MUNICIPALITY OF CLYDE RIVER

Operation & Maintenance Plan for Municipal Water Licence: Water Supply Facilities

November 2024

Document Control

Date	Document Title	Author	Details
December 2009	Clyde River Truckfill Operations and Maintenance Manual	Dillon Consulting Limited	Previous manual
November 2024	Clyde River Operation & Maintenance Plan for Municipal Water Licence: Water Supply Facilities	GN-CGS and Dillon Consulting Limited	Consolidation of previous manuals into standardized template

Table of Contents

Document Control

Figures

Tables

Appendices

1.0 Site Description

Date this plan was prepared: 2024-Nov-12

1.1 Location of the Water Supply Facility (WSF)

Municipality:	Clyde River
Latitude:	70°28'59 N
Longitude:	68°36'48 W
Proximity to Town:	1.2km North

Figure 1: Clyde River Water Supply Facility and Surrounding Infrastructure. Google Earth 2024

1.2 WSF Site Summary

Year of commissioning the WSF: 1998

Design life of the WSF: Unknown

1.2.1 Site History

The Hamlet of Clyde River is located approximately 750 kilometres North of Iqaluit, on the shore of Patricia Bay, on the east coast of Baffin Island, within the Qikiqtani Region of Nunavut. The annual snowfall in Clyde River is approximately 169 cm, and the annual rainfall is approximately 5 cm. In February the daily mean temperature is approximately -30 degrees Celsius while in July the daily mean temperature is approximately 5 degrees Celsius. Freeze up usually occurs during the month of November but may occur as early as September or October, while spring thaw usually occurs between late May and June. The Municipality, which has a population of approximately 1,181 (2021), operates water and waste management facilities for which a water licence from the Nunavut Water Board is required. Community infrastructure includes a Water Supply Facility which draws water from Water Source Lake. Water is treated in the truck-fill station and stored for trucked water to holding tanks in each building. The municipality also has a Sewage Disposal/Treatment Facility (two lagoon cells) which receive trucked sewage collected from holding tanks in each building and houses, with a wetland area between the lagoon and the ocean, and a Solid Waste Disposal/Management Facility, which includes a bulky metals disposal area, and hazardous waste oil storage area. The Hamlet currently obtains its drinking water from a natural lake located 1,200m north of the community. This lake is fed by a series of larger lakes and a drainage basin all north of the water supply lake. The water supply facility is located on the south side of the lake with inclined pipes leading out into the lake where water is withdrawn. Chlorination is required for disinfection of the raw water, and treated drinking water is delivered by water truck to homes and facilities.

2.0 Staff

2.1 Chief Administrative Officer

Name: Rajesh Kumar

Phone: 867-924-6220

Email: cao@clyderiver.ca

Responsibilities:

- Submission of the Annual Report for the Nunavut Water Board (NWB)
- The CAO manages the municipal staff to ensure that:
  - proper operation of the WSF is carried out
  - sampling and inspections are completed
  - information under the water licence monitoring program is provided to the Government of Nunavut Department of Community and Government Services (GN-CGS) for Annual Report preparation

2.2 Foreman

Name: Ian Tigullaraq

Phone: 867-924-6301

Email: pworks@clyderiver.ca

Responsibilities:

- Daily operations and maintenance of the WSF the sampling program at the monitoring stations
- Maintaining signage at the WSF and monitoring stations
- Annual decanting of the lagoon effluent into the adjacent wetland treatment area

2.3 Water Truck Drivers

Name: Various

Phone: N/A

Email: N/A

Responsibilities: The water truck drivers deliver treated water to household and commercial tanks within the municipality.

3.0 Health and Safety

All personnel working within the WSF must follow the Nunavut Safety Act and be made aware of potential health hazards. This is imperative so individuals make a conscious effort to perform all necessary safety procedures to protect themselves, their co-workers and family members at home.

4.0 Security and Control

Access Control of to the facility:

- Perimeter fencing around the lagoon
- Signage
- 450 m restricted land use development setback surrounding the WSF

5.0 Raw Water Sources

Raw water source fill system type: Direct to WSF

Alterations to the natural water source have occurred due to the WSF: N/A

5.1 Primary Source

Name of primary raw water source:	Water Supply Lake
Type of raw water source:	Lake
Average annual quantity of water drawn:	Reported yearly in annual report
Maximum allowable withdrawal:	69,000 m3/year
Ice formation on the water source:	October
Ice breakup on the water source:	Late May to June

5.2 Operations

Overview of the operations process:

The following procedure is followed:

The water supply facility is located on the south side of the lake with intake pipes leading out into the lake where water is withdrawn. Chlorination is required for the primary disinfection of the raw water, and treated drinking water is delivered by water truck to water tanks of buildings.

5.3 Maintenance

The roadway and truck pad shall be maintained by snow clearing in the winter and grading in the summer and repaired as necessary. Ditches and drainage channels at the Water Supply Facility shall be inspected during the summer for erosion and repaired as necessary. The truckfill station and signage shall be inspected regularly and repaired or replaced as necessary. This facility is owned and operated by the Municipality, and any issues should be reported to the CAO immediately. The water delivery program is managed by the Municipality and issues identified by truck drivers should be reported to the CAO immediately.

