official agency having jurisdiction.**

3.1.3 Irrigation Control

Food should not be grown or produced in areas where the water **used** for irrigation might constitute **a health hazard to the consumer through the** food.

3.1.4 Pest and disease control

Control measures involving **treatment with chemical, physical or biological** agents should only be undertaken by or under direct supervision of personnel who have a thorough understanding of the potential hazards to health, particularly those **which may arise from residues in the food. Such measures should only be carried out in accordance** with the recommendations of the official agency having jurisdiction.

3.2 Harvesting and production

3.2.1 Techniques

Methods and procedures associated with harvesting and production should be **hygienic and** such as not to constitute a potential health hazard or result in contamination of the product.

3.2.2 Equipment and containers

Equipment and containers used for harvesting and production should be so constructed and maintained as not to constitute a hazard to health.

Containers which are re-used should be of such material and construction as **will** permit easy and thorough cleaning. **They should be cleaned and maintained clean and,** where necessary, disinfected. Containers previously **used** for toxic materials should not subsequently be used for holding **foods** or food ingredients.

3.2.3 Removal of obviously unfit raw materials

Raw materials which are **obviously unfit** for human consumption should be segregated during harvesting and production. **Those** which cannot be made fit by further processing should be disposed of in such a place and in such a manner as to avoid contamination of the **food and/or water supplies or other food materials.**

3.2.4 Protection against contamination and damage

Suitable precautions should be taken to protect the raw materials from being contaminated by pests or by chemical, physical or microbiological contaminants or other objectionable substances. Precautions should be taken to avoid damage.

3.3 Storage at the place of production/harvesting

Raw **materials should be stored under conditions** which provide protection against contamination and minimize damage and deterioration.

3.4 Transportation

3.4.1 Conveyances

Conveyances for transporting the harvested crop or raw materials from the production area or place of harvest or storage should be adequate for the purpose intended and should be of **such material and construction as will permit easy and thorough cleaning. They should be cleaned and maintained clean, and** where necessary disinfected and disinfested.

3.4.2 Handling procedures

All handling procedures should be such as will prevent raw materials from being contaminated. Care should be taken to prevent spoilage, to protect against contamination and to minimize damage; Special equipment - such as refrigeration equipment - should be **used if the nature of the product or distances** involved so indicate. If ice is **used in contact with the product it should be of the quality required in paragraph 4.4.1.2.**

SECTION IV - ESTABLISHMENT: DESIGN AND FACILITIES

4.1 **Location**

Establishments should be located in areas **which** are free from objectionable **odours, smoke, dust or other contaminants and are not subject to flooding.**

4.2 **Roadways and areas used by wheeled traffic**

Such roadways and areas serving the establishment which are within its boundaries or in its immediate vicinity should have a hard paved surface suitable for **wheeled traffic. There should be adequate drainage and provision should be made** to allow for cleaning.

4.3 Buildings and Facilities

4.3.1 Buildings and facilities should be of sound construction and maintained in good repair.

4.3.2 Adequate working **space** should be provided to allow for satisfactory performance of all operations.

4.3.3 **The design** should be such as to permit easy and adequate cleaning and to facilitate proper supervision of **food** hygiene.

4.3.4 The buildings and facilities should be designed to prevent the entrance and harboring of pests and the entry of environmental contaminants **such as smoke, dust, etc.**

4.3.5 **Buildings and facilities should be designed to provide separation, by partition, location or other effective means, between those operations which may cause cross-contamination.**

4.3.6 **Buildings and facilities should be designed to facilitate hygienic operations by means of a regulated flow in** the process from the arrival of the raw material at the premises to the finished product, and should provide for appropriate temperature conditions for the process and the product.

4.3.7 In food handling areas:

Floors, where appropriate, should be of water-proof, non-absorbent, washable, non-slip and non-toxic materials, without crevices, and should be easy to clean and disinfect. Where appropriate, floors should slope sufficiently for liquids to drain to trapped outlets.

