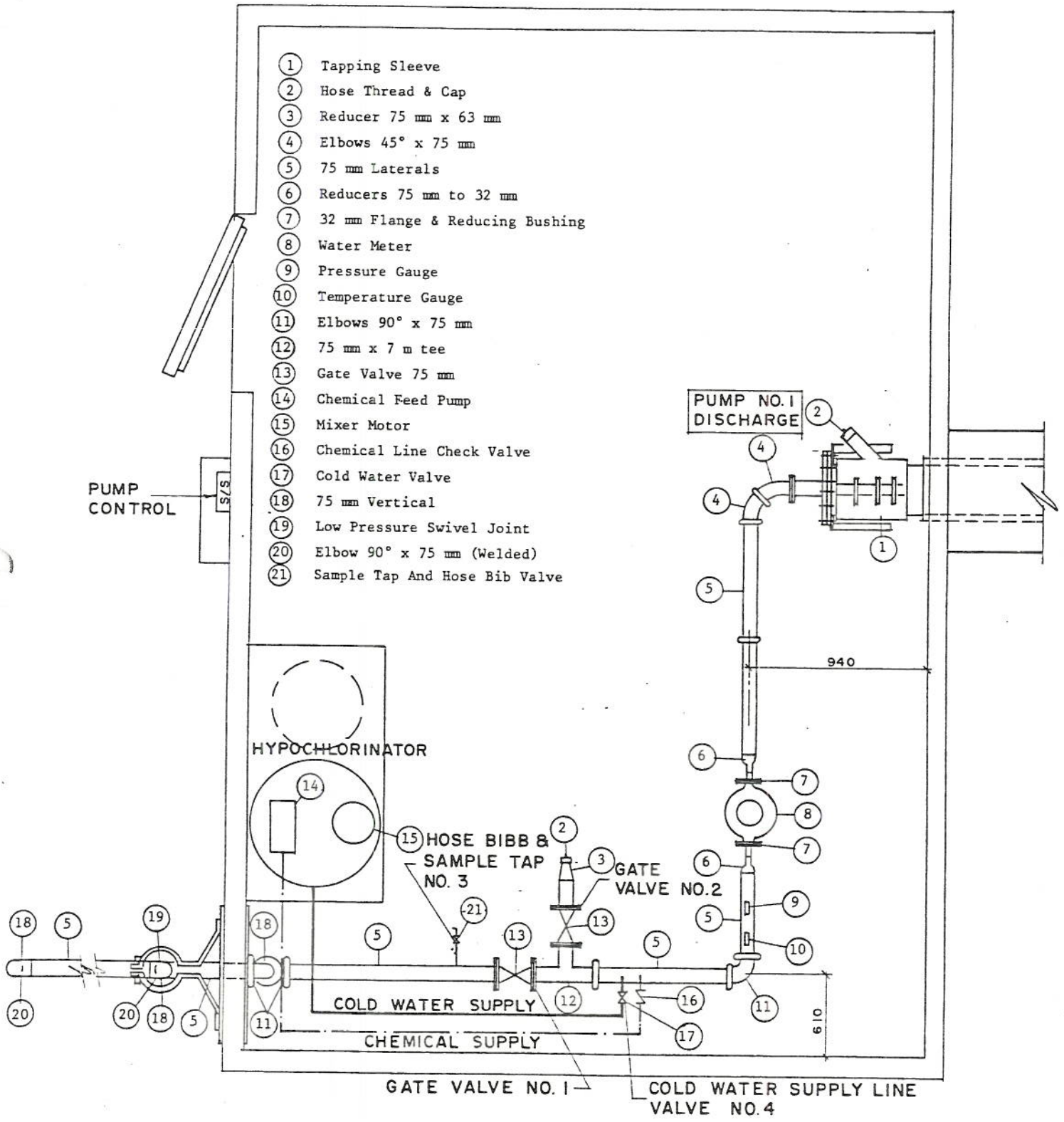


PUMPHOUSE PIPING & FITTINGS

CHAPTER 5

WATER SUPPLY SYSTEM

FOR

IGLOOLIK - N.W.T.

