TABLE OF CONTENTS

Section		Page
Ι.	SCOPE OF WORK AND CONCLUSIONS	1
II.	DISCUSSION	2
III.	BASIS OF THE ESTIMATE	24
	1. Foundations	25
	2. Buildings	40
	3. Gas Compressor Package	51
	4. Propane Compressor Package	61
	5. High Pressure Gas Piping	65
	6. Other Major Systems	74
	7. Utilities	112
	8. Instrumentation and Controls	132
	9. Electrical	147
	10. Insulation and Painting	160
	11. Testing, Winterizing and Startup	164
	12. Miscellaneous	165
	13. Federal Sales Tax	171
· .	14. Contractor's Overhead	173
н. Н	15. Freight from Edmonton	196
	16. Tools and Major Spares	199
IV.	DRAWINGS	203
ν.	APPENDICES	•

LIST OF TABLES AND FIGURES

NUMBER						PAGE
TABLE	1	CAPITAL COST ESTIMATES SUMMARY COMPRESSOR STATION NO. 3, CHILLED	•	•	-	. 3
TABLE	2	CAPITAL COST ESTIMATE SUMMARY COMPRESSOR STATION NO. 7, NON-CHILLED	•	•	•	. 4
TABLE	3	COMPOSITION OF TRADE CREWS CHILLED STATION	•	•	•	. 18
TABLE	4	COMPOSITION OF TRADE CREWS NON-CHILLED STATION	•	•	•	. 19
FIGURE	1	PROGRESS SCHEDULE CHILLED STATION	•	•	•	. 20
FIGURE	2	PROGRESS SCHEDULE NON-CHILLED STATION	•	•	•	. 21
FIGURE	3	MANPOWER CURVE CHILLED STATION	, •	•	•	. 22
FIGURE	4	MANPOWER CURVE NON-CHILLED STATION	• •	•		. 23

I. SCOPE OF WORK AND CONCLUSIONS

On December 12, 1978, Foothills Pipe Lines (Yukon) Ltd. authorized Canuck Engineering Ltd. to proceed with the preparation of cost estimates for a typical chilled compressor station (No. 3) in the permafrost zone and a typical non-chilled compressor station (No. 7) for the Dempster Highway Pipe Line. Both stations were to utilize a single 16,000 ISO horsepower gas turbine compressor package for the main high pressure gas unit.

A discussion of the methodology used in the preparation of the estimate is presented in Section II of this report, and the detailed approach and assumptions are outlined in Section III. The station designs are in accordance with CSA Standard Z184-1975 and the NEB PC 1974-807 Gas Pipeline Regulations. The installation portion of the cost estimate has been prepared by the Dillingham Corporation Canada Ltd. who have had extensive experience in the installation of compressor stations and natural gas process plants in Western Canada. The estimate was prepared with the consideration that the contractor would move in and construct a minimum of four stations over a two-year period.

First quarter 1979 material costs were used in the preparation of this estimate and no allowance was made for escalation.

The following summarizes the installed costs for each compressor station:

Station	Subtotal	Contingency	Freight	Total
	\$	\$	\$	\$
Chilled (Stn. No. 3)	26,142,500	916,000	575,000	27,633,500
Non-Chilled (Stn. No. 7)	14,109,500	425,000	325,000	14,859,500

- 1 -

The contingency figure is on materials only and a figure of 10 percent was generally used. Freight costs as shown cover freight of permanent station materials to the jobsite from Edmonton but do not include freight costs of contractor's equipment which is included in the mobilization section of Contractor's Overhead.

It should be noted that the above figures exclude some direct costs as directed by Foothills Pipe Lines (Yukon) Ltd. in their correspondence dated December 21, 1978 to Canuck Engineering Ltd. Foothills Pipe Lines (Yukon) Ltd. must add their own appraisals for those elements that are excluded. The direct costs that are outstanding are discussed in Section II.

In addition, Owner's indirect costs have not been included in this estimate but must be considered by Foothills Pipe Lines (Yukon) Ltd. in order to have a complete assessment of compressor station costs.

Detailed cost estimate summaries for each compressor station are presented in Tables 1 and 2.

TABLE 1

CAPITAL COST ESTIMATE SUMMARY

DEMPSTER HIGHWAY COMPRESSOR STATION NO. 3

CHILLED

	Cost Category	<u>Materials</u> \$	<u>Installation</u> \$	<u>Total</u> \$
1.	Foundations	452,000	902,000	1,354,000
2.	Buildings	1,125,000	268,000	1,393,000
3.	Gas Compressor Package	3,900,000	67,000	3,967,000
4.	Propane Compressor Packages	3,600,000	99,000	3,699,000
5.	High Pressure Gas Piping	1,587,000	199,000	1,786,000
6.	Other Major Systems	2,367,000	343,000	2,710,000
7.	Utilities	255,000	89,000	344,000
8.	Instrumentation	383,000	52,000	435,000
9.	Electrical	867,000	255,000	1,122,000
10.	Insulation & Painting	124,000	184,000	308,000
11.	Testing, Winterizing & Startup	114,000	83,000	197,000
12.	Miscellaneous	187,000	41,000	228,000
13.	Federal Sales Tax	1,357,500	-	1,357,500
14.	Contractors Overhead		8,158,000	8,158,000
15.	Freight (Materials Only)	575,000		575,000
	L ludes Contingency of \$916,000 Materials)	<u>16,893,500</u>	<u>10,740,000</u>	27,633,500

16. Tools & Major Spares
 (Includes FST)

640,000 (optional)

- 3 -

TABLE 2

CAPITAL COST ESTIMATE SUMMARY

DEMPSTER HIGHWAY COMPRESSOR STATION NO. 7

NON-CHILLED

	Cost Category	<u>Materials</u>	<u>Installation</u>	<u>Total</u>
· .		\$	\$	\$
1.	Foundations	252,000	506,000	758,000
2.	Buildings	741,000	190,000	931,000
3.	,Gas Compressor Package	3,900,000	67,000	3,967,000
4.	Propane Compressor Packages	-	-	-
5.	High Pressure Gas Piping	946,000	126,000	1,072,000
6.	Other Major Systems	536,000	70,000	606,000
7.	Utilities	228,000	89,000	317,000
8.	Instrumentation	114,000	28,000	142,000
9.	Electrical	464,000	179,000	643,000
10.	Insulation & Painting	35,000	93,000	128,000
11.	Testing, Winterizing & Startup	89,000	44,000	133,000
12.	Miscellaneous	187,000	41,000	228,000
13.	Federal Sales Tax	698,500	-	698,500
14.	Contractors Overhead	-	4,884,000	4,884,000
15.	Freight (Materials Only)	352,000		352,000
•	L ludes Contingency of \$425,000 Materials)	8,542,500	<u>6,317,000</u>	<u>14,859,500</u>

16. Tools & Major Spares
 (Includes FST)

360,500 (optional)

DEMPSTER HIGHWAY LATERAL COMPRESSOR STATION COST ESTIMATE CHILLED AND NON-CHILLED

PREPARED FOR

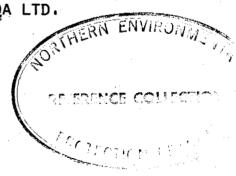
FOOTHILLS PIPE LINES (YUKON) LTD.

ΒY

CANUCK ENGINEERING LTD.

AND

DILLINGHAM CORPORATION CANADA LTD.



JANUARY 31, 1979

LIST OF TABLES AND FIGURES

NUMBER								ļ	PAGE
TABLE 1	CAPITAL COST ESTIMATES SUMMARY COMPRESSOR STATION NO. 3, CHILLED	•	•	•	•	•	•	•	3
TABLE 2	CAPITAL COST ESTIMATE SUMMARY COMPRESSOR STATION NO. 7, NON-CHILLED	•	•	•	•	•	•	•	4
TABLE 3	COMPOSITION OF TRADE CREWS CHILLED STATION	•	-	•	•	•	•	•	18
TABLE 4	COMPOSITION OF TRADE CREWS NON-CHILLED STATION	•	•	•	•	•	•	•	19
FIGURE 1	PROGRESS SCHEDULE CHILLED STATION	•	•	•	ę	•	•	•	20
FIGURE 2	PROGRESS SCHEDULE NON-CHILLED STATION	•		•	•	•	•	•	21
FIGURE 3	MANPOWER CURVE CHILLED STATION		•	•	•	•	•	•	22
FIGURE 4	MANPOWER CURVE NON-CHILLED STATION	•	•	•	•	•	•	•	23

TABLE OF CONTENTS

Section			Page
	SCOPE OF WORK AND CONCLUSIONS .		1
II.	DISCUSSION		2
III.	BASIS OF THE ESTIMATE		24
			25
	2. Buildings		40
	3. Gas Compressor Package		51
	4. Propane Compressor Package		61
	5. High Pressure Gas Piping .		65
	6. Other Major Systems		74
· ·	7. Utilities		112
	8. Instrumentation and Contro	ols	132
	9. Electrical		147
	10. Insulation and Painting .		160
	11. Testing, Winterizing and S		164
			165
	13. Federal Sales Tax	· · ·	171
	14. Contractor's Overhead		173
	15. Freight from Edmonton		196
	16. Tools and Major Spares		199
IV.	DRAWINGS	•••••	203
۷.	APPENDICES		

i

LIST OF TABLES AND FIGURES

NUMBE	<u> </u>	PAG	E
TABLE	1	CAPITAL COST ESTIMATES SUMMARY COMPRESSOR STATION NO. 3, CHILLED	i
TABLE	2	CAPITAL COST ESTIMATE SUMMARY COMPRESSOR STATION NO. 7, NON-CHILLED 4	4
TABLE	3	COMPOSITION OF TRADE CREWS CHILLED STATION	3
TABLE	4	COMPOSITION OF TRADE CREWS NON-CHILLED STATION)
FIGURE	1	PROGRESS SCHEDULE CHILLED STATION)
FIGURE	2	PROGRESS SCHEDULE NON-CHILLED STATION	İ
FIGURE	3	MANPOWER CURVE CHILLED STATION	2
FIGURE	4	MANPOWER CURVE NON-CHILLED STATION	3

I. SCOPE OF WORK AND CONCLUSIONS

On December 12, 1978, Foothills Pipe Lines (Yukon) Ltd. authorized Canuck Engineering Ltd. to proceed with the preparation of cost estimates for a typical chilled compressor station (No. 3) in the permafrost zone and a typical non-chilled compressor station (No. 7) for the Dempster Highway Pipe Line. Both stations were to utilize a single 16,000 ISO horsepower gas turbine compressor package for the main high pressure gas unit.

A discussion of the methodology used in the preparation of the estimate is presented in Section II of this report, and the detailed approach and assumptions are outlined in Section III. The station designs are in accordance with CSA Standard Z184-1975 and the NEB PC 1974-807 Gas Pipeline Regulations. The installation portion of the cost estimate has been prepared by the Dillingham Corporation Canada Ltd. who have had extensive experience in the installation of compressor stations and natural gas process plants in Western Canada. The estimate was prepared with the consideration that the contractor would move in and construct a minimum of four stations over a two-year period.

First quarter 1979 material costs were used in the preparation of this estimate and no allowance was made for escalation.

The following summarizes the installed costs for each compressor station:

Station	<u>Subtotal</u> \$	Contingency \$	Freight \$	Tota1\$
Chilled (Stn. No. 3)	26,142,500	916,000	575,000	27,633,500
Non-Chilled (Stn. No. 7)	14,109,500	425,000	325,000	14,859,500

- 1 -

The contingency figure is on materials only and a figure of 10 percent was generally used. Freight costs as shown cover freight of permanent station materials to the jobsite from Edmonton but do not include freight costs of contractor's equipment which is included in the mobilization section of Contractor's Overhead.

It should be noted that the above figures exclude some direct costs as directed by Foothills Pipe Lines (Yukon) Ltd. in their correspondence dated December 21, 1978 to Canuck Engineering Ltd. Foothills Pipe Lines (Yukon) Ltd. must add their own appraisals for those elements that are excluded. The direct costs that are outstanding are discussed in Section II.

In addition, Owner's indirect costs have not been included in this estimate but must be considered by Foothills Pipe Lines (Yukon) Ltd. in order to have a complete assessment of compressor station costs.

Detailed cost estimate summaries for each compressor station are presented in Tables 1 and 2.

TABLE 1

CAPITAL COST ESTIMATE SUMMARY

DEMPSTER HIGHWAY COMPRESSOR STATION NO. 3

CHILLED

	Cost Category	Materials	Installation	Total
		\$	\$	\$
1.	Foundations	452,000	902,000	1,354,000
2.	Buildings	1,125,000	268,000	1,393,000
3.	Gas Compressor Package	3,900,000	67,000	3,967,000
4.	Propane Compressor Packages	3,600,000	9 9,000	3,699,000
5.	High Pressure Gas Piping	1,587,000	199,000	1,786,000
6.	Other Major Systems	2,367,000	343,000	2,710,000
7.	Utilities	255,000	89,000	344,000
8.	Instrumentation	383,000	52,000	435,000
9.	Electrical	867,000	255,000	1,122,000
10.	Insulation & Painting	124,000	184,000	308,000
11.	Testing, Winterizing & Startup	114,000	83,000	197,000
12.	Miscellaneous	187,000	41,000	228,000
13.	Federal Sales Tax	1,357,500	-	1,357,500
14.	Contractors Overhead	-	8,158,000	8,158,000
15.	Freight (Materials Only)	575,000	<u> </u>	575,000
	L ludes Contingency of \$916,000 Materials)	16,893,500	<u>10,740,000</u>	27,633,500

16. Tools & Major Spares
 (Includes FST)

÷

640,000 (optional)

- 3 -

TABLE 2

CAPITAL COST ESTIMATE SUMMARY

DEMPSTER HIGHWAY COMPRESSOR STATION NO. 7

NON-CHILLED

	Cost Category	<u>Materials</u> \$	<u>Installation</u> \$	<u>Total</u> \$
1.	Foundations	252,000	506,000	758,000
2.	Buildings	741,000	190,000	931,000
3.	Gas Compressor Package	3,900,000	67,000	3,967,000
4.	Propane Compressor Packages		-	-
5.	High Pressure Gas Piping	946,000	126,000	1,072,000
6.	Other Major Systems	536,000	70,000	606,000
7.	Utilities	228,000	89,000	317,000
8.	Instrumentation	114,000	28,000	142,000
9.	Electrical	464,000	179,000	643,000
10.	Insulation & Painting	35,000	93,000	128,000
11.	Testing, Winterizing & Startup	89,000	44,000	133,000
12.	Miscellaneous	187,000	41,000	228,000
13.	Federal Sales Tax	698,500	-	69 8,500
14.	Contractors Overhead	-	4,884,000	4,884,000
15.	Freight (Materials Only)	352,000		352,000
	L ludes Contingency of \$425,000 Materials)	8,542,500	<u>6,317,000</u>	14,859,500

16. Tools & Major Spares
 (Includes FST)

360,500 (optional)

- 4 -

II. DISCUSSION

This section of the report reviews the overall approach that was used by Canuck and Dillingham in order to logically prepare the cost estimate for two Dempster Highway Pipe Line compressor stations.

On December 18, 1978, Foothills called a meeting with Canuck to discuss:

- a) the available station design information
- b) certain design parameters
- c) the overall project construction schedule
- d) vendor quotes for the gas turbine compressor packages
- e) items to be included and excluded in the estimate.

A memo of this meeting is attached (dated December 21) and labelled Exhibit 1 in the Appendices.

Canuck was requested to omit the following direct costs from the estimate as they would be handled by Foothills:

- a) Land Acquisition
- b) Access Roads
- c) Site Preparation.

In addition no Owner indirect costs have been included in this estimate, but we draw your attention to the following which Foothills should consider:

- a) Project Management and Engineering
- b) Possible NEB or NPA Costs
- c) Material Inspection and On-Site Inspection
- d) Allocation and Amount of Contingency
- e) Interest During Construction
- f) Possible Assessments or Sales Tax in the Northwest Territories.

- 5 -

The estimate has been prepared using certain cost information provided by Foothills, current costs obtained from discussions with vendors, installation costs provided by Dillingham and current in-house price information available to Dillingham, and Canuck. In addition Dillingham has referred to their historical man-hour installation records from previous compressor station and process plant construction in northeastern and southeastern British Columbia.

The estimate is based on first quarter 1979 prices, and includes the cost of freight to a marshalling area in the vicinity of Edmonton. Freight from Edmonton to the work site is shown as a separate item and is detailed in Section III-15. Federal Sales Tax is shown as a separate item and is summarized in Section III-13.

INSTALLATION

The installation cost estimates presented are for the construction of a chilled compressor station (Station 3 - Rock River) at Kilometre Post 380 and a non-chilled compressor station (Station 7 - Stewart Crossing) at Kilometre Post 851 of the proposed Foothills Dempster Highway Lateral Pipe Line. Nine compressor stations are ultimately proposed over the length of the 1172 kilometre pipeline from the Mackenzie Delta to the Foothills 56" mainline near Whitehorse.

The direct costs for a typical chilled and a typical non-chilled station were developed in considerable detail on the basis of conceptual quantities. Building sizes, equipment information, flow diagrams, and pipeline sizes provided by Foothills have been used in developing approximate quantities of work.

These quantities were compared to actual quantities available from the project histories of many stations previously built in British Columbia, Alberta and Saskatchewan. The final range of estimated quantities is considered accurate to within about 15 percent.

- 6 -

The direct labor costs developed are also based upon labor productivities achieved during construction of compressor station facilities in British Columbia, Alberta and Saskatchewan.

The work force on the Dempster Highway Lateral compressor stations has been assumed to have a higher unskilled labor input and lower productivities than the norm.

The range of productivities apparent from previous project histories indicates that many sites have encountered productivities different from the norm. These variations are attributable to site conditions, weather, extreme temperatures, remoteness, equipment availability, material deliveries, extended hours and labor strife.

The impact of these variations as well as the high input of unskilled labor has been considered in assessing realistic productivity units for the Dempster region.

SCHEDULE

Historically, mainline compressor stations are constructed within a sixmonth period and most often during the winter months. The Dempster Highway Lateral stations are considerably larger and because of the remoteness will require extensive mobilization periods to set up construction facilities and construction camps.

The progress schedule for the chilled station is presented on Figure 1 and indicates that the time required is 11 months and for a non-chilled station (Figure 2) is 10 months. Both stations are considered to be constructed concurrently with mobilization occurring in February and March, or alternately the fall of the preceding year.

The Dempster stations are expected to be constructed in 1985 and 1986.

- 7 -

The estimated manpower buildup is shown on Figure 3 for the chilled station and Figure 4 for the non-chilled station. A typical composition of the trades required for the job and their total estimated manhours is shown in Tables 3 and 4.

The direct costs include the straight time construction labor costs of hourly trades employed directly on-site (60 hours per week).

The hourly trade rates are current, in accordance with the British Columbia and Yukon Building Trade agreements and expire April 30, 1980.

The design of the single unit chilled and non-chilled compressor stations for the Dempster Highway Pipe Line is in the preliminary stages. Foothills has furnished Canuck with several drawings from the Maple Leaf Project to serve as a general guide. Canuck has utilized these drawings in modified fashion and has prepared a number of preliminary drawings that were used for estimating purposes. These drawings are attached in Section IV. In certain instances, where definitive information was not readily available, the consultant proceeded by making certain assumptions based on engineering judgment and industry practice. These assumptions are outlined in detail for each category in Section III, and are briefly discussed in the following material.

1. FOUNDATIONS

In order to avoid disturbance of the permafrost the estimate has considered that all heated buildings for the chilled stations will have the floor elevated approximately three feet above grade and it will be supported on friction piles founded below the active zone. In the nonpermafrost areas the estimate has considered that foundations will consist of a normal spread footing.

In all cases the foundations conform to the requirements of the National Building Code of Canada.

- 8 -

2. BUILDINGS

All of the station structures with the exception of the living quarters are constructed with welded steel rigid frame sections. The transverse frames are interconnected by bracing systems in the planes of the side walls and the roof. All field connections will be bolted. The wall panelling and roofing will consist of a sandwich material composed of two metal sheets and an insulating core. The buildings will be in compliance with all applicable codes.

3. GAS COMPRESSOR PACKAGE

The gas compressor package was specified by Foothills and was quoted by Cooper Energy Services Ltd. The package consists of one 16,000 ISO horsepower industrial jet engine, a power turbine and a two-stage centrifugal compressor plus auxilliaries. The equipment is of proven design. The turbine will be fitted with inertial air cleaning devices, antiicing equipment, inlet and exhaust silencers and an acoustical enclosure. The quotation for this package is presented in Section III-3.

4. PROPANE COMPRESSOR PACKAGE

The propane compressor package was specified by Foothills who selected two Clark DJ50 turbine compressor packages. The packages include two 5500 ISO horsepower industrial jet engines each of which is coupled to a multi-stage propane compressor.

5. HIGH PRESSURE GAS PIPING

The high pressure gas piping layout used for the estimate is shown in isometric drawings FPL39-49-61D and FPL39-49-62D which are included in Section IV. The 30" piping estimate included an inlet gas scrubber, applicable remote operated valving, the chiller headers, an orifice fitting on the discharge piping and the required relief and blowdown piping. All high pressure piping was estimated using $-50^{\circ}F$ specification materials.

-9-

6. OTHER MAJOR SYSTEMS

6.1 CHILLING SYSTEM

The propane chilling system estimate was based on the general design prepared for the Maple Leaf system and modified to fit the reduced flow rates of the Dempster Highway Pipe Line. An isometric drawing of the revised propane system is attached in Section IV. The system consists of three propane chillers and associated controls, vapor lines to the compressors, 12 fin fan condensers, a propane surge tank, an economizer and a large propane storage tank.

6.2 FUEL AND STARTING GAS

The fuel and starting gas system was estimated to incorporate a separate fuel gas regulator building and includes fuel gas measurement, and an alternate source of fuel in the event of a mainline segment shutdown on the upstream or downstream side.

6.3 HEATING AND VENTILATING

The heating system is a conventional hot water-glycol design consisting of a number of modular heater packages selected for the particular station load.

6.4 GAS DETECTION AND FIRE PROTECTION

The gas detection system provides for a number of combustible gas detectors, ultraviolet fire eyes, continuous strip thermistors, ionization detectors and thermal detectors to be installed throughout the station. The main gas compressor building and the control room MCC/switchgear room and generator/boiler room are protected with Halon 1301 systems as is the propane compressor building at the chilled station. 7. UTILITIES

7.1 WATER SYSTEM

The water system estimate was prepared assuming that raw water would be hauled to the station and stored in a 500-barrel tank and that chemical treatment and chlorination would be required for the potable water.

7.2 SEWAGE SYSTEM

The sewage system estimate was based on a vendor quotation for providing a vacuum sewage system with incineration of the collected sewage.

7.3 INLET AIR SYSTEM

Structural steel supports and hardware have been provided for turbine air inlet ducting. The actual ducting, plenums and silencers are part of the turbine manufacturer's supply.

7.4 EXHAUST SYSTEM

As for the inlet air system, all necessary structural steel supports and hardware for the complete exhaust systems have been provided. Again the exhaust ducting and silencers are part of the turbine manufacturer's supply.

7.5 FLARE AND VENT GAS

The flare and vent gas system was based on installing a tapered flare line that runs through the station buildings to pick up combustible gas vents and terminates in a 50-foot flare stack complete with pilots, igniters and controls.

7.6 EMERGENCY FUEL

Provision has been made for diesel fuel storage and supply to the standby diesel fueled electric generating unit. Storage for quantities of gasoline for pipeline vehicles has also been provided.

7.7 CONDENSATE STORAGE

A small condensate storage tank is provided to handle the materials removed from the gas stream by the inlet scrubber. This tank has been included in the high pressure gas piping system.

8. INSTRUMENTATION

8.1 UNIT CONTROLS

Most of the unit controls and instrumentation are included in the cost of the units; however, unit auxiliary panels (based on A.G.T.L. control panel designs) are added to achieve some standardization between the stations and to contain some unit related controls and equipment not supplied by the compressor unit manufacturer.

8.2 PRESSURE, TEMPERATURE, FLOW MEASUREMENT

Pressures that are required for the operation of the main compressor system and the propane compressor system are transmitted to the main control room by electrical signals obtained from pressure transmitters located in instrumentation racks in the compressor buildings. The cost of this portion of the instrumentation includes cost of the instrument racks. Also included in the cost are the pressure gauges and switches located in the same racks.

Temperature monitoring that is required for the operation of the main compressor system and the propane compressor system shall be monitored by use of thermowells, RTD's, signal conditioners and panel meters.

- 12 -

The cost of this portion of the instrumentation includes the cost of the thermowells and RTD's. The cost of the signal conversion and indication is included in the cost of the station control panel (where equipment is mounted).

Flow measurement of the gas and propane is obtained through sensing differential pressures across orifices and temperatures at the orifice. The cost of instruments is included in the costs for temperature monitoring, instrumentation racks and station control panels.

Flow measurements of the fuel gas for the main compressor, propane compressor and utilities are based on turbine meters. The cost of the turbine meters is included in the fuel gas system costs.

8.3 STATION CONTROLS

Station control panels for the main compressor station and the propane station are included in this estimate and the cost covers logic, instrumentation (mounted in panel), indicators, and local push buttons and switches for the operation of the stations in general.

8.4 PROPANE INSTRUMENTATION AND CONTROLS

Instrumentation and control cost estimates for the propane system are "taken off" a flow sheet supplied by Foothills.

8.5 MISCELLANEOUS

Miscellaneous items included in the estimate are items which were unable to be categorized above.

9. ELECTRICAL

9.1 ENGINE GENERATORS (includes Switchgear)

Three (3) 450 KW Caterpillar generator sets have been provided at

Station No. 3. Two (2) of these will be natural gas fired for prime electric power generation and the third will be a diesel fueled standby unit.

At Station No. 7, three (3) 150 KW Caterpillar generator sets will be provided. Again, two (2) will be natural gas fired and the third a diesel fueled standby unit.

Included in the estimate for the engine generators are the associated cooling and starting equipment, engine control panels, switch gear and metering.

9.2 MOTOR CONTROL CENTRE

The motor control centre (MCC) estimate is based on an essential service bus and non-essential service bus segregation. The main compressor and propane compressor unit MCC's are supplied by the unit manufacturer and are included in the unit costs. They are fed from the main MCC.

9.3 CONDUIT CABLE AND FITTINGS

The supply of material and installation of all conduits, wire, cable, trays and consumable electrical materials has been provided for in the estimate.

9.4 UNINTERRUPTIBLE POWER SUPPLY

UPS, which consists of the battery charger, inverter and batteries for the general station, is included in the estimate. The costs of the UPS systems for the main compressor unit and propane compressor units are included in the cost of units.

9.5 LIGHTING FIXTURES

The costs of the materials and installation of interior and exterior building lighting have been provided in the estimate.

- 14 -

9.6 YARD LIGHTING

The cost of the materials and installation of yard lighting on conventional light standards in 12 separate locations around the compressor station yard has been included.

9.7 HEAT TRACING

The cost of heat tracing certain portions of pressure piping installed aboveground has been included in the estimate.

9.8 GROUNDING

The grounding system required for installation in the permafrost areas requires special preparation and these costs have been considered by the consultant.

10. INSULATION AND PAINTING

10.1 INSULATION

This item includes the cost of materials and the installation of insulation to all piping, vessels and equipment.

10.2 PAINTING

This item has provided for the supply and application of all painting requirements to equipment, piping, structural steel, masonry and exposed concrete work.

11. TESTING, WINTERIZING AND STARTUP

11.1 TESTING

This item includes the cost of materials and labor to test the high

pressure gas piping, the propane piping and miscellaneous piping and vessels to the NEB requirements.

11.2 WINTERIZING

This sub-category provides for the labor and material required for snow removal and isolated hoarding and heating. This allowance relates to the protection of concrete, welders' shelters and removing snow. Fuel for heating temporary buildings is included under construction facilities. In addition it provides for the startup and checking of heat tracing, heating systems, winterizing valve operators, etc.

11.3 STARTUP

This sub-category provides for the labor, vendors' servicement and materials required to check out and start up the station and to have it operating in a safe and satisfactory manner.

12. MISCELLANEOUS

This category includes a number of items not otherwise provided for such as safety equipment, site improvements, walkways and furnishings for the living quarters.

13. SALES TAX

This item was also requested by the client to accumulate the Federal Sales Tax on all material required for the station.

14. CONTRACTOR'S OVERHEAD

The discussion of the contractor's overhead costs is presented in detail in Section III-14.

15. FREIGHT

This item was requested by Foothills to accumulate the cost of freight from a marshalling yard in the vicinity of Edmonton to the job sites.

16. TOOLS AND MAJOR SPARES

This category provides for equipping the station with all of the necessary maintenance tools and provides for a number of spare parts for the stations including a spare gas turbine which is prorated to all stations.

TABLE 3

DEMPSTER HIGHWAY COMPRESSOR STATION COMPOSITION OF TRADE CREWS CHILLED STATION

Category	<u>Manhours</u>
Carpenters	28,000
Laborers	20,000
Cement Masons	4,000
Operating Engineers	20,000
Teamsters	25,000
Ironworkers	16,000
Pipefitters	38,000
Machinists	6,000
Electricians	25,000
Painters	6,000
Insulators	4,000
Sheetmetal	6,000
TOTAL	192,000

- 18 -

TABLE 4

DEMPSTER HIGHWAY COMPRESSOR STATION COMPOSITION OF TRADE CREWS NON-CHILLED STATION

Category	Manhours
Carpenters	15,000
Laborers	12,000
Cement Masons	3,000
Operating Engineers	11,000
Teamsters	11,000
Ironworkers	8,000
Pipefitters	20,000
Machinists	4,000
Electricians	14,000
Painters	4,000
Insulators	1,000
Sheetme ta 1	4,000
TOTAL	107,000

- 19 -

FIGURE 1

LEGEND

14	19
<u>U</u>	D

Dillingham

PROGRESS SCHEDULE

FIRST LINÈ SCHEDULED TIME SECOND LINE ACTUAL PROGRESS DELIVERY DATE 🤜 ORDER DATE START UP ٥

REV.	NO.	DESCRIPTION OF ITEM	Mont 0	th 1	2	3	4		5	6	7	8	9	10	11	12
		Mobilize Contractor Facilities								* . * .	• ·	• • •		.•		
		Setup Construction Camp	· 1 ·				· · · ·		· ·	, 	a salah ka masar				•	
		Piling, Excavation, Sitework			. "					•						
		Concrete Foundations		, ' ,	- • • • • •	, 										
		Buildings and Utilidors							-							
		Gas Compression Package	· · · · · · · · · · · · · · · · · · ·					······								
		Propane Compression Package				: 	محمد المحمد بي الرقواني									
		Gas Chillers		a sana. Ny amin'na	• •		· · · · ·	 					* . * . ****	Tan		
		Propane Condensers	· · · ·				•						i i i ala i i			
4		High Pressure Gas System	•	i 1				أريفنف								
20 -		Chilling System			· · · · · · · · · · · · · · · · · · ·					•		· . ·	· .			
•		Other Major Systems	• •	· · ·		ing Line	i	-			· 10070101			•		
		Utility Systems				1 		- 1								
		Electrical Generation Package					· · · ·					i o Pratica de la composición de la composi Composición de la composición de la comp				
		Electrical Switchgear & M.C.C.		-		1 .	tina. Tanganan									
		Lighting Systems					•							• 		
		Power and Control	•		 		· · ·	<u>.</u>								
		Instrumentation														
		Insulation and Fireproofing						· . •		: 		1.1				
		Painting		• •		•									_	
		Testing and Startup													-	_
		Demobilization											•			

To defills Pipe Lines (Yukon) Ltd. Town to Laichal Compressor Stations - Chilled

SHEET NUMBUR THE OF CHEER.

1

1

FREP.

inoc.

DAY NO. YR. DRAWING NUMBER HEV BΥ 18 1 79 M.J.T. A-36(°-1

FIGURE 2



REV.

PROGRESS SCHEDULE

LEGEND SCHEDULED TIME FIRST LINE ,.... ACTUAL PROGRESS SECOND LINE ORDER DATE DELIVERY DATE -START UP 0

, ∑.		Mont	h	·····		· · · · · ·	······	- ·	· _ ···		· · · ·	~	10		1 10	
HEV.	DESCRIPTION OF ITEM	; 0		2	3	4		5	6		. 8	9	10	. 11	12	
	Mobilize Contractor Facilities	1					1	1		_			•			
	Setup Construction Camp						• •			•	•					
	Piling, Excavation, Sitework	· ·	د به هدامه در با هدامه													
	Concrete Foundations															
	Buildings and Utilidors	1				• • • • • • • •						• • •				
	Gas Compression Package					: - · · · ·	•					: 				
	High Pressure Gas System															
	Other Major Systems	-		-							•		· · · ·			
	Utility Systems				: <u> </u>					i		······································	e .			÷
I N	Electrical Generation Package										e menu i ji				. .	
	Electrical Switchgear & M.C.C.			، بر بر الم - بر بر الم الم الم - مسبح - مسبح - مس						÷	in an		н. 1917 - Эл			
	Lighting Systems							•								
	Power and Control	1	in generic i a Binnin in ar The angene													
	Instrumentation	tini. Marija da se	····						-				• • • •			
	Insulation and Fireproofing			سرمیارد در مده ه	د همین مرد در مرد در امرو د	· · ·	1 1 1 2 2 3 2 2 3 4 4 4 5 4 5 4 4 4 4 4 4 4 4 4 4 4 4 4	e - mericalist -	•••••	~ .						
	Painting		د. هم جنور مر در		n y na Nagaran a sa Nagaran a sa			uria di								
	Testing and Startup		n in n N Na an	د. سرائیت میلادید ا	- 2						• • •;				,	
	Demobilization		-		· ·	: ·					a ar ar	-				

Foothills Pipe Lines (Yukon) Ltd. Dempster Lateral Compressor Stations - Unchilled

SHEET NUMBER No. OF SHUELS

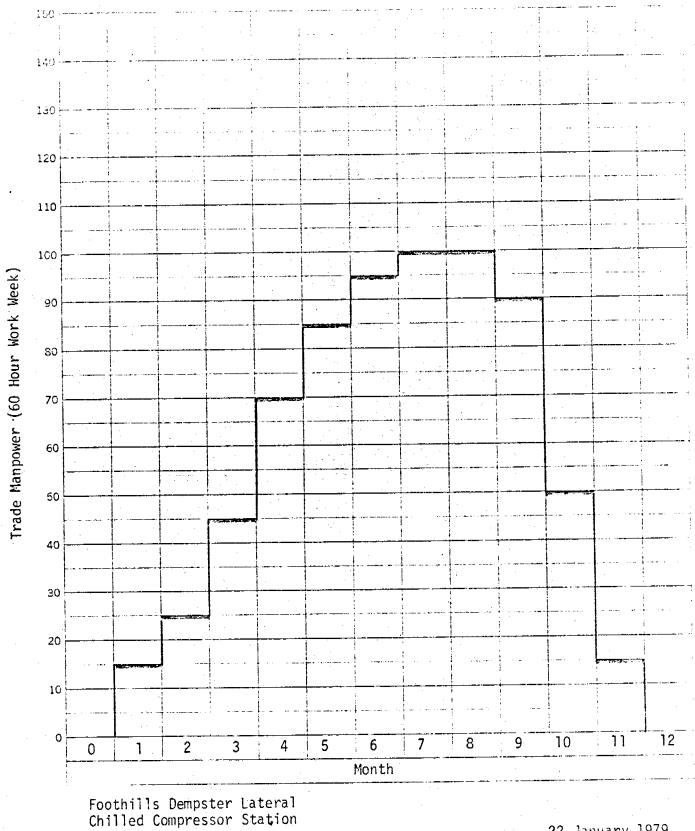
PREP. FROG. LI Y

M.J.T.

ELV. DAY MO, YR. DRAWING NUMBER A-3680-2

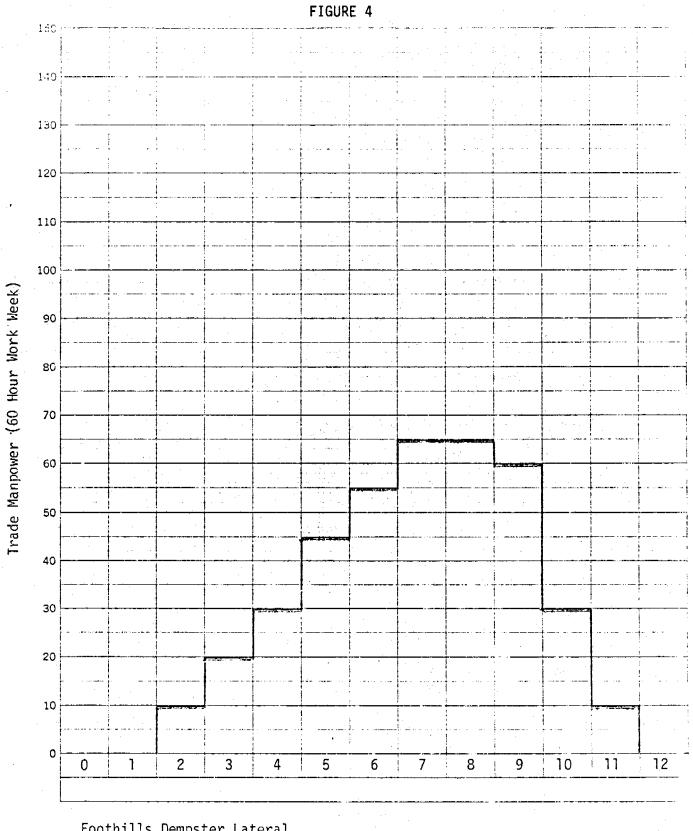
FIGURE 3

n migh 13 13



Manpower Curve

22 January 1979



Foothills Dempster Lateral Unchilled Compressor Station Manpower Curve

ġn.

22 January 1979

III. BASIS OF THE ESTIMATE

GENERAL

This Section of the estimate is divided into sixteen separate cost categories and provides an explanation of the assumptions used in preparing the estimate. Additionally, the itemized materials cost summary sheet, installation man hours and cost summary, the estimated weight of materials and the estimated Federal Sales Tax for each sub-category are also included.

Where revised drawings have been prepared, they are included in Section IV and are referred to in the appropriate subsection.

A contingency generally in the amount of 10 percent has been added to the cost of material due to the preliminary stage of the station design.

III-1 FOUNDATIONS

This estimate included the excavation and backfill of foundations, drilled concrete piling, concrete formwork, reinforcing steel, embedded materials, concrete placement, grouting, insulation and waterproofing. The materials supply for all of these items is (shown separately) included.

The estimate provides for 2600 cubic yards of concrete at the chilled station (No. 3) and 1400 cubic yards at the non-chilled station (No. 7). Reinforcing steel is estimated to require 125 pounds per cubic yard.

COST SUMMARY

	<u>Chilled</u>	Non-Chilled
Materials	\$ 452,000	\$252,000
Installation	902,000	506,000
Total	\$1,354,000	<u>\$758,000</u>

Estimated Weight of Materials ex Edmonton	1,770,000 lbs.	1,045,000 lbs.
Federal Sales Tax Estimate	\$ 25,000	\$ 13,000

- 25 -



Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project FOOTKILLS Density Estimate No. Item No. Account No. Date Smary Description DVM0104 Sheet No. ___ of

	Description of Work	Unit		Que	inti	ly		1	Ho	urs				La	abo	ur			E	qui	pme	ent		I	Mat	eria	ais		SL	ipci	ont	rac	ts -	J	b S	Sup	plie	s		To	tal	Co	ost	
	excaveria e backful	સુ		Π	9	1	6.	192		K	19	b	K?	2	[]	H	H	>								4	bø	þ		\prod			H		_					\square	ľ	3]	2
	1740 cy gram		╏╌┠╌	Ħ	†₿	Η	\square	<u></u>	Ħ	†	+			-	┝	┤┠	┼╋		· · -		╂╋	┢┽			┟┢	+	╆┼	┼┼		+	+		┢┟		┥	•		• •				-	-	
					T	Ι			Π	Ţ		Π				Ī	П			11.					T.	ļ	Π			11			ļŢ											
) <u> </u>	lacily Sayork	₽.		╢		4		14	H,		-	L	11.2	+		H	H	_	-	╢	╇┥	$\left\{ \right\}$	+-		┼┠		╢	H		₩	+		╢	1.4	╉		87			-++	-	H		ļ
	612005122x a 2000 Shulls	- X -		t l'	1		M .,	ng.	Ħ	74	Ψ	Ρ		+		14		9	•	+ - -	╟	H				H	H	\mathbf{H}		+	+	-		14		- •	đħ	vo.	-	+	4	1P	4	Í
	Coucilly former the 6170051232 0 7000 Shulfs ×1.63 + 160,000 Azus	· · ·		Ľ	11				ĪĪ						Ħ	11	Ħ			Ē	T1	Ħ						Π		t														l
	P			┨╌┟╴	H	+1			╁╉	-		$\lfloor \rfloor$		-			4				╽╽	H	4.					Ц		41		L			-				Í					
	Pak Breaker Viers	۲Ł	\vdash	L.			L.	6	┼┼			\mathbb{H}	1111		$H_{\mathbf{h}}$	H		+		╢	┢	┼┼	+	ょ	┼╂	H	1 1	H		+	+	+	┟┼╴		╋	┽┼	╂╊	+	Ì	╉╉	┼╢	20	56	ĺ
•	Rimporency Steel	- 20						Q		1	IT	P	10.3		t l'			4-			†ŀ	† †		- F	h			M					t H	•	-+									
		1	T.	1					11			Π		_					· · · · · ·		П					H										1	Ĩ	-1-						
	· · · · · · · · · · · · · · · · · · ·		╟	┝┥	$\left \right $				┼╢		-					$\left \cdot \right $					-				╎	+	┞╇	++			- -					İł	$\left \right $	-						i
-	Embrace Malenals	lbs.	\mathbf{H}	┼┼	tt			58	┼┼	╉╉	LA I		U.				A	╎		╁╋	+	╞┟		50	╂╊	╎	h	H		+	╉	+	+	-	+	+i	-	+		╫	++	5	87	İ
		- CD			Ŧ ſ			- 19 12	††			7	W											-		Ľ.													1				1	Į
1. 				Ц					П		I					II							1			Į Į		11					Ц		_		-			-		L.		
· · · ·					ļ.				╪╢	+											 .					ŀŀ				$\left \right $	-								l				-	
• •	Coucht Place	4	┢╆	H	5	k	1	6	┼┼		de.	H	kr	•	6	e.		_		┢╋	┼┼	╂╉	+	4	+		5			╉╋	-	-	<u></u>		-++			+		+	Ы	A,	. 1	ĺ
<u> </u> .	2690 cy	כן										ľ	.4.1		Ц						Ħ			нт «	†ľ								İİ					1.						
	1400 0	. 						•	$\left \right $									-									.	ĻΙ					ļļ					-						
+					$\left \right $					+		╢		-									-			$\left \right $	łł				-	.	╎┝									H	ł	ļ
	Othe Grout	45		tt		8	b	10	Ħ		40	Ь	IL	广		51	19	ō.		11			-+ .	517		ti	40	허			İ		††						· · · ·		-1-1	¥	88	i
	Othe Grout Insulance + Materproaf.	26			1	Þ	p].(100	ļļ		48	0	16			9	8	2					.i	215		15	191	þ						··-	-							2	\$ 1	i i
• •						i			++		-	-			┝┟											1+			•	+							+ +			·				
		· · · · · · · · · · · · · · · · · · ·			$\left \right $			······			-			-	╏╋		╋										t															ļţ	-	
1				Ħ		11).0		. IQ	55	51				И	Þ.			TT	T	П	Т			k h	fiid	6		TT	Т		IT			8	k h	50		•	to	64	219	i



1 27 1

Dillingham Corporation Canad	da Li	td.						·) lings					t No.							_		nate					
ESTIMATE COST SHEET					Descri	ptio	- Fo	ma	h	ña ·	((mpr	Sit	J R	hill	w	55	hille 10 st	. 8	int.	e.) s)ate Shee	t No	· ·	\	0	f. D	<u> </u>
Description of Work	Unit	6)uan	lłty		Hou	r s		Lat	our	T	Equip				ateri				tracts	- r	Job	Sup	plies	,	Te	otai	Cost	
ann 300 cy gran	ઝ			691	.50		89	2 IEPU		17:00	¥				1 79	1	100											700	ØV
Bucreli Forward - mel sminis	£.		- b	50	.26		45.0			201	v											50		81 4	3			907	50
kintoning Sur	163		40		.d5		90	4		1840	N				3		i en											294	92
bubaace forcing	12		•	***	.05		191	169		169	v 				5		3001								1	m		46	07
lowerelle Place - mei maniture 4. sleb Anish	হ্র্য			590	78		140	11/100		21 97	1				109		5 60 v											160	-
Cauting	દ્ય			19-1	5.0	┥┥┥		, 669	1.	907	72				97 ⁴		94 1 1	·	-							·	* *	180	970
ellon HPG05 70° 181 465 Provan	ó			250	164			1512		8950 79 04						[1]	950v		-				ן נ	319 815	2	45	111	671 351	11

D001-1 135EP76

1



ł 28 -

	ESTIMATE COST SHEET					tem N Descri	otion	Fo	1	ha	4.4 (Ş.	NAM	an	int No.)(Lui)()	1		n F	75	5	32 51		Date Sheel	No.	2	0	12
		· · · · · ·	r		_	T			1			J .			7					19							
	Description of Work	Unit	_ a	luani	ity	·	Hour	8		Labo	Jur		Equipmen	t .	M	ateri	als	Sut	ocon	Iract	8	Job	Sup	plies	Т	otal	Cost
	Breatation & Backfin . allow 70 cy span	ઝુ			360	50		1 150	irany Irany		2462				4049		800										3035
	Concrite Formant - inc sunanis	st			500	34		X 10	14,00		GI 60											50		2750			1041
	Hocy & to stley																										
	Remborening Steel - cut, bene, place	#2		6	#0 0	.0115		4	169		1440				*		1597										744
	Endoudula Moterialo	Non			704	.05			1495						15,		300								249		40
· · · · · · · · · · · · · · · · · · ·	Concrete Place - mel maniense, Ainish	સ				2.8		14	11502		71.00				4 0 ²⁰		4500								•		669
	Lionichi ul	ch.				50			1499		\$07				3000		399										4.0
	liouniz											· · · · · · · · · · · ·						· · · · · · · · · · · · · · · · · · ·									
<u> </u>	6m 165		╞┼┼	┿╋	┝┽┼	14.0	┼┼┼	95	. <u> </u>		10010		╺┿┨┥┤┠╴	╁		╉╋╴	14:0				-+- -		+++	2067	490	+ -	24:56

0001-1 135LP/6



						ļł	tem t	No									- ^	cco	unt l	No									D)ate						- :
	ESTIMATE COST SHEET					D)escri	iptio	n 1	br	10+	10	A	-(-	CU	14	6	n K	luig)		502	(15	: =	3	150	14 _/14	•	S	ihee	t No)	3		of , 🎗	h
	Description of Work	Unit	[_	Qu	anti	ty		Hou	Irs		· ·	Lab	our		E	qui	pme	nt	T	Ma	teria	als	Τ	Su			ncts		lob	Sup	plies	5	T	otal	Cost	 1
	Excavation & Back Au	щ			1	202	50		l	20	наро		4	*b		Π			40			800	b			Π				Π		T			1.10	
*	allin 200 by spin		Ц		41			#		I].		Ļļ.			· · · · ·	_			11													
·						╂														-+-																
	Courte formwork	SP_			1	501	.74		2 K	S.	64		40	01								╋╋	╢					15	2		174	50	,		570	15
······	300 cy @ 75 5/cy														, ,					-													•			
	Remboring Steel	IK.			24		.elk			20	164		CL	40					75	-		401													116	
		- '2					1414				10. ž		-35		1				- 72	-								1								Ľ
	300 ey & 170 to/ey																																			
	Empranze Harris	165			Ţ	P p	.05			50	ų,			91					190			150	n)												23	19
	· · · · · · · · · · · · · · · · · · ·							┥╂													-										, , , , , , , , , , , , , , , , , , ,		365			
·····	carence pace					200	24		- 0		11,00		121						40	5		1 91	1					-	-						39 6	
		- cy			t		1 4						. 1 / 1															-				<u>ון</u>				Ĩ.
				· · · · ·	-																												• • •			
	Growthing	_ch				p	50		†1	90	160			00					20	•		40	•						-			╞┥			7	0
								· - -											-									-								ļ.
				-																														-		
-1 13:	17 k 395				1	Ц	156	Ш	4	80		\Box	12	H		Ш	Ш				A	910	5		Ц_	Ш					126	<i>ib</i>	435	11	30-	19

Project Foothills . Dempsty

Estimate No.

- 29

ı.



- 30 -

Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project _ FOOTHILLS__ DAMPITUR_______ Estimate No.______ Item No.______ Account No. ______ Date Description _ FOUNDATIONA _ (CONTRUL UNITY BUNCHALLS) _ but X170 = 7700 St _ Sheet No. _ A _ of 12 Description _ FOUNDATIONA _ (CONTRUL UNITY BUNCHALLS) _ but X170 = 7700 St _ Sheet No. _ A _ of 12

	Description of Work	Unit	la	uant	litv		Hou	18		La	ibou		E	auio	men	a'	I Ma	ateri	ais	ls	bacc				ob Si	unni	ies	1	Fotal	Cost
	Branation & Backful			- <u>r-r</u> -	46	1.50		10			ггт	ĹΠ		П		T	4000	1-1-1			ТТ		П	+	TT			<u> </u>		<u> </u>
· · · · ·	· Allow 300 cy crat.	_ ५		τť		11:10	++-		23	75	1 -	5De	 			₩	V	††	200	4		•			-+		-			77 50
																									╡					
				$\left\{ + \right\}$		-		+		· .		┝┾┽╴						┨┠╼	╴┠╌╁╺			+			-+				-	
·	Coveril's form work - inc smarins	<u> </u>		19	20	30		200	04	2	4	0•1									-++	Ħ		150		Th	e e 17	9		6391
· · · · · · · · · · · · · · · · · · ·	400 cy e 35 st/cy							-													╺┥┥							 	- -	
	Reinforcing Stur	Ъ		50	00	1.015		K	04	Po,	- 47	9 912					Ж		750	2										2451
· · · · · · · · · · · ·	400 cy @ 175 Haley																				╼╉╌┠╵ ═╌┨╶┠╴ ═╌┨╶┠╴							· · · · · · · · · · · · · · · · · · ·		
	Engeller Harrish	145		3	001	.05		IK	p 14	19	-17	497			-		133		45 0	v										691
···· · · .	· · · · · · · · · · · · · · · · · · ·								· • • • •	_				-											•			350 		• • •
• ••••••••••••••••••••••••••••••••••••	Concrete Proce - ince inquicure &	સ			49	28	╺╋╼┽╶┥ ╍╊╌┥╌ ╶┫╼┽╴╽	117	v II	9 9)	1	500					90%	3	6.99	2										578
1							-										· [· - · - ·]							· • • • • •			. 	·		
	Insulation, have proofing	\$P,		þ	200	10		n	9 4	P,	1	670					150		ste	1				••••••••••••••••••••••••••••••••••••••				· · · · · ·		90
				-																·				-						
	14m 476		+	╋	†† †	149	11	544			93	2	<u> </u>			††	<u>†</u> †·	1	oKor	-	- † †	11	<u>†</u> ††	+		14	602	40%	市市	157



ĥ

1

Dillingham Corporation Canada Ltd.

ESTI

10m 295

ESTIMATE COST SHEET					li r	iem i Nescri	No.,		Fa	n.t	641 I			7	100	4	. Ad	ccou Viu	int N ₹}	o.		401	. [41	<u>,</u>		1.1.				ate			5			<u>cı</u>	
																			51				- 44				ЫŽ	3. C			: PR,				. 01	_ 12.	
Description of Work	Unit		Que	antii	ly		Ho	urs			Ĺŧ	abou	Jr		E	quip	mei	nt		Mat	eria	ls		Sub	lon	itra	ж	J.	ob i	Sup	plie	s		Tola	al C	Cost	
Excevation , Backhy	धु	Π	Π	Ţ	20	50	П	П		2			4	Ø 12			П	П	40%	4			6		Ē	Ţ	Щ	\Box	\square	Π	Π	Ţ		\prod	I	8.9	10
ellow the cy gram.	-	╟╟	┥┽	╈	+		┿	+	╂╊	+							╂╂	╢		++	┟┼	$\left \cdot \right $			┟┼	╉╉	₩	+		┝┽╿		+		++	┝╆┤	┼╀┥	
					#																Ħ			_	Ħ							1				┥╍ ┥	
Concrete formulate - incl sunday	5		╁┼	A	50	34	╁	뷺	54	. 16		2	44	60				╁		╈	╢				∄			15		┢┼┥	1	2	1	$\left \right $	1	12	力
up jis, wakarop			╟	$\left\{ \right\}$	╢		╢	╢	++		+				· .		+	++		╢	┼┼				╟	╉	┼╋	-		$\left \right $	╋	+		┿┟┙			
150 cy @ 30 \$/ cy	-		┢╸																 						#	╈┟										╏	┝╴┠╌
Remforence steel, wit best place	Ha.			18		Alk			n	L V			43	m				╋	25			Bo	0		╞						╍┠╼╡ ╌┠╼╡		2		┝┾┥	88	70
150 cy @ 170 ha/ey			╁															╋		╫					╂┤		╈										
		┝┝	┨┠	┼┼	╢		╉╋	╂	┥╉					╎┤╽			┼╋	╂╂	 	╢	┢	┝┼╸			╂	+	╉╂	╞			┢	-				┼╌┠╌╽	
Empided Hutels	цр.		Ħ		1	.15			K	2 14	9		8	•2					150	\prod		50	4	_	Ħ		1	1								23	60
· · · · · · · · · · · · · · · · · · ·			╂╋	+ .			+			-																		1-				1	2 24 /				-
		F	$\left \right $	\square	\square		\prod	ŢĮ			_						$\left\{ \right\}$]	∏				╂		╉				+	+-	+				_
Concrete Place , mel monitorie , Philip	. Ly		╂╂		5	2.5			42	均			ų,	01					Are.		Þ	K.	2_		Ħ	╈╋	# †	<u> </u>				- + + 	Ĺ	┿╌ ╋╺ ┥╌╋╺	þ	99	17
•					+		╉		+				-														<u>_</u>	1-									-
		H			+		\prod	H			_									+	$\left \right $	$\left \right $	Ц.	-	╢	+	╉╋		•••		-					╞┠┦	-
Growthing, but potch	teh		Ħ		₽.	50			20	16	Ø.		为	00					304	tt.		7			#		#	1.		┢╋┥		#1	 .:			44	n

45100

201

hen

Project FOOHilly - Daugoster

D001-1 13 SEP76

16150

Blo

Estimate No.



ESTIMATE COST SHEET

Project Fooffilly - Dews FUS ______ Estimate No. ______ Item No. ______ Account No. _____ Date _____ Description Buthdation - (Huming Buthetla) 70'x 140' = 4700 st. _____ Sheet No. _____ of 12-_____ / 16 ht/14.

	Description of Work	Unit	6	Juar	ntity	ł	÷	loure	в		1.	iboi	at .	l.	Equi	ipm	ent		Ма	teri	ais	16	Subc	ont	acts		Job	Sup	plies		Te	olai	Co	st
		-	\mathbf{H}		- T T	-+	34	П	T.J.			Π	150		-11	T	TT	T.	d *	П	40+		\leq	П	TT	\mathbf{T}	<u> </u>	П	TT	+	T	П		Ū.
·	Excavanie + Roce Fig	y	H	$\left + \right $	U TI		3 0	╂╂	50		**	$\left + \right $	- 120	₽ 	-++	╉	╊╋	- "1	u +	++		P		-+-	┟┼	+		-++	╂	╉╋			Lł	
	allow 100 ay gran.		$\left \cdot \right $		-1+				H			H				╂	H	<u> </u>		┢╋╋	╂┝		-+		+++	ŧ+-		++	1+		{	<u></u> + <u></u> + <u></u> +		łł
			$\left + \right $	$\left + \right $	-++	+		++	H			++			-+-	Ĥ	┢┼╸	++-	-+-	╞╄┤	┢╋			\mathbb{H}	+	┋			╂┼	┼╂╴	-+	╞ ╢-┤	<u> </u> ++	H
						╉		╈		+			++		-11	++	++	 	+-		╁┽	++-			-11	╞╢╴	-+	-	1+	┼╊╶		<u>†</u>		Ħ
	Could' formurate inel emphase	14			4	b .	20	11,		D lé	,09	1	160			\ddagger										11	9		hs		0		75	3
• •						Ι																	_							Π.				
	to ey e to					1			11			4.				41	11	11_				11_	-			11.			14	Ц.				
						4			\square			4	╶╂╂╸				++-			┋┥	+			-	++	╟			-	÷ -	·			-
	Pail Braine Street	The	$\left \cdot \right $		H	╢	olk	-++-	5	-		\mathbb{H}	132	╧		₩	╂┿	17			150		┉┽╢	-	++	╂╂─		-++	++	11	4	H	0	8
	Reinforcing STW	- 44	┠╋	-++	K N I		<u>, 1</u>	╍╆╍	P	1 - 3			797	9		╉	$\left + \right $	+ -				Y -			┝┣╋	++-	{		++	†† *	-+			
	Dey e no lovey											 1		T												11			11			11		
	J				Π			\square								\prod										\prod								
						Ш			Ш			Ш		1_	_[]	Щ	#	11.		Ш	11-	↓			11	₩-	_	Ш	11	44-		44	\mathbf{H}	Ц
	Ensure Marnais	165				n)	N			21	5	Ш	¥	Ø		4	1.	16			40	b							4-	44-			1	13
					-	-++		-	 -								. - -	⊢								↓ 		-	+	113	61-	.		
			$\left \cdot \right $	-+-	-++	╢		\mathbf{H}	$\left + \right $	-			╌┠╌┞╌╡		-+-	++				$\left + \right $	╉	┼┤╌╸	-+-		╋	┼┨╺			++-	┢┟╵		┥┽┥	ŀ-	H
			++		-+-+	╂			╉╉┥	┝┥╴		┝┼┤	╌┠╧┼╼	+-		-++	H				╋╋	-		┝┝┥	┢╋	┼╂╸			++	+		┼┼┥	$\left + \right $	H
	Concrete Proce	01				ft.	2.0	┢╆╋	R.		~		451	<u>_</u>	-++	┿┟	++	A	T A		350		-		++	<u>††</u> -			++		-+		18	1
		_ भ	Ħ		17											11	T	t "																[]
			\prod			11			\square								Ц	Π_			Ш	II.				1.		Ĩ.	44					
						-										-		<u> -</u>						₊						↓		+ -		-
			μ.			-14		╶┼┼								-#	++	μ.	_	╎┼┤	407	∐-		$\left \cdot \right _{-1}$	┝╂╼╆	╂╂-	-+-	┝╌┟╌┥	++	╉╉	-+	++	H	\mathbf{h}
-	Insurance & havesproofs	<u>\$</u>	↓		94	222	k	-++	[2?	3 4	8.5		ð ₽ 0	¥		+	++-	+p•	8-	┝╽┥	111	1			-	++-	-		H	ŧŀ.		11-	ļ į ſ	ſ
									H			H			-	1	++-	┼┨╌	-+-			<u>+</u> +		 - -		++-				11				
-			-+-			+			Ħ			- -	╏┝╋╸	1	-11	+1	††	t -	+		++	t t												
			1			11			IT			11						П				П			Π					11		11	Ц	
	101 715						11		*15	6		4	160				ĽĽ			1	690	h2		Ш	Ш	L			617		žal	Ш	15	11

001-1 13SEP7

- 32 -



ESTIMATE COST SHEET

	Description of Work	Unit	Q	luar	itity		ł	Hou	irs -			Lat	bou	r		Equ	uipr	neni	t		Mat	eria	18		Sub	cor	ntra	acts	Т	Jot	Su	ippi	lies	Т	Т	Fota	ił C	cos	st
	travara e Bauthi	ধ		\prod	•	Pb	2·m	Π	þ		11224	\prod	11	•	4	_	Π				\prod		H	T	_	T	T	F	Ħ		H	Π					1	20	ø
			$\frac{1}{1}$						$\left \right $			Ħ										Ħ	#						Ħ								-		+
<u> </u>	Caustile formwork	84	1	+	40		40			8	1644		2	60	n	_				· · ·		Ħ			-				Ħ	50				2			3		
· .	100 cy C 40st/cy																												H						+		-		
		155	╧╋┨				96				1600			40	-					75			50									╢					-		
	Reinforcing Strees	1.02	╉╉			+	Ч Ю						Ħ							. 13			32						Ħ										1
															-												-							-	++				
· · · · · · · · · · · · · · · · · · ·	Engladed Holensis	165			20	? }	10		2	97	1189		3		0					15		2	01	2			-							K	5145		-	67	2
·						╫																																	
	concrete Pace	Ŀy			Į.	2	4.		4	11	1530				/_					4		9	92	V _	-									-	•			60	į
····		 -																									-												
	Crownicz	eF.			10		5.0		X	90	600		5	91						40'		4	Q 1	2													ľ	20	P
	Unchilled 10th								2	7)		44	3								15	94	8									40	2			to	2	1
	br bas Chulle	┼╍╌┼	╢	╉╋	╂┼	╢		ΗĽ	2	2		ļf:	5		1-	-+-					$\left \right $	Fb	50			╢	-+-	+	┢╋		+	TL	00	_		+		h	_1



4.

4

Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project Bothills Demotite Estimate No (CNUMER BOTUCE) Item No. Dale Description FOINACTIONS 2-40 × 154 = 12320 Janeet No. 8

							1					******				· .			1			+			1	-		1×-				T					
·	Description of Work	Unit	(Qua	intity	/	I	Hou	178		L	abo	HU r -		. E	quip	mei	nt		Mate			· .	Sub	con	traci	ls	Job	i Şu	ibbj	ies	ĺ	Te	otal	Co	ost	
· · ·	Breasation & Back Ain	્ણ			15	bb	.50	Ш		50	ikilo		kb	5					40%			10					Π		Π			T	ŀ	T	19	h	K
	allow sou by grow				Ш	Ш		Ш				Ш		Ш							Π		\prod		Π	\prod	Π		П	Ш	Π			Π	Π	[]	
					Ш	Ц	 	11				Ц.				1.				11	ļļ						П								Ш		
			+-	┟┼╴				╢	$\left \right \left \right $			∔∔	╢	╎┤╿			┝╽╉	+		┿┢	╢	╫		<u> </u>	$\downarrow\downarrow$	-	_		i H-I		-+-}	1-	<u> </u>		1		
<u></u>	Concrete Formunde		-	┢┼╴	20		.34	₩			ųA,	╂		20		╢	┝┤┼	╫		┼╂╴	₩	╂╋	┼┼	-+	╫	╈╋	╟	150	┝╋┥	13	+	+	+	╈	K		
			+	┢╋		T		11	111	1	97.3	17						++	-		$\dagger \dagger$	H	- 11			<u></u>	╢	1.44		-HT	321	44	÷	++		2	1
	200 cy @ 30 st/cy		T	İT									Ħ							11	Ħ				††							11	-1	TT.	İŤ		
	.		-	\square				#				П	11					Щ		11.	П	11			H	μ.	Ħ		H		Ц	Щ		1	Π		
· · · ·	Rehuborchie Stat		+-		Ka		alle	╉╉		10	4	+						╉	1%	╉	┼┟	125	<u> </u> -	-	╂		╢		\mathbb{H}	-++	╉	╫	+	╢	21	10	
									† ſ Ť			<u>†</u> †'												-1	Ħ	ΤT			11		11	11	-	<u>ft</u>	ľ	ין י	ľ
	Soo cy & 150 Hor cy			П.		П		Щ	Ш			П	Ħ	Ш						11	П		П_		\prod					1		11		11	П		Γ
			+	_	┥┥	┝┼	 	╉╋	┥┥┥		┨∔		┥┠	┝┼╂		┝┨╍	╌┾╊	╢		╂	┝╺┝	╉┣╸	┟┟╌	-	┥┽	↓	╟		- [-]		-	-++		4		-	
	Ewbade u Harnib	4	+	┝┼╸	1		.15	╂╊	┝╆╉		1490	╫	┼┟	20				┽╉	140	╉╋	++	K,	-	-+	╉╋	┥╋┥	╟╋		╉	-++	+	╈	+	╂╋╴	╂	뉩	
				<u> </u> .		Ħ	-14	ŧŀ	thf	зk	- X -3	††	tľ				$\left \right $	+	192	┼╂╴	Ħ		11-	-+	+	$\left\{ \right\}$	++-		-11		╉	1	a t	††-	† ľ	23	
								1					T					1		11	Π				T.		İT.							11	t	11	
				4																	11		╎┨		ļĮ				╞╌┠╌┧		44	4		44	11	4	
	concrete Place		-	\mathbb{H}		H		╫		+	120	H			<u>.</u>	┣-┠-		+	90	┼╀		100	┟┠	-+-	₩				┍╂┥	┝┼┥	╢	╉┿	\rightarrow	₽			
···· ·· ·· ·	SOMARCIA PIALE	<u> </u>	+-	┢┝	1		74	╢		22	1KPD	╢	Ħ	17	•		┝┼┢	╶┼┤		++	łŦ	17	P -	-+	₽	┢╌┨╼	┥╌┝╸		¦-∱-∳		-	- 1	• •• •	+	36	17	ľ
		••••••••	-					††	11	•		Ħ	††	11						\mathbf{H}	tt	11-	11-	-†	11			1		i İİ	11	-	- t	11-			
								Π	Π			11	Π			П.				TT.	T		Ш.	-	T	ΙĽ				II.				T	[].		
	A much to the		-	┟┼╸	┥╻	Ļ	10.	#	╎┥┥	-	11.60	₩	╢			╨		-+-	100	++	╢	3.	<u>.</u> -	\rightarrow	╀┼	┼┨-	╢	ļ	┝┠╍┨	┟╇┨			-+	┿╊╴	₩	H	
•••••	Crouhiz	er,		┢┼┈	-	17	6.2	╫	┟┨┥	\$	492	╂╂	ŧP	90		┟╴╽╌	-+	-++	\$77;	+	$\left \right $	17	7-		╉	╂┠╴	╂╉╴	<u> </u>		ett	-		+	ŧŧ.	† ľ	11	
••••••• •	·····		+	┢┼	†††	H		††	† † †			Ħ	11	†††						+†	tt			-†	11	<u>†</u> †	tt		<u>_</u>	i11				11-			
			1									Π	I	Ш						Ш	II	11	11-		II		11		ьП	ļÌ							
			+	\parallel	11		[<u></u>	₩.		-	╏╺╍╺┼					┢╌┝╸	+++	+		╢	╢		$\left \right $		$\frac{1}{1}$	┼┼╌			┢╋┥				-+	$\frac{1}{1}$	L.		μ
1	17m 40c			Π		TT.	16.0	11	4	10			K	101		ГГ		П		Π	4	ak	10		TT	T	Π		\square	12	50	0 44	51	Ш	I	Ŷ	311



٠ W V

Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project Boothuis Dhupot	ír ·	Estimate	No
Item No	Account No.	Date	
Description DANALOUS_(Communications Town HER?	Sheet N	o of

	Description of Work	Uni	it	Qu	ant	ity	Т	ŀ	lour	3	Т	. (.abc	pur		ε	quij	pme	ent	T	м	ater	ials		Su	bco	ntra	icts	Jo	b Su	ıpp	lies		Total	Co	ost	
	Brearing 1 BackAu	્યુ			Π	8	b.	10	Π	1		20	Π		ψv			Π	Π		T	Π	Π	Π			Π			Π	Π	Π	+	Ш	Π	60	5
						Π	Π		Π		Π		Π	Ι			Π	Π																		f	
							1						Щ				1	Ĺ	[]_		_	Ш										Ш		ГЦ	H		
					┝╋	╟	╢		+	╨			-	╢	╢	·	┝┝	┝╢┈			-		┥╊┥		·					┥	4			$\downarrow\downarrow\downarrow\downarrow$	44		
. L	Concrete Forman Park	cF.			-	20	 -	30				¢?			ţĻ,														184			no	-	┝┿┿ ┿┥┝		110	0
	10 cy @ 20 st/cy			-		Ħ	ft		†		H	_	11	Ħ			Ħ	tt	H		-+	Ħ					-			┼┼┥				†††	f†		
	<u> </u>		L				П		П	Π	Π		П	П			Ш	\prod				П	Π												T		
·	Part la stra bras		╋	+	Η.				╢		Н	10	#	╢	 •		$\left \right $	_				₩.								┼╂┤		╏╫┨		╇╇╂	-+		μ
	- Formers and	- K	Н	+	4		1	σφ.	┥┽	12		6	╫	ł	7			┢┢		7		╟		5		-	-			┝╴╿╴╿	-	$\left + \right $		+++	$\frac{1}{1}$	51	P
	Kenikareing Stal		\top		\mathbf{T}		Ħ				Ħ			\mathbf{T}				Ħ				Ħ	Ħ											ŧ I I	甘		
	<u> </u>						П		Ц	П	П		Ц	\prod								II					_							LT L	11		
	10.0.5 0		+	-	+		-		╢	$\left \right $	H	-	╂┼	╢			┼┠	₽	μ.	-	-+	╢		-		\square			+	┼┼┼	+	$\left \right $		₩₽	₩.		
	Concreta Place	્પુ	Н	+		14	217	6	╢	₽	2	P y	$\left \right $	+	92		+		╟	40	<u>.</u>	╢	1	2				-+		┝╄┦	-	┟╌┠╌┨	· 	┼┼┟	ł	70	Ł
				- f-			╂╋		╉╋	++-			H	Ħ				††	H	-	-+	 †				-1-		-1-		╞╋	-			┢╊┫╴			
							t I			Ħ	11		Ħ					Ħ	IT			11												Ш	11		
			ŀ				Щ			П			П	\prod					ļļ.		-	μ.									4			 	4		
							╢			╟	┝╋		╉╋	╢	┝╢╌		┢╍┧╍					╂┝	╎╷							┼╀┤		┝┾┥		┟┿╢╴			
				-			╫		╢	┢╋	┝┨		╈	$^{++}$	\mathbf{H}		┢┢				-+	╂╋	-	H			+	-+-		╞╞┤				$\left \right $	††		
				-	-		tt				† †-		11	tt				TT.			-1	Ħ.													11		
_						П	П		П	П			Į.	11			Ш	μ.	Ļ			ļĮ.								11				Ш.	1	$\downarrow \downarrow \downarrow$	Ĺ
			++			┟┼╸	╢		╂╂		┢╢		┥┥	┢	++-		╞┨┙	┥	╟		-+	┢╢	╎╢							┼┼┤		┝┝┥					
						+-	╋		Ħ		H			┨╊	+++		┤┨		┠╋			╋╋	┥┦╼			┝┟╌	H			╡┠╽							
				-			11		† †	Ħ.			Ħ	tt	tt							tt.														1	
				T				-	Ţ	П					4		1	1			_	4	Ш			$\left \right $				┥┥┥		$\left\{ \right\}$	-	╞╢╋	$\frac{1}{2}$		\mid
						Ц_	L	10		lł	2L		11	2	80	I	Ш.	Ц.	LL		_1	11		60	L	LL				Ш		22	333	Ш		53	0



Ľ

5

Dillingham Corporation Canada Ltd.