Walls, where appropriate, should be of water-proof, non-absorbent, washable and non-toxic materials and should be light **coloured.** Up to a **height appropriate** for the operation they should be smooth and without crevices, and should be easy to clean and disinfect. Where appropriate angles between walls, between walls and floors, and between walls and ceilings should be sealed and coved to facilitate cleaning.

- Ceilings should be so designed, constructed and finished as to prevent the accumulation of dirt and minimize condensation, mould development and flaking, and should be easy to clean.

Windows and other openings should be so constructed as to avoid accumulation of dirt and those which **open should be fitted** with screens. Screens should be easily movable for cleaning and kept in good repair. Internal window sills, if present, should be **sloped to** prevent use as shelves.

Doors should have smooth, **non-absorbent** surfaces and, where appropriate, **be self-closing and close fitting.**

Stairs, lift cages and auxiliary structures such as platforms, ladders, chutes. should be so situated and constructed as not to cause contamination to food. Chutes should be constructed with inspection and cleaning hatches.

4.3.8 In food handling areas all overhead structures and fittings should be installed in **such a manner as to avoid contamination directly or indirectly of food and raw materials by condensation and drip, and should not hamper cleaning operations.** They should be insulated where appropriate and be so designed and finished as to prevent the accumulation of dirt and to minimize condensation, mould development and flaking. They should be easy to clean.

4.3.9 **Living quarters, toilets and areas** where animals are kept should be completely separated from and should not open directly on to food handling areas.

4.3.10 Where appropriate, establishments should be so designed that access can be controlled.

4.3.11 The use of material which cannot be adequately cleaned and disinfected, such as wood, should be avoided unless its use would clearly not be a source of contamination.

4.4 Sanitary Facilities

4.4.1 Water supply

* **4.4.1.1** An amplesupply of potable **water under adequate pressure and of suitable temperature should be available with adequate facilities** for its storage, where necessary, and distribution, and with adequate protection against contamination. The standards of potability should not be less than those contained in the latest edition of "Guidelines for Canadian Drinking Water Quality" published by Health and Welfare Canada.

4.4.1.2 Ice should be made from potable water and should be manufactured, handled and stored so as to protect it from contamination.

4.4.1.3 Steam used in direct contact with food or **food contact surfaces should contain no substances** which may be hazardous to health or may contaminate the **food.**

4.4.1.4 Non-potable water used for steam production, refrigeration, fire control and other similar purposes not connected with food should be carried in completely separate lines, identifiable preferably by colour, and with no cross-connection with or backsiphonage into the system carrying potable water (see also 7.3.2).

4.4.2 Effluent and waste disposal

Establishments should have an efficient effluent and waste disposal system which should at all times be maintained in good order and repair. All

* amended to identify Canadian water standard

effluent lines (including sewer systems) should be large **enough to carry peak loads and should be so constructed as to avoid contamination of potable water supplies.**

4.4.3 Changing facilities and toilets

Adequate, suitable, and conveniently located changing facilities and toilets should be provided in all establishments. Toilets should be so designed as to ensure hygienic removal of waste matter. These areas should be well lit, ventilated and where appropriate heated and should not **open directly on to food handling areas. Hand washing facilities with warm or hot and cold water, a suitable hand-cleaning preparation, and with suitable** hygienic means of drying hands, should be provided adjacent to toilets and in such a position that the **employee must pass them when returning** to the processing area. Where hot and cold water are available mixing taps should be provided. Where paper towels are **used, a sufficient number of dispensers and receptacles should be provided near to each washing facility. Taps of a non-hand operable type are desirable.** Notices should be posted directing personnel to wash their hands after using the toilet.

4.4.4 Hand washing facilities in processing areas

Adequate and conveniently located facilities for hand washing and drying should be provided wherever the process demands, Where appropriate, facilities for hand disinfection should also be provided. Warm or hot and cold water and a suitable hand-cleaning preparation should be provided. Where hot and cold water are available **mixing taps should be provided. There should be suitable hygienic means of drying hands. Where paper** towels are used, a sufficient number of dispensers and receptacles should be provided adjacent to each washing facility. Taps of a non-hand operable type are desirable. **The facilities should be furnished with properly trapped waste** pipes leading to drains.