TABLE OF COMPONENT DETAILS

SOUTH LAKE PUMP HOUSE

NO.	NAME/MAKE/MODEL	DATA	REMARKS
1	150 mm (6") diameter well screen		
2	150 mm (6") Monarch 90 MT	350 USGPM @ 190 ft. @ 2,500 RPM	Wilron Equipment 12605-125 Street Edmonton, Alberta
3	Model 2711E Ford Diesel	4 Cylinder 64 HP @ 2500 RPM	Wilron Equipment 12605-125 Street Edmonton, Alberta
4	Rockford Power Takeoff		Wilron Equipment 12605-125 Street Edmonton, Alberta
5	Browning Coupling CHJ57Q	1 7/8" x 2 1/4"	Wilron Equipment 12605-125 Street Edmonton, Alberta

SERVICE CONTRACT 622 ✓ 79-30-382 5-17

GENERAL DESCRIPTION
Supply of Portable Pumping Unit c/w Technical Start-up Services

LOCATION: Igloolik, N.W.T.

CONTRACTOR'S NAME AND ADDRESS:
Wilron Equipment Ltd.,
397 Humberline Drive,
Rexdale, Ontario
M9W 5T5

Project No. 78-118

DETAILS OF TERMS OF CONTRACT	UNIT PRICE	TOTAL
Scope of Work		
A. To supply a diesel operated pump c/w piping and appurtenances, c/w skid mounted shed in accordance with: attached invitational tender specification dated April 1979; Wilron Equipment, Edmonton office quote A79-334 modified in delivery point only from Ft. Good Hope to Igloolik, N.W.T. and Wilron Equipment Ltd., telegram confirmation quote # CNT006 (TEAR015) 93 FR dated 14 June 1979, at a cost F.O.B. Igloolik, N.W.T. of		$19,968.00
B. To provide upon notification by D.P.W., Project Mgmt, Eng.Div., the initial start-up and trial operation of the pumping facility on the following terms: 1. Start-up is estimated to occur during the period from 1 Sept/79 to 31 Oct/79. 2. Estimated time away from the office to be 5 to 7 days. 3. Wage charge out cost is $250/8 hr. day 4. Overtime is x 1.5 R.T. 5. Disbursements are extra at cost. 6. Rates shall not change for start-up in period defined above. Allowance for technical assistance:	GOV'T OF N.W.T. [illegible] BRANCH Posted To Commitment NOV [illegible] 1979 Control INITIAL [signature]	5,032.00
.......CONTINUED/pg. 2	TOTAL	

THIS CONTRACT SHALL:
COMMENCE ON THE ______ OF ______ 19____
TERMINATE ON THE ______ OF ______ 19____

THE MAXIMUM AMOUNT PAYABLE UNDER THIS CONTRACT SHALL NOT EXCEED $ [signature]

WE AGREE TO SUPPLY THE EQUIPMENT AND/OR PERFORM THE WORK OR SERVICES AS STIPULATED ON THE COVENANTS

SERVICE CONTRACT

D-18

GENERAL DESCRIPTION

Supply of Portable Pumping Unit etc.

LOCATION: Igloolik, N.W.T.

CONTRACTOR'S NAME AND ADDRESS:

Wilron Equipment Ltd.

Project No. 78-118

DETAILS OF TERMS OF CONTRACT	UNIT PRICE	TOTAL
continued/pg. 2		

Payment Schedule

A. Pumping Unit

1. 70% payment upon receipt of proof of shipment from Rexdale, Ont.
2. 20% payment upon receipt of unit in Igloolik, N.W.T.
3. 10% payment upon completion of unit in Igloolik, N.W.T.

B. Technical Services

1. Payment upon receipt of invoices for services.

In addition to Item No. 5 on the reverse side of this contract, it is required that the contractor provide proof that he has complied with the provisions of the Workers' Compensation and Labour Standard Ordinances of the Northwest Territories.

TOTAL $ 25,000.00

THIS CONTRACT SHALL:

COMMENCE ON THE 19 OF June 19 79

TERMINATE ON THE 15 OF November 19 79

THE MAXIMUM AMOUNT PAYABLE UNDER THIS CONTRACT SHALL NOT EXCEED $ 25,000.00

WE AGREE TO SUPPLY THE EQUIPMENT AND/OR PERFORM THE WORK OR SERVICES AS STIPULATED ON THE COVENANTS AND AGREEMENTS CONTAINED ABOVE AND ON THE REVERSE SIDE HEREOF.