Chille

Sh 355.

Project Foothillo - Dimptil Estimate No item No Account No. Date Description FOUNDATION (Utiliaars) 8'+ 400' = 3700 st. ESTIMATE COST SHEET Sheet No. 10 of 12 041000 **Description of Work** Unit Quantity Hours Labour Equipment Materials Subcontracts Job Supplies **Total Cost** Excessionia. + backfin Š. 400 1500 60 K сч Concrute formulate J. Con 20 1100 100 7404 Kett bala maphilly Reinformig Stul 300 43 25000 012 lh. ** 11150 no cy @ the linky Boleday Hakneb Ks 600 5 30 10 AK/a 16 9. 134 Concrete Place 790 2.0 யூ 400 100 1000 15000 20% ۰. 70 00 Williama 5 272 05 162 11 7560 44 6460 24 4000 Unchilled 50% Maray 64310 25.070 1230

42:40

315K

80390

5000

11.1

2140

0001-1 13\$EP76



ĥ

37

Project FOOTWILS DAMPYTY Dillingham Corporation Canada Ltd. Estimate Hem No Account No. Date ESTIMATE COST SHEET Description tomations (Sharey Treamas 10'151 5 150 th h or 12 Sheet No. 11-1-15 **Description of Work** Unit Quantity Hours Labour Equipment Subcontracts Materials Job Supplies **Total Cost** Granni ; Bachi 700.50 100 1500 150 щ 1500 LALALE FORMANC Q. 200 10 114411 . 30 K As up @ X Muy Renforming Stul We 1(19 5 19040 at 94 1050 K ち tio 10 cg @ 17516/cg Entrular Makris 70 1100 400 05 872 165 lob USD 9. Concrete Mace th 25 10-190 벙 1500 24

η.

904

19

Π

Kills,

1000 200

1553D

D001-1 13 SEP76

bh los



138

Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project Foothills - Dingstus ______ Estimate No. ______ Hem No. ______ Account No. _____ Date _____ Description foundations (fuel Gas Rewlater Black 20X35'= 500 St Sheet No. _ 12 _ of 12 _____

	Description of Work	Unit	C	Jua	ntity	y		H	oui	rs.			L	abo	our			Eq	uip	me	nt		H	lat	eria	ls		Su	bco	ontr	acts	3	Jo	b S	upp	lies	s		Toli	at i	Co	ost	ł
	Exc + Fill	્યુ	Π		B	H	30		Π	1	5	ß	0	Π	Ъ	хĮ	5	Т	Τ		T	T	10	Π	Π	8	7		T	Π	Π	Т		Π	Π	IT	T		TΓ	Π	T	30	5
		V			ΙT		1	T	Π			1	-	11	T		•				1	T		11	Ħ	ŤĨ	Ĩ		T	11	t t	11		Ħ		Ħ	Ħ		11	11	II.	ו ין	Ĩ
				T	T	Ħ	1		TI	1				T		Π	1				-	11		1T	Ħ	TT	Ħ		ŤŤ	tt	11			1	11	11	Ħ		11		Ē.	1	I
						IT		1	Π	T	T	1		11		T	1	-	T		T			Ħ	TI	11	11		Π	Ħ	TT	T		T	tt	IT	TI		11	Ħ	IT	T	ľ
1			T	T	Π	Π	1	Т	Π					Π	Τ							Π		Π	T	Π			TT	Π	Π			Π	Π	Π	TT			П	Π	T	ſ
	Forma :	8	Π	Τ	15	b0	-14	•	Π	S	10	U	0	Π	R	160	2		Γ			Π		Π	Π	Π	Π		Π	Π	П		фb	П	þ	Þ	Ъ		Π	Π	10	٥	ļ
			Π						Π					Π										Π		Π			\prod	П	Π				П						\prod	Γ	
											1	I		Ш								Ц			П	Ц	11			11	H			11	11	Ш							
					Ц	11	<u> </u>	_	Ц		4		_	4			1					1			11	Ц	╨		$\downarrow \downarrow$	$\downarrow \downarrow$	Ш		·	41.	Ц	ĻĻ	11	,		11	4	1	
ļ	· · · · · · · · · · · · · · · · · · ·		-14			Ш	 	4	Щ	Щ				11	4		4	_	1		-	11		11	Ш	Ц	Щ		╨	Щ	44	4		#	Щ	$\downarrow\downarrow$	44		44	#	Ц.	-	
	Ristu	la	44		90		91	74	44	-11	Υþ	15		44	4	440	4_			_	+	H	У Л	44	11	K,	20		44	₩	₽₽	4		41		[]	++		44.	44	- P	쒸	į
				1		╢	<u> </u>	+	╇	4	4.	+		₽				+	-	-		Н		╢	44	₩	-++		++	₽	₽₽	+		4.	╏		4-4				ŀł.		1
			+			14		-+	╉	+		┫	+	∔∔	+				-	+-		┥┟		┼╀	┾┼	╂╉	++		╉╋	╂╂	₽₽	+		╉╋	┢╋	┟╁	+-+		++		. .	+-	1
**			++		┝┝	╄╂	ł	-+	\mathbf{H}	H	+	 		++	-	-+-+-			-	-	+	╢		┼┼	╉╋	╂╉	╉		┽┽	┼┼	$\left + \right $	+		┼╊	łł	<u> </u> ++	++		++	ŀΗ		ł	1
<u> </u>	An		-+-	+		╂	1.7	-	╢			1.6		╉╉	÷		-	+	╉	+	+	H	-44	╂╋	H	5			╈	╢	Ħ	+		┼┼	┼┼	╂┢	┼╀		╀┼	++	+	66	ł
	Concentra	લ્યુ			H	40	X	4	╂╂	- 4	Ţ	12	-	╢	-	-		-+	-	-	+	Ηľ	0**	╞╊	┥┦	P	10		┽╂	++	₩	+		┿┠╴	++	┢╸			·┼┼·	++	. 9	90	İ
			-+-	+	-+-	++	<u>+</u>	+	+	-++	╉			╋╋	-+-	++						H		++	++	+	++		÷	$^{++}$	┢╊	+		┼╂	ŧł	H	+	_	+1		rt.		1
	· · · · · · · · · · · · · · · · · · ·			-	ŀŀ-	╂╂	+	-+	┿	+				+	-	╉	+		-	-+-		┢╋			++	÷	╍╉╧╂		+	+	╆╋	-		+	+	H			$\frac{1}{1}$	τt	1 t	÷	•
- · ·			++		h-l-	₩		-+-	╢	+	+		-+	ŧł			+	-	+-			++		┼╂	Ħ	††	┥┝		+	Η	H	-		++	Ħ	H			++-	+	it:	t	
			-++		╀	╋╋		+	+	+	╈	+	-+	+	╉		+-	+	+	+	+	H		łł	$^{++}$	┼┼	+1	<u> </u>	++	††	H			++	\dagger	ŧt	Ħ		#	\mathbf{H}	t	t	
	······································		-1-1		╞┼╴	ŧ†	1-	-†	Ħ	+	-	+	-†	+	+			-	÷	-	+	H			H	11	-11			11	Ħ					h l	11				1	t	
						┢┟	1	-+	-†-†	Ħ	+	1-	-+	11	+		1			+		11		11		tt			† †	11	11	1				ľ	<u>†</u> †		Ħ	11	11	1	
			-11		<u>+</u> +-	┨┨╴		+	Ħ	1	+	1-	-†	tt	Ť				-		+	tt		11	1	11	+†		11	11	Ħ			ŤŤ	Ħ	††	11		11		Ĩ	T	-
			-	-	†-†-	11	-		11	T	+	1-	-	11	1		1-				-	tt		Ħ	11	11	11		11	11	Π	T		11	11	11	11					ľ	
					11	Ħ		-	Ħ	T	T								1	Τ	T	[]		Π	П	Π			Π	Π	Π	Ι		П	Π	Π	\prod		П	Π		Ţ	
					ΓĒ	Π			Π					Π											Ш														11				
						Π]	Ī	Π					Π		Ι									Ш																		
						Π								Π										Ц		\prod			11	\downarrow	11	_		11		14	\downarrow		11				-
					Ц	\prod								11			-		1			Ц		11	\prod	\downarrow	Ш		44	44	11	+-		44	++	H			44	- -	H	+	
	6m 155						173	21		18	90	1		11	18	950	b l					H			11	98	bibl				11					构	20		$\bot \bot$		23	210	d



1

ΞÂ

Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

	Description of Work	Unit	C	juar	ntity			Hou	18		L	abou	ur		Eq	uipr	nent		м	ater	ials		Su	bco	ntra	acts	٦, ا	Job	Supr	lies		Tota	il C	Jost.
	Grennlos potron	Cy		Ь	00.	4		Π	Ш	Τ		Π	Ш	Π		Π		Τ	400	8	90	Ъ		Π	Π				ΠT	\prod	Τ	Ш	8	
	40,28m = 1128			T	16	651	5-0	Ţ.	R B	1	10°?	12	5	5	3000	25	90	5		TT					Π				11		1		126	30
	40 1340 = 4900 1610 x1-35= 30000 cy					™ †	3	11		* F -	the F		F -	11						Ħ	TT				IT			-11		111		TI		
	1040 KI-22= 20000 CH	1		-1-1				tt	tΠ					T			11	-		T	П				T	Π	-		ΠT	171	B3T		l U l	30
								tt		-		П		TI						ŤΤ			4		16	16	2 24		6	111	3315		14	44
	00000 1 72 = 1657 100 mile 1200 2000 1 72 = 1657 10000 100 mile + 40 mph = 25x2 = 5h/trip.	1				Ш			Ш	T				T		T				Π					Π	Γ			NT			И	[]ī	nle
	20000 - 12-= 1657 100.41				Π	Ш		Π	Ш			ТП	Ш	Π		П						Τ			Π	Π			Ш	Ш				
	100 mill + 40 min = 25x2 = 51/true					Ш		Π	Ш	T			\prod	Π			[]			Π	Ш												Ĺ.	
						Ш		Π	Ш																									
					\square	Ш		11	Ш			4	Ш	11		11				11.		4			4	LL.	4		Ш	╄╋		<u>+</u> +	Цr	╎╎
	Conenti acgrigation 20100 - 5200 - 2000 - 2000 - 2000 - 2000	w Kas		_11	9h	10		44.		+-						1.			600	1 b	0	Hp				[].				┟╻╽			6	99
		1121		-	- 8	36	IS1]	24	12	¢₽	49	ñ S	n I	30 ⁰ 1	3	148	SD_	┞╉	┥┼	┼╂∔			┝-┡-	4					┝╌┥┥		+	ßb	146
	- 16 KOD = 3890	<u>+-</u> -				┋╋		₩	┟┝┥			+	┼ ┠╎		· -					┢╋	┥╢┥	-		++	┢┟			+-	┋╌╉╶╿	┢╟╉			07	t.
	8990 X1 X = 19470 CH							<u></u> 	<u>∔</u> ┨-			• • • • •		-		╉				╆╉╴	<u></u> <u></u> +· }-	+					<u>ي د</u>	-+-	0	+++	9000		٩Ŋ	46
		╉╼╼┦	-	+		┞┼┼		╂╂	┼╂┤			╉┼		┼┦		╋╋	╇┝┥	+		╂	╞ ╂╋	╉╏	u	H	┞┣	99		1 ++		┢┟┽	-fiv:	┼┾╽	5	212
·	SAIML HOULTH & HOU MULL NEW	I		-+-		┝┼┥		<u></u> + <u></u> +-	┼┠┥	+		ŀ	┝╋╋	+		11	+	+		╁┼╴	┼╆┾	-++		┝╌╽╵	┢╋					\mathbf{F}		++	10	T
	6211712 12 cy/1521 + 200 mile have 19990 - 12 = 833 10701 300 mile + 10 mph = 7.52 = 15 -/ Trip			-+-				ŧ.	<u></u> <u></u> + + + +			-	┟┝╊	- -					· [Ħ		-+-		ł †	ŀŀ	H						ttl		1
-					• - - • •	 		╂╋	┤ ┠┤			· +-	╞┝╋			-		.		+	łH	-+-		<u></u> ††∙						1-+-+				
		+				┞┽┨		╂╂	<u></u> †-}-	·		1				•				łŧ	† ŀ-	┤┨			łŀ	i -†-		-1	1 ++	111	·]		l l'	
		}		-4-				$^{++}$		+			╏╏╏	Ħ		1†							• •	++	Ħ	++-				1++	1	111	ht	th
		+		•		11		11					111	T						1 f		-1-								111				
					1-	111		11						T		T													1 T			11		
								11				T				П				П	ίL													
								Ш				Ш	Ш							Ш					Ш					┦╻╎┤		<u> </u>	LL	44
]		П.		Ţ]					44-					 	1-						4.		
								1.		.				44		. [.]	1.					-											-	4
		-		_				Ŀļ.		Ļ		44.		\downarrow			4	.		44	 - 					 -							11	
						 		╁┟					┨┨┥	- -		1+		╎┤┉		-	H						↓ . 							
			. f.			11		Ш					┟┟┟			Н	1L	┞╋	 	-	444			╇	4	 			┫╋	- - -		-4-4-1	┢┼╸	

0001-1 13SEP76

DEMPSTER HIGHWAY COMPRESSOR STATION

III-2 BUILDINGS

This category provides for the supply, assembly and erection of preengineered metal buildings and modular living quarters. Structural steel, insulated wall and roof cladding systems, wood framing, partitions, ceilings and floor systems, overhead cranes, miscellaneous steel and interior furnishings are included.

The sizes of buildings provided are as follows:

a)	High Pressure Gas C	Compressor	•	60 '	x	70'	x	30'
b)	Propane Compressor		. –	40'	x	110'	x	30'
c)	Gas Scrubber		· · ·	20'	x	25'	x	15'
d)	Chiller Building		-	50 t	X	75'	X	30'
e)	Control, Utility	1997 - 1997 -	• •	60'	x	120'	x	30'
f)	Stores		-	40'	X	60'	x	14'
g)	Living Quarters -	4200 square	feet,	single	e	storey	/	
h)	Utilidors			400'	x	8'	X	8'
i)	Fuel Gas Regulator	and Meter	-	20'	X	25 '	X	15'
j)	Water Treating		-	30'	X	40'	X	18'

COST SUMMARY

		Chilled	Non-Chilled
	Materials	\$1,125,000	\$741,000
	Installation	268,000	190,000
	Total	<u>\$1,393,000</u>	\$931,000
	ated Weight of Materials monton	974,000 lbs.	727,000 lbs.
Feder	al Sales Tax Estimate	\$ 60,100	\$ 39,000

- 40 -



ESTIMATE COST SHEET

Project FOOTHILK - Demosities		Estimate No.
· · · · ·	count No	_ Date
Item No Ac Description Buildings - Summary		

·.	Description of Work	Unit	Quantity	Hours	Labour	Equipment	Materials	Subcontracts	Job Supplies	Total Cost
	" HP Cuts Crimp : 4780 st.	Hs	141000	1600	12500		19480			200 400
	· Propose crmp 4400			¥80-p	18800		16000			194700
	· Scrubby Sp		lotten	300	4600		14000			18800
	5 Chirles 3750		115110000	1500	74000		184 810			208000
	·· Control Utility Troo		X18000	3350	53470		194500	╶┈┥┩┥┤┨┶┼	┟──┤┥╎┥┝╎┤┦	248o20
1-1	W Storts V 2490	- - -	30000	20	86 90		46895 4955 767575	┥━━┤╉┽┽┠╇╅╴	┟──┟┼┟╎┟┼┼┨	27,900
	- HE REPLICEN SOO		10000	1	1800			┝╾╍┽┡┽╢╏╊┽	╉──╆┼┿┼┠┾┼╢	18800
	Living Strateg 4200				>0 100 36 80m	── ┟ <u>┦</u> ╎ <u>╎</u> ╎		┝╍╍┼╁┼┼┨╋╡╁╸	╂╍╍┾┟┼┽┠┼┼┧	
 	20 otilidaa 300	╶╂╌╍┥	91-01			── ─┟╎ ╎╎	102.000	┝╍╍╶┥┨┾┤┠┾┽	╉╾╍┽┟┼╀┞┦┥┨	138 400
 	30330 24.	65	481 000	12960	2073 10	╼═╋╋┽╁╆┾┿	1027200	╞╼╍╍┨┠┠┦┫┠╋	╂╼╾┽╂┼┼╁╞┾┾	0185941
			┼┤╬╏┠┠┠┼╴							
	12960- 30350 = 0 AS 15/4		╶┼┼┾┽┠╂┼┼		╧━━╈╪╋╋╋		╺╌╼┽╎┼┋┣╋┼╸		╉╍╍╌┥╎┤┽┝┽╿╽	
					╾┥┥┥┦╴		┟╼╾┽╆┼╋╊┊┼╴	┟╼╾┊╏╎╎┊╎┽	╂━╾┊┾╞┼╞┤┼┋	──┥┼┟┼┼┼┼┽┥
	987000 Hos & Southers		┼┼┼┼┠┠╊╞╴	─┼┼┼┼┼	───╁ ┧┟┥┝┽┼┫	╺╍╌┽┨┾╪┠┾┿	┟╌╾╾┼╁┾╅╊┼┼╴	┠╍╍╍╋┫╋╄╋╋┽┼╸	╉━╍┼╎┤╎┠┽├╂	╺╍╸╍┨┽┫╋╌┠╎┠╷┠╌╞╌┽╼┛
			╶┽┾┾┽┣╉┪┿╴	╾┽╎┽╂┼┼┽	───╄┼╆┤┽╄┼┩	╾╍┽┨┞┦╂╇┾╴	╎───┤╽╷┝╶┼╶┦╶┥╸	┠─╾╉╂╎╅┡┼┾	┽╍╍┽╉╌┧┾┠╌╎┼┨	╶╾╾┠┨╂╏╎┟┠┠┾╼┩
	12960-500 = 25.9 LTX ton		┼┟┼┼┟┼┟	╾╍╃╂┥╂┼┼╆	╺╾╍┋┢╪┤┢╇┾┩	╌╾┼╏┊┼┠╉╄╸	┠╍╍╍┼┨┼┼╞┾┼┼	┠──┽╂┼┤┠┼╀	┽─╍┽┠┤╎╽┽┽┥	╼╍┽┼┽┝┝┢┝╘╍┤
			╶┾╊╶┤┼┣┿╉┼╸	╍╌╁╂┾┠┽┼┼	╾╌╂┟╎┼┠╃╂┩	╼╾┤┨╀┤┠┼╃	┟╼╍┼╏┽┼┾┾┼╴	╏──┼╀┼┦┨┽╁	╅╾╾┤╏┟╽╊╇┾┥	╺━━┥┽╞╼╡┦╿┽┾╍┥
}	129-910 13-200 a ADI - 14		╶╋╋╋┿╄┿╇╋	╾╉┇┼╏┾┼╅	──┼╂┼┼╂┼┼┤		┟╍╼┾┨┼┼┼┼┼	╏╼╾┼┾┾┼╋┼┼	<u> </u>	
1	12-2810 - 30350 = 1260/84.		╶╋┫╅╢┥┿╋╂╸					╏───┤╎╎┼╎┠╹┤		
	191110 = 132/16 ·	1								
									╉╼╾╼╉┟┊┊┊┊	┉┉┥╢╞╴╎╢╞╢╞╸
						╺╼╼╴╏╏╎╎		┠───╁┠╎┼╿┼┼	┨──┤╎╎╎╎╎┤┤	╷──┽┟╏┦┟┨╋┥┥┙
			╶┼┽┼┽┠┞┽┪┈		╺╼╾┿┽┾┊┼┿╿╽	╷╷╷┙┊┽┨╌╎┡┃╌┾┥╌	┥ ──┥ ┟┤┼ <mark>┝</mark> ┝┥╴	╏───┊╂┼┼╿·┼┼	╉╼╾┽╊╫╎╞┼┼╏	┍╼╾┽╿┦┇┠┠╊╋┥
			╺┝┾┽┤╏┝┽┥╸	╺╼╼╪╪╁┟┟┼╈╉	── ╞┼ ┾╎┝╁┝┨	╌╾┼┨┤┽┢╞┾	┥ ╺╍╸ ┤┨┥┥┥┥┥╸	┨──━┽╿╇┽┣┝┾┿	┼━━╾┠┨┽┞┠┿┽╿	╷╾╾┊┧╅┦┨╫┥╋╋╂┯╡
		-	╺┽╍┽┽┾╏┿┽╿╌	┉┈┾┨╡┠┽┽┥	╌━┇┼┋┽┟┇╋╴	╶╍╍┼╂┾╁┠╇┾╴	╁╍ ╍╌ ┼┨┽╎┾┽┿	┨╌━╾╂┨╂┠╏╉╪	╅╍╍┥┫╊╞┠┿┫┦	╶╾╌╅╌┪┠╸┠╌╉┟┝╋╍┨╸╿
	-		┈┝┥┼┥┇┇┼┝	╍╾┠┋╢╊╊╉┥	╌╍╀┼┿┟┟┥┾┩	╺┯┯╾┽┨╍╅┽┨╍┪╊╴	╏──┥╂╆┼╞┼┼	<mark>┟────┤╴</mark> ╿·┽╍┼╹┃╶┨╌╋╴	╁╾╍╄┨┟╞┟┾╇╋	╶╼╾┽┟┟╎┨┽╽┽┼╸┥
 		+	· ┼┼┽┤╍ ╆┽┽┦┉	╾╍┊┊┊╏╪╌┾┤	╍╍╸┟╂┪╂┠╂╂┨	┝╾╾┾╂┽╎╊┽╁	╞╺╍┼┨┥ ┾┝┼┼	┟╾╾┽┨┾╂╊╉	*** *********************************	

D001-1 138EP76



Project Foothall - Daughter Estimate No. Date

ESTIMATE COST SHEET

Item No.______ Account No._____ Date Description Buildwidg (HP Con Compression Ridg) bd x7d = 4200 sf. Sheet No. _____ of 9

	Description of Work	Unit	Γ	Quantity		Hour	8	Τ	Li	abo	ur		Eq	uipr	men	it		Mat	eria	ls.		Sub	cont	ract	s.	Job	Su	ppłi	ies		Tota	al (Cos	at .
Τ_	PHE Engineeral Metar Brilding	55	tī	450	1-		110	6 11		Th	h	h		T	Π	Π	2490	Π	60	89	b	T	Π	Π	T		Π	TT	Π	1	T	J	R	41
-	In the constant of the constan	IK.	Ħ	4700 7 (14)	1	-+++				H				Ħ	11	11	1	11	ŤĒ	T		-+	11		11			11	11	1		11		11
	•••• •• ••• ••••••••••••••••••••••••••	- 1100	Ħ		1	-+++	\dagger		-		111	11		11	11	tt	1	11	Ħ	[]]	1-	-	tt		11			11	11		T []	11		11
			11		1	-+++	111				111	1		T	11	Π	1	Ħ	Ħ				IT		11	-	11	T	T	1	TT	tt	T	IT
-			Π				Π			17	Ш			Ĩ		Π		Π	Π				IT	Π	\square				T		П	Π		П
	041144 0124 0124 012 012 012 012 012 012 012 012 012 012	Eû.	Π				4				64	90			П		let.	П	9	00	0	_	11_	Ш	\prod			Ш	Ц.		1	Цľ	46	41
	evert and over body and 2-1	16	П	6700						Ц.	Ш	11		11	11.			Ц	11				11		4			-44	Ш	1	44	11		4
	+ 10 40 × 60' 3000 5000		Ц	┥┥┼┽╎┼	<u> </u>	╾┽╂╿				11	 			11	μ.	44	· · · · ·	Ц	11	44		·			┿╉			-++	-+		-++	14		++
4			H	╺┨╌┠╶┨╶┠╶┠		╾┼┼┦		┝┠╴	<u> </u>	┟┼		┽┨		╂┟	┼╊	++		╢	╉		-	-	₽	┝┠┽	+			++	-++-		-+	┼┼	┦┠	-++
<u> </u>	No.	- 1 -	H		╂		1.0	4.	70	\mathbf{H}	16	H		╉┼	╂╋	╀╀	1190	┼╂	H	1	4-		╂╂╴	╎┼┼	+		+++	+	╫	+	++	ŧŀ		60
	Min Stree	197	\mathbb{H}	4013	4	╾┦╂┥	12		r#	₩-		7		╂╂	┼┠	╂┨╴	100	╂╊	┼┦		7	-+	╂╋╴	╎┟┥	Ŧŧ			┤╊	+t		-++	<u></u>		
			ŀł	┨╉╆┝┥┽	┢	╾┼╂╉	╋╋					-[-]		++	╂╊	++	<u> </u>	╉╋	┼╀		┝╂╼		什	╎┣┤	+			-11	-1-1-		Ŧ	ŧŀ	łł	Ħ
			Ħ	╺╂╊╣╌┢╄╋	1						<u>†††</u>	+-1		11		11	1	11	11	H	-		Ħ		+1			11	11	1	11	<u>t</u> t		Ťľ
+		-	Ħ	┝╋┅╞╌╆╍┽╺╆	1-			11-		11-	111			11	T	Ħ		Ħ	Ħ				IT	tΠ	1			T	T		T	П		TT
1-		-	Π		1		П				ΠT	11		Π	Π	Π		Π	Π	Ш	Π		Π	П				Π	$\overline{\mathbf{H}}$		Π	Π		Π
			tI		1	-111				T		\square		П	11	Π		11	П	\square				Π							Ш			\square
-			Π													11			Ш									11	41		44	L.		44
														11	41	11	<u> </u>	11	11		1		11.		11				44			H		┥┤
			Ц		1		<u>_</u>			11	Ш			11	44	44		44	₩	++-			╄╋	╎┦╴╽	1	-		╌┼╉	╌┟┽╴		-+	++	+	+
-				╶┨┝┥┠┥╃		╾┼╁┥		μ.		14	 	╌┽╌┠				++		╉╋	┥╉					┼╊╶					╌┟┾			11		-
			14	╺┥╌┼╌╿╏╶╇╺┝			+++	Η-			¦	-+-		++	÷ŀ	+		+		┢╋┥			╉╍╉╺	$\left \cdot \right $	+				++	·	-11			
			\mathbb{H}	┥┥┥┥			┢╋┥	\vdash		╉╌┼╌	┥┠┥			- 4	+	┼╀		+	+1					┿╊╍				-††	++	-	-++		-+	††
.			╋	╶┥┼┥╂┾┤	+		╉╋	┞╂╍		┟┼╴	┼┠ ┤	+			┼╂	\mathbf{H}		$^{+1}$	╈	<u> </u>			Ħ					-t t	11		-11	Ħ		-1-1
-+			Н	┟╉╀╅┠╋╄	┼─	╍┼ᠻ┤	╂┠┤	┼╂╌		H	┼╂┤			† †	++	++	1-	††	11	Ħ	+-	-	Ħ						Ħ	1	11	Ħ	1	
			\mathbf{H}	<u>╞</u> ╏╞╏╎ <u>╞</u> ╏	1	-++1	T	11-		Ħ	111			11	11	T		1	11	П	11-			Π					11					
			Ħ		1-			1		IT	11				T	T			Ш	Π					T				Ш			11		1
			Π		L			\prod		II	\prod			1	11	П			11	11			11		\square			╎╎		+	-++	44	-	
			П				11	11				4		$\downarrow \downarrow$	44	∔∔		╢	╢				₩	┼┟┥	+		\mathbf{H}	┝╆╿		+	-++	ξł	H	
	bmJc	165		14100	1_		160	DL.			15L	Un		11	Ш	Ш			IH/	189	D I_		11	Ш			LL.	Ш		<u> </u>		17	10	14

D001-1 138EP76

Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project FOOHLING - DIW DEGY Item No.______ Account No._____ Date _____ Description BUNIAW 1 1 1 40 × 110 = 4400 \$ Sheet No. 2 of 9

							0 (1		3)			
	Description of Work	Unit		antity	Hours	L	.abour	Equipment	Materials	Subcontracts	Job Supplies	Total Cost
	Pre-Engineered Hetal May.	84.	П	446 800a	1	ey 163	19700		700 9240	2		1116+
		165		100+								
				┥┠╂┥	╏───┦┤┤┣╽	┝┦┥──┥	╶┠┿┿┠┿╂╏		╶╁╌╼╾┤╂┠╁┾┽╌	┟╉╼╼╾┟┨╄┼┡┼┨	┽╼╍┽╿┼┼┠╋┽╴	╏──┽┼╏╌┤┪┠┥╇
				┥╋┝	┠╼╍╴┧┧┼┠╽	+	╉┽┥╋╋		╶┨───┾╂┠┾╆┾╴	┝╂╌╍╾┧╏╊╊╞┠┦	╉╾╾┾╊╌╟┽╿┽┾╴	┟╼╾┽┽┟┠┨╿┠┼╍┥
Í	Orectical Crans .	E				00 140	6400	╾┽╊┽╢┠┦	lut 6500		╉╼╾┽╉┼┊┾┽┼╴	1140
	04651224 Crang - E 2922- 1-5 ton × 40 18000 to - 2922- 1-10 ton × 40' 22000 - 364+9	53		4000								
	1-10 ton ×401 22000 -36443			╡╏╏┥	╏───┼┼┼┟╽	· · · · ·	┼╎┼╎┼┽	── ┼ ╿┽╁┠┽╴	╺╂┈┈╍┫╄┽╡╂┠┠╸	┥	┨──┤┫║┥╿┥┥┥	┨━━┤┼┼╎┥╽╎┿
				╶┽┠╂┽	┟╼╾┟┟┼┠┧	┝╋╋	╊┼┽┠┾┫╉	╾╾┽┠╂┫┣┽╷	╺╂╍╼╾╞╂┤┟╊╉╴	┝╉╼╍╾┽┨╆┢┨╇┿	╺╉╼╾╾┽┠╾┤┥┝╺╀╎╍	┠╼╾┼┽┨╶┨┾╿┾┽
	Mir stur	HJ1		der	1	1 X00	7-00		109 900		┨───┼┠╎┼┼┼┼	11/200
				┽╂╂╉	┨╼╍┨╿┨┥		┼┼┼┼┼┤	╾┽┼╁┽┠┼╸	╶┨───┥┾┝╅┠┽╴	┝╏───┤╏┤┽╏┥┽		┥──┥┥┠╏╏╏┝┥
- +	· · · · · · · · · · · · · · · · · · ·			┥╂╂╞	╏──┤┦╿╽┦	┝╉┨╍╼┧	╶┼┼┪┼╊┾╂	╼╍╉╡着┽┠┾┥	╉╍╍┥┟┼┤╂┿	┝╋╍╾┼┽╎┼┟┽┼	╉╼╾┽┫┾╞┟┽┼╴	╏╍╍╍┽┢╌┠╶┨╌╋┾┝
le ¦ Je i™		·		┉┾╂╉╂	┠╼═╾╁╂╁╽┼	╶┽╄╼╼┧	┝╊┽╅╀┼╀	╺╾╾┩║┽┥╄╉┤	╶┧───┤┠┠┼┠╂╌	┝╉╼╾╋╉┾┼╊┾╅	╶╉╍╍╍┼┅┝╵┟╴┠╸┠╸╞╍	┫╴╼╾┥┥┨╺┠╸┝┠┽┽╸
} <u>}</u>			╶┼╂╏	╌┼╏┾┥	╏───┤╎┼┠┥	- +	┟╆┽╏┽┼┦	╼╼┥┥┥┼┝┿┥	╶┪╍╌╌┼╏╉┼┟┟┈	┞╉╍╍┽┨╪╁┠┼┽	┨╍╍┼╽┼┤┠┤┞╴	┠╼╾┾┊┢┦┾╂┾┾
												╽┈╍╍┠╍╢╿╖┦┥╆╍┿╍╁╸
				┥┥┥	╏───┤┼╎┝┤		┨┼╆╏┿┥┠	╺╾┽╎╽┽╽┽	┩╍╍┥╂┤┤╃┼╴	┝╂╾╍╾ ┥ ╿┼┥┠┿┿	┥╼┼┠╄╁┠╂╁╴	┥╍╍┠┽╏┟╽╎┼┾
 			╶┿╍╂╴╏	╶┥┝╊┥	╽──┥┼╎╎┧		╶╢┝┿╎┽╌┥		┈┨╾╼╼┥┨┦┝┠╄╋╸	┟╊╾╾╍╃┊╏┽┼╏╊┤┤	╈╾╍╸╌╬╴┨╶╞╻╏╏┠┓┫╍┥┙	
	-				╎──┤╎┤		╶┾╪┅╡╂┾╂╍╉	╾╾╵╎╏╶┤┤╞╴╄╺	╶┧╶━━╍┾╂┇╞╊╄╍	┟┧╾╍╾┥┨┝┼┟┢┽┤	╶┫┄━╍╍╌┦┟╌┠╌╏┥╡┽┼┱┙	╎┈┈╶┤┟╎┠╷╎┠╌┤╾┾╸
				┥╽┥┦	┨━╍╾╋╢╉┠┥	┝╂╉═╾╂	┼╞┽╞┼┝┼	╼╾┽╂┝┽┠┼┥	╶┨╺╼╾┽╏┼┾╂╏╴	╽┼╍┉┼╢╡╠╂┾┤	┉╊╌╸╺╍╍┽╺┇╎╎╎┥╡┝╴╎╸	┨┈┉┟┼╎┠┠╏╏┾┽
					╏╌━╍┥╎╎╞┥							
	8m 23s	65	11	2800	112	00	28800		654			154201



ESTIMATE COST SHEET

		Description of Work	Unit	C	Quan	•		ł	tou	8.		Li	aboi	ur		Equ	ilpn	ient		Ma	teri	ials		Su	юсо	ontr	acts		Job	Sı	ippl	ies		Te	otal	C	os
Γ		Pre-Engineeres Metal Britishing	42		Π		3		Π	Bo	b	190		42	Ь		Π			800	1	41	76		Π	Π	Π	Π		Π	\prod	Π		T	Π	T	88
			165		1		h.			П	Π			[]]								Π				Π	Π	П				Π			Π	Π	
									Ш	Ш	Ш						Ц					L				\prod		Ш					_		Ш		
Į.,							Ш			Ш			Ц.		Ш		Ш								11	11		Ш							11		
										Ш				tH																							
						Π	Π		П	Π	Π			Ш	П										Π.	П		П		Π		Π			П	Π	
															П																\square				Ш		
						П	Ш				П				Ш										П								_				
_						11	Ш.					· .		Ш	Ш					I					11		Ц				11						
_						Ш	Ш		Ш	11	11		Ш	Ш	Ш		Ц					Ц			11	\prod	1	Ц		\square	Ш			$ \downarrow$	1	41	4
				_		Ш	11		Ш	Ш.					11		Ц.		4	I		Į.				4	11.	Ц							11	\square	
			-			Ш	Ш.		Ш	4	\downarrow		Ц.		\prod				4	I		1L			44	11		Щ								11	
				4		-+-+	4.		44	-#	$\downarrow\downarrow$		- -	╎╽╽	$\downarrow\downarrow$		4				ľ.	1	-		-∔ ┣-	44	++	H			-				+ -	44	-
			_			-44	44			11	44		i din	╞┠┝	44		4		_	 -		μ.				44	H	11			- +				4.4	44	
	<u></u> -					Щ	Щ.			++	╄╂		4	44	11		H		-		4	44-	┣╋-		44	44	44	44	<u> </u>	÷		-+-	+		₩.	44	4
						11	11		Ш	Ш					Ш		11		4			11	Ц_	·		11									11.	11	
~						Ш	44.		44	4	Ц				Ц		11	-	_			ĻĻ	-+-		44			11									
	÷					11	1.			Ш.	11		\square	111	11		Ľ.		_		Ц.	LL.			4	44	11	1				_	-		11	.].]	1.
						Ц	Ш	1				· .			Ш				_		11		Ц.		44	11		Ц			ЦI				44.	11	
		· · ·				Щ	Щ		Ш	44	\downarrow		Ц.	111	11		H		-		Ц.	11	\square		44	44	11	Ц	$ \rightarrow $	\square	Ш	11	-		44	44	
						Ш	11		-11	Ш.	11		11		11				4		1.	1.1.:				44	44	Ш		1.1.1	11			_	11.	44	
				È.	1	11	44.		11	4	11			111	Ш		1.				I.I	L	4		4.	_	Н.	Н							11.		-
			-		44	44	4				11			14	∔₋						₩.	↓↓.	i L			44	44	++			<u></u>	-+-1			44	-	ł
					44		44			#	41				+-							-	44-		41	44	44			11							
		······································		-+	44	++			44	₩.	41		μ.	₩	Н		4	\square	┢╍╋	┫		₩-	┢┼┝	·	++	#	╊	H		┥┥	-+-	-+-+		-+	++	-+-	++
							┽╂		+-+	-14-	+		₩.	┟┟┥	$\left\{ \cdot \right\}$		H	-		1	╞┼╴	┼┠╴	++		++	₽	┢┼	╂┨			$\left \cdot \right $				·		H
				-		44	-44		╞╺┿╸	-++			44	╂┠┽	+		┞┟				- -		┢╍┟		++	-+-	H	┼╉		╞╺┝╴╎	$\left + \right $	++				-	łł
	·· -					∔∔			-+-	╂╋	++		┢╋	┞┠┼	Н		┟┟				╟╢	┢┝	╞╫╴		- <u></u> -}	╉╋	-+-	╢		k I −	[]-		-		\mathbf{H}	ŀ	i .
		· · · · · · · · · · · · · · · · · · ·		-	┝┼╄	++	•+				+		<u></u>	┼╂┾	\mathbb{H}		┞╂				H	- -	┝┠╴		╋	╂┨	H	+		<u>⊢</u> †-‡			i-i		4	-	łł
_		64.5	165	-		900	\pm			3.	Н		╂╋	45	\pm		₽		┝╋	╉╼╼╸╂╴	H	4			╂╂	╂╊	╉┼	╀╋		┢╋┙		H	┟┼╼	-+	ŦŤ	H	8



ESTIMATE COST SHEET

Description of Work (-Engineered Metas Brilling nul Structures Stat, cleaning realing, corres, NECLES CRAWS 1. Etc. + boil 3roles to \$300000			antity 211	1	Hour	_					Equip		r 1		iteria	215 20 0					300	Sup	TT TT			otal	06	
NIALLA COMES	- 1155 		311 600 1	40 			2 4500		lee	0				24:00	4	60 0		┝╋	╢	╂┠-	$\left[- \right]$	##	╞				06	(h)
NIALLA COMES	- 1155 		toe	¥ø	┥┥┥	╶╂┼╂	1							· ·		111			11		1 1							
NIALLA COMES	-				ТΠ							. ان ا	سال ال		111			111	11				- 1-	-1-1-				
NIALLA COMES							·[Ц.					Ш	11					ill.				\downarrow
Midral Wines									Ш						Ш			Ш		11		111						4
Willied Chains			Π		Ш		1					Ш			Ш			Ш		11		Ш	Ш	Ш		Ш	Ш	Ш
1/ Kin the 2miles to \$ 20000	6	Ш	Ш	2	Ш	40	24	Ш						K.	19	(Let	<u> </u>	111		11	I		-14	H.		111	96	40
A REAL PROPERTY AND A REAL	thes	Ш							111							11	- 	111	41.	#	┞		44	┝┿┹╋	<u> </u>	44	┼┼╿	
1- 15 40. 1 60' 3miles 420 \$ 35000 1- 1940. 1 60' 35000 160 \$5000			┝╋╋╇	∔∔	444			111	-114	44-	┉┟╽┈	┟┟┨	₩.		- -		-			$\downarrow\downarrow$		44	╽╋┥	╞╞┨╸			+	
	_ _		┝╉╂╂		444	111			╇╋	44-		╟╟	41	╏╧┥┥	┠┝┝	\mathbf{H}		+	╇	++	 			╞┝┨				
	┥╸┼	╺┿╇┥	┝╫╢┤	<u></u>	-∔∔∔		1.1	┝┠┼				╫╂	╫		┝┾┼			┼╂着	┿╋	┼┼	╉╼╼┤	++	┝╊╉	┝┿╊╴	 -	╇╋┦	НJ	601
we.ster	_IN	┼┽┼	40.	1 9	╉	1191		╎╉┼	46	₩		╏╏╏╏	++	1.00	╏┟┼╎	400	9	┼┽┽	┽┝╴	┥ ┠┙			┟┥╼┾	┝┽╋		∔ŀ	1	201
	-┨	╶┼┼┼	┝┽╂╂	╬╋┯┯	┽╫┦	┟╂╂┧	1. 	╞╂╋	┿╿┿	++-	-#	╏ ╎┠-	╢	╏╼╾╋	╂╆┽			+++	┥╊╴	┼┼	 }	-++-	1++	┟╂┨╴		· { 	\mathbf{r}	11
		-+++	┍┤┾╂		╺╂╉╋	╷┼╀╋		┝┦╀	╅╋╊	╉┫─		┢╞┟┣╴	╧╋╌╋╌		╏╃╂			<u></u> †††	++	+	11	+++				++-	111	
		╶┼╂╂	┍┼╉╋		┽┼┼	┟╂╋╋	-	╏┼┼	+++	┼╂╼		╞╞╋	┼╉╸	╉╼╾╉╴				<u>†</u> †	┿┝	t -	tí		╞╊┼					
		╶╋╋┥	┟┼┼╇	+	-+++	┍╂╄╋		┟┼┼	┽╂┼	╡┫┈	-++	┝┼┼╴	++					111		$^{++}$	1 1			rtt				
		┍┼╊┥	┟┼╂╃	╉╋╼╍╸	-+++	┍╂╊╋		Н	╌┼┲╋	+ -	╧┯╋┫╴	+++	Ħ			H-	┝┫╼╍╌╸		+	\dagger		111		r††			톆	
		╶┼╂┼		-++	╅╫╋	┍╋╉┽	╺┟╺──	Ht	┽┠┼	+†-		111	$\dagger \dagger$		11	***				T				TT I		† 1	11	
		╶┾╊╋	┢╉╊╋		╉╋	,+++	-	┢┠┾	+++	11-		111	Ħ	1				111	+	11			i TT				TT	Π
		┆┤╌╋┥	┟╉╊╉	++	-111	111		+	111	11-		111	11	1	111					T						Π		
		+++	r†††	++	-+++	itti		ĦĦ	111			ttt			Π	T			Π	П			Π			\prod	\prod	
			ПĦ	-	-			IT				Π			\prod											41		
								Ш	Ш	Π		Ш	Ш						1	11		44				┥╿╵		┟┿┥
			$\Pi\Pi$		Ш	Ш							\parallel	I			↓↓			44		╷╷╷╹		╞╞┽		. .		┟╌┧╶┤
			Ш	11		ЩΠ		\downarrow		4		Щ	-11-				 	┼╂┥	┹	44	1.	++-	╎╢╎	┟╫╋	ł	++	++	┢╋╄┥
		╎┥╄╿	↓ ╏ ↓ ↓	-+		++-	· .	╁╂┼	┥┼		╺╼┽╏╴	┼┼┞		┨┣	┫┥┥┥		↓ ↓ −−−	┼┠┥	╶┼╀੶	╉	+		╞╴┃╶┥	┝╌┼╺┠╴		++-	$\left + \right $	┆╆┦
		┟╍╁╌╿╴╿	╎╎╎		-444	(<u> </u>]]		╞╋┥	╶┧╄╉	++-		┼┼╞	-+-+-	·	<u> </u> - -	┝┠╉╴	┨┨───	┼╀┥	+	++-			╽╿┥	┝┼╂				┟╌┠╼┩
	. 1			14				111	411	1		111		1 1	11	111	11	111	11	14	1	- 1 '	111	111			447	ьIJ
	_}	┞╺╉╼╊╺╢	╎╎-┠ ╋		╍╂╉┨	└┟┽ ┩		<u></u> {- <u></u> +-}	┥┥┥	┿╂╼	╾┼╂	+++	╉╋	1+	144		+	┉		11	1	1 T T	117	TTT	(L.		114	111
			╎╎┛┓ ┝╌╎╌┠╍╅		╾┼┽┤ ╶┼╎┼┥	┝┝┿╍ ╵┝╺┽┈┪		┧╼┾ ┥╷╌╿	-┥┾╉ -┥┢┩	┼┨╼		┼┼╊	╈╋				+ 1 -			$\left \right $								



ESTIMATE COST SHEET

Project Foothalls · Dampster Estimate No._____ Item No.______Account No. ______ Description Buildings (CNNOI, Utility Building) box too = 7000 \$. Sheet No. _ 5 of 9

	Description of Work	Unit	Qu	Janiii	y	He	DUTS		1	abo	nur		Equi	ipm	ent	ľ		teria		-	ipco	ntra	cts.	Jot	b Su	ippli	es	Т	otal	Co	ost
1	AcEncinera Metal Brilding	\$1		14	h	T		60	1,00	Th	20	Ы		Π	Π	1900	2	内	ko		Π	Ш	Π		Π		Π		Th	b	246
1	1-7	Abs	11	no	60			ΤΓ			TT							11	ŤΠ						Π		11			T	
											111		-11	П				TT	TH	1		T					11-				
1							ttt				111	11-		11	TT		TI	11		· [.		\square		[111		111		TF	11	IT
1							TTF	Π			Π			Π			Π	I	Ш				T		\square		Π		Π	Π	Π
<u> </u>	arguest Crace	60	T	Ш	III	•		00	160		2	2		Ш		4	\square	2			Π	\Box			Ш				1	39	876
	1-File Kbo!	Ho		32	Xe b		Ш												IЦ								111			Ш	
					14		Ш				14	11-				-	11	44		 	41-	ĻĻ		ļ		-+-	╌╽╏┛	·			
				┞┼┼	111	+					┶┠-		[-]		╌┠╌┟╴		-1-1	┉	↓ ↓		┼┟		++-		111		╉╋	┟───┨		++	H
		-		╞┼╻┫		<u> </u>			12.00		₩	₩-		-44	┼┼		++	╉				1	╉╋	<u> </u>	+++		++1	{	╉	ł	H
ļ	Interior Autitions - Hetal	8	-++-		20	10	++ ª	75	1. 1 1	++	E6	¢v		╶┾╂	┼┼	700	44	∔₽	0	4	┿┨╴				╋╂┩		┥┽┩		-++	IY	ye i
		10	╶╁╋╌		799	3-+	┼┼┟	H	100	-+-	44	<u>_</u>		-++	╂┾	150	┼╂	+b			╁╊┈	$\left \cdot \right $		}	┿╋┥	-		·	-++-	1ie	39
	- Monorry 8"	ibs				70	┼┼Ӻ	19 P.	NA.Y	┢╋		7		+	┨╋┙	1.36	-++	┼Ӻ	47 E I	4	╂┠		╺┼┽╸	<u> </u>	+++	+	+++	}	-+- -	<u>ا ا</u>	1 T
+	- 20010 3070	5	++	H1		0.0	tth	0 h	Reg	-	116	h			╺╊╘┿╼┆	145	•††	╈			╉┠╴						++1			12	41
+		Ho	╶╂╉┥	ttt	1 T	**+	Ħť				ł۳i	' 			11	-	11		TT		+				†††		111		-11-	Τſ	
•	Ceilnien Surp: - Metal	He Sk				176	FH -	50	16%		18		-+			100		-1+	19	-		$\left + \right $					+++	it		邗	150
-	Shirty rusp tusks	Tita		116	100	™ •	$\dagger \dagger \dagger$	Ĩ			††1	` • 	t	11			11	11			11			1	111		11		ΤΓ		
1	- Kensti	ito sh				5	†††	Ab	U.P.		14					85		TI	5		Π						T			T r	*1
-		H20			Seh.																П	Π			Ш		Ш		Ш	(1	l i
	Plooring - Raised Aturo			\prod	100	19		40	ifo,		M	6				60			49	·					╧╋	┝╌┝		i l		1 II	48
		12													╌┟╌┟╴	-			111	<u> </u>	44	_			┿╋┦	╺┼╂	- 4-4-1		.44.	++	
	- Vinyi Tile		44		200) 300	<u>. 10 </u>	111	140	1190		4	52_			44-	111	14	41	30	2	11-	$\left + \right $			╪╢┦	<u></u> 	-++-				h
		11		ĻЦ	b		┼┽┣			┞┨╼┿		<u> </u> -	-+	-++	╋			╂	3		╇┦╸	$\left\{ +\right\}$	┝┥╋		┼╀┦						10
	- Wax Concrete	- 32	┥╋	L FY			┼┼╂	Þ	1203			- 0		-++	╌┟┼╴	15		++	FM	¥	┿╊╴	┼┼┤	┝╈╢╸		┼┼┤	$\left\{ + \right\}$	┼┼┦	┟──┤	++-	++	44
	Fig. White the later			┥┽╞	2012		╋╋	5	1600	+++	4			┝╈╋			+1		50		╺╋╺╬╌	\mathbf{H}	┝╈┾╴				ᠠ		~	11	4
	Furnishing - hab UR	- ht	┊┥ィ╋┅	┨┥╽			┼┼┼	1.0	10			su		┝╌╉╍╊	╶┾┽╴	-4	-11	-++	24	"	┥┼			†	111	<u>+</u> + +	++				ΙĪ
	N	165		┇┤╢	Di Di Li di Di Li di Di Di Di Di Di Di Di Di Di Di Di Di Di	†	┼┼┾	++-	l		-++-	+1-			++-		-+-	11	╋┣	1	++-			1	<u>††</u>		++++			11	11
				╞┼┞	$\uparrow \uparrow \uparrow$	{	$\dagger \dagger \dagger$	{ †⁺		╞┠╋	┥┼┤	++-			1+		-++		╋	1	††	Tt		1					11	II	
+	8m.925	155	15	5191	iola		12	訪			335	5			T			IA	150	7	Т	Π	ITT		117	ITT	Π		15	4	80



ESTIMATE COST SHEET

 Project _ FOOHWILL - Dem	etty	Estimate No.
	1	Date
Description BVULLY	(STOR'S BLOG) 40' x60' = 2400 st	Date Sheet No6 of _9

	Description of Work	Unit		Quar		T		lou		·		Lab		· · · ·	Τ-	East	1		-			1										Ι.				
		I., I					٦ 	10U				_				Equ	ipir m					lais		Sub	CON		18	Jot	Su	ppli	es		Tota		ost	
	Pietagineres Metas Dag	st Ibs			74	<u>.</u>			N	'n	1 10		9	80	2					1450		μķ	90				Ш							K	56	80
	0	llbs		3	•	10															Ш															ιĽ
						Ľ.	. •																				Π				Π		\prod		\square	
L.								Ш	Ш					\square			-									Ш	Ш						Ш			II.
! <u> </u>								Ш	Ш					Ш	1						Ш				Ш	Ш					Ш				Ш	
					Ш	Ш.		Ш						Ш		-	-	-				L			П								Ш		\square	
								Ш					Ш	1							IL		Ш		11		Ш							_	LU	Ц.
 					-14	Щ.				4				44		-			4							∔┢						 				L
			· .		-	Щ.		4.					1	11		_		. -	4		11		11		44		11			11						-
			-+	┝╋┥	-44	41-			++	+-				-14		-+-			\downarrow		#	11	Ш		44	╨	44				╇		444		$ \downarrow \downarrow $	⊢
			-	-+	++					╌┼╌┨			-44	14		-					11	↓ ↓			#4	┼┝	╆╋			-11-	44.	[┟┟┥	┝╌┠╼
 +				┝╋╋	+			┝┼┤	╞╋	+-4			-++	++			-		44		╏┼	₩.	4		∔∔	┽┠╸	11			-		ļ	 			+-
├			+		╶┝╋	╢							┽╋	- { }				╂	+		┢┼╴	$\left \cdot \right $	$\left + \right $		₩	┼╊	┼┼			+	+		┝┼┨		┟╉┥	
		┝──┤	+	-+-+	╶╂┼	-++-			- +	┼┥			·+}	+		-+1		┥┽	╢		₩	+	$\left \right $		+	+	++			+	+++-		┥╿┼		14	ŀ-
		 	+	┝╌┼╌┽	╂╋	╫		$\left + \right $	╂╂	+		┝╋┥	╌┼┼	╂╂		-++		╌╂┼	++		<u></u> ++•	╫╴	H		╂┼	┼╊	┼╋		-+-	╉╋	╁╂╴		₩		┝╋┥	-+-
			+		╌┠┼	┽╉╴		+	┈┠┽	┽┨			-++	┼┼		-++	-+-	┢┥	┥┥		╉┽	╁┠╴	╞╌╽┥		·	┝┝┝	┼┼		-+-{	-1-1-	┼┽╴		Ϧŀ		╞┝┥┥	-+-
			+			┼╂╌			┢	╉╋			-++	++		-+	4	┢┽	+		┝┼	┤╌┠╌	┢╍┢╺		╉	+1-	┼┼				+++-	ł	┟┥╿			-+-
·			-	-	╶┟┥	╡╂・		$\left + \right $	-	╉			╶╂╂	╂╂		-+-		++	+	+-	╂╋	┥┢	ŀ÷		╂∔	┿╊	┼┼			łŀ	┥┝				i H	
			+	-++	- -	╫			-++	+			++	-++	╉╧╍╸				+		<u></u>	╢	┝╋┥		\mathbf{H}	╅┡	┼╄			╍┤╍┠╍	╉┢	<u> </u>	+++			
		┝╼╌╽	┥┤	-+-+	╉	╫		┝┼┤	╂╂	+			╋	╉╋		-+-		$^{++}$	┽┫		╉╋╴	┼╂╌	┢╋╴		╂╂	╂╋	┼╄			┿╋	╉╋╴		₩		H	;- †
			+			-++-		$\left \cdot \right $	┢				+	╂╂				╶╂╌╂			\mathbf{H}	┥┦╴	<u></u> - -		┢╋	┨┢	┼┼				++-		tŀł		-	-1-
					┢╂	┿╀╴			+	╋			+	╉╂	-	-+-	•••	++	┽┨			╋╋	++-		łŧ	┽┼	++		┝╋	·+F			†††			
1-1			+		╊╋	++-		$\left + \right $		+-1		-1-1	-††	-11	1	-[-]			++		H	╋┢╸			11	+	++			++	++-	t				-†-
		<u></u>	+			$^{++}$		H						╌╿╌┼		-+-		-			1†	++-	┟╌┠┙		11	11	++-			11	++-					i t-
			+	-++		╈		H		╈			-++	*††	+						Ħ	++-			††	<u>††</u>	<u>††</u>				┼┼╴	1	†††		TH.	+
		11	11		11	11				\dagger				1	1				Π		11	11	tti		11	11	T	1		T	1T.				11	
1		11	11			11			\mathbf{T}					11	1			11	1		11	11			11	Π	T				11					Ī
			1		- -		1						11	-++	1						11	TT-			11	T	T				TT					Т
									\square	T				11				П			Π	Ш	\square	·	П	Ш	IT			11	Π.					T
	bugs	165	Π	3	80	HD		Π	K	10			8	6				\prod				68	0D		\square		\prod				\prod			K	516	ØD



48-

Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project Foothills - Description Buildings - (Fuel Lies Rymettin Ride) 20 x25 = 520 st. Sheet No. 7 of 9

<u>.</u>	Y									1			<u> </u>						\mathbf{U}																				
	Description of Work	Unit		Qu	anti	ity		Но	urs	,		L	abo	HH.			Equ	ipm	ent		N	Aate	eria	l s		Sut	co	ntra	icts		Job	Suj	oplie	s		Tote	al C	Cos	st
	Pre Engineered Metas Briding	51		\square		6 72		_		30	a V	(P •	П	4	o p		-				A 00		14	90	Þ						_		-				ŀ	81	80
	· · · · · · · · · · · · · · · · · · ·	15	H		-10		9	-+	+		╈		₩	╂╂	╂	† —	-	-++							╂╋		-		-		-	┢┼				$\frac{1}{1}$	1		+
			Ħ					-11			+		Ħ	tt	Ħ	1		• - • •	11			h		t†-	Ħ			H		1-	-+	Ħ		i t		+++	t I-	ŧŀ	-
			Ħ								1			Ħ	Ħ	1	+		11			Ħ		t-t-	Ħ			H		-		tt		<u> </u>		11	1	tt	Ť
			Π		-	П	1			П	T		11	Ħ	T				11			T	T	Ħ	Ħ			Ħ				Ħ				\dagger	IT	Ħ	T
			Π			Π		ŀ			Τ		T	Π	Π				Π					Π	Π			T	T	-	-	T				TT		Ťľ	1
													П	Π	Π									Π	Π			Π		Τ		Π	IT			Π		П	Τ
											1			Ш	1	L															_							П	
			Ц			Ш	_			44	1		44	44	44			-	44				Щ	4	Ц			Ц		_	_	11		Ш		111	4	44	╞
		- <u></u> .	\vdash	_[]	-+-		-	_	-	44	-		##	4	11	ļ	4	4	-1-1		·			44-	1	· · ·		4		_		11		4		44			-
			ŀ	-1-1					+	++	╇		++	11	₽₽-	<u> </u>			-1-4	-				╟┝			-	11				↓		·		·∔-∔ !			-
				-	-+-				+	++	+-		╂╋	₽	H	. <u></u>	-++	+					\mathbb{H}	┝┿╴				H	-+-		•	1+				++		ŧŀ	+
			$\left \cdot \right $	- -+	╍┾╴╢	┝╋╋			+		╋		╂╋	+		÷		-+-		-+-				╟╟	-		-	++				H	$\left\{ \cdot \right\}$			++	¦[.!	$\left\{ \right\}$	+
	· · · · · · · · · · · · · · · · · · ·	· · · · ·	\mathbb{H}	-++	╉	+++			+	+++	+-		╂╋	┼╋	H		-+-	+	╉┥	-	·	H	++	++	╢		H	H		+-	-	H	┼┼┥		. <u> </u>	╉┿┦	H	╀╊	╀
· · · ·				+	+	++	+	-++	+		╉		·H	╂╋	ŧŀ-		-1-1		+-+					H	╟╋		-	H				++	{			+	ŀ ŀ	łŧ	÷
	· · · · · · · · · · · · · · · · · · ·		H	++	+	-+-+		-++	+	\mathbf{H}			++	ŧŧ	[] -		-++			• ÷ -			H	h	₩		-		ΞH	-			<u>+</u>			1+1	11-	ŧŧ	-ŀ
·			H		+		1-		-		╋		††	Ħ	† †-	†	-							┢┼╴	Ħ			++	-			Ħ				1+-	ht '	++	t
			H			-++	+	-+1					╋╋	ŧŀ	┼┼	1	-+-		- -	-				H	H		-	Ħ	+			Ħ				<u>††</u> †	t H	tt	+
			H				<u>†</u>	-11	Π		╋		1†	Ħ	tt	<u> </u>	-11			-		H	H	H	Ħ			Ħ	-11	-		Ħ	tt				H	tt	1
			Ħ		-		1-				1-		Ħ	ŤŤ	tt							1	T	11	11				1			TT	tt			111		tr	T
			1											11	Π				Π					Π				Π								\square	í ['	Π	
										Π				Π	Π										П	_											11		1
			Ц								1		Ш	П	Ц.	ļ			\square			Ц.		IL.	Ц.		_	Ц.		4	_	11				Щ!	44	44	4
			H	-	-++	╌┤╍╁			-		-			44	 -								-+-	μ.	₩.		_					1.			•	44		4	+
:				-					4	++	- -		++	$\left\{ \right\}$					++				4									ŀ	+			$\left \right $		\downarrow	-
				-++		┝┼╋		-++	-		_		++	╟	$\left\{ \right\}$	·			+	-					╞┼╴											$\left \right $		ŧŀ	+
• •			-+			┝╋		-+1		++			1+	+	{ <u>⊦</u>			-	+	-				++-	<u></u> ++-		-	· · ·						+		++	1+	$^{++}$	+
	1.5	lbs	H	+	IR	0D	1			30	+		++		a b	<u> </u>	╺┼┨	-++	╂╢				14		H-		+	╟╋	-+-			\mathbb{H}	++	H		++	H-	ter	ē,
L I=1 13	611.55	1021		Ч	1	~ [V]	ч		1		4		ш.		V	J	_1.,		- I	_	1	LL.	חיי	VN	Z 1		- Ai	L.I.	ப		i	<u>L.L</u>	1-1-	L.L	L	44	116	4219	λiγ



5

Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project foot fully Unight Gr Estimate No.______ Item No.______ Account No. ______ Date _____ Description BUNANNES (HVIRE QUEATED) 4700 Sh Sheet No. 8 of 9

	Description of Work	Unit Quantity		Quantity H					Hours					Labour					Equipment					Т	Subcontracts					lak	C				T		~	
					-	_										Eq.	лра 1-7-				Mat			┯┥	50		9178 1 T -		4	Job	Sut	Spile T T T	35 7	L	Tota	ar C		я
·	Palabricated Borilduic	S.			(hþ	10.7 72	0	1	中	22	1693		30	1	<u>ı</u>		Ц			40	ĻĿ	64	0		· .				4							118		١Ŀ
	Shiple storey, when A france, alminum siding, patched roaf, there windows, insul ext star	њs		bli	봐	b	_	11						Ш	-	-					Ш.										Ш			ł		H		
	alminum Siding , pitched roaf				Ш.	1		Ш	Ш	Ш														\prod			11								Ш			
	thema windows! "mul box strees"									L			11	Ш							Ш	Π		П		\prod	Π				Ш		\Box		Π	Π		
· ·	doors we int dons vinus Gibor																						П	Π		Π	Π					П			T	Π		
	doors, w.c. int dates, virys Gypoc int partitive, lins & carpet thering, lighting, plothing, leating. air charitining & mise humisting.					1	_		Π					Π							П	П		Π			Π				\prod	TE			П	Π	Π	Τ
	lighting philping heating								Π				_11	Π							Ш		\prod				Π	П						1	П		Ι	Τ
	air cheritining & min Andriching							Ш	Ш				Ш	Ш	-							П					П				П		Π		П	П		
) 0				Ц			\prod					Ш								Ł			Ш														
	(12 wher accommedation)		1		Щ	Ц_		Ц	Ц			Ц	4	11		\perp				.	Ш	Ш	11	11		Ц			1		11		LL.	L		Ц.	Ц	
		·				11-		44				11	44	11		_					Ц	Lł.		11			1				Ц.			L	1.			
	Mign		44		#	↓		44	11	11		-1-1	41	11		_					Ш	17	14	h		4	H		L.					<u> </u>		11.	Þ	0
				-44	#	44-		-11	₩	14		-1-4	-11	44					_		┼╂	μ.	LT.	14		 _	↓ _↓ -								11			
			-			H		-1-1-	44	44		44	41	++		_							44	11		 _	4				 -				4		1.	-
		 		44	#	₩-		-++	##	44		44	-++	44		-	14		-	ļ	11.		₩	11		44-	1				44	Ц.,		 	++-	44	11	+
	-			11		4	· ·	11	11	μĻ		11	11	11		_			1		11			Ц		ļ. į			1		L			I	11/		11	
					4	11_		4	11	\downarrow		Ш	44	++			L.L.				Ц.	##	11	11		Ц	-1.		4					I	11 ⁱ	I.I.	Ц	_
					11	44-		44	11	Ш		-1-1	44	11		_						11.	11	11					Ц.							L.	1	4
					11	11_		11	Ш	11	· .	11	11	11		_					ļĻ	ļļ	ļ.	11								[]_					11	1
					++	<u> -</u>		44	Ш	44		11	-11	44							Щ.	44	μ	11		Ц_	4	Ш		· .	44	l.L.	Ш		Ш	4	11	_
	· · · · · · · · · · · · · · · · · · ·		_	44		÷.		-1-1	44	Ļ∔		44	-+-	-+				-			Į Į.	14	↓	<u> </u> _		ļ.	Ц.				44	 _	L					+
				-+-+	44		+	44	∔∔-	14		44	-	++		_	4		-		44	H-	↓↓				4				<u>+</u> +				44		44	4
		+			++	11_		4	+	+		- - +	41			-			-		11		11-	1.		╏╴╿╶	4	4							44	-+-	44	-
				-+-	++	↓			++	++		44	- ‡ ‡	++					-		 -	↓ .↓.	1+	11		- -		- + -	<u>⊢</u> -		ŀ.	+ -			44			-
				++	╀╋	┼┽╌╸		++	╀┼	44		++	-++	++-		_ 	\mathbb{H}		+		┼╂╴	₽	₩	╄╋		┝╋╸	┝┥╴		₩-		++	↓. 	+-	 	╇┦	++-	╢	+
				++		┼╢╌╸		┉	H			-++		++								₩	┢┢	┼┽		┼╌┨╌	┝╍┠╺					+ ·			•		H	+
	· · · · · · · · · · · · · · · · · · ·				- - -	+1		╉	╂╋	╂╋		++			+	-+-					łł.	╞┝	H	+		++-		H			+		-+		Į.			·
• •		┼	-+-	· {-ł		₩-		++	łł	╬		-ŀŀ	++	++		-+	+ +-	$\left \cdot \right $	+		┼╌┟╌	ŧ ŧ-	łł	H		<u></u> ∔-∔∙	Į.	<u> -</u> -				ŧ. ŧ			+	 / −	11	+
				-++	+	++		+	╉╉	++		-	-++	-++-							h	++	┢╊	╢		$\left \cdot \right $	++		-			ŧ+	$\left \cdot \right $			ŧŀ.	łł	-
	6m Hs		-+-	+++	╂┼	╉╉╼	-+	+	Ы	╇╉		-+-+	++	+	+			╞╋┥			H.		H	++		┢╂┥	-	+		+	╉╼╉╌	++-	+		++	1.1		÷

D001-1 135EP76



5

Dillingham Corporation Canada Ltd.

