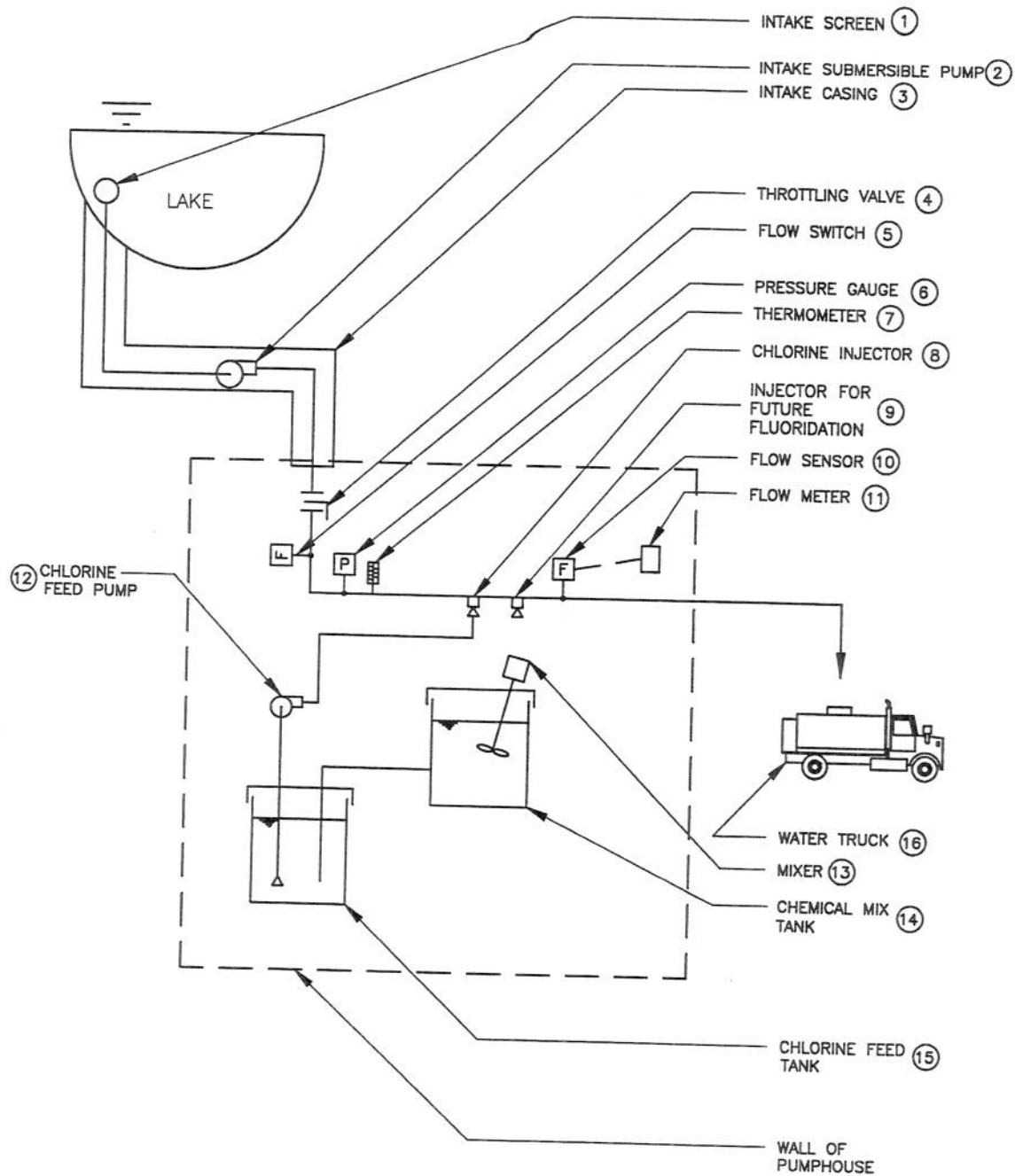




PROCESS SCHEMATIC

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PROJECT

ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT

TITLE

WATER TREATMENT SYSTEM

PROJECT NUMBER

96-3817

DATE

JUNE 98

FIGURE NUMBER

4.1

**ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT**

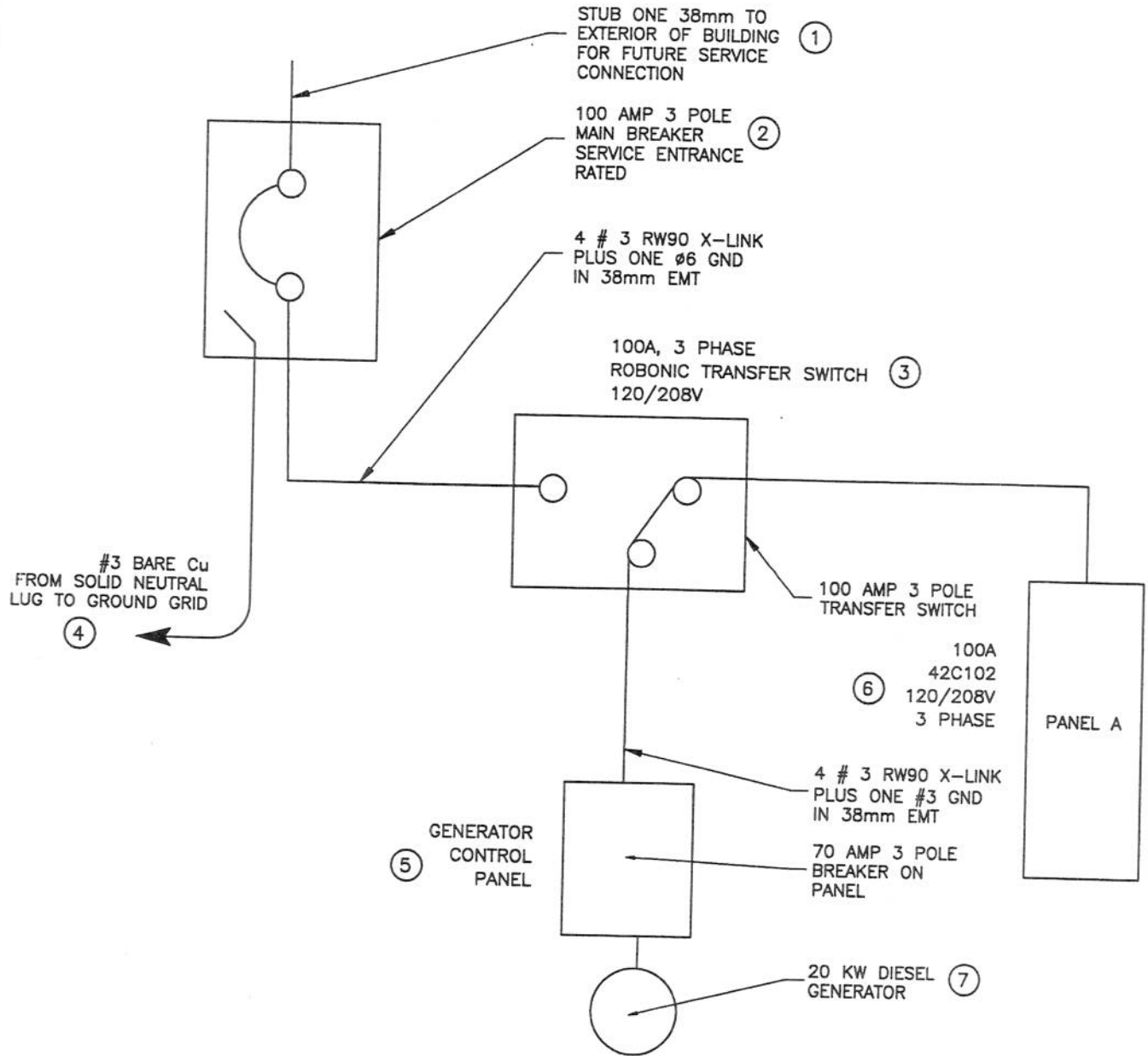
**WATER TREATMENT SYSTEM
TABLE 4.1**

Figure	No.	Section 9 Tab	Component	Function	Remarks
4.1	1	9.1	Intake Screen	Prevents larger solids from entering intake line and submersible pump	Stainless Steel Drum Screen
4.1	2	9.2	Submersible Pump	Pumps water from lake through intake pipe for treatment and distribution	Submersible 150 mm Diameter centrifugal pump, 7.5 HP, mounted on skid. Spare pump supplied.
4.1	3	9.1	Intake Casing	Screen flanged to casing. Casing houses and protects intake line and submersible pump.	Casing is insulated 300 mm Diameter DR17 HDPE pipe.
4.1	4	9.1	Throttling Valve	Control flow rate of water being pumped through system	Butterfly Valve
4.1	5	9.9	Flow Switch	Activates chlorine feed pump in a flow condition. Deactivates pump in no-flow condition	-
4.1	6	9.3	Pressure Gauge	Measures the water's gauge pressure in the system piping	-