RECOMMENDED BY

ORIGINATOR

6-11-79 DATE — G. Shevkenek SIGNATURE — Project Manager TITLE

PROGRAM MANAGER

6/14/79 DATE — SIGNATURE — TITLE

6/28/79 DATE

6/29/79 DATE

SIGNATURE OF CONTRACTOR

WITNESS

ACCEPTED ON BEHALF OF THE COMMISSIONER OF THE GOVERNMENT OF THE NORTHWEST TERRITORIES THIS 12th DAY OF Nov 19 79

SIGNATURE

Director DPW

TITLE

CODING	AMOUNT
78-118 -1609-203227-091-940	$25,000.00
TOTAL	$25,000.00

NL COMMITTED

TE INITIALS

INVOICING: CONTRACTOR TO SUBMIT INVOICES IN 3 COPIES TO: A. Shevkenek

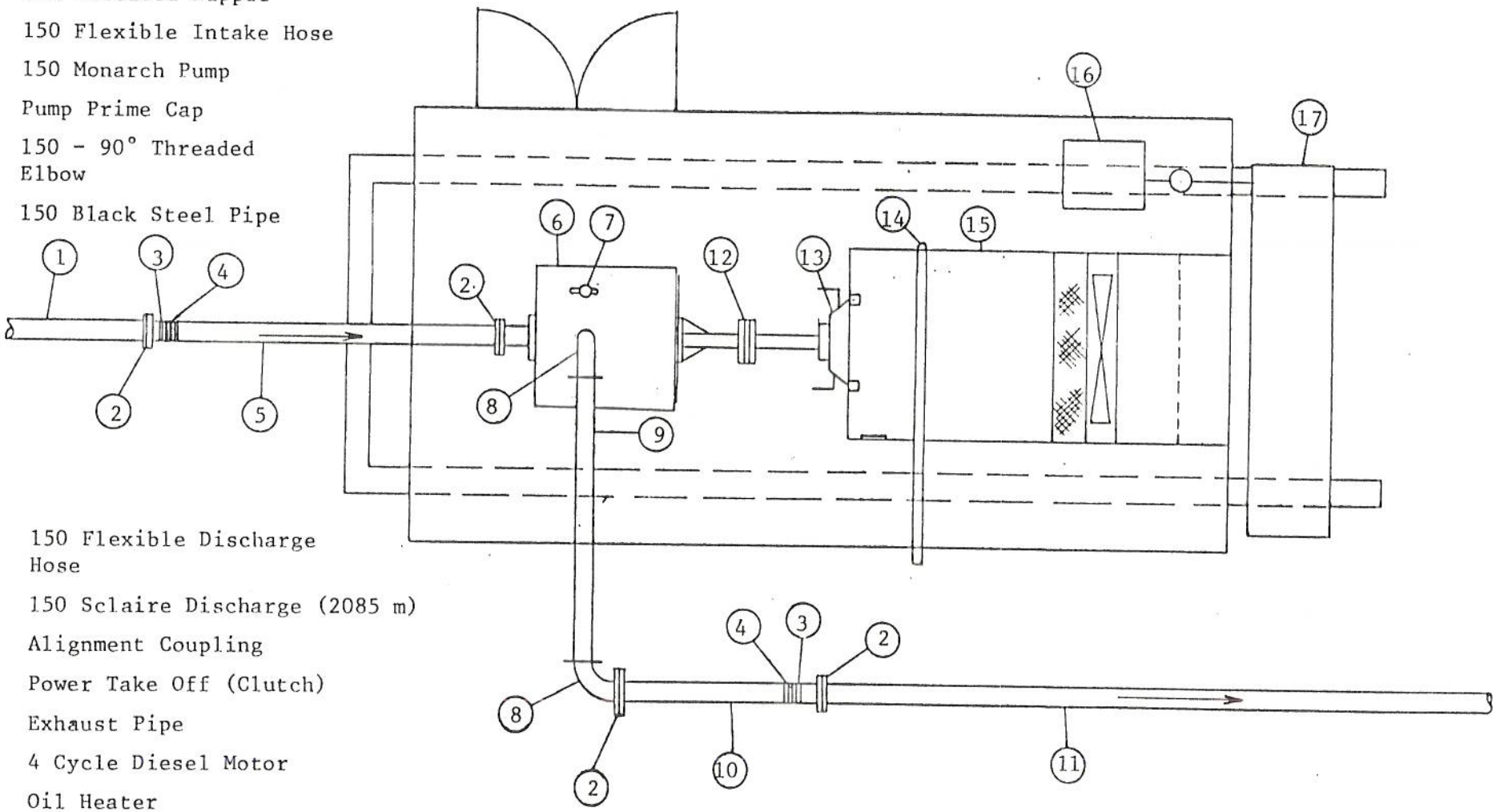
Project Mgmt. Eng. Div. D.P.W.
Government of the N.W.T.