Project Foothins - Dupster Estimate No Item No._____ Account No._____ Description_brildnys (Utilidog) 400 × 81 = 3700 st; Date ESTIMATE COST SHEET Sheet No. 9 of 9. Quantity Equipment Materials Unit Hours Labour Subcontracts Job Supplies Total Cost 0000 10 1000 000 0000 100 00000 ۶. 8000 1-80 10000 .10 1000 1199 Licher 200 7000 ĿХ 30% KA HAL 100 1699 Uben 700 360 250 200

Description of Work Structural Steel 44/201 100'@ 200 10/ 2 800m 160 Roof and wall Suching 200 DOOR UNCHILLA 80% 1540 7949 0 Litte 40 600 Chille bm 385 1 190005 130 29800 10500 D001-1 13 SEP 76

DEMPSTER HIGHWAY COMPRESSOR STATION

III-3 GAS COMPRESSOR PACKAGE

III-3.1 GENERAL

This cost estimate provides for the supply of one (1) 16,000 ISO H.P. rated natural gas compressor package complete with auxilliaries. The proposed unit for both the chilled and non-chilled station is a Cooper Bessemer Coberra 3045 gas turbine compressor package.

Please refer to the quotation included in this section from Cooper Energy Services to Foothills Pipe Lines (Yukon) Ltd. dated December 14, 1978 for specific details.

The gas turbine compressor package will be housed in a heated compressor building measuring $60' \times 70' \times 30'$ eaves, complete with overhead cranes.

III-3.2 DESCRIPTION

The gas generator supplied with the Coberra 3045 package will be a Rolls Royce Spey engine with a fuel rate of 7600 BTU/BHP/Hr. at ISO conditions.

The gas pipeline compressor will be a Cooper Bessemer RFA-36 (end suction) two-stage centrifugal compressor designed for a throughput of 1200 MMSCFD and pressure rated at 1440 psig maximum operating pressure.

Included in this gas turbine compressor package costs are the following:

- a) Air inlet filter system including weatherhoods, anti-icing and silencer designed to meet ISO NR55 @ 400 feet radius from the unit.
- b) Exhaust gas system including duct transition and silencer designed to meet ISO N55 @ 400 feet radius from the unit.

- c) Lube/seal oil systems for the gas generator and power turbine/ compressor.
- d) Unit control and unit MCC panels.
- e) Trend monitoring (sensors and transmitters only).
- f) Acoustical enclosure over the gas generator and power turbine only.
- g) Load testing at reduced pressure.

In addition to the above costs, Foothills has added a contingency of \$70,000 as per their December 21, 1978 letter to Canuck Engineering Ltd.

Also, each additional speed line on the gas compressor test would be an extra \$3,675 which has not been included in this estimate.

This gas turbine compressor package would be manufactured and tested in Stratford, Ontario.

III-3.3 FUEL GAS

The gas generator will be fueled on natural gas delivered at 500 psig to the Cooper Bessemer skid.

Fuel measurement has been provided by means of a 4" Rockwell T-18 turbine meter. Cost of this meter is included in the station fuel gas system, Section VI of this estimate.

III-3.4 LUBE OIL

Included in this estimate is the cost of the initial fill of lube oil for the gas generator and power turbine/compressor. We have allowed

for synthetic type lube oil for the gas generator and mineral type lube oil for the power turbine/compressor.

Stainless steel pipe, valves and fittings have been included in this estimate for hook up of the lube oil systems.

III-3.5 MISCELLANEOUS

We have allowed for the supply of necessary small pipe, valves, fittings and tubing for hook up of vent lines, instrument lines, etc.

COST SUMMARY

	Chilled and Non-Chilled Station
Materials	\$3,900,000
Installation	67,000
Total	<u>\$3,967,000</u>

Estimated Weight of Materials ex Edmonton

418,000 lbs.

Federal Sales Tax Estimate

\$486,100

- 53 -

DEMPSTER COMPRESSOR STATION

SYSTEM COST SUMMARY System No - 1- Complession Pro

PAGE OF

SYSTEM NO	2 - 2 - 2 - 11 PL -	SCION 120		PAGE
TEM	SUPPLIER	SUANTITY	UNIT FRICE	EXTENSION
CLEPER - Dessenter	. C-E		\$ 3,786,300	13,786 500
MODEL				
16,000 ISO HP				
Gas TURBINE / COMP				
PACHAGE				· · ·
FREIGHT TO EDM.				30,000
PACKAGE WEIGHT	388,000 #		OTHER MATERIAL	
			30,000 #	
	- Gas Generator	6,000 #		K
	- Turbine & SKID	58,000 *	TOTAL WEIGH	(7)
	- L.D. Console & Tank		418,000#	
	- Radiator	15,000#	190 tonnes	
	- Compressor	80,000#		
	- Farr Inlet Filter	18,000 #		
	- Controls	45,000*		
	- Inlet Plenum 4	35,000 *		
	Silencer GG 1.0 Com			
	- Misc. #1	24,000 +		
	- Misc # 2	30,000#		
	- Misc. #3	25,000#		
	- Lube 0.1	22.000#		
FST @ 12%			\$486,083	
Lube Oil				
- Gas Gen		200 us Gols	\$20/gel	\$ 4,000
- Turb/Comp	· · · · · · · · · · · · · · · · · · ·	2000 us Guls	1 L .	20,000
Jube/Seal Oil Piping /3	455)	1 107	10,000	10,000
Fullers Earth Filter	1		2 500	2,500
M.S. P.pe, Values, Eitt		1.407	5000	5,000
(Irstruet Lines, Vente.	etc)			
			SUB-TOTAL	[±] 3,857,800
· · · · · · · · · · · · · · · · · · ·		CONTINGENO	Y@ 1 %	38 578
			TOTAL	\$3,896,378
		- 54 -		, , , , , , , , , , , , , , , , , , , ,

- 54 -



ESTIMATE COST SHEET

Project ________Estimate No. _______Estimate No. _______ Item No. ________Account No. _______Date ______ Description ______HP Cibo Construction Field all ______Sheet No. ______ of _____

		Description of Work	Unit	it Quantity				Hou	Jrs			Lab	our		E	Iqui	pm	ent		Materials				Sut	oL	b S	upp	lies	Τ	Total Cost							
		Cas tu Azine Comprison Acclude 1-16000 ISO AP including air inlet fitter & derice, air sillecer, whowas sillencer whoust during, Mend montainer, account encloyert.	K.	Τ	34	60	-		Π	4	50	162	Π	60	da	0	T	Π	Π	TT-	5	11	ŧIJ	Т		Π	Π	Π	<u> </u>	TT.	Ш	ΠT	<u>†</u>	TT	Π	Π	TT
		1-16000 ISO HP including			111	T			П	11'			IΠ		11		11	T	T		- 4		ŀŤ					Ħ	1	11		11		11		tŀ	Ħ
		air mlet fitter + device,				П			T							1	T	11	1		-	tr		11			11	†	1	11-						††	Ħ
		air sillner, whant sillner				11			Π	IT					11	1		TT.	Π	11		11	m				11	11	1-	††-			1	-++		Ť	Ħ
l .		licharst durithing,				П	П		Π	Π	T		Π		TT		T	T				П	m	Π			11	11	-		11		1	11	Ħ		11
L		the monthing							Π	Π			Π		Π		Π	11	T	IT		IT	Ħ	Π			11	11	1	11	Ħ		1		Ħ	Ħ	Ħ
		course indervel.							Π	Π			\prod		Π		Π			Π		Π	Π				11		1				1	T	П	11	T
										Π			Π		Π		Π	Π	Π	Π		П	$[\square]$	Π		71	T	Π			TT			TT		T	T
				_									Ш					Ш				11.		П			П	Π		П				Т	Π	Π	П
				1		Ш			1				Ш				11						Ш			Ш	\prod	П		\prod				Ш	Ш	Π	Ш
-				_	1	-11	-		Ш.		-				$\downarrow\downarrow$		Щ.	11																			
			_	_	11	11			4						44		11	44.	4			11		4	:			1									Ц
a					-+-+		41		++		-		╞╫╢		+	<u> </u>	4.	44.			_	₽₽-	┞╿┥			44	44			44		++				11.	1 .]
						-44		- <u></u>	++-						++		44		┢╺┟╸			ĮĮ.	╎┼┤	++		44	44	44.				44	-			.	44
_				-			-+-+		╨			· · · · ·			++	-	##	╁╁		4		┢┼┝		-++		-++		++	 	44-		11	-	44	11	44-	\downarrow
				-			-14								44			44,	<u> </u>			₩.]	-14		-14	┵┟	41		4.			<u> </u>			↓Į.	Ц
			╏╼╾┥			- -	-+-		44	11					-+-] [.			14-	╡┠┥	-44		┝┟╽	┵┠		ļ	4.	-						11
						-11			41-		_				╺╁┨			11				11		-++			-11	44								ļĻ	\downarrow
			·			-11	41				-			_	-		41.	44				11-					44	╇	 	11		:			Ц.		
				-	++	-++	++	·	╨				$\left \right $	-++	+		╅┾	#	+			╀╋	╎┝┥	┽╃		-++	++	┼┼	<u> </u>	++	$\left + \right $	++-	- <u>+</u>	-++	₽	#	╂┤
-	; 			+			-++		++-	+	+	· · · ·	-	-	╍┼┝		-	44			+	+-	╎╎┤	4		+++	-11-	╶┟┿						-	ļŧ		
-				-	-	¦-∔			┨╋	┞┠┥	•		┥┥┥	-	++		• • • • •	11					╽╽┥				-+	┥┢		┥┫		+	+	-		÷ŧ	1-1
1				4		┈┟╷┼	-+-}		++-	┦╢				-++	++	4	·┾┽					<u></u>	╎┼┼	-++			+	-+-+-		++-	+		· ·	-++		 - -	÷ł-ł
							++		++-	۱+			-	-++	++			łŀ		-		┟╴┠╌╴	-				ł	++-					-	-+			·
		· · · · · · · · · · · · · · · · · · ·		-+-	-+-+	++	+		╉╋	H				-++	╉╋		┿╋	┿╋╌	┝╌┝╌		-+-	┢╋╌	┼╂┽	++		╉╋	-+-	++		╋╊╌	┝╽╌	╌┼╍	+	++	1+-	ŧŀ	╀┦
• ••	• • • • • • • •		•[]		11		-††		ŧł.	-1-				- -		┨	╡╉╴		<u>†</u> ∙†⊸			ŧŀ		-H		-1-	╡┠	++	1				1	-	ŀŀ.		11
	•	· · · · · · · · · · · · · · · · · · ·			-++	-††	+		++	╞╏╸					┽╋	1		11		++-		11					11	11	1	11.		╘┦╂			- -	tt	††
				+	-+ 1	H	+		$^{++}$	╞╋┥					+1		Ħ	Ħ			†	11		┽╊			-††	++	1	++			1			†F	Ħ
						Ħ	-[1		11	11-					11	1	ţ.	11	t t i			11	111	+			11	11	1	11			1	-			
		17/ 3/5	Ist	+	26	. 0	561		$^{++}$	21	sh			60	20	,	tt	TT	\square			Ħ	111	11			11	11	1	T			1	11	6	00	He

D001-1 13 SEP76

Start Land

7058E Farrell Road S.E., Calgary, Alberta. T2H 0T2

December 14th, 1978.

Foothills Pipe Lines (Yukon) Ltd., Bow Valley Square II, P.O. Box 9083, Calgary, Alberta. T2P 2W4

Attention: Mr. R. M. Lazerte

Dear Rolly:

Coberra 3045 Gas Turbine Compressor Unit

Following is pricing information on our Coberra 3045 (formerly Coberra 162).

One only Coberra 3045 Pipeline package as described on Pages 1, 2 and 3 of Section 4220 attached. The one exception is that the Centrifugal Compressor would be an RFA-36 (end suction) rated 1440 psig.

Also included are the following optional items:

Air inlet filter, inertial type separator, with bleed air ducts and motors, complete with snow hoods for winter. climates.

Air inlet silencer designed to meet ISO NR55 at 400 feet radius from the unit.

Exhaust silencer designed for the ISO NR55 at 400 feet radius from the unit.

The above cuoted price would be f.o.b. our factory in stratford, Onteric. No government sales taxes are included.

We would estimate that freight from Stratford to Edmonton would be \$30,000. Sales tax should not be added to freight.

Foothills Pipe Lines (Yukon) Ltd.

- 2 -

Following are some breakout prices which you wanted.

<u>Station Controls</u>. For a single unit station a station control panel is not necessary.

Trend Monitoring.

For the supply of sensors and transmitters only, we would estimate the cost at \$32,000.

Enclosure.

Acoustical enclosure over the gas generator and power turbine and mounted on the turbine base. Enclosure is factory assembled and includes interior lighting and ventilating fan. Sound level reduction to 90 dba. Price would be \$50,300.

Testing. For load testing Cooper Energy Services would prefer to run the closed loop at reduced pressure, i.e. 200 to 300 psis. We can test at ull pressure, but this will become very expensive. The reduced pressure closed loop demonstrated compressor performance will completely corelate at full pressure. The brake horsepower output can be demonstrated very easily by using a water brake.

The reduced pressure test would cost between \$20,000 and \$30,000.

Closed loop test instead of standard open loop test includes one speed line with eight points. Price addition \$6,580.

Extra speed lines - eight points per line. Price addition per line \$3,675.

I trust this gives you the information you were looking for.

Yours truly,

R. B. Kerr

RBK/jm Encl. c.c. W. R. Serimes

SECTION 4220

COOPER-BESSEMER

inlet and exhaust loss.

COBERRA 162 PIPELINE PACKAGE

GA S	
TURBIN	ES STANDARD EQUIPMENT
ITEM	STANDARD
. Base	Fabricated steel subbase designed to mount the gas gen erator and power turbine.
. Gas Generator	Rolls-Royce Spey industrial gas generator, with Wood- ward governor system arranged for natural gas fuel.
	Gas Unit Rating <u>Generator (ISO)</u> Fuel Rate •
	Coberra 162 Spey -16,200 BHP 7600 BTU/BHP-H
. Gas Generator Lube Oil Syste	 Main oil pump (pump includes supply, scavenge, and governor control oil) driven from gas generator ancillary drive. Low pressure boost pumps are submerged in the reservoir. The main boost pump is hydraulic motor driven and the auxiliary boost pump is electric motor driven. Twin full flow oil filters with switch valve. Reservoir with separate deaeration section. Air-to-oil heat exchanger. Console mounting including shop fabricated piping,
	valves, gauges and safety switches to complete the system.
. Fuel Gas System	A. Fuel Gas: Clean, dry, regulated 500 PSIG min. by user.
•	 B. System includes the following mounted on the main base: Governor controlled gas valve Isolating and vent valves Strainer Separator Factory assembled piping, manifolds, relief valves and gauges required to complete the system.
Starting System	A. Starting Gas: Fuel gas from fuel system.
•	 B. System includes the following equipment: Gas operated expansion turbine Pressure regulator for required starter pressure Automatic overriding clutch Starter coupling to gas generator rotor Factory assembled piping and valves to complete the system
*Guaranteed subject to 4% tolerance on Fuel Rate, no	 Automatic overriding clutch Starter coupling to gas generator Factory assembled piping and valves

- 58 -

SECTION 4220 COBERRA 162 **COOPER-BESSEMER** PIPELINE PACKAGE GAS PAGE 2 TURBINES STANDARD EQUIPMENT ITEM STANDARD 6. Power Turbine . . . Power turbine with turbine stages overhung from the bearing supports - Two journal and one thrust tilting pad type bearings Insulated exhaust hood - Mechanical and electronic overspeed safety governor 7. Centrifugal Compressor. Two-stage pipeline centrifugal compressor with 30" ASA flanges, maximum working pressure of 1200 PSIG, and overhead emergency seal oil tank. Drive Coupling. . 8. Continuously lubricated, spacer type flexible coupling with guard. 9. Combined Power Turbine/Centrifuga] Compressor Lube Oil and Seal Oil - Separate baseplate for system mounting System . - Compressor shaft driven lube oil and seal oil pumps - Auxiliary motor driven lube oil and seal oil pumps - Twin full flow oil filters, with switching valve - Oil reservoir with low level switch and electric immersion heater - High pressure seal oil trap - Seal pressure regulator - Degassing system for seal oil - Oil-to-air heat exchanger with hydraulic motor driven fans utilizing seal oil as the hydraulic medium - Factory assembled piping and valves to complete the system. Piping runs to and from the radiator to be supplied by user - Console mounted instrument panel including gauges and safety switches 10. Control System A. Unit Control Panel - solidstate - designed for automatic and remote operation of the turbinecompressor unit. Panel will be free standing, front access, for location by user in a nonhazardous atmosphere. Panel will include: - Control system logic - Programmed digital timer - Safety shutdown and alarm system - Speed, vibration, and temperature monitors - Automatic sequencing of unit valves - Control mode selector for local manual, local automatic, or remote operation Remote start/stop and loading signals are to be provided by user.



COBERRA 162

PIPELINE PACKAGE

ĠAS TURBINES

PAGE 3

SECTION 4220

STANDARD EQUIPMENT

ITEM	STANDARD
10. Control System (continued)	B. Unit Motor Control Center - includes required starters, contactors, and switchgear to auto- matically control auxiliary motors and heaters located on the turbine-compressor unit.
	C. Unit Power Supply - includes battery (4-hour capacity), battery charger, inverter, AC and DC distribution switchgear to provide required unit control and instrument power.
ll. Inlet Air System	A. Intake plenum chamber with gas generator inlet bellmouth.
	B. Cleaning System - storage reservoir with piping and valves to direct cleaning agent into the gas generator inlet.
	C. Anti-icing System - piping, valves and tempera- ture/humidity switch to admit gas generator compressor air to the inlet guide vanes and nose cone.
12. Factory Tests	A. Mechanical and system test and checkout of turbine-compressor unit and auxiliary systems.
	B. Open loop air performance test of compressor aero-dynamics for new designs.
	C. System test of unit controls to include start and stop sequencing, speed control, instrumentation, and safety shutdown and alarm system where practical.
13. Special Tools	One set of special tools, as required, for turbine- compressor unit maintenance.
14. Service Representative	The services of a Cooper Energy Services service representative to advise and instruct in the installa- tion and starting of the gas turbine-compressor unit are available at additional cost upon customer's request.

- 60 -

DEMPSTER HIGHWAY COMPRESSOR STATION

III-4 PROPANE COMPRESSOR PACKAGE

III-4.1 GENERAL

The cost estimate for this system covers the supply of two (2) Clark DJ50 gas turbine/refrigeration compressor packages rated at 5500 ISO H.P. each. The horsepower ratings and equipment costs were prepared by Foothills as per their letter to Canuck dated December 21, 1978.

III-4.2 OPERATION

One Clark unit would serve as the prime refrigeration unit while the other would provide 100 percent backup in the event of failure or maintenance of the first. The propane piping layout of these units reflects this standby configuration.

Both units would be housed in a heated propane compressor building measuring 40' x 110' x 30' eaves complete with overhead cranes.

III-4.3 DESCRIPTION

The verbal bid received by Foothills from Dresser Clark includes not only the basic turbine/compressor package but also for each unit a unit control panel, unit MCC panel, inlet air and exhaust gas ducting, filters and silencers, gas turbine starter and lube/seal oil system complete with cooler.

These packages would be manufactured in Lethbridge, Alberta. The gas turbine would be a Garrett IE-990 dual shaft machine and the refrigeration compressor a vertically split Clark B type centrifugal compressor. At this time the exact number of stages has not been finalized but would be in the order of 2 to 4 stages. Dresser Clark has stated that their quoted price would cover compressors in this range.

- 61 -

III-4.4 FUEL GAS

The Garrett turbine would operate on natural gas fuel delivered at 240 psig. Fuel measurement has been provided by means of a 4" Rockwell T-18 turbine meter. The cost of the meter is covered in the station fuel gas system, Section VI of this estimate.

III-4.5 LUBE OIL

Also included in the estimate is the cost of the initial fill of lube oil for each gas generator and refrigeration compressor. We have allowed for synthetic type lube oil for the gas generators and mineral type lube oil for the compressors.

Stainless steel pipe, valves and fittings have been included as well for hook up of the lube oil systems.

III-4.6 MISCELLANEOUS

Allowance was made for the supply of necessary small pipe, valves, fittings and tubing for hook up of vent lines, instrument lines, etc.

COST SUMMARY

	Chilled Station
Materials	\$3,600,000
Installation	99,000
Total	\$3,699,000
•	

Estimated Weight of Materials ex Edmonton

182,000 lbs.

431,800

Federal Sales Tax Estimate

- 62 -

System Co System Nr	ST SUMMAR	Y CESSION PACKA	<i>€</i>	PAGE / OF
TEM	SUPPLEZ	T	1	EXTENSION
CLARK MODEL DISD	DRESSER - CLARK	2	1,685,000	\$ 3,370,000
Gas Turbine / Kefriguration				
Ome Pra inclusive			FEB Letteridge	
Julies less FST and			FST extra Call	
reight				
2				
FREIGHT TO EDMON	TUN	2	1500	3,000
		· · · · · · · · · · · · · · · · · · ·		
	·	· · · · · · · · · · · · · · · · · · ·		
PACKAGE WEIGHT				
	Main Turbine / Com	ressor Skib	65,000 #	
	Air Inlet & Exhau	st system	20,000 *	ark
· · ·	· · · · · · · · · · · · · · · · · · ·		85,000#	12
	· · · · · · · · · · · · · · · · · · ·		= 170,000# +	tal
	Lube 0,1		12,000#	
		TOTAL	(182,000 \$	-
LUBE OIL				
-Gas Gen	· · · · · · · · · · · · · · · · · · ·	700 US Gals	\$20/gal	\$14,000
- Turb/Comp		700 us Gal	\$ 10/gol	14,000
		· · · · · · · · · · · · · · · · · · ·		
ube Seal Oil		1.207	15,000	15,000
ipe, Malues, Fittings	304 55)			· · · · · · · · · · · · · · · · · · ·
Fullers Earth Filter	· · · · · · · · · · · · · · · · · · ·	2	2500	5000
lise Pipe values =	tings	1 207	5,000	5 000
Isc Pipe Values Fit	, etc)			
EST @ 12 0% =	\$431,676			
				· · · ·
			SLB-TOTAL	\$3,426,000
		CONTINGENC	Y@ 5 %	171, 300
	FT	E EXIMITA	, TOTAL	\$3,597,300



Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

	Description of Work	Unit	-C	Quan	tity		H	oure	3		La	abo	ur		E	qui	pme	Int		Μ	late	rial	8	1	Subo	cont	racts	.	Job	S	ippi	ies		Tot	al C	Cos	a
	Propose Compression Package Claster bine (compression visito 2-5500 iso Hp	lla	T	17	20.0			ŀ	50	01	Poò	8	80	ŧv		Π	Π		T.	they	٤	¢	Ţ	-		Π		ŢÌ			Π	Π		T	8	380	h
	- Gasturbant (compressive units					Ц_		Ц.									11.]								Ľ				11					
	2-5500 NO HD																11									Ľ											
				П	T	11-		Π					Ш				TF	Π	П	1	Π	TI	TT					Π						TT.	IT	T	
					T	1		TT.				TT.	TT			T	TT.		11-		11		11	1				11		1		11			11	11	1
		+-+			╋╋	††-		++	H	H		H	111			Ħ	Ħ		H٠		Ŧŧ	-++	++	1-	+	Ħ		$^{++}$				++	<u> </u>	++	††	††	1
		-11	+	-++	++	+			H			H				tt	ŧ ŀ		H				-++		-	-+-	- -+	++				- i-t-		ᠠ	ŀ⊦	Ħ	1
		-{{	++	-++	·	₩		₩	╏┼┤				┼╂ ┼	+		++	ŧŀ	++	₩.		-++	-+-	-++	+				+			÷	-+		44		$^{++}$	-
					╂╊	∔ ┨		÷+	┞╌┼╌┥	-			<u></u> ┨┨			┢╂	11		Η-		++	- -	++					+			-46	-1-1		44	₽ŧ.	 - -	-
	-				44-	-		44	L-				114			₩.	11	ļ.,	4.		-44		-1-1-		-	11	44	4-1				- - -		14	 -		
			\perp	Ш	11	Ц.,		44	Ш	_			Ш	_		↓	11	L.L.	Ц.		44	4	44	1	_	Ш		11				11		44	11	11	
					11			11.		_			LЦ			Ш	11	۱L															l			H	
								11	Ш								H									11						11-				11	
		1	T		11	Π^{-}		Π				T	ΠT			П	Π		IT		Π		T	1		T		T				11			11	EI.	
	an an an an an an an an an an an an an a		-11			Π-		tt					111			11	Ħ		11-		11		11	1		<u>t</u> t		11				tt		11	1-1-	TT	1
1		-1		-++		t1 -	-†	++		-			111			†-† '	t t		f -		11	·		1										٠††	ŀ.	Ì È.	1
			+	┝╋╋		++		┼┼	$\left \cdot \right $				f † †			┼╂╴	$^{++}$	$\left + \right $	-+-		++		++	t			┝╂┾	+		+	-++	-++-		++	╢	ŧ+	-
		- []		44	++	44		++	┝┟╽	-			↓ ↓ ↓	I		<u>↓</u>	∔∔-						++		-+-	14		4			+	- \$- }-				11	
		· .		44	4-	↓ ↓		14.	111				114			. .		╏╺┠╌			-14			·		4		4									
					Ш.	11					[]						Ш.							1										. 1 1.	11		_
.				П	П	Π.																	11										1				
	алин до от сталин с билийн до били алин с салас били на салагаан сал <u>ад суруулуу тур түр бул түр бил били били били били түр би</u> ли били били били били били били бил					11-	-	T			- 1					UT.	П		TT		11		TT	1-				Π		1		T			T.I.	П	
				-1-1	++-	† †	-+	tt					111	\top		Ħ			T	-1	-		T	1		Ħ		11					1		fΤ	ŤΓ	1
	······································		-+1		i t	† † -		††		-		1	<u>†</u> † †	1		tt:	tt.		t -		-††	-1-1	+†		-+-	tt	11-1	-				11	1		t t	tr	-
			+	 	-	┽ ┟ ╼┈		┼┽-					ŧ++	-+-		ŧŧ.	H		∮ ╊∸		++	֠ I	+	1		┝┝┤╴		H			-+-1	-++-	1	++	1÷	11	1
	a na manana minana any kaominina dia kaominina dia kaominina dia kaominina dia kaominina dia kaominina dia kaom		-	•	┠╋	1		+-+-				• • -	╂┼┨			┼┼	Ηŀ		i	i	÷	++	++	·		<u></u> -	₽			+++		-++-		-		+ l	
		-		┝┼┧		ŧ I		₩.	H				I I I			t-t-	+++		₽-₽-			-++	╧╋╼╉				╞╞┥	+-	·	4.				- +	H.	H	-
L		- [·····]	-1-1		4	₽₽	_	44	111		<u> </u>		$\downarrow \downarrow \downarrow$			44-	#	μ.	μ.		-+-	-+	-++-	 		11		+		μ	-+ 1	-++		++-	┝╋	44	_
[]	n na na na na na na na na na na na na na	l			1.	↓		11-	111				114			11	11	 	↓ .						-									-			
						11			Ш							LL	11		Ц.		.[]			1										. .		11	
					Π								HI																				1		11		j
			11	111	11	11	-	11	111	~			TH		~~~~	11	11		Π					T	-	Π		11		l ľ í		T			11	T	
1 1	1	· · · · · · ·	1		11	11-		11	11				111	1		11	11	T	T		11		TT	1		F		T				T	1		11	T	-
	10 m 1655	Its	+	1	100	11-		۲Ŀ	1			19	de.	a		11	TF		11-		11		11	1		TT-	ΓĦ	11					1		1 0	g	9

D001-1 13 SEP76

DEMPSTER HIGHWAY COMPRESSOR STATION

III-5 HIGH PRESSURE GAS PIPING

III-5.1 PIPING

For purposes of this cost estimate it was assumed that the mainline contractor would install the scraper traps, mainline block assembly and station side valves (suction and discharge). Therefore costs associated with compressor station piping would commence from inside these side valves. Please refer to isometric Drawing Nos. FPL 39-49-61D and FPL 39-49-62D in Section IV for details of the high pressure gas piping for Station No. 3 (chilled) and Station No. 7 (non-chilled), respectively.

The high pressure gas piping system for both the chilled and non-chilled stations comprises 30" 0.D. yard and unit piping and appurtenances designed for 1440 psig maximum operating pressure and minus (-) 50^oF operating temperature with ANSI 600 rated flanges, all as per CSA 2184-1975. The design criteria used in sizing the high pressure gas piping and appurtenances included a maximum 5 psig drop on each of the suction and discharge sides of the gas compressor and maximum gas velocity of 45 fps with a gas flow rate of 1200 MMSCFD @ 1100 psig. SMYS for the pipe was taken as Grade 70 and Grade 60 for fittings. Heat tracing and insulation of the 30" 0.D. piping has been provided for those segments above grade and not housed within the gas compressor or chiller buildings. Costs associated with this are included in the appropriate electrical and insulation sections.

III-5.2 SCRUBBER

Natural gas on the suction side of the station passes through an inline recycling type gas scrubber before entering the 36" compressor. The scrubber, housed in a heated building, is equipped with automatic level

controls, which will dump any collected condensates and other foreign particles from the scrubber sump through a cyclone separator to a 500-gallon condensate holding tank. The scrubber is designed to remove 99 percent of all particles 5 microns and larger. It is equipped with ANSI 600 flanges and is constructed of -50° F specification material.

III-5.3 VALVING

The 36" natural gas compressor is housed in a heated compressor building and can be isolated from the 30" unit piping by means of 30" suction and 30" discharge unit ball valves complete with electric valve operators. These valves are ANSI 600 rated and suitable for operation to -50° F ambient. A 16" recycle line complete with a 10" recycle control valve is provided to protect the compressor from surge conditions. Instrumentation costs for the surge control and system are included in the instrumentation section of this estimate. Also provided for in this estimate is a 2" unit purge valve and a 2" unit vent valve both automatically controlled from the unit control panel. The unit vent line will discharge into a common header into the flare system. A 30" unit check valve, also ANSI 600 rated and suitable for -50° F operation, has been provided downstream of the unit discharge ball valve to prevent reverse rotation of the compressor.

A 30" compressor bypass line complete with yard check valve has been provided to allow for the uninterrupted flow of gas through the station during a period of compressor shutdown. This would allow the gas stream to pass through the chillers at Station 3, if required, before discharging into the mainline.

III-5.4 CHILLERS

Downstream of the gas compressor at Station No. 3, three (3) shell and tube gas chiller units are housed in a heated chiller building. The chillers, designed for 1440 psig maximum operating pressure on the tube side are constructed of -20° F material and are sized to take one-third

of the maximum flow each. Each chiller bundle measures 36" in diameter, is 24 feet long and has a maximum 7 psig pressure drop on the gas side. The gas flow can be diverted through the chillers as required by means of the 30" header system with 24" supply and return lines to each chiller. The 24" - ANSI 600 rated inlet and outlet ball valves, complete with electric valve operators, are provided on each chiller unit for isolation purposes and a 30" chiller bypass line, complete with 30" - ANSI 600 ball valve and electric valve operator, is provided for times when either chilling is not required or maintenance is being performed on the chillers. At Station No. 7 there are no chillers so the gas flows directly from the compressor to the orifice fitting.

III-5.5 ORIFICE FITTING

Measurement of the gas flow through both Station Nos. 3 and 7 will be accomplished by means of a 30" - ANSI 600 Junior orifice fitting (- $50^{\circ}F$ material) located on the discharge side of the station. The orifice fitting itself will be situated below grade in a concrete vault for accessibility as the 30" yard piping will be buried at this point. Instrumentation costs for the gas flow measurement are covered in Section III-8.

III-5.6 OVERPRESSURE PROTECTION

Two (2) 8" x 8" dual horn station relief valves are provided on the discharge side of each station to prevent overpressuring, as per CSA Z184-1975. Each relief valve has the capacity to relieve the entire station. Also provided is one (1) 12" station blowdown valve. This valve will be operated by means of a gas hydraulic operator for fail-safe operation. Discharge from these valves will be collected in a common vent header and run over to the flare.

All components are ANSI 600 rated and utilize -50⁰F material.

- 67 -

III-5.7 MISCELLANEOUS

For this estimate it was decided to use -50° F material throughout the high pressure gas piping system. Our reasoning is twofold; one, the expected ambient temperatures of -50° F to -70° F would certainly warrant the use of low temperature materials and two, the premium for low temperature materials ranges from almost nothing to 25% depending on the particular item but when compared to the overall cost of the station, this becomes rather insignificant. For example, the premium for low temperature ball valves is only 4.5% yet total valve costs amount to 36% of the entire system cost.

COST SUMMARY (HIGH PRESSURE GAS PIPING)

	Chilled	Non-Chilled
Materials	\$1,587,000	\$ 946,000
Installation	199,000	126,000
Total	\$1,786,000	\$1,072,000

Estimated Weight of Materials ex Edmonton	500,000 lbs.	300,000 lbs.
Federal Sales Tax Estimate	\$ 79,300	\$ 47,300

- 68 -

n an an an an an an an an an an an an an	ANTRLES'		Likati precise i	<u>1.</u>
PIPE : 30"	CAPITOL PIPE	1000 '	\$1=0/ft	\$ 150,000
(Gr. 70) 24"	• • • • • • • • • • • • • • • • • • •	200'	ioolft.	20,000
(-50°F) 16"	,	250'	50/ft	12, 500
12"		100'	35/ft	3,500
2-10"	1	300'	20/ft	6,000
				192,000
VALVES (ANSI 600)			\$ =0	100.00
30 Unit Ball (-50°F)	GROVE	2	\$ 50,000	100,00
24" Gas Chiller (-50°F)	GROVE	6	40,000	240,00
30" Chiller Bypass (-50°F)	GROVE	<u> </u>	50,000	50,00
30" Unit Check (-500P)	<u> </u>		52,000	52,00
30" BYPASS Check (-50°F)	FWI	+	52,000	52,00
10" Unit Recycze(-2007)	FISHER	+	12,000	12,00
2. Unit Purge (-200F)	FISHER	+	1,100	, 1, 100
2" Unit Vent (-2000)	FISAEL		1,100	1,100
8 * 8" Stn Relief (-50%)	AGCO	2	12,000	24,000
12" stn Vent (-50"F)	GROVE	<u> </u>	20,000	20,000
Misc. 2"-4"	GROVE	12	······································	20,000
	<u> </u>			572,200
FITTINGS (match Pipe)		· · · · · · · · · · · · · · · · · · ·		-
30" × 30" × 30" Header	STEEL - FLO	2	\$ 4000	- 8,000
30" x 30" x 24" Header	STEEL- FLO	6	3000	18;000
30" × 30" × 16" Head er	STEEL-FLO	2	2500	5,000
30" x 30" x 12" Header	STEEL - FLO	3	2000	<u> </u>
MISC. TEES 2-12"	STEEL - FLO	12	500	6,000
30"-45°LLWE ELLS	STEEL - FLO	6	4500	27,000
30"- 90° LAWE ELLS	STECL - FLO	6	8700	52,200
24" - 90° LRWE EUS	STEEL - FLO	24	.7500	180,000
16" - 90° LLWE EUS	STEEL - FLO	4	1200	4,800
Misc. ELLS 2"-12"	STEEL - FLO	12	500	6,000
				313,000
	·			
			17 . •	1,077,200
	······································			
· · · · · · · · · · · · · · · · · · ·		CONTINGEN		
<u></u>	na tanan a		. <u></u>	

CTRATE ARESSAN EVALUA

$ \frac{1}{2} 1$		5- H.P. GAS			-A
Europs (MNSI 600) 30" (ASSO GL (G2) STELL FLO B 4100 32,800 24" () STEEL FLO IS 2500 45,000 12" (") STEEL FLO 18 2500 45,000 10" (") STEEL FLO 2 1200 2400 Mise Flas 2"-10" STEEL FLO 20 - 15,000 36" x50" GM, FLO STEEL FLO 2 8,000 16,000 36" x50" GM, FLO STEEL FLO 2 600 1200 36" x50" GM, FLO 2 600 1200 1200 36" x50" GM, FLO 2 600 1200 1200 5000 Scusses 1 LOT 4 80,000 Stops, Nurs, Gasets 1 LOT 4 80,000 Supers, Nurs, Gasets 1 LOT 4 80,000 Supers, Nurs, Gasets 1 LOT 4 80,000 Supers, Nurs, Gasets 1 LOT 4 80,000 Supers, Mars, Gasets 1 LOT 4 10,000 Supers, Mars, Gase		a ser an an an an an an an an an an an an an	LO UNT TY		por an and the second second second second second second second second second second second second second second
30° (H350 BL12) STEEL FLO B 4100 32,800 24° (-) STEEL FLO 18 2500 A5,000 12° (-) STEEL FLO 12 2500 18,000 10° (-) STEEL FLO 12 1200 2400 Misc. FLOS 2^{\circ} r.10^{\circ} STEEL FLO 2 1200 2400 Misc. FLOS 2^{\circ} r.10^{\circ} STEEL FLO 20 15,000 360 26' x50' EN. FLG Street FLO 2 8,000 16,000 Reducets (mbh pp.) 2 600 1200 16' x12^{\circ} (-50°F) 2 600 1200 Stress all Changes 1 Lot \$80,000 Suppose all Changes 1 Lot \$80,000 Suppose all Changes 1 Lot \$10,000 Suppose all Changes 1 Inly Suppo	- 	inne ann an an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur Ann an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthu Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an Arthur an A			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	······································				· · · · · · · · · · · · · · · · · · ·
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		STEEL - FLO			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	y an a sandar a san a san ang ang ang ang ang ang ang ang ang a		/8		
Misc. FLOS 2"-10" STEEL - FLO 20 - 15,000 36" X30" SH, FLS STEEL - FLO 2 8,000 16,000 Bebucees (mth pipe) 2 600 1200 Id" X12" (-50°F) 2 600 1200 Study, NUTS, Gaseets 1 2 600 1200 Study, NUTS, Gaseets 1 107 \$ 80,000 Suction Servebeel 1 107 \$ 80,000 Misc. Morecial 7 1 65,000 65,000 Misc. Morecial 7 1 65,000 65,000 Misc. Morecial 7 1 65,000 65,000 Misc. Morecial 7 1 10,000 65,000 Misc. Morecial 7 1 10,000 55,000 Swages, Nights, de 1 1 10,000 15,000 Chriftee Fitting (sot) 3 3 5 55,000 Chriftee Separate 1 10,000 10,000 10,000 Chriftee Separate 1 10,000 10,000 3 5	· · · · · · · · · · · · · · · · · · ·	STEEL - FLO			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	<u>├──[↓]♥───</u>	STEEL - FLO	2	1200	
Resurces (rath pro) 2 600 1200 $76" \times 12"$ (-sof) 2 600 1200 Stups, Nors, Gascess	r		-		
$I6^{\mu} \times 12^{\mu}$ (.50°F) 2 600 1200 STUDS, NUTS, GASKETS		 Second and a constraint of a second se Second se Second sec	2	8,000	16,000
$\frac{5rups_{1}Nurs_{2}Gascers}{Covers all flanges} I LOT & & BO,000 \\ \hline Covers all flanges I LOT & & BO,000 \\ \hline Sucrion Sceneber \\ (Ansted 600, -50*F) Poera - Test I & 65,000 & 65,000 \\ \hline Misc_{2}Matrix (Arred 14) & & & & & & & & & & & & & & & & & & &$	REDUCERS (match pipe)			······································	
Covers all flanges 1 LOT \$ 80,000 Sucrion Scauder (AnGI 600, -50°F) PORTA - TEST 1 65,000 MISC. Marelial 1 LOT \$ 10,000 Swages, Nipples, et	16" x12" (- 50°F)		2	600	1200
Covers all flanges 1 LOT \$ 80,000 Sucrion Scauder (ANST 600, -50°F) PORTA - TEST 1 65,000 65,000 Misc, Mareliac 1 1 LOT \$ 10,000 Swages, Nipples, et		₩₩₩₩₽₽₩₽₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩			
$\frac{Suction Serveber}{Suction Serveber}$ (ANST 600, -50°F) Polta - Test 1 65,000 $\frac{Suction Serveber}{Solonometric}$ (Anst 600, -50°F) Polta - Test 1 65,000 $\frac{Suction Servet}{Solonometric}$ (Anst 600, -50°F) Polta - Test 1 (5,000 $\frac{Suction Servet}{Solonometric}$ (1) 10,000 $\frac{Suction Servet}{Solonometric}$ (1) 15,000 $\frac{Suction Servet}{Solonometric}$ (1) 10,000 $\frac{Suction Servet}{Solonometric}$ (1) 10,000 $\frac{Suction Servet}{Solonometric}$ (1) 10,000 $\frac{Suction Servet}{Solonometric}$ (1) 10,000 $\frac{Suction Servet}{Solonometric}$ (1) 10,000 $\frac{Suction Servet}{Solonometric}$ (2) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (3) 10,000 $\frac{Suction Servet}{Solonometric}$ (4) 10,000 $\frac{Suction Servet}{Solonometric}$ (5) 10,000 $Suction Serv$	STUDS, NUTS, GASKETS	· · · · · · · · · · · · · · · · · · ·			·
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			1 107		\$ 80,000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					
$\begin{array}{c cccc} Misc. Marellal Thredolets, Weldolets 1 LOT $$ 10,000 Swages, Nupples, etc 30" Daniel Jumor Barbur ENG 1 only 55,000 $$ 55,000 Critice Fitting (50%) 30" Daniel Jumor Barbur ENG 1 only 55,000 $$ 55,000 Critice Separator Barbur ENG 1 15,000 $$ 55,000 Critice Separator Barbur ENG 1 15,000 $$ 55,000 Critice Separator Barbur ENG 1 15,000 $$ 55,000 Critice Separator Barbur ENG 1 10,000 $$ 55,000 Total Childed Strike $$ 1,586,860 (STM NO.3) $$ FST @ 570 = $79,343 System weight = 250 Tons Total Non-childed Strike $$ 945,560 (STM NO.7) FST @ 570 = $47,278 System weight = 150 Tons $$ = $$ 2-0TA $1,442,600$	SUCTION SCRUBBER				
Thredolets, Weldolets, 1 LOT \$ 10,000 Swages, Nupples, etc. 0rifice Fitting (site) 1 only 55,000 \$ 55,000 30" Daniel Jumor Barbur ENG 1 only 55,000 \$ 55,000 Chuone Sepmaran 1 15,000 15,000 Chuone Sepmaran 1 15,000 15,000 Chuone Sepmaran 1 10,000 10,000 Chuone Sepmaran 1 10,000 10,000 Condensate Storage 1 10,000 10,000 Total Chuced String \$ 1,586,860 (STM M0.3) \$ 365,400 FST @ 5% = \$ 79,343 \$ 557.560 (STM M0.7) \$ 707.4L Total Non-Chuced String \$ 945,560 (STM M0.7) \$ 707.4L FST @ 5% = \$ 47,278 \$ 57.560 \$ 70.576 \$ 1,442,600	(ANSI 600, -50°F)	PORTA - TEST		65,000	65,000
Thredolits, Weldolits, 1 LOT \$ 10,000 Swages, Nipples, etc. 0rifice Fitting (5st) 1 only $55,000$ \$ 55,000 30" Daniel Jumor Barbur ENG 1 only $55,000$ \$ 55,000 Chuone Sepmaron 1 15,000 15,000 Chuone Sepmaron 1 10,000 15,000 Chuone Sepmaron 1 10,000 10,000 Condensate Storage 1 10,000 10,000 TOTAL CHILLED STN = \$ 1,586,860 (STM M0.3) 365,400 FST @ 5% = \$79,343 355,400 System weight = 250 Tons 570 = \$1,442,600		· · · · · · · · · · · · · · · · · · ·			
$\frac{1}{201} = \frac{1}{201} = \frac{1}{10,000} = \frac{1}{10,00$	MISC. Material				
Swages, N.gples, etc $Drifice Fitting (sde)$ 30" Daniel Jumor Barber ENG 1 only 55,000 Crecone Seprearon 1 1 15,000 Crecone Seprearon 1 1 15,000 Condensate Storage 1 1 10,000 TOTAL CHILLED STN = \$1,586,860 (STN NO.3) FST @ 570 = \$79,343 SYSTEM WEIGHT = ASO TONS TOTAL NON-CHILLED STN = \$945,560 (STN.NO.7) FST @ 570 = \$1,442,600	Thredolets, Weldolets		1 107		\$ 10,000
$\begin{array}{c c} Orifice Fitting (-50t) \\\hline\hline\\ \hline\\ \hline\\ \hline\\ \hline\\ \hline\\ \hline\\ \hline\\ \hline\\ \hline\\ \hline\\ \hline\\ \hline$					
$\frac{30" \text{ Daniel Jumor Barber ENG} only 55,000 $ 55,000}{Creation Separators} 15,000 15,000 15,000 15,000 15,000 15,000 10,000 1$					
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Orifice Fitting (-50F)			· · · ·
CYCLONE SEPARATOR 1 15,000 15,000 Condensate Storage 1 10,000 10,000 Condensate Storage 1 10,000 10,000 TOTAL CHILLED STN = \$1,586,860 (STN NO.3) 365,400 FST @ $5\% = 79,343$ 5450 TONS TOTAL NON-CHILLED STN = \$945,560 (STN NO.7) 10,000 FST @ $5\% = 47,278$ 545,560 (STN NO.7) SYSTEM WEIGHT = 150 TOWS = $E - OTA = $1,442,600$		14 · · · · · · · · · · · · · · · · · · ·	1 only	55,000	\$ 55,000
Condensate Storage 1 10,000 $10,000$ TOTAL CHILLED STN = \$ 1,586,860 (STN NO.3) $365,400$ FST @ 5% = 79,343 $570 = 79,343$ SYSTEM_WEIGHT = 250 TONS TOTAL NON-CHILLED STN = \$ 945,560 (STN.NO.7) FST @ 5% = 47,278 SYSTEM_WEIGHT = 150 TOWS			J		~
Condensate Storage 1 10,000 $10,000$ TOTAL CHILLED STN = \$ 1,586,860 (STN NO.3) $365,400$ FST @ 5% = 79,343 $570 = 79,343$ SYSTEM_WEIGHT = 250 TONS TOTAL NON-CHILLED STN = \$ 945,560 (STN.NO.7) FST @ 5% = 47,278 SYSTEM_WEIGHT = 150 TOWS					1
Condensate Storage 1 10,000 $10,000$ TOTAL CHILLED STN = \$ 1,586,860 (STN NO.3) $365,400$ FST @ 5% = 79,343 $570 = 79,343$ SYSTEM_WEIGHT = 250 TONS TOTAL NON-CHILLED STN = \$ 945,560 (STN.NO.7) FST @ 5% = 47,278 SYSTEM_WEIGHT = 150 TOWS	CYCLONE SEPARATOR		1	15.000	15,000
$ \begin{array}{r} \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline \hline$					
$ \frac{365,400}{365,400} $ TOTAL CHILLED STN = \$1,586,860 (STN NO.3) FST @ $5\% = 79,343$ SYSTEM WEIGHT = 250 TONS TOTAL NON-CHILLED STN = \$945,560 (STN.NO.7) FST @ $5\% = 47,278$ SYSTEM WEIGH T = 150 TONS = $= -0TA' = $1,442,600$	Condensate Storage		1	10,000	10,000
TOTAL CHILLED STN = \$1,586,860 (STN. NO.3) FST @ $5^{70} = $79,343$ SYSTEM_WEIGHT = 250 TONS TOTAL NON-CHILLED STN = \$945,560 (STN. NO.7) FST @ $5^{70} = 47,278$ SYSTEM_WEIGHT = 150 TOWS					
FST @ $5^{7}0 = $79,343$ SYSTEM WEIGHT = 250 TONS TOTAL NON-CHILLED STN = \$945,560 (STN. NO.7) FST @ $5^{7}0 = 47,278$ SYSTEM WEIGH T = 150 TONS	TOTAL CHILLED	STN = \$ 1,586,80	60 (STN NO.3)		
$\frac{SYSTEM}{TOTAL} WEIGHT = 250 TONS$ $TOTAL NON-CHILLED STN = $945,560 (STN. NO.7)$ FST @ 570 = 47,278 $SYSTEM WEIGHT = 150 TONS$ $= = - OTAL $1,442,600$	[]				
TOTAL NON-CHILLED STN = \$945,560 (STN. NO.7) FST D 570 = 47,278 SYSTEM WEIGH T = 150 TONS == =- $\Box TA = $1,442,600$					
FST @ 570 = 47,278 SYSTEM WEIGHT = 150 TOWS == =- OTAL \$1,442,600					
FST @ 570 = 47,278 SYSTEM WEIGHT = 150 TOWS == =- OTAL \$1,442,600	TOTAL NON-CHILL	ED STN = \$ 945,560	(STN. NO.7)		
	para - in in in in a mainminimum and a sa	server in the second second second second second second second second second second second second second second		E-TOTAL	\$1.442.600
CONTINGENCY 2 10 144,260	••••••••••••••••••••••••••••••••••••••	· · · · · · · · · · · · · · · · · · ·	CONTINGEN		
TUTAL \$1,586,860		· · · · · · · · · · · · · · · · · · ·		TOTAL	\$1586 860
- 70 -	· · · ·		- 70 -	• • • • • • • • • • • • • • • • • • • •	1,300,300

SYSTEM COST SUMMARY

SYSTEM NO.	<u>H.P. GAS</u>	FING - NON	CHILLED STAT	TION AL 24
ITEM	SUPPLIER	QUANTITY	JNIT FRICE	EXTELE OL
PIPE				
30''		1000	\$ 150/15	\$ 150,000
16"		250	50/4	12,500
12"		100	351/t	3500
2-/0"		300	2014	6,000
				172000
VALVES				
30" UNIT BALL (-50 F)		2	50,000	100,000
30" UNIT CHECK (-50F)	· · · · · · · · · · · · · · · · · · ·	1	52,000	52,000
30" BY- PASS CHECK (-SOF)		/	52,000	52,000
10" UNIT RELYCE (-20F)		1	دىتە <u>12</u>	12,000
2' UNIT FURGE (-20F)	· · · · · · · · · · · · · · · · · · ·	<u> </u>	1,100	1,100
2" UNIT VENT (-20F)		<u> </u>	1100	//80
8"×8" sta REUEF (-50F)		2	12000	24000
1 2" STN. VENT (-50 F)	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	20,000	20,000
HISC. 2"-4"	ана селото на селото на селото на селото на селото на селото на селото на селото на селото на селото на селото Селото на селото на селото на селото на селото на селото на селото на селото на селото на селото на селото на с Селото на селото на селото на селото на селото на селото на селото на селото на селото на селото на селото на с	12		2.0,000
				282200
FITTINGS				
30x 30 X 30 HEADER		2	4500	8,000
30×30'×16" HEADER	-	2	2,500	5000
30× 30" × 12" HEADER		3	2000	6,000
MISC TEES 2"-12"		12	500	6,000
30" - 45° LAWE FLLS	· · ·	6	4500	27,000
30" . 90 LANE ELLS		6	8700	52,200
16" 90 LRWE ELLS	• • • • • • • • • • • • • • • • • • •	4	1200	4,800
MISC ELLS 2-12"	· · · · · · · · · · · · · · · · · · ·	12	500	6000
		-		115,000
	·			
	· · · · · · · · · · · · · · · · · · ·			
				569200
	*			· · ·
			SLIB-TOTAL	
		CONTINGENC	· · · · · · · · · · · · · · · · · · ·	
· · · · · · · · · · · · · · · · · · ·	• •	- 71 -	TOTAL	<u>_</u>

System No.

PAGE OF

Ì

SYSIEVI NE		· ·		PAGE D-
ITEM	SUPPLIER	GUANTITY	UNIT FRICE	EXTELE OL
ELANGES				
30" (A 350 GRLF2)		8	4100	32800
/2" ()		12	1500	18,000
10" (11)		2	1200	2,400
Misc 2"-10"		20		15:000
36" × 30" EXP. FLG		2	8000	16000
				84,200
REDUCERS				
16"x 12" (-50F)		-2	600	.1200
STUDS NUTS GASKETS		•		
COVER ALL FLANGES		1207		60000
			•	
SULTION SCRUBBER				
(ANSI 600, -50F)		1.	65000	65000
MISC. MATERIAL				
THREDOLETS , WELDOLETS	· · ·	14=7	• • • • • • • • • • • • • • • • • • •	10,000
SWA4ES, NIPPLES, ETC				
			· · · ·	
ORIFICE FITTING				
30" DAHIEL JUNIOR (- TOF		1	\$5,000	55000
CYCLONE SEPARATOR		1	15000	15,000
				290:400
	F.S. Tax 5%	47278		
	ωT	150 1	<u> </u>	
				······
	· · · · · · · · · · · · · · · · · · ·		. <u> </u>	· · · · · · · · · · · · · · · · · · ·
	· · · · · · · · · · · · · · · · · · ·		SUB-TOTAL	859,600
		CONTINGENO		94556
			TOTAL	17300



23

Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project 100Hulls -	sempetry_	₹	·	Estimat	a No		
Item No		Account No.		Date			
Description HP Cos Su	jsten.		·	Sheet I	10. I	of	ŀ

	Description of Work	Unit		Qu	ant	ity	T	Но	urs		Τ	L	.abo	our		Τ	Eq	uip	mer	nt	T	м	late	rial	8	s	ubc	on	ract		Jo	b S	up	olies	, T		Tota	 al 1	Co	st	
	litter scrubby 5'6"xx"?	lbs	Π		45	0		ÌT	Π	IH	, lu	Pos	Π	6	40		T	Π	Π	Π		첫	77	d	П		Ť	Π		Т		TT	ΤŤ	TT	┯╋		TΤ	Π	_		r
			H	T				11	11	ŤΤ	-	¥	++			×		H	╁╊	╈		껵	4	99	뛰	+	-+	╟		+	· · ·	╈╋	┼┼	₽₽	┼┼		╞┾╢	┝╌┝	P	49	D.
							† †	11	Ħ	+†	+-		++	fi		-		╂╂	†				++		╂╉		-+-	-+-	\mathbb{H}	-		╉╉	₩	┧┽	+		┟┽╷	┞╂	-	4-	-
			H		-	H	 	+	\dagger	$^{++}$	+-		╂╂		++			╂╉	$^{++}$	┽┥			+ł	+	╂╂	+-		┝┥		-		₩.	₽	14	┿╋	;	╁╁┦	H	+	[+]	-
• <u> .</u>			H	\mathbf{H}		╟╴	!!		Ħ	+	-		╋		+		-+	┢╋	╆╊	++	╋	-+	+}	÷	┼╀							┥┥	╂╉		++		$\left + \right $	14		H	-
	Somp Task & Byelow Separator	b s	Ħ	11	90		5	╉╋		sid	10	1	╋╋	k	de l	1-	+	H	╂╋	╋	-		╉	++	╉╉		÷+-	┢╋		+		\mathbf{H}	┽╂	₩	╉╋		$\left + \right $	H			┝
		2		T'	Ť	T	m	+	Ħ	T	1-		$^{++}$	-11	-	4		ŀ	ft	╋╋	4-	-+		++	++	╉╼┙	+					₽₽-	╉╋	┢╋	÷ŀ		┟┼┦	.	-11	80	P.
<u> </u>			T	\mathbf{H}		T.	11	\dagger	tt	Ħ	+-		††	┥╽	Ħ		-†		┟┠	+	╋	-	┢┢	₩╂	╊╊	╂──	+	+				╉╉╌	┫╋	╂┾	┽┦╴		++	<u>⊢</u> ∔.	┼╏	-+-	ŀ
				Π	П		11	11	Ťľ	\mathbf{T}	-		11	11			-	Ħ	tt	11	┢	-+	ŧf		+	†		+-				┢┥╸	+	┟┼	╂╉╴		┝┽┦	┟╂╴	+		
 	la			Π		I		T	11	11	T		11	11	Ħ			t†	tt	\dagger	1-	-+	Н	ᡛ┢	┼╋	1—	╉╋	+	++	╉┨		┣		H	┼╂╌		┟┼┨	iŦ	┤┨		<u> </u>
	Ripme	0" 1%		Π	1	6	04n		9		.11	2	F	Ż	-	1		Ħ	tt	11	+		11	#†	$^{++}$	1-	╉	+	╉╋	┽┥		┢╢╴	††	╀┼╴	┼┼		┟╂┨	古	19	00	
	1 /	120			121	r'y	2	Π	11		Τ		11	T	TŤ	7		Ħ	ł	\dagger			17		11	†			-11	╈		╢			\mathbf{H}		Ė₽ I	11		11	V
<u> </u> <u> </u>				Ц		-		П	Π	Π]		Π	Π	Π				IT			-	11	11	++					\dagger		11-	11	╞╺┤╌	╄ <i>╂</i> ╌		-1-1		łł	۰H	-
			1	Ц	4					Ц									ΙΓ	Π			Π	T		1		-	11	11				H-	 -		-++		Ħ	tt	
	<u></u>		∔	11	$\downarrow\downarrow$	1	Ц	11	Ш		ŀ		Ш	Ш	Π				Π	Π			Π	Π	Π		11	ŀ	П	11			11		††-		itt		tt	\dagger	
	Valvio + operators	Ea				_	2			9) U			4					I	Π			I	TT	Π		Т	П	Π	Π		T	Ħ			-1	<u>tt</u>		Z	81	<u>.</u>
		lla	1		l 😭	n i	N							\prod	Π			Τ		Π	1-		TI	TT	11				11	11			11					-	Π	971	8
!			_				· .						П	Π	Π				ΓΓ	Π				IT	ŤŤ		11		Ħ	Π		-	11		11.	-1		1-	Ħ	+	
·				Ц	Ш			Ц.							Π			Τ	Π	Π	1		Π	IT	IT		TT	\uparrow	11	11							_†		tt	++	
	Valla a la terreterreterreterreterreterreterreter	╋┱╋	4	11	11	Ŀ		Ш		П			П	Π						Π			Π		П		11			11					<u> </u> -				††		
	Lord Chonals/ OriBin Attings UR	<u> ht </u>	4	1.			- · ·	Ш	þ	5				M	0					Π				Π	Π		TT	Π	TT	T			H						4	14	10
		ht	4.	11	2	er:	p	11		Ц										Ш			Π	IT	Π		11	11	Π	T					H-				11	11	a .
					╽╽	4	-	41.		Ц.	1.]	Į.			_						\square	11	Ш		П		Π	Π								-1	Ħ	11	
	· · · · · · · · · · · · · · · · · · ·		4.	Į.∔	╁┟		· - · ·	44.	11-		1_			1	11	<u> </u>				11			11		\prod		П	П	Π	П							T		T	T	
┠╼╁────		_	4	┢╍┟	┼┼	╇	·	Ц.	16	Į.Į.	Ļ		4	1	4	<u> </u>				Ц.			\square	Ц.	Ш		\square													T	~ .
	Mige & Testing	·{}·	+	┟╷	∔⊦	- -		┦╍╄╺	1	17	ļų	2	Į. -	M	4	!		+		╢	I	_	14	11	Ц.		┛┛	Ц	11	Ш							П	Т	4	81	1
	· · · · · · · · · · · · · · · · · · ·	- ·			┼┼	+		┢╌┠╌┆					 		ļļ		41			#	ļ	-	ļļ	ļ.			+	44	H	\downarrow					L.				ļ.	11	
			╀	<u></u> .	┢	+		Hi	-	┡╋	₽		Į.Į_	╢	₽	 				_		_			╞┼		 	╁┟	11	\downarrow							\parallel			ЦI	
		╅╍╍┨╴	+-	┟┼╴	┼╊	┼╌┝		┥┥	╞╞	╞-┼-			╂╊	┝┣	╢		-+	-		┝┝				╎┝	\downarrow		44	┤┥	11	╢		- -					41	1		Ш	
	15m675	Ha	╈	2	낢	H	.+	H	00	• 0	╀─	┉┤			In]	+	-+-		╟	┢──	-+-	₽	┼╊	\mathbf{H}		++	┼┼	++	┼╂				┝╆╋			44	+		H	_
0001-1 134	iep76	T-16A		110	a fl	\mathbf{A}	·			22	ـــــ		1.11	6		<u>ا</u>	ш		1	Ц	I		LL.	Ц.,	LL	L	Ш.		Ш	Ш				Ш]	Ш	14		80)

DEMPSTER HIGHWAY COMPRESSOR STATION

III-6 OTHER MAJOR SYSTEMS

III-6.1 CHILLING SYSTEM

III-6.1.1 SYSTEM DESCRIPTION

This cost estimate provides for a conventional propane refrigeration system. The system loads were provided by Foothills in their December 21, 1978 correspondence to Canuck. The condensed or liquid propane flows from the outlet of the condensers to a propane receiver-surge tank and then on demand to the propane economizer. The economizer overhead (flashed vapor) flows to the interstage scrubber for liquid knock out and then to the interstage suction of the compressor for recycling. The liquid propane flows from the economizer to the chillers on demand and the heat of vaporization of the propane chills the high pressure gas in the exchanger bundle. The vaporized propane flows overhead from the chillers, through a compressor suction scrubber to the inlet of the compressor. The high pressure propane is routed to the fin fan coolers where the propane vapor is condensed, and the cycle is repeated.

III-6.1.2 PROPANE COMPRESSORS

The two (2) propane turbine/compressor packages were selected by Foothills who also obtained a verbal quote from Dresser Clark for the supply of same. The equipment consists of two Clark DJ50 5500 ISO horsepower gas turbine compressors with auxiliaries. Further details are available in Section III-4.

III-6.1.3 PROPANE CONDENSERS

The propane from the compressor discharge is condensed in the 12 condenser bays arranged in a parallel piping configuration. The condenser load is 71 million BTU's per hour. The condensers will be equipped with two 30 horsepower electric driven fans per bay. The air is discharged through control louvres on top of the condensers. The condenser maximum design pressure is 250 psig.

III-6.1.4 PROPANE RECEIVER

The propane receiver is a large horizontal pressure vessel that was designed to provide adequate surge capacity between the propane condensers and the remainder of the system.

III-6.1.5 PROPANE ECONOMIZER

The propane economizer is basically a first stage flash vessel that separates the liquid-vapor phases for the new lower equilibrium pressure condition than that which existed in the propane receiver. The vessel is well instrumented and draws propane from the receiver on liquid level control. The liquid flows to the chillers, and the vapor to the interstage connection of the propane compressor.

III-6.1.6 PROPANE CHILLERS

The propane chillers are large heat exchangers with the high pressure gas flowing through two pass tubing bundles and the propane surrounding the outside of the tubes. A large vapor release space is provided above the tube bundle. The total chiller load is 4700 tons, split between three vessels at a maximum gas flow rate of 1200 MMscfd.

III-6.1.7 PROPANE STORAGE TANK

A propane storage tank with a capacity of 30,000 imperial gallons is provided in the estimate, along with the necessary unloading equipment, propane drier and transfer pump.

III-6.1.8 GENERAL

All of the major equipment costs have been estimated using either vendor written or verbal quotes.

System design pressure is 250 psig and -20°F material has been specified throughout.