4.1	7	9.3	Thermometer	Measures water's temperature	-
4.1	8	-	Chlorine Injector	Allows chlorine to be injected into raw water. Does not allow raw water into chlorine line.	-
4.1	9	-	Future Fluoridation Injector	For future fluoridation system	-
4.1	10	9.9	Flow Sensor	Paddle wheel that turns proportional to the flow rate. Connected to flow meter and accumulator.	-
4.1	11	9.3	Flow Meter	Displays flow rate of system	Flow Meter/Accumulator housed in control panel.

**ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT**

**WATER TREATMENT SYSTEM
TABLE 4.1**

Figure	No.	Section 9 Tab	Component	Function	Remarks
4.1	12	9.4	Chlorine Feed Pump	Pumps chlorinated stock from feed tank to raw water in system piping.	Positive displacement pump with adjustable stroke and rate.
4.1	13	9.4	Mixer	Physically mixes calcium hypochlorite and water for treating raw water.	Neptune 120 V, 1/20 HP agitator.
4.1	14	9.4	Chemical Mix Tank	Vessel used to mix calcium hypochlorite and water for treating raw water.	Translucent plastic tank with lid.
4.1	15	9.4	Chemical Feed Tank	Stores mixed stock of calcium hypochlorite and water for injection into raw water.	Translucent plastic tank with lid.
4.1	16	-	Water Truck	Delivers treated water	-