4.4.5 Disinfection facilities

Where appropriate adequate facilities for cleaning and disinfection of working implements and equipment should be provided. These facilities should 'be constructed of corrosion resistant materials, capable **of being easily cleaned, and should be fitted with suitable means of supplying hot and cold water** in sufficient quantities.

4.4.6 Lighting

Adequate natural or artificial lighting should be provided throughout the establishment. Where appropriate, the lighting should not alter colours and the **intensity should not be less than:**

540 lux (50 foot candles) at all inspection points
220 lux (20 foot candles) in work rooms
110 lux (10 foot candles) in other areas.

Light bulbs and fixtures suspended over **food materials** in any stage of production should be of a safety type and protected to prevent contamination of food in case of breakage.

4.4.7 Ventilation

Adequate ventilation should be provided to prevent excessive heat, steam condensation and dust and to remove contaminated air. **The direction of the air flow should** never be from a dirty area to a clean area. Ventilation openings should be provided with a screen or other protecting enclosure of non-corrodible material. Screens should be easily removable for cleaning.

4.4.8 Facilities for storage of waste and inedible material

Facilities should be provided for the storage of waste and inedible material prior to removal from the establishment. **These facilities should be designed to prevent access to waste or inedible material by pests and to avoid contamination** of food, potable water, equipment, buildings or roadways on the premises.

4.5 Equipment and Utensils

4.5.1 Materials

All equipment and utensils **used** in **food handling areas and which may contact food should be made of material which does not transmit toxic substances,** odour **or taste, is non-absorbent, is resistant to corrosion and is capable of withstanding repeated cleaning and disinfection. Surfaces should be smooth and** free from pits and crevices. **The use of wood and other materials which cannot be adequately cleaned and disinfected should be avoided except when their** use would clearly not be a source of contamination. The use of different materials in such a way that contact corrosion can occur should be avoided.

4.5.2 Sanitary design, construction and installation

4.5.2.1 All equipment and utensils should be so designed and constructed as to prevent hygienic hazards and permit easy and thorough cleaning and disinfection and, where practicable, be visible for inspection. Stationary equipment should be installed in such a manner as to permit easy access and thorough cleaning.

4.5.2.2 Containers for inedible material and waste should be leak-proof, constructed of metal or other suitable impervious material which should be easy to clean or disposable and able to be closed securely.

4.5.2.3 All refrigerated spaces should be equipped with temperature measurement or recording devices.

4.5.3 Equipment identification

Equipment and utensils used for inedible materials or waste should be so identified and should not be used for **edible products.**

SECTION V - ESTABLISHMENT: HYGIENE REQUIREMENTS

5.1 Maintenance

The buildings, equipment, utensils and all other physical facilities of the establishment, including drains, should be maintained in good repair and in an orderly condition. As far as practicable, rooms should be kept free from steam, vapour and surplus water.

5.2 Cleaning and Disinfection

5.2.1 Cleaning and disinfection should meet the requirements of this code. For further information on cleaning and disinfection procedures see Annexe I.

*** 5.2.2** To prevent contamination of food, all equipment and utensils should be cleaned as frequently as necessary and disinfected whenever circumstances demand. It should be noted that in some instances, the use of water in routine cleaning is not compatible with the products involved and only dry cleaning should be used.

*** * 5.2.3** Adequate precautions should be taken to prevent **food from being contaminated during cleaning or disinfection** of rooms, equipment or utensils by water and detergents or by disinfectants and their solutions. Detergents and disinfectants should be suitable for the purpose intended and should be acceptable to the official agency having jurisdiction. **Any** residues of these agents on a surface which may come in contact with **food should be removed by thorough rinsing with potable water before the area or equipment is again used for handling food, unless the official agency having jurisdiction exempts a disinfectant from requiring a final rinse.**

5.2.4 **Either immediately after cessation of** work for the day or at such other times as may be appropriate, floors, including drains, auxiliary structures and walls of food handling areas should be thoroughly cleaned.