III-6.2 FUEL AND STARTING GAS SYSTEM

III-6.2.1 GENERAL

The cost estimate for this system is based on a fuel and starting gas supply (4" line) taken off the mainline valve assembly to ensure an uninterrupted supply, then filtering, heating, regulating and metering the gas stream into the appropriate individual systems for distribution to various areas around the compressor stations. All these processes are to be housed in a separate heated 20 foot by 25 foot regulator and meter building, which is a common industrial practice. Please refer to Drawing No. FPL39-49-63D for the fuel gas isometric for Station No. 3 and Drawing No. FPL39-49-64D for Station No. 7.

Piping and equipment for this system has been designed in accordance with CSA Z184-1975. Sizing of lines and equipment was based on ISO fuel ratings of the gas generators and maximum output ratings of the electrical generators and boilers.

III-6.2.2 FUEL GAS TIE-IN AND YARD PIPING

The fuel and starting gas supply originates at the mainline valve assembly where a 4" supply line is taken off both sides of the mainline block valve. This ensures an uninterrupted supply of fuel gas even in the case of a compressor station emergency shutdown (ESD) where the entire high pressure yard piping would be vented but the mainline would remain pressurized. In event that the mainline is blown down on either the upstream or downstream side of the mainline block valve, fuel gas supply would be available without interruption by means of the 4" check valve arrangement in the supply assembly.

From the mainline supply point the fuel and starting gas supply is yard piped to a 20 foot by 25 foot regulator and metering building located in proximity to the compressor station building as shown on plot plan Drawing Nos. FPL39-49-11D and FPL39-49-12D. A relief valve for this segment of the line, located outside the building is vented into a common station gas vent header.

III-6.2.3 REGULATOR AND METERING BUILDING

III-6.2.3.1 KNOCKOUT DRUM ASSEMBLY

All fuel and starting gas is first passed through a knockout drum to take out the entrained solids and any liquid slugs. This vessel is vented into a common station venting system, header and the condensate disposal line is tied into the station suction scrubber disposal line.

III-6.2.3.2 FILTER SEPARATOR ASSEMBLIES

After passing through the knockout drum the fuel and starting gas is passed through a common filter separator utilizing coalescing cartridges. Two filter separators installed in parallel are proposed for uninterrupted service. The pressure vessel venting and blowdown systems are also tied into the common station venting header and the condensate disposal line is tied into the station suction scrubber disposal line.

III-6.2.3.3 GAS HEATER ASSEMBLY

The high pressure fuel and starting gas is then heated prior to regulation by utilizing the hot glycol/water mixture from the building heating system as the heating medium. The heater has been sized to provide sufficient heat input to the gas to prevent the formation of hydrates. This vessel is also vented into the common station venting header.

III-6.2.3.4 GAS REGULATION AND METERING

After being filtered and heated the fuel and starting gas is regulated and metered for distribution via the utilidors to the appropriate areas.

The gas pressure is cut from a maximum supply pressure of 1440 psig to the appropriate supply pressure for each piece of equipment as follows: 500 psig for the main gas compressor unit, 250 psig for the refrigeration compressor units (Station No. 3 only), and 25 psig for utility gas to the electrical generators and hot water boilers. The supply to the boilers would be pressure cut again in the utility building to 11" W.C.

Fuel and starting gas measurement has been provided for the main gas compressor package and the two (2) refrigeration compressor packages by means of separate 4" Rockwell T-18 turbine meters installed in each of the fuel and starter gas supply lines located in the regulator and metering building. These meters will accurately measure fuel gas flows to each of the gas generator packages and coupled with their instrumentation located in the control room will provide a permanent record of fuel and starting gas usage.

Fuel gas to the electric generators and boilers will be measured by means of a common gas utility meter located in the regulator and meter building.

Instrumentation for fuel gas measurement will include microprocessors and recorders.

Suitable pressure relief valves, block and vent valves will be installed in all supply lines, all venting into a common station gas vent header. In the case of a station ESD, piping and valving arrangements have been designed such, that the fuel gas to the main gas compressor unit and refrigeration compressor units will be blocked and vented while the supply gas to the electrical generators and boiler will remain uninterrupted.

III-6.2.4 DESIGN PARAMETERS

Fuel and starting gas requirements.

III-6.2.4 DESIGN PARAMETERS

Fuel and starting gas requirements.

III-6.2.4.1 CHILLED STATION (STATION NO. 3)

1		C.B. Turbine (Spey)	-	121,600 SCFH
1	-	Clark DJ50 Refrig. Turbine		49,500 SCFH
1	-	Heating System Boiler	-	10,000 SCFH
2	-	Cat. Generators		<u>11,900</u> SCFH
		TOTAL GAS REQUIREMENTS	a a secolaria A transformation	193.000 SCFH

III-6.2.4.2 UNCHILLED STATION (STATION NO. 7)

1	-	C.B. Turbine (Spey)	-	121,600 SCFH
1	-	Heating System Boiler	-	8,000 SCFH
2	-	Cat. Generators	-	<u>8,400</u> SCFH
		TOTAL GAS REQUIREMENTS		138,000 SCFH

III- 6.2.5 STATION FUEL AND STARTING GAS CONSUMPTION

Based on 8000 operating hours/year for the gas generators, 8760 hours for the electrical generators and 5760 hours for the boilers, it is estimated that the total annual fuel gas usage will be 1531 MMSCF for the chilled station (Station No. 3) and 1093 MMSCF for the unchilled station (Station No. 7).

The following table outlines fuel gas usage:

FUEL GAS CONSUMPTION

	<u>Chilled Station</u> MMSCF	Unchilled Station MMSCF
C.B. Turbine 8000 hours @ 121,600 SCF/H	972.8	972.8
Clark DJ50 8000 hours @ 49,500 SCF/H	396.0	
Boiler 5760 hours @ 10,000 SCF/H	57.6	
Boiler 5760 hours @ 8000 SCF/H		46.1
Cat. Generators 8760 hours @ 11,900 SCF/H	104.2	-
Cat. Generators 8760 hours @ 8400 SCF/H	· · · · · · · · · · · · · · · · · · ·	<u>73.6</u>
	<u>1530.6</u>	1092.5

III-6.3 HEATING AND VENTILATING SYSTEM

III-6.3.1 GENERAL

The cost estimate for the heating and ventilating system for both Station Nos. 3 and 7 was prepared on the basis of a "conventional" 60/40 glycol/water heating system comprising a central boiler package of modular design, circulating pumps and unit heaters or convector radiators located in the various buildings.

III-6.3.2 CRITERIA

The following criteria as supplied by Foothills was used for calculation of the compressor station heating system load:

- a) Ambient temperature minus (-) 50° F
- b) Building inside temperature plus (+) 70° F
- c) Building insulation $3^{"}$ thickness of fibreglass R = 12.6
- d) Building sizes as outlined in Foothills' station building specifications and shown on plot plan drawings FPL39-49-11D (Station No. 3) and FPL39-49-12D (Station No. 7).

The heating system will operate between 160° F to 200° F water temperature and 12 psig system pressure.

III-6.3.3 HEAT LOADS

Using the above criteria it was found that the total heat load for Station No. 3 (chilled) was 9,500,000 BTU/Hr. and 5,500,000 BTU/Hr. for Station No. 7 (non-chilled). In addition to the normal building heat loads, these figures include the heat load required for the station fuel gas heater located in the fuel gas regulator and meter building.

III-6.3.4 CIRCULATING PUMPS

Pumping philosophy for the heating system at both stations was to split it into two subsystems; one to supply the compressor building, chiller building (Station No. 3 only), propane compressor building (Station No. 3 only), fuel gas regulator building, scrubber building and utilidors, and the other to supply the utility/control building, living quarters, stores building and water treatment building. There will be 100% backup for each pumping system in case of failure of the main pumping units. At Station No. 3 there will be two (2) 15 HP pumps and two (2) 7-1/2 HP pumps whereas at Station No. 7 there will be four (4) 7-1/2 HP pumps.

III-6.3.5 BOILERS

It is proposed to utilize boilers of a modular design rather than a single large boiler. This will allow for a more flexible operation of the boiler system since the boilers will incorporate an 8-step electronic controller to bring on only those modules as required at that time. This will also result in a fuel gas saving since unwanted heat will not be generated. Also, by utilizing the modular boiler design, the reliability of the heat supply is improved over the single large boiler since a section of modules could be down for maintenance but the remaining modules would still be available for heat generation.

It is proposed that the modular boilers and circulating pumps (4 total each station) be located in the utility/control building. This would negate the need for explosion proof motors on the circulating pumps.

III-6.3.6 PIPING

From pressure drop and velocity calculations it was found that the main heating system supply header for Station No. 3 would be 8" and 6" for Station No. 7. Piping would run in the enclosed, heated utilidors wherever possible. Premolded pipe insulation will be used throughout.

III-6.3.7 HEATERS

It is proposed to use unit heaters in all buildings and spaces at both stations with the exception of offices and control rooms in the utility/ control building and in the living quarters. Here we propose to use wall-fin convector heaters.

- 82 -

III-6.3.8 HEATING MEDIUM

It is recommended that a 60/40 ethylene glycol/water mixture be used as the heating medium for optimum antifreeze protection and good heat transfer capabilities.

Included in this estimate is the cost of the initial fill of ethylene glycol.

III-6.3.9 VENTILATION

Suitable roof-mounted power ventilators will be provided for the main compressor building, chiller building, propane compressor building, stores building, and the workshop area and generator/boiler room of the utility/control building.

Costs for these items have been included in the building costs of Section III.2.

III-6.3.10 AIR CONDITIONING

A Leibert computer room air conditioning unit has been provided for in this cost estimate. This unit would be supplied with fully automatic controls for strict control of humidity and temperature and to ensure a dust-free atmosphere.

III-6.4 FIRE AND GAS DETECTION SYSTEM

III-6.4.1 GENERAL

For purposes of this estimate it was decided to provide a very comprehensive fire and gas detection system and Halon 1301 fire extinguishing system for both Station No. 3 and Station No. 7. The systems provided utilize state of the art technology and introduce the use of a central monitor to act as a watchdog over the entire compressor station and collect the data received from the following devices:

- a) Ultraviolet fire detectors
- b) continuous strip thermistors
- c) ionization detectors
- d) thermal detectors
- e) gas detectors.

The central monitor will be constructed in a nineteen-inch rack configuration for panel mounting. Included in the monitor will be a graphic display. The purpose of the graphic display is to visually display all the functions of the above detecting devices. The central monitor will be located in the control room of the control/utility building. It will have its own independent battery backup to operate all functions during line power failure.

Since each building has its own unique fire problem, the following review will be made of each building according to its fire detection and extinguishing system.

III-6.4.2 CONTROL/UTILITY BUILDING (Station Nos. 3 and 7)

Thermal detectors will be located in the following areas:

- a) offices
- b) instrument laboratory
- c) shop area
- d) small parts storage
- e) generator and boiler room
- f) corridors.

Cross-zoned ionization detectors would be provided in the Control Room and MCC/Switchgear Room. These cross-zoned ionization detectors would take part in the releasing of the Halon 1301 extinguishing agent in only these rooms. We are also providing a Halon 1301 system in the generator/boiler room to protect the prime power generating units. Adequate numbers of remote pull stations and local alarm bells will be provided throughout both compressor stations.

III-6.4.3 MAIN GAS COMPRESSOR BUILDING (Station Nos. 3 and 7)

This building will be provided with the following detectors:

- a) Ultraviolet fire detectors
- b) continuous strip thermistors
- c) gas detectors.

In addition, the turbine package will have the continuous strip thermistor installed in the acoustic enclosure. A Halon 1301 fire extinguishing system will be provided for the turbine acoustic enclosure and the main compressor building.

The ultraviolet detectors will respond to clean burning natural gas fires. To guard against fires with dense smoke, which could blind the ultraviolet detectors, we propose to utilize the continuous strip thermistors. By using the two types of fire detection devices, quick and reliable responses to fires has been achieved.

Gas detectors would be utilized to detect gas concentrations within the main compressor building that first alarm then initiate a station ESD should the upper explosive level be reached.

III-6.4.4 PROPANE COMPRESSOR BUILDING (Station No. 3 only)

The fire and gas detection system and fire extinguishing system for this building will be identical to that outlined for the main gas compressor building except the gas detectors will be mounted at floor level since propane is heavier than air.

- 85 -

III-6.4.5 CHILLER BUILDING (Station No. 3 only)

Since there is a lesser possibility of an ignition source in this building only gas detection will be considered.

Due to the nature of the combustible gases within the chiller building, both natural gas and propane, the gas detectors will be mounted in the ceiling and at floor level.

III-6.4.6 GAS SCRUBBER BUILDING (Station Nos. 3 and 7)

Gas detection only will be provided in this area.

III-6.4.7 FUEL GAS REGULATOR AND METER BUILDING (Station Nos. 3 and 7)

Gas detection only will be provided in this area.

III-6.4.8 COMMUNICATIONS BUILDING (Station Nos. 3 and 7)

Cross-zoned ionization detectors will be utilized to discharge Halon 1301 agent into this building.

III-6.4.9 PROPANE CONDENSERS (Station No. 3 only)

Due to the volatility of propane and its ability to lay at ground level and move in a dense cloud to a possible ignition source, we suggest gas detection could be provided in the area of the condensers. Granted that these units are outdoors, but because of propane's property of being heavier than air should a leak develop gas detectors at or near ground level ringing the condensers could detect this leak. The cost of these detectors has been included in this estimate.

III-6.4.10 HELICOPTER PAD

ς.

In case of emergencies we have provided an Ansul SK3000 dry chemical system at the helicopter pad.

- 86 -

III-6.4.11 PIPING

Included in this estimate is the necessary pipe and fittings for discharge of the Halon 1301 agent in the various buildings. Conduit and wiring from this system is included in Section III-9, Electrical.

COST SUMMARY (OTHER MAJOR SYSTEMS)

	Chilled		Non-Chilled
Materials	\$2,367,000		\$536,000
Installation	343,000		70,000
Total	\$2, 710,000	میں ایک ایک ایک ایک ایک ایک ایک ایک ایک ایک	\$606,000

Estimated Weight of Materials ex Edmonton 1,812,000 lbs. 105,000 lbs.

Federal Sales	Tax Estimate	\$ 141,800		\$ 42,200
---------------	--------------	------------	--	-----------

SYSTEM COST SUMMARY SYSTEM NO. 6 CHILLER FACILITIES PAGE / OF 5 ITEM SUPPLIER GUANTITY UNIT PRICE EXTENSION PROPANE COMPRESSOR BUILDING 24" GATE VALVE ON OP 6000 6000 10 GATE VIALVE You OF 2500 2500 1 2 24" BLOCK VALVE 6000 12000 10" BLOCK VALVE 2 2500 5000 7000 14000 O RECYCLE VALUE 2 16" BLOCK VALVE 4000 2 8.000 16" CAECK VALVE 10,000 2 20,000 PROPANE RECEIVER 10' GATE VALVE 1600 2 3200 7000 10' BYPASS VALVE Shop 1 . 7000 4" RELIEF VALVE 1 2000 2000 CONDENSER S 4800 3" GATE VALVE 400 12 3000 2" GATE VALUE 12 250 PROPANE STORAGE 750 4" CHECK MALVE 750 600 3 1800 4 GATE VALVE 90050 SUB-TOTAL CONTINGENCY @ % TOTAL - 88 -

SYSTEM COST SUMMARY SYSTEM NO. 6 CHILLER FACILITIES

PAGE 20= 5

1

		I		······································
ITEM	SUPPLIER	BUANTITY	UNIT FRICE	EXTELUC
TEES				
24 x 24 x 24		3	1500	4500
24×24×12"		2	1500	3000
16×16×16		2	1.000	2000
14× 16×10		2	1000	2,000
16×14×3		11	1.000	11.000
10×10×10		2	206	412
loxlox8		a si si si si si si si si si si si si si	225	225
10×10×2		11	250	2750
8 x 8 x 8		2	121	242
2×2 ×2			27	27
				26,156
	· · · · · · · · · · · · · · · · · · ·			
ELB-WS				
24"		10	1207	12070
10		6	463	2778
/0		14	149 **	2086
8	· · · · · · · · · · · · · · · · · · ·	4	72	288
4"	· · · · · · · · · · · · · · · · · · ·	/2	16	192
3″		24	10	240
2" *		24	6	144
12		3	350	1050
				18,848
FLANGES		•		
24"		10	661	6610
16 "		10	288	2880
[0"		. 28	112	3/36
8"		රි	60	480
4		/8	24	432
3 "		36	18	648
2"		36	14	504
12"		6	220	/320
				16010
			SUB-TOTAL	Rye 2. 61014
		CONTINGENC		
	· · · · · · · · · · · · · · · · · · ·	- 89 -	TOTAL	· · · · · · · · · · · · · · · · · · ·
		······		······································

SYSTEM COST SUMMARY System No. 6 (AILLER FACILITIES

¢ N

PAGE COF

	<u> </u>	ACINITES	· · · · · · · · · · · · · · · · · · ·	PAGE SOF
ITEM	SUPPLIER	QUANTITY	UNIT PRICE	EXTENSION
BOLT + NUT SETS				
17/8" × 12 3/4		240	4.00	960
15 × 914		200	380	760
11/4 × 81/2"		60	3.20	192
11/4 × 8/4		448	3.00	1344
1/8 × 7/2"		96	2.80	269
78" × 51/2"		144	1.75	252
3 4 × 4 34		288	1.50	432
*/8 × 4		288	1.00	288
				4497
		X.**		
PIPES GR. B				
24" x'375 W.T		200'	40.25	8050
16 x 375 WT		800'	29.77	23816
10"x 365 WT		1200'	17.13	20,556
8"x .322 WT		1700	12.72	21624
4" x . 237 wt		1200'	5.63	6.756
3" x . 2/6 wt		1500'	3.88	1940
2" x . 154 wy		700	1.99	1393
1%" X . 145 WT		500'	2.91	1455
1" x .133 ~7		500	/.83	940
				86,530
	N			•
	· · · · · · · · · · · · · · · · · · ·			
			SLIB-TOTAL	paye 3 91027
		CONTINGENC	Y@ %	
		- 90 -	TOTAL	

SYSTEM COST SUMMARY SYSTEM NO. 6 . CHILLER FACILITIES

____ PAGE 40= 5

		I		$\underline{-} PAG = 70 - J$
ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
PROPINE GAS	EXCHANGER SALES	3	105,000	315,000
CHILIER	AND SERVICE			
36 0 × 240 1014				
PROPANE	EXCHANGER SALES	12	60.000	720,000
			60.000	100,000
CONTENSER	HAN SPALICE			
14 × 40 × 16			1	1000
TORANSFER PUNP			6500	6,500
45 gpm				
FUOPANE STORAGE	CIGAS		35,000	5.000
TANK ANGI 150	30,000 pars		and general second second second second second second second second second second second second second second s	
PRODAWE DECIRVER	CIBAS		26,000	26000
TANK " SADUE	18,000 gals			
		and the state	and the second second	-
FCONOMIZER	ESTIMATED		27,000	27,000
Iw INLETS - OUTLETS	Plant BANK			
			and the second second	
SUCTION SCLUBBER	48 TO x 10'	and the second	17000	17.000
ANSI ISD JUNA				· · · · · · · · · · · · · · · · · · ·
INT FORSTAGE SCRUBAT		/	14.500	19,500
HAXI ISO SUMP	16" × 6'			
FRO PANE	16 × 10 mate		17500	17500
	16 × 10 male		17500	11.000
HEYER (Ugom)	SIEVE + DESKCANT			
		A - 0	1	
INITIAL PROPANE	CIGAS	45.000 gd	\$0.35	15,750
CHARGE + MAKE UP				
• • • • • • • • • • • • • • • • • • • •	TAX (\$1313,675)0			
FEDERAL SAL	5 TAX (\$ 266,300)	+5% #13,31	5	1.194.250
SYSTEM W	-	1,658/18 M	r	
	š.			
			SUB-TOTAL	1,436,341
	· · · · · · · · · · · · · · · · · · ·	CONTINGENC		
		- 91 -	TOTAL	1579975
	· · · · · · · · · · · · · · · · · · ·			1,311,110

SYSTEM COST SUMMARY System No. 6 CHILLER FACILITIES

PAGESOS

BPBIEN NY.				PAGEOGE
ITEM	SUPPLIEZ	QUANTITY	UNIT FRICE	EXTENSION
	· · · · · · · · · · · · · · · · · · ·			<u></u>
<u> </u>	TACILITY	WEIGHTS		
	FACILITY	WEIGHTS		
	LBJ.	· · · ·		
CHILLER	285,000			
CHILLEN				
A	660,000			
CONDEN JERS	660,000			
ST DALL TALLA	9 F 1000			· · · · · · · · · · · · · · · · · · ·
STORAGE TANK	95,000			
	40.000			,
RECEIVER	40,000			· · · · · · · · · · · · · · · · · · ·
	· · · · · ·			
ECONOMIZER	20,000			
				· · · · · · · · · · · · · · · · · · ·
SCRUBBERS	27,000			······································
A-02/0 -	10	a service a service ser		
DRYER	12,000			<u></u>
	an an go Charles Airte			
PROPANE	206000	na se Anne ga paga se		
PIPING, FITTINGS	3/3,118		~	
& VALVES				
	1			
	1,658,118,11	= 740 -	tons (Long To	
	· · · · · · · · · · · · · · · · · · ·	<u>= 830 -</u>	tions (shore	Tono)
·····			····	
		······································		
			•	
· · ·				
	• •		SUB-TOTAL	· · · · · · · · · · · · · · · · · · ·
		CONTINGENC	Y@%	
		- 92 -	TOTAL	

SYSTEM COST SUMMARY SYSTEM NO. Fuel Gas Supply

PAGE / OF 9

ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
Fuel Gas T.	e-in & Pipi	24		· · · · · · · · · · · · · · · · · · ·
A"600 ANSTERWN V.			2000	4,000
A boo ANST Check V.	"	2	750	1500
A 595 " REWN Flac.		4	- 47	188
718" x 71/2" 2tud.	c/w zHX "	16	2.60	· 12.
1" Gookets	"	6	2.60	16
12" x 4" 5. h. 80 Tee	11	2	300	600
1"x1" x 4" Tec	11	1	1800	13
4"90 Ell. Sch. 60	1	6 .	1600	36
4.50.0. × 9.237 W.T	ir.52 IP5CO	170 Ft	563/6	957
0-1500 Pressure	11	2	100	200
2-4" Insulating K	its "	2	* 50	100
		1 Au	6-Jotal	7717
11 1 10	n - Filter Seas -	F.6 Heater -	Regulator =	ta.) to
Knock out Drun				
knock out Drun be skid mou	ented and how	ised in a	Bldg, 20'x	25' outside
knock out Drun be skid mod the Comp. Bla	ented and had	ised in a	Bldg. 20'x	25' outside
be skid mou	ented and had	ised in a	Bldg, 20'x ,	25' outside
be skid mou	ented and had	ised in a	Blidg, 20'x,	2000.
be skid mod the Comp. Bld Knocksut Drum TwInstrumentoti	nted and hou	ised in a	Blog, 20'X	25' outside
be skid mod the Comp. Bla Knocksut Drum Tw. Instrumentati 4"600 ANST REVIN.	inted and hours	ised in a	Blog, 20'X	25' outside
be stid mod the Comp. Bla Knocksut Drum TwInstrumentati 4"600 ANST REAN. 4"600 ANST Fige. Re	inted and hou a. m I. Crane J. Crane J. Crane J. Crane J. Crane J. Crane J. Crane J. Crane	<u>ised in q</u>	Blog, 20'x, 200000	2,000.
be stid mod the Comp. Bla Knocksut Drum Tw. Instrumentati 4"600 ANST REVIN. 2"600 ANST Fige. Re 2"600 ANST " "	inted and how an U. Crane V. Crane V. Crane V. Crane J. Crane V. Crane	<u>ised in q</u>	Blog, 20'x, 2000°° 	2000.
be stid mod the Comp. Bla Knocksut Drum Tw. Instrumentati 4"600 ANST REVIN. 2"600 ANST Fige. Re 2"600 ANST " "	inted and how and in Crane I. Crane I. Crane I. Crane V. Grane V. (Should De)	<u>ised in q</u>	Blog, 20'X, 2000 2550 2700 1500	2000. 2000. 6000 2700 1500
be skid mod the Comp. Bla Knockout Drum TwInstrumentati 4"600 ANST REVIN. 4"600 ANST REVIN.	inted and how and in Crane I. Crane I. Crane I. Crane V. Grane V. (Should De)	<u>ised in q</u>	Blog, 20'x, 2000°° 2550 2700	2000. 2000. 6000 2700 1500 203
be stid moe the Comp. Bla Knockout Drum TwInstrumentati 4"600 ANSI Fige. Re 2"600 ANSI Fige. Re 2"600 ANSI REWN F 4"600 ANSI REWN F 2 600 ANSI "	inted and how inted and how in Crane I. Crane I. Crane V. (Should De V. (S	13ed in g 1 1 3 1 " 1	Blog, 20'X, 2000°° 2550 2550 2700 1500 209	2000. 2000. 6000 2700 1500
be stid moe the Comp. Bla Knocksut Drum TwInstrumentati A"600 ANST REMN. A"600 ANST REMN. A"600 ANST REWN F 2"600 ANST REWN F 2"600 ANST " " A"xA"X 4"Tec Sch	inted and hou inted and hou in in Crane V. (Shourd De V. (Sh	13ed in q 1 -1 -1 -1 -1 -1 -1 -1 -1 -1	Blag, 20'x, 2000 2000 2000 2700 2700 1500 203 47 20	2000. 2000. 6000 2700 1500 209 470 120
be stid moe the Comp. Bla Knocksut Drum TwInstrumentati 4"600 ANST REVIN. 4"600 ANST REVIN. 2"600 ANST " 4"600 ANST REWNE 2"600 ANST REWNE 2"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST CENNE 2. 600 ANST " 4"600 ANST CENNE 4"90 ELL. Sch.	inted and how inted and how inted and how intervention intervention inclusion incl	13cd in q 1 3 1 1 1 10 6	Blog, 20'x, 2000 2550 2700 2700 1500 203 47 20 18 18	2000. 2000. 6000 2700 1500 203 470 120 203
be stid moe the Comp. Bla Knockout Drum TwInstrumentati 4"600 ANST REMN. 4"600 ANST REMN. 4"600 ANST " " 600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST CENNE 2. 600 ANST " 4"50 ELL. Sch. 2"90 ELL. Sch.	$\frac{nted and had}{4}$ $\frac{1}{2}$ 1	13ed in q 1 3 1 1 1 10 6 3	Blog, 20'x 2000 2550 2700 2700 1500 203 47 20 18	2000. 2000. 6000 2,700 1500 209 470 120 209 470 120 34
be stid moe the Comp. Bla Knocksut Drum TwInstrumentati 4"600 ANST REVIN. 4"600 ANST REVIN. 2"600 ANST " 4"600 ANST REWNE 2"600 ANST REWNE 2"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST " 4"600 ANST CENNE 2. 600 ANST " 4"600 ANST CENNE 4"90 ELL. Sch.	$\frac{nted and had}{4}$ $\frac{1}{2}$ 1	13cd in q 1 3 1 1 1 10 6 3 6	Blog, 20'x, 2000°° 2500 2500 2700 1500 209 47 20 18°° 18°°	2000. 2000. 2700 2700 2500 203 470 120 203
be stid moe the Comp. Bla Knocksut Drum TwInstrumentati A"600 ANST REMN. A"600 ANST REMN. A"600 ANST " " 600 ANST " A"600 ANST " A"600 ANST " A"600 ANST " A"600 ANST " A"600 ANST " A" 4 "Y A" Tee Jek A" 90° ELL. Sch.	$\frac{nted and had}{4}$ $\frac{1}{2}$ 1	13cd in q 1 3 1 1 1 10 6 3 6 6 6	Blog, 20'x 2000 2550 2700 2700 1500 203 47 20 18 16 20 18 16 2,60	2000. 2000. 2000. 2700 2700 1500 203 470 120 120 120 54 910 216
be stid moe the Comp. Bla Knocksut Drum TwInstrumentati A"600 ANST REMN. A"600 ANST REMN. A"600 ANST " " 600 ANST " A"600 ANST " A"600 ANST " A"600 ANST " A"600 ANST " A"600 ANST " A" 4 "Y A" Tee Jek A" 90° ELL. Sch.	inted and had inted and had in in in in in in in in in in	13ed in q 13ed in q 1 1 1 1 10 6 3 6 80	Blog. 20'x 2000°° 2550 2550 2700 1500 209 47 209 47 20 18°° 16°° 16°° 16°° 16°° 12,60 1,25	2000. 2000. 2000. 2700 2700 1500 203 470 120 120 120 54 910 216
be stid moe the Comp. Bla Unockout Drum "IwInstrumentati 4"600 ANST RENN. 4"600 ANST RENN. 4"600 ANST RENN. 4"600 ANST RENN. 4"600 ANST RENN. 4"600 ANST " 4"600 ANST RENN. 4"600 ANST RENN. 4"600 ANST RENN. 4"600 ANST " 4"600 ANST RENN. 4"90 ELL. Sch. 4"90 ELL. Sch. 4"8"8"8"8"8"8"8"8"8"8"8"8"8"8"8"8"8"8"8	$\frac{nted and had}{a}$	13ed in q 13ed in q 1 3 1 1 1 10 6 3 6 80 48	Blog. 20'x, 2000°° 2550 2550 2550 203 1500 203 47 20 18°° 16°° 18°° 16°° 18°° 16°° 18°° 16°° 18°° 16°° 18°° 16°° 18°°	2000. 2000. 2000. 2700 2700 1500 203 470 120 120 120 54 910 216
be stid moe the Comp. Bla Knocksut Drum TwInstrumentati A"600 ANST REMN. A"600 ANST REMN. A"600 ANST REMN. A"600 ANST " " 2"600 ANST REWN F 2"600 ANST REWN F 2"600 ANST REWN F 2"600 ANST " " 4"600 ANST REWN F 2"600 ANST REWN F 2"600 ANST " " 4"500 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 3" * 4" " " 3" * 4" " "	$\frac{nted and had}{a}$	$ \begin{array}{c} 1 \\ 3 \\ 1 \\ $	Blog. 20'x 2000°° 2550 2550 2700 1500 209 47 209 47 20 18°° 16°° 16°° 16°° 16°° 12,60 1,25	2000. 2000. 2000. 2000. 2000 2000 2003 470 120 203 470 120 203 470 120 203 470 120 203 470 120 203 470 120 203 470 120 120 120 120 120 120 120 12
be stid moe the Comp. Bla Knocksut Drum TwInstrumentati A"600 ANST REMN. A"600 ANST REMN. A"600 ANST REMN. A"600 ANST " " 2"600 ANST REWN F 2"600 ANST REWN F 2"600 ANST REWN F 2"600 ANST " " 4"600 ANST REWN F 2"600 ANST REWN F 2"600 ANST " " 4"500 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 2"90 ELL. Sch. 3" * 4" " " 3" * 4" " "	$\frac{nted and had}{a}$	$ \begin{array}{c} 1 \\ 3 \\ 1 \\ $	B/69. 20'X. 2000 2000 2500 2500 2500 203 47 20 1500 203 47 20 1500 203 47 20 1500 203 47 20 1500 203 47 20 1500 203 1500 203 1500 203 1500 203 1500 203 1500 203 1500 203 1500 1500 205 205 205 205 205 205 205	2000. 2000. 2000. 2000 200 200 200 203 470 120 203 470 120 203 470 120 203 470 120 203 470 120 203 470 120 203 120 203 120 203 120 203 120 200 120 120 120 120 120 120 120 120

SYSTEM COST SUMMARY

SYSTEM NO. Fuel Bar Supply (Cont.) PAGE OF 9

· · · · · · · · · · · · · · · · · · ·	<u> </u>	T	1	PAGE OF
ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
	Fipe IPSCO	150'	* 563/C	# 34 C
2" × 0.218 N.T. Sr. 5.	Pipe "	100 + 40'	"2.14 /c	220
·		dub.	dolat	14587
:				
	1			
Scrubbers	Peco	2	6,500	13,000
4/wInstrumentation	, ,			·
1"600 ANST REWN V.	Grane Supply	4	2,000	8,000
1/2 B.V. 2000 Serd E	pds "	2.	* 76.70	15400
1"B.U. 2000" "	n 11	4	* 34 ~~	13600
2" 600 ANSI R. V.	1600	and the second second	" 1500"	1500
1 600 " R.V.	"	2	* 750	· 1500 °
"x 4" Reducer	Crane Supply	4	15.00	60.00
4x2	11 11	1 1	6.50	
3×2 "		1	5.50	5.50
6 GOO ANSI REW.N.F	Ge. 11 11	4	107	428
4 ··· ·· ··		8	47	<i>3</i> 76
2" " " "		2	20	4 0
A'x4"x4" Tee Sch	40	5	18.00	- 90°
4 90° Ell. Sch. 40	<i>μ</i>	4	7.90 -	32.00
1" 90° Ell. Sch.40		12	· 4.00	12 AQ
1" Scid. Tee 30	00	4	3 .90	. 1600
1" X 4" Scred Nple	5ch, 80 # #	12	2.19	21.00
11/2 90 Serd. Ell.	000 " "	6	13.20	79
11/2" Serd. Tee 3	N 1 1 000	4	12.40	50
1/2×4 Send Nple.	och. 80 .	6	3.40	20 20
6" baskets		4	* 3.00	12
1" "	11	. 8	- 2.60	2100
2" "	11 · · · · · · · · · · · · · · · · · ·	2	. 1.85	* A **
1"x 612" Studs 2		48	2.60	# 125 000
"/#" x 5 1/2" " ·	11 11	64	= 2.60	16700
5/6" × 4" " "	<i>p p</i>	16	1.25	- J.D * "
1. "O. D. + J. 237 WT Gre	2 Pipe TPSCO	110	363/c	019
3 0.0 × J 218 WT -	2 Pipe TP5CO Pipe "	30'	263/c 214/c	-0
			SUB-TOTAL	26 625
		CONTINGENC	Y@%	
		- 94 -	TOTAL	

	ST SLIMNIAR		(ont.)	PAGE 3 OF
ITEM	······································			EXTENSION
1/2" 0.145"WT. Pipe		100'	291/c	29100
1" x 0. 179 WT. Pipe		100'	* 144/C	144
3.5 0.D. Y 0.216 WT Pip	A	50	306/C	1530
1"3000" Serd. Uni	on 6.J. Grone Supply	6	6.00	36
1/2 3000 # #	" "	4	10.00	40
		Sub-	Total	27,289
and the second sec	and the second second second second second second second second second second second second second second second	<u> 1. la la co</u>	and the second second second second second second second second second second second second second second second	
				0
	n de la companya de la companya de la companya de la companya de la companya de la companya de la companya de Esta de la companya de la companya de la companya de la companya de la companya de la companya de la companya d			
Fuel Gas	Indirect He	ater		
			an an an Araga an Araga an Araga an an Araga. An Araga an Araga an Araga an Araga an Araga an Araga an Araga an	
Heater 9/2 In:	trumentation Cesso	7	12,000	12,000
4" Strainer			500	500
A 600 ANST R.F.WA	V. Crane Supply	4	2,0000	8,000°
4 600 · · · · ·	Ge · ·	8	47	376
18 + 51/2 Studs SHA		64	260	165
4" 600 "Gasker 1" 600 ANSI E.V.		B	00	2/
1 600 HNSL E.U. A"x 4"x4" Tec Sch. 4	ABCO O Crane Supply		750	750
4"90° Ell. Sch. 4	Supply		-90	36
1 90 Ell, Scrd. 30	90 F.5. *		160	
[" A" Send Nole :		4	7.19	g ^{or}
Pressure Ind.			5000	100
Temp. Ind.	and the second second second second second second second second second second second second second second second		50	50
1." x 0. 179 WT Pipe	Gr.B TPSCO	50'	144/c	72
1"Tec Scrd. 300	SF.5. Crone Supply	2	7.25	15
		Jul	-Jotal	23,111
and a second second second second second second second second second second second second second second second		1 - Martin State		······································
			SUE-TOTAL	
		CONTINGENC	┝── · · · ───── · · · · · · · · · · · ·	

ITEM			UNIT FRICE	EXTENSIO
Pressure A	could leave a	ud Mile	- Vains	
Clark D.J.S	5 Ketrig. Tur.	bine (Prop	ane Compr.	.
3. Fisher Bin Joe	Sparton	2	300	- 60n
14 STAGE 15 2709				
2 Ficker Big Joe		2	3,00	600
36 ordice Spring 1314;				
2" 300 INST R.V.	FIGCO Grane Supply		750	750
3. 2000 Sord. B.V.	grane sept g		95	1045 92
2 3000 Union 6.		6.	15.20	92 138°
2" ' Scred Tee 7" 90° " Ell.	at7	7.4	19.65 18.69	75
2 90 - Ell. 1"x1"x2" Tee Sch. 4		7	18	13
		250 Ft.	214/c	535
2-1000 gang	, , , , , , , , , , , , , , , , , , ,	4	100.00	* 400
Temp. Ind.	N N -		50.00	50
1/2" × 2.035 W. To	bing # "	20	"77/c"	16
2"x 3" Nple Sch. 80		12	2.92	25
"A" Noke Values		A	6.00	24
Misc. Connectors		a a la sur agas da	25 00	25°
		s post out of the		
Piping Support.	Stands	4	10000	400.0
Gas Meter	Rockwell T-18		4,5000	A,500
•			• • • •	· · · · · · · · · · · · · · · · · · ·
		Sub-Tot	~	9,303
	luo	10% Contri	geney	930
	· · · · · · · · · · · · · · · · · · ·			
			SUB-TOTAL	
		· · · · · · · · · · · · · · · · · · ·	Y@ %	

SYSTEM COST SUMMARY SYSTEM NO. Fuel Bas Supply - C.B. Turbins

PAGE 5 OF 9

,			<u> </u>		
2.	RITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
~.	1"Fisier 310-32		25	15.9000	
	5" Simmer	Crane	1	5.00	and the part of the second
	3" Check V.	"		· 50000	50000
	2"600 ANE L'REWN.)	B.V. "	10	1200	12,000 **
	3" " " " Flo		28	* 32	. 704
	3' 600 ANSI Gaske	13 1	24	* 2.00	· 48 **
	3/4" x 4 4 Stud Bo	132418 "	176	* 1.20	210.00
	3"13" 13" Held Toe	6-4.40	10	15,30	153.00
	1"x3" Weld Red	//	1.	- <u>93</u> -	• 93 00
	3"x 1" Swage Nple.	P	4	12.00	43.00
	3" 90° Ell. Sch. 4		12	= 10.00.	120.00
	1" x A" Nple Scrd.	5ch.80 .	4	3.00	8.00
	"A" Nolle V.	<u>^</u>	4	6.00	24.00
	1/2 × 0.035 WT.T.	bing "	20'	77/c	= 16 av
	Mise Connect	cr3 "		2500	2500
	0-1000 "gouges	s	4	100	LAN
	Temp. Ind.	1		* 50°	\$ 5000
ļ	Piping Sugart	Stands	4	100.00	A00.00
	3.5 0.D. X. 216 W1. Gr. A	TP5CO	150 Fl.	306/C	A58
	Gos Meter	Rockwell 1.18	1	ª 4,500	4.500
	•				
		· · · · · · · · · · · · · · · · · · ·	- 5u	6-Total	23,257
ļ		· · · · · · · · · · · · · · · · · · ·			
		· · · · · · · · · · · · · · · · · · · ·		1.50 - 1.7 C	· · · · · · · · · · · · · · · · · · ·
ļ					·
		· · · · · · · · · · · · · · · · · · ·			
Ļ		·····			· · · ·
1		· · · · · · · · · · · · · · · · · · ·			
		A		SUB-TOTAL	
4 9 9 9 9			CONTINGENC		

ITEM	SUPPLIER	4- Borler F		EXTENSION
			UNIT FRICE	EXTENSION
Conceptore + A	ilers (Regu	ator & Meta	e Blds	
1"Ficher Sinche		2	1	500
le orrice Gring 1K22)9			- 250	200
"Ficher 62.0	Sporton	2	· 125	250
"41" or free Drg. # 1D 75 15				230
2"300 apisz R.U.	RECO	1	75000	750
2"2000 Serd P.V.	/		750 00 95	1045
"3000 Union 6. J.			15.20	
"11" Swage Nple.		61		6000
•		8	7.45	60
1"x2"Red Weld Tec			6.50 18.69	11200
" go send Ell.	1000 F.S. 11 1	6		
2 Serd. Tee 3		6	19.65	118.00
0-1000 gouge		4	100	1400-
Temp. Ind.			50	* 50.0
"/2" X0.035 WT	sbing " "	20	77/c	16 00
Misc. Connector			25.00	75.0
14" Necdle V		4	6.00	24.00
		terina a tering di tering		
	• • • • • • • • • • • • • • • • • • •			
": 2.218 fr. B Pip		400	214/0	856
Joing Support	Stands	4	10000	400.0
an Meter	etility bas)	1	12.00	1200
· · · · · · · · · · · · · · · · · · ·	Canadion Teler		·	
	· · · · · · · · · · · · · · · · · · ·	Sub	- Total	5905
	· · · · · · · · · · · · · · · · · · ·			,
	· · · · ·			
			SUB-TOTAL	· · · · · · · · · · · · · · · · · · ·
		CONTINGENC	Y@ %	
		- 98 -	TOTAL	

ITEM	SUPPLIER	OLIANTITY	INT SOUCE	EXTENSION
TIEM		GUANITY	UNITARICE	ENIENDICC
Boiler (Bo	lan Roamed			· · · · · · · · · · · · · · · · · · ·
			0 55,00	1
2. Celler Tipe 330 2. 2000 feed. 2.1.	1 Sporton	_2	55000	1100.00
Juga # 108932	Crone 1	1.	95	380 40
2. 2000 Serd. C. J. 2" 3000" Union 6.J	Supplif	4		6190
2" " Serd. Tee		4	15,20	# 79°0
2" 90° " E1/ 3		4	* 19.65 * 19.19	15
2"x 3" Nple Sch. E0			* 18.69 * 2.92	3000
"x 3.218" fr. B 1		20'	214/c	13°
A G.LIC Frit			2,-4/6	
Pipe Support	Stands	2	100	2000
	· · · · · · · · · · · · · · · · · · ·		<u> </u>	~~~~
	an an an an an an an an an an an an an a	Jub-	Jolal	196800
	- M	us 10% los		197 00
		us 57		108
	"	•	Total	2273'
Skid mate	rial - The	ams		
	- check	n er plate 5% FST	1500	15,00
	Plus	57. FS	7* 	75
			Total	75 1575°
•				
			· · · ·	
	······································			
	4		SUB-TOTAL	
		CONTINGENC	SUB-TOTAL Y@%	

SYSTEM COST SUMMARY

	ST SLIMMARY		ILLED STATIC	NPAGE BOF 9
ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
SUMMARY C	E MATERIA	L COSTS	С СНП	LED STATION)
1. TIE-IN &	YARD PIPING			7,7/7
2 REGULATOR	& METER BLI) द् <u>र</u>		
a) KNOCK OL	T DRUM A.	SEMBLY	-	14,587
6) SCRUBBE	R ASSEMBLY			27,289
C) GAS HE	ATER ASSEMBL	Ŷ		23,111
d) GAS REG	ULATING & ME	TERING		
		· · · · ·		
,) REFR	IG. TURBINE	•		<u>9303</u>
ii) C.L	TURBINE			23,257
···) 674	FRAT Pr P PA	1		A 905
Luij YEN	ERATORS & BO	LERS		5,905
iv) BO	ILER			1,968
e) SKID N	1ATERIAI			1.500
			······································	
			SUB707AL	114,637
	SUBTOTAL :	1.14,637		
CONTIN	GENICY at 102:			
	<u>7.7.4.L</u> :	* 126,101		
	WEIGHT	220001	bs	
F 5. Tax	(# 29,700) at 9%	\$ 2,673		
t.S. Tax	(# 96401) a159. T+1 FFT	\$ 4,820 \$ 7.493	SUB-TOTAL	
	Total F.S. Tax	CONTINGENC		
		- 100 -	TOTAL	

System Co System No	ST SLIMMAR	Y T- NON-CHIL	LED STATION	N PAGE 90=9
ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
SUMMARY OF	MATERIAL C	0575 : (N	ION - CHILLED	STATION)
1 7/2 // 8	YARD PIPING			77/7
2. REGULATOR	& METER BU	VILDING :	-	
a) KNOCK-OU	T DRUM ASSE	MBLY		14,587
6) SCRUBBE	R ASSEMBL	Y		27,289
				1
C) GAS HE	ATER ASSEMBL	<u>-</u> Y		23,111
1) 640				
	ULATING & MI	ERING :		52 a F7
	B. TURBINE			23,257
ii) GFL	ERATORS & BOI	17-PS		5905
iii) Bol	LER			1.968
				,
e) SKID M	ATERIAL			1,500
			SUBTOTAL	105,334
· · · · · · · · · · · · · · · · · · ·	SUBTOTAL :	105 334		
CONTI	NGENCY at 10%	10533		· · · · · · · · · · · · · · · · · · ·
	T= TAL	\$115,867		•
	T = - 0 07	0/		
	F. S. Tax 9% =			
	F.S. TAP 570 =	4309		
Pr. 4	weight = 21,	000 165.		
	· · · · · · · · · · · · · · · · · · ·			
			SLB-TOTAL	
		CONTINGENC	Y@%	
		- 101 -	TOTAL	

SYSTEM COST SUMMARY SYSTEM NO 6- HEATING & VENTILATING SYSTEM - CHILLED STN PAGE 10=

ITEM	SUPPLIER	······································		EXTENSION
HOT WATER BOILER				\$ 94,000 0
HOT WATER DUILEN	HYDROTHERM	6-MR 2700	14,000	
CIRCULATING PUMPS	S.A. ARMSTRONG	2- 15 HP	3600	7,200 0
		2 - 7/2 HP	1300	2,600
H.W. UNIT HEATERS	WEREEN ALL COND.	40		
- Gas Scriebles Bidg				
- Stores Bldg				
- Gas Comp. Bldg				
- CHILLER BIDA				
- Propane Comp Bidg				•
- Utility Bldg				
- Workshop				
- Gen Room				
- Cerrider		en de Regione de la		
- F.G. Bldg				
	Western AIR COND.	The start		
- Utility Blog				
- Stores		The second secon		
- Mcc boom		A tom fillener		
- Control Room		The second second second second		
- Office +1		[and a second	
- Office # 2				
- Inst. Lab				
				· · · · · · · · · · · · · · · · · · ·
- Living Quarkes				· · · · ·
- Comm Bldg		<u> </u>		
~		<u> </u>		60,000
Air Conditioner				
- Control Room	LEIBERT		10,000	\$ 10,000 <
	<u>ا</u> ــــــــــــــــــــــــــــــــــــ			
ETHYLENE GLYCOL	Harrison - Crossfields	1500 US Gals	40¢/16	\$ 5,555
	· · · ·	f'		
	ļ · · ·	[·		169,355
	ł	Į		
		('	SUB-TOTAL	· · · · · · · · · · · · · · · · · · ·
		CONTINGENC		· · · · · · · · · · · · · · · · · · ·
	<u> </u>	- 102 -	TOTAL	

SYSTEM NO 6 HEATING & VENTIMITING SYSTEM- CHILLED STATION PAGE 2:=

	6 HEATING & VENTI			
ITEM	SUPPLIEZ	SUANTITY	UNIT FRICE	ビメービン リント
STRAIGHT PIPES	ITT GRINNELL	A and a second		23080
TEE JOINTS	1			16120
				•
REDUCERS				273
ELBOWS	~1	<u> </u>		2,359
		<u>6</u>		•
FLANGES	ана. Спорта с страна с страна с страна с страна с страна с страна с страна с страна с страна с страна с страна с стр С с страна с страна с страна с страна с страна с страна с страна с страна с страна с страна с страна с страна с	a state U		956
		0V		
BOLT + NUT SETS	~ 1	57		72.0
UNIONS	× .	5		932
		5		
GLORE VALVES		0		14,108
		$\boldsymbol{\mathcal{S}}'$		
BALL VALVES	` 1	A/		9,128.
AUTO AIR VENT	<u>ц</u>			280
TEMP. INDICATOR	- \			100
PRESSURE INDICATOR				200
NIPPLES		Υ		3864
				72,120
PIPE HANGERS				5,000
4 SUPPORTS				
· · · · · · · · · · · · · · · · · · ·	4			
				<u></u>
			SUE-TOTAL	
		CONTINGENO	1	s
		- 103 -	TOTA_	

SYSTEM COST SUMMARY SYSTEM NO 6 HEATING & VENTILATION

ITEM	SUPPLIER	QUANTITY	JNIT FRICE	EXTENES	
· · · · · · · · · · · · · · · · · · ·				······································	
F.S.	Tax (\$ 180,180) at 98	\$ 16,216			
ES.	Tax (# 90,943) at 5%	\$ 4547			
	Total	# 20,763		······································	
	WEIGHT	91500 11	~ 45 to	Los	
·					
			7		
•				· · · · · · · · · · · · · · · · · · ·	
		1. 1. 1. 1. 1. A.			
	•		н		
				, , , , , , , , , , , , , , , , , , ,	
		•	1 ²		
			• •		
1971 1				<u>.</u>	
			SUB-TOTAL	2/11/1-15	
		CNTINGENC	· · / 0 %	<u> 446415</u>	

SYSTEM COST SUMMARY SYSTEM NR. 6- Heating & Ventilating System - NON- CHILLED STN PAGE 1 OF

ſ				PASE 1 0-
ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
HOT WATER BOILER	HYDROTHERM	4- MR 2400	13,000	\$52,000
CIRCULATING PUMPS	S.A ARMSTRONG	4-712 HP	1300	5,200
HW UNIT HEFTERS	Western Air Cond.	22		\$ 35,000
Air Conditioner				
CONTROL ROOM	LEIBERT		10000	10,000
ETHYLENE GLYCOL	HARRISON - CROSSFIELDS	1200 US GER	. 404/14	4444
				· · · · · · · · · · · · · · · · · · ·
STRAIGHT PIPES	ITT GRINNELL	A		14,407
		1		<u></u>
TEE JOINTS	en en en en en en en en en en en en en e			3800
VUINIU			<u> </u>	
REDUCERS	· · · · · · · · · · · · · · · · · · ·	(116
		L L		
ELBONIS	L)	L)		1,481
		dia Nu distant	4.2- 	
FLANGES		Jan K		560
BOLT + NUT SETS	L ,		a to a	460
		3		
UNIONS		0		580
		4		
GLOBE VALVES	ц. ц.			8,996
		in f		
BALL VALVES				5865
AUTO AIR VENT	· · · · · · · · · · · · · · · · · · ·			200
		1		
TEMP. INDICATOR		\sim		100
PRESSURE INDUSTOR	.	¥		200
			SUB-TOTAL	
		CONTINGENC	Y@ %	
		- 105 -	TOTAL	
				· · · · · · · · · · · · · · · · · · ·

System COST Summary System No _____

.

PAGE OF

ITEM	SUPPLIER	SULANTITY	UNIT FRICE	EXTENSION
NIPPLES				2499
HANGERS + SUPPOR	5			3000
F.S. 7	ax (#112,420) at 99.	# 10,118		
F. S. 70	x (# 51,379) at 5%	\$ 2,569		
	Total	# 12,687		
	WEIGHT	58,7001	3 30 tons	
•				
			• • •	
	an an an an an an an an an an an an an a			
				·
	and the second second second second second second second second second second second second second second second			
			•	
• • • • • • • •		····· ·		
	· · · · · · · · · · · · · · · · · · ·			
	•		· · ·	
	· · · · · · · · · · · · · · · · · · ·		and the second sec	
		·	· · · ·	· · · · · · · · · · · · · · · · · · ·
				ļ
				
			.	
			· · · · · · · · ·	
· · · · ·				
· · · · · · · · · · · ·				
				:148 900
		CONTINGENO		
		- 106 -	TOTA	\$163.799

SYSTEM NO. 6 - FIRE AND GAS DETECTION - CHILLED STATION PAGE 1 OF 2

SYSTEM NO	DEFINE AND CHE	DETECTION		PAGE OF a
ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
DETECTION DEVICES	LEVITT- SAFETY			\$ 56,690
(uv sensors, gas				
detection thermistors.		·		
1011zation othermol				
detectors)				
Central Control Panel	LEVITT- SAFETY	1		22,500
	· · · · · · · · · · · · · · · · · · ·		•	
Halon 1301 systems	LEVITY SAFETY	3		29,120
for MCC room Control	· · · · · · · · · · · · · · · · · · ·	-		
Room & Communication	٢		•	
BLDG				· · · · · · · · · · · · · · · · · · ·
			•	
Portable Ansul	LEVITT SAFETY			31,500
wheeled units				
and hand extinguis	hers			
				<i>.</i>
Halon 1301 system	LEVITT SAFETY	1		38,000
for Compressor Bldg		•		
· · ·		a and a second second second second second second second second second second second second second second second		•
Halon 1301 system	LEVITY SAFETY	1		49,000
for Propane Comp. Blog				
~				
Halon 1301 system	LEVITT SAFETY	1		15,620
for Ekc. Gen Room				
Gas detection for	LEVITI SAFETY			12,000
area around propane				
condensers				
ANSUL SK3000 dry				40,000
chemical for helicople	<u>ر</u>			
pod				
			SUB-TOTAL	
	· · ·	CONTINGENC	Y@%	
		- 107 -	TOTAL	

SYSTEM COST SUMMARY

SYSTEM NO.	. 6 - FILE AND GAS DET	RECTION - NON-CH	ILLED STATION	PAGE 1 OF 1
ITEM	SUPPLIEZ	QUANTITY	UNIT FRICE	EXTENSION
ALL ITEMIS ARE	AS PER THUSE F	FOR A CHILLE	STATION W	1174
THE FOLLOWING				
		1		
DELETE	ļ	·	<u> </u> !	
			<u> </u>	ļ'
Gas detection for		<u> </u>	<u> </u> '	(22,000)
area around propene	1 1 1 A	1	<u> </u>	
condensers a chille	<u>f bid g</u>	1	<u> </u> /	
		<u> </u>	['	
Halon 1301 system for	LEVITT-SAFETY		<u> </u> ′	(49,000)
Propane Comp Bldg			<u>↓ ↓ ↓ ↓ ↓</u>	
	,	<u></u>	<u> </u> '	
Gas & thermal detect		<u> </u>	f'	(33,000)
devices in propane		f		
Comp bldg		<u> </u>		
ENGINEERING BY			10%	(10,400)
LEVITT - SAFETY for		1		(10,400)
above		1		
		f	the second	
Pipe, values + fittings				(6600)
to install above			4 th	
		,,		
			Sub- Total	(\$ 121,000)
			de le tions	
		!		
		<u> </u>	CHILLED STA 090 cmt	352,873
		<u> </u> '		
	<u> </u>		WON- CHILLED STA	\$ 227 873-7
	<u> </u>	<u> </u> !	0% Canst	
		<u> </u> !	<u> '</u>	l · · · · · · · · · · · · · · · · · · ·
FST @ 9% =	22,559	ļ!	<u> </u>	
		↓ ′	<u> </u> !	<u> </u>
SYSTEM WEIGHT =	25,000 7	<u> </u> '		
	r <u> </u>		SUB-TOTAL	
	· · · ·	CONTINGENC	T	4
	· · · · · · · · · · · · · · · · · · ·	- 109 -	TOTAL	\$ 255,060

SYSTEM COST SUMMARY SYSTEM NO. 6 - FILE AND GAS DETECTION . NON. CHILLED STATION PAGE 1 OF 1 GUANTITY JUNIT FRICE EXTENSION SUPPLIER TEM ALL STEMIS ARE AS PER THOSE FOR A CHILLED STATION WITH THE FOLLOWING EXCEPTIONS . DELETE (22,000 Gas detection for LEWITT-SAFETY . area around propane condensers a chiller bidg 49,000 Halon 1301 System for LEVITT-SAFETY Propane Comp Bldg (33.000 Gos & thermal detection devices in propane comp bldg (10,400 10% ENGINEERING BY LEVITT - SAFETY for above (66.00) Pipe values + fittings to install above (\$ 121,000 Sub- Total de le tions. CHILED STA 090 cm+ 352.873 NON- CHILLED STAY \$ 227.873-0% cons FST @ 9 % = 22.559 SISTEM WEIGHT = 25,000 # SLIB-TOTAL \$ 231, 873 4 CONTINGENCY @ 10 % 23.187 \$ 255.060 - 109 -TOTAL

System COST Bummary System Ng

PAGE 20=2

SYSTEM NO.				PAGE 20= L
ITEM	SUPPLIER	QUANTITY	UNIT FRICE	曲×ゴ田と山このと
ENGINEERING BY			10 %	29,443
-EVITT SAFETY		· · · · · · · · · · · · · · · · · · ·		
Ripe, Values and				25,000
Fittings for				
installation	· · · · · · · · · · · · · · · · · · ·			
	·	<i>i</i>		
HANGERS + SUPPORTS			<u>.</u>	4,000
	- · · · · · · · · · · · · · · · · · · ·			
	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
	·			
	·		· · · · · · · · · · · · · · · · · · ·	
			· · · · · · · · · · · · · · · · · · ·	
			· ·	
FST @ 9% =	34,538			
				· · · · · · · · · · · · · · · · · · ·
SISTEM WEIGHT =	40,000#			
	*		CI IR TOTAL	
· · · · · · · · · · · · · · · · · · ·			SUB-TOTAL	
		CONTINGENO	Y@ 10 %	
		- 108 -	I IOTAL	\$ 388, 160



Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project Fothilly - Dempitiz Estimate No Item No. ______ Account No. _____ Date _____ Description Otter Man Systems (Child My System) Sheet No. ______

of _2

Description of Work	Unit	Quantity	Hours	Labour	Equipment	Materials	Subcontracts	Job Supplies	Total Co
Cas Chilles 340	IK	315000	450 1600	1700		the deu			
									
Propare Conditions Tree	h	12000	1200 69	115 map					
		++++++++		┿┥╼┼┼┝┝╽	╼╾┼┦┼┟┣╋╋	┨───┤┤╏╏╎┼┤	┥╍╍┥┠┟┥┠┠┥	╉╼╍╂┥┠┟┨┠┼	╏╍╍┟╎┟╽
		╌┝╏╂╎┝┝┝╋┨╌╍	╍╁╂╂┟┟╂╉╼╼╴	┿┨╄╅╇┧┽┩	╍╍╉┠╂╉┢╋╋	┊╌╌╎╎╎┫╽┽ ╽	╶╁╌╍╍╅╏╏╏┝╊╍┽┨	╺┢╺╼╶┊ ╏┽┧┠┿┧	┥ _{╍┷┯╍} ┽┥╢╸ <mark>╽</mark> ╴
		╶┫┫╌╴┥┥┥┥	╾╄╀┽┠╢╼┽╂╌╍╸	┨┠┼┼┟┾╅┦	──┧┽╂╁┠┾┾	┨───╂╟┤┇┠┼┼	╶┨╌╼╍┽╽╌┼╍┥┢╌┟╍╋	┥╍╍┤┦┥┤┠┥┿	┫╍╍╺╋╄┥╿╿
Broke Charbles Office		L+Opx	70 10 1600	3700	╼╼┼╂┦╃┠╁┿	╉ ╺╼╎╽╢┫ ╎┼┼	╉╍╍┽╂┧┽╂╂┿	╉╾╾╊┨╋╋╊╁╋	┡━╌┟┥┟╎
Proper Serubino 260				++++	╌╾┽┠┽┥┾╇┿	┼╼╾┤╂╄╢┟╂┦	╅╌╾┝┨┝┥┩╄┽┼	╅╾╾╁┨┑┨╂┢╋┝╸	┨╼╼╉╂╽╏
y Rielannes	v	20000	Kollo	1 800)	╂╍╍┼┼┼┼┟┟┝╉	┫╍╍┤╏┽┤┟┤╇	
· Eemmin	4	75000	50 /	100					
									╏╍╍╌╍┠╸┠╺╏╸┫
V Rilling	· /	75000	50 /	800	┉╾┼╽┽┼┣┿┾	┟╾╸╽┼┼╢╢╞┼╡	╶┠╼╼╼┥┝╌┼┥╞╶╅╺┩	┥╺╍╍╁╏┼╎┠╾┽┼╴	<u> </u>
		╶┼╂┽┟╿┥┝╆╼╸		┶┝┶┥╏╠┝┥	┄━╾┼┨╎┽┠┿┽┽	┠───┟┟╎╅╞┼┼	┨╾╾┤┟╎┤╏┠┽	╉╼╼╂╏╿╎╏╄╪	╉╼╾┥┽┡┦
· Storage Task.	/ /	30000	5p /	1 X00	╌╾┽╏┤┤╀╃╋	┧╾╾╍ ┥ ┨ <i>┿┫</i> ╎┾┠┥	╂╼╼┽╊╪┊┠╃┿	╉╼╾╂╂┟┥┠╆┾	┟╍╍┟┽┤┤
r Amg		2000	150 1	111800	┝━━╾╋╂╍┠┨╆╂╄╋	┟╍╍┥┨╄╣╞┼╡	╁╼┽╂┼┽╀┼┼	╈╍╍┨╋╂╂╋	╂╍╾┾┽╂╏
		┽┨┼┤ ╒╨┦┦ ─╴	╾┽┼┼┟╎╬╨┼╌╌	+++++ 44 4	╺━━╆╉╋╠┢╋╟	╏───┥┦┤║┨╅┝	╏╍╍╼┟╊┝┼╂┽┦	╉╍╾┼╏┼╎┣┊┼	<u> </u>
		╶╄╼╋┟╡┟┼┟╂╼━	╾╀┫╉╀╢╂┧╾╾	┿┾┽┼┨┝┍┤		1 + ∦ +++	11	╉╼╾┥┇┼┽╿╆┾	
				┿╋┼┽┠┼┝					
•								╶┨╾╾╸┫┫┫┥┫	╎──┼┼┞┼
Propane Pipe System	¢'	2091 4	2 8000 492	126000	╶╍╍╌┇╎╴┇╽╏╸╇╌╄	╉╍╍╍┽┽╢╿┡╞┽	╉┈╧╅╂╄┦╽┾╉	╉╼╾╏┫╎╎╏┾┼	┧╼╌┼┼┞┞
	IK	- 80 90 J	╍╉╋╞╄╋┟╌┥╌╼╸	┿╷┾╎┝ ╍┿╷	╶╼╾┤╂┤┤┠╉┢	┨╌╍╌╍┼╏╠┊╿┼ ┤	╶╏╌╍╼┤┥┽┝┠┿┾	╺┨╾╺╾┥╏╺┼╎╏╺┥┽╵	┨╼┈╍┧┟┤┝
		┈┟╂┼┼╎┼┼╪┥╌╸	╶╀╁┤┠╂┽╋╏╺╍	┽╉┾┿╿┽┾┪	╶━╾┼┨┼┝┝┝┥	╎──┥ ┨ ╎ ┝┡┝┝	╺┾╾╍╾┽┨┾┩┠┪╎	╶┠┈╼╾┶╌┡╴┆╶┥┡╶┣╵	╡╴┈╍╴╎╎╴╢╴╢
		╌┧╌╂╾┥┝╶╂╴╡┾╉╌╼	╍┾┼╎╏╍┽╌┽╺┨╍━╌╸	┥┠┥ ┥ ┝╇┾┥	╺━╾┥╞╌╞┼┤╼┝┼	╅ ╺╺╸ ┥┠┧┤╊┥╋	┥╼╾┥┨┼┽┾┝券	╺╉╼╾┢╊╞┾┝┦┾	╏╌╍┨╽┨╽
18m 905	lba	1211000	16190	751600	┝━━╉┼╏╀╋╀┼	╂╍╍╾╡┼┼┼╊┊╄	╉╼╍╁┠╃┼┦┼┦	┨╾╍╌┠┨┦╡╡┠╉┠	n



Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

td. Project <u>FOOTHILS</u> <u>Drughter</u> Estimate No. Item No.______ Account No. _____ Date _____ Description OTHIC Mafter Syltend . (Miss) Sheet No.

| the the and Vertilation | | | | 400 | 0 4-9 | | | 90
1 | 1690 | |

 | |

 | | 160 | | | 97
 |
 | | | 5
 | |
 | | | Total | |
|---------------------------------------|-----------------------------------|-----|-----------------------------------|-------------------------------------|---|--|---|--|---|--
--
---|---
--
--|---|--
--|--|---|---|--|---

---|---|--|---|--|
| Fuel and Starting Con | | | | 200 | 0 4.9 | | | | | |

 | |

 | | 10 | | | 80 |
 | | |
 | |
 | | - | | |
| | - 1ba | | | 20 | 0 4-9 | | 8 | | Paó | |

 | |

 | | | | | |
 | | |
 | |
 | | | | |
| | | | | | | | | | Pad | |

 | |

 | | | | | |
 | | |
 | |
 | | | | |
| | | | | | | ╺╋╋ | | | F.00 | |

 | |

 | | | -++ | ┿╂ | |
 | | ┼┟┤ |
 | |
 | | | | |
| | | | | | | | | b | Pao | H |

 | ┠╍┨ | 11

 | 111 | | 11 | | |
 | ! [] | |
 | | Ш
 | ΓΠ | | | |
| | | | | | | ╶┼┼ | - 14 | 'n | 6.6 | ւս | - الحالة

 | L |

 | | _ | -++ | ++ | |
 | | 1 1 | -
 | |
 | | | | |
| Heating and Ventriation. | | | | 197 | N | | | | | ┞┼┩ | ŧ¥¥įU

 | }{ | -

 | ╎╻╻ | ₊ | | 44 | Ш | -
 | Ш | Ш |
 | | Π
 | | | | TW-R |
| Heating and Ventriation. | | | ++ | | | -++ | H | ╌┼╌╉╴ | | ┥┽∔ | ╏╎╎┥

 | | ++-

 | | <u> </u> | _ | \downarrow | |
 | | | Ш.
 | |
 | | | | |
| Heating and Ventriation | | | | | | ╉┠ | <u></u> + <u></u> + | ++ | | ┝╋┼ | ┝┼┼╴

 | <u> </u> | -1-1

 | | μ | | 44 | ┞╢┥ |
 | | 111 |
 | |
 | | 2 | $\Pi \Gamma$ | |
| Heating and Ventriation | <u> </u> | | + | ++- | | -+ | ┥┠╋ | ╫ | | ┝╋╢ | ┝┼┼╴

 | |

 | | | - - - | 44. | \square | -
 | | ┶╽┶ |
 | |
 | | | | |
| | - 18A I | | ┽╂ | | | ╉╋ | | | un l | |

 | | ++

 | ┝╋╋┙ | - | | ₩. | |
 | Ш | <u> </u> | ++
 | | 11
 | 4 | | Ш | Ш |
|) | | | + | £Ε | 1.57 | ┼╂ | ¦¶₽₽ | 71 | 1 74 | -4 |

 | | ·I++

 | ┝╂┼╸ | 144 | 44 | ⊢ ∦ | Ð | ×
 | ┝┝ | ┥┟┼ | · -
 | |
 | 4 | | | 1 |
| | | ++ | | | | ╉┼ | ┥╽┽ | ┼┽ | | | ╞┼┼-

 | | +++

 | ┝┠╌┠╸ | | -++ | ++ | ┝-┝-┡ |
 | Hi | ┼╂┼ | +
 | |
 | | | | |
| | | +† | † † | 11 | 1 | ╈ | <u>†</u> ∎+ | ╉╉╴ | | ++ | ┟╴╢╌┼╌

 | | ++

 | | H | | ┼┤┤ | ┝╌┾╌┤ |
 | + | ┥┠┢ | ++-
 | | ++
 | ++ | - | ╞╇┫ | ╽╌╡╏╴ |
| | | | ++ | ++ | 1 | ++ | | ++- | | ++ |

 | |

 | ++- | | ╺┥╋ | ┿╋ | ┝╋╋ | +
 | -++ | ┽┠╇ | ┤╉╌
 | - | $\left\{ \left\ \right\ \right\}$
 | - - - | · · · · · · | ┉┥╂╌┥ | |
| GOD Defection. and Fire Protection. | lh | 11 | ++ | IKe | 1.0 | ++ | | | 106 | | 44.

 | | $\left + \right $

 | ++ | 20 | ++ | 1. | | <u>+</u>
 | | ┼╂┼ | ┼╂╌
 | -++ | $\left \right $
 | ++ | | -+ | |
| | | 11 | | | 1 <u>5 4</u> | | | | | -f | AAA

 | | ┨┽┤

 | ++- | - 73 | 4+ | <u>+</u> " | 77 | 4
 | | ┽╊┼ | ++
 | |
 | -++- | | | 38K |
| | - 0 | 11 | ++ | 17 | ·· | ++ | | †- - | | -1-1 |

 | | 111

 | | - | t | | |
 | -++ | <u>+</u> +++ | ╅╉┄
 | |
 | -+ | | ╉ | |
| | | | 11 | []] | 1 | | | 11- | | |

 | |

 | | | | | |
 | -++ | ╅╂╋ | ╅┨╼
 | | $\left\{ \cdot \right\}$
 | | | | ┢┢┢ |
| | | -†† | 11 | 111 | | | | - | | Ť |

 | | 11

 | | | 1 | n'i | 3 -}- |
 | -++ | ┼┠┼ | ┼┥╌
 | | ┾┤╏
 | • { }- | · · · · · · | ┥╽┦ | ┍┦╉╍ |
| | | Т | Π | Π | 1 | | | tt | | 11 |

 | | † ††

 | 11 | 14 | 1 | | |
 | ++ | ┼╂┼ | ┼┼╴
 | ╾┼┼ | ┼┼╏
 | ╶┼┼╴ | ┼──┤ | +++ | ╶┼╂╴ |
| | | Π | IT | \square | | | Ш | Π | | 11 |

 | |

 | | | J. | 01 | 11 |
 | | ┼ ┠ ┩╵ | + +
 | ╾┼┼ | †-
 | -1-1 | ŧ! | | -†- - |
| · · · · · · · · · · · · · · · · · · · | | | | Ш | | | | | | T |

 | | TTT

 | 11- | | 17 | FI | | 11
 | 11 | | 11-
 | |
 | 1+ | 1+ | 11 | |
| | _ | | | Ш | | | | | | Π |

 | |

 | | | 4 | | 11 |
 | | † † | †
 | -11 | 111
 | -++- | | +++ | - - |
| | | 11 | 11 | Ш | | | | | | |

 | |

 | IT | | | | T |
 | 11 | | 11-
 | - 1 |
 | 11- | | 111 | |
| | | # | 44 | 111 | | 11 | - | | | |

 | | Ш

 | | | П | Ш | П |
 | | Ш | 11
 | | 111
 | 11 | | 111 | +++ |
| | | | 4 | | | | | \downarrow | | 1 | 44

 | |

 | | | | | |
 | Ш | |
 | |
 | H | | | |
| | | | 1. | | <u> </u> | +++ | | | | Ц. | -111

 | |

 | 11 | | | ЦI | |
 | | |
 | |
 | Π | | | |
| | | | ++- | ┟╫╿ | | + - | 44- | | | |

 | |

 | 1.1 | | | | |
 | | |
 | |
 | | |]]]] | |
| 1.11 | ╾┼╖ _┶ ┼ | ++- | | 11 | ╂── | +++ | | 11 | | ₩. | 444

 | | 111

 | 44 | - | | | 11 |
 | 1 | Ш |
 | | Ш
 | | | Ш | 14 0 |
| | Cos Difection and Fire Protection | | Coo Difection and Fix Protection. | Coo Britection and Fire Protection. | Coo Difection and Fix Protection US: 1000 | Coo Difection and Fix Protection UP? 15000 1.0
105 100000 10
105 100000
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 10
105 105 | Hys Parent Color Britection U/2 | Coo Difection and Fix Protection U/2 U/2 U/3000 1:0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/2 U/30000 0 U/300000 U/300000 U/300000 U/300 | Hys 1 2000 10000 1000 1000 10 | Hyo The The Colo Differin 10 Lison 10 | 1/2 1/2 <td>Coso Diferition and Fric Protection UP? USOD USOD USOS 799990</td> <td>Ite Trees Coos Detection Usion Usion<td>Hyo I Imposition Imposition Cross Defection Iby Illion Io Iby Illion Io Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby
 Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion Iby Illion I</td><td>Ho 70000 COO Diffection U/2 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 V/2000 d>Item Item</td><td>Ito 70000 COSo Briterio. 1/2 USON Dreetio. 1/2</td><td>Ite I</td><td>Image: Properties Image: Properties Image: Properties Image: Properties CORo Defection U/2 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 1000 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0</td><td>Item Item</td><td>Ite Ite Ite Ite Ite Ite GGo Britertion ID Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite</td><td>Itro 170<!--</td--><td>1/2 1/2<td>Image: Image:
Image: Image:</td><td>1/2 1</td><td>Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strae Image: Str</td><td>Image: Image:</td><td>No 17890 C.O. D.Hertion U.S. U.S. 7999 U.S. 7999<</td></td></td></td> | Coso Diferition and Fric Protection UP? USOD USOD USOS 799990 | Ite Trees Coos Detection Usion Usion <td>Hyo I Imposition Imposition Cross Defection Iby Illion Io Iby Illion Io Iby Illion I</td> <td>Ho 70000 COO Diffection U/2 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 V/2000 td>Item Item</td> <td>Ito 70000 COSo Briterio. 1/2 USON Dreetio.
 1/2 USON Dreetio. 1/2 USON Dreetio. 1/2</td> <td>Ite I</td> <td>Image: Properties Image: Properties Image: Properties Image: Properties CORo Defection U/2 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 1000 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0</td> <td>Item Item</td> <td>Ite Ite Ite Ite Ite Ite GGo Britertion ID Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite</td> <td>Itro 170<!--</td--><td>1/2 1/2<td>Image: Image:</td><td>1/2 1</td><td>Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image:
Strate Image: Strae Image: Str</td><td>Image: Image:</td><td>No 17890 C.O. D.Hertion U.S. U.S. 7999 U.S. 7999<</td></td></td> | Hyo I Imposition Imposition Cross Defection Iby Illion Io Iby Illion Io Iby Illion I | Ho 70000 COO Diffection U/2 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 U/2000 U/2 V/2000 Item | Ito 70000 COSo Briterio. 1/2 USON Dreetio. 1/2 | Ite I | Image: Properties Image: Properties Image: Properties Image: Properties CORo Defection U/2 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 Illsion 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 1000 1:0 Illsion 1:0 Illsion 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 1000 1:0 1000 1:0 1000 1:0 Ibs 1000 1:0 | Item Item | Ite Ite Ite Ite Ite Ite GGo Britertion ID Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite
Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ibo Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite Ite | Itro 170 </td <td>1/2 1/2<td>Image: Image:</td><td>1/2 1</td><td>Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strae Image: Str</td><td>Image: Image:</td><td>No 17890 C.O. D.Hertion U.S. U.S. 7999 U.S. 7999<</td></td> | 1/2
1/2 1/2 <td>Image: Image:</td> <td>1/2 1</td> <td>Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strae Image: Str</td> <td>Image: Image:</td> <td>No 17890 C.O. D.Hertion U.S. U.S. 7999 U.S. 7999<</td> | Image: | 1/2
1/2 1 | Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strate Strate Image: Strae Image: Str | Image: | No 17890 C.O. D.Hertion U.S. U.S. 7999 U.S. 7999< |

DEMPSTER HIGHWAY COMPRESSOR STATION

III-7 UTILITIES

III-7.1 WATER SYSTEM

The supply of raw and potable water in permafrost areas is highly variable. From published information it appears that the most likely sources would be from lakes or rivers, or from sand and gravel aquifers normally found under large lakes and rivers. Ground water supplies from below the permafrost generally have higher iron and dissolved solids concentrations. Water treatment is estimated to require coagulation, sedimentation, filtration, iron removal and chlorination, and in addition to facilitate treatment the water should be heated to about 60° F. For this reason and others, all water storage and treating will be carried out in a heated building. The treating plant will generally be operated on a "batch" basis to maintain sufficient supply in the potable water storage tank. A pneumatic pressure tank is also provided on the potable water supply line.