6.0 Water Treatment Process

A brief overview of the water treatment process:

Water is drawn in from the raw water reservoir adjacent to the WTP where it undergoes:

- **Chlorine Disinfection:** This is accomplished using the chlorine concentration contact time concept
- **Water Distribution Method:** Trucked Delivery

Operations and Maintenance:

The following documents are on site at the WTP:

Operation & Maintenance Plan for Clyde River Municipal Water Licence: Water Supply Facilities 2024

7.0 Monitoring

Regulatory Inspection:

The annual Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) inspection will take place accompanied by the licensee and/or with a licensee representative from GN-CGS. The inspection will be reviewed by a GN-CGS municipal engineer and submitted with the annual report.

Table 1: Licence Requirements Related to O&M of the Water Supply Facilities

Requirements	Reported
Monthly and annual quantities of fresh water obtained from all sources	Annual report submitted to NWB
A summary of modifications and/or major maintenance work carried out on the WSF	Annual report submitted to NWB
A list of spills and unauthorized discharges related to the WSF.	Annual report submitted to NWB
Volume of Potable Water Supply at Post River Monitoring Program Station CLY-1	Annual report submitted to NWB
A summary of any studies requested for the WTP and future planned studies planned	Annual report submitted to NWB

Planned Modifications or Upgrades:

Clyde River has been identified to receive a new Water Treatment Facility.

Additional Comments or Notes:

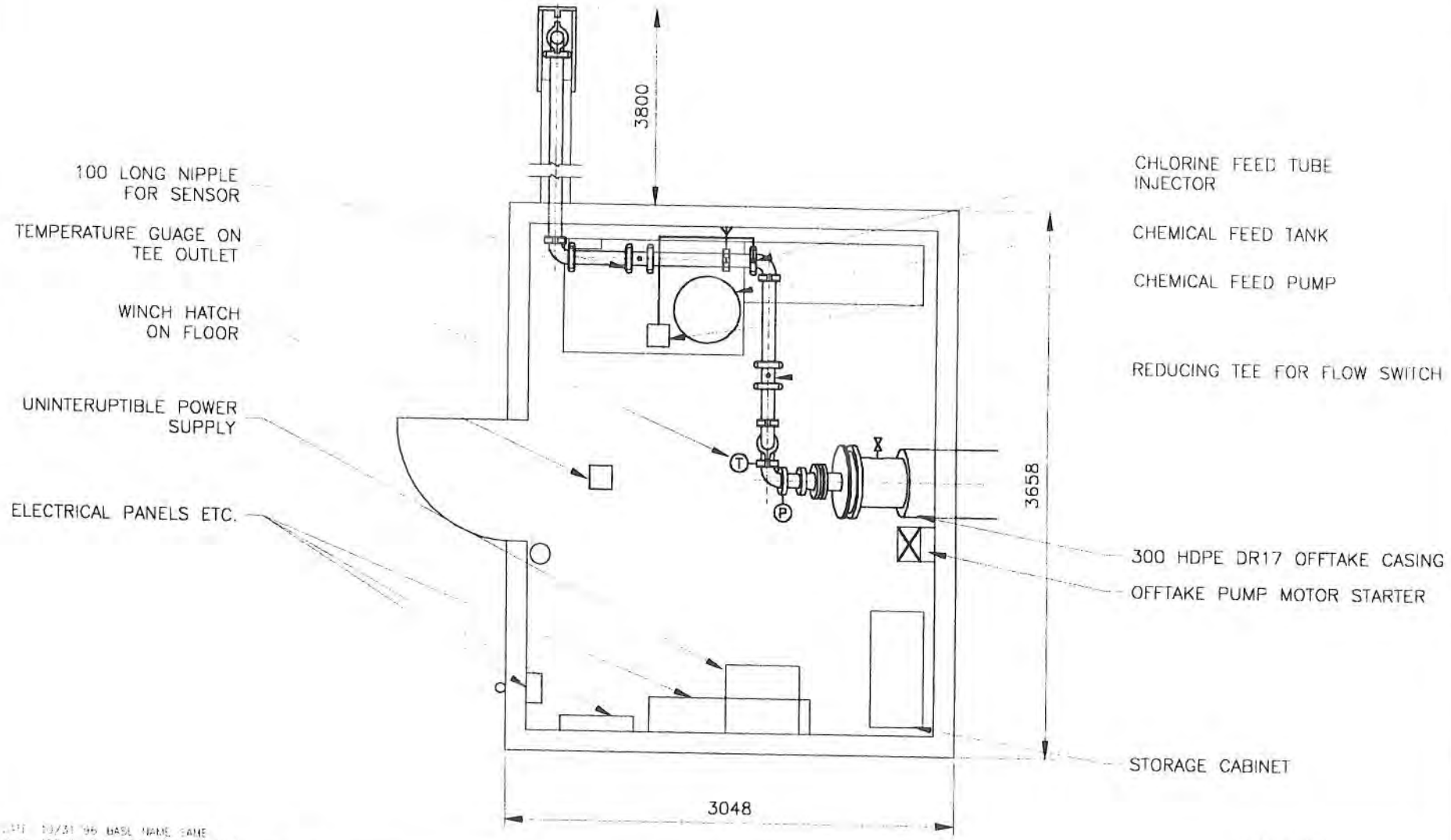
None

8.0 Previous Reports

- Clyde River Truckfill Operations and Maintenance Manual, 2009, Dillon Consulting Limited