5.2.5 Changing facilities and toilets should be kept clean at all times.

5.2.6 Roadways and yards in the immediate vicinity of and serving the premises should be kept clean.

5.3 Hygiene Control Programme

A permanent cleaning and disinfection schedule should be drawn up for each establishment to ensure that all areas are appropriately cleaned and that critical areas, equipment and material are designated for special attention. A single individual who should preferably be a permanent member of the staff of the establishment and whose duties preferably should be independent of production, should be appointed to be responsible for the cleanliness of the establishment. He should have a thorough understanding of the significance of contamination and the hazards involved. All cleaning personnel should be well-trained in cleaning techniques.

5.4 By-Products

By-products should be stored in such a manner as to avoid contamination of food. They should be removed from the working areas as often as necessary and at least daily.

* last sentence added

** rinse requirement amended

5.5 Storage and Disposal of Waste

Waste material should be handled in such a manner as to avoid contamination of food or potable water. Care should be taken to prevent access to waste by pests. Waste should be removed from the food handling and other working areas as often as necessary and at least daily. Immediately after disposal of the waste, receptacles used for storage and any equipment which has come into contact with the waste should be cleaned and disinfected. The waste storage area should also be cleaned and disinfected.

5.6 Exclusion of Domestic Animals

Animals that are uncontrolled or that could be a hazard to health should be excluded from establishments.

5.7 Pest Control

5.7.1 There should be an effective and continuous **programme** for the control of pests. Establishments and surrounding areas should be regularly examined for evidence of infestation.

5.7.2 Should pests gain entrance to the establishment, eradication measures should be instituted. Control measures involving treatment with chemical, physical or biological agents should only be undertaken by or under direct supervision of personnel who have a thorough understanding of the potential hazards to health resulting from the use of these agents, including those which may arise from residues retained in the product. Such measures should only be carried out in accordance with the recommendations of the official agency having jurisdiction.

5.7.3 Pesticides should only be used if other precautionary measures cannot be used effectively. **Before pesticides are applied, care should be taken to safeguard all** food, equipment and utensils from contamination. After application, contaminated equipment and utensils should be thoroughly cleaned to remove residues prior to being used again.

5.8 Storage of Hazardous Substances

5.8.1 Pesticides or other substances which may represent a hazard to health should be suitably labelled with a warning about their toxicity and use. They should be stored in locked rooms or cabinets used only for that purpose and dispensed and handled only by authorized and properly trained personnel or by persons under strict supervision of trained personnel. Extreme care should be taken to avoid contaminating food.

5.8.2 Except when necessary for hygienic or processing purposes, no substance which could contaminate food should be used or stored in food handling areas.

5.9 Personal Effects and Clothing

Personal effects and clothing should not be deposited in food handling areas.

SECTION VI - PERSONNEL HYGIENE AND HEALTH REQUIREMENTS

6.1 Hygiene Training

Managers of establishments should arrange for adequate and continuing training of every food handler in hygienic handling of food and in personal hygiene so that they understand the precautions necessary to prevent contamination of food. Instruction should include relevant parts of this code.

6.2 Medical Examination

Persons who come in contact with food in the course of their work should have a medical examination prior to their employment if the official agency having jurisdiction, acting on medical advice, considers that this is necessary, whether because of epidemiological considerations, the nature of the food prepared in a particular establishment or the medical history of the prospective food handler. Medical examination of a food handler should be carried out at other times when clinically or epidemiologically indicated.

6.3 Communicable Diseases

The management should take care to ensure that no person, while known or suspected to be suffering from, or to be a carrier of a disease likely to be transmitted through food or while afflicted with infected wounds, skin infections, sores or with diarrhoea, is permitted to work in any food handling area in any capacity in which there is any likelihood of such a person directly or indirectly contaminating food with pathogenic micro-organisms. Any person so affected should immediately report to the management that he is ill.

6.4 Injuries

Any person who has a cut or wound should not continue to handle food or food contact surfaces until the injury is completely protected by a waterproof covering which is firmly secured, and which is conspicuous in colour. Adequate first-aid facilities should be provided for this purpose.