Both raw and potable water were provided to the living quarters, the storage building and the shop and office building. The raw water supply would be suitable for "Black Water" service and industrial use.

The estimated water requirements were assessed as 60 gallons per man per day. At peak usage this would be 480 barrels per month. On this basis a 500-barrel galvanized cone bottom storage tank was provided. The vacuum sewage system detailed in Section 7.2 was estimated to reduce the water requirements by about 50 percent; however, in order to provide for washing down vehicles, equipment and floors, the storage capacity of 500 barrels was assessed to be reasonable.

III-7.2 SEWAGE SYSTEM

III-7.2.1 GENERAL

This estimate provides for a vacuum sewage system at each compressor station as quoted by Vacusan. They have presented two (2) alternative methods of collecting the sewage and seven (7) options for disposing of it. Please refer to the Vacusan quotation dated January 12, 1979, Exhibit 5, for specific details.

For this estimate we have chosen the Vacusan system which would collect the black water (toilets and urinals) and grey water (showers, hand basins, etc.) in one common 2" pipe and conduct it to a 600-gallon collection tank prior to disposal. The method of disposal provided in this estimate is to incinerate both the black and grey waters. This, we feel, is the cleanest and safest method from an environmental point of view. It also means that disposal of all sewage can take place on-site and does not rely on hauling to an off-site location and negates the need for a sewage lagoon.

The other options available for collection and disposal of sewage are detailed within the Vacusan quotation and a comparison of costs is outlined in the backup material contained in this section.

III-7.2.2 DESCRIPTION

The vacuum sewage system basically comprises a liquid ring vacuum pump, collection tank, interconnecting piping and vacuum toilets. Other fixtures such as urinals, sinks, dishwasher, showers, etc., are easily connected to the system and have been provided in this estimate.

A major benefit in using a vacuum system is the reduction in water usage of approximately 50% over a conventional system. Another benefit is that the collection piping can be run irrespective of gravity and hence can be installed out of the way in the upper reaches of utilidors and other buildings.

III-7.3 FLARE SYSTEM

The estimate for the flare system was based on a tapered gathering line, starting near the propane condensers on overhead supports, running through the propane compressor building, chiller building and gas compressor building, around the communications building to the incinerator pad. The line starts at 4", increases to 6" and finally reaches 8" diameter. The pipe costs were based on minus (-) 50°F specification Grade 35 pipe. Fittings were estimated on a similar quality material.

Pipe supports were included for the runs between buildings and for the run from the compressor building to the flare stack. A 2" fuel gas supply line was run from the gas compressor building to the flare stack and a purge gas line from the propane compressor building to the beginning of the flare line.

The flare stack cost was estimated using an 8" diameter supported stack, 50 feet in height, a refractory lined stainless steel tip, 2 concentric sets of wind deflectors, a flow sensor, automatic ignitor panel, pilot ignitor (2), fuel gas regulating station, stack fuel gas line brackets and 2 pilots.

Tax was calculated at the appropriate rate as previously noted and freight to Edmonton was included.

III-7.4 EMERGENCY FUEL

Emergency fuel storage has been provided for the standby diesel generator and gasoline storage has also been provided at each station site for utilization by operations and maintenance crews for both the pipeline and stations. Diesel fuel storage was sized based on the generator size at each of the chilled and non-chilled stations with the approach taken that storage had to last over one winter in case of substantial requirements on the diesel standby unit. Continuous operation over the entire winter is not anticipated.

All tankage is placed on insulated pads within a dyked area. A transfer system is provided to move the diesel fuel to the standby generators at each station.

COST SUMMARY (UTILITIES)

	Chilled	en en de la composition la composition de	Non-Chilled
Materials	\$255,000	у Х	\$228,000
Installation	89,000		89,000
Total	\$344,000		\$317,000

Estimated Weight of Materials ex Edmonton	139,000 lbs.	122,000 lbs.

Federal Sales Tax Estimate

\$ 15,100

\$ 13,400

SYSTEM COST SUMMARY System No. Watter Trans

SYSTEM NO	. WATER THAT	1 P.A	·	PAGE OF
	and the second second second second second second second second second second second second second second second		UNIT FRICE	用メゴロズル・りく
PALS CHATER STOL	the Third State		s. B. Arra	<u>(</u> 2
	TRUNTER Gian	1	5 6 200	IN A PROPERTY
POTABLE MATO		•	Real to the	a ar an an an an an an an an an an an an an
POTAQUE WAT	Pressure Trank	1	2 0 4 -	
RAND WALL D.	TOR	1 ⁻¹	1500	1.5.5
DATABLE MATE	Pump + Moron	,	950	а.
Pressure Ewitch	·) (~)	2	75	150
WATER METER	5/2)	2	210	500
		6		
2" PIRE GALVENI		750	A 00/02	SOOS
1" PIPE GALUPHO	1	600	250, 4+	1500
1" PIDE CODDED		400	16º F4	t _s ata.
12" PIPE COPPER		600	1 0= Ft	1.0C
Minic Covolings +	Strey Hanwers	Lot		1920
VILLUES 2" Brons		1.	85	1275
VALUES I"	Ser	12	50	200
Marches 1ª Sock		24	18	432
May were 1/2" Soc	et	24	B	192
Toos, Elbows Ca	ns nigales etc	Lor	· · · · · · · · · · · · · · · · · · ·	350
Finisher				
Shower shalls	·	4	140	300
Hat water heaters		3	300	900
Herd Ballins		7	75	525
Fired All Finance		2_	11-00	5 00
Kieles Sink		<u>t</u>	150	15-3
Palamie			300 D	3 mil
Cuestar		1	500	
Diner		1	4	4 • • •
Dicharacher			602	600
And bollynon Co.	Alow Marcars Divideosa	ke lot	2000	2
	· · · · · · · · · · · · · · · · · · ·			50 268
Sales Tax Est.				· · · · · · · · · · · · · · · · · · ·
E-line aled we				
Freicht to Edia	with undering th		SLB-TOTAL	5.010
·		CONTINGENC		5.6.9
	·	- 116 -	TOTAL	61600

c1<u>P</u>_ nlet -> Prosper Tank Potoble Raw Water Strage Potable Water Shorage Treater dia .- x Preliminary Layout Building Size 500 661 tank diameter = 500×5.61 ÷16 (∏ D²) \$D= 223 \$D= 15' चि · building size assume 20' × 40' Δ 1. 1. Living Querters 1 Water لم المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع الم المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع Treating UTILIDOOR Shopt Office blog STORES BUILDING à - 117 -

	ST SLIMMARY		D & UNCHILLED	STNS. PAGE 1 OF 2
ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
BL	POL & GREY WATER	R IN ONE PI	ee (This one	for the
				estimate)
600 gal Collection Tak	VacusAN	1	<u> </u>	
2HP VOLUUM Rump	A	1		
Sorvice Liqued Tank	••	I		
2 HP DISCH PUMP	14	1		\$ 17,000
Control Panel	<i>II</i>	1	7	
Elec. Equipment	4)		
Vacuum Toilets		5		
Interface Valves	na an an an t ara an an an an an an an an an an an an an	6		
100% standby vocuum p	mp H			2,400
100% standby disch. pin		1		3,800
		$= \frac{1}{2} \left[\frac{1}{2}$		·····
			TOTAL	\$23,200
	DISPOSAL	OPTIONS		
a) Discharge from co	lecting tanks to	a scavarge		
a) Discharge from co truck, have to e	lecting tanks to	a scavarge	n an an that an an an an an an an an an an an an an	
truck, have to e	lecting tenes to cisting sevage facil	z scavange		3,000
- require 20	lecting tenes to listing sevage facili 00 gal holding to	z scavange	Stay a transmission of the state	3,000
truck, have to e	lecting tenes to listing sevage facili 00 gal holding to	z scavange	Stay a transmission of the state	1,000
truck, have to e - require 20 - addn: 1 p	lecting tanks to histing sevage facili 00 gal holding ton ping	z scavange	Stay a transmission of the state	
truck, have to e - require 20 - addn: 1 p	lecting tanks to histing sevage facili 00 gal holding ton ping	z scavange	Stay a transmission of the state	<u>1,000</u> \$ 4,000
- require 20	lecting tanks to histing sevage facili 00 gal holding ton ping	z scavange	Stay a transmission of the state	1,000
truck, have to e - require 20 - addn'l p b) Discharge to so - addn'l p	lecting tancs to listing savage facili 00 gal holding ton ping wage lagoon ping	z scavange	Stay a transmission of the state	<u>1,000</u> \$ 4,000
- require 20 - addnil p - addnil p - addnil p - addnil p - addnil p - addnil p - addnil p	lecting tenes to cisting sevage facili 00 gal holding ten ping wage lagoon ping llecture tenes to	z scavange	Stay a transmission of the state	1,000 \$ 4,000 \$ 4,000
- require 20 - require 20 - addnil p b) Discharge to so - addnil p c) Discharge from co an incinerator	lecting tenes to usting sevage facili 00 gal holding ten ping wage lagoon ping lecting tenes to Trecaw or GE	z scavange	Stay a transmission of the state	1,000 \$ 4,000 \$ 4,000 \$ 40,000
- require 20 - addnil p - addnil p - addnil p - addnil p - addnil p - addnil p - addnil p	lecting tenes to usting sevage facili 00 gal holding ten ping wage lagoon ping lecting tenes to Trecaw or GE	z scavange	Stay a transmission of the state	1,000 \$ 4,000 \$ 4,000
truck, have to e - require 20 - addnil p b) Discharge to so - addnil p c) Discharge from co an incinerator - addnil pu	lecting tancs to cisting sevage facili 00 gal holding ton ping wage lagoon ping lecting taxs to Trecaw or GE Ding	z scavange	Stay a transmission of the state	1,000 \$ 4,000 \$ 4,000 \$ 40,000 1,000
truck, have to e - require 20 - addn't p b) Discharge to so - addn't p c) Discharge from co an incinerator - addn't py d) Discharge to a	lecting tancs to usting savage facili 00 gal holding to ping wage lagoon ping lecting taxs to Trecan or GE 0.00 small treatment	z scavange	Stay a transmission of the state	1,000 \$ 4,000 \$ 4,000 \$ 40,000 1,000
truck, have to e - require 20 - addnil p b) Discharge to so - addnil p c) Discharge from co an incinerator - addnil pu d) Discharge to a plant, then d	lecting tenes to isting sevage facili 00 gal holding ton ping wage lagoon ping lecting tenes to Trecan or GE Ding Small treatment ispose in river, etc	z scavange	Stay a transmission of the state	1,000 \$ 4,000 \$ 4,000 \$ 40,000 1,000 \$ 41,000
truck, have to e - require 20 - addn't p b) Discharge to so - addn't p c) Discharge from co an incinerator - addn't py d) Discharge to a	lecting tenes to isting sevage facili 00 gal holding ton ping wage lagoon ping lecting tenes to Trecan or GE Ding Small treatment ispose in river, etc	z scavange	Stay a transmission of the state	1,000 \$ 4,000 \$ 4,000 \$ 40,000 1,000 \$ 41,000 \$ 9,000
truck, have to e - require 20 - addnil p b) Discharge to so - addnil p c) Discharge from co an incinerator - addnil pu d) Discharge to a plant, then d	lecting tenes to isting sevage facili 00 gal holding ton ping wage lagoon ping lecting tenes to Trecan or GE Ding Small treatment ispose in river, etc	z scavange	Stay a transmission of the state	1,000 \$ 4,000 \$ 4,000 \$ 40,000 1,000 \$ 41,000 9,000 1,000 1,000
truck, have to e - require 20 - addnil p b) Discharge to so - addnil p c) Discharge from co an incinerator - addnil pu d) Discharge to a plant, then d	lecting tenes to isting sevage facili 00 gal holding ton ping wage lagoon ping lecting tenes to Trecan or GE Ding Small treatment ispose in river, etc	z scavange	Stay a transmission of the state	1,000 \$ 4,000 \$ 4,000 \$ 40,000 1,000 \$ 41,000 9,000 1,000 1,000
truck, have to e - require 20 - addnil p b) Discharge to so - addnil p c) Discharge from co an incinerator - addnil pu d) Discharge to a plant, then d	lecting tenes to isting sevage facili 00 gal holding ton ping wage lagoon ping lecting tenes to Trecan or GE Ding Small treatment ispose in river, etc	z scavange	SUB-TOTAL	1,000 \$ 4,000 \$ 4,000 \$ 40,000 1,000 \$ 41,000 9,000 1,000 1,000
truck, have to e - require 20 - addnil p b) Discharge to so - addnil p c) Discharge from co an incinerator - addnil pu d) Discharge to a plant, then d	lecting tenes to isting sevage facili 00 gal holding ton ping wage lagoon ping lecting tenes to Trecan or GE Ding Small treatment ispose in river, etc		SUB-TOTAL	1,000 \$ 4,000 \$ 4,000 \$ 40,000 1,000 \$ 41,000 9,000 1,000 1,000

Q:

i. Z

SYSTEM COST SUMMARY System NR

PAGE 20F2

SYSTEM NE				
ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
Urinals	Crane	2	400	800
				· · · · · · · · · · · · · · · · · · ·
2" ABS PIRE		1000'	\$ 4 00/ft	4000
11/2" ABS PIPE		100	300/ft	300
2-11/2" ABS Fittings		1 207		2000
				\$ 7,100
Vacuum System	AND DISPOSAL a)			\$34,300
	" ь ь)	story where the company		34, 300
				·
c1	" " с	- THIS	ONE !	71,300
41 J	" " d)			40, 300
Nore: Die	POSAL C) IS P	obably the	best	
	m an environme			
	i use in es		n an gerta Taylor and an gother was	
		a har at a far a bring a s		
		and the second		
		e de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l		
			-	
FSTQ 5%	- \$3922			
SYSTEM WEIG	HT = 40,000 #	1		
			÷	· · · · · · · · · · · · · · · · · · ·
			SUB-TOTAL	71,300
		CONTINGEN	Y@ 10 9	6 7130
	FOB	Edmonton	TOTAL	\$ 78,430
L		- 119 -		

SYSTEM COST SUMMARY SYSTEM NO. 7- Source System - CHILLED & UNCHILLED STAS PAGE / OF 2

ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
B	ACK & GREY WAT	R COLLECTED	SEPARA TELY	
BLACK WATER				
300 gel Collection Tonr	Vacusan	<u> </u>		
I HP Vacuum Pump	<u>u</u> .	. I		
Service Liquis Tank	17	<u> </u>		
2 HP Disch Pump	· · · · · · · · · · · · · · · · · · ·	the second		\$ 14,000
Control Panel		<u> </u>	7	
EKC. EQUIP.	8 4	1		· · ·
VACUUM TOILETS	+t	5		
Interface Value	h.	an an an an an an an an an an an an an a		
		$\mathcal{M}_{\mathcal{F}}^{(1)} = \mathcal{M}_{\mathcal{F}}^{(1)} = \mathcal{M}$	$\label{eq:alpha} \begin{split} & \sum_{i=1}^{N} \sum_{j=1}^{N} \Delta a_{ij} & = \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1$	
100% stady vacuum R	<i>т</i> р•			2,000
100% " disch. pun	•		$e_{i,i} \in \mathcal{M}_{i}$	3,800
				\$ 19,800
GREY WATER				
500 gol Collection Ten			γ	
2HP Vacuum Pump			1	
Service Liquid Tame				
2 HP DiscH. Rump	a pigeraan ing maatapan 🔨 💦 na ping Ping.		🗲 - raya kembalan	14,000
Interface Value	en and Barris and American and American and American and American and American and American and American and Am	1		
Control Panel				
Elec. Equip.	••	•		
100% stady vacuum	Pump	I		2400
100% " disch. pur	0 "			3800
			- • · · · · · · · · · · · · · · · · · ·	\$20,200
BLACK & GREY WAT	ER TOTAL			\$ 40,000
	DISPO	SAL OPTIONS		
a) Discharge from	slack water tak to	scawarige truck		\$ 8,000
have to existing	semage facility	Discharge gray		
water to sowage				
holding tank of m		•	SUB-TOTAL	
	<u> </u>	CONTINGENC	Y@%	
		- 120 -	TOTAL	

SYSTEM COST SUMMARY System No._____

PAGE 2 OF 2

ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
	black waters tan			
incinerators.	Discharge grey w	ater to laguon		
- Trecan o	r GE incineration			40.000
- Force	nai to lagoon			5,000
				\$ 45,000
· · · · · · · · · · · · · · · · · · ·				
c) Discharge fran	black water tork	to an		
	change from gray u			
	but for recycling		•	
	waters can be re	· · · ·		
· · · ·	le uses such as			
	shing vehicles, et	N N		
	k 5-20 treatment			9,000
- Sand f			a de la compañía de la compañía de la compañía de la compañía de la compañía de la compañía de la compañía de l	5,000
- addnil				1,000
- Incinar				40,000
	water storage a p	essure system		20,000
		the state of the second	na an an an an an an an an an an an an a	\$ 75,000
		and the second states of the second states of the second states of the second states of the second states of the	المراجع (المُ تَقَدِّينَ المُعَدِّينَ المُ	
Urinals	Cranes	2	400	800
2" ABS Pipe		2000'	400/ft	8000
11/2" ABS P.P.C.		200'	300/ft	600
2-12 ABS Fittings		1107		4000
				13,400
·····				- · · · · ·
Vacuum System And	Disposal a)			\$61,400
4 4 - 24				98,400
et	"с)			128,400
Note: Disp	bSAL b) would pr	bably be the	L	
the second second second second second second second second second second second second second second second s	overall from the	<u> </u>		
	ronmental poin			
FST @ 5% = \$5	412		SUB-TOTAL	98,400
SISTEM WEIGHT =		CONTINGENO	Y@ 10 %	
······································		B Edmonton	TOTAL	108,240
· · · · · · · · · · · · · · · · · · ·	4	- 121 -	. <u> </u>	· · ·

				11 - 7.5
DEMPS	STER COMPR	RESSOR (BATION	
SYSTEM CO	ST SUMMARY		· · · .	
SYSTEM NO.	FLARE SUSTE	M - CHILLED	STATION	PAGE 0=1
ITEM	SUPPLIER	QUANTITY	UNIT PRICE	EXTENSION
(-50) 2" Pipe	Insee	700 Fr	5 = 1P+	# 3150
" 4" Pipe	и	625 Fr	800/2+	5000
" 6" Pipe	K	2.00 /2	110-164	2200
" Q " Pipe	and the second second	Sookt	1500/R+	7500
S"LE 45" Elle		3	60	180
3" × 8" × 4" Tres		2	120	240
8"x1" Reducer		4	75	75
6"x6"x4" Tee		2	67	134
6"x4" Reducer			44	44
A"XA"XA" Tees		12	30 ·	360
4"LE 90°Ell.		6	20	120
To sugaly month	erial for suppo	rt-racks b	tween but	clings
	nain compressor			
	guired at dout			9000
	and the second second second second second second second second second second second second second second second			
To supply a Fl	are stack 8"	od sunported	stack 50 f.	
	all Stainless tip			
	nsor autoumat			
	el gas regulation			
m shack bro	ckets, 2 pilot			19500
<u> </u>	, 			
Purge gas li	he for flare			3000
rorge gas n	ne or rare			
Pina there are	a hangers in ti	e building		4000
	in nonger			
Subtotal Mah	u.e.			54 853
SUBIDIE: THRE		Round of	PE to	55 000
Sales Tax Es	Limate 3700			
	eight weight A	3000 165		
	dmonton Incl.	1	finant-	
FYPIGLE TO G	finon on Inclu	ACIEN IN VI	HE FOR LE S	
			SUB-TOTAL	55,000
		CONTINGENO		+
		- 122 -	TOTAL	60,500
L		1	1	

(- 50)

Project DEMPSTER COMP STATION	
Project DEMDSTGR COMDETATION Description Remarks DateJ. ANJ 2.3. 1979	Page l of 1
FLARE SYSTEM - Refrigeraled	e l
T THE DISIGN DETRIGERENE	JR FIGN
Estimate based in -50°f 50	
	ee pipe a rings
4" 0.237 wt grade 35	
6" 0.280 wt -	
8" 0.322 WF Frede 31	
2" Nide 700 Ft @ 5" / Ft =	3500
A" pipe 6217Ft @ 8=/Ft +	5000
6" pine 200 ft @ 11= 1FL =	2200
8" pipe rooft @ 15-50/Pt =	7500
Subtotel Pipe Material	# 18200
Filting	
3- 8" 45° elle LR -50 000	- 180
2 - 8×8×4" Po Teas " @ 120	240
1- 8"x6" Reducer " @ 7	71-
2-6×6×4 Ra Tres . @ 61	34
1-6"x 4" Reducer @ 44	44
12 - 4" xa" x4" Tees - 50 @ 30	360
6- A" LR 90. Ells - 50 @ 20	120
	# 1153
Support Rack will be required bet	ween buildings and trun
the main compressor building to	the flore steck base
est 30 5-ports required and m	
	\$ 9,000
Pine straps & hangers in buildings	4000
······································	23

CANUCK ENGINEERING LTD.

Form No. 17

i

Ⅲ-7.5°

Form No. 17	CANUCK ENGINEERIN CALCULATION SH	
Project DEMPSTER Description Remarks Date 1-23-79		File No. Page
Flare Store		
8" S- parvied	stack so Fert	in height, top 10 feel
shanless steel, the	orings of wind	dellecture, gas flow
Sensor, automatic	19 n. hu panely	2 Place 19 nitors, fiel gas
regulation, fuel gi	as time gramps	
1750+1500+1000	+ 1,00 +5000 +7	LT00 + 1000 + 4250) = 17500
Purge Gniline	plus requirilars t	Velues \$ 3000
TAX ESTIMATE	3700	
Freight Estimat Freight to Edm	e 43000 105	estimate.
- Freight D E alm		
· · · · · · · · · · · · · · · · · · ·		
· · · · · · · · · · · · · · · · · · ·		
	- 12	<u> 14. – – 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. </u>

. .

.

SVSTEM COST SUMMARY SYSTEM NO. FLARG SUSTEM NON CHILLED STATION PAGE OF SUPPLIEZ QUANTITY UNIT FRICE **ミメTELE**(0) ITEM 2" DIDE 450 Rt 5 - 181 IPSCO 2250 150 FL 8 = f+ 4 Pipe n 1200 6 PIDE 10044 11=A 1100 ON DIDE 500 Fr 150/4 n 7500 B"LR 45"Ells Tube Turns 60 3 180 8"x 8 x 4' Tees 2 240 120 ۰. 8"x6" Roducers 1 :75 71 Ż 6" x 6" X 4" Ters 67 134 44 6" YA" Reducer 44 1 3 4VAXA" Tees 90 30 A" L'R 90°EIS 4 80 20 To supply material for support racks between buildings and from the main compressor building to the flore pad, estimate 20 supports to 800 = each 6000 To supply a Place stack 8 "od supported so head in height Stainless tip, 2 sets wind de flectors, a gas flow sensor, automatic ignitor panel, 2 pilot ignitors, fuelass regulation, gas line on stack, brackets and 2 pilots 19 500 Purge Gas line for Flare 1500 Pipe Straps and hangers 2000 Sub Tokal Material 41893 APHO Round 42 000 Sales Tax Etstimate 2900 Estimated Realt weight 32000 169 ŵ SUB-TOTAL 42000 CONTINGENCY @ 10 % A200 - 125 -TOTAL 46200

ITEM	SUPPLIEZ	GUANTITY	UNIT FRICE	いいんりてき
500 BEL TANK.	NATIONAL TANK	3 ONLY	9,700 installed	29,100
2" PIPINS, (DIRSEL)		500 FT	8/FT installed	4 000
2" FTGS (-)		LOT		1,200
Pume (-)	· · · · · · · · · · · · · · · · · · ·	lonut	500 installed	500
SURAR TANK (-)		1 ONLY	1,000 installed	1,000
GAS PUMP YW PIPING	· · · · · · · · · · · · · · · · · · ·	LoT.	1,500 installed	1, 500
12" CULVERTS.		600 FT.	4/FT installed	2, 400
PIT RUN FILL		600 425	15/40 placed	9,000
-		4		
			•	,
	an an an an an an an an an an an an an a	n syn y ddinae se		2
			en en en stander en en en en en en en en en en en en en	
	and a second second second second second second second second second second second second second second second	Royal - Hereita Arti		
	et en en en en en en en en en en en en en	i stan nation.	a fordaðir stavgarska af a	- · · .
ta an an an an an an an an an an an an an	a Alberto De La Carla Alberto De La Carla Na Alberto De La Carla de La Carla de La Carla de La Carla de La Carla de La Carla de La Carla de La Carla de L	n nin star site	d'ar the way of the second	
	e y grae Maria e Suda a Regimenta. Antone grae grae de Carto de Carto de Carto de Carto de Carto de Carto de Carto de Carto de Carto de Carto de C	a se and an and an air an an air an an air an an air an an air an air an air an an an air an air an air an air		
	and a start of the second second second second second second second second second second second second second s Second second second second second second second second second second second second second second second second		an an an an gan gan an an an an An an an an an an an an an an an an an an	
	reaction of the second second second second second second second second second second second second second seco		n agasan Masoo ku	
	······			
		$\frac{1}{2} = \frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \right) \left(\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} \right) \left(\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} \right) \left(\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} \right) \left(\frac{1}{2} + 1$		
•	· · · · · · · · · · · · · · · · · · ·			
	· · · · · · · · · · · · · · · · · · ·			
	· · · · · · · · · · · · · · · · · · ·			
			- <u>-</u>	
	<u> </u>			
		<i>µ</i>		
Federal Sales	Tex Estimate	- " 3,000,00		
Estimated 6	leight -	30,000#		<u> </u>
	÷		SLE-TOTAL	
		CONTINGENO		
	<u></u>	- 126 -	TOTAL	52 50

•

•

SYSTEM COST SUMMARY SYSTEM NO. - FUEL STORAGE - STO. STN PAGE / OF / GUANTITY UNIT FRICE EXTENSION SUPPLIER ITEM . 9,800 installed 19,600 NATIONAL TANK 500 BAL TANK ZONLY 8/10 2" PIPING (DIASES) 500 FT. 4.000 2" FTGS. (-LOT 1,200 "Soo initalled Pump (-) 500 1 ONLY SURGE TANK (-) 1.000 -LONLY 1,000 1.500 GAS PUMP YW PIPING ش 1.500 LOT "4/ET ~ 12" GILUFRTS 400 FT. 1,600 15/40 placed . PIT RUN FILL 450 405 6.700 4,... an an Arres . . 2 E .) $(\mathbf{r}, b) = (\mathbf{r}, b)$ general and the part 10 1. 1. 中国教教会会 der son service and services $e^{-2\pi} \langle \cdot \rangle$ 的复数形式动力机 and the second second second second second second second second second second second second second second second ي من زرانية . . Ч. 1 . FEDRICAL SALES TAX ESTIMATE 2100.00 21,000 # ETO WEIGHT SUB-TOTAL 36,100 CONTINGENCY @ 10 % 3600 # 39,700 - 127 -TOTAL

CANUCK ENGINEERING LTD. CALCULATION SHEET

	••••			> . 2	2.91/	79	<u> </u>	•••				••••	••••	. (Chec	ked	By.	<i>l</i> . 	• • • •			••••	- . .		· · · · ·	-
	C	4	il	le	L		54	h			+	4	50	~	w	(60	<u>n</u> 6	P)	 	 		}₹,	, I	1.	(
	1			۲.	,								50				1			 		8		<u>[a2]</u>	d = #5 #2/	//
		₽ 1 				2.1		1			<u>.</u>	ľ		2	r u		(4		P)				ł	1	<i>≠11</i> 7 [₽] /	
								i-							ч. 1			. 1 ⁹	 					E4		<u>بهمی</u> ا
		1	ls.			5	50	ße	<u>ا</u> د	-1	AN	م الا	2	a	.A		h	m	エ	5	5					
				4	X				1									ļ		ļ					ļ	
				ji)	c	hil	lad	<	54			20	8	-		26	-	<u>k</u> an	P			u	Le.		590	6
		-	-									5	0			, .							ļ	ļ. 	ļ	.
	-	-		in)		54	d	<	An	 	• • •		1	=		ר.	<u> </u>	Ka.	r		• •	L.C.	e	<u> -</u>	<u> </u>	
-				de		1		τ	ļ	L						nite Progeti				· ·					<u> </u>	
		-	Na T	transferration	<u>an</u>		* 				+-											 				
			+	•	lia	h	5	00	86			6	30	5	4	2	2	07			6	0	Ni	sk	a,	AL-
					9									mal	" 'L' 's NGS		1	1. r	1	1·	1 ×					
						4,	عم	e		(x	B. 0	land	_	-	2)	×	1 Z	10,	12.	Ly_	ļ	 	ļ.	ļ	
						t	1.		he,	Ĵł.	h-		e		5	h۸	4		=							ļ
							n inter National C											estin entre	-2352 - 45				_		····	ļ
		· ·	1	5.1	1/	G	54		-	17		~												<u> </u>	_	
+		+	1-								8										•				+	
		1.1	+	5	50	1	8			2'	1		+		カ		•	7		k			F	2	-	
-			-		1			d)		1		<u> </u>			Э			C.W.		<u> </u>				F	
				đ																						
	ļ		K		-	2"	1	2	5//	-7	ļ	(-	500	ϵ	c,m	_	ļ		ļ		 		 		ļ	ļ
			\downarrow	2	77	4 6		<u> </u>	5	=	1	3	4	1		-(F	بدر	2					ļ	_	
				12m	345	14	-		4	tand	<u> </u> 		ļ]. 		ļ	<u> </u>	ļ
	<u> </u>					<u> </u>		<u> </u>	ļ.,										<u> </u>				 	<u> </u>		· · · · · ·
- 4	; 		<u> </u>		 	<u> </u>				+	 	ļ											 			
	• •	- <u> </u>			<u> </u>		-	ļ ,	-	 			-										<u> </u>	<u> </u> ,	•	.
e jana ar s	••••••	den nas			ł	+	÷						+		·			-					1	∔ Î		i

Form No. 17

						:						9				311												
		-											N						:		·							
	Pr	ojec	t								• • • •															· · · ·		
	De	escri	otio	n												.	Page			2		of.			3		• • • •	
								••••	• • • •		• • • •	•••	••••		•••••										•••			•
· ·	Da	ate	• • • •	• • •	• • • •	•••	· · · ·	• • •	••••	• • • •	• • • •	• • •	•••	•••	• • • •	. (Chec	ked	By.		• • •		•••	. <i>.</i>	• • • •	• • • •	•••	•
	din ye					1					· · · · · · ·	+	· •			. }	+	T	Į	7	t	j		+	<u>—</u>			
1		رمسر	2.0	LE	1	e.	+	5			1	· · ·			1	1			1				· ·					
12)) - 5				<u>م</u>	<u> </u>	77	<u> </u>		+	+	+:	+	+			+	1	ł	·	<u> </u>		ļ	<u> </u>	<u>+</u>		 	
			ł			Í.					5	3		1.50														
i i					1	[-]			1	T		1 :	1	T	1		1	1.		1	1		**	<u> </u>				
			ļ	Ļ	<u>ا</u> . استراست	1	<u> </u>	1		1	!	1	1	1	1 .		L	1	1	<u> </u>	<u> </u>		l	L				
			6	ţ	T T	7	i r							1	.	1	İ.,	1.	1		1.	1						
┝┈┿				Ð	11-1	D		64	4	+	+		+	+	1		<u>†</u>	++-	26	Þ. 6	R.PC				┢			
		12			"	1			1	云	har.								\odot	\odot	<u> </u>							
				ŀ			1			1	-		>	7		.		1					1.1	5 B				
	·····				{	ļ	[<u></u>	4	10			 	1	<u>.</u>	ļ							ļ	<u> </u>		l	Ļ
	1		2 -	50	50	B	32	0	5.	4	6		14		14	20		1		1.		and th	(¹			1 1		1
	-G				Ĩ,			· · · · · · · · · · · · · · · · · · ·	_										<u>1</u>					<u> </u>		7		
].		:	·	3		63	00	+	220	ກວີ) +	4	12	luno	+2,	Jaco	X	50	11	+ 4	¥ X	15	to re	lin	=	2	115	σ
					6		mar	1		22	5		1			Γ.	1		-		ŀ		1941			-	J	
<u> </u>			ļ	<u> </u>				35	60		<u> </u>	ļ	-	1.1.3	<u> </u>		<u> </u>	1 4	ţ	<u> </u>				·				
	ත		50	0	er		14		- '		/	1		kis	1.			5	ľ.									
<u> </u>			<u> </u>	Ŭ	4		Ī	6	424	<u> </u>	<u>⊧</u> -€	m	1	1		_	ele:	1 · · · ·		5 FTG				<u> </u>				
						5	م	Λ.	X.	2		5	ŝ.	\mathcal{U}	X	5/	FT	X	1.	5	=	3-	00	-				
		1.4				Ľ		1	ie	1.				T . 1	1		1			FTS	.							
		<u>`</u>		1	b	<u>)</u>	6	<u>hora</u> i	- C	$\frac{1}{2}$	<u> </u>	12	00	61	X	I ₹ /	ĘΤ,					4	50	P -	<u></u>			<u> </u>
		5.2	1 - 2 A.	la in	d	ΔD	T		1.	6	>		11		5		<u> </u>	-			2		500	_		[· · ·]		ł
						12	Ī		1			12-	<u> </u>	- Tgr	1	1	1. *		1		N		00		<u>+</u> +			
					ત		Da	-	1sa	he		5-	h	@	6	h.	BA		ma	1+2	/ }=	1	200	2 -				L
		•.							1.	h]	Í	0		1.1		1	U	· ·			•						
	<u> </u>			<u> </u>)	<u> </u>	m	L	Pipi	18	4	Pu	t u l	14	ca	L)-		10	المعا	<u> </u>	<u> </u>	50	2				<u> </u>
						1	1.1	1 2				1.5	1	1					, Sector	1. 5.					ľ I	í s	20	n)
			·	1. 1. j.			1		1.904	i agi	Jan			ि	in the s		<u> </u>	1	e Strate	(<u>)</u>							۲-	
				100 m 1		1114		19	1	14	a start			10.00		ن بی ایت ا	15			12.5	ji ^{layda}		$e^{i}x_{i}^{(2)}$					
	3		•			L.,		ويتحدد						1	r.**					1.18							1.1	
	4		.DH	5 (1	N X			i	ļ	<u> </u>	<u> </u>	-			an an Taol an A		M	a. 21.12 - 13.	<u> </u>		· · · · ·		<u> </u>			·	
				21		Dr	2	1	3		Lu		6	30	B	6	6		14. S									l
				~					1.0		4	1	1.1		4	+		•••	lan sat	A 5 4			•		\vdash			
					·			1.1	1					<u> </u>			τΕ.:: Ε.::	1.8		h sa n	ै							
				. 1	. A 1	-		1			inte		1	11	4	1	L	d'a						t I				1
					-	1.4	- w	M	14			A	PAR		F	V	0	~		en e	n y	• * • •	a da an					
							_ c	0-54		35	<u> </u>	<u>ہ ج</u>	¥1.	1	1/2 oye	2	٩.,	1:		1. . .			5 . I			\$		
						i an				\Box	4			Tors	- /2	75	× 15	TP			11 A.S.			3.7		7	00	+Ɗ
	<u> </u>											<u> </u>		2	020	6								· · ·				
;	. 1		1	с÷			-	τ,	0 1	t. 0.	ut		21	40	X Z	بد ام		- 6	.	× 4	11		المدل				,40	-
													FX -	4		· .	1.			-7	41	ممم	X #40	×	\vdash		,40	
									Ì	<u> </u>				<u>.</u>				1 - A		1								
	1			. ~			١.					1			el	• >	1				·			۳ A	.1	1		
				in)	}	ړيد	n.L	(9		<u>م</u>	1	*	ęo				•	20	Q	50		T	2	2m			
				/	1		31	12	•1	×	-	-		Li.						$1 \le 1$	та, 1	<i>'</i> . •		ŀ I	1			
	. 1					-1		A. 19	1	FA		<u> </u>	3	- 10	ut i	20.14	1.	15	1					<u> </u>		E	50	·····
	.]		· ·										<u> </u>	<u></u>		_	/ X	1.7/	YD.							رمہ	100	ر
· .					•		1				-7					1	5		4.00			•						
	÷		<u>ا</u>									2 3 4	15			-												
1													ľ												4	21	ഹ	
·		· ····																								7 P	¥.¥.	• • • • •
-/													L			\mathbf{n}	lis	ر'ج					<u> </u>		4	8,7.	50	
	:												j									-		1				-
		÷		· · · · ·					÷															<u> </u>	5:	3, 5	s L	
												. `														-		
· · · · · · · · · · · ·		Ţ		,	1								1		10	n									;		, ,	· ·-
	··- •													-	12	y -									; ; *		لأدرجه	

Form No. 17

CANUCK ENGINEERING LTD. CALCULATION SHEET

		No. 1	7			. ¹ 1					AN			NGI LAT				L. † I). 	•		. •					· .'	
			et			• • • •	• • •	••••	•••		• • •		• • •	• - • •	••••••		File				••••		• • • •		3 · · ·	•••		•
			iptio: rks .					• • •						• • • •		• *	Page Pren	 arad	 Rv	3.	••••	of	• • • •			•••	• • • •	••
																												•••
	· · · ·	;			}	i i i i i i i i i i i i i i i i i i i	1	· · · · · · · · · · · · · · · · · · ·	- -		1	1	1	1	1	<u></u>	1	1	1	1	1	1	1		1	1		
·	T).			Ļ		5-7			<u> </u>	-					<u> </u>	-	<u> </u>		-			+	-	+	<u> .</u>	ļ	
		1	$\sum_{i=1}^{n}$				<u> </u>	$\frac{1}{1}$	•					+						<u> </u>				+				
					<u>}</u>				<u> </u>														<u> </u>	+			+	<u> </u>
· •	·		Ø				500	B	<u>BC</u>	÷	A	5	Þ.r	4 5 6	<u></u>			NK	 	+	+	<u> </u>			15	16	50	İ-
		-		-		K T	P				† ,	1				•							=	+				
			0					he.	500		plu	5		5	T MAY		†							+		, 2	20	
			٩		50	BS	d	5	La		<u> .</u> ,						1					-		+		<u> </u>	<u> </u>	
		<u>+ .</u>				1	-0	1	1		-	1											2		2)	3		
									1			לכ		- Ale					†								1	
					تر	<u>د</u>	Du	k		(0	- 8	× d	1.1							1			E	1	Ц	<u>س</u>	5	-
										-								4.7						F	<u> </u>			
	· .															, 2019 (1) 10 20 (1) 10 20 (1)								Ī	34	, 19	50	
																	-	~	lia	e .		- - 	7		3	5,6	മ	
	·																								39	2.7	ເກວ	_
							n an di di Tarangan				_			-31.A			.97				25		an n Sea					<u></u>
										-			10					1. 1. 1.			120				 			.
													л — —		1992 1993 - 1994 1994 - 1994 - 1994 1994 - 1994 - 1994 1994 - 1994 - 1994 1994 - 1994							1		<u> </u>				
																	197											
							ng N Lange				····		1 (j.) 1 (j.)														<u> </u>	
																-	- 5 14									;		
															-							·		<u> </u>				
			•	•••••		· · ·										•••••			-		-							
-															· .		· · ·					· ·						
													-									·	- <u></u> i					
.													_															
															•													
																			<u> </u>				-					
		`															1											
•		·····				.																						
:	: : بېسانې ت	۲								1	•																	
	<u>∔</u>	; 											+															
	- -	: ;							·					-	<u>13(</u>)									1			



Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project ________ Estimate No. _________ No. _______ Account No. _______ Date _______ Description _______ UTU IDIG_______ of ______

		Description of Work	Unit	1	Que	ntity	, "	1	lour	8			Leb	our		E	Equi	pm	ent			Mal	eria	als		Sul	bco	nin	octs		dot	Su	opłi	86	· ·	Tota	II C	lost	2	
		Writer System		Ţ	IT	Ш	Т		П		70	1690	Π	Vb	000		Π	Π	Г	Π		ŢŢ	T	de	5		Π	1	-	6	Т	Π	Π	Π		ÍΠ	K	60		
					T	П				ŤΓ	Ħ			Ť	f			11	T			11			71		Ħ	Ī	Ë Ē			Ħ	† †	Ħ		Ħt	-+¶	T	Ĩ	-
				T	11					Ħ	Ħ		Ħ					11	Т	11		††	Ħ	1T	11		Ħ	Ħ				11	††-	tH		† ††	-11		Ħ	
				1	IT					Π	Π		Π		11		11	Π	T			11	11	Ħ	11		Ħ	tt	Ш		1	11	11-	Ħ		ttt			t†	
• .				T	Π					Π	TI		Π				11	Π	П			Π	Π	Π	Ħ		IT	Π	Ш	1		TT	tt	Π		TH	-1-		Π	
		Sewage System			Π				П		b	10	Π	2	(1)		Π	Π	Γ			\prod	7				Π	Π	Π			П	Π	Π	. ·		4	40	0	2
										-	Π							П				H			1		Ľ	Π				Π	FL.	\prod		Π			Π	
•										1			Ц			·		\prod			ľU	4	41			- 14		ļ¢.					П	Ш		Ш			П	
1	· ·			1			1	1		11	Ц		Ш				44	11	1		÷	41	4	łĽ	П.		1						ļĻ	Ψ		Ш			Ш	_
31				╇	μ.		-			1	Ц		11		44-		44	4	4			ЦĶ	4	10	4		Ш	#		4_		11	μ.	Ш		444	-1-1	- -	##	_
F.		What her systems	┠	+	11-		-			 ≠	11			-+-	╶┼┟		++	╫	-		-+	41	H			}	11		$\left + \right $	┝┥		.	┞┣	#		↓ ↓↓	-44		H	-
				+	11-		+		╉╂	╂╋	H				┿╋	ļ	++	╫	╄	H						1	-	11	- -	4		┨┥	₽₽-	14		441	44		H	_
				+		- -			╉	╂┿	H			-	╌┼╌┠╴		Ŧŀ	╢	·H	$\left + \right $	-+	╂╊	Π'	14	2	<u> </u>	╟╋	H		-	-+-	╟┼	╂┝╴	$\left\{ + \right\}$		┼┼┠	+	┼╂┥	H	-
			╀╍╌╂	+			+		╉	╟	╢				╫	 	╂╂	╢	Η	$\left \right $	{	╉╂	H	₽	ŦŦ		╞╂	╀┼	$\left + \right $		-	╂╋	╂┢	┢╊┦		<u><u></u>++</u> ₽	-44	+++	┢╂	-
		Blanch Bray & Va hAa	Ø	+				40		H	H	1		16	792		╋╋	Ħ	╉		6	Ħ	ł۴	1†	┼╊	.	H	┢╋	\mathbf{H}		+	H	╢	┝┼┦		╞┼╂	-	Ph	H	-
		Dihangt, Flori 4 Year Cos	11	-	┝╋╌	- 3	Ť	72	┝╊╉		*	40.0	ł H		-ff		╉╂	╂╂	\mathbf{H}	+++		╀┠	1+	╂╋	╀╊		H	╂╋	$\left + \right $		-	Ħ	┼╊╴	╏╋		┼┼╂	-11	44	P	2
			+	+	+					H	╢		╏╋┤		-		++	++	+			╀╋	††	+	+		h	Ħ			-+	Ħ	} } -			<u></u> <u></u> <u></u> + + + + + + + + + + + + + +	-1-1		ŀ٢	- 1
í										Ħ	$\dagger \dagger$						$^{++}$	$^{++}$	1	H		╡╂	Ħ	Ħ	Ħ			Ħ	H		-	††	Ħ						Ħ	-
				╉			-		$\left + \right $	ŧ†	Η		H				+	•††	Η			┽┢	Ħ	\dagger	Ħ		┢┠	Ħ				Ħ	It			†† †	-11	<u>+</u> ++	††	-
	-	Energiney Fuel and Cond. Storage	8	1	H	5	90	40	11	1	1	149	H	1	Se 0		11	Ħ	Ħ		<u> </u>	Ħ	Ħ	Ħ	Ħ		H	Ħ	H			Ħ	tr	Ħ		Ш	Т	619	iðr	5
				T	Π			**-	11	17	Π		Π	Ĩ	T			Π	T	T		Π	11	TT	Π		Π	11				Π	T	Π					Π	
				T					T	IT	Π						Π	Π		Τ		Π	П	Π	Π			Π										Ш	1L	
									Ш									11					H		Ц.				Ц			11	11.	11					11	
		· · · · · · · · · · · · · · · · · · ·			Ш				Ш	Ц		·					11	-11				11	11	44	44		Ш	Ц	Ш	4_	-	11	Į.	4	L	╇	H	┟┠┦	₩	_
				-	₊₊		-			#	H		44				44	-++	Ц				11	╁┟	++			┇┥						44.1		-⊦⊧⊧	-		┟┤	
1			↓	-	↓				╟╢╢	#	\downarrow		ļ.		┿┝			- -	-			+-	╂	1	44			$\left \cdot \right $	╞╌┝┥					++		┟╟╟	-1-	┼┼┤	┞	
•			╂╌╍┼	+	$\left \right $		-		┝╋┩	₽	H				┝╢╋		+	-				++	╂	╂╄	╉╋		┝	+	$\left + \right $	┝┨╌╸		++	┼╢╴	++		$\left\{ \cdot \right\}$	-+	┟┟╡	H	
					┟┟╴				┝╉╉	╊╋	H	•	╀┨╌	-	┝┿╂╸	<u> </u>	-∔-┣	╂		$\left \cdot \right $		+	╋	┢╋	╢		┢┠	╋╋	┠╋┥	┝┨╌╸		₽	 -	H		┝┟┝	-+-	┥┼┥	╆	
		8hu 56s	╂──┨	+	++-	$\left \cdot \right $	+		╟╫		H		┼╂╌		000	<u> </u>	┽╋	╉╂	+	$\left + \right $		╉╋	5	100			╟	2	60	6-		H	Ħ	╋╋		┼╀╂	Th	10	h	b

0001-1 138EP76

DEMPSTER HIGHWAY COMPRESSOR STATION

III-8 INSTRUMENTATION AND CONTROLS

III-8.1 UNIT CONTROLS

Controls and instrumentation for the units are part of the package supplied by the unit manufacturer; however, a unit auxiliary panel (UAP) will be added as an interface or extension to achieve some standardization among the various stations and where unit controls may vary from one unit manufacturer to another.

UAP #1 shall be the interface panel for the natural gas compressor unit. Included in the cost of this panel are annunciator, graphic, instrumentation (digital panel meters, surge controller, signal conditioners, patch boards), wiring connectors, relays and timers, instrument cabinet and relay rack structures, wire and miscellaneous components, and the wiring and fabrication of the panel.

UAP #2 shall be the interface panel for the two propane compressors. Included in the cost of this panel are annunciator, graphic, instrumentation (digital panel meters, surge controllers (2), signal conditioners, patch boards), breakers, wiring connectors, relays and timers, instrument cabinet and relay rack structures, wire and miscellaneous components, and the wiring and fabrication of the panel.

III-8.2 PRESSURE, TEMPERATURE, FLOW MEASUREMENT

Pressures that are required for the operation of the natural gas compressor system and the propane compressor system shall be transmitted by electrical signals obtained from instrumentation racks (IR) located in the compressor buildings.

IR #1 shall be the instrument rack for the natural gas compressor unit and station. Included in the cost of this panel are the station suction, intermediate (for chilled station) and discharge pressure transmitters and gauges (intermediate pressure being that between the main compressor and chiller and discharge pressure being that after the chiller or discharge pressure to the mainline), differential pressure across the orifice plate, pressure transmitters for the unit suction pressure and eye of the compressor for surge control, pressure switch for shutdown on high discharge pressure, and the conduiting, tubing, structure and fabrication.

IR #2 shall be the instrument rack for the propane compressor units. Included in the cost of this panel for each unit are two suction and one discharge pressure transmitters and gauges, one suction flow orifice differential pressure transmitter, one discharge flow orifice differential pressure transmitter, one pressure transmitter for the eye of the compressor, two pressure switches for shutdown on low suction and high discharge pressure, and the conduiting, tubing, structure and fabrication.

Temperatures which are critical to the operation of the unit shall be taken care of by the unit manufacturer; therefore any RTD's, thermalcouples, transmitters, meters and gauges will be included in the cost of the unit. However, temperature measurement (TM) which is critical to the operation of the pipeline systems is a separate cost.

All gas temperatures are monitored by use of thermowells with RTD's, signal conditioners (R/I) and panel meters.

TM #1 shall be the temperature measurement for the natural gas pipeline system. Included in the cost are suction, intermediate (for chilled station), discharge and orifice temperature thermowells and RTD's. The thermowells and RTD's are located in the field on the pipeline, and signal convertion and metering shall be located in the station control panel (SCP) and are included in the cost of SCP (see SCP). TM #2 shall be the temperature measurement for the propane refrigeration system. Included in the cost for each unit are two suction, one discharge, one suction orifice and one discharge orifice temperature thermowells and RTD's.

Pressure and temperature gauges located locally, i.e., at point of sensing, are a relatively minimal cost and are included in miscellaneous.

Fuel gas monitoring shall be done using turbine meters, transmitters, flow computers, displays and chart recorders. Included in the fuel gas monitoring (FM #1) cost for the main compressor are one high frequency pulse generator, pressure transducer, RTD temperature detector, and thermowell, flow computer and chart recorder complete with totalizer. The turbine meter cost is included in the fuel gas system cost (see Subsection III-7.2).

Fuel gas monitoring for the propane compressor (FM #2), and utilities (FM #3) shall use the same type of equipment. The cost of mounting of the flow computers and chart recorders shall be included in the cost of the SCP's (see SCP #1 and SCP #2).

III-8.3 STATION CONTROL

The station control panel (SCP) contains all logic, instrumentation, indication and local push buttons and switches for the operation of the station in general.

SCP #1 shall be the station control panel for the natural gas compressor system. Included in the cost of SCP #1 are annunciator, station graphic, mounting of fire and gas monitors (cost for monitors included in fire and gas system), mounting of fuel gas flow monitoring equipment for main compressor and utilities (cost of monitors included in fuel gas monitoring system), instrumentation (panel meters, signal conditioners, pressure controllers, power supplies, and patch board), breakers, wiring connectors, relays and timers for logic (valve sequencing, alarms, shutdown and ESD), instrument cabinet and relay rack structures, wire and miscellaneous component wiring and fabrication of the panel.

SCP #2 shall be the station control panel for the propane refrigeration system. Included in the cost of SCP #2 are annunciator, station graphic, instrumentation (pressure controllers, panel meters, signal conditioners, power supply for instrumentation, patch boards), breakers, wiring connectors, relays and timers for the logic (valve sequencing, alarms, shutdowns and ESD), instrument cabinet and relay rack structures, wire and miscellaneous component wiring and fabrication.

III-8.4 PROPANE SYSTEM

This portion of the instrumentation and controls estimate was made from a "take-off" from a flow diagram supplied by Foothills in their December 21, 1978 letter and prices were obtained by verbal quotes from various suppliers.

III-8.5 MISCELLANEOUS

Included in the cost of miscellaneous items are the sensing lines, power gas lines, vent lines, associated valves, pressure and temperature gauges, level switches for water sewage system, audible alarms, etc.

DEMPSTER COMPRESSOR STATION SYSTEM COST SUNINGRY SUPPLIER GUANTITY LINIT FRICE EXTENDED TEM 8.1 UNIT CONTROLS UAP#1 22,500 INCLUDES: INSTRUMENTATION SPARTAN (VERBAL) 6,000 (SURGE CONTROLER (FISHER) DPMS, PATCH BOARDS. ETC.) · · HISTORICAL ANNUNCIATOR. 4,000 •• . . GRAPHIC , PUSH BOTTONS, SWITCHES ETC .. LOGIC HISTORICAL 3000 (RELAYS. TIMERS. BASES, TERMINACS. CONNECTORS, BREAKERS ETC.) 8.000 FABRICATION HISTORICAL . • (STRUCTURES, MOUNTING, WIRING MISC . : . COMPONANTS ETC, MISC: 1,500 = 2,025 97 FST,

WEIGHT 1000 LBS.

_ ___

FOB EDMONTON

CONTINGENCY 2 10 % 2250 - 136 -

5_E-TOTAL 22, 500

TNL

24,750

SYSTEM COST SUMMARY SYSTEM NO B INSTRUMENTATION AND CONTROLS - PAGE 2 = 10 SUPPLIER QUANTITY UNIT FRICE EXTENSION TEM 33,000 8.1 CONTINUED * UAP #2 12,000 SPARTAN (VERBAL) INCLUDES: INSTRUMENTATION (FISHER) (SURGE CONTROLERS. DPMS , PATCH BOARDS .. ETC. . -6,000 ANNUNCIATOR, GRAPHIC, HISTORICAL PUSH BUTTONS CWITCHES, ETC. 4,000 LOGIC HISTORICAL (RELAYS, TIMERS, BASES, TERMINALS, CONNECTORS, BRKS. ETC.) ÷., ۰. FABRICATION - HISTORICAL 9,000 (STRUCTURES MOUNTING, WIEING, MISC. COMPONANTS. ETC.) 2,000 MISC. FST. 9% = 3,267 WEIGHT 1000 LBS. FOB. EDMONTON SLB-TOTAL 33,000 CONTINGENCY 2 10 10 3,300 * CHILLED STATION ONLY TUTAL - 137 -36,300

SVETEM COST SUNNARY SYSTEM NO 8 INSTRUMENTATION AND CONTROLS - PACE 3 - F/O SUPPLIER JUDANTITY UNIT FRICE EXTENSION ITEM . 8.2 PRESSURE TEMP, FLOW MEASUREMENT IR#I (CHILLED) 11,000 INCLUDES: 6,000 ROSEMOUNT INSTRUMENTS (HISTORICAL) (TRANSMITTERS, SWITCHES, GUAGES ETC.) • · · · ·· FABRICATION MURKENLAY, SANDA (VERBAL) 5,000 (STRUCTURE, MOUNTING. WIRING , FITTINGS, TUBING ETC.) • • ۰.

• • •

. .

FST 9% = 1089 WEIGHT BOO 4BS FOB EDMONTON

. :

.