POWER DISTRIBUTION SYSTEM

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PROJECT

ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT

PROJECT NUMBER

96-3817

DATE

JUNE 98

TITLE

POWER DISTRIBUTION SYTEM

FIGURE NUMBER

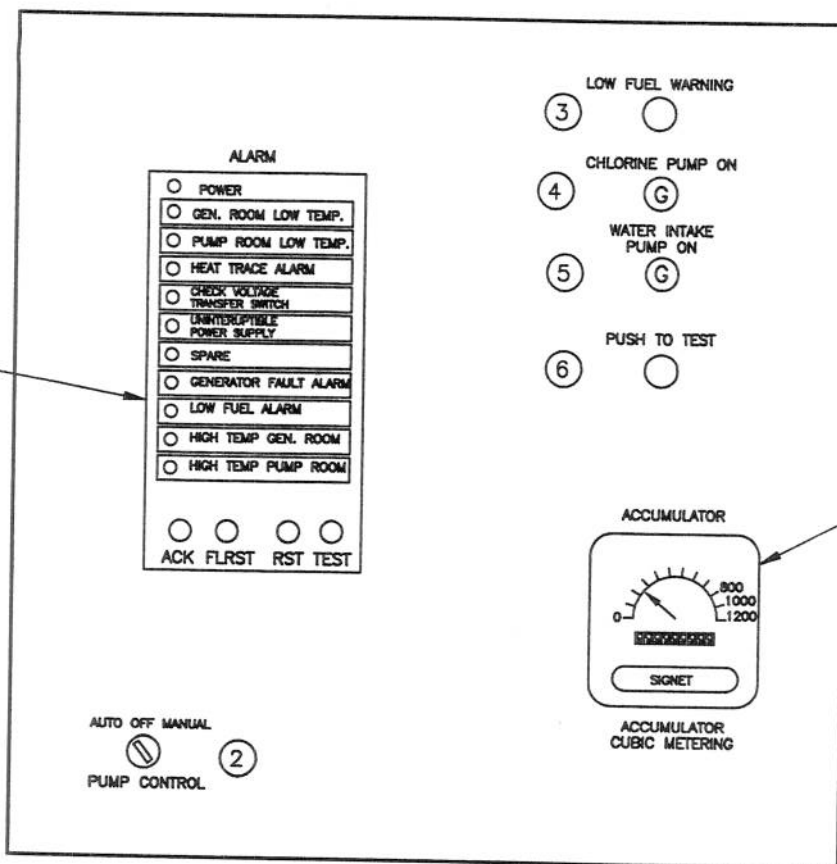
4.2

**ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT**

**POWER DISTRIBUTION SYSTEM
TABLE 4.2**

Figure	No.	Section 9 Tab	Component	Function	Remarks
4.2	1	-	For Future Connection to Overhead line	Future Supply of Main Power to Pumphouse.	-
4.2	2	-	Main Breaker	Main Throw Switch for Future Service Connection	-
4.2	3	9.7	Transfer Switch	Future Function is to Switch between Service Power and Emergency Generator Power	-
4.2	4	-	Ground Bus	Provides grounding connections for breaker panel and intake pump.	-
4.2	5	9.7	Generator Control Panel	Control and Alarms relating to Generator including Breaker	-
4.2	6	9.6	Combination Disconnect/Breaker Panel	Facilitates circuit connections for pumphouse.	-
4.2	7	9.7	Generator	Produces Power for Operating Truckfill Station	-