2529 (6/70)

3. REGIONAL TREASURY

9

1. 150 Sclaire Intake (46m)
2. Sclaire Flange
3. #710 Bayco Quick Coupler
4. 150 Threaded Nipple
5. 150 Flexible Intake Hose
6. 150 Monarch Pump
7. Pump Prime Cap
8. 150 - 90° Threaded Elbow
9. 150 Black Steel Pipe
10. 150 Flexible Discharge Hose
11. 150 Sclaire Discharge (2085 m)
12. Alignment Coupling
13. Power Take Off (Clutch)
14. Exhaust Pipe
15. 4 Cycle Diesel Motor
16. Oil Heater
17. Oil Tank



SOUTH LAKE PUMPHOUSE PIPING & FITTINGS

N. T. S.

SL-1 Intake Screen

SL-2 Marker Float

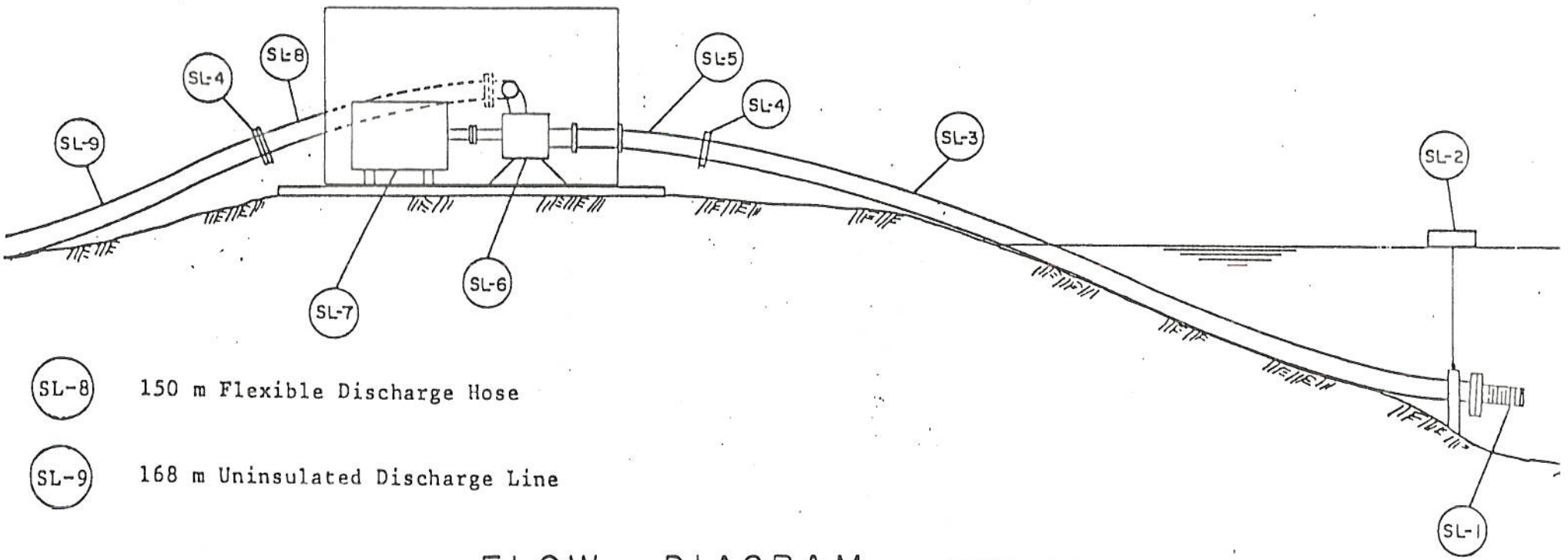
SL-3 168 mm Uninsulated Intake Line

SL-4 150 m Bayco Coupler

SL-5 150 m Flexible Intake Hose

SL-6 Centrifugal Pump

SL-7 Diesel Motor



SL-8 150 m Flexible Discharge Hose

SL-9 168 m Uninsulated Discharge Line

FLOW DIAGRAM - SOUTH LAKE

N. T. S.

CHAPTER 6

OPERATING AND SPECIAL PROCEDURES

I N D E X

CHAPTER 6

OPERATING PROCEDURES

A. OPERATING PROCEDURES FOR WATER PUMPING SYSTEM

Step 1. Go to the "Main Switch" panel located on the wall between the circuit breaker panel "A" and the storage shelf. (See Chapter 5 for location drawing and Photo #5 & 6. Turn the Main Switch to the 'on' position to energize the system.