	S-E-TOTAL	11,000
	Y = 1.0 %	
- 138 -	TUTN	12,100

- 12,100

SYSTEM COST SUMMARY

- PAGE 4 := 10

TEN	SUMPLIER.	GUANTITY	UNITERCE	<u></u>
		· · · · · · · · · · · · · · · · · · ·		·
8.2 CONTINUE	Λ			<u></u>
0.2 000//002				
IR # 1 (NON CHIL	LED)			9,500
			3	
INCLUDES :				
INSTRUMENTS	ROSE MOUNT (H	STORICAL)	5,000	
(TRANSMITTERS,				·
SWITCHES, GUAGE	5,			
ETC.)	•			
•				· · · · · · · · · · · · · · · · · · ·
FABRICATION	MURMENLAY, SAI	NDA NERBAL)	4,500	· · · · · · · · · · · · · · · · · · ·
(STRUCTURE, MOUN	ITING,			
WIRING , FITTIN	65,			
TUBING, ETC.)				
· · · ·				
• •				
			· · · · · · · · · · · · · · · · · · ·	
			•	
				· _ · · · · · · · · · · · · · · ·
· · · · ·	•			
				·
•	*		<u> </u>	
0m	- 0.44			· · · · · · · · · · · · · · · · · · ·
FST 9%	= 94/			· · · · · · · · · · · · · · · · · · ·
		·	· · · · · · · · · · · · · · · · · · ·	
WEIGHT 800 LE				· • · · · · · · · · · · · · · · · · · ·
TOR TOROLI	***	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
FOB EDMONIT	<u> </u>	• • • • • • • • • • • • • • • • • • •		م. هما باب از بریاند و است. مراجع
	· · · · · · · · · · · · · · · · · · ·	• • • • •	······································	ی (۱۹۹۵ میں میں میں میں میں میں میں میں میں میں
			S_B-TOTAL	9,500
<u></u>	•	CLATINGENC	↓	,950
· · · · · · ·	 A state of the second se	- 139 -		10,450
		and and a second second second second second second second second second second second second second second se	A. Samanyan	

SYSTEM COST SUMMARY System No

SYS EN NY				-74 ± € ≥0.44 • • • • • • • • • • • • • • • • • • •
TEM	SUPPLES	GUANTITY	UNIT FRICE	
······································				
· · · · · · · · · · · · · · · · · · ·	<u> </u>			
8.2 CONTINUE	<u>~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ </u>			
0.2 CONTINUE				· · · · · · · · · · · · · · · · · · ·
KIR#2				19,000
YK Z				
WCLUDES :	Concentration (1)		12 000	
	ROSEMOUNT (H	STORICAL)	12,000	
(TRANSMITTERS,	DWITCHES,			
GUAGES, ETC.)				
	•			
FABRICATION	MURKENKAY, S	ANDA	7,000	
(STRUCTURE, MC	UNTING, IVERI	AC)		
WIRING, FITTI	WGS, ·			
TUBING, ETC				
·			•	
	•			
			•	
	•			· · ·
	•			
· · · · · · · · · · · · · · · · · · ·	1			
FST 9%	= 1881			
	, <i>µ0,</i>		-	
WEIGHT 1200	IRS	· · · · · ·		
112.0117 72.00				
- P EDAA				+
FOB. EDMON	1			
<u> </u>		· · · · · · · · · · · · · · · · · · ·		
				Ţ
· · · · · · · · · · · · · · · · · · ·				<u></u>
		<u>. </u>		
		<u> </u>		
* CHILLED STA	TION ONLY		S_E-TOTAL	······································
; ;		CUNTINGEN	-⊻ ≐_10	1,700
		- 140 -	LATE:	20,900

SYSTEM COST SUMMARY

TEM	SUPPLIER	SUANT TY	UNIT FRICE	いろいてん
······				
	· · · · · · · · · · · · · · · · · · ·	: •		
	•	· · · · · · · · · · · · · · · · · · ·		
8.2 CONTIN	UED	·····		
· · · · · · · · · · · · · · · · · · ·				
	······································			
TM#1	SPARTAN (VE	RBAL)		1000
TM#2	. SPARTAN (VE	RBAL)		1200
			•	
			and the second sec	
		a an an an an an an an an an an an an an		
WEIGHT	50 LBS			
	•			
FOB	=======			
- FUS	EDMONTON			
FM #1	Park in	Beach and a second second second second second second second second second second second second second second s		6100
	ROCKWELL			6,600
FM #2	Por Kuru		•	6 600.
TIVI C	ROCKWELL			0000
A # 7	Ballion			
FM#3	ROCKWELL			6600
······································				
				•
·				
				· · · · · · · · · · · · · · · · · · ·
WEIGHT	150 685			<u>.</u>
· · · · · · · · · · · · · · · · · · ·				
FOB	EDMONTON	·	• · · · · · · · · · · · · · · · · · · ·	<u></u>
-				
FST @ 97	2 217B			
	*	······································	· · · · · · · · · · · · · · · · · · ·	······································
			ELE-TOTAL	22000
* CHILLED STA	47/00/ ANUV	CUNTINGENO	÷	2,200
	01067	- 141 -		24,200

System COST Summary System NR

PAGE 7 OF 10

ITEN	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
8.3 STATION	CONTROLS			
·····				
<u>SCP #1</u>				-23,000
INCLUDES :				
INSTRUMENTATI	N SPARTAN (1	ERBAL)	5000	
(LOAD CONTROL	(FISHER)	e de la secones		
DPMS , PATCH BO	ARD,			
ETC. June				
1.11			Toro as	
ANNUNCIATOR	HISTORICAL		4000	
GRAPHIC , PUSH	BUTTOUS,			
SWITCHES, ETC		1cor		25,000
	e se se se se se se se se se se se se se			
	an an an tha an an an an an an an an an an an an an			
LOGIC	HISTORICAL		3,000	
(RELAYS, TIMER				
BASES, TERMINI		MALL MARKED		
CONNECTOLS, O				
ETC.)		an in the second second second second second second second second second second second second second second se		
an an an an Aragan an Aragan an Aragan an Aragan. An Aragan an Aragan an Aragan an Aragan an Aragan an Aragan an Aragan an Aragan an Aragan an Aragan an Aragan a	a an anna an an an anna an anna an an an			
FAGRICATION	HISTORICAL		9,000	
(STRUCTURES,			1997 1997	
MOUNTING, WIRI	NG.	and the second second second		
MISC. COMPONAN				4
FTC,)				
and the second se				
MISC.	HISTORICAL		2,000	
FST. 9%	- 2,277	•		
WEIGHT 1000	LBS.			
FOB EDMO	NTON		SUB-TOTAL	23,000
······································		CONTINGENC	Y@ 10 %	2,300
· · ·		- 142 -	TOTAL	25,300

SYSTEM COST SUMMARY SYSTEM NO. 8 INSTRUMENTATION AND CONTROL

8 -= 10

TEM	SUPPLIER	GUANTITY	UNIT FRICE	EXTENSION
8.3 CONTINU	έD			
ESCP#2				23,000
-				,000
INCLUDES :				
INSTRUMENTAT	ION SPARTAN	(VERBAL)	5,000	
LOAD CONTROL,				
OPMS, PATCHE				
ETC.)				
ANNUNCIATOR.	SRAPHIC, MISTORIC	AL	4,000	
PUSH BUTTONS,				
ETC.				
LOGIC	HISTORICAL		3000	
(RELAYS, TIME			take bagana mito manané ina 38. Batana a Na katang kanang kanang kanang kanang kanang kanang kanang kanang kanang kanang kanang kanang kanang kanang kan	an a shekir ta ta ta ta ta ta ta ta ta ta ta ta ta
BASES, TERMIN				
CONNECTORS ,				e transformation and the second
ETC.)				
			a the second second second second second second second second second second second second second second second	
FABRICATION	HISTORICAL		9,000	
ISTRUCTURES, WI				
MISC. COMPONE				
ETC.)				
			e de la composition de la composition de la composition de la composition de la composition de la composition d La composition de la composition de la composition de la composition de la composition de la composition de la c	<u></u>
MISC.	HISTORICAL		2,000	
		*	· · · · · · · · · · · · · · · · · · ·	······································
· · · · · · · · · · · · · · · · · · ·				<u></u>
FST 9%	= 2277			· · · · · · · · · · · · · · · · · · ·
	/			
WEIGHT 1000	1.85.			
				······································
FUS. EDMONT	on .		SLE-TOTAL	23,000
		CONTINGENC	Y@ 10 %	2300
* CHILLED STAT	ION ONLY	- 143 -	TOTAL	25,300

EYSTEM COST SUMMARY SYSTEM NO. 8 INSTRUMENTATION AND CONTROLS PAGE 9 0=10 QUANTITY UNIT FRICE EXTENSION SUPPLIER ITEM 8.4 PROPANE SYSTEM RELIEF VALVES CANTECH 5 1806 9030 3×4 4 4000 1000 1/2xz PRESSURE CONTROL FISHER 4 VALVES 10" 5 38125 7625 6" 4066 813Z 2 5250 FISHER 7 750 LEVEL GUAGES 18 9000 500 SWITCHES ALARMS AND SHUTDOWNS INTRUMENT GAS TUBING . . 2500 5 6035 LEVEL TROLS 1207 53,900 CONTROL PANEL INCLUDING PRESSURE GUAGES AND DIAL THERMOMETERS FST @ 976 = 16,038 = 12000 265, WEIGHT FOB EDMONTON SUB-TOTAL 162,035 CONTINGENCY @ % 10 16200 TOTAL - 144 -178.200

1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -			ر. مربع محمد المربع المرب <u>ر ال</u> ارين
ية الملكي في الجاري الملكين المكتوبية المستقلة المستقلة عنه الأن الذي الذي الذي الذي الذي الذي الذي ا	TER COMP	in and a second second second second second second second second second second second second second second seco	And a second second second second second second second second second second second second second second second
VETEN CO.	ST - LININIAR		

. CHTENN BUIL	SUPPLIER	GUANTITY	UNIT FRICE	EXTENSION
5 MISC.	HISTORICAL	A MARCE	<u></u>	25,000
(SENSING LINE	🖌 - She Asha Kalaki Akada	an an the second	The second second second second	
BWER BAS LING	and the second second second second second second second second second second second second second second second	441 CARANTER		
VENT LINES, AS				
VALVES , & AUGES		1. Save 3 14		
and the second	· HEALTH AND			
the state of the second		Tighed21 174	-Englander	estimate.
to the set of the set		Star A. P.	-44941	
	un the state of the state of the state of the state of the state of the state of the state of the state of the	HARE SHE	. Philippine	ti canta a
	. File of Statement of the	AL MAN STATIS		
- Philippine States	- JAR MARINE	at the second of	znera piciet.	
how a second and the	we share and the	A STATE OF STATE		
	14: 14: 54:040-78	NEWSLOPP X		States and the second
CALLS A PARK	herein an eine an arth	The second state	1.5.2 2.1412 25.71	
1	· and · maintain the			1 1.01.
		and the second second second second second second second second second second second second second second second		10. 10. 17. 1 7. 17. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19
Active states				eserver and the
a salasi takutat				
				Law plates
		A BASE Y		
FST. 976	= 7257			
<u> 7211 710 - 1</u>				
			The second	
WEIGHT 2,000	LBS.	L contraction		
	7 , 7			
FOB. EDMONT			TALL STR	
		Y marker		
	an an an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Ar Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Art Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Artan an Art			
				An an an an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an An Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an
	ویکی کار در در در در این این این این این این این این این این		SUB TOTAL	
a sa sa sa sa sa sa sa sa sa sa sa sa sa		- 145 -	7 10 76	2,500



Dillingham Corporation Canada Ltd.

ESTIMATE COST SHEET

Project FOOTLILLS - Dimpitter Item No.______ Account No._____ Description INMOUNDATED

Estimate No

Date

	ESTIMATE COST &						D	escr	iptic	. nc	11	1 jî ji	ML	71	<u>.</u>				1				<u>. 4</u>	<u>i</u>		··						S I	100	t N	o			(of .		
	Description of Work	Unit	1	Q	uen	rtity			Но	urs		Τ	L	abo	ur	۰.		Equ	ipm	ent	:	1	Mat	oria	als	-	Su	bco		acte	,	Jol	b S	iup	plie	8		То	tal	c		 1
_	the goo system			Π	Π	Π	16	60	Π	Π	lot	2	90	Π	4	6		Π	Π		Π	20	TT	Π	6	-		Π	ÌT	Π	Π	/	TT	Π	Π			П	T		14	~
					Ц	Π			Π	Π	Π	Τ		Π	Ш	Π				T			11	ΤŤ	T			Ħ	11	Ħ	\dagger		Ħ	11	††	╋	·	-++	+-	ľ		
				-	4	4	Ш		Ш	11	Ц			П	\prod	П.		П	\Box				Π	Π	Π			Ī	Π		Ħ		Ħ	Ħ				11	П			11
			-	╢		╂┽	-∔ŀ		╢	┼╂	┼┼	4-		44	⋕	↓	Į		41				11	\square	4	Д			\prod	П	\prod	·	Π	Π				Ш			Ι	Ľ
	Rona Prutte		╉┥	╟╋	╟	┼	Н	5.	╢	╢	Ц		-	+		11		-++	44		+		Щ	Щ	⋣	4		Щ	44	11	Ц		Ш	Ц	\prod	Ш		Ш				Ц
-†	Propose System	ke ¢	+	╟╴	┢╋	Ħ	7	-	╋	₽	TT.	4.8	2	 	٩p	4VPD		┥┦	+		-	'n.	┥┨╴	┼╀	44	92		H	╀╀	H	┼╂		\square	╁╁	+	+		44		7	1	
			H	┢┢╴	H	H	╉		+	┢	Ħ	+		╂	╢	\mathbf{H}		┨╉	\dagger	┈┝┥	+	• <u>-</u>	╂╂	₩	╈	+		┼╂	┼╉	\mathbf{H}	╢		┝╂╸	++	+	4		╉╋				┥┥
			П		Ħ	Ħ	\dagger		††	††	Ħ	ϯ		11	tt	† †		╡	††	\mathbf{H}	+		Ħ	Ħ	ft	┨┨		╟	\mathbf{H}	┢╊	H		╞┼╴	H		++		┿╉		-+-	-	ŀ
			Π	Π		П	П		Ш	П	Π								11	Π	T			T	Ħ				Ħ	Ħ	11		tt	11	Η			-11		+	1	H
	Other HV FL	Inp	Ж			П	쎍		╢	ļļ	k)	μı	13	╏╽	N.	h		44	∔∔	4	4	W.		ļļ	14	20			Π	Π	Π		Π	Π	Π	\square		П		k	90	$\overline{\mathbf{h}}$
+)	Н		╟	╂	┿╉		┼┼	╂╋	\mathbb{H}	+-		┼┠	╢				╫	H	+				$\left \right $	41				14	\mathbf{H}			H	11	4.						
1			Ħ		╟╢	+	╉╋		╋╉	╂╋	┼╋			╆╄╴	┋┢╴			-+	╢	╋	-+-		┼╀╴	┢╉	łł	┿╽	·		H	┢┝	┼╉		╟┠	H	$\left\{ -\right\}$	- -		-++	╇	- .		╞
		· · · · · · · · · · · · · · · · · · ·	Ħ		\mathbb{H}	11	╢		††	Ħ	H	╋		╊╂╴				┿╋	╋╋	╋╋	+		H-	┼╋	╉╬	╈		┝╋	┝┨	╂┾	╁╂		┝╋╸	H	H	- -		┉				┝
			Π		IT	Π	11	:	Ħ	Ħ	Ħ	╈			T			+†	Ħ	11		-	.		Ħ	╋		H	Ħ	$^{++}$	╂╋		┢╋	H	╂┼	╉		Ħ	╂╂	+	+	
<u> </u>			Π			IT	Ш		T	Π	IT	T							11	11		h		١Ĉ					Ħ	! +	╞┼				Ħ	$^{++}$		++	+-	-	+1	F
		· · ·	Ц	_		Ш	П		(\prod				Π	Π	Π		}	h.	h	Π	Π			IT	T				TT.	11	11		tt	11		11	F
						Ц	11		Щ.		11	1-	_						Ш	11			k						Π	Π	П			Π	Π			11			Π	Γ
			╄	-		╟	╢		₩	╢		+		┨┼╸		\square		┽╂	⋕	╂┼	+			$\left \right $	Ц	Н			H	┞┟	Щ			11	\prod	Щ		Ш	Ц		\square	
			╋╋		-	╟	╢		╂╊╴	╟	┞┽	╋╌					··	•••	┢	+++	+				44	44		+		╏┼╴	$\left \cdot \right $				┝┝	H		╇╋	┝┥	-	ιH	H
			11	+	Ť	┢┼		<u> </u>	╂╋	łt	┝╋	╆	-+			+		╉╋	╈	╆┽	+	[1		╁╉			╟╋	+	┝╢╸			╂┼	╂┼	┼╢		╂╋	$\left \cdot \right $	-+-	·H	Н
			Ħ		-	Ħ	\dagger			th		1-	-	Ħ		H		++	╈	11	T		1	1	ťt	ł			┢┤╵	ŀ†	╞┨╴			Ħ	H	┢╊			┢╋	-	łŀ	ŀ
<u> </u>			П	\prod	T	\prod	\prod		Π	Π				\prod				П	Π	Π	I				II	IT				Π	II			<u>t</u> t	Π	П			ţ I	Ť		††
			┢┝	╶╂┤	+	╞┼	#			╢								╇	#	╄	╢			14	ĻĻ	ļĮ				ļŢ.	\prod		F	ĮŢ.	H	11		П	Π	Ţ	П	Д
	Unch		H	+	+	╟	╂┨╸		-	ł	Ľ-	+-		-+-		\oplus		┽╂╴	╢	H	+				H	₩			#	╟	┝┨╴			┞┠	\mathbb{H}	+		++	Į.Į	Ŧ	4	F.
+		ANCA.	╢	╉┥	+.	╉╋	╋╋	·	ł	₽	er la	4-		ŀ₽		쮜		┼╂	॑┤┤	++	+			H	9	粁		-+-	┝╋	╟╋				H	╟┼	+		41-	łł	계		ß
			t†	+		<u>†</u> †	†							Ħ	5				•	Ħ	\dagger			╞╞	Ħ	┼╋		-+-		╏┼╴	┝╌┨╌			\mathbf{H}	ŀ†	+		+	愲	╡	Ħ	
	bru 445 Chil	10 10	Π		16	hh			Π	H	90			4	11	90		T	IŤ	TT	11			h	120	5		T	Ħ	Π	11		-†-	tt	Ħ	Ħ		††	tt	K)	14	1

- 146 -

DEMPSTER HIGHWAY COMPRESSOR STATION

III-9 ELECTRICAL

III-9.1 ENGINE GENERATORS (INCLUDING SWITCH GEAR)

Since no purchased power from a power utility company is available at these sites, the prime power shall be generated by 2×450 KW generator sets with a 450 KW generator set as standby at the chilled station and by 2×150 KW generator sets with a 150 KW generator set as standby at the non-chilled station.

The generator costs include the supply of two natural gas driven generator sets, one (standby) diesel driven generator set, associated cooling and starting equipment, engine control panels, switch gear and metering.

Miscellaneous items associated with the generators such as exhaust extention etc. are included in miscellaneous (III-9.4).

III-9.2 MOTOR CONTROL CENTER (MCC)

The MCC shall contain the A.C. distribution system and equipment to provide 480/120/208V power to the various A.C. loads. It shall contain the conventional protective devices and provide a reasonably high degree of flexibility and continuity. Refer to simplified electrical single line Drawing Nos. FPL 39-49-91D and FPL 39-49-92D for details.

Two generators shall normally supply the necessary power requirements. If the standby unit fails to replace a downed generator leaving only one unit to handle the load, the essential services bus will remain powered and the remaining MCC load will be dropped. Not until two generators are in operation will the load be readded.

Using the philosophy that it is more desirable to operate a station at lower capacity than to shutdown completely , splitting of certain loads

shall be done. The condenser fan motors are such loads, by splitting them in half each being feed by separate breakers, if a fault occurred there would be less danger of the entire cooling system being down while the fault was repaired.

The MCC costs include:

- 1. Essential services bus containing the following:
 - a. main feeders supplying 120/208V distribution transformers, charger and inverter system, airport, etc.
 - b. transformers
 - c. sub-feeders supplying living quarters, lighting panels, inverter system, etc.
 - starters for hot water circulating system pumps, sewage system pumps, generator cooling fans, air conditioner, water supply pumps, etc.

2. Main breaker.

- 3. Feeder to non-essential bus.
- 4. Non-essential bus containing feeders to other MCC's, lighting panels and starters for miscellaneous equipment.
- 5. Propane condenser MCC No. 1 containing the starters for 50% of condenser fan motors.
- 6. Propane condenser MCC No. 2 containing the starters for 50% of condenser fan motors.
- 7. Wire, terminals and miscellaneous components.

- Chiller compressor's auxiliary equipment MCC's cost included in chiller compressor's unit costs.
- Main compressor auxiliary equipment MCC cost included in main compressor unit cost.
- Reverse starters for unit valve operators (to be located in chiller compressors and main compressor units MCC's but haven't been included in their costs).

III-9.3 UNINTERRUPTABLE POWER SUPPLY (UPS)

The UPS shall consist of the battery charger, inverter and battery. There shall be a UPS for the general station duty, a UPS for the main compressor unit, and a UPS for the propane compressor units. The costs of the UPS systems for the main compressor unit and propane compressor units are included in the cost of the units.

The station UPS shall be supplied from the essential services bus and be a parallel redundant system for greater electrical supply reliability.

The battery shall be fed from a parallel redundant battery charger system. Each charger shall be rated to carry the total load but normally will operate in parallel with the second unit sharing the load equally. Should one charger fail, the other unit will carry the load without any transfer delay time. Similarly, the critical A.C. loads shall be fed from a parallel redundant inverter system. A static transfer switch shall be part of the system, therefore, should there be a loss of A.C. output from both inverters, the switch will operate, bypassing the entire D.C. system and connecting the critical A.C. loads directly to the A.C. bus.

The cost of the UPS includes a 24V D.C. battery 800 AH, two battery chargers, two inverters, breakers, controls, transfer switches, panel wiring and fabrication.

- 149 -

III-9.4 MISCELLANEOUS

Included in the cost of miscellaneous items are the exhaust extentions to the generator units and automatic door closure on release of halon fire suppression system, etc.

III-9.5 CONDUIT, CABLE AND FITTINGS

The estimate is made on the basis of using conduits throughout the station including those runs which are aboveground (along outside of utilidors). Approximately one-quarter of the installation cost could be saved by using multi-conductor cables (teck cable) instead of conduits (where it is permitted).

Grounding for the non-chilled station is estimated based on installing a ground grid or mat based on a low impedence system. However, ground resistances are much higher in a permafrost area; therefore, a ground system that involves high resistance grounding is necessary at the chilled station. The cost of material and installation for a chilled station is substantially greater.

III-9.6 LIGHTING

The yard lighting estimate is based on use of high wattage, high efficiency and long life mercury vapour outdoor lamps. Two foot candle average, with slightly higher levels in relatively high traffic areas using 400 and 1000 watt units serves the basis for the number of standards and lamps.

The indoor lighting estimate is based on the lighting requirements for the various buildings using mercury-vapour high intensity discharge type and industrial and commercial fluorescent type fixtures.

TEM	SUPPLIER	DUANTITY	NT FRUE!	EXTENSION
ENICINIE CENER	TORS R. ANGUS			
AND CHUTCH CH	TOICS K. FINGUS			
IN SWITCH GO	TAR (CHILLED STA)			
NATURAL GAS	1	2	158,500	317.000
ENGINE	~·}			
·		-		
DIESEL .		/	68,500	68,50
ENGINE				
	•			
CONTROLS AND	the product of the	/	3.7,500	37,50
SWITCHGEAR	-		11	
•				· · · · · · · · · · · · · · · · · · ·
	•			·
•		•		
				···· ··· ·····························
		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		• •
			•	` `
<u>An an an an Arc</u>			1	
FST. 97	41,877			·
-				· · ·
LIEIGHT 49,00	0 185			-
·				
FOB - EDMO	NTON			
		·		1
	· · · · · · · · · · · · · · · · · · ·			
		· .		· · · · · · · · · · · · · · · · · · ·
· · · · · · · · · · · · · · · · · · ·				
		·		
	*			
	· · · · · · · · · · · · · · · · · · ·		S_B-TOTAL	423,000
		CONTINGENC	Y = ID 1/2	42,300

SYSTEM CO System No	9 ELECTRICH	<u>K</u>	· · ·	PAGE.
ITEM	SUPPLIER	QUANTITY'	UNIT FRICE	EXTEN
ENGINE GENERA	TORS R. ANGUS	1		
AND SWITCH GE	TAR (CHILLED STA)			
A (477 0 0 1 0 0 0 0				
	Alexandre Constantin	2	158.500	317
ENGINE	<u>). (). (). (). (). (). (). (). (). (). (</u>		- F	
				·
DIESEL			68,500	68
ENGINE			to the section of the	
CONTROLS AND	alen genista	7 12 1 1 1 1 1 1 1 1 1 1	3.7, 5~v	- 5
SWITCH GEAR	and the second second second second second second second second second second second second second second second		1.28 miles	
	an an an an an an an an an an an an an a			
		n na bhailtean star an an		· · · · ·
the production of the				· ·
		an the second second		
1 At St Barris	where the Willings			
	A STRACT	a frank frank starte		•
S. M. M. H. M. C. D. M. S. S. S. S. S. S. S. S. S. S. S. S. S.	Conference and the set	Mat .	1. 科学的学校的	
(mont men)				n an an an an an an an an an an an an an
FST. 97	41,877	a sector and a sector	and the second states and	е.
•		• •		
WEIGHT 49,00	0 185			•
/ ~// × -	· · · ·	and the second		•
FOB - EDMO	NTON	A State		•
			- while the second of the	1. Liter
	•			
			and the standard standard	
	<u></u>			<u> </u>
Course Co				·
				<u> </u>
			÷	· · · · · · · · · · · ·
	••••••••••••••••••••••••••••••••••••••		SLB-TOTAL	1117
		CONTINGENO	+	
			Y @ 10 %	42

SYSTEM NO. 9	ELECTRICA			
TEN	il-relez	CLANT TY		<u>-</u>
9.1 ENGINE GEN	ERATORS	1 m		
ANO SWITCH		· · · · · · · · · · · · · · · · · · ·		
(NON CHILLED S	<i>TA.)</i>			<u></u>
NATURAL GAS	R. ANGUS	7	65,000	130,
ENGNE 150 KW				
				· · · · · · · · · · · · · · · · · · ·
DIESEL ENGINE	R. ANGUS		24,000	24
150 KW		an an an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna a Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an Anna an		1. 1
	a to a factor of the second factor of the second factor of the second factor of the second factor of the second			70
CONTROLS AND			28,500_	28,
SWITCHGEAR	43			······
FST 97	= 18,067			
WEIGHT 20,700				
FOB. EDMONT	DA .I			Land Land Land Land Land Land Land Land Land
	· · · · · · · · · · · · · · · · · · ·			
	ر میں با میں اور <mark>ایسان میں</mark> اور میں میں ہیں۔ اور اور اور اور اور اور اور اور اور اور			
م من من من من من من من من من من من من من				
3				ан. Так — С. — — — — — — — — — — — — — — — — —
				<u></u>
ــــــــــــــــــــــــــــــــــــ		· · · · · · · · · · · · · · · · · · ·		
) 		<u> </u>		•••
• • • • • • • • • • • • • • • • • • •			and the second s	•
, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,			• · · · ·	•
n na serie ser		• •	SUB TOTAL	182
· •		CONTINGENO	V@ M7	18,

		A THE ALL AND	
MEMORTED .	COMPRESSOR	SANDN	
			 A state of the second state
and the second second second second second second second second second second second second second second second	(a) A second s second se second se second sec	이 물 물 수 있는 것 같아. 이 같아. 이 있는 것 같아. 이 것 같아.	 State of the second se Second sec second sec

TEN	EUPPLIER	QUANTITY	UNIT FRICE	ハンドンドン
.Z. MCC	CALL AND RE			
<u>.e.</u> ///		C. C. S. Land Street .		
CHILLED STA.	WESTINGHOUSE	ter som strager	to since	93,500
Mee Mee		. Here and set of the	Color States	
HAN AND AN CEA	entre de la serve	a and the states		
Maria Maria	A COLORADO	- April - Salar P.S.		
FST 57	(50%) = 2570	The set herein	· ····································	
	(5070) = 4,626		Company of Contract	a state and the second s
	AT LO DE LA COMPLET		. 120.000 (15.00 g ers 1.	
is contrations	were wetter			esere de la composition
WEIGHT, 470,	400 LB.	. A Break		ter and the second
	a series and the series of the	The states		
	Had you want to get the state of the		Rest Kitter also	
FOB. EDMO	NTON			an training the second
				are har the
······································				Mar anna a
ere de la compañía da ca			Tanadi - Me	
erreiten i 18		· Las and Maria		
a			tressed and the	
Sand and a strategy	4.15-24.25-11.97-5-5 2 72	The main of	l set and the set	
Max	Ste Asian State			han an an an an an an an an an an an an a
ST STORAGE ARE	press and a service se	WTT Sat		
	122 Burner			4 ****
		TINE Roots		
CHARGE ST AT				
		4 Agenti States		
	a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l	T A MARCH & M		
	a series and a series of the series of the series of the series of the series of the series of the series of the	a a second a second de la seconda de la seconda de la seconda de la seconda de la seconda de la seconda de la s		김 국수님 것 같아요. 그는 것 같아요. ㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋㅋ

CONTINGENCY @ 10 76 - 153 - TOTAL-

1076 9,300 AL- 102,800

COMPRESSOR STATION DEMPSTER

いくみすけえ ハロみす ふしそうレえく 9 ELECTRICAL SYSTEM NO

SUPPLIER

TEN

		•		
9.2 CONTINUE	FD			
NON CHILLED M	C WESTINGHOW	se	ار بر بر مورد و میشود و بیشی و در این میرماند میدهمین و این است.	55,500
FST 57 ((507.) = 1525			
	(5070) 2,745			
				an an the second
WEIGHT 248	800			

1

23

1.

755

14

ist in the

and the second second second second second second second second second second second second second second second

and the states

S. S. Salar

÷ .

Mar walk

P

1.5

BUANTITY

-IN.

STILE!

FOB. EDMONTON 54 5.0

and the second second second second second second second second second second second second second second second 1

2

2014 - 10 2014 - 10

 $\frac{1}{2}$ ł, Ĵ,

> SUB TOTAL 55,500 CONTINGENCY @ 10 70 - 154 -61,050 TOTAL

5,550

SALE 4

SYSTEM NO	9 ELECTR	ICAL		5
TENI	SUPELES	SUANTITY	LN.T. FRICE	EXTRACTO
			n a sean a star a star a star a star a star a star a star a star a star a star a star a star a star a star a s A star a star a star a star a star a star a star a star a star a star a star a star a star a star a star a star A star a star a star a star a star a star a star a star a star a star a star a star a star a star a star a star	an ann a' sann Ann a' an a' san a' san a' san a' san a' san a' san a' san a' san a' san a' san a' san a' san a Tao an a' san a' san a' san a' san a' san a' san a' san a' san a' san a' san a' san a' san a' san a' san a' san
	••••••••••••••••••••••••••••••••••••••		••••••••••••••••••••••••••••••••••••••	· · · · · · · · · · · · · · · · · · ·
9.3 UPS	HISTORICAL		-	· · ·
CHARGER + A	NVERTER	1	49000	40000
BATTERY		ILOT	11,000	11,000
				······································
e de de sucès, es décembres es d				
e gele i nago na tigo o kijemo.				
FST: 9.%	- 50 49	. A CARLES AND A CARLES AND A CARLES AND A CARLES AND A CARLES AND A CARLES AND A CARLES AND A CARLES AND A CAR		an an an an an an an an an an an an an a
al e nage i e i e				
WEIGHT 20,0	00			
FOB, FOMON	TON			
e les se de la serie de la serie de la serie de la serie de la serie de la serie de la serie de la serie de la		· · · · · · · · · · · · · · · · · · ·		
		". season rain and Fighters 228. "		n han an an an an an an an an an an an an a
			andra in the second second second second second second second second second second second second second second	
		and the first of the second second second second second second second second second second second second second		
				· · · · · · · · · · · · · · · · · · ·
۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ ۱۹ ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰				· · · · · · · · · · · · · · · · · · ·
			•	
	······································	••••••••••••••••••••••••••••••••••••••		
		-	SUB TOTAL	51,000
•		CONTINGENC	1@ 1070	5,100

	STER, COMPR	RESSOR	ETATION I	
	9 ELECTRICA			
TEN				
				······································
9.4 MISC.			an an an an an an an an an an an an an a	25,000
(ENGINE GENERAT	7 e		ى ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەر ئەربىي ئەربىي ئەربىي ئەربىي ئەربىي ئەربىيە ئەربىيە ئەربىيە ئەربىيە ئەربىيە ئەربىيە ئەربىيە ئەربىيە ئەربىيە ئەربى	· · · · · · · · · · · · · · · · · · ·
EXHAUST EXTENSIO	NS,			
ETC.)				
				8999 •
				ومناجدوا مرمين المراجع ومحمد سيستومه ومحمد ويتع
		an an an an an an an an an an an an an a		
FST Q 9%	2475			
Real and a set of the statistical states and the states of the states of the states of the states of the states				and a second second second second second second second second second second second second second second second
WEIGHT 20	000 65,			
FOB EDMON	TON			
· · · · · · · · · · · · · · · · · · ·	シスト 火払 かた作り かえやく 知道 たかい			

			The second second second second second second second second second second second second second second second s	
i Alexandria				
7		ale state i fan haarte	- Alex Star Marth	
			-41 HT =:-:	
	u Ferre			
lang Alba	inter e			
		a and a company and a second		

. .

SUB TOTAL 25,000 2500 CONTINGENCY @ 1070 - 156 -TOTAL 27,500

皿-9:5

DEMPSTER COMPRESSOR STATION

SYSTEM NO E- 9.7 Electric Heat Tracing

PAGE OF

ITEM	SUPPLIER	SUANTITY	UNIT FRICE	EXTENSION
HEATING CABLE	Pyrahanax	3.00' ×4	104	3170
Price inclu	les Cable, To neves kittings an	mporature (Controllers Th	ermocouples
and miscella	neous kittings ar	d strapping		
Estingher	Fieight to Edmon	Im		130
	*	na in the grant and the second second second second second second second second second second second second se Second second second second second second second second second second second second second second second second		# 3300
			- <u></u>	<u>,</u>
		and a second second second second second second second second second second second second second second second		
97	and Andrew Standard and Andrew Standard and Andrew Standard and Andrew Standard and Andrew Standard and Andrew Stand Andrew Standard and Andrew Standard and Andrew Standard and Andrew Standard and Andrew Standard and Andrew Stand		ga part for a sure of the	
		میں میں اور ایک ایک ہے۔ اس میں میں اور ایک ایک ایک میں اور ایک میں اور ایک میں اور ایک میں اور ایک میں اور ایک	an an an an an an an an an an an an an a	
	an an an an an an an an an an an an an a			<u></u>
			and a second second second second second second second second second second second second second second second	· · · · · · · · · · · · · · · · · · ·
	and the second second second second second second second second second second second second second second second		a segura de la composición de la composición de la composición de la composición de la composición de la compos	
		electronic de la companya		
•				
			· · · · · · · · · · · · · · · · · · ·	·
		· · · · · · · · · · · · · · · · · · ·		
	· · · · ·		•	
	· · · · · · · · · · · · · · · · · · ·			·
		4		
				<u> </u>
Federal Salas	1	·		
Fleight Estimo	te 400 165			
			SUB-TOTAL	
	<u> </u>	CONTINGENC		
		- 158 -	Y @ 10 % TOTAL	
				3630

DEMPSTET COMPRESSOR STATION IT-9.5 SYSTEM COST SUMMARY SYSTEM NO PROPHUE SYSTEM Electrical Heat Tracing PAGE 1 OF QUANTITY UNIT FRICE EXTENSION SUPPLIER

ITEM # 700* 100' Heating Calle . 24* 164 \$ 2150 500' 1850 8001 : 10 " _____. 625 6. 1001 6 " 1500 2810 1200' 4" 2500 5... (*) 1 34 500' 1500 400 1 the second second second · • 2 " 1200 1/2" يە يەركىيىغ ^مىلەر بەر 500 1500 500' £ M a second and the second second · · · · 1500 5.6 Ishal Provane Elect 1 16 375 Heat Tracine $= \sum_{\substack{(1,2),(1,$ the Second а. in fa typeus Cable, Tempere Thermocouple and we Controlle Prices include - Il Internet nya ini kana na harawa Various Rittings المؤاسة والمؤلو وحلنا يو دي. mtr Freight to Ed. Estimated 1700 18075 e ha y daga karang a berdara and the second and at the manufacture and the second Carlon & March 1 . . . $(a_1,\ldots,a_{n+1}$ and the state of the state 6100' XIO watts/ft s dige = 61 KW = 0, \sim 1.1.5 ÷ ب 🗠 د A1 and the second second second second second second second second second second second second second second second -7 na gini kiti . a stra 10 Federal Sales Tax # 1600 Freight estimate 2000 lbs ELE-TOTAL 19,000 CUNTINGENCY 2 10 1,900 20,900 こ エスト

Q# (_____)

- 157 -



Project Foot Wills - Dampetic			Estimate No.	-
Item No	Account N	0	 Date	
Description_Electrica	<u></u>		 Sheet No of ,	

	Description of Work	Unit	Q	lanti	ty		Hou	8		L	abou	HE		Equ	lipn	nent	۱ I	м	aţer	ials		Sub	CON	tract	ts:	Job	Sup	plies		Tota	il Ce	ost
	Enjure anoratra.		П	\prod	Π		Ш	10	0 16	N	Π	Set.	b		Π	Π	ПТ		Π	20	Ho		Π	Π	Π		ТГ	ΠΓ	11-		10	00.
			П	Π	Τ		Ш	Π			Т	TT	Π		Π	П	Π		TT	TT'	TI			Π			TF	(TT)	Π^{-}			T
			T	Π	Π		Ш	Π			Π		Π					·	T		Π				Π		TT	11		-+11		
				\prod											II	Π	Π	•	Π	Ш	Π		Π								11	Π
				Ш																	Π						\square				Π	Ш
	Switchelder Bus & MCCS			Ш	11	I	41	10	2 1	Þ.	111		D.	·						10	hd.							\square			1	800
				111	44		\square	11		-	111	╶┠┼┨							44		Ц.			444			44	+++'		-111	-++	11
·			++-	+	-		┽┼┤		-+		┨┽┥		₽₽-				┟∔┠	+		$\left \right $	┽╉		++		11						+	
		 	┿	┼┼╿			╉╋										┞╫╀		-╂-╂	+++	┼╂		-++	+				╞╌┠╌┼┙		-+++		++
-	Porte and Control	╂╍╍┥	┿╋	$\left \right $	++		┽┼╂			<u>.</u>		10	L-				₩		╉╋	200	++		╉╋	+++			++	┝╊╾╄╼┦		╺┾┽り	╘	+
	I TUNK WAL WITH	<u>+</u>	┼╂╴		╺╊╋╸		╅╫╉		0 14	-	H		-+-		╏┼╴	╏╂┥	+++		+#		P			1+1				┟┠┼┦┥		┥┼┡	47	14
	ADT L Would Let tracing	+	-+		╉	<u> </u>	╆╂╂	140	2	-+		600	2 -		╏┼		\mathbb{H}		╂╆				-++	+						╍┼┼┦		60
		1	++-								114	\mathcal{H}	1						10	H	71			-				i † † †		-111		Ti
		11	++-		11		111	T			111							†	11	111				11				1111		• • • • •	11	11
	Highting lottor to + 10 + 5 + 5 + 30 - 90		TT	Π	T		TT	230	0 16	8	Ľ	-180	6		Π		Ш			44	-			Ш	Π		Π	ΠT			4	18
			T		Π					-									ΤĽ	Π												
	inci Priagenzy alle yard				Π		Π	10	1		1	200	2						Ih	400	20							\square			1	
																			11		11							Π		_		
			44-	Ш	11		111			_						Ш	111		#		╡╉		-11				44		1	444		
	Betteries and charges incl UPS	ŀ			44		╆┼┼	30	민병	₽.		460	0 _		.	┝┢┥			┨┥	lr	种							- -		-++	-11	18
		I	┥╉	+-	┽╂		-1-1-1	╇╄┥			┥┽┥		┟┟-						#		$\left\{ \cdot \right\}$		-++				++	┟╌╽╌╎╌╵	┝-╿			++
				╏┫╏	-++-	<u> </u>	┢╋╋	\mathbf{H}			+++	-	╢╋		┨┾╴				++	┪┠┼	₩			++-	-+-		· • •	┟╏╍┽┙	<u> </u>	╶┽┾╿		-
· •				┝╆╿	· +-+:		+++	++-					- -			ļ. ļ.				┼┟┼	$\frac{1}{1}$		-++	╊	┝┢			╽┠╍┽╵				· h
·	Grownew	┼ ──┤	++-	┝╋╂	+++		╅╫╋	10	<u>jų</u>	9		200				it-	┝┾┦		╈	400				++				┟╂╋┦		-+++	\uparrow	20
		1-1	++	ti l	11	İ	111	Ĩ	¥ -33	- T	111		1		1-1-				11	FT				11		1		Π	f†	11		
	······································	†			\uparrow		111	Τt	7				H							111	11			11						111	-	11
	Unchilled To		11					160	0		hK	360	6			Π			1	60	10									ТL	74	3
			T	\square	Π		14	1							\square		Ш	(Ħ	11	П		11	Ш	Ш					Π_{d}	T	4
	Kin 875 Chulle				ļļ		11	180	0		2	ofe	0					-	124	0	2										46	X

D001-1 135EP/6

DEMPSTER HIGHWAY COMPRESSOR STATION

III-10 INSULATION AND PAINTING

III-10.1 INSULATION

This estimate includes insulation requirements to standards of previously installed stations for the above grade high pressure gas piping and the gas turbine compressor package exhaust ducting at both the chilled and non-chilled stations. Insulation for the propane piping, propane vessels, propane equipment and the propane turbine exhaust ducting is included at the chilled station.

III-10.2 PAINTING

This item includes the field painting requirements for all exposed piping systems, equipment, building steel, masonry partitions, exposed concrete and miscellaneous architectural features to standards of other previously installed compressor stations.

SYSTEM COST SUMMARY SYSTEM NO. PROPANE SUFFER INSULATION MATLEPAGE OF

ITEM SUPPLIER QUANTITY UNIT FRICE EXTENS INSULATION 20'01. A" + Link. 200' 27" 50 INSULATION 20'01. A" + Link. 200' 27" 50 If'of A" + Link. 200' 19" 152 If'of A" + Link. 800' 19" 152 If'of A" + Link. 800' 19" 152 If'of 3%" + Link. 1200' 12" 144 10'of 3%" + Link. 200' 10" 7"	00 00 00
16'of 4" thick Roc' 19 ± 15 2 10"of 31/2" thick 12 00" 12 ± 10 4 10"of 31/2" thick 12 00" 12 ± 10 4 1"dd 31/2" thick 200" 10 ± 20	<u>no</u>
16'of 4" thick Roc' 19 ± 15 2 10"of 31/2" thick 12 00" 12 ± 10 4 10"of 31/2" thick 12 00" 12 ± 10 4 1"dd 31/2" thick 200" 10 ± 20	<u> </u>
10°00 31/2° thick 1200° 12° 144 erd 31/2° thick 200° 10° 20	
e"dd 31/2" thick 200' 1010 70	n n 🦾
6"d 31/2"thele 1500" 9= 135	00
4"dd 3" thick 1200' 650 78	00
3'od 3" thick 500' 55 27	50
2" od 3" thick 700" 410 31	50
112'ed 212"thick 500' 350 171	50
1" al 21/3" thick 500" 300 150	0
Sub Total Propane System Insulation (Pipping only) 6701	10 -
Estimate Freight to Edmonton 20	00
Subtotal 6901	<u></u>
	
Federal Sales Tax 6200	
Freight Estimate 20 opullas	
	·····
SUB-TOTAL 70,0	00
CONTINGENCY @ 10 % 7,0	00
- 161 - TOTAL 77,0	ు ం



Dillingham Corporation Canada Ltd.

Project ________Estimate No. _______Estimate No. _______ Items No. _______ Account No. ______ Date ______ Description ________Sheet No. ______ of

	ESTIMATE COST SHEET					C)escr	iptic	on	9	li	J	ìų))																									
	Description of Work	Unit		Que	antit	l y .		Но	urs			L	abo	our			Ec	julp	mei	nt		Ma	steri	iais		Si	bcc	ontra	acts		Job	Sup	plie	35	Ť	otat	Co	st	
	Equipment	QU	\square	П	ļþ			П	4	h	1	9	П	わ	d	2					78	Ŋ	Π	ko	4		П	П	Π			Π	Π	Ш		\prod	21	0	1
┝╌┼╴				╂	┼╂╸	╫		╢	┿┠	╂╂	╀╴		╂		┼			-			-		╟	┢					┝╢╸			<u></u> ↓ ↓				┽┡			-
		╏╌┨	┢╊	╂╋	$^{+}$	╂╂		╈		╞┼	+-		$\dagger \dagger$	+	╂	+							┠┢╴	╈			╂╂	╉╁	┝╋	┝╂╍	-+-	┼┼┥	╞╊┥	┝┼╋		┼┼	╊╫┩	┢╆┥	1
1					Ш	П		П	IJ	Π	L		П	Ш	П													Π				Ш		Ш		肛			
F-	Pipmie & Valven -	94	H	++	+p			╢	1	种	44	2	+	ስ	00	<u>P</u>		╉	┼╆				$\left \cdot \right $	k	eμ		╢	₽	$\left + \right $		-	+	$\left + \right $	┝┿╉		#	31	4	ł
		╂──┟	$\left + \right $	++	╀╆	┽╋		╉╂	╢	ŧŦ	╈		╂	╂	┢	+-			┥╋			+						₩	+		-	┫╼┨┩		┝╋╉		╂╂	╂╊╽	- -	ł
				П		Ì		\prod	Ţ	П			T	П																									ļ
	Boldhila		+	+	┼┟			╂╂	╢		. 11	R	+	∄	Ge	+		+	+			-	H	4	Н		┼╂	┥┥	╟┼			┢┼┦	┝┠┥	┝╫╇		╄╂╴	╢	<i>0</i> 9	ł
	- Soniduja	401						╉╉	†¶	11	19		t	11	T	۹			1				<u>††</u> -	1	YU	-	\dagger		inter T	-		╏┼┦	┟┨╼┥		-+		134	ZY	
			П		\square	\prod			H	H		_	H				_																			ļļ.			
		<u> </u>	┝┟	- +-	┼┢	╉╋		╉	┼╊	╁┼	+-		•	╂╂	╂╉	+-	<u> </u>		+								┼┠	┼┼					┝┠┥	┢┨╌╂╴		╈┠╸	┼┼	┝╂┩	
			H			\dagger		11	11	††			† †		++	1-					1-		Ħ		Η	-	┼╋	† †-									†††	\mathbb{H}	ł
					\prod	T			ļĮ.	Π.		_			П							_						T.					Π						ļ
		╂──╁	-+	╉╂	+	╂┾		╈	┼╊	┢┥	╆		·┢-┥	┼╊	┼┨	╶┼∽	<u> </u>		+			<u>-</u> +-		┝┣╴	H	. <u> </u>	┿╂	╉╋	+			$\left\{ + \right\}$	┝┠┥	┝╁╉		╡┨╴	++	\mathbb{H}	
					tt	\mathbf{t}																																	
		$\left\{ \right\}$		++-		44.		+	₩	$\left \right $			-	┼╂	╉	4											44	$\left \cdot \right $						+++		-	$\left \right $		
		╉╧╼╼┢	i i	┿╋╸	+	┼┝		┥┽	┼╊	┢┼			·	┨┨	┿╂	╌╁╍		+	+					╞┝╴			+	┢╢	-			$\frac{1}{1}$				+-			1
															T												11												
		$\left \right $	-	+	╢			╢	╢	┢			╂┼	╢	╢	┨	_	╢	┼╂								╢	$\left \right $		+		Η	┼┾┦	┝┼┼╂		∔ ∔.	$\left \right $	┝╋┙	$\frac{1}{1}$
			· +	╉	╁┠╴	┝┥		┢┢	\mathbf{H}		,		\mathbf{H}	┼┢	1	-[-			Ħ					Ì		5	┼┢	\dagger				}		╎╋╋					ļ
	Unchilled 6	10							A	24			П		200	4							ļ	*	20												1	99	ļ
		┨╌╌┨	-+	++		┼┼		╢	łľ	┟┼	+-		ļĮ	\dagger	11								4	łľ			┥┥	+	H			┟╷┠╷	╞╞┥			+	\prod		
	10m 60s Chilld	╞╼┥	+	+		┤┼		╉╂	H.		; -	-	11		*							-+-	11	50	00		╊╊	╋╋			-		t t t	r H H		th		on	

162

D001-1 1385976



Dillingham Corporation Canada Ltd.

Project FOOTHILS - Dumpton

Account No.

ESTIMATE COST SHEET

Item No._____

_____ Date _____ of ____ of ____

Estimate No.

			Descriptio	n of Work	Uni	it	Qu	anti	ty		Но	KI78			Lat	our		E	qui	Dime	nt		М	ateri	als		Sub	con	trac	ts	Jo	b Si	upp	lies		To	tal	Co	ist
		Ewpne	上 1	web unt	És		\square	Π		3 100	Π		1	140	T				Π	Ш		100	D	Π		70		Π	TT	Π		TT	Π	П	╓┼╌	Π	Π	Π	Ŀ
				chilles	1								10		Π	1	500 500		Π	Π	П	10			201	0		T		T			11	111		71	11		†1
_		·. ·	9	vinus	1					1 40			100		П	ち	500	· ·	П			20			40	11		TT	11	\mathbf{T}	1								t
4				-						1						Ш								Π	Π	Π		Π		Π		Π	I		_			T	Γ
ľ		.				4			\square		Ш	11	11		11			l	Ш				_			Ш							\square			П	T		
+		April	1000	proplan	4	4		_1	ø	- 1 0	-++	1	ų e	WP.	<u> </u>	33		·	11	44		10		11	40	20		Ш	11	П			\prod				\prod		E
+	·		100/	Hp'gn'	/			-11	10	4:55	-++		22		11		600		∔.			Ħ	4	17		20		11	11	11	ļ		 	Ш			11	\downarrow	L
\mathbf{h}			<u> </u>	· · ·		+	-+-	++	-+-+	+	╶┼┼	++	++		++		-		₩.	┼┼⋠			_			+		++	44-	#	.	┥┥┙	L.I.I			-+	-14		Ļ
ł								┽┼	┿┽		╺┼┼	╂	++		++-				∔I.				-		+				44-	₩,	 			- -			44		ł
						+		∔∔	╌┼╉	i	-++	#	++	<u>'</u>	++	++	· -		┼╂╴	$\left + \right $	-+-		-+-	┞╫┩	╈╋	╉╋		++	₩	╂╂	_	┿╋┦	Ļμ	┞╫┥	÷.	_	++	+	
	···· ···			•		╉		++	╂╂		-++	╂╂	╂┠		H	++	++-		╈╂╴	╎┼┨			-	┟┟┤	-++	┽╋	+	┨╄	╂╂╴	╉╂		┽╂┦		H		++	• -		ļ
						+		╉	╉╋		╉	╂╋	╉╋		┼╂╴		+		┥╉╴	<u></u> +++			-	╏┟┤	╂╂	┼╂╴		╂╉	╉╂	₩	<u>+</u>	┿╋┥	┼╌┽╺┥	┥┥┥		-++	╶╁╍┟	+	
				······································	2	\mathbf{H}		++	┽╀	1-	-++	╂╊	tt.				╉╋		<u>†</u> -┨-	<u>†</u> ††	++		-		┼┼	╂		++	H	ŧt	+			+++		-++	t	-+	Ì
				······		11		††	+†	t -	++	††	tt	1	tt		++-		┢┣╴			-	-+-		Ħ	$^{++}$		$^{++}$	††	Ħ			┟┼╿	-1+		-††	+		1
						\mathbf{T}		Ħ	11	1	11	Ħ	Ħ	1	11			i	††-	111	++	-			Ħ	Ħ		Ħ	11	tt	+		H	Ħi	-	++		Ħ	l
			······································			††	H	11	Ħ		-11	Ħ	Ħ		11				† † •	†††		-			†	††		$^{++}$	╧╋	tt		†††	t t t			• [-]	f	-	-
						T		11	11		•11	11	tt		11				11-	111		-			Ħ	$^{++}$		tt	tt	Ħ	1	111		t †	-1	-11		-	1
			:	1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -		11		TT	11	1		Tſ	tt						† -	111		-			Ħ	+		Ħ	11-	† †		<u>††</u> †				1	t t		I
									11		П	T	T	1	TF				- I-					П	T	11		Ħ	11	tt	1			t t t	-	-11	11	Ť	
	·.	-						Π			Π	Π	П						Π		Π					Π		Π	Π	Π		\prod	Π	Π		Π	Π		
																									Ш														-
					·	11		11	11			╢	11.	 	11		1.		11		_]]]	_	_	44	11	11		<u> </u> _ .	11.	Ш						_			ļ
	: 					┦╢		44			┛	·↓↓	++	.	444		44		.		\downarrow			+-	11	11				11.		┥┫			1_	╺╁┟			ļ
			· · · · ·			+	++	44	++	<u> </u>	+	┼╉	++	<u> </u>	44-	Ш		 	₩-	11	-+-		-+-		₩	┿╋		#	↓↓	∔∔-	4	++					-1-1	-	1
								-+	++		╉	┽┠	╆┾		+				++		-+			$\left + \right $	╶┾╌┼╸				∔∔-	╁╂	h	┾┼┦		┞┼┽					I
		····•·		lb at stars		++		++	╂╋		++	- : -	5		+ -	Ł	20.		╇						0	H.			- -	++						· # }		Ł	ŀ
-				Unchalko		+	-++	┥╂	╊╂		╶╂┽	Ł	И	┨	14	F P	17 P		╂┠	┼┼╏	-++		-+-	ЬŇ	11	쮜		++	$\left\{ \right\}$	╂╂╴		•	i-i-i	╏╌┼╶┥			11	\$27	
					·	Η	++	-++	++		┥┼	Ħ	++	<u> </u>	╢┫	F			┼┝	┼┼┨	++	+	-+	+	11			++	╂	łł	+	÷ -	ŧ-ŀ	[· -+		· [+]	ŦŦ	H	l
ŀ			61.4%	Chilled		╋╢	╉╋	┼╋	++	<u> </u>	╉┤	t.	0	!	╉┫┥	60	000		┼╋	╟╢	-++	+	+	13		tt		Ħ	╉	+t-		╁╂┥	<u></u> +++	╏┽┦	-+	-++	Ti k	96	ł

DEMPSTER HIGHWAY COMPRESSOR STATION

III-11 TESTING, WINTERIZING AND STARTUP

III-11.1 TESTING

The estimate has provided for testing the compressor station high pressure piping and vessels, the propane system piping, vessels and equipment as well as the fuel gas system all in accordance with the NEB requirements.

III-11.2 WINTERIZING

The estimate has provided for the labor and materials for snow removal, hoarding and the heating of various structures in addition to the protection of concrete during curing.

It also provides for checking out the operation of all heating systems and heat tracing and winterizing valve operators, generator cooling water lines and heating system lines.

III-11.3 STARTUP

Provision has been made for the construction trade personnel to assist the operating staff and manufacturers representatives with the start up and commissioning of the compressor station facilities. Two-thousand five-hundred manhours were included for the chilled station and 1500 manhours at the non-chilled station for machinist pipefitter and electrical trade support.

DEMPSTER HIGHWAY COMPRESSOR STATION

III-12 MISCELLANEOUS

III-12.1 SITE IMPROVEMENTS

This item includes the final grading of the site, installation of drainage ditches and culverts, the placing of pitrun gravel on the storage areas, finish gravelling of the roadways and parking areas and to install the roadways and parking areas and to install the perimeter fencing. The supply of the materials such as gravels, culverts and fencing is included.

III-12.2 SAFETY EQUIPMENT

This estimate provides for a number of safety items that pertain to fire fighting and personal safety, such as dry powder extinguishers, water extinguishers, fire blankets, first aid kit, pneolator, safety harness, eye safety shields and goggles, hard hats, rubber boots, flashlights, grounding wires, manually operated gas detectors and replenishment of supplies.

III-12.3 LIVING QUARTERS FURNISHINGS

This estimate was prepared to assess the cost of providing furnishings and a few recreational facilities for the station living quarters and small items not otherwise provided for. It has been assumed that each occupant will have a separate bedroom, but there would be a community kitchen, living room and recreational area. The equipment may not be all in accordance with Foothills' plan, but it does provide for the basic requirements.

- 165 -

LEATELE _ AFRESSIK STATION - E-12.2

SYSTEM COST SLININARY

SYSTEM NO MISCELLANGOUS - SAFETY EQUIPMENT

PAGE - OF

SYDIEM NY	MISCELLANGOU	S - JAFETY E	QUIDMENT	PAGE OF
TEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
ANSUL K-150	Lesitt	5	1843	9215
ANSUL LTA20	b	10	214	2140
FLS PC Pump Tar	k ·	5	79	391-
F-90 FG " "		5	155	775
Stretcher	H	2	150	300
Ist Aid Kit	b	2	31	62
Fire Blanket	u	2	75	150
Pneolator	MSA		800	800
Safely Hainers	Levitte	Barrie Collector	10-03	001
Rope + Fasteners	n an an an Arrange an Arrange an Arrange an Arrange an Arrange an Arrange an Arrange an Arrange an Arrange an A	1 1 1	50	100
Eye Prolection		lot see	50	٥٦٢
Hara hal-s		12	10	120
Gas Detector	MSA	an an an an Araba an Arab	150	150
Wet Genr	Levitt	2	40	80
Salaly Flacklights		12 and		96
Grounding Wires		2		30
Mise Supplies		let let	770	750
S. I Total Sally	Equipment			15313
Freight to U	dimenter			400
			an an an an an an an an an an an an an a	15713
	2 1		round to	
Sales Tax	400			
Freight Es	timelie . 6000 lbs			
			-	
			· · · · · · · · · · · · · · · · · · ·	n na se alla Martina da como en esta da como en esta da como en esta da como en esta da como en esta da como en
				······································
	· · · · · · · · · · · · · · · · · · ·		SUB-TOTAL	16,000
		CONTINGENC	Y@ 10 %	1600
		- 166 -	TOTAL	17,600

Miscellaneous

Ansul K-150 Stock Nº A 10428 - 1843 X5 : 9215 Ansul LTAZO " " A 145-10 - 214 YO : 2100 FLSDC Sqollin water jump tenk - 78° X5 = 394 F- 90 FG Indian Fire pumb 154 × 5 = 773 Strehehir - 150 ×2 = 300 r 20 mar First and hit 31- 42 2 62 Fire black of 75 72 150 Powder Con enlinders ate 750 X2 1500 14534 Prestator 800 15334 Rondways 450' + 400' + 550' + 200' + 100' + 500' + 300' +100' - 2600'x 25 Gr wide YE-02-0100 72 B Walkways 150 + 50 + 50 + 50 + 75 = 475' 4' with Flare line 100 + 400 + 200 +100 +100 = 1100 q" - 10 = A 6 * 2r = Pr3" 51325 92-7. 13m - 167 -

12-12.3

DEMPSTER COMPRESSOR STATION

SYSTEM COST SUMMARY SYSTEM NO. LING GRADES Formishing

PAGE 1 OF 2

KitchenInterventionContractSeriesIntCountersIntIntStoreIntSeriesStoreIntSeri	SYSTEM NE	L. AG GERETERS	- Fornishings		PAGE 1 OF (
ContractsFreesIot12001200Counters $-$ IotGeoGeoStore $-$ IFreeSooRetringeration $-$ IBooBerDree Freeze $-$ IFreeGeoDree Freeze $-$ IFreeFreeDree Freeze $-$ IFreeIrrooDree Freeze $-$ IIrrooIrrooDetaile diffice Arteria $-$ IotIrrooDetaile difficeIrrooIrrooIrrooBedied Matteres $-$ Irroo200Dresser, Chaird Night TableIrroo3600Linea, blanket, pillowsIrroo1200CareetingIrroIrrooCorectingIrroo1200CorectingIrroo1200CorectingIrroo1500Withing DeckIrro1500Mice TablesIot1700LamosTLo300FormerIBooBooRedie CareeteIBooBooRedie CareeteIBooBooRedie CareeteIBooBooRedie CareeteIBooBooRedie CareeteIBooBooRedie CareeteIot10001000Redie CareeteIot10001000Core etIot10001000	ITEM	SUPPLIER	QUANTITY	UNIT FRICE	EXTENSION
ContrainedSeries10+12001200Counters $-$ 10+9090Start $-$ 19090Retringentor $-$ 19090Dree Freeze $-$ 19090Dree Freeze $-$ 19090Dree Freeze $-$ 190100Dree Freeze $-$ 11001000Dreative $-$ 10+10001000Frantise $-$ 10+10001000Dreative $-$ 122002400Dresser, Chaird Night Table12101200Linen, blanket, pillows12101200Careeting12101200Correcting1270600Within Derk10+170300Solad Clairs10+170300Tuing Room10+1001500Mice Tables10+1001600Lamos5180Redio Clairs180Redio Clairs180Redio Clairs180Redio Clairs1800Redio Clairs180Redio Clairs180Redio Clairs180Redio Clairs180Redio Clairs180Redio Clairs180Redio Clairs180Redio Clairs180Redi	Kitchen				· · · ·
Countrix u lot q_{CL} q_{CL} q_{CL} Store u v v v v v v Retrigonation v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v Drep Freese v v v v v v v v Drep Freese v v v v v v v v v v Drep Freese v v v v v v v v v v v Drep Freese v v v v v v v v v v		Stars	104	1200	1200
Signe - 1 500 500 Retrinovalis - 1 800 800 Dres Freeze - 1 700 Y00 Dtes freeze - 1 700 Y00 Dtes freeze - 1 1000 1000 Dtes freeze - 10+ 1000 1000 Dtes freeze - 10+ 1000 1000 Frantise - 10+ 1000 1000 Bedrooms - - 10+ 1000 1000 Bedrooms - - 12 200 2400 Lines blackst, pillows - 12 100 1200 Careebing - 12 100 1200 Careebing - 12 70 600 Withing Deck - 12 100 1200 Mise Tables - 10+ 1700 1700 Mise Tables - 10+ 1700 1700 Mise Tables - 10+ 10		<i>v</i>	10+	900	ann
Retrinovalist - 1 800 800 Dres Freeze - 1 700 Y00 Utensile Alline Actioners - 10+ 1100 1100 Fornitize - 10+ 1000 1000 1000 Bedrooms - - 12 200 2400 Dresser, Chair & Nesh+ Table 12 200 2400 Dresser, Chair & Nesh+ Table 12 300 3600 Linan, blankety, pillows - 12 100 1200 Careeting - 12 100 1200 Careeting - 12 100 1200 Careeting - 12 70 600 Writing Derk - 12 70 600 Writing Room - - - - Suba & Chairs - 10+ 750 750 Mice Tables - - - 320 Tune Room - - - - - Room - - <td>1</td> <td>~</td> <td>1.2</td> <td>500</td> <td>500</td>	1	~	1.2	500	500
Dress Freeze - I Too Yoo I)tensile diffuse Action - 10+ 1100 1100 1100 Functore - 10+ 1000 1000 Bedicomi - - 10+ 1000 1000 Bedicomi - - - - - - Bedicomi - - - - - - - Bedicomi - <		· · · · · ·	1	\$20	800
1)truit + Allice Actares - 10+ 1500 1500 Furniture - 10+ 1000 1000 Bedirooms - - - - Bedirooms - - - - - Bedirooms - - - - - - Bedirooms - - - - - - - - Bedirooms -		-)	500	500
Function-10t10001000BedroomsiiBedroomsiiBedroomsiiDresser, Chaird Night TableiiDresser, Chaird Night TableiiDresser, Chaird Night TableiiDresser, Chaird Night TableiiDresser, Chaird Night TableiiDresser, Chaird Night TableiiDresser, Chaird Night TableiiCarachingiiCarachingiiCarachingiiCurleiningiiCurleiningiiCurleiningiiCurleiningiiDentiiMise TablesiiIndice TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: TablesiiImage: Tables <t< td=""><td>I ·</td><td>inners -</td><td>104</td><td>1500</td><td>1500</td></t<>	I ·	inners -	104	1500	1500
Bedirooms 12 200 2000 Dresseer, Chaird Night Table 12 300 3600 Linen, blanket, pillows 12 12 300 3600 Carpeting 12 12 100 1200 Carpeting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Writing Deck 17 200 2400 Living Room 10+ 1700 1500 Mise Tables 10+ 1700 1500 Mise Tables 10+ 750 3200 Tu diape Plager 1 1000 1000 Redio d'Carsolt 1 800 800 Redio d'Carsolt 1 800 1000 Redio d'Carsolt 1 1000 1000 Carpet 1000 1000 1000			lot	1000	1000
Bedad Mattress - 12 200 2000 Dresser, Chair & Night Table 12 300 3600 Linen, blankets, pillows 12 12 77 900 Carpeting 12 100 1200 Carpeting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Writing Derk 12 200 2400 Living Room 12 200 2400 Living Room 104 1700 1700 Sula Chairs 104 750 350 Mise Tables 104 750 350 Lamos 5 60 350 TV diape Plager 1 1600 1600 Radio & Cursets 1 800 800 Rechros Curlains etc 104 1000 1000				-	<u>_</u>
Bedad Mattress - 12 200 2000 Dresser, Chair & Night Table 12 300 3600 Linen, blankets, pillows 12 12 77 900 Carpeting 12 100 1200 Carpeting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Curreting 12 100 1200 Writing Derk 12 200 2400 Living Room 12 200 2400 Living Room 104 1700 1700 Sula Chairs 104 750 350 Mise Tables 104 750 350 Lamos 5 60 350 TV diape Plager 1 1600 1600 Radio & Cursets 1 800 800 Rechros Curlains etc 104 1000 1000	Dedrooms				
Dresser, Chair & Night Table 12 300 3600 Linen, blanket, pillows 12 15 900 Carpeting 12 160 1200 Corpeting 12 160 1200 Corpeting 12 160 1200 Corpeting 12 160 1200 Corpeting 12 160 1200 Writing Derk 12 200 2400 Living Room 10 1200 1500 Solad Chairs 10t 1700 1500 Mise Tables 10t 750 3200 Mise Tables 10t 1600 1500 Radio & Chairs 1 1000 1000 Radio & Catsola 1 800 800 Reco 10t 1000 1000		🖌 an an an an an an an an an an an an an		200	2000
Linen, blankett, pillows 12 12 100 1200 Carpetinia 12 100 1200 1200 Corteinia etc 12 50 600 Writing Dork 12 50 600 Living Room 12 50 2400 Living Room 12 50 2400 Mise Tables 10+ 1500 1500 Mise Tables 10+ 750 750 Lamps 57 60 300 TV d Tape Plager 1 1600 1600 Redio & Carsete 1 800 800 Pictures Colonis etc 10+ 1000 1000 Carget 10+ 1000 1000		rgh+ Table	12	300	3600
Caroching 12 100 1200 Contains etc 12 50 600 Writing Derk 12 50 2400 Living Room 12 200 2400 Living Room 10+ 1500 1500 Solad Chairs 10+ 1500 1500 Mise Tables 10+ 750 300 TV diape Player 1 1600 1600 Redio Contacts 1 800 800 Pictures Contains etc 10+ 1000 1000 Carpet 10+ 1000 1000			12	75	900
C. Hairis etc 12 50 600 Writing Derk 12 200 2400 Living Room 12 200 2400 Living Room 12 200 2400 Mise Room 101 1000 1500 Mise Tables 101 101 750 Lamps 5 101 750 TV d Tape Plager 1 1600 1600 Radio & Christe 1 800 800 Pictures C. chains etc 101 1000 1000 Carpet 1000 1000 1000			12	10-0	1200
Writing Deck 12 200 2400 Living Room 104 1700 1500 Subart Chairs 104 1700 1500 Misc Tables 104 750 750 Lamps 5 60 300 Tu diape Player 1 1600 1600 Radio & Carsets 1 800 800 Pictures Cylamis etc 104 1000 1000 Carpet 1000 1000 1000				50	600
Living Room Solad Chairs Nice Tables Lamps TV d Tape Player Radio & Carsete Pictures Colonis etc Carpet Living Room 10+ 10+ 10+ 100 100 100 100 100			12	200	2400
Sola & Chairs10t1500Mise Tables10t10tLamps560TV & Tape Plager1Radio & Casseta1Pictures Cabinis etc10tCarpet10tCarpet1000100010001000100010001000				·	
Solad Chairs 10+ 1500 Misc Tables 10+ 750 Lamps 5 60 300 Tud Tape Plager 1 1600 1600 Radio Carsoto 1 800 800 Pichros Carbonis etc 10+ 1000 1000 Carpet 1000 1000 1000	Living Room				
Misc Tables 10t 750 750 Lamps 5 60 300 TU diape Player 1 1600 1600 Radio & Carsota 1 800 800 Pichros Carbanis etc 10+ 1000 1000 Carpet 1000 1000 1000			10+ CANAST	1500	1500
Lamps 5 60 300 TV & Tape Player 1 1600 1600 Radio & Carsoto 1 800 800 Pictures Carbonis etc 10+ 1000 1000 Carpet 1000 1000 1000	1 ·	Beer States	lot and	טזר	750
TV dTape Player116001600Radio & Carsota1800800Pichuros Cularios etc10+10001000Carpet100010001000		an an an an an an an an an an an an an a	7	60	3:00
Radio & Carsota I BOD <				1600	1600
Carpet 1000 1000			1	800	800
Carpet 1000 1000	Pictures Carlains	ete	lo H	1000	1000
				1000	1000
ELC KOOM	Rec Room				
				2	800
			N	100	100
	1		· 1	3+0	300
		Ciamos etc	1.51-	210	2 170
			lot	600	600
Carper 1000 1000		•		1000	1.1.4
		rete *		500	S. Tyra
			Vry Forward	SUB-TOTAL	28.000
- CONTINGENCY @%				Y@%	
- 168 - TOTAL-			- 168 -	TOTAL-	•

111-12 2

DEMPSTER COMPRESSOR STATION

SYSTEM COST SUMMARY SYSTEM NO. LIVING QUARTERS FURNISHINGS PAGE 20F 2 ITEM SUPPLIER QUANTITY UNIT FRICE EXTENSION Carried hornard From paye 1 20000 Merning Equip 101 500 500 Creen have Ì. 3000 3000 ъ. $x \in \mathbb{R}^{n}$ 5 ^{- 18} 6 27 5 - - -Sales tax estimate # 2800 Estimated weight 11000 Freight to Eduintum included. SUB-TOTAL 31 500 CONTINGENCY @ 10 % 3150 - 169 -TOTAL 34,650



	Description of Work	Unit		Que	unti	ty		H	loui	*			Lai	bou	-		. 6	qu	ipm	ent	:		M	ate	rial	8		Su	bco	ontr	acla		Jo	b S	upp	lies		1	Fot a	al C	Co 	st	-1
	Cradnic to site	4		Π	2	4		0	Π		0	15a			K,	b					Π			Π	Π		П		Ш			Ш									M	Ы	2
	- 45 been - 43444 - 15040	11	Π	Π	Π											\prod					Ш			Ш			Ш					Ш			Ш								-
	~ 35749 - 13648 < 30440 0 St			Π	Π	Γ			Π	Π			П	П		Π											Ш		Ш			Ш				Ш.					1!	Ц	
			Π	Π	П	Τ			П	Π	T		П	П	ŀ	Π													Ш											Ш	1		_
			П	Π	T	Т			Π	П			П	Π					, '											Ш		Ш		Ш	Ш	Ш	Ц			Ц	Ļ	Ц	
	CIDAU & YORAL MILLS	<u> </u>	Π	Π	Π		0.7		П	h	h	支		П	le.	h						h	•	1	ት	4			11	Ш		11			11					L P	背	ø	i
	12KOW HIGHY THIGING	4	Π	Π	T				Π		T		Ш	Ш		f I					\prod						[]			Ш		11			11	11				ļļ	4	11	
	1762 + 1864 + 1919175 + 1764 + 1900 = 183648 \$1 (10" 1 800		П	П	Π	Ι			Π	Ш	1											_					11		11	4	11	11		11	11	Ц				┞┟	-	H	
			LL																								Ц.		41	1	11	1			11	11	ŀ				ļ.		
				Ш					Ш				Ш	Ш	11	Ш		4			$\downarrow\downarrow$	<u> </u>		Щ			Ц		44	Ц	#	11		11	44	11-	₩.			H		Ц	•
	- CIQULL TO IBONINTAL	_ ધ્યુ	Ш		<u>n</u>	ų	9.3	(╢		ty.	15	1	11	14	L la l					Ц	1	2.]	++	SP.	łv	1		44	++	. .	44			$\left \right $	Į.		;		ļľ	9	1	ļ
	7500 1 30 - 16010 De 9" 4 7000				\square		ļ.			-1-1	Ļ		44	11		44		-			11	_		∔∔	4		Ш		+	H	++			44	ŧ١	ĻĻ.	. .		┼┽╶	4.4	+	$\left\{ \right\}$,
			╏┼	14		4			-11			·	44		 -+-			-		-	┨┨	·					1.		╉╊	++		┼┤		┨┼			╉┥		$\left + \right $		ł	+	
	-		┨_ .	 		4-			-14		+	 	╇	-1-1	┟╴┝	- -		-+·	-		┢╢			+	+		┝		┽╊	+	╂╋	+		++	++	++	┼┼			$\left[+ \right]$		┝-╊	
			11	╇	41	+	μ_		-4		+		╌┼╂	╉╋	+	╇		4	4-	┝╂╴	┝┼			╂╋	-		┼╋		┽╄	╉	╂┽	+		╂╊	╂╋	+	┢┨╴	<u> </u>	++	łł	╈	H	
	Culverts 54 40'	14	Ц.	11	4	22	2 5	0	-11	-44	η	150	244		K	h.		┥	+			φ	-	+	-	00	휘			╓	╌╂╌╄	+-		÷ŀ	+	╈				-	-	2	Ì
	5 AA < 18 4 × 40		1.	44	44	-	╞╢╴╸		-+-	- -	-			╶╁╍╽	44	┼┼		-	-	- -	╁┟			++		┝╍┝┈	╂╂		╺╂┠	+				÷₹	++	$\left\{ \cdot \right\}$	· -						
			11			-							44	-1-1	-11			-		┥╽	╢	4		-+		$\left \cdot \right $	H		┽╂	+	┢╋	+		ł	$\left\{ \cdot \right\}$	$\left \cdot \right $	╞┢╴		<u>.</u>	÷ŀ	-	$\left \right $	•
			11	┟╷	-	-				- [-]			-+-	+	╍┠╍┽	4-1		-		-	┢┟					┝╂╍	┤╂		-+-+	+	+	+		$\{ \}$	ł	╉┥	łł		++-	+	+-		•
			┞┼	$\left \right $	-	1					+	-	-++	++				+	┝┼	┝┼╸	┼╋			┥┥			╀╏		┿╋	-+-		+		┼╀	╅╋	╊┾	╋╋		┝╋	Ħ	π	K	
	Fencing	1Ł	<u></u> -		-17	קד	7 3	?_	-	- 1	ņ	P	<u>.</u>	· 4	71	7	-,		┝		łł	44		-	11		Μ			-	ŀ	+		11	łł		-	- ·	Η.	łľ	ſ	17	Ì
••••			╂╂	╋╋			-				+	 -	•∔ł	-+-		+	·	-	┝┝	łŀ	╉╉		+		-	+			++	+		-	مند م د	┼╂	╋	+	┼╌┨╴		ţ†		ſŤ.	ł	
			ŧŧ	╆╋	~	-	╫╌				+		-						-+-	ŧŀ-	\dagger			·H		ht	łł		-11	+		+-		††	11	11	††		TT.	1.1		11	
			┢╋	╂╂	+		+	أجند			+			-	· +	+				╏╏╴	ΤŤ		-			H.	11							11	11				Ħ	11			ŀ
			┟┼	╂┨	+	+	<u></u> + <u></u> +−		H		+	+	-+1	++	╉	╉		+	┠┼	Ħ	++	1-		-	h	╏╌╀╌	+†			+	-1-1	1		11		11	tt		Ħ	T	T	T	
-				11	-†		<u>††-</u> -		-				-11	- † 1	11	1		•		r i	11					11	11	• • •	71	T		T			T	11				Ľ	1	E	
			1: †	-†-†		-t-	H-				+		-11	+	11			1	11	11	tt	1	_				T			T					Tl	Ш			Ì I		L		l
			††				† †		-		h	1		1	11				11	11	11	1				Ľ	Ĩ			Γ						11	\prod		11		11		
			Ħ				11-							1		1			П	Ш						[]	Π							╧	44	11	4		11.	\downarrow	4		
+	15 ku 175		† †	Tİ		П	11-			5	0	i	T	3	IK	0ha		Т	П	П	Π	ľ		1	bl	H	h							11					\square		6	H	

0001-1 13 SEP 76

III-13 FEDERAL SALES TAX

The amount of federal excise tax applied to the various materials estimated for the project were as follows:

<u>Item</u>	Rate
Pipe	5%
Fittings	5%
Galvanized Pipe	12%
Copper Pipe	5%
Tanks	9%
Compressor Package	12%
Control Valves and Regulators	5%
Instrumentation	9%
Vessels	9%
Electrical	9%

III-13 FEDERAL SALES TAX

	Cost Category	Chilled Station	Non-Chilled Station
		\$	\$
1.	Foundations	25,100	13,000
2.	Buildings	60,100	39,000
3.	Gas Compressor Package	486,100	486,100
4.	Propane Compressor Package	431,700	-
5.	H.P. Gas Piping	79,300	47,300
6.	Other Major Systems	141,800	42,200
7.	Utilities	15,100	13,400
8.	Instrumentation & Controls	32,300	8,300
9.	Electrical	74,600	41,900
10.	Insulation & Painting	5,000	1,200
11.	Testing, Winterizing, Startup	1,200	900
12.	Miscellaneous	5,200	5,200
13.	Tools & Major Spares	65,500	35,500
	TOTAL	1,423,000	734,000

III-14 CONTRACTOR'S OVERHEAD

III-14.1 GENERAL

The contractor's overhead costs have been developed to represent salaried labour, unallocated trade labour, temporary structures and plant facilities, construction vehicle and equipment requirements, small tools and consumable supplies, mobilization costs, trade labor burdens and miscellaneous costs related to the construction of four compressor stations (2 chilled and 2 non-chilled) over a 24 month period.