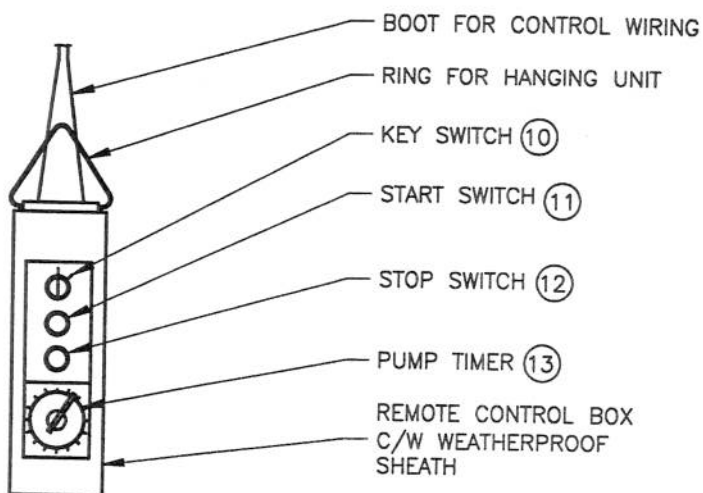
7 PANALARM
ANNUNCIATOR



FLOW GAUGE
AND
ACCUMULATOR
8

CONTROL PANEL 1

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REMOTE CONTROLLER 9

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PROJECT

ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT

TITLE

CONTROLS AND ALARMS

PROJECT NUMBER

96-3817

DATE

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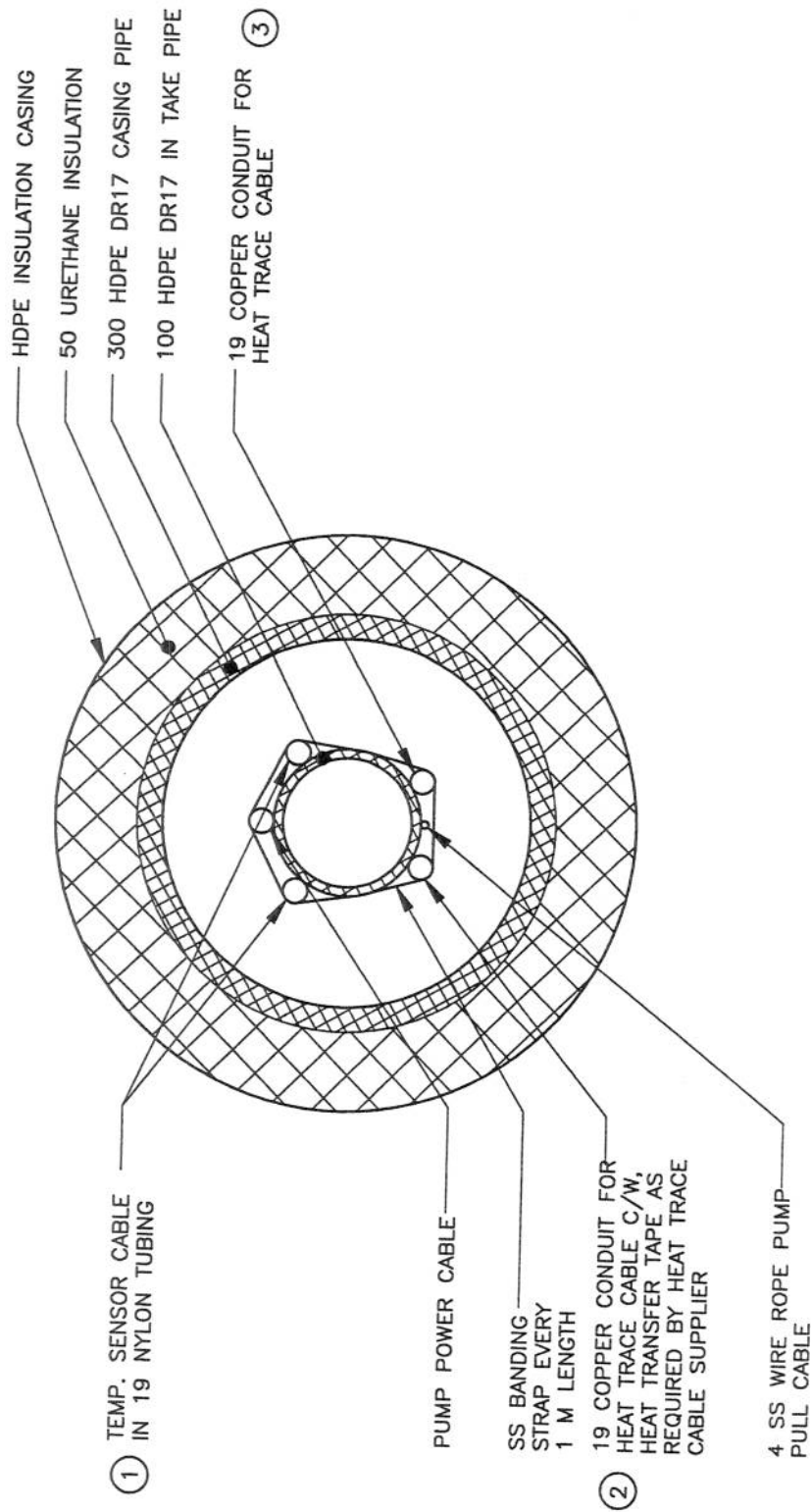
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4.3

**ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT**

**CONTROLS AND ALARMS
TABLE 4.3**

Figure	No.	Section 9 Tab	Component	Function	Remarks
4.3	1	9.9	Control Panel	Houses flow gauge/accumulator, alarm annunciator, pilot lights, pump control, and pump control switch.	-
4.3	2	9.9	Pump Control Switch	Switch is used to enable pumping mode — automatic, manual, or off.	-
4.3	3	9.9	Low Fuel Warning Light	Turns on when fuel sensor detects a low fuel level.	Set at 50% minor, and 30% major.
4.3	4	9.9	Chlorine Pump Pilot Light	Turns on when chlorine pump is activated.	-
4.3	5	9.9	Water Intake Pump Pilot Light	Turns on when submersible intake pump is activated.	-
4.3	6	9.9	Push to Test	Tests the alarms circuit by activating the strobe light, and horn.	-
4.3	7	9.1	Panalarm Annunciator	Allows operator to respond and control alarm conditions that occur with truckfill station.	-
4.3	8	9.3	Flow Gauge/ Accumulator	Displays flow rate and cumulative flow of water pumped through system.	-
4.3	9	9.9	Remote Controller	Allows water truck operator to fill truck without having to enter pumphouse.	Located on truckfill arm. Comes with weatherproof sheath.
4.3	10	9.9	Key Switch	Closes circuit allowing operator to start or stop the truckfilling process.	-
4.3	11	9.9	Start Switch	Pushing button starts truckfilling process, provided that key switch is turned on.	
4.3	12	9.9	Stop Switch	Pushing button stops truckfilling process, provided that key switch is turned on.	
4.3	13	9.9	Pump Timer	Timer may be set to run pump for period of time. Stop switch will interrupt timer setting, and stop the filling process.	Automates filling process. Different sized trucks will have different fill times.