Step 2. In Panel "A" located immediately beside the main electrical service panel, check to see that all circuit breakers are in the 'on' position.

Note: The breakers labeled "spare" are not wired to the main power supply. Therefore, it does not matter whether they are "on" or "off".

Step 3. Inspect the chlorine solution tank to ensure that there is sufficient solution. (For instructions on filling the chlorine solution tank and on operating the chemical feed pumps, see Section "D" of this Chapter).

Step 4. Plug in the chemical feed pump and mixer into the electrical receptacle labeled "Chemical Feed Pump, Automatic". This receptacle is located on the wall directly behind the chemical pump. If for any reason, manual operation of the feed pump is required, place the plug in the receptacle labeled "Manual" which is to the left, see Photo #14.

Step 5. Insure that the sample line and hose bib (Valve No. 4) is fully closed. This is located on the green discharge pipe approximately one foot to the right of gate (Valve No. 1).

Step 6. Insure that the cold water supply valve, (Valve No. 2), to the chorine solution tank is fully closed. This valve is located on the cold water supply line approximately one foot left of gate Valve No. 1).

Step 7. Proceed to the "Water Pump Control Panel" located on the wall immediately above the inclined shaft and rotate the pump selector switch at the bottom of the panel to Pump No. 1 (P1). Refer to Chapter 5 and Photo # 7 for the location of the "Water Pump Control Panel".

OPERATING PROCEDURES

A. OPERATING PROCEDURES FOR WATER PUMPING SYSTEM

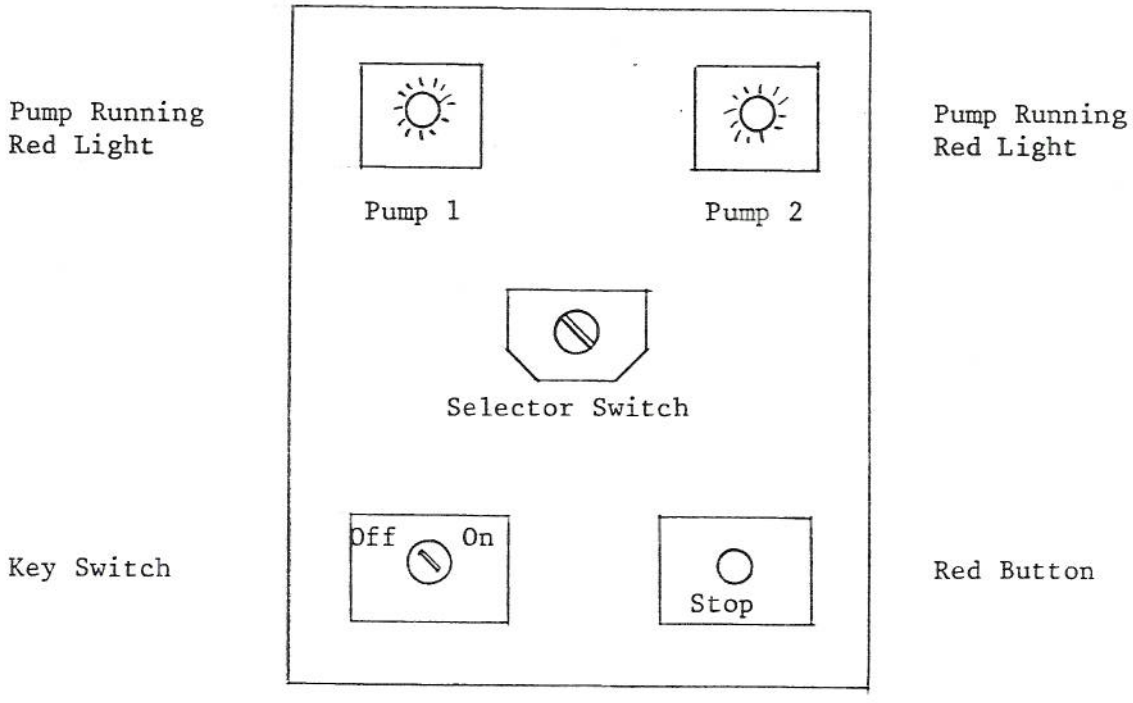
When Pump No. 1 (P1) is selected, insure that gate valve No. 1 is fully open and gate valve No. 2 is fully closed. The Pump No. 2 position provides an alternate relay only.