The contractor's markup for the aggregate four stations was assigned to include contractor head office costs, profit and contingency. The markup selected is appropriate for the performance of the construction on a lump sum tender basis.

The contractor's overhead costs have been prorated to the four stations on the basis of total direct manhour content.

The contractor's markup has been prorated to the direct costs and the overhead costs on the basis of total cost.

III-14.2 FIELD SUPERVISION, ADMINISTRATION

The staffing requirements of a four station project necessitates a field office located in Whitehorse for the project management, planning, purchasing, contracts administration, accounting, payroll, cost control, data processing and other services.

The project staff includes a project manager, two project superintendents, a project administrator, an accountant, a paymaster, a buyer/ expeditor, a cost engineer, a project engineer, two field engineers, two surveyors, stenographic and clerical help. Staff benefits included are relocation expense, travel expense, living allowance, northern allowance and overtime allowance. Housing is not necessarily provided but is assumed to be available for those staff residing in Whitehorse.

Unallocated trade labor costs include key general trade foremen, first aid attendants, mechanics and warehousemen. Straight time labor costs of these personnel is included in this section; however, the travel costs, subsistence costs and premium time costs are provided for separately elsewhere in those categories.

III-14.3 CONSTRUCTION FACILITIES

This item includes the purchase cost of temporary office facilities in Whitehorse and at the sites, first aid trailers, warehouse structures at each site, an equipment shop, and rental of portable concrete batch plant facilities and tool cribs.

The setup and dismantle costs of these facilities is included.

III-14.4 CONSTRUCTION CAMP

This item includes the purchase cost of a 120 man camp facility for the chilled station and an 80 man camp facility for the non-chilled station.

Setup, maintenance and removal costs of the camps are included; however, mobilization costs of transport to the sites are included separately elsewhere.

III-14.5 CONSTRUCTION VEHICLES

This item includes the rental cost of all vehicles related to the project and specifically pickup trucks, crew cabs, buses, ambulances, concrete trucks, hiab trucks, fuel and service vehicles. The equipment rentals are based upon contractor owned vehicles assigned to the project sites.

Fuel and maintenance costs are included.

The straight time labor cost of bus drivers, concrete truck drivers, hiab truck drivers and service truck drivers is included. Related travel costs, subsistence costs and premium time costs are included separately elsewhere in those categories.

III-14.6 CONSUMABLES

This item includes the cost of all consumable tools, expendable supplies, welding gases, welding rod, workmens clothing, office supplies, engineering supplies, safety supplies and other miscellaneous costs. A consumable tool is considered of value less than \$50.00.

Fuel costs, form work materials and temporary materials are not included.

III-14.7 SMALL TOOLS

This item includes the cost of small tools and minor equipment of value between \$50.00 and \$1,200.00, for all trade personnel on site.

III-14.8 CONSTRUCTION EQUIPMENT

This item includes the rental cost of all truck cranes, hydraulic cranes, hydraulic backhoes, loaders, buildozers, compressors, welders, compactors and scaffolding required for the work at site. The equipment rentals are based upon contractor owned equipment assigned to the project sites.

Fuel and maintenance costs are included.

The straight time labor cost of crane operators is included. Related travel costs, subsistence costs and premium time costs are included separately elsewhere in those categories.

III-14.9 MOBILIZATION

This item includes the transportation costs related to the mobilization and demobilization of contractor's equipment between Vancouver, Edmonton and the project sites. Specifically the road haul freight costs of temporary buildings and trailers, construction camps, vehicles, cranes, excavating equipment, welders compressors, minor equipment and small tools are included.

The straight time labor costs of crews required to loadout and receive contractor's equipment in contractor's yards in Vancouver and Edmonton are also included.

III-14.10 TEMPORARY SERVICES

This item includes the cost of setup and removal of temporary water supply, temporary sewage, and waste disposal systems at each site.

Telephone, mobile radio and telex communications are also included.

III-14.11 BONDS, INSURANCE, PERMITS

This item includes allowances for welder qualification tests, labor and material performance bonds, course of construction insurance, liability insurance and electrical permits.

III-14.12 UNION TRAVEL

Trade labor initial and terminal travel time, travel fares and travel expenses have been estimated on the basis of a turnover or equivalent return trip every 30 days.

This item includes related taxi cab and commercial airline fares for travel between Vancouver and Whitehorse. Travel time between Vancouver and Whitehorse has been estimated at seven and one-half hours each way. The additional travel time between Whitehorse and the various compressor station sites will vary considerably. An average travel time between Whitehorse and midpoint along the Dempster Pipeline has been estimated at 10 hours each way via bus travel. Costs of providing alternate transportation to the sites via helicopter from Whitehorse has been considered and costs appear to be comparable. Travel expenses including meals and lodging have been provided for on the basis of two nights for the chilled station and one night for the unchilled station each way.

The costs of union travel are prepared generally in accordance with the guidelines of the trade agreements. These guidelines are not precise and union costs will continue to be negotiable until project agreements are finalized. There continues to be a great cost exposure in this cost allowance.

III-14.13 UNION SUBSISTENCE

This item includes the costs of construction camp catering as well as the costs of free room and board provided to tradesmen prior to the setup of the camps. These costs are based upon a 60 hour work week.

III-14.14 PREMIUM TIME

The estimate has been prepared on the basis of a 60 hour work week. This item includes the cost of the premium portion of overtime at 37.5% of straight time payroll costs.

Trade agreements require an additional meal break when working a 10 hour shift and an allowance of one-half hour per manday is included as a non-productive premium allowance.

III-14.15 RETROACTIVE ESCALATION

The pipefitter trade agreements currently provide for potential retroactive pay escalation for previous contracts in 1976 and 1978 in the amount of 36 cents per hour. The settlement of this adjustment continues to be deferred. The hourly rates used in the estimate do not include this amount but it is identified here as a probable cost.

In addition, pipefitters will be eligible for a 50 cent hourly premium for work north of 60° latitude and effective May 1, 1979 all trades will receive an average 85 cent increase through to May 1, 1980. These estimated costs have been evaluated and included.

III-14.16 CHILLED STATION

Item	Hours	Labor
Field Supervision, Admin.	21,800	\$1,271,000
Construction Facilities	4,300	214,000
Construction Camp	3,860	552,000
Construction Vehicles	13,500	479,000
Consumables	· · · · · · · · · · · · · · · · · · ·	230,000
Small Tools	-	172,000
Construction Equipment	2,000	1,026,000
Mobilization	2,700	320,000
Temporary Services	1,280	77,000
Bonds, Insurance, Permits	400	180,000
Union Travel	-	923,000
Union Subsistence	-	943,000
Premium Time	-	1,540,000
Retroactive Escalation		231,000
Subtotal	49,840	\$8,158,000

III-14.17 NON-CHILLED STATION

Item	Hours	Labor
Field Supervision, Admin.	12,260	\$ 780,000 131,000
Construction Facilities Construction Camp	2,430 2,180	339,000
Construction Vehicles	7,620	294,000
Consumables Small Tools		141,000
Construction Equipment	1,120	630,000
Mobilization Temporary Services	1,540 720	196,000
Bonds, Insurance, Permits	220	110,000
Union Travel	-	567,000
Union Subsistence Premium Time	- -	456,000 945,000
Retroactive Escalation	• ••••	142,000
Subtotal	28,090	\$4,884,000

CE Dillingham Corporation Canada Ltd.

Project Foot Lills - DempkTer - Four of Compression Station Package _____ Estimate No. 3685 Prepared by MJ9______ Date 7 January 1575_____ Sheet No. ____ 1 ... or 1.

ESTIMATE SUMMARY SHEET

	Description of Work	Unit	Quantit	131	Labour	Equipment	Materials	Subcontracts	Job Supplies	Tolei Cost	Adjustments	Unit Price	Bld Price
1 2 3 4	Chilled Station 3 Unchilled Station 7 (duphisate)	31 31 .4 .9	197		2 2 2 1 1 1 1 1 2 2 3 3 3 3 3 3 3 3 3 3		70500000000000000000000000000000000000	30 Ptro 201792 30292 30292	Uo I Goo Uo I Cou So R pp	4307447 4307449 75111730 75111730	4315000 4315000 4316000 4370000		136204AB 136204AB 9141730 9141730
5 6 7 8 9	Direct Cats 4 stations	1.00			0 6A9156		6814360	179847		13141340 75450500			43,5753.40
10 11 12 13 14	Total Cox 4 stansing	•	?} 3 4 <	1991)•{	2 (19)7 3 U I			2376 40 9	3787492	240 189 844 191 446 841 94 191 446 941 94			
161	10621 lataur 19373619 Total Erupheas <u>407449</u> 73345,040												
21 22 23 24 25	Note: This shult summon to The direct costs of 4 stations and the contractor overheads related to 4 stations. Contractors marking is match.												
26 27 28 29 30	0.771 \$ 1677000 \$ direct trits 5365,000 \$ outstands 1900 are												
31 32 33 34 35	1.777 x 0.21 + 0.3563 + 244114 0.19 + 0.735 +2 metail40												
26 37 381 39 40	•												
+													

e Project Foothills - Dempster Hateral - Chilled Empresson Sandy Estimate No. 2699

ESTIMATE SUMMARY SHEET

10

12

17 14

-18

NUM DI LA DA POR

Prepared by HT. _____ Date 7 JAMLAN 1978_____ Sheet No. _____ Of ____

	Description of Work	Unil		Hours	Labour	Equipment	Materials	Subcontracts	Job Supplies	Total Cost	Adjustments ⊢1}5	Unit Price	Bid Price
	Sitewark Fourdations - HP Cars Compresses Propart Compresses Scribble	\$ 3 > > -	30+ 24 10 10	9 7189 2 5199 9 5299 9 459 9 459	315589 (450) 174009 14410 134412		17400-9 1405-9 1400 1400 44 109		13100 15750 7750	15559 162192 732769 74562			175000 18000 767000 71000
	Control, Utility Stored Hubing Quarters Isolotus Equipment Condingers	* * * *	49 15 15	8			1059 /		150 150 150 150 150 1750	182182 1182720 - 165750 - 15750 - 15750 - 15750 - 15750			141000 701000 85090 85090 9100 91000 91000
	Lannunicetian Brole Wilidos Sewaa Teerholut	* * * * * \$		149 77740 1450 1450 1450			41550 31550 5450 Ve ap			467.9 467.9 1603Ab 16570 7304u 7304u 779400			4072 4072 40072 4009 17090 74000 746000
- 181 -	Propane Configuration Scrubber Chilles Control, Utility Stored	*	44e	2			Lb 54 99 L4 979 L7 4 979 L7 4 979			874 709 1145 95 70 5995 245 859 55 129			715 599 71999 734899 714899 1714899
	tring guadea	t ha	470 370	1769 17809 1800 1800 1800 1800 1800 1800 1800 1	70 (62 8 200 4100 6000 0 51000		170097 07090 18999			199199 19919 19999 19999 19999			714297 156992 71992 51992 51092
	Les Confression Package Propant Confression Package High Resent Cos System Chilling System Other Hafur System Unilities Instrumentation		74100 1271700		L 251 800 L 251 800 L 4000 L 4000 T2007 4 1 6 40		1000 	· · · · · · · · · · · · · · · · · · ·	······································				7110001 740000 73000 154001 55000
	Electrical Infulation Paintine Chierart and Station			4000 2600 13170 4000 4000 2500			247690 137000 15000			A1 A-Op A40 6 02 I A 0999 I A 0999 A0993			501600 193000 175000 45090
· · · · · · · · · · · · · · · · · · ·	Technic (per included above) Federal Soling Tax (par included above) Structuror (per included above)												
	Total Direct (175			124162	7004740		7004901	30010	101900	4307940	5771 0991]	493001



Project Foothills - Dempster Lateral - Chilles Compressor Station Estimate No. 3688

ESTIMATE SUMMARY SHEET

Prepared by ______ Date 24 JAmran 53 _____ Sheet No. ___ 2 of _____

	Description of Work	Unit		Hours	Labour	Equipment	Malerials	Subcontracts	Job Supplies	Total Cost	Adjustments Uni	il Price	Bid Price
1	held Supervision, Administration	4	38789992 4555999 4475999 17550999 17550999	ШШ						313 121 1000			
2	Construction Facilities Construction Camp Construction Vehicles		559000							714 600			
. в	construction camp		447000							451000			
1.	Construction Vehicles		1750000							47,9000			
5	Consumation	1 ·	607 000	┥┿┼┡┤┿	╞──┟┼┽┼┞╇╋┥	┝╼╾┽╂┽┊┠┿╎╴	┟━━┼┤╄╏╽╎┼	╏──┫┨╿╎┫╣┪	└──┼┼┼┼┼┼	730004	╶━╾┽╊┼┼┟┽┾╂╌┾	┨╣┨╌	┈┥┠╂┿╂┞╅╋╼
<u>.</u> .	Small 10015 Construction Quipment Hobilization		4500 000 9600000 9260000 9260000 9000000				┫╺┉┉┧╽╏┇┠┥┼╸	╏┅╍╍╌╋┝╽╹┽╏╞┾╵	┥╸╺┥┥┋┇┼┽┥	117000			┟╽┥╽┠┼┿╅┈
	construction sculption		Cale	╏┋┠╂┨╊	┋╴╼╍┝┲┣╘╈╏╌┾┼┇	╏╺╾╴╏╏╏╏╏╏┪╅╴	┨╶╍╎╽╽┫┠┢┽┼╴	┥╍╍╼ ╞ ┢╎╎╎╏┅┥┥╵	╞╌┈┈┤╴┥┇╌╿╞╌┧╶╁╴	30 000			
	Fright on Materials	1	t Ken son				╏╺┄┼┥┇╎╡┾┼╴	┥╍╍╌┦┨┤╏╏╂╎┝╵	╡╺┈┈╶ <u>┥</u> ┊ <mark>╞</mark> ┍┠╴╄╶╇╌╃╸	15000			
10	Lixterization		1.61 000		╏┈━╌┧╿╽╵┥┃╿╿		╡┈╸╺┥┨╎╎┤ <mark>┟</mark> ╅┿	· 		54 00 0			
11:	Temporary Services		700 400							54 00 p			
12	Bonds, Insurance, Armits		+69 000	HIFI						 			
13	Union Travel		3411 110	+++++	╏╌╌╼┼╏╏╟┟┨┽┥	╎───┟╽╽╷┾┿┿	┨╶╍╍┥╎┨╿╞┠┽	╏╺╧╂╎╎╎╽╽╷	┠╍╍╺┥╿╞┋┠┾┾	975 903 442 000	┉╍┼┼┟┫┥╽╽		┈┊┠╏╞╞╂╞╄┨╺
14	Union Subsistmu	 ∔	700 400 +64 600 7411 600 1474 800 4872 800	┼╎┽┟┦┾	┥┈┈╸┥┃┝ <u></u> ┇┟┇┇	│-╾- <u>╎</u> ╿┟┥┠╃┞	┨╺━╌╞╞┠╏┊┝┾┾┼	╡╺╍╸┇┥┥┥┝╋╻┥┥	╏╍╍╸┧┧┫╢╬╄╋┾	154 0 800			┈╁┋┥╽┨┥╁╋┉
115	-Premium Time	┞	4072 092	╶┼┾┤╉┊┽	┠──┽╀╎┼╊╇╇┥	┞╍╾┽╄┿┤╊┾┼╸	╏┈━┽╂╎╎┠╃┾	┟──╂┟┟┥╂┝┼╸	┠╼╍╌┽┼╅╃╞┼┼		╼╼┥┧╆╢╁╀┾┨╶┟	╉╉╋	╶┼┇┽╞╏┽┼┼
16	ticarana		103000	┼┽┼┣┿╅╸	┫╌┉╌╅┢╎┤┨┾╄┥	╺╍╸╁┧╎┟╏┥┿	┫ _{╺───} ┥┨╎╎╎┨ _╹ ┫ _╹ ╡╴	┝╍╍╼╋╋╋┽┥┣┽┿╸	╏──┽╉┟╏┾╂╇	731000	┉╍╾┽┟┿┥╎┟┾┼┥╌┤	┝╪┝╞╌╡╵╶╎╌╾╴	╶┧╿┥┦┨┪╅┿╼
182			27.45 e # 10 v	┼┥┥┾┿┿	I I - I	╵┈╍╍╌┥┥┥╽╽┝┽┝╸	╎╶┉╶┥╏┥╎╏┥┼	╽╺╍╍┽╽╏┼╿┝┼╪┙	┥╺╾╶┇╏╏ ╽╽╽┨╋		╸╼┥┥┞╀╂┤┽╿╸╎		
		- 1	2747 9 8 8 8 8	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	┨╺╼╸┇╎╏╴┫┠╍┧╄╺	┆╺╍╍┥┫┤╏┾┼┤┑	┨╶╼╶┨┇┧┥┠╉╞	<u>╶</u> ╍╍┼┨┫┥┝┽┿╷	┥ ╍╶┋ ╏┽╃╄┽╪	8797 000 421 000			┈┧┠┝╍╁┠┿╉╉╌
2.1			·┼╊┊┥╂ ┟┼╉	┝╋╉┝╉╋	<mark>╅╺╍┙╞╎╎┨</mark> ╏╞ ┨┿ ┥	╶╾╸╞┠╹┊╞┾┿	┥╴╍═╂╏╎┥┠┼╍╄╴	┨──┼┨┢┦┢┽┽	╽─╾┽┟┽┝┾┽┟	93 19000	╵╌╍╴╉┨╂┊╞┥┊╎╴╎	+	┉╁┫╅╢┟┝┿╋┿┄
21	Note : This sheet prove to the wate of		┼┼┼┟┟┼┼	┼┼┼┼┼	╎──┼╏╿┼┞╄╉┥	┝╾╾╋╉┿┼╊┾┽╴	┟╍╍┟┼┼┊╞┼┼		╏╍╌┼┨┼┤┼┼┼		──<u></u><u></u><u></u><u></u><u></u>	╪╂╪╌╂╌╾	+++++++++
22	the 4 change Analyteter produced		····		╡╺╼┼╏╎┾┝┨╄╵		╏───╁╎╎┦╀┼┼╵						
23	and entractor markup to the												
24	and entractor markup to the			ШШ							╶╍╍┥┫┥┊┠╎┊┥╴╎		
25	II	Ŀ					╏──┤┨╎┤╽╽╽					┶┟┶─┝──	
26			·↓↓↓↓	╶┨╀╬╉┢┝	╏╼╍┥╽╷┥┝╁┧┑	╷╺╍╌╎╏╎┥┢┝┽╴	┟╍╍╸┧╏╶┤╴╽╏╶┤	┥ _{╍╍╍} ┇╏╏╞┢┣╞╋┉	╏╌╾╌┤╎╎╎╏┠┾┾	┧╶╼╶┟┊┇┨╞╞┿┽┽┥	┈╍┈┇╏╄┊┢╅┝╄╶╽		╶╽║╽╎┋╌┊┥┽╌
27	· · · · · · · · · · · · · · · · · · ·		╷╿┟┽╏╅╎╏		┟╶╼┥╽┠┤┠┼┽┪	┝━━┼┨┼┥┢┾┿	┟╍╍┼╿┼┤┣╂┿	┋ ── ┾┊┤┤┣┼┿╸	╏┈╾┥╎┊╏┣┽┶	╷┈╍╌┤┊┨┠┥┣┿┽╵	╶──╁╎┾┝┝┽┿╎╶┤		╷┋╏╻┇╁┣╞╅╁╋╌
28			╎┼╞╞┽┠╇┽┤	╁┟┠╋┽┼╸	┥┈╍┾╎╢┿╄╢┾	╷┅╍╍╌┨╏╏╎┪┢╌┢┝╍	┥╍╾┤┨╎┼┠╋╋	╏╼╾╎╎╎┼┤╏┽┼╸	╵┈╍╌┥┼╏╏┠┽┾	╅╍╍╍ ┥ ╋┫╄┝ <mark>╞</mark> ┾┾┼	····•★┃┃ ↓ ┣ <u></u> ┟┾┞ ┃		┊╡┥╞╞┽┢┥┈
30			┤┟┽┼╞┽╞┥		┥╼╾┊┋╞┊┝┾┾╽	╷╼╼╍╌╋┨╌╂╌┡╞╤┽┥╍	┥╍╍╆┨┼┤┠┾┾	╽╴╍╾╁┇╁╏┢┽┿╸	┊╺╍╍┧┧┇┇┇┾╌┝╌┤╴	┋╍╍╾┥┇╏╏╏╏╏╡┤╽			┈┇┋╿╏┠╿╋┿╺
11			╡ ╎┼┼╞┼┠┨	┼┼┼╂∳┼╸	╏╶╸┊╏╞╎┇╋╿ ┫	╺╾╉╂╉┼╊╇╋	╏╍╍┥┠┨┟┠┼╊╸	┠──┼┠┼┼┾┼┼	┝──┥╽┞╿┝┼┼		── <u><u></u><u></u><u></u><u></u><u></u></u>		
32			<u> </u>	┤┼╎┠╆╆	╉╼╍╸┙ <u>┝╶┨</u> ┝╴ <u>┝</u> ╺╀╴╊╼	╶╼╶┾╂╞┼┠┢┞╸	╽╶╼╼╁┟╽┊╡┟┼┼╴		╽┈╍╍┦┨┼┥┝┾┼╸	┥╾ ──┤┼ ╏╎┤┝┼┽╎			
33			<u>┾┠┼┥┠╋┽┨</u>	┤╎┦┟┦╉	╏╼╍┽╂┼╎╏┿╄╄╎	└──┼┼┼┼┠┿┝	╏────┦┤╏╿╏┦╴┦╴┦						
44		1+											
35											╶╾╾┦┨╆╿┨┿╂┩╶┤		╺┠╁┠┨┠╂╈╉┈
346									╏╴╼╽║║╽┟┽╇	┫╌╍┓┠╂╎╏╊╋╊┪┦┥			╶┊┥┽╽┟╆┿┽╌
37							╏╺╍╁┟╎╎╽╽╻	╽╶╼╾┧╽┟╷┧┟╽	╏───┤┼╎┤┟╉╞╴	┫ <u>──</u> ─┟┼┊┫╺╽┟┠╪╪╽	╷╼╾┥╏╎╴╞┟┥╴┥┫╴╴╏		┈┋┋┊┊┇╏╌╧╌┠╶┙╵
365						╵╶╌╎╏╎╴╎┝┽┽╸	┟ _{────} ┤┨╎╎╎╎╡┽┥	╷ ╶╴╶┝┝┝╿╞┊╡┝╴	┠╍╍┈┥╎╎╎┠┿┽	╅┈╍╾┧╽┫┇╌┩┧┾╆╅┩	┉┈╾╡┫╢╴╡┨╇┥┨╴┊		╶╪┋╌┤╎┇┽┢┱╌
.e.							╎┈╍╍╌╎╏╎╎╎┠╺╅╍┧╌	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	╏┈┉╌┽╎╎╎┟┢┿┿	<mark>┟╌╌╍╌┧</mark> ╺┇╽╞╵┝ _{╋╋} ╋╺┪	╶╍╼╅┠╏┥╞╃┝┨╺┽	╡┥╴	┉┼╽╷╷┟┼┿╅┫╴
1ni					┟───┼┽┼┼╎┞┇┥╽	┝───┊╿┊┝┽┝┥╴	┟╌╾┤┨┤┤┧┟┼┥╴	┟╌╍╌┽┟┟┽┽┟┿╄╍	┠╍╍┽┽┼┽┞┾╄	┟───┼┊┫┊┊╿╞┾╵	╼╾┽╊╊┽╊╆╂╉╌╆	╶┟┼╞╌╋┈━	╺┼┨╌┟┽┢┾┿╋╍
												<u></u>	_↓↓↓↓↓↓↓↓



Project Foothills - Dempoly Lalecal - Unit 11/20 Crivity Gar Statian_____ Estimate No. 3688 Prepared by MJT______ Date >> January 1878_____ Sheel No. 1. of 2

ESTIMATE SUMMARY SHEET

	Description of Work	Unit	Quantity	Hours	Labour	Equipment	Materiala	Subcontracts	Job Supplies	Total Cost	Adjustments	Unit Price	Bid Price
	Sitework Forndations - the Cas Companyaon Scrubby Causel, Utility Sheres	x 3 · ·	304	2169 14790 150 5140	41560 14459 14419 49700		174 000 595 00 10500		- 17160 7750 15000	11555500 1167190 74560 715170			167000 167000 27800 201000
5 6 7 8 9	Living Quertles Living Quertles Isolated Eaupoint Communitation Tomis Utilidor Unider Tratment		304 35 35 35 35 35 35 35 36 35 47 36 36 37 47 36 37 47 36 37 47 37 47 37 47 37 47 37 47 37 47 37 47 37 47 37 47 37 57 57 57 57 57 57 57 57 57 57 57 57 57	2670 2650 2670 1,40 1,40	7190		74190 76909 10950 11950 1185 78042 5450		4150 	16555 15750 - 15750 - 15750 - 15750 - 15730 - 15730 - 15730)		266000 55600 16600 4090 77000
11 12 13 14	La lan and	¥ \$4 ×	470 470 170	2)-30 1990 140 1409 1409 1409 309 3359 3359	- 15 60 P	·──┫╏╎┥╞╂╁ ·──┥╽┟┥┝┿╋ ·──┤╽┟┥┠┽┾	12 0 2 0 0 12 0 2 0 0 14 0 2 0 0 14 0 15 0 14 0 15 0 14 0 15 0 10 0 0 1 0 0 0	┉┉┥┠┇╽┝┾┼╉		72999 72999 72999 1990 1990 246059	y - - - - - -		11091) 76002 746002 71000 71000 71000
- 183 -	hing Quarting Utilido at Cas Roga lator Gas Comprossion. Bachage High Pressure Cas Systems ORLY Maja, Systems Utilities	¥ ¥ ¥		1760 1840 300 2750			- 14+070 			400000			714 000 175000 71090 61090 134000
21 72 23 24 25	horonanan Gerhieu Insulatan			22.25						14 041 137993 21402 28462			2300y 15000y 31600 327000 4500y
26 27 28 29 30	Panituic Chillhoode, Stailup Toppics (part included above) Federal Sales DA (part incl above) Structural (part incl above)			4 070 15 00						14+99 74-097			\$3000 >100v
31 32 33 14 35													
40 37 38 39 41	Note: This sheet sommasizes The direct costs for an unchilled station												
-	Total Dine Crass			191060	11 60 540	<u></u>	1320240	2000	56900	05h1h86	1 045000		2547000



Project Footfuls - Dempster Lateral - Unchilled Compression Station _____ Estimate No. 3688

ESTIMATE SUMMARY SHEET

Prepared by MJ7_____ Date 24 January 75 _____ Sheet No. 2 of 2

	Description of Work	Unit	Quantity	Houre	Labour	Equipment	Materials	Subcontracts J	Job Supplies	Total Cost	Adjustments	Unit Price	Bid Price
	Field Sopervision, Administration Construction Facilities	\$	37-0 80u							745 75000+			
	Construction factities		555000			╏╾╴╪╅┦╃╄╞╿	┨╧━╱╍┨┩┫┟╂╍┼╄╡	╵───┤╽┝┝╽╞┼┥┥╴	┈╎╢╞╎┼┽┢╎	329 000			
4	Construction Camp Construction which which		1750000			1				744 000			
5	Contineasity		107 640							141000	╶╍╍╺╁╏╞╌╏┝╽╽	<u>↓ </u>	┈╅┨┿┩┣┵╄╅┈╽
6	Small Tools Construction Equipment Mobilization		450000			┨╍╍╴╏╏┥┥┫┍┊┨╴	┨╶╾╼ ╺╎┃ 	·····	╶╺╎╞╎╎╞╷╬╍	40 6 78 4			╶╏┨┋┢┠╍┊╅┥╶┦
7.	construction equipment			$\frac{1}{4}$	<u>↓</u> <u>↓</u> ↓ ↓ ↓ ↓ ↓ ↓	╽╍╾┾╡┨┡┢┾┿	┨╼╍╶┧┡┪╡┝┾┽┥	┝╾╾┼╢╢╢┇╞┾┥┽┈	╺╼┼╎╽╏╊╋╄╴	194 000			
	MODINJO TOM	f ; i	10.000	<u>}</u>	╏╺╍╸┧╽╡╡╡╡╡	┋╍╸╁┇┝╎┠┉┟╎	╏╺╍┇┨┇╄╂╂╗		~++++++	257000			
14	Freight on Materials	· · · · · ·	161000							المساهادا أأأ			
11	Pomporary Services Bards, Insurance, Armite Union Travel		450000 450000 210000 210000 150000 150000 161000 100000 4040000 14100000 14110000	TITT						41000		┛┈╫╫┪┪╻╽╷	
12	Borts Insurance, Armits		464 000			┨╺╍╾┽╅╄╎┠┾┾	╏╺╍╍┟╿╽╇┞┝┽┥	╷┈╍╸┧╷┇╷┇╴┧┣╍╉╼╅╴┟╺╴		1:000			· • • • • • • • • • • • • • • • • • • •
13 14	Drion Travel			┝╂╛┠╀┽	┨╺╾┨╏╽╞╽╞╡	┨╼╾╉┨┢┽┣┾┾	╏╌━╼╏┝╏┝┟┨╉╴		-	667 000 Acuess			
15	Union Sublistence		4077559	┤┼╿ ┝┽┝	┨╍╍╿╽╿╽╽╽┧┼	┥ ╸╍┨┨┤╽┣╋┿	╡╼╍╾╏┟┼┼╎╏┊┿╉┥	╷╺╍╸┫╅╹╏╽┟┼┼╋┨╍╸	╾┽╽╿╿┞┼┼	445 000			
16	Escalation	1		 	┼──┼╽┼╎┨┼┤					147 000			
184													
··· 4			77 450 000			┦┈┈╌┤ ┇│┊┆┠┅┢┼╷	╎╺┉╻╽╎╽╎┟╷╷	┝╌╍╾┨╶┨╶┨┊╏╏┠┥╏┨┈╸	┉┽╎┥┥┣╄┼╵	571 5000			┈┊╏┊╏┼╪┼┥┈┨
19, 1			┝┿╁┝┾┢┥╇╽	┽╁┇╞┼╅	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	┨╼╾╼┇┨╅╎╂╊╈	┟┈╾╎╽╎╎┾╊╋┥	╶╍╾┨╬╂╎┽┠┿┾┪╌╸	╍╍┼┼┇╂╊╇┞╴	14 5 00 v	┝╺╍╸┼┤╁┤┧╎╢		╴╁┨┟╂┠┾┿┥╵║
21	Mate that alast month. the fast		┝┿╉┼┿╂┿╀╉	┥ ┥┥ ┝╺┽╺┽	╡╺╍┾╏┼┽╏┽	┇╺╾╏╿╏╏┠┼ ┼	┧──┼┟┼┽╿┾┽┤	┝╾╾╞╉╿┽╏┿┞┨╼	╍╫╎╅┠┝┽╂╸		┝──┤┼┊┼┼┽┥		
22	Note: This shut prorate the corts of the 4 station entractor overheads and entractor making to the typical unchilled station.		┝┝╏╈┦╋╇╋	╅┾┥┝┽┿	╉╺╼╾┼┨┼┼╏┽┿	╏╍╍┼╢┠╂╊┾╇							
23	oricheads and entractor inhibut									<mark>┥_{──}┊_{──}┥╽╽╎╽╽┠┥</mark> ┥	┥───┥╡┼╿┟┿┤	┥┈┝┇┝┽╖┥╴	┈╽╽╻╎╻┶┝╸╽
24	to the typical unchilled stande		╽╽╻╻╻		┨╶╼╼╿╌┨┥┝╋┽	<mark>┇_{╍╍╍┙}╡┇</mark> ╅╎╽┣╺╉┞╴	┟──┟╎╏╎┼┤┤	┥╍╍╍╶┟╴┫┊╏╴┽╵┠╾┿╼┿┥╌╍	──┼┨┝┼ ┣ ┇ ╃╸	┨┈╾┽┽┞┾┼┡┢┾╴	╽╶╾╾┽┟┼╍┟╄┝┥	┛╌╁╫┽┊╴╎╴	╾╌╂╂╞╅╞╉╇╉╌┨
25	J.	 	┝┽╆┽┽┠╋┿╃	┧┾┨┟╋╋	╃──┾┽┼┼╊┼┼	┊╺╼┇╿┥ ╎╿┩┤	<mark>╆╍╍╌╽┥┥┽╊╃╶</mark> ┥	┠━━━┦┦┼┽╿┤┦┨╼	╌┾╂┼┤╆┾┽╴	╏╍╍╆╂╎╪┽╄┿┾	┠╼╍┽╆┼┽╏┼┥	╋╍╅┞╂┟╴╋╸	╾┼┼┼┼┟┼┿┼╼┤
26			┝┟╂╋┥┟╞┽┥┥	┨╊╂╏╂╉	┥┈╾┽╏┼┥┠┿┾	┧╌╍┼╽╽┶┞┿╅	╁┅╍┾┧┤┤┣┽╄┦	┝━━━╸┫┟┧╎┧╽┆┪┽┥┥╴╸	╾┤╀╊╆┣╊┝╸	┨┈┈╽╽╽╽┥┝┥┥			
28	and the second second second second second second second second second second second second second second second	· · · - ·	╘╢╂╊╊╊╋╋╋	┝╆┥╊╉┿	┧╍╍┤┠┼╿┣╀┢	┨╌╾╾╎╎╎╏╴╎╞╌┾┽╵	┨╼╾┥╏┼┥┠┾┼┙	┟──┤┤╎┤┢╋┼┨╶					
29										┥┈╾┽╎╏┝╎┠┽┝	·	╶┥╴╽╎╎╷╷	
<u></u>		 		↓ <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	╂──┼┼┼┼┼┞┞	╏╺╍╹<mark>╏</mark>╏╎╽╏╎╽	┠╍╍╆╂┇┾┟┠┠╎	<mark>┊┈╶┽┨┊┊┠<mark>╞</mark>┇┽┈</mark>	╾╫╂┼┼┼┼	╉ ╺╸╸┧┥╞╎┥┨╿╿	<mark>┝╼╍╾<mark>╎</mark>┧┝┝┝┝┝</mark>	┝╉╍╇┨┥╂╼╊╴	<u>─┼<u></u>╪╎┼┡╂╄╪╴╢</u>
31	· · · · · · · · · · · · · · · · · · ·	 -	┥┥┥┥ ┥	·┟┽┽┢┽┾	╅╴╸╺╞┫╞╶┨┠┾┿	╡┈╼┇┇┫┟┣╁╢	┼┈╍╍┡┼┠┤┣╉╋	┥╌╌┤╏┊┊┊╞┾╀╴ ┥╴╴	╍╁╂┤╎┾┥╆	┫╴╾╍╶┽┧╞┼╎┞ ┣┋╪	┪╍╼╾ ┝ ╎┊ <u>┝</u> ╎		╴╺╽╴┊╞┾╋┦┈┤
32			┝┼┠┿┽┝┽┥┥	┟╪┥┟┟╪	╡ ┈╸╌┼┠┤ <u></u> ┟┠┾╋┼	┨╍╍┦╿╿┧┠╿┽	╉╍╌╍┫ <u>╏┠</u> ╢╽┫ ╡ ╡	╏╼╾╉┨╽┤┝┼╄┨╺	╺╍╽╽╽╽╻	┨╍╍╺┫╢╽╽╎┝╀┾	+		
31			┝┼┥┠╎┼┥╋┥	<u>†</u> †	┫┈━┠┇╡╡┠┽┿	┨╼╌┼┼┼┊╞┥╆	┫╶──┽ ╡┼┼ ╽┼ ╡						
35		· ·					1			╏───┧╎╽╽╷╿╽┥	┨───┼╅╎┼╽┝┥		╾┼┇┼╞╞┾┿┽╌┥
Jb							┨╼╼┥╏╽┇╞┽┿╵	┥ _{───} ╷┊╎┊╎┊╷	╍╌┥┽╿┽┣┿┝╴	┥┈╸┼┿┠┝┝┟┲┥┤	┫╶╾┈╞╌┠╹╿╡┟╄┥	┝╋┈┾╄┿┨╾┡╺	╴╌╡┠╌╡┝┠╊╋╄╌┥
11				╬╫╽┟┥┼	┨──┼╽┼╎┠┿┞	┨┈┈┋┃┥┧┠╽┾	┋╶┉╾ ╂╊╞╏┠┼┼┼┤╴	╎╶┈┼╢╎╎┢╁┥┪╍	╍╌┾┤╽╽╞┦┝╴	╅╍╍┈┠ ┊ ┨┠┞╊╋╋┼	┋╶┈╆╬╫╅ <mark>┋</mark> ┿╽		
28	· · · · · · · · · · · · · · · · · · ·	1	╽╽╏╏┥┥┥┝┥┥	┤╡╡┠╪┤	╺╁┈┈╺╍┥╏┦┦┟┠┝┽┥	┫╶╌╎╿╡┥┠╄╁	<mark>┼╌╍┨╎┊╎┠╋╋</mark> ┆	┧╌╌╵ ╎║╽┊┣┊╀ ╂┯	── ┥ <u></u> <u></u> <u></u> <u></u> } <u></u> <u></u> <u></u> <u></u> + <u>+</u> + <u>+</u> +-	╉╌╌─┟╽╂║║╏┋┼	╽┈╴╽╽╽╽┝╁		╴ <u>┊╞╞</u> ┟┟┟╋╋╸
39			│ _┩ ┥┽┾┣╗┿┥		╅╓┉┉┤╿╿┥╡┝╏╍╿	┨┈┉┝┥╽┊┠┼╊	┥╼╸┠┼┼┽┢╋╂╸	╅╍╍┽╂┟╆╊┪┠┪┄	╍╍╡┋╏┝║┝┼┽	┫╺╌╸┥┠╠╎┽ ┨ ╋╋	<u>↓·</u> ─· !		
40			<u>╞</u> ╪╞┼┽┠╡╃╉	┊ <u></u>	┨──┤╎┊╞┞┪┾	╂╾╾┼ ╎╎╎ ┾┾┾┽┿	╉╼╾┼┨┼┼┨╏╋	┠━━╾╀┣╂╅╏┟┼┽┨╼	╾╪╉┼┼┼┼┼	┨──┤╎╎╎╎╏╏┆┆			

B&ALA On f StRuture Description of Work Unit Quantity Hours Labour Equipment Materials Subcontracts Job Supplies Total 1. Overhead Labour 43/450 44/4500 4/4/4500 4/4/4500 4/4/4500 4/4/4500 4/4/4500 4/4/4500 4/4/4/4	Based on 4 Stating Description of Work Unit Quantity Hours Labour Equipment Materials Subcontracts Job Supplies Total Cost 1. Overhead Labour 1 43.660 44.600 1 44.600 1 44.600 2. Overhead Labour 1 74.7000 1.61000 1.610000 1.610000 1.610000 <t< th=""><th>BALLA On 4 Starting Description of Work Unit Quantity Hours Labour Equipment Materials Subcontracts Job Supplies Total Cos 1. Overhead Labour 1 1444/26/20 144/26/20 14/24/20 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 <</th><th></th><th>)</th><th>Dillingham Corporation Canad ESTIMATE COST SHEET</th><th>la Lt</th><th>d.</th><th></th><th></th><th>lten</th><th>n No</th><th></th><th></th><th></th><th>·</th><th> A</th><th>ccour</th><th>nt No.</th><th></th><th></th><th></th><th></th><th></th><th> Date</th><th>nate No. 2> JQ</th><th>3688</th><th>رج<u>،</u> ۱۰</th></t<>	BALLA On 4 Starting Description of Work Unit Quantity Hours Labour Equipment Materials Subcontracts Job Supplies Total Cos 1. Overhead Labour 1 1444/26/20 144/26/20 14/24/20 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 12/26/200 <)	Dillingham Corporation Canad ESTIMATE COST SHEET	la Lt	d.			lten	n No				·	A	ccour	nt No.						Date	nate No. 2> JQ	3688	رج <u>،</u> ۱۰
1. Overhead Labour 434460 4446000 2. Overhead Labour 744600 1446000 3. Construction Facilities and Equipment 744600 1000460 4. Construction Facilities and Equipment 100000 100000 4. Construction Facilities and Equipment 100000 100000 5. Construction Facilities and Equipment 100000 100000 6. Construction Facilities and Equipment 100000 100000 7. Construction Facilities and Equipment 100000 100000 7. Construction Facilities and Equipment 100000 100000 7. Construction Facilities and Equipment 100000 100000 7. Construction Facilities and Equipment 100000 100000 7. Construction Facilities and Equipment 100000 100000 8. Trade Labour Burdens 100000 100000 9. Miscellaneous 100000 100000	Description of form Dial Description of form Dial Description of form Dial <thdia< th=""> Dial Dia D</thdia<>	Description of vork Construction Construction Construction Factor Factor 1. Overhead Labour 7448.0 Userfition 1404.0 1404.0 2. Overhead Labour 7448.0 Userfition 1507.0 1404.0 3. Construction Facilities and Equipment 7448.0 Userfition 1009.0 1404.0 4. Construction Facilities and Equipment 7440.0 1200.0 1009.0 1009.0 5. Construction Facilities and Equipment 944.0 1200.0 1009.0 1009.0 5. Construction Facilities and Equipment 101.0 1000.0 1000.0 1000.0 6. Construction Facilities and Equipment 1000.0 1200.0 1000.0 1000.0 7. Construction Facilities and Equipment 101.0 1000.0 1000.0 1000.0 7. Construction Facilities and Equipment 1000.0 1000.0 1000.0 1000.0 7. Construction Facilities and Equipment 1000.0 1000.0 1000.0 1000.0 7. Construction Facilities and Equipment 1000.0 1000.0 1000.0 1000.0 9. Hiscellaneous 1000.0 1000.0 1000.0 1000.0				1			4		statima										Subo			loh Su	nlies	Total	Cost
1. Overhead Labour 74460 746000 746000 74700 107000	1. Overnead Labour 24/850 User 15/00 15/100 16/100 16/100 3. Construction Facilities and Equipment 10/2000 10/2000 10/2000 10/2000 10/2000 4. Construction Facilities and Equipment 10/2000 12/2000 10/2000 10/2000 10/2000 5. Construction Facilities and Equipment 11/2000 12/2000 12/2000 72/2000 72/2000 5. Construction Facilities and Equipment 11/2000 11/2000 12/2000 72/2000 72/2000 6. Construction Facilities and Equipment 11/2000 11/2000 72/2000 72/2000 72/2000 7. Construction Facilities and Equipment 11/2000 11/2000 72/2000 72/2000 12/2000 8. Trade Labour Burdens 11/2000 11/2000 11/2000 11/2000 11/2000 9. Miscellaneous 17/200 11/2000 11/2000 12/2000 72/2000 1 11/2000 11/2000 11/2000 11/2000 12/2000 72/2000 1 11/2000 11/2000 11/2000 12/2000 72/2000 12/2000 1 11/2000 11/2000 11/2000 11/2000 12/2000 72/2000 1 11/2000 11/2000 11/	1. verned Labour 2. overned Labour 3. Construction Facilities and Equipment 4. Construction Facilities and Equipment 4. ZAAO 4. Construction Facilities and Equipment 4. ZAAO 5. Construction Facilities and Equipment 5. Construction F	· .	_	Description of Work	Unit		Quani	lity T						Equ												
3. Construction Facilities and Equipment 25530 4004450 150130 170000 1 4. Construction Facilities and Equipment 47740 673400 567550 10000 7 5. Construction Facilities and Equipment 37340 59740 1848710 715000 7 6. Construction Facilities and Equipment 111540 184840 57000 770000 107000 7 7. Construction Facilities and Equipment 3069 45900 7000 107000 107000 107000 107000 8. Trade Labour Burdens 11709 11709 110700 10700 10700 10444500 9. Miscellaneous 1709 10700 10700 10700 1044500	3. Construction Facilities and Equipment 1 1923/0 0 1924/00 1950/130 (1929/020 1920) 4. Construction Facilities and Equipment 1 1920/020	3 Construction Facilities and Equipment 1/2/2/2/2 0/0/2/2/2 1/2/2/2 1/2/2/2 1/2/2/2 1/2/2 <td< td=""><td><u> </u> 1</td><td></td><td></td><td></td><td></td><td></td><td>┤┽╴</td><td>╢</td><td></td><td></td><td>14.06</td><td>000</td><td></td><td></td><td>++</td><td></td><td>┞┾┾</td><td></td><td>- + </td><td>┽┽┨┥</td><td>╌┼┨╌</td><td>-+</td><td>1011</td><td></td><td></td></td<>	<u> </u> 1						┤┽╴	╢			14.06	000			++		┞┾┾		- +	┽┽┨┥	╌┼┨╌	-+	1011		
4. Construction Facilities and Equipment 42740 123400 5671400 1106000 7 5. Construction Facilities and Equipment 37340 5971400 1868710 715000 7 6. Construction Facilities and Equipment 111540 184400 57000 77000000 107000 7 7. Construction Facilities and Equipment 3600 48000 7000 26000 107000 26000 <td>4. Construction Facilities and Equipment 4.240 422400 5574550 1101000 7200 7200 2000 72360 5. Construction Facilities and Equipment 1.17400 112400 57600 1567600 157600 15676000 15676000 1567600000000000000000000000000000000000</td> <td>4. Construction Facilities and Equipment 6.274.0 1.2521200 1.552650 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.</td> <td>2</td> <td>•-•</td> <td>Overhead Labour Construction Facilities and Equipment</td> <td></td> <td></td> <td></td> <td>╁╁╴</td> <td>┼┠╌</td> <td>10 40</td> <td>V</td> <td>000</td> <td>200</td> <td></td> <td>562</td> <td>130</td> <td></td> <td>10</td> <td>000</td> <td>, </td> <td>†!†</td> <td></td> <td></td> <td></td> <td></td> <td></td>	4. Construction Facilities and Equipment 4.240 422400 5574550 1101000 7200 7200 2000 72360 5. Construction Facilities and Equipment 1.17400 112400 57600 1567600 157600 15676000 15676000 1567600000000000000000000000000000000000	4. Construction Facilities and Equipment 6.274.0 1.2521200 1.552650 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	2	•-•	Overhead Labour Construction Facilities and Equipment				╁╁╴	┼┠╌	10 40	V	000	200		562	130		10	000	,	†!†					
5. Construction Facilities and Equipment 37240 547440 1848710 715060 715060 715000 715000 715000 715000 715000 715000 715000 715000 715000 715000 715000 715000 715000 715000 7150000 715000 715000 715000 715000 715000 715000 715000 715000 715000 715000 715000 71500000 7150000 7150000 7150000 7150000 71500000 71500000 71500000 715000000 715000000 715000000 715000000 715000000000000000000000000000000000000	5. Construction Facilities and Equipment 119740 517400 11900 70000 19000 7231 6. Construction Facilities and Equipment 119740 11940 74000 1900 1900 7231 7. Construction Facilities and Equipment 119740 11940 74700 1900 1900 1900 7231 8. Trade Labour Burdens 119740 119700 19000 1900	5. Construction Facilities and Equipment 11340 591440 168710 75000 75000 1900 7431 6. Construction Facilities and Equipment 111240 11240 15000 700000 1900 7431 7. Construction Facilities and Equipment 111240 11240 15000 700000 19000 7431 8. Trade Labour Burdens 111240 1909 143150 9416 143150 9416 9. Miscellaneous 1999 19700 19700 19700 19700 19700 197500 720000 72000 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 197500 1977160	- 4		The second				Ħ	<u>t</u>			633	600		567	150		1							73	5074
7. Construction Facilities and Equipment 3049 4800 79700 2000	7. Construction Facilities and Equipment 3040 41900 100	7. Construction Facilities and Equipment 3099 45(980) 74709 2000 <td>5</td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	5				1								1												
7. Construction Facilities and Equipment 8. Trade Labour Burdens 9. Miscellaneous	7. Construction Factifies and Equipment. 8. Trade Labour Burdens 9. Miscellaneous 1099 110700 401450 C 10.000 3455000 724500 1000 3455000 724500 1000 1000 1000 1000 10000 1000 1000	7. Construction Factifiers 1131500 916 8. Trade Labour Burdens 1709 16700 16930 9. Miscellaneous 1709 16700 16900	6			•	+	. .	+		and the second sec	· - • • • • • • • • • • • • • • • • • •							ht	┝╎╍┥	4	1000					625
9. Hiscellaneous	9. Hiscellaneous	9. Hiscellaneous		•	Construction Facilities and Equipment Trade Labour Burdens	-{				+		¥												1.14	1500	19	16
			F	- A.							178	9	10	201				·					₹¥		4500		168-
						+		<u> </u>	-		189.44	0	12776	•50	4	n14	460	7	10	000	2	2050	00	341	5000	276	150
			•	:	a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l La companya de la companya de la companya de la companya de la companya de la companya de la companya de la comp			••••• 1				v			•••••••								- +				: 1
				•	and a second second second second second second second second second second second second second second second				.	ļ		- -		4+				1-	·					···· ·	-	· · · · · + ·	
						1.	¦ 	i	-		· · · · · · · · · · · · · · · · ·				i 									! .			- 1
							!		1	+						}		i	İ.								
					1. Solution and the second se second sec					T		•							1.	I		•				- · · [; -
							• •,		1.							1	i -							- <u>-</u>			4-+
						يتدره		1 ····			·	•	1	1: 1		:			•	1			• •				
				<u> </u>				<u>; </u>	┿			1			•• • •				1						1		
					· · · · · · · · · · · · · · · · · · ·	۰		• • • • •	1	•						1	•			• • •		1				1	. 1
						1	; · ·		;]:		-		; ;	į i		ì	1	i - :		i ·	· ·				1		: i
					en en en en en en en en en en en en en e		- 		+	- Ì		- i-		1 -: :					-		İ						
			• •				<u>.</u>]	1	T				· · · · · · · · · · · ·	L		1			-	++-			+				-
																1	1						+				



ESTIMATE COST SHEET

 Project
 Estimate No.

 item No.
 Date

 Description
 Overhead Labour

	Description of Work	Unit		Qua	nlit	y		Hou	r8	· .	ι	.abo	HUT"		ε	quip	ж	nt –		Mate	orial	8	S	ubc	onti	acta	•	Job	Supr	plies	Т.	otal	Cost
	Supervision		Π	Π	Π	Ш		Π	Ш	Τ		Π	Π	Π		Π	Π	Π		Π	Ш				Π	П	TT	T	Π	Ш		Π	ΠΠ
970	Project Manager	Mo	TT	IT	Π	24		T		T	4000	1	160	1						T			-			\mathbf{T}	T						91
	Assistant Project Manager	-	Ħ	Ħ	t†	T		##		1		11	╢	ĨŤ			H			11			<u>†</u>			11	††		ΗŤ	111		11	
	Project Superintendent		†-†-	<u>††</u>	††-	╞┿╏		Ħ	<u> </u>	\uparrow			++	1			t†		1	+†	╞╆┤	╺╋╋	<u> </u>			\dagger	τt				+ - +	1-	
	Superintendents 400	V	††	11	Ħ	42			1	1	240	11	10	10		tt	ίt I		1-						11	\dagger	+			* * * *			īdi
	General Foremen Equipmint 1974	T v	Ħ	Ħ	Ħ	24	to	TT.	b		1850		KA			††	Ш	11	1	+	Ħ	i	<u> </u>		1	\mathbf{T}	Ħ		TT	+			15
	Row 400	V	Ħ	tt	tt	4			74				h			† F	H		1		Ħ	++		+	11	Ħ	1			tT.			20
	Elumin 467	- V -	İŤ	Ħ	††	4			d		۷		01			††	H			11	Ħ	11				$\uparrow \uparrow$	\mathbf{T}		11+	††-	·	5	30
			11	Ħ				T	T				"" "				TT	-11			\square		1				1	İ-					
	Administration		Ti	T	TT-	111		tΠ		Ţ			T				Π	-11	1			11				1+	T	i			· [+	T	
SW	Project Administrator	Ma	П	Π	П	24		Π	Π		3307		197	D Y	•					Π		T				ŢŢ	Π	1		<u> </u>			19
NP .	Accountant	V		Ш	Π	24	·	TT		T	Na		. A			\mathbf{T}	[T]	11		ΤΓ	Π	T			11		T]		67
ev .	l. Paynaster	Y	Π	П		24		Π		T	2362		ទា	22				II		П						Π	П				_	Ш	55
10a	Buyer/Expeditor	V				74					200			24	1 .				<u> </u>														62
an I	Cost Engineer	Y				21					7600	1	5	11			i I						· .			11						·	b
ŝin ↓	Stenographer	*		Ľ	ļ	24		i I			2011		40			1												1		LĽ.			44
	Receptionist		Π	Π		Ш		lī					Π								\square												
1	Clerks	V	Ĩ	Ш		24		H			100		k	12	¥										17								4
1			Π	I				11		1																		• • •					
	Safety Director		TT	II	П	Ш							ΙΓ					Ш		T		П		Ĩ	Π		1						
	First Aid Attendants 7074	V				H	202	11	74	ŧp	içi y	Ľ.	άh	99						Ш.							Ц.	· ·			·	1	1
	Security Guards		Ц.	11.	Ц.			11		<u> </u>									I			11	Ŀ.			L.	┥┟		44			44	,
	Watchmen		L.	Ц.												4	4	Ļļ.	1	1	Ц.	44			- i -+-+	11	44			_	-		4
	Flagmen/Flagmnids			Ц		$\downarrow\downarrow\downarrow$				4.			1			44	11		· [4		41		_		╇	┶╋		┟╁┥	┨╇╡			
			L_	H		44							1	Ц.		! -			 	44-	11	┵┼	ļ			44	4		┟╢┼	╉┽┽		┿╂╇	
	Data Processing Supervisor		ĽĻ.	ĻĻ		$\left \right $		ì.		-		44	┥┥			<u>∔-</u> I	4	-++	Į	┥╊		-+-+-	 		-+-	++	∔∔		┟┼┼	┨╋┽			4
	Keypunch Operators		\square	Ц.		H		-	┝╂┥	4			₽			4	4-	╧╋╋		┽┟	11	44				-+	┿╋		┥┥┽	╆┿┽			-
	Clerks		Ц.	II.	Ц.	111]]_		1-		44.	11	44		11-		- - -		++-	4			-+1	╶┤-╎	++	┽╂		┟┼┦╴	.			-
			4							4		44	#			44-i	11		· [∔∔	11	-++		-+-+	┉┝┤	╂	₩		┟┼┼	╉╌┝╼╡	-	-+-	∔-₹
	· · ·	_	Ц	1		Ш		\prod	26			44	Ш	11		↓	Ш		 	41	111	┥┦	 	-44		-++-	╇		┢╫╇	╉╫╬	╇╌┿	₩₽	41



ESTIMATE COST SHEET

Project ______Estimate No. ______Estimate No. _______Estimate No. _______Estimate No. ______Estimate No. ______Estimate No. _______Estimate No. _______Estimate No. _______Estimate No. ______Estimate No. ______Estimate No. ____

Description ____ Overhead_Labour

Sheet No. _2___ of _9___

	Description of Work	k i	Unit	(Quan	tity	1	Но	urs		L	abou	IF		Equi	pme	ent	1	Mate	rials		Sub	coni	ract	s	jop :	Supr	lies	To	tal I	Cost
	Engineering	· · · · · · · · · · · · · · · · · · ·		İΤ	Π	Π	T	П	Ш	T		ŤΠ	TT	T	Π	Π	П		Ш	ŤΓ	П	T	Π	Π			ITT	ΠŢ	<u> </u>	Π	
750	Project Engineer		Mo			16	2		ŤΠ	T	3900	11	12	5	,	11							11				-++		[††	11	1970
Ì	Office Engineers			Π		TT	11	Π						Ēſ			Ш						\mathbf{T}	Ш	11		itt	1		11	
7010	Ve Field Engineers	78.74	V	Π		TA	4	Π	TΠ	T	rbau	1	180	6.	,	Π	Ш								\top		itt			T	7489
	Quantity Surveyors			Π	Π	T		Π	TT			Π	TĽ	Π		Т	Π	•	Ш	TT			Π		Т				<u>+</u>		- T
WW	Instrumentmen	7874	¥				4		111		deal	12	191			Π					·		\prod							TIF	2451
• •	Rodmen/Chainmen															П									П		Ш.			П	
1 	Draftsmen	·	<u> </u>			Ш																	Ш		Ш						
; ;	Clerks	·	ļ			11	∔↓	44											+	Ш		·			4		11			ТÌ	
• مىكى مەربە			_	\square		44			111				44			11			\downarrow		4				4	·	44			44	
			I			11	·	┵┽┽	44	+						4.	┨╢┤	_ _	╁╿∔	44-	\rightarrow				4	i				•	
	General Service	•		┝-┥-		14		-4		+									┽╂∔			<u></u>	\downarrow		┽╂	_			: ;		
••• - Y-•	Bullcooks		÷	-+-	┿╇	╂┾	∔ I	-++	╡┨┼			╉╬╢	╺╋╋			++-	┨┼╽		┥╃┿	+	44	+	╂∔	H_{1}	╈╋		-+-	┠╌┽╾┥	• -+	┥┽	┈┥┦┽
• • • • • •	Saw Filers	·····			┝┽┽	++	֠	-++	╁╂╊	┿		$\left\{ + \right\}$	-++-			+	┠┽┨	+	┼╂┼		+		┨┼	$\left \right $	┽╂		┍┼┿	┠╼┶┤	┝╍╍╈╁	┼╋	-1++
· · · ·	Detailers		<u> </u>	+		╉╬		++			-				╾╍┿╉	++	┟┼╽		┼┼┼	+	┝╌┤┨	-+	╉┿╸	┝┨┿	÷		+-	┠┼┿┦	·+	╂╂	
•	Mechanica Warehousemen	2674	Hø	-i.	┝┼┽		1/ 1/10				ikiu i	14	120	¥ .		┽┽╴			┦╂┾	÷	┝┿╉	i-	┨┼╴	44	┿┝	;	·-+	┨╅┯┦	┌───∔ ┼		171
;	*·····································	<u> 2024</u>		-	┝┼╍┝	11	1 16	144	v 1 4	¥.P	15m	144	179	뀌		++-	$\left + \right $	+	┥╽┤	$\frac{1}{1}$			┨┽		÷ŀ		r++	┠┥┽┦			{1 7
· ·	Toolcrib Men	- <u>************************************</u>				┢┽	+	++	┥┨┼			┥┥	┽┿╸		╾┿┟	+	┞┼┤	<u>+</u>	┽╋┼				÷	┝┼┼	+		-++		i †		
· · ·	· ·				┥┽┽	╉╋	÷1	-++	÷₽₽	+		+	++-	⊢l-		÷÷.	╏┿┥	-	┽┼╁		┝┽╂	·	╂┼╴	┟┟┥	+			$\left\{ \frac{1}{2}, \frac{1}{2} \right\}$	-	╋	
•	Staff Benefits & Fremiums			-+-	┝┼┽	╉┾	4-	-it	┿╉┼	┽╂		\mathbf{H}	++	┝╋╍	-++	+	┨╅╡	+	╈	++	┝╈╂		╂┼		÷ŀ		_ 		-	╬╋╋	-+
15	the second		6		┝┼┽	1-1,	6	-++	┼╂┽	-1-1		$\left\{ + \right\}$	++	┝┍┢╌		++			╅╂╅				╉┽╴		┼┟	20 0)	110	000	i		500
		C A In	trin		╞╋╉	Ż		-++	┫╋	-+-1		╏┼╽	╈	╞┼╴	++	† †			┿┨┼	╉╋			╂╋			€¥.		600	÷÷	†¶	1in
• • • • • •	Travel Expense 5074 4 5 Living Allowance 567	• • • • • • • • • • • • • • • • • • •	Ma			協	N		ttt		600'	t a	600	t †		++			+H			i i		11	Τľ	••••• ز	, _→, K, L 				464
	Free Boon and Board 10	24	1			17	ю —	-††		+-	1300	26		6		Ħ			111			+			•••		ti	17 1			6041
!	Misc, Expense Reports_	, <u>.</u>		T		34	10		\dagger				T	ēt-									11	П		n'i	24	2002			3600
010490		+ 25 % > 5%	1		15			П			50	2	990	0					Ш	\prod		ŀ	\prod	$ \prod$	Π			111	11	14	16 91
	Staff Payroll Escalation			T		11	[Ш				П						П						II						
• ••• · ·	1010400 + 315400 = 1364700	>×6.	٧		69.	Hbb	10		Ш		.10		946	0		T	Π			\prod			Π		Ш		i			Ľ	6941
					Ш	П			Ш	П		\prod		L	\square	Ш	Ш		Ш	4	Ш		Ц.	44	\square		1		╎╎ ╋┱╾╌─┤	11	1
1	1			Į.	ΙT	T			ha lal	60	1	60	1156	0						11			11				767	000	1.1	ilîh	145



ESTIMATE COST SHEET

item No._____ Oate _____ Date ______ Date ______ Date _____ Date _____ Date _____ Date _____ Date _____ Date _____ Date _____ Date _____ Date _____ Date ______ Date _____ Date ______ Date ______ Date ______ Date _____ Date _____ Date _____ Date _____ Date _____ Date _____ Date _____ Date ______ Date ______ Date _____ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date ______ Date _____ Date _____ Date _____ Date _____ Date _____ Date __

_____ Sheet No. __3___ of __9___

Estimate No.