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PROJECT

ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT

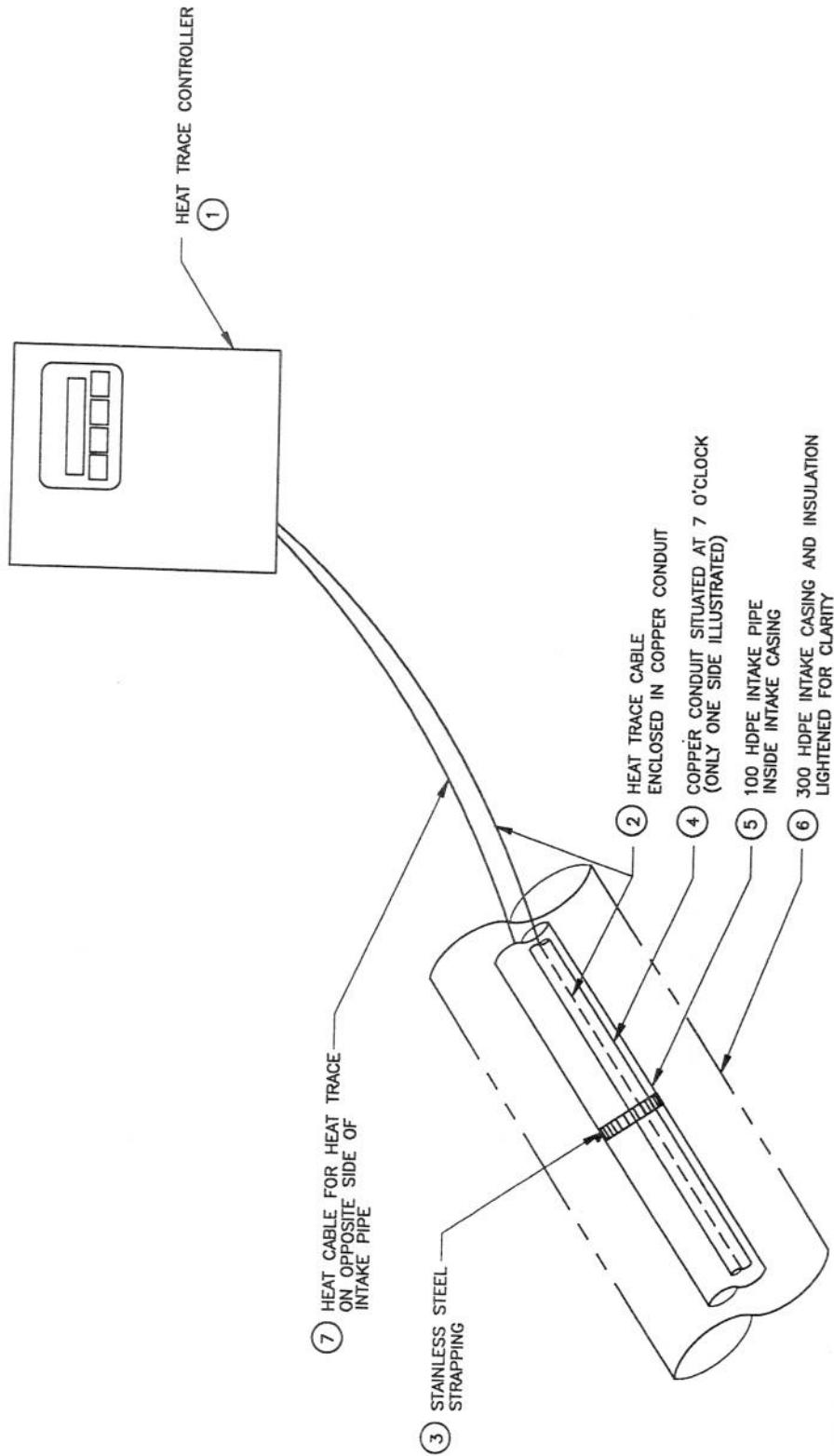
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TITLE