If Pump No. 2 (P2) is selected, two connections on the inside of the control must be changed before the alternate relay will work. This procedure is described later in "Trouble Shooting Operating Procedure" of this section.

Note: The pump can be operated manually from the "Water Pump Control Panel" if so desired. To do this, the keyed switch on the Pump Control Panel must be rotated to the "on" position. 30 seconds later, the appropriate red running light will come on indicating the pump is running. To stop the pump, rotate the key to the 'off' position and the red running light will go out.

Normal operation of the pumps should be from the "Exterior Pump Control Panel".

WATER PUMP CONTROL PANEL



Interior Control Panel

OPERATING PROCEDURES

A. OPERATING PROCEDURES FOR WATER PUMPING SYSTEM (cont'd)

Note: There is a 30 second time delay incorporated into the control panel to protect the pump against counter rotation. This means the pumps will not start for 30 seconds after the start key is turned to the "On" position.

Step 8. The driver should locate the tank truck under the filler pipe so that the hatch is aligned with the flexible hose.

Step 9. Open the door on the "Exterior Pump Control" panel which is located on the outside wall to the right of the pump house door. For the location, see the pump house piping and fitting plan

Step 10. Push the reset button on the remote totalizer to bring the reading to zero.

Step 11. Insert the key (Key #2) into the on-off switch and rotate to the "on" position.

Step 12. After a 30 second delay, the red light will light up indicating that the pump has been energized and water will begin to flow into the truck. If the red light fails to come on or the water does not flow, refer to "Trouble Shooting Procedure".

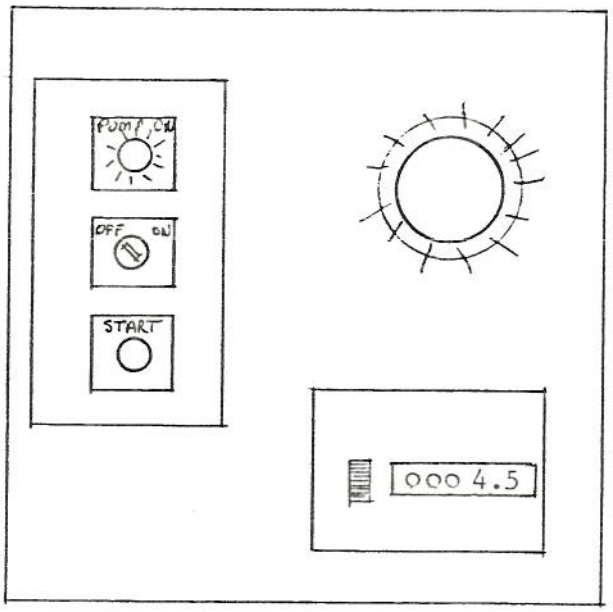
Note: There is a 30 second time delay incorporated into the control panel to protect the pump against counter-rotation. This means the pumps will not start for 30 seconds after the start key is turned to the "on" position.

Step When the truck is full, turn the key in the "Exterior Pump Control" panel to the off position, remove the key and close the door.

Note: 4,540 ℓ (1,000 Igal) the approximate full truck load is a 4.5 m^3 reading on the remote totalizer.

OPERATING PROCEDURES

A. OPERATING PROCEDURES FOR WATER PUMPING SYSTEM (cont'd)



EXTERIOR PUMP CONTROL

TROUBLE SHOOTING - OPERATION PROCEDURES

If there is no power in the building, turn the main switch to the 'off' position, open the box and replace the 100 amp fuse with the spare 100 amp fuse provided on top of the box. If there is still no power, call the N.C.P.C.

If power is not on in the building and water does not flow 30 seconds after turning the remote or the interior key switch on, check the circuits in the following locations.

Step 1. Turn exterior and interior key switches to the 'off' position and remove keys.

OPERATING PROCEDURES

A. OPERATING PROCEDURES FOR WATER PUMPING SYSTEM (cont'd)

TROUBLE SHOOTING - OPERATION PROCEDURES (cont'd)

Step 2. Go to Panel "A", the circuit breaker panel located on the north wall beside the main switch and turn circuit breaker 2 and 4 off, then on.

Step 3. Go to the Pump Control Panel located on the wall above and to the left of the intake shaft closest to the shelves, refer to Photo #7. . Release the two screw clamps holding the door and open the panel door. There are two relay blocks within the panel, each one has two white reset buttons. Push the two white reset buttons on the relay to the left hand side of the Pump Control Panel. (This relay operates when the pump selector is rotated to the Pump No. 1 position). Close the Pump Control Panel door.