		Description of Work	Unit	(Quan	tity	н	ours			Labo	ur		Ec	quipi	nent		м	ater	ials		Sub	cont	racts		Job S	Supt	olies	Т	otal	Cost
		Temporary Structures			F T	Ш		Ш	TT		Ш	Ш	Т			Π			Π	Π	T	Т	Π		Π	T	Π	TTT	<u>†</u>	Π	ПΠ
	6 6.52	Hain Site Office Wwil Box57 - 74mn	2	Τ	ITT	4	8	Ш	1	160				N.		0			1T		11				11-		11	111		<u>††</u> †	1400
	2 1	Pield Offices 7. 10 Kg \$74 48 ht		Т	III	OK			10			Πu	Ъ	N.	_	14	_				Ħ				††-			111			730+
		Engineer's Office		ŀ	Ш	Π		Π	Π										Π		Ħ					-11	Ħ	111	1	+ -	
		Lunchrooms							Π		\Box		Π						Π									Π			
	<u> </u>	Tradeshacks 4-1015 24 46 40	2			11			in,			3		N.		24	60		Π		Π		Π		Π		11			Π	45 00
		Improvements & Maintenance	1			12	50		XPI		<u>ll</u>	G P									ĹĹ		Ш		10	-	1	m			19 04-
	1 · ·		┝──┤			L! i	┠∔	111	44		111							<u> </u>	1.								1				
g	2.44	First Ald Trailer 7-10-74 (74:44mp	2	-4-		05			200	1	111	37		N		10			1		Щ.		4				11				70703
	2 m	Wash Trailer 2-10770 48	- ∕	+	\mathbf{H}	05	4	┼┼┨	401		↓ ╋	4	φ↓	i-	+	44	00				₩.		Ц.	++	↓↓	-44	4	\downarrow		4	75 891
		Guardhouse		4	╎┼┼	НЦ		H	<u> </u> -		┞┠┼	┟╻┥╽	╢			444	+			┝┨┶╾	┢╋			-	┨-┨		╌┼╌┡╴	╏┝┊	·	4	┥┶┝┿┥
		Maintenance	×	+	$\left + + \right $	oK	4+	┿┽	500	 -	┝╋╋	Go 1	뀌		+	$\left\{ \right\}$	++	<u> </u>	$\left \right $			- +		╶┨╌┼╸	╞╌┠╌╴					- -	<u>ୁ</u> ୩୩
	4 11-10	Warehouse 7-40 x 100 8.74	v		<u> </u> ,	051		┼┼╊	40		╞╋┼╴	44	H	1	┼).).).).).).).).).).).).).)		+	╉╊┤					╉╋	ṫ-┣	·		000			
	<u></u>	Storage Compound	┝╺╌┼	+	<u>┟┼┼</u> ╹		╠───╄	┼┼┧			+++	ťΠ		Π.	Ť	ήf			+			-		╁┼		_ †	+		1+	- -	IKbn
	4 chus	Tool Cribe 4- 8:20 878	V	Ťİ		115		†††	††			┞┠╀	\dagger	وتا		3	30				╞┼╴			++			÷		+		1213
	7 10h	Equipment Shop 1/41/2190 474		Ť		K _M	1	†† †	50	v 1	┝╊╋╸	1	-			5.0								Ħ	++-		$\frac{1}{1}$	100	, †-		518 n
		Puel Storage Facilities				١'n,	1		100	1		3.				50					1		11	++-				m			13701
·		- Maintenance	V	-		52	,		<u>.</u>			60			T		Ĩ.					1		11				000			70001
							1		TI			ĪĒ					1							T			T	1			
	10 mps.	Camp Cookhouse), 974 5 48	P	-		05			2 m	1	2	11	7	N.	24	99	• 7			Ш					10		19	1.2	/	2	1690
	45 . *	Bunkhouses 2-172	. ¥			251			2H		L	676	y	N.	11	2	<u>1</u>								120		S	20.0.0	£		7420
	. 6 🛃	Recreation Facilities $\gamma \in \mathcal{H}_{1}$	× .	4		0.5	l.	-+-+-	080	· · · · · · · · · · · · · · · · · · ·		护台		N.		142	22				_				i 1			20.1		41	96 791
		Improvements & Maintenance	V	-+-	44	051	┫	117	pop	L.	12	201	2		╶╂╂	ļ.].ļ	┥┨╸		 	╶ ╽ ╡	↓┃_		L i l	++-	22		10	Q 1 V		44	47093
		Anna M. C. Marris A.		+	++	┟┼┼	┟╍╍┥	÷Η	++		++	┼╂┼	++		11	*	╉		╂┼╌		₩-			++			44	l + +	╉╼╍┿	14	
		Forming Platform 2000 Hul 460441) Any		┽┥	┝┟╁╴	┟┟┤	 	┼┼┼	╂		┝┼┼╍	┥ ┠ ┊	┼┼		╉╋	<u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	╶╉┨╌			┼╁╴	$\left \right $		$\left\{ + \right\}$	╂╂╴		╾┼╋	++	┟┾┽	<u> </u>	┍╂┦	╅╫┿┥
1	Smory	Resteel Yard 1170,000 Hg		+	├┼┼.	05	┟╼╍╼╁	┿┽╢		1600	┝╢┾╴	Ah o	L	10.0	┼╬	574				009	Ŀk		┥┽┥	╂╉╍	┼╂	╍┼┟	+	901		님	
1	- Service	Batch Plant 7 - Ording - 48 ACHURA	2	÷1			lin			150		100		W)	┤┦	44				00			┝┝┥	╢┼	╞╂╌╸	╾┼┤੶	+ ···] <u>₹</u> ₩¥	\$		31000 7 0 0 V
		Lement Boro @6 - 48000	뀞	+			 -	┼┤ᡨ	44	<u></u>	+#	NN.	с И		┥┥	<u></u> - -		00		0 00			$\left + \right $	╂╋	╞╌┨──		h	† †∔			5000
			>-	\dagger	┝┼╕╸			2	1	<u>;</u> 1	40	DA	1			51	3 n			0.00	-			11	-		101	000	<u>†</u> +-	Tat	431.1

Project.



Project Estimate No.

Account No.

ESTIMATE COST SHEET

Description ____ Construction Facilities & Equipment___

Hem No.

Date

Sheet No. _______ of ____9__ **Description of Work** Unit Quantity Hours Labour Equipment Materials Subcontracts Job Supplies **Total Cost** Vehicles Cars, Station Wagon ТΠ 1240 P Pickup Trucks 0 274 740 hm 25-137000 10 44 1 142000 21 Crewcabs 4174 46 1 7112 13360 30. 4000 2 67360 10560 15 7676 N. ¥ 150400 16' lis Ki Buses 29510 10000 191970 Concrete smile 2020 + Kino 10560 15-158400 15-84800 ¥ 11056 100 10 3537.00 Flatdeck Truck 1111 2074 - 48 1056 10500 15 158 804 10-13470 Hisb Truck ۷ 10881 747 370 Semi-Trailer 80 1 TTT Tractor & Lo Bed Trailer 11 ŧί 10 560 15-15840015-10 % • Fuel, Water & Service Trucks 19700 100 07 141600 2074 9 48 + П ╏┼╏┼┿ [T]Supplies, Tools & Minor Equipment Т Ma 20 Office Equipment & Supplies. 1. 740.00 1800 79000 Engineering Equipment & Supplies Π 74 ¥ 24020 74000 2 ∢ Safety Equipment & Supplies 24 000 1 79000 Fire Protection Equipment & Supplies 11 Workmen's Clothing 1.1 Expendable Supplies 9000 00 0 11 450000 460000 -000 1 30 000 Welding_Rod_ Oxygen, Acetylene, etc. 11 50000 SPERV ŝ 9000000 Small Tools____ TT .05 450000 11 4 50 000 ł] TITT n 633 600 Kbalsk 1106000 2307450



ESTIMATE COST SHEET

Project _____ Estimate No. _____ Estimate No. _____ Date _____

Description ____Construction Facilities & Equipment

Sheet No. 5 of 9

	Description of Work	Unit	Quar	uity	Hours	Labour	Equipment	Materials	Subcontracts	Job Supplies	Total Cost
	Overhead Equipment			Ш							
	Truck Crane 6540. 76 74 . 49 mg	И		7410	17980	10 1991 80	45- 561600	┨───┨╽╎┤┨┥┥	╏───┤┨┼┼┨┢╎	7- 29000	1917-50
·	Hydraulic Crane 4074 Qb	Ð		21122	74860	241160	135- 764170		┟╼╍╾┥╏┊┥┤┧╺┥┤	7- 50000	137850
	Tower Crene										
· -•	Backhoe 41.6 4 74	<u></u>		240			25- 219 494			1 17500	730400
······	Losder Altr Al	<u> </u>	11.1	1 80		╺──┼┨┡┨┨┝╬	27 244360	╏───┽╏┾╎╆┾┾		7 74000	474 761
	Skidder	╉╌╌╉		L		┝╾╾┥╏┿┿╀┟╇	╎╴╼╍┥╁╎╱╿╵┼╸	┠╼╾┼┽┝╆╎┾╅	┟╍╍┚┫╄╋╋╋		
190	Grader Alb 74		┼┥┼╣	<u>?40</u>	╶╶┥┰┨╏╹╹	┝╍╍┥┨┼┥┠┢┼╸	40 749 600	┠╾╾╉╂┠┽┨┾┾╴	┟──┵┨┾┾╊┠╁	2 17500	267180
	VI duc I	+	┼┼┼┼			┝╍╍┊╏╡┾╏┊┊	}	┟╍╾┾┨┽┤┠┾┊	<mark>┟┈╍╌┊┨┊┪┠┊┽</mark>	╉╍╍┿╋┽╬┠┶╾┥	
·	Towboat	+	┿╋┿	╺┝┥┵╽	╌╾╍┊┼╍╏╉╋	┝┯┯┿╋╋╇╂╇╉	┨╍╍┿┠╼┿╽┝╇╇	┟╍╍┝╏┼╆┠┽┾	┝╌╍┽┨┽┦┠┿╅	┨──┤┤┤┤┨╺╍┤	╍╍╴╍╸┠╺┟╺┢╺╆
	Scove						╏╼╍╪╂╕╒┟┾╤		╶╾╾┽╂┽┊┨┊╇	╋╼╾┿╎╞┿╎╺╴╎	··· · · · · · · · · · · · · · · · · ·
										┨──┤┨┤┼╿┦╵┤	
	Fork Lift		111								
· · · · · ·	Tower Hoist										
	Conveyor			╇╇			<u> </u>				
								┠──┟┨╎╎╽╽			
	Compressor 7074 M3 4 49	. D.		1056	╷╷╷╷╏╏╏╏╏ ╍╴┈╴╽╺╴╸┣╋┻┻┙	╶╾╴╸╏╻╸╸┠┽╸	45- 415-11			8 8000	55 5 7
	Welders 8274 4 147	-		274			n- 50610	╏───╅╂╁┦╏╎┼		8 37000	\$2 61i
	Light Tower	·		+++	╶╾╌╽┼╌┠┲┿╴	┝╾╾╅┨┾╼┞┽┽	┥──╾╞╶╺┟┝┿┯	┨───┨╂╂╁┠╁┼	<mark>╶──┊<u></u>╡┽╁┟┽</mark>	╆╍╍┥╊┓╼╞╌╍╸┟	
	Generator Pumps		•••		┈╍┥┽╁╂┊╇┙	└╼╼┼┨┽┾╄┿┽	┨╌╍╾┨╷┯┠╄╋	╏━━╍╅╂┧╂┠╉┿╴	┝╾╾┽╉┽╇╋┢┿	╽╴╴╽╏┥┥ ┠┊╾╽	╍╍┾╸┨┨╺╏╡╼
	Winches	11				╶╼╾┧╉┎┑╏╡┭	╡┄╼╾╸╽╼╍╶┨╍╁╪╸ ╻╹╵╷╹╴╷╹╴╸	╏───┟╿┼╎┝┤┥╴			
	Buckets										
	Heaters						50000			50000	10000
	Scaffolding 50 Muni 74 hp		╧┨┥┥	1700		╶━━┼╎┼┤╂╃┼╴	5- 60pp	┠━━━╋╋╋┥	╎───┼┤┤┤┨╺┥┼		
	· · · · · · · · · · · · · · · · · · ·	╁╾╴┟	┽┨┿╂	·	╶╼╀╉╠╂╀┞┥	╶╾╾╁┽╺┥╂╺┊╴	┨╾╴╼┿┠╼┿╀┝┿╌	┟╌╾┾╂┼╽╂╬┼	╎ ┉┈┊╎╎┥┨ ╆╋	╂╾╾┽┦┿┊┠╺┼╎	
	·····		┥┠┿┽	╁┿╁┨	╌╸┽┽┿┼╀╂┤	┝╾╍┽┼┽┽╏┾╁╴	┨───┼┨┼┼┠┿╆┙	┟──┼╿┼┼┠┼┾	╎╌╾┿╁┽┽╂┊┼	╂━╍╁┨┽╅┠┾┽┨	
	· · · · · · · · · · · · · · · · · · ·	╉╌╌╂	┽╂┼╄	╂┼┼┨	373.40	591440	1868210	┟╼╾╀╊┼┼╂┾┽╸	┝───┼╁┼┼╂╶╆┼	715000	2650710



ESTIMATE COST SHEET

	Description of Work	Unit	1	Quar	ntity		ł	lou	8		L	abou			Equ	лqіı	ent	1	Ma	iteri	als		Subo	ont	acts		Job	Supr	plies	Tota	at Cos	a
	Mobilization & Demobilization	1	Π	Π	Π	Т		П	Ш	Π		Π	Π	TŤ		וח		ΠŤ		Ш	Π	11-	T	П	TT	Π	1	ΠΤ	TTT		ПП	TT
	Yard Handling, Loadout, Receive	lds		T	1	6	30	IT	476		100	6	816	6							\mathbf{H}	11-				ţŤ					69	1 60
	Jobaite Receive & Loadout	17					30		1			ĪĒ	911	20							11				T	T					661	1.60
	Freighton Contractor's Equipment				I																Π			67	100	20		Ш			675	
	Towing the Kikk a Harals	₩X	12												İ						·		- İt	50	000	9	i i				5000	
<u>`</u> .	Local Carcage 24 MA 1410 46 MA	Mi	·	3	501	10				++			44				-	i t-			11	12	5		500		- 1				750	
	365 mi			++	+							$\left \right $	++			[-]-	-	┊┥╉╸			- - -			44		1		┝∔부	++		┟╻┙┿┧╸	
	Sitework		4	44	44				.	4		[]		╇		11	-				4					11		++		·		44
19	Access Roads and Parking Areas		-+-	$\left \right $	++			┝┿∔	+			$\left \cdot \right $	++	┝┠		-+-					┢┥	- 		$\left \cdot \right $	+	ił		┝┿╋		·j-;		┼┿
1	Signa	<u> </u>	Ť		ŦŤ			TT.	10	0		H	100	0	-			$\uparrow\uparrow$		Hi	$\dagger \dagger$	-				††	i		1000	·	31	200
	Fences, Barricades			1:		+		11		Ť				-	·						Т	i								•	[<u> </u> -] *	iq I ., R .
	Steirs, Handrails, Sidewalks		-+-	++	-	+			+				++-	††							\mathbf{H}			+	+	$\left \right $		┝┨┿		··+		$\frac{1}{1}$
	Devatering				I								T	Π	i										T	Π		T.			ΠŤΓ	
	Hoarding 7 4 Sits 4 mg	Mo	<u>i</u> .		1	16			192		19	3	eh?	21	-	3	70	90					_			5	ØTV	99	m		1421	m
	Winterization X ?hele 1WE 601- SnowRemoval		1	+	╉		·	++	╉┢╸	-			+				+				+	<u> </u>		- 1	╂┼			+++	++++			• • • • • •
	Dust Control							┝╋╋					T			+	T	- <u>†</u>		Ť				17	İİ							÷
	Final Cleanup		i	-	Ľ			1	ļ															1				11				1
			+								_	44	Li		: .									11				44				
	Power Distribution		-		++								++-	┢							╁╁					╢		-++	$\left \right $			+
	Power & Light Bills			11	+							1		•				++-		Hi	++		-	TÍ	+			H				1-
	Overhead Poleline Transformers & Switchgear	<u>sn</u>		11	ŤŤ	4	150	T	100	6		11	مَعْلَا	10	8000	5	do	00		+++	++			11	++		000	2	000		560	à ba
	Service Drops & Panels		Ť	ŤŤ	Ť			Ť	Тľ			Ϊ					T			11			-+-			i l'						
	Cab Tire Distribution			T	П					Ц.			П	1			\prod			Ш	\prod								11.1			IT
 !	Lighting			+	$\left \right $													+		┢╋╋			-+-	++	╂┼			+				1
					11	1								ļļ		Ľ,					#					Ħ						Ħ
				<u> </u>	11	1		_ <u> </u>	54	pL	ļ	18	464	0	!	Ą	70	00					2	20	00	0		105	000	?	5386	4



ESTIMATE COST SHEET

	Description of Work	Unit	C	luan	lity		Ho)urs		ŀ	Lab	Gur		ε	quip	me	nt	1	Mate	rials		Sub	coni	ract	8	Job	Supj	lies	Tol	al C	ost
	Water Supply		П	Π	Ш			Π	Ш		Π		П				Π		Π	Т	Π		Π	Ш			Π			П	Π
	Main Water Supply and Distribution						-						1					1		T			\mathbf{T}				Ħ				111
	Potable Water & Treatment Facilities	S. K.		\mathbf{T}	Π	4 15	,		600	14		9	600					<u> </u>		\mathbf{H}			T	Ш		720	10	1000		11	960
	Fire Protection System			T									T				11			T	TT		T		1		П		; †		- 1
	Tanker Stations			П			1		11		ТП		Π	[П	Π		T	Π	1-1				···		_
	Naintenance	10	E.		2	5			717	1		14	790						Π	Π		Ì	Ш					Ŀ			9:20
									1															Ш	Ì.	·					
•. - :- ·- ·	Sewage & Waste Disposal									1			11					ļ		41			11		-		ļ,			LI.	11
ą	Plumbing, Septic Tank & Disposal Fiel	a		++			_		14		4		4				44				11		4		<u> </u>		4		· · • • • • • • • •		
<u>v</u>	Portable Toilets 4774	16	\square	44	<u> </u>					∔	4			200		19	200	ļ		44	11		44	:14	+		4				920
1 	Garbage Disposal		4	44	2	e 50	L	-44	79 Y			ųЯ	290	 		4	-++-	 		4	+i-		┼┼	i H			·-+-+-			1.11	920
÷	Janitorial Services		+	++	 	-	-+-			<u> </u>		4	+	ļ				[┼┟╎				╉╬				+			 	:
• • • • • •	Naintenance		-+	+	┟┤┥				+		+	-+-	++	 	ił;	-+-	++		┼╂┤	+	+		┟┿	ił ł	+		++		ن ې سېد ک	 - →	
· • · · · · · · ·		Mp	++	++	R			+	++		+		++				1		$\left\{ \right\}$	┽┠			+		+	1990	-	000			400
	Heating & Air Conditioning	10	+	++	+r		-+		++	+	-+		++	<u> </u>			-+		┼╂╉	╅╂	+		┿	Н		1444	-4	WV		119	744
• • • •	· · · · · · · · · · · · · · · · · · ·			ή÷	H			$\left + \right $	+	1	+++	++	┼┼		++-	+	┽┽		┥┨┥		++-		+	╘╂┤	-		-			<u>+</u>	
	Communications		-	ŤŤ	┨┥┥		- + -		+	+	ήΗ		$^{++}$			-	++	<u> </u>	††i	\mathbf{H}	Ħ	i	+-	╘┨╌┤	+		++			117	/ + +
2 - 2 - 2		Mo	-++	11			-+!		╈				╈		+ + -		+		Ħi	┼┢	†+		-	-11	1	1910	-2	000		15	400
	Mobile Radio	<i>.</i>	1	11	5	4			T^{\dagger}				++-			10	111	,	† ††	╡╂	<u>††</u>	ا مندي ا ا			_	700		oon			400
	Telex	v		TT	j n	_					1		1	1						11						1		000			400
	Telecopier							П	11																1.						
]			11				41.	_	Ш			 					11				
	Data Processing						_		1				Щ.						111	4				.	-		44	.			. .
	Keypunch			4				4	4		ill			_	ĻЦ			· · · ·		4	++	•	11	11	1	<u> </u>	4		<u> </u>	↓	
• •	Computer Terminal	<u> </u>	4				-+		+++	·	┿╋	 	-++-		$\frac{1}{1}$				∔∔∔	╫	$\left + \right $		++	$\left \right $					·++	┨╋┥	┝┠╄
.	Computer Time			++	┥┽╸				41		∔₽	┝╟┥			┊┠╴		╺┼┼	ļ	<u></u> ∔∔∔	-+	++			╏┨┥	-		++	┢╍╬╍╴		┟╿┥	-+
· ·			-	┽┽	$\left + \right $		- 4-	i - I	-	-		+	44-		i	H	-++	 	┼┟┼	┽┢	┿┥┥		+	┼╂╌┫	+		++			ŀ	·].+
.	· · · · · · · · · · · · · · · · · · ·			++	11		-+	┝┥╏	++-	┥	╺┟╂┥	┝┢┥	┥┽	 	<u>∔</u> ╂-	┝┼┾	┝╋╋		┼╂╂	╌┼┼	╋╋		+	$\left\{ \right\}$	+		╉┽	$\frac{1}{1+\gamma}$;7	ŧ+•	
.	 		-+-	-+-+-	╉╋┫	μ			017	–	+		890		╁┨╌┥	Ha	700		╁╁╬	-++-	╉╋		╉╋	┥╂┨	+		d	097	+ ·		21.0



ESTIMATE COST SHEET

 Project
 Estimate No.

 Item No.
 Date

 Description
 Trade Labour Burdena

	Description of Work	Unit	6	208/	nlity	V	н	ours		ા	.abc	w.		Eq	uipr	nen	1	M	ater	ials		Sub	cor	irac	;ts	Job	Sup	plies	Tota	al Cost	1
-	Union Travel Benefits		T	Π	Π	ΠŤ		Ш	П	11	П	TT	Π		Π	Π	Π	1	TT	Ш	T		Π	TT	Π			Π		Ш	Π
5916302	Mo Initial & Terminal Travel Fares	Es	T		25	15		1-+-	11			1			TT						T					800-	18	500		6825	0
	Initial & Terminal Travel Time	1			h	15 3	5.0	19	5	4.	51	A			T	Π			Π	Ш	Π		П	П	Π				1	2740	n
	Initial & Terminal Travel Expenses	*			27		1		Π				ΓŢ.		П	11			Π					1		200	46	5000		4550	4
·	Daily Travel Fares								11							1	11								11					L	
	Daily Travel Time		1			_		-	11						11	11	ļ		Ш	444	1			4	4	<u> </u>	\mathbf{L}		1	┟┼┼┠	
	Daily Travel Mileage Costs					11		11	1		44	41	Ш		11	11	ŧЦ		44	444	11		4	44	4	 				$\downarrow\downarrow\downarrow\downarrow\downarrow$	+
		_				<u> </u>		14	-		44	↓ L	₩.		. []	4	 		╉┽	╇	4				44		-1-4-1	╶┧┥┶┨		┟╎╷╷╻	Ļ
		-l		44		┥┥╸	· • •	44	-		┥┤	4	44-		44	∔∔-	 		++-	444	+			41	+	╏──┤	╉┿╡			┟╌╁╾╡╽┈	t
-+		+	┝┿	14	4		÷ļ	┼┼╉	+	Į	┋	#	Ļ		-	4			╂	++	÷ł		+	++	╧╋	┼╌╌┤	444	┢┝╍╽		┝┼┊┼	ł
	Union Subsistence Benefits	-		┞┥┥	-		Ļ		+		++	₩	++-		-	+	$\left \right $			+	44		-++	┽╊	++	<u> </u>	┼┼┤	- ┥ ╶╎		┝-┥┿┞-	ŧ
591620	Living Allowance	-	-	.		-		+++	++-	4	-		-			-+-			+	$\left\{ \right\}$				++	╅┿	╉╍╍┊	++++			A	
4050	12 Free Room and Board 12 - 0640	M			96		++	┿┿╉	╂╋	4504					┨┽	֠-	┝╿┨		╉╋	┽┼╄	┽┨		++	╂	╂	╂──┤	++i	++		41.10	<u>!</u>
yan nela	10 Camp Catering Costs : 1 . 19214			- 17	12	30		++	┿╈	7599		24	17		╉╣	ŧŀ	+++	[4+	┼┟┤	+			╈	H		┼┼╎	+++		17742	1
	Neekend Checkouts			$\left + \right $		╞┊╉╴		┼┼┨	++	┼──┥	++	++	╋╋		╉	╇	H		╉╋	┿╂┿	┿╂		┿	╬		┼──┤	++	┶┼╌┨		┟┨┾╂	t
	Recoveries from other Contractors			+			 	┼┼╂	┼┼		╉╋	÷ŀ	++		++	-i∔-	++		╂╋	┽╂┥	++		-++	+	++		╋╆┥	┼╁┯┨		┢┠┽┠	ŧ
				┟┼┥		₩-		┿╫╋	++	1	+++	╈	HI		- -	֠	\mathbb{H}		H	\mathbf{H}	+		++	+	\mathbb{H}		╋╋┥	╅┽┿┤		╏╂┦╂	İ
	Non-Productive Union Wages			┠┾┾		┼┼╂╴		++	╂╋		H	┼╊	╂┤		┨┽	÷ŀ			Ħ	+++	-++			╅╋	++	┼╌┼	+++				t
60 Mra		4		4		-		+++	+	315			ić.		╉	÷	++-		╉╋	┥╋┥	1			÷t	╈		++		j	544	ī
da cil a	Scheduled Premium Time 541530 6 10	┿┻┥				~ .		÷	╈	112		뙉			Ŧ	Ħ	τĦ		t t	+++	+1		H	╡┨	++	1-1	++-		P		Ţ
	Shift Differential 591630210	M		1e	aī		FI	54	KQ.	Kao.		122	100		-H	11			╂╊		1			+†	††		117			41 33	ĥ
·•• •	High Time or other	· · · · · ·	~		9	9% ¥			19.4	,	f	1		{			††		11		+1		11	11	\dagger					1	Ī
• • •		-		11	-	tit	, i		††	11	11	11	††	1.	11	1			11	111	T				11		Π				Ī
						†††-			+†			ŤŤ				T	Π		T	П	П			Τ	E		Π		- 11		i
	Escalation pipertly Ulion 16.18	ths	-	11	60	00				.36			10		Π	Ш			Π		Ш			\square	П		Π			A11	~
	noith of bo	v			60	00				.50		×.	90			1	Ш		11					4	11		1			550	
	after House 1 1979		T	49	ijĹ	30			\prod	.15	5	221	90			11	Ш							4	44		44		: 	5078	4
1											Ш	1					111		11		\downarrow			-+-	-11	┼╌╌┥	-1-1-	┝┠┿┼┨		┥┤┿┠	ł
	•			Ш		Ш-			1			Ш	11-1		\downarrow	44-	44		\square	+++	┽┨			╫	∔∔	+	╢			6	Ļ
								11			15	39	30		Ľ	Ĺ	11			11					11	1	<u>ili is</u>	7500		6766	



ESTIMATE COST SHEET

 Project
 Estimate No.

 Item No.
 Date

 Description
 X1s cellaneous

Description of Work	Unit	4	Qua	enti	ty	Ľ	Ho	urs		1	Lab	our		E	qui	pme	nt		Mat	eria	its .	1	Subo	cont	racts	١Ì	Job	Sup	plies	т	otal	Cos
Consultants, Testing, Inspection		Π	Π	Π				Π	Π		Π	\square	Π		Π	T	Π	1-	TT	Π	Π	╈	Ţ	Π	Π	T	ŀ	Π	ПТ	<u> </u>	Π	ΤÌ
Engineering Design Consultant Legal Survey			╀╋	$\left \right $								+		ļ.,		-				H		-				Ħ						-
Soils Investigation & Testing		Ħ	††	††	╈	1	-††	Ħ	Ħ		╎╏╎		+	1	+†-	tt		-	┽╀	Ħ	† ††	+	-		++	ŧŀ		┢┿╉	┠┼┼	+	ήĦ	-++
Concrete Mix Design & Testing			Π	T			11	Ι	Π			T	Π		1	1				Ħ		-			401	w			+ ++	+		¥.
Welder Qualification Tests 4 GIG	Es				- 81	159	Ш	17	12	110		IA.	YAU		ī į	11				Π						1	10	\$	loro			2
Weld X-Bay and Inspection		$\left \right $	+	$\left \right $	++		++		#				$\frac{1}{1}$									1			H	I						
Permits, Licences, Fees Business Licence		Ħ			Ţ	1		#					#				┝╋╺╋	-					_					-++	┝╶┼╌┥╼ │-┽╶╸╴			++
Building Permit		╂┼		÷ł	T		+	† I			₩	╫	$\frac{1}{1}$			$\left \right $	┥┥	+	+	H		╋		$\left + \right $	┢	╢					-++	+
Electrical Permit	14	┠╀		┿╋	4							#	╉┿		┿┨╴	⊷		-							+			1	pro		++++	4
Plumbing Permit & Connection Fee		+	łł	łł	tt		+	╈			┝╋╀	╢	Ħ		╢	++			┦┨	H	┝╆╺	+	-+	++	+	+		-++			+++	+
Land Rental	Mo				74		ŤŤ	1					T			T	11	1	-+	t				T	1	H		20	00 .		17	24
Road Permits and Tolls	_	_	H	-	.		÷				HÌ	4	ļ.		1		+	-	\square			1							012			5
Bonds, Insurance	1	+	łt	┦	++		-+	i -			╏┨┿	┥╊	H		+		┿	+	┥╂	H		-	-	++	+	+		-+			-1+	
Performance Bond	M		1	5	m		-+-+-		+		† †		++-	а. — А		+++		1	+F	1		╈		1	++	h	10	117	500			17
Labour & Material Payment Bond		L	Ľ	4				T				1	11.											11			40		000			13
Maintenance Bond		+	-		++	·		-				╶┼┨╴	+		++-					$\left \right $				+		+				<u>†</u>	-	+
Course of Construction Insurence	V	<u></u> + +		15	102		-+-+-	<u>†</u> †-							÷	++-								-1-4	Ħ	h	50	LIT	500		- tt	12
Liability Insurance		H	++	r l	1+		++		-+-		44	┥┥		·	₩.	4	+		-++					++	++-	ļ	51	61	Koy			67
Miscellaneous				ή	it		+					+										ŀ	+	+	Ħ				-++-		+††	\dagger
Honsils 7	Mo			ļļ	70						+		ĮĮ.		-						\square	-				n	800	48	010			46
· · · · · · · · · · · · · · · · · · ·			┟┽╴	╞┝					-		+	$\frac{1}{1}$							-+	-	┝┼┼				+	┼┼╴		+	-+++			:†
· · · · · · · · · · · · · · · · · · ·			Π	Π				Ш				П																П	11			
		L	11				11	'IÞ	01			19	10v		11	11									Ave.	41		444	500	ł I	46	. {}



Project Foothuils - Dempster	
Project MANY	Estimate No.
Item No Account No	Date
- Idobilizand Frinkin Andre ha	G. L

ESTIMATE COST SHEET

Description MODILIZATION Sheet No. < 1100 MA

Description of Work	Unit	Quantily	L la hum	Lations	Faultament				
	Conit	Guanny	Hours	Labour	Equipment	Materials	Subcontracts	Job Supplies	Total Cost
Hai offici box50 6 Officion Fill & Londring 6 Taves 180 pis & happing 4									
ophing Field & formet b									
Marles 14 pie 1 Wap 4									
Women 4									
Tool Cabo									
<u>\$1.00 2</u>									
Nuclas 10									
brithousing 48									
Re tays b									
r hater heats 2									
1 Actupo 10									
Citurais 4	<u> </u>	┼┛┝┵┝┼┼							
		┟╽┽┥┾┼┟		╺╼╼┽╉╿┿╽┼╡┥		╺╼╾┥┥┼┼┠╆┼╸	╽ _{────} ┧╽╽╷╽╷	╏╼╾┫╟╫║╏╫╁╸	╎┈┈╖╎╎╎╷┾┼┽┽╸╎┈
Courtants 3	 	┼┦┼╞╞┼┼		╺╍╍┽╉┽╅┠╎╍┽╽			╏┈╍╍╾┨┠╌╉╶╅╽╍┠╌┨╴	╏───┥╴┤╶┤╞┠╴┾╶╎	
thin 2	┟──┟	┥┋╡╏╏┥┥	╶╼╼╪╪┽╂┽┼┥	┟──┽╊┼┽╿┟┽┫	╺╼╾┋┥┊┇╏╎┊		┠───┼┨╁┤┠┼┼╴	╏╼╍╌┨┫╍╞╕┦┥┥╵	┟╴╾╍┽┽┽┥┾┽┢┽╍┝╼
hub truth 2		┥┥┥	┈┈╾				╏╸╍╍┶┟┟┊╎╎╎┊╷╎╴	┥╍╍╶┟╏╎╎╎╎┝╸	
Tony		╺╈┊╈╴╅╶┇╏╺╏╶╢	╵╍╍╼╡┝╆┠╇╋┥	╶╼╼╾┽╏╶┾╌┨╌╢╌┨╶┨			╏───┟┅╽╽╽╻╡╺╽		╎┉┉╷╽╏╏╏╏╻╻
Troll Com 1 2	L	┟┟╢┟╊┟╽	───┦┼┽┠┾┤┤	╺╸╸╺╸					┟╼╍╮┓┊┊┇╴┟╴┟╴┟╸┢╺╌┟╌╸
thys Crown 4 2	L			╶╍╼╼╆┇╏╏╏┇╏					
Reithor 7 7		┥┿┼┽┠╞┿╎		┝╼═╞┼┠┽┠┼┦	╾┼┽┽╎┾┊┼┤	╺╍╍╌┼┨╽┥╽┥┥	╏╾╾┧┧┼┤┦┼╎	╏───┤┤┆┥╞┝┿╴	┟╍╍╍┤┼┟┠┟┟┟┽┝╍
- HANNA - 2	[┥╟╽┥┠╇┅┥	╶━╼╊┢╁╟┨┥╸	┝╍╍╍╉╎╍┫╎╏╎╎╏			┥╍╍╍┫╺┠╴╽╍╿╎┊╸╿╶┤		
lara ? ?		╶┾┟┊╞╎╻╸╇╷┥┥	╶╍╍╂┽┢┼┽┽╵	╽╍╼╍╞╌╿╶┧╶┽╴┠╶╁╌╆╴┟	╶┈┉┥╂┽┇╏┽┥╸	╺╼╼┾┨┽┥┠┽┼	┥╼╼╍┥ ┨╺┾╌╄╵┠╺╎╶┥	┨╺╍╾ ╶ ┇┨┊┇║┫╢╕┠╸	┫┈╍╺┟┝┠╏┇┥┠┼┥╴
Campline 2		┽╞╌╎╴┠╺┽╺┢┥	╺──┥┦╃┾╄╍┝	╎───┤╞┤┤┠┽┧┊┼	╶╍╍╍┞╶┨╶╞╺┪┣╼╅┈┞╸┥	╷┈╼╾┽┽┽┥┥╏┾┿┥	<mark>┼╼┉┉╶┤╴┨╺╿╶╋╴</mark> ┧╺┠╌┤╍	┨╧╍╍╼┥╏╽╵╅╍╿╎╵┽╺╀╵	┫┉╴╅┫╎┨╕┠┉┼┉
welders 8 2		4-6000				╺╺╍╍╋╂┠┨╏╓┰┶		╂╴┉┨┠┨┧╂╂╬	15ª
Semme 2 Other 12	 !	41 60 800	6 1001-0V	┝╼═┼╂┼┼╂┼╎┤		╺╼╼╞┽┟┟┢┟┥╸	┟──┼╉╞╃┠┶┼╴	┥╧╧╎╅╿┽╿┽ ╆	╡╩ _╋ ╡┽┽┽┽┽┿
	h	3550000		┝╼╍╍┽╽┼╎┟╌╽╽	╍╍╍┪┠╍┠┽┠┝┝┊┤	┉┉╆╫╎╂╏╏╢	┟┈┯┯┽╡╪╌┇╏┋┇	╡╼┈╴╎╢╸╎╡╎╡╉	
Ten 10741	· .		E 211904-+-	│ ╼ ╍┶┠ ╏ ╎╎┤┊┽┤┋		╵╍╍╍╅┎╏╏╻┠┠╏╘┨╸	╽╍╍╍╺┟╌╡┟╌┽┠╌┪╍┾╴		┫╌┊╡┨╏┝┠╄┾┉
Glight Ack of MA & to Willard.	1.5	79.49 40	╶╍╾╸╂╴┠╌╉╺╊╸╊╼┩╺	│ · • · • • • } ·] ·] ·] ·] ·] ·] ·] ·]	╼╼╶┧┾╌┽╎╌┼╴╁╴╄╸	┉━━╍╊╂╂┠┢┢╊	75 673500		.1754
Freight Cox ex voue try mileage	M.		╶──┤╎╎┠┿╵┟┥	┉┉╺┥╏╌┼╌╅┟╌╅╌┼╶┨	╶╾╍╶┨┟╌┦┥┠╼┪┥┼┤	╺╼╾┝┧┪╽┝┽┾╴	1. 7 0 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	╂──╂	╅╊┥╋╂╋┫	╶──┼┼┼╂┼┽┥	┝╾━┼┠┼┊┼┊┤╽	╾╾┼╄┝┼┼┽┼┤	╾╾┽╏┿┾┼┾┾	╉ ╴╸┥ ┨╂╂╊╂╆	┋╍╍╸╆╌╉╶╂╺╡╌┠╴┨╼╃╌┤	┟╍╍╌╪╍┊┨╌╊╴┠╴┫╼┿╌╁╍╴

0001-1 135EP/6

III-15 SUMMARY OF FREIGHT WEIGHT EX EDMONTON BY COST CATEGORY

III-15.1 FREIGHT

An estimate of freight costs for the road haul transportation of all permanent materials from Edmonton to the station sites has been developed. The weights of civil, structural, piping, equipment, electrical and insulation materials have been evaluated and the numbers of load shipments identified.

		Weight	in Pounds
	Cost Category	Chilled	Non-Chilled
III-1	Foundation	1,770,000	1,045,000
III-2	Buildings	974,000	727,000
III-3	Gas Compressor Package	418,000	418,000
III-4	Propane Compressor Package	182,000	-
III-5	High Pressure Gas Piping	500,000	300,000
III-6	Other Major Systems	1,811,500	104,700
III-7	Utilities	139,000	122,000
III-8	Instrumentation & Controls	26,200	4,900
III-9	Electrical	197,400	131,500
III-10	Insulation and Painting	40,000	10,000
III-11	Testing, Winterization and Startup	150,000	120,000
III-12	Miscellaneous	67,000	67,000
III-13	Tools and Major Spares	20,000	16,500
	TOTAL	6,295,100	3,066,600



ESTIMATE COST SHEET

	EDMUSLY 6000 Sheep + 600 = 10 Umbly 300000 Am + 70000 = 15	1/2	40000 160000 360000 540000							1 1
	Forchuc 45126 @ [1074 = 4 Formply 6000 Sher5 - 600 = 10 Umply 300000 Apr - 70000 = 15	<u>×</u>	160410		╶──╅╅╁╁┧╽╂╊╞┪					
	EDMUSLY 2000 Sheek - 600 = 10 Limble 300000 Am + 70000 = 15	*								
	Winth 300000 Hon + 20000 + 15		360000							
		4	540 00 1							
4 4	and the second s	~	ULD DOON							
l	Emb milling 40,000 + 70010 = 7	٧	400 012							
	Cement 50,000 she 40 2 30000 15	•	4500eu 1700eu			╶╼╍╸╽╿┧╽┠╻╽┧				
	(104 1 1000 0 8 10 - 2 70000 6	¥		╾┽┼┟╽┟╷╷╿	┉┉		╏───┟╎╎╎╎╎			
5	and a second of the second of	 I 	1 1h and -	╺╾┽┥┽╿┼┤┼			╏╌╍╾┽┫┾┼┟┼┼		╡ ╴────┤╴┨╴┛╺╎╴┫╶┠╼┨╼	
¬		*	49200	━┫┦┦┠┤┼┧	╺╼╾┟┫╎┼┟╎╿┥┥		┨╼╍┥┨╡┥┠╎╇	╏──┼╏╎┽╎╎┼	┟╼╍┥┨╬╁╏╎┠┠┥	┝───┦┥┟┹┥┶╊╌┾╶┥
•	Hutal Bag 75115 @ 350000 40 26	-	16000	┈┈┽┽┽┠┾┼┤ ┥	╍╍╍╌╊╺╏╴┧╴╎╺┣╼╉╺┝╌╆	╶──┥┨┼╎╽┉┼┽	┦╼╼┥┥┾╅╏┿╢╴	┨╍╍╼┾┨╎┟┠╎╎╷	↓	
- -	75169 0 240 400 16	×	480000	╍╌┤┝╎┠╏╻┛╸┨	╍╍╍┝┽┢┤┣╄┼╋	╍╍╍╎╏╎╎╢╎┼	┨┈━┛┨┠┾┥┠╿┿	╏──┼┠┤┼╏┊┽╴	┥╍╍╾┥╏╷╎╎╏╷╎╷	╽┈┉┉┉╎╷╎╟╏╷╎╏┾╍┥╺┥
-	Ciana 7514 (7 4	: .⊈ [.	1911710-057	╾┤┽┥┼╅┼┨	╺╍╍┽┥┽╁╏┼┽╣	┈━╼╎╿┤┟┠┤┥	┥╸──┽┽┿┝╀┡╴╿╴	╏┈╍╍┼╏┽┤╏┿┽╴	┫╺╍╍┥┠┼┧┠┝┿┥	┥┈┈╵┊┧┠┠╢┣╄╓╄╍┨
				╼╾╎╴╽╴┪┝╞╾╞╼╉	╾╾┽┫┽┫┠┾┽╏	┈━━━╋┟╏╺┨╶┨╶┪╌╽╴	┼╾╍╾╊ ┨┝┠┢╞╎╴	<mark>╋╷┉┉┙┥</mark> ╄╌╢╵┥┠╍╇╴╽╵	╶ ╌┈╸┥╻╷╷╷╷╷╷	
-+-		-	V4 999	╍╋┟╋┟╿╄┞	╼╼┼╂┽╁┽┼╋┨	── ─ <u></u>	┨╼╾┝┟┠┽┠╆┽╴	┢──┤┼┼┤┨┥┼	┫╾╾┽┽┾┼┝┼┼┦	┟╾╍╾╋╌┨┝╋╋╋╋╋╋
	VIII VIII VIII VIII VIII VIII VIII VII	.¥	330007	╍╍┫╠╎┠┿╌┼╴╿	╺╍╍┽┟╎┊┟┟╢┥	─── ┝ <u>┼</u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	╽╼╾┼╏╎┤┝┼┿	┝╼╾╁┽┟╽┠┼┼	╁ ╼┍╍╾╡┥┠┈┽╷╞╷┡╶╿╷┽╼╽	┟╍╍╌┠╼╏╏╏┥┦╿╄╍┞╴┥
	Muhms 4 stige 17000 4		68910	┊╍╍┨┠┥┨╋┫	╺╼╾╎╏╎╷┟┤╅┥	┉╍╍┊┇┇┇┧┠╼╸┧╴	┨╍╍╍┨┨┫┽┟┟┞┽┙	┟╼╍╍┢┄┧╌╄╌╉┡╌╂╺┢╌	┨┈╾╍╶╡╏╏┆┥┇╏╏	┇───┠┦╏╏╏┠╻┝╸┨
1	HV-QUALIA 45115 4 5115-19 30 Y		840 000 740 000	╺╼╍╅┝┽┠ぺ╷┊╴┇╴	╺╍╍╺╽┠╎╾╎┠┦╌┞╌┤	╶╼╾╾┽╏┽╽┟┿┼╴	┨╼╾╌╎╏╠╎╞┾┽	<mark>┼╍┉┼╎┝┧</mark> ┝┾╋	┩╺╍╍┪┠┠┋┠╎┊╎	· · · · · · · · · · · · · · · · · · ·
	HV-QUALIA 4515 6 51 pada 30 9 HV-QUALIA 4515 6 51 pada 30 9 GAS COND 4515 6 3640 8 MOD COND 2515 6 36400 41000 16 P MOD COND 2515 6 MODOO 16000 6 HD EQL 4515 6 317240 17 GAS RDR 4515 6 170000 500 16		740900	╺╾┽┼╎┠╀┠╀	╾╾┝╽┼╎╏╡┼┥	╺╍╸┝┨╶┤╿┝╶┤╎	╏┄╼╾╾┽╏╞╴┥╴┨╺┿╍┥╵	╉╾╼╾╌┾╸┫╴┿╌┥┠╌┦╴┢╴		│ ·
	GAS VAND: 45115 & 76690 41400 16 1		1464 000	╍╍┽┿┾┾╀╉╪╉	<u>──┼┼┼┼┠┾┼</u> ┥	╼═┿╉╊┾┾╆┽╎	<mark>┨╺╍╴┾┨</mark> ╞┽┨┾┽	┫╼╾╾╋╋╈┿╋╋╋╋	╏╺╼ ┨╋┿ ┥ ┠╄┿┥	┟╍╍╺╁┽┽╂╏╏┣┛╌┽╼┨
	MOD COMO 2511-10 110 000 1000 6 P	. <u>*</u>	340090	╶╾╺╁╎┦╿╌╬╸╆╸┫╴	┉┉┥┤┊┟╏╽╺╽	┉┉┉╎╏╎╎╎╎╷	╿┈┉╼┿╏┧╅╏┽╎	┨╍╍┉┾┙┥┥┼┡╶┨╺╄╴	┨╌╾╍╄┨┢║┫┊┤┫	╽╺╌┈┪┫╿╂┇┠┨┿╍╽
	where any sinch me h	×	1960000	╺╍╍┥┟┾┽┢┾╍┝╼╉	╺╼╍╼┥┥┇┇╎╏┠┝┥╏	• • • • • • • • • • • • • • • • • • • •	╏╵╍╾┥┥┥┊┽╽╎╽╾┧╵	╅┄╺╍╍┽┅┫┝╌╏╏╶╅╍╞╍	╅╸┉┑╿┨╸┡╏┇┊┪╏	│ · · ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
	Go No 4616 0 10000 5- 16		49090	╺╼╼┥┊┟┝┽╌┾╌┡	╶╍╾╎╎╌┟╶┟┡┝┟┤╏	╶╾╾╸┥╏┈┤┤╏╺┾╷┥	┨╼╍╶┧┾┼┼┤┨╆┽	╏╺╾╴┥┃┽┼╏╺┽┼╷	┥╾╍┝╉┢┤╄╄╞╎	
	1 1 CALVEAN	- <u>-</u>		╺╾┽┥┇╁┝┿┩			┇┉┉┉┪╴┝╶╽╴┃╻╾╡╌┞╴	┨┈┈╵┝┇┝╏┣╏┣╶╡┦╍		
	Condenser Hills 40	¥-	1440 010	╾╋╇┧╋┽┾╉	╌╍╾┽┨┼┼┽┽┽┽┩	╾╾┾┾┼┾┠┽┽	┟╍═┥┥┝┝╄╏┊ ╎	┟╍╾┽╂┼┼╂┾┤╸	╉╍╍╋┨╂┨┠╄╄┨	┟━━┼┥╂╸┠┶┠╆╺╄╶┨
	hop kyl ?sits e bpls ? hop kpl ?sits e bpls ? Other syst 4 sits e Haren 4	- *	374 00V	╌╸ ┋╞┽┠┼┽╋	╶╾╾┼╏╎╞╎╌┼╆╏	╶┈┥╽╸┪┪┠┾┿	╂┍ ╍╍╌ ╉╷┨╱┠╌┠┢╸┋╌┨╌	┫━━┽┠┝┤┠┊┾	┥┯╷║╟╟║┇╢╢	
	ATTAC Suit A day	-5-1		╾╾┝┾┾┽╏┾╶╡╎	╺╼╼┥┠┼┼┟┟┧	╺╼╾┈┥┤╞╼┪╎╴╿╊	╽╺╍╕╽┥┟┆╎╿╽╎			
	URECAUDY ALSING REIDERIN	5+	64 01 U 240 0 0	╴╺┝┼╎╂┼┧┥	╸╾╼┨╠╂┨┟╋╋┦	┈╍╍╌┋┫┟╏┣╊┣╸	┨┈╾╾╄┋┽╏┠┇┾	┋╾╼╴┥╏╅╎┨╏┾┤	┨╍━╍╃╏╏╅┇┨╉╽	
	Utilities Aris & 3 Inv. 12		- 1114710 -	╍┼┤╎╞┽╪┨	╼╍╍ ┪ ╏╏┥┨ <u>┧</u> ┩ _╏ ┠╵┥	╶╍╍╸╅┇╏╏╂╎┠╴╏┠	<u> - </u>	<u>╞╴</u> ┯╅╂┼╎╏┤┾		
	ch 340		11966000	<u>─┼┼┼┼┼</u>	╾╼┿┼┥┼┠┿┼┦	┉╼╼┾╁┼┼┝┽┽	╁╼╾┝╁╞╞┧┥┾	┠╼╾┾┾╤┾╤┾┾┾┾	┨╼╼╁┟┾┟┟┟┟┼╵	╽╾╼╽┥╽╴┧┾┝┞┿┥

DO01-1 135EP76



ESTIMATE COST SHEET

Project FDOHUUS - Dempis Gr. Estimate No. item No. _______Account No. ______Date _____ Description Hobil Mattine (Fruger Qe Mak (Na) g ______Sheet No. ______ot _____

	Description of Work	Unit	Quantity	Hours	Labour	Equipment	Materials	Subcontracts	Job Supplies	Total Cost
	Instruments Ants 61112+ 4	145	400 1500 100 0							
	limeration 4 sites 4	V	1500							
	Grithlew 4siles 9	V	100 0	9						
	10.1111 4515 4	Y	490	₩		╶╼╾┪╎┷╽╷┝┼	┨╾╍╾┼┟┽┽╂╿╏┵┿	┨╍╍╌╽╽╽┥╽╽╽	┟ ╼╍╍╼╏╶┨╴┥╴┫	┟ _{┉┉} ┠╏╏╏╎╏ _{┩┈┢╴} ╎
	Larcable Asis 4		200		╏╍╍┟╿╎┼┟┠┼┤	╺━━╅╅┼╀┽┾┼	┠╼╾┼╏┟┽╿┠┽	╉╼╍╼╅╉┠╌╿┠╶┼┢╴	╈╍══╈╋╋╋╋╋╋	┟──┼╎┼╎┼┠┼╆╴╢
· · · · · · · · · · · · · · · · · · ·	hanic Asits A	┦╌┸╌╿	100 100	╆┥╾╾╴┟╎┼┠┾┼	┠╼╍╉╉┽┝┠┨┥┥	┝╍╍╾┧┩╏┥┧┧╴┼	╊╼╾┽╂┇╅┠╂┥	┼╌━┼╁┝╎┠┽╆╴	╆╼╾┽┾┇┤╄┢╅╵	<u>┥╺╍┾╁┧┼┼╂┆</u> ╆┛
· · · · · · · · · · · · · · · · · · ·	this that 4 sins 4		11 49 0	┢╢╼╼╸╏┿┽┾┿╍	┠╍╍┟╂╪┤┠╊┼║	╶╼╾┽╁╫╫┝┿┼	╂╼╾┼┠┠┽┠┡┼	┨╼╍╍┤┨┾┽┠╌┤┿╴	┥┈╍╍╁┟┟╋┢╋┙┫╋┙	┟╌┈╍┽┤╏╞┽╊╼╅╶┥
	lujularia. 4 sile e?	┼┷┤		┋	╂╼╍┽┨╍┝┠╋┼╏	╡ ╺╸╸<mark>┠</mark>╏┠┨┣┍┠╋	╏╍╾┾┠┽┟┠╂┿	╉╼╾┽┠┽┽╊┾╞╴	╉╍╍╍╪┟╏┇┝╂╌╅╌╿	┫╍╍┾╎┾┾┥┫┽╪┥
8	chuit 4 hits 4		14460	╏+++ + ++	╏╼╼┨┫┫┼┣╞┿┨	╞╾╼╤╋╌┠╞╞╿┨╍╄╼┨╴	╂╼╍┼┨╂┾╞┊┼	┥╍═┽┠┽┼┠┼┾╸	╆╍╍╍┢┫╍╽╢╟╅┦╸┦	
	Panit 4 site 4 chuse 340 12/310 350		175764		╏──┤┼┼┼┠┼┼╽		┨━━┤┨╿┤╽╿┤	┨╼╍┥┨┼┤┨┼┼	┋╼╍╞┨╞╎╏╘┥┥	┟┯╍┼┼┢┢┽┟┼┽┽┥
	AVE 16/1 = 33900 1/1101 3134000 1/0/site									
·	3134000 Hp/site		╶┟╽┥┥┽┥	<mark>↓┃↓</mark> ↓↓↓↓	┨╍╍╼╡┨┊╎┠┠╎╷┨	╷╺╍╍╌┢╌╏╶┠┝┝╌┾╌┽╸	╃┈╺╼╴┤╌┠╺┽╵╽╞╌╞╸┝	┥╍╍┥╽┾┥╋┾╏		╅╴┉┷╸╎╄╌┨╶╢╌┫╶║╌╉╼╄╼╸╎╴
		 	┿╋┼┽╊╄	┼╉╼╍╍┇┾╎┠┊┼╸	╃╼╼╁╋┽┼╊╬┿┤	┝╼╾╉╉╋╃╋╄╄	<mark>╃╾╍╴┼┠┽┽┠</mark> ┽┽	╀──┼┫┾┼┿┽┾	<u>╋╼╾┿╄</u> ┦┾╿┽┠┘	┨╼━╃┼┼╏╠╋╋┿┱┨
	Via roll.		╷┥┠┙┥┽┨┥	┫┉╍		╺───┥┥┊┥┊┥┤╴	┥╾╾╅╎┿╿╊┞┞	╉╾╼╴┟┨╺┊┊╎╎┝╸	┫┅━━┥╏╎╎╎┟╷╽╎	┫╍┈╶╄╶╉╌╊╌╿╴╏╏╏╞╍╋╍┞
	Voucouver to Dangstur mid like - 2037 mi temousou to 1651	¥ 40		29 hrs 14 19 kin	╉╍╍╌╬╻┨╶┤╌┝╴┠╌╇╴┤╶┪		┫╍╍╍┝┼╎┼┥┠┤╅	┫━━╾╂┨╅╋╊╂╽		┟┈┈┥╏╻╹╏╏┝╇╍╢
	tamonton to	¥ 90	┈┊╿┈┼╃₿	10 - 19 9 244	┫╌╍╍┥╏╎┼┥╽╬╟╎	╶╼╾┽┟┾┥╁┥┅	╂╼╼╞┠┼┨┠┼┿	╪╍╍┾┼┝╞╋╅╅	┨┈╍╫┨┨┼┣┥┽╎	╽╍╾┥┼╻┾┝┾┿┽╸╎
·	· · · · · · · · · · · · · · · · · · ·	+ -	++++++	┝┨╾╾┥┧╎┠┤┊╴	╉╍╾╍╃╂┼┋┠┇╬╸	╺╼╍╼┽╌╽┥╁╽┈┥╃	┟╼╍╍╌┫╽┟╿┨╆┼╍╉	┥╺╍┝┧┥╞┣ ┋┾	╆┈┄┈┞┦┾╅┢╎╿	┧╺╍╍┾ ╡┠╶┨┥ ┝┝┾╍┤
}	truche ents in Edwanta by this	111	++++b		403 406000	ane Under	╁╼╍┽╆┼┤┽┝┤	┼╼╾┥┫┼╽┨┝┼	╉╍━╋┼╞╉╂╉┼┦	1216000
	· · · ·			FL 11F151	34.4		╏──┤╽┾┼╎┼┼			
	Fright ents in tamouton by millage	mi	67124					115 1349 000	/	1349 000
	Fught costs ex tamowar by height	<u> b¢</u>	12 5360	<u>♥↓↓↓↓↓↓</u>	┎╼╍┽┼┽┽┠┾┼┥	╶╧╾╪┽┿┼┾┽┼	┨━━╾┠╂╂┿╂╂┾	1109 1360 000	┧━━┼┥┼┝┝┿┿╵	1380 000
	Pilot en ens volnes	1.1	490	┥┨╍╍╶┥╎┥╽┪╎	┽╌╼╌┽╎┤╎╎╎ ┝┝╸╽		╶┥╍╸╍╺┽╂╌╿╺┇┣╌╎╴╎	125 124 00	┋╺┉╎┇╎┇╎┇┤╡┤┙	184 000
	TITOG UN UTN WITHS	. N	490	┝ <mark>╜</mark> ╏╶╼╾┽┽┽┾╄╌┝╴	┨┈╍╍╍╌┫╞╌┥╌╎╴╿╴╿╴┝╌┥	┥╼╍┈┪╎╴╁╹┪╄╶╢┡╵	┥──┾┧┽┨┠┟┾			
	·····	·	╶╂┫┪╂╏╽	_╋ ┠╺╍╶┾┽┽┠╊┿┽	┫╍╾╍┪┼┥╎┞┾┾┤	┥╶╼┽┟┇┇┇┇╎	┨╍╍╍╊╌┟╴╽┡┇┫┥┙╽			
				╎╏───╞┼┥┠┝┼╵	╉╼╾╍┥┟╽╡╢╡╿╡	╡╺╍ ╾ ╍┨┇╌┇╪╍┠╌╡┍┇	┨╌╍╍╌╡╌┨╽╴┨┫╽╽			
· · · · · · · · · · · · · · · · · · ·		1-1	╶╽┨╡┤╏╏	<u><u></u><u></u></u>						04 11500000

D001-1 135EP76

01712

III-16 TOOLS AND MAJOR SPARES

III-16.1 TOOLS

The compressor station will be basically self-contained insofar as normal tools and equipment are concerned. We have provided a general list of items that are commonly utilized at larger stations.

III-16.2 MAJOR SPARES

This estimate has included the costs for a number of spares at each station. The general spares were assigned to Electrical Spares, Instrumentation Spares, Pump Spares, Turbine Spares and Mechanical Spares. In addition two additional categories were considered;

- a) a spare gas turbine power unit estimated at two million dollars, and prorated between 9 stations
 \$2,000,000 + 9 = \$222,000 per station
- b) a spare refrigeration turbine/compressor unit estimated at one million dollars and prorated between 4 stations = \$250,000 per station.

DEMPSTER COMPRESSOR STATION

System COST Summary System Nr

PAGE OF

DAD I TWO AR				
TEM	SUPPLIER	GUANTITY	UNIT FRICE	EXTENSION
a the stander	· · · · · · · · · · · · · · · · · · ·		••••••••••••••••••••••••••••••••••••••	· · · · · · · · · · · · · · · · · · ·
		ţ.	2000	2000
Topola Prinder			1000	14.00
Torrer Ernder		-	1 - 1 × 12	2,7
200 Anip Electri	. i	1	3000	30.0
	Dreneld Speciels	1	2,000	2 57 4 15
· ·	Vienel & Sockals	<u> </u>	600	1- C +
1" hand Speleet	T	1	600	General State
314" haved Socket	T	. 1	410	1 A 510
Turque Wrenels		2	300	6-6-5
Torave Multipli		2	100	7.00
Herman Nelson			2000	2000
Baker hypelvarlie	Remo	I	800	500
5 for hydraulie		2	70	100
12 how hydraslic		2	100	200
2" Cantri Logal C	I. I.	1	1750	1710
Open End Wren		1	110	150
Box End Wree			10	150
Hammer Wrench		Jeh	200	200
Shel Extractions		Set	50	50
Tays & Dies		sel	200	200
Hydrailie Polle	• • 5	set	1100	1100
Heisting Tack		loh	2000	21000
HAMMERS		Set.	60	60
Pliers		se -	100	یسی ا
Serve Drivers		set.	50	50
· Liso's		5.04	50	<u></u>
Purches		30+	2.52	
Down Saw		ę	15	<u> </u>
Electric Drills		3	64	د. 2. 5
Pipe idrenetes		6	16	
Crossie Sund		1 10 1 1 L		
Oxy acetylene C	Hing Torch	1.	4	4 1
	÷	Carry 1	Torward	252:4
			SLB-TOTAL	
		CENTINGEN		6
		- 200 -	TOTAL	

III-16.1

DEMPSTER COMPRESSOR STATION SYSTEM COST SUMMARY SYSTEM NO SUPPORT LNIT FRICE EXTENSION SUPPLIER SUANTITY TEM 10+ 1340 Line Ju Clamis Prov. Banel Test Eavipment 10 ++ 7500 Elen and The Elenand 1980 3500 What is the set 1 3 -Tool Bover 2 350 2 Trade Liebts 25 Micrometers Sel-6 00 Vernier Caliport 200 2 0

PAGE () := 8

134,

7:00

35.0

.

700

570

et. . .

200

Vernier Calipert		Lu-		
Barsenpe		. P	1000	1000
West Boneles		2.	500	1500
Dakes PL ali the	ete	lot	21-0	210
Vehicle Maintenance		lof-	2500	2500
Consumable Supplies	Investory	105	5000	5010
Subtatel page	2	· ·		24590
Subtulal page)			25236
Total				49826
		Į	ourd to	\$ 30 000
		· · ·		
		· · ·		
•				
		•		
:				
				· · · ·
	- Altone - Altone - Altone - Altone - Altone - Altone - Altone - Altone - Altone - Altone - Altone - Altone - A			
SALCE THE	change 4000			
	etimate 10 ante	65		
				-
			S-B-TOTAL	
		CONTINGENC	Y @ %	
		- 201 -	TOTA	

DEMPSTER COMPRESSOR STATION

III-16.2

SYSTEM COST SUMMARY

SYSTEM NO	MAINT: NAME	وسي برط م		PABE 8:= 3
TEM	SUPPLIER	SUANTITY	UNIT FRICE	「「「」」という」
				······································
				······
Electrical Si	and the second second	104		10,000
Instrumentat		lot		\$ 000
Pump Spar				2000
Turbine S.	vares			25000
Mechanical				7500
Pioraked Sha	col space q.	es tuching po	wer with	222000
Provaled Sh	que el spare 1	Prigeration)	vibine - cump	250.000
Subbotal	Spares			524.500
	· · · · · · · · · · · · · · · · · · ·		Round to	521-000
		·	·	
	· · · · · · · · · · · · · · · · · · ·			
				· · · · · · · · · · · · · · · · · · ·
-			·	
				· · · · · · · · · · · · · · · · · · ·
	· · · · · · · · · · · · · · · · · · ·			
		·		
	· · · · ·	-		· · · · · · · · · · · · · · · · · · ·
Sales Tax	61365 610	40		
Weight +	10000/65			
				· · · · · · · · · · · · · · · · · · ·
	÷			· · · · · · · · · · · · · · · · · · ·
	· · ·		SLE-TOTAL	
		CONTINGENC	Y@ %	
		- 202 -	TOTAL	