INTAKE CASING, INTAKE PIPE,
AND CABLES

DATE
JUNE 98

FIGURE NUMBER
4.4



HEAT TRACE SCHEMATIC

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PROJECT

ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT

TITLE

HEAT TRACE SYSTEM

PROJECT NUMBER
96-3817

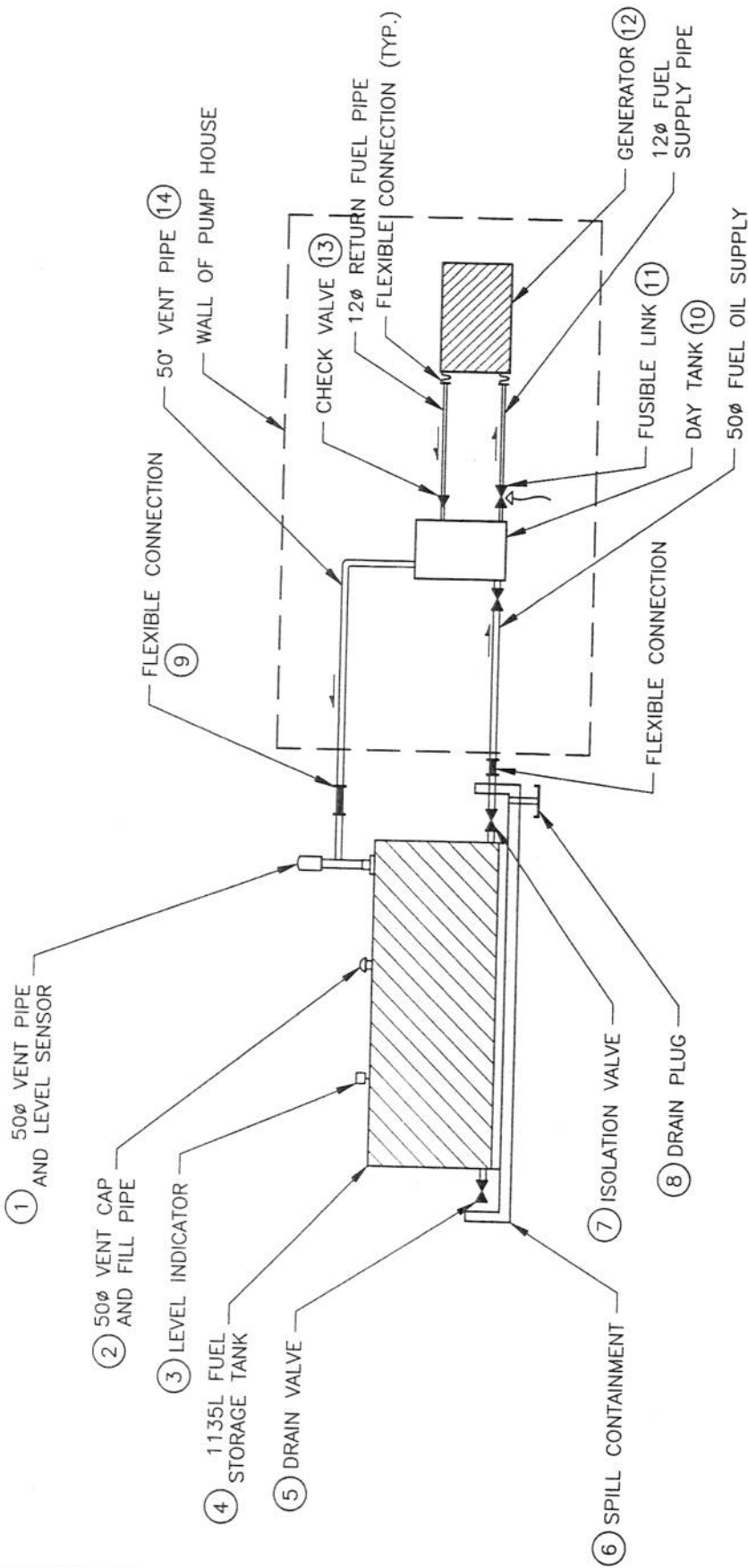
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FIGURE NUMBER
4.5

**ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT**

**HEAT TRACE SYSTEM
TABLE 4.4**

Figure	No.	Section 9 Tab	Component	Function	Remarks
4.4	1	9.12	Temperature Sensor Cable in Nylon Tubing	Sensor cable detects temperature against intake pipe. Heat trace control and alarms based on sensed temperatures.	-
4.4	2	-	Copper Conduit for Heat Transfer Cable	Encases heat trace cable and conducts heat to 100 HDPE intake pipe	19 copper conduit. Located at 7 O'clock.
4.4	3	-	Other Copper Conduit for Heat Transfer Tape	Encases heat trace cable and conducts heat to 100 HDPE intake pipe	19 copper conduit. Located at 5 O'clock.
4.5	1	9.12	Heat Trace Controller	Turns heat trace system on and off depending on sensed temperatures. Controls alarming of heat trace.	Accutron TS202 controller. Separate control for two heat trace cables.
4.5	2	9.12	Heat Trace Cable	Uses power to generate heat that will be transferred through copper conduit into intake pipe.	
4.5	3	-	Stainless Steel Strapping	Hold copper conduit against intake pipe.	
4.5	4	-	Copper Conduit for Heat Trace Cable	Encases heat trace cable, and conducts heat to 100 HDPE intake pipe	19 copper conduit. Located at 7 O'clock.
4.5	5	9.1	Intake Pipe	Carries water to steel piping system leading to water truck	100 HDPE DR17 pipe
4.5	6	9.1	Intake Casing and Insulation	Encloses intake pipe	50 Insulation
4.5	7	9.12	Heat Trace Cable	Identical circuit on other side of intake pipe	Circuit location at 5 O'clock



FUEL PUMPING SCHEMATIC

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PROJECT

ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT

TITLE

FUEL SUPPLY SYSTEM

PROJECT NUMBER

96-3817

DATE

JUNE 98

FIGURE NUMBER

4.6



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**ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT**