Step 4. Go to the Jacuzzi capacitor box located above the intake shaft between the Pump Control Panel and the heat trace control (red box). Push the two reset buttons located on the underside of this box.

Step 5. Insert key in either exterior or interior switch and turn pump on. If water does not flow in 30 seconds, the following steps can be taken.

Step 6. Turn off circuit breakers 2 and 4 at Panel "A" and turn exterior and interior key switches off and remove the keys.

Step 7. Return and open Pump Control Panel door. A second relay on the right-hand side of the panel is available by changing the position of two wires. Disconnect the red and black wires located in the lower left-hand side of the panel and connected directly below the two black wires from the first relay. Connect the black wire over two spaces and the red wire over three spaces. They should be lined up directly below the two black wires from the second relay. Push the two white reset buttons on this relay, then close the Pump Control Panel door and turn the pump selector to Pump No. 2 position. Repeat Steps 2 and 4.

OPERATING PROCEDURES

A. OPERATING PROCEDURES FOR WATER PUMPING SYSTEM (cont'd)

TROUBLE SHOOTING - OPERATING PROCEDURES (cont'd)

Step 8. Insert key in either exterior or interior switch and turn pump on. If water does not flow, see this Chapter for pump removal procedures.

OPERATING PROCEDURES

TAG AND KEY DIRECTORY

Tag No. 1: Gate Valves Exterior Line Shut-Off

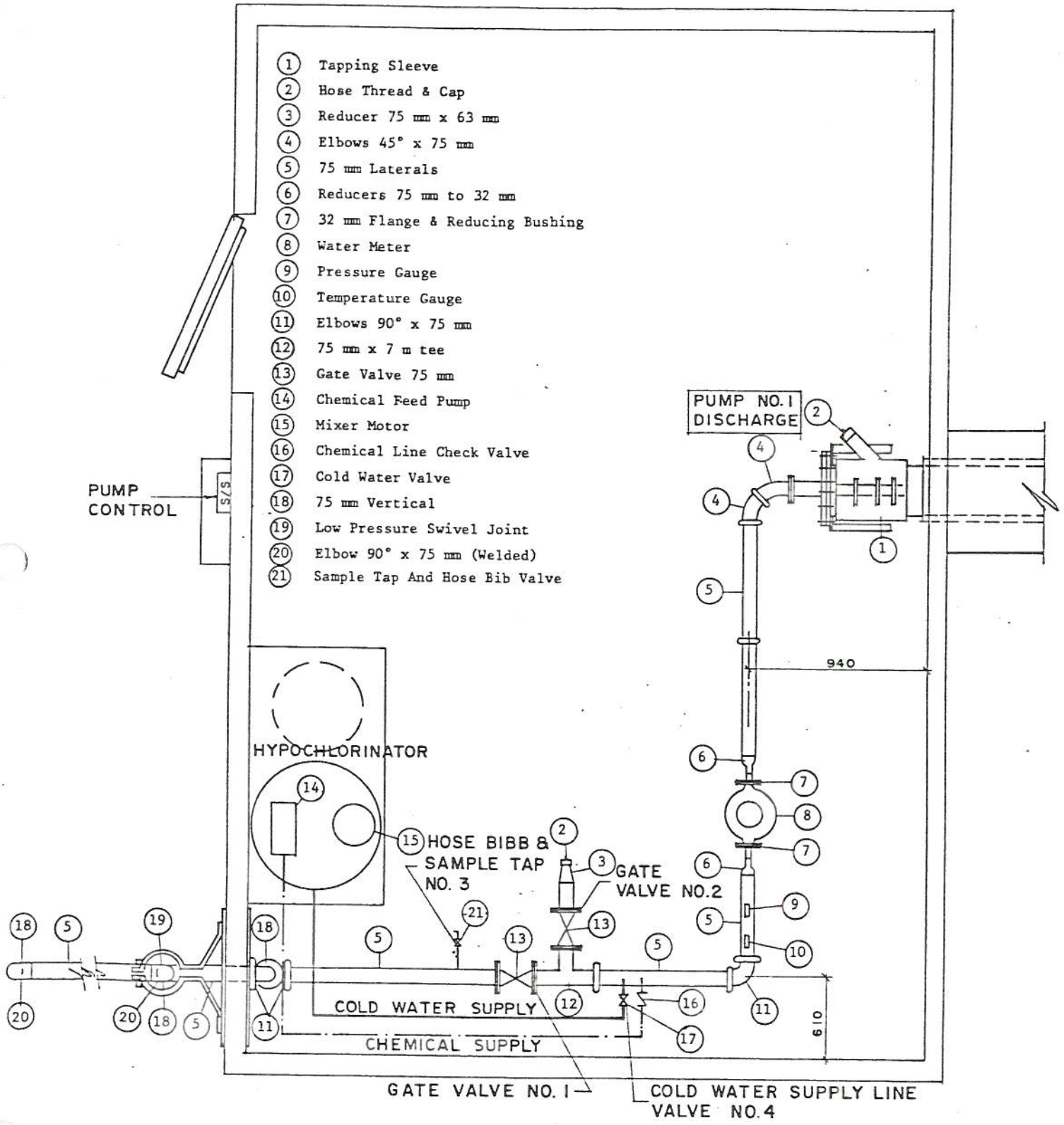
2: Gate Valves Interior 2-1/2" Ø Hose Outlet Shut-Off