6.5 Washing of Hands

Every person engaged in a food handling area should wash his hands frequently and thoroughly with a suitable hand cleaning preparation under running warm, potable water while on duty. Hands should always be washed before commencing work, immediately after using the toilet, after handling contaminated material and whenever else necessary. After handling any material which might be capable of transmitting disease, hands should be washed and disinfected immediately. Notices requiring hand-washing should be displayed. There should be adequate supervision to ensure compliance with this requirement.

6.6 Personal Cleanliness

Every person engaged in a food handling area should maintain a high degree of personal cleanliness while on duty, and should at all times while so engaged wear suitable protective clothing including head covering and

footwear, all of which articles should be cleanable unless designed to be disposed of and should be maintained in a clean condition consistent with the nature of the work in which the person is engaged. Aprons and similar items should not be washed on the floor. During periods where food is manipulated by hand, any jewellery that cannot be adequately disinfected should be removed from the hands. Personnel should not wear any insecure jewellery when engaged in food handling.

6.7 Personal Behaviour

Any behaviour which could result in contamination of food, such as eating, use of tobacco, chewing (e.g. gum, sticks, betel nuts, etc.) or unhygienic practices such as spitting, should be prohibited in food handling areas.

6.8 Gloves

Gloves, if used in the handling of food products, should be maintained in a sound, clean and sanitary condition. The wearing of gloves does not exempt the operator from having thoroughly washed hands.

6.9 Visitors

Precautions should be taken to prevent visitors to food handling areas from contaminating food. These may include the use of protective clothing. Visitors should observe the provisions recommended in paragraphs 5.9, 6.3, 6.4 and 6.7.

6.10 Supervision

Responsibility for ensuring compliance by all personnel with all requirements of paragraphs 6.1 - 6.9 inclusive should be specifically allocated to competent supervisory personnel.

SECTION VII - ESTABLISHMENT: HYGIENIC PROCESSING REQUIREMENTS

7.1 Raw Material Requirements

7.1.1 No raw material or ingredient should be accepted by the establishment if known to contain parasites, microorganisms or toxin, decomposed or extraneous substances which will not be reduced to acceptable levels by normal plant procedures of sorting and/or preparation or processing.

* 7.1.2 Specifications should be established for raw materials which ensure the manufacture of the finished food within regulatory requirements.

7.1.3 Raw materials or ingredients should be inspected and sorted prior to being moved into the processing line and where necessary laboratory tests should be made. Only clean sound raw materials or ingredients should be used in further processing.

7.1.4 Raw materials and ingredients stored on the premises of the establishment should be maintained under conditions that will prevent spoilage, protect against contamination and minimize damage. Stocks of raw materials and ingredients should be properly rotated.

* added requirement.

7.2 Prevention of Cross-contamination

7.2.1 Effective measures should be taken to prevent contamination of food material by direct or indirect contact with material at an earlier stage of the process.

7.2.2 Persons handling raw materials or semi-processed products capable of contaminating the end product should not come into contact with any product unless and until they discard all protective clothing worn by them during the handling of raw materials or semi-processed products which have come into direct contact with or have been soiled by raw material or semi-processed products and have changed into clean protective clothing.

7.2.3 If there is a likelihood of contamination, hands should be washed thoroughly between handling products at different stages of processing.

7.2.4 All equipment which has been in contact with raw materials or contaminated material should be thoroughly cleaned and disinfected prior to being used for contact with end products.

7.3 Use of Water

* 7.3.1 As a general principle only potable water, with characteristics within limits recommended in the latest edition of "Guidelines for Canadian Drinking Water Quality"** published by Health and Welfare Canada, should be used in food handling.

7.3.2 Non-potable water may be used with the acceptance of the official agency having jurisdiction for steam production, refrigeration, fire control and other similar purposes not connected with food. However, non-potable water may, with specific acceptance by the official agency having jurisdiction be used in certain food handling areas provided this does not constitute a hazard to health.

7.3.3 Water re-circulated for re-use within an establishment should be treated and maintained in a condition so that no health hazard can result from its use. The treatment process should be kept under constant surveillance. Alternatively, re-circulated water which has received no further treatment may be used in conditions where its use would not constitute a health hazard and will not contaminate either the raw material or the end product. Re-circulated water should have a separate distribution system which can be readily identified. The acceptance of the official agency having jurisdiction should be required for any treatment process and for the use of re-circulated water in any food process.