**FUEL SYSTEM
TABLE 4.5**

Figure	No.	Section 9 Tab	Component	Function	Remarks
4.6	1	9.10	Vent Pipe and Fuel Level Sensor	Vent Pipe allows Fumes and Excess Fuel to Return to Storage Tank. Level Sensor sends signals to the Alarms when Fuel is Low.	Level Sensor set at 50% (minor) and 30% (major).
4.6	2	9.13	Vent Cap and Fill Pipe	Vent Cap allows pressure to escape to Atmosphere. Removal of Vent Cap allows fueling.	-
4.6	3	9.13	Level Indicator	Gauge for Visual indication of Fuel Level.	-
4.6	4	9.13	1135L Fuel Storage Tank	Stores Diesel Fuel to supply Generator.	-
4.6	5	-	Drain Valve	Valve for draining Storage Tank if required.	-
4.6	6	-	Spill Containment	Contains any Diesel if Storage Tank develops Leaks or becomes Ruptured.	-
4.6	7	9.13	Isolation Valve	Normally Open, but can Close if Maintenance is required along the Fuel Supply System.	Can also Close Valve in Emergency, i.e., Fire.
4.6	8	-	Drain Plug	Use to Drain Diesel from Spill Containment.	Also Drain Meltwater or Rainwater as required to prevent Rusting.
4.6	9	9.13	Flexible Connection	Allows some Differential Movement between joined Pipes, or Components.	Typical throughout Fuel Supply System.

**ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT**

**FUEL SYSTEM
TABLE 4.5**

Figure	No.	Section 9 Tab	Component	Function	Remarks
4.6	10	9.13	Day Tank	Allows Fuel from Storage Tank to become Warm before Supplying Generator.	-
4.6	11	9.13	Fusible Link	Closes Fuel Supply in Case of a Fire.	-
4.6	12	9.7	Generator	Provides Power to Operate Truckfill Station.	-
4.6	13	9.13	Check Valve	Prevents Fuel from Flowing Backward from Day Tank.	-
4.6	14	-	Vent Pipe	Allows Vapour and Fuel to Return to Supply Tank.	-

5.0 COMPONENT DATA

5.1 General

Chapter 5 contains information on equipment used, including the manufacturer, model, and size. Cross references to the manufacturers' data in Chapter 9, and functional data in Chapter 4 are included. The suppliers' names, addresses, and telephone numbers are also listed on this table.

COMPONENTS, MANUFACTURERS, AND SUPPLIERS
TABLE 5.1

Section 9 Tab	Section 4 Tables and Figs	Description	Manufacturer and Model	Supplier
9.1	4.1, 4.4, 4.5	HDPE Insulated Pipe	Scclairpipe with Urecon Insulation	Perma Engineered Sales (1983) Limited P.O. Box 76 Group 200, R.R. #2 34 Roy Roche Drive Winnipeg, Manitoba R3C 2E6 Ph: (204) 633-7213 Fax: (204) 694-7228 Contact: David Sylvestre
9.1	4.1	Intake Screen	Screen Services StatiOrb Drum Screen	Screen Services 16748 - 110 Street Edmonton, Alberta T5X 2V1 Ph: (403)460-8043 Fax: (403) 460-8045 Contact: Kevin Whitham
9.1	4.1	Throttling Valve	Jenkins Lever Operated 100 mm	CCTF Quebec 1840 O'Gagnon Lahcine, Quebec H8T 3M6 Ph: (514) 636-1886 Fax: (514) 636-6022
9.1	4.1, 4.4, 4.6	Pipe Fittings	Various Victaulic	CCTF Quebec 1840 O'Gagnon Lahcine, Quebec H8T 3M6 Ph: (514) 636-1886 Fax: (514) 636-6022
9.2	4.1, 4.2, 4.3, 4.4, 4.5	Intake Pump & Various Fittings	Berkley 6T250 150mm Submersible Pump	Deschenes 8335, St.. Michel Montreal, Quebec H1Z 3E6 Ph: (514) 374-3110 Fax: (514) 374-5141 Contact: Pierre Milot
9.2	4.2	Pump Starter	NEMA Combination 512	LUMEN 120 Dubois St.. Eustache, Quebec Ph: (514) 436-3225 Fax: (514) 436-2537 Contact: M. Collin
-	-	Pump Skid	-	TAC 264 Montigny St.. Jerome, Quebec J7Z 5P9 Ph: (514) 438-1279 Fax: (514) 438-0813 Contact: D. Desjardins

**ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT**

**COMPONENTS, MANUFACTURERS, AND SUPPLIERS
TABLE 5.1**

Section 9 Tab	Section 4 Tables and Figs	Description	Manufacturer and Model	Supplier
9.3	4.1, 4.3	Flow Meter & Accumulator	Signet 5500 Flow Monitor	Brian Control 8600 St.. Patrick Ville Lasalle, Quebec H8N 1V1 Ph: (514) 366-5757 Fax: (514) 366-1134 Contact: Joe au Rolland
9.3	4.1	Pressure Gauge	Chevrier SG500	Chevrier Instruments Montreal, Quebec Ph: (514) 328-2550 Fax: (514) 327-0604
9.3	4.1	Thermometer	Ashcroft 30 EL 60 R040 0150 CENT	Chevrier Instruments Montreal, Quebec Ph: (514) 328-2550 Fax: (514) 327-0604
9.4	-	Chlorine	Calcium Hypochlorite 65%	Hall-Chem 11865 70 Ave Montreal, Quebec Ph: (514) 648-6050 Fax: (514) 648-9235
9.4	4.1, 4.3	Chlorine Injection Pump	Wallace & Tiernan Premia 75 Micro MPM4	US Filter 243 Bren, bur.210 Repentigny, Quebec J6A 6M4 Ph: (514) 585-5464 Fax: (514) 585-5464 Contact: Marcel Comtois
9.4	4.1	Chlorine Mixer	Neptune Flange Mount	US Filter 243 Bren, bur.210 Repentigny, Quebec J6A 6M4 Ph: (514) 585-5464 Fax: (514) 585-5464 Contact: Marcel Comtois
9.4	4.1	Chlorine Mix and Feed Tanks	Wallace & Tiernan 55 gal	US Filter 243 Bren, bur.210 Repentigny, Quebec J6A 6M4 Ph: (514) 585-5464 Fax: (514) 585-5464 Contact: Marcel Comtois

COMPONENTS, MANUFACTURERS, AND SUPPLIERS
TABLE 5.1

Section 9 Tab	Section 4 Tables and Figs	Description	Manufacturer and Model	Supplier
9.4	4.1	PVC Ball Valves on Tanks	Chemtrol 25 mm	Miller 10229 Cote de Liesse Dorval, Quebec H9P 1A3 Ph: (514) 631-4355 Fax: (514) 631-6695 Contact: Roy Seguin
-	4.1	Flex Tube for Chemical Tanks	-	Flexi-Tube 1116 Berlier Laval, Quebec H4S 1V8 Ph: (514) 384-6157 Fax: (514) 384-6157
9.5	-	Radiant Heaters	Chromalox CRT-3512	Binette 1231 Berri Montreal, Quebec H2J 4A2 Ph: (514) 274-2583 Fax: (514) 274-2583 Contact: J.M. Lambert
9.5	-	Electric Heater Thermostat	Tradeline T498B1678	Binette 1231 Berri Montreal, Quebec H2J 4A2 Ph: (514) 274-2583 Fax: (514) 274-2583 Contact: J.M. Lambert
9.5	-	Percentage Input Controller for Radiant Heaters	Caloritech Type OKT	Binette 1231 Berri Montreal, Quebec H2J 4A2 Ph: (514) 274-2583 Fax: (514) 274-2583 Contact: J.M. Lambert
9.6	4.2	Electrical Panel	Square D PS-1	CDE 2522 LeCorbusier Laval, Quebec H7S 2K3 Tel: (514) 438-1263 Fax: (514) 438-3728 Contact: Yvon Clement
9.6	-	Receptacles	Hubbel 5252	CDE 2522 LeCorbusier Laval, Quebec H7S 2K3 Tel: (514) 438-1263 Fax: (514) 438-3728 Contact: Yvon Clement

**ARCTIC BAY TRUCKFILL
ARCTIC BAY, NT**

**COMPONENTS, MANUFACTURERS, AND SUPPLIERS
TABLE 5.1**

Section 9 Tab	Section 4 Tables and Figs	Description	Manufacturer and Model	Supplier
9.6	-	Switches	Hubbel HBL 1201	CDE 2522 LeCorbusier Laval, Quebec H7S 2K3 Tel: (514) 438-1263 Fax: (514) 438-3728 Contact: Yvon Clement
9.6	-	Junction Boxes, and Unilets	Various	CDE 2522 LeCorbusier Laval, Quebec H7S 2K3 Tel: (514) 438-1263 Fax: (514) 438-3728 Contact: Yvon Clement
9.7	4.2, 4.3, 4.5, 4.6	Generator and Associated Components	20kW Genset K7 Prime Power Supply for Truckfill Station	Mechron Power Systems Inc. 2437 Kaladar Avenue Ottawa, Ontario K1V 8B9 TEL: (613) 733-3855 Fax: (613) 733-8197 Contact: Elmer Langford
9.8	4.2, 4.3	Uninterruptible Power Supply (UPS)	Best Ferrups Model FE2.1 KVA	Best Power Technology of Canada Limited 1555 Bonhill Road, Unit 11 Mississauga, Ontario L5T 1Y5 Ph: (905) 564-7655 Fax: (905) 564-7657
9.9	4.3	Control Panel	Optoinfo	Optoinfo Electric Inc. 542 Bran St.. Jerome, Quebec J7Z 2B1 Ph: (514) 436-6050 Fax: (514) 436-4846
9.9	4.3	Pilot Lights	Allen Bradly 800T-QH10G	Optoinfo Electric Inc. 542 Bran St.. Jerome, Quebec J7Z 2B1 Ph: (514) 436-6050 Fax: (514) 436-4846
9.9	4.3	Push Buttons	Allen Bradly 800T-ATA	Optoinfo Electric Inc. 542 Bran St.. Jerome, Quebec J7Z 2B1 Ph: (514) 436-6050 Fax: (514) 436-4846