3: Hose Bib and Sample Line Tap Valve

4. Cold Water Supply Valve

Key No. 1: Pump Fill Station Entrance Door

2: Exterior S/S Pumps Control



PUMPHOUSE PIPING & FITTINGS

CHAPTER 6

OPERATING PROCEDURES

B. OPERATING PROCEDURES FOR HEAT TRACE SYSTEM

Note: The heat trace system although only required during freezing weather is thermostatically controlled and should accordingly be left on all year round.

Step 1. After insuring that the main power switch is "on", go to the "Breakers Panel A", located immediately beside the "Main Switch" panel and check to see that the circuit breakers for the heat trace system are in the "on" position.

Step 2. Locate the "Heat Trace Cable Control No. 1" located on the wall directly above the inclined pump shaft. The central amber light should be "on" indicating there is power to the box and the heat trace. (For location drawing, see Chapter 5 and Photo 7.

Step 3. If the temperature of the water in the inclined shaft is below 1°C (33°F), the white light on the left hand side of the control box will be "out" indicating that the heat trace cable is "on" and heating. As the cable continues to heat and raises the water temperature to between 1 and 2°C (33 to 36°F), the white light will flash indicating a normal range.

Step 4. If the temperature in the inclined shaft continues to rise above 2°C (36°F), the white light will be "on steady". If the temperature is above 29°C (85°F), the red light on the right hand side of the control box will come "on". The red and amber lights "on" at the same time with the white light out indicates an alarm condition!

Step 5. Turn on the pump and allow water to run, this should lower temperature of the intake line until the red light goes out. Turn the pump off. If the red light will not go out or comes back on, then turn off power and check the heater tape or temperature of the pipe. If it is warm, replace the complete control unit.
Note: No field adjustments should be attempted but the whole unit should be changed.

OPERATING PROCEDURES

B. OPERATING PROCEDURES FOR HEAT TRACE SYSTEM (cont'd)

Step 6. If the amber light is off, this indicates an alarm condition. There is no power getting to the heat trace cable. Go to the circuit breakers Panel "A" and turn breaker No. 12 and 14 off, then on. If the amber light does not come on, replace the complete unit.

C. OPERATING PROCEDURES FOR HEATING & VENTILATING SYSTEM

Note: Heat for the building is normally provided by electric heater mounted near the ceiling to the left of the inclined shafts. This electric heater is automatically controlled by a thermostat located on the front of the heater unit.

Step 1. Insure that the electrical heater circuit breakers is to the "on" position in the "Breakers Panel".

Step 2. Set the thermostat located on the wall to the left of the pump house door to 15°C (59°F). This thermostat controls the warning lights only.

Step 3. The green lamp mounted outside on the mast above the pump house door will light up as long as the temperature inside the building remains above the level set on the thermostat. Should the electric heat fail and the temperature of the building falls below the preset level, then the red light on the mast will come on indicating an alarm condition.

Step 4. If the red light is "on", it will be necessary to enter the building and light the oil space heater manually (see Chapter 10-8 for detailed procedure for lighting the oil space heater).

Caution: Since the oil space heater is not automatically controlled and the building is well insulated, overheating of the building could result if the space heater is not continually supervised. The space heater should be manually run on an "on" and "off" basis levels in accordance with the temperature levels indicated on the thermometer in the thermostat.