* amended to identify the Canadian water standard

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7.4 Processing

7.4.1 **Processing should be supervised by technically competent personnel.**

7.4.2 **All steps in the production** process, including packaging, should be performed without unnecessary delay and under conditions which will prevent the possibility of contamination, deterioration, or the development of pathogenic and spoilage microorganisms.

7.4.3 Rough treatment of containers should be avoided to prevent the possibility of contamination of the processed product.

7.4.4 Methods of preservation and necessary controls should be such as to protect against contamination or development of a public health hazard **and against deterioration within the limits of good commercial practice.**

*** 7.4.5** Processing should be conducted according to written formula and procedures established in accordance with acceptable food manufacturing practices to ensure compliance with regulatory requirements.

*** 7.4.6** Critical control points in the processing of each lot of the finished food should be monitored to ensure compliance with established procedures.

7.5 Packaging

7.5.1 All packaging material should be stored in a clean and sanitary manner. The material should be appropriate for the product to be packed and for the expected conditions of storage and should not transmit to the product objectionable substances beyond the limits acceptable to the official agency having jurisdiction. The packaging material should be sound and should provide appropriate protection from contamination.

7.5.2 Product containers should not have been used for any purpose which may lead to contamination of the product. **Where practicable containers should be inspected immediately before use to ensure that they are in a satisfactory condition and** where necessary cleaned and/or disinfected; when washed they should be well drained before filling. Only packaging material required for immediate use should be kept in the packing or filling area.

7.5.3 Packing should be done under conditions that preclude the introduction of contamination into the product.

7.5.4 Lot Identification

Each container shall be permanently marked in code or in clear to identify the producing factory and the lot. A lot is a quantity of food produced under identical conditions, all packages of which should bear a lot number that identifies the production during a particular time interval, and usually from a particular “line” or other critical processing unit.

* added requirement

7.5.5 Processing and Production Records

Permanent, legible and dated records of pertinent processing and production details should be kept concerning each lot. These records should be retained for a period that exceeds the shelf life of the product, but unless a specific need exists they need not be kept for more than two years. Records should also be kept of the initial distribution by lot.

7.6 Storage and Transport of the End Product

The end product should be stored and transported under such conditions as will preclude the contamination with and/or proliferation of micro-organisms and protect against deterioration of the product or **damage to the container. During storage, periodic inspection** of the end product should take place to **ensure that only** food which is fit for human consumption is dispatched and that end product specifications should be complied with when they exist. The product should be dispatched in the sequence of the lot numbers.

* 7.7 Quality Control

* * 7.7.1 A quality control program, using acceptable chemical, microbiological, physical, or other relevant inspection and testing procedures, should be employed covering all aspects of production, storage, transportation, sanitation, and maintenance to ensure the marketing of the finished foods in compliance with regulatory requirements. A single individual who should preferably be a permanent member of the staff of the establishment and whose duties preferably should be independent of production, should be appointed to be responsible for the quality control program of the establishment. He should have a thorough understanding of the processing procedures, the significance of contamination, and the hazards involved.

7.7.2 It is desirable that each establishment should have access to laboratory control of the products processed. The amount and type of such control will vary with the food product as well as the needs of management. Such control should reject all food that is unfit for human consumption.

7.7.3 Where appropriate, representative samples of the production should be taken to assess the safety and quality of the product.

7.7.4 Laboratory procedures used should preferably follow recognized or standard methods in order that the results **may** be readily interpreted.

7.7.5 Laboratories checking for pathogenic microorganisms should be well separated from food processing areas.

* changed from “Sampling and Laboratory Control Procedures”

** added requirement

SECTION VIII - END PRODUCT SPECIFICATIONS

8. **Specifications** such as microbiological, chemical or physical may be required depending on the nature of the food. Such specifications should include sampling procedures, analytical methodology and limits for acceptance.

SECTION IX - RECALL PROCEDURE

** 9. **A procedure to permit the complete, rapid recall of any lot of the finished** food from the market should be established.

* * added requirement