Appendix A

As-Built Drawings



DILLON CONSULTING

TITLE

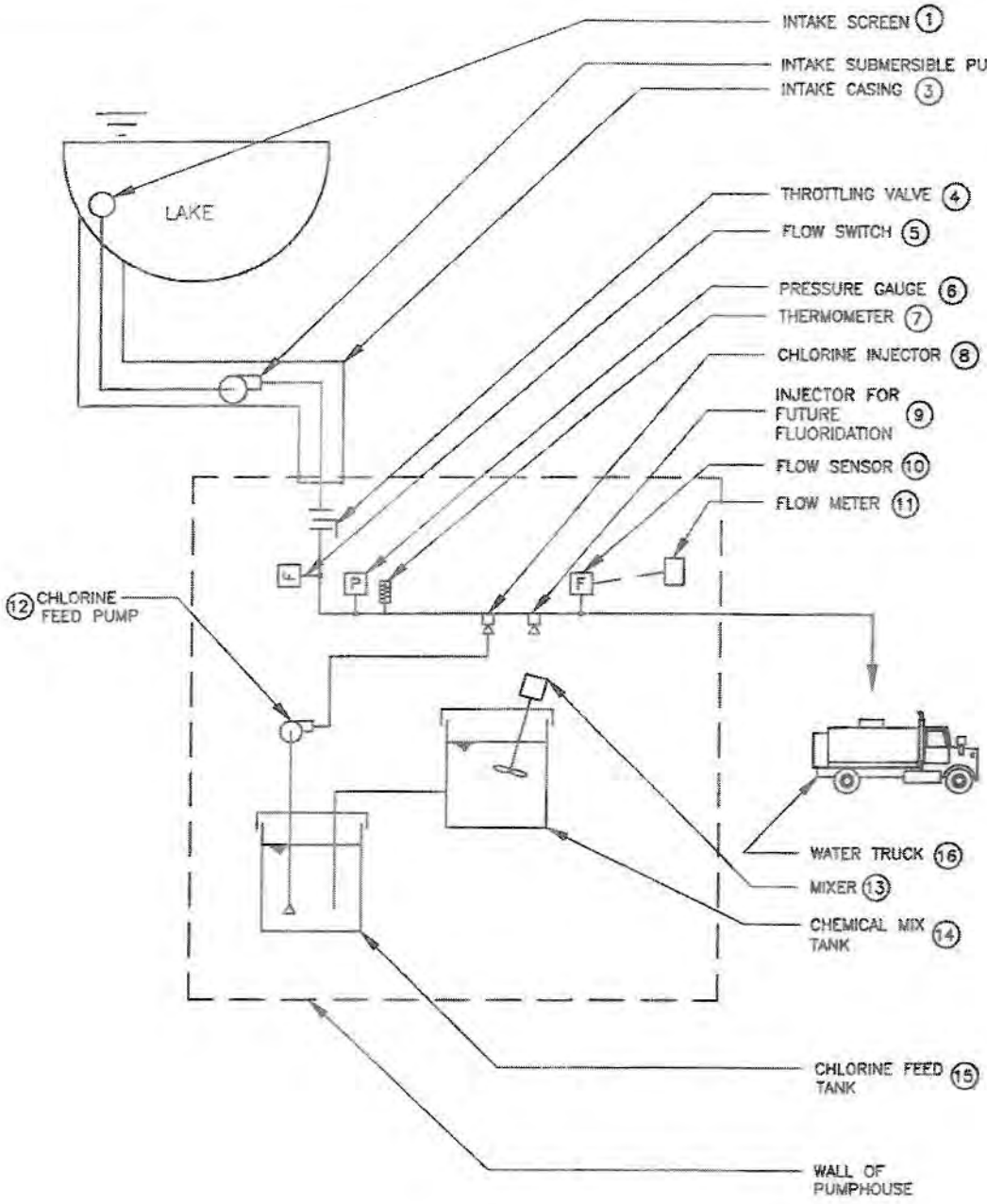
ARCTIC BAY AND CLYDE RIVER TRUCKFILL STATIONS, NWT

CLYDE RIVER BUILDING LAYOUT

PROJECT NUMBER: 96-3817

FIGURE NUMBER: 4.4

DATE: OCT 96



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DILLON CONSULTING

PROJECT: CLYDE RIVER TRUCKFILL
CLYDE RIVER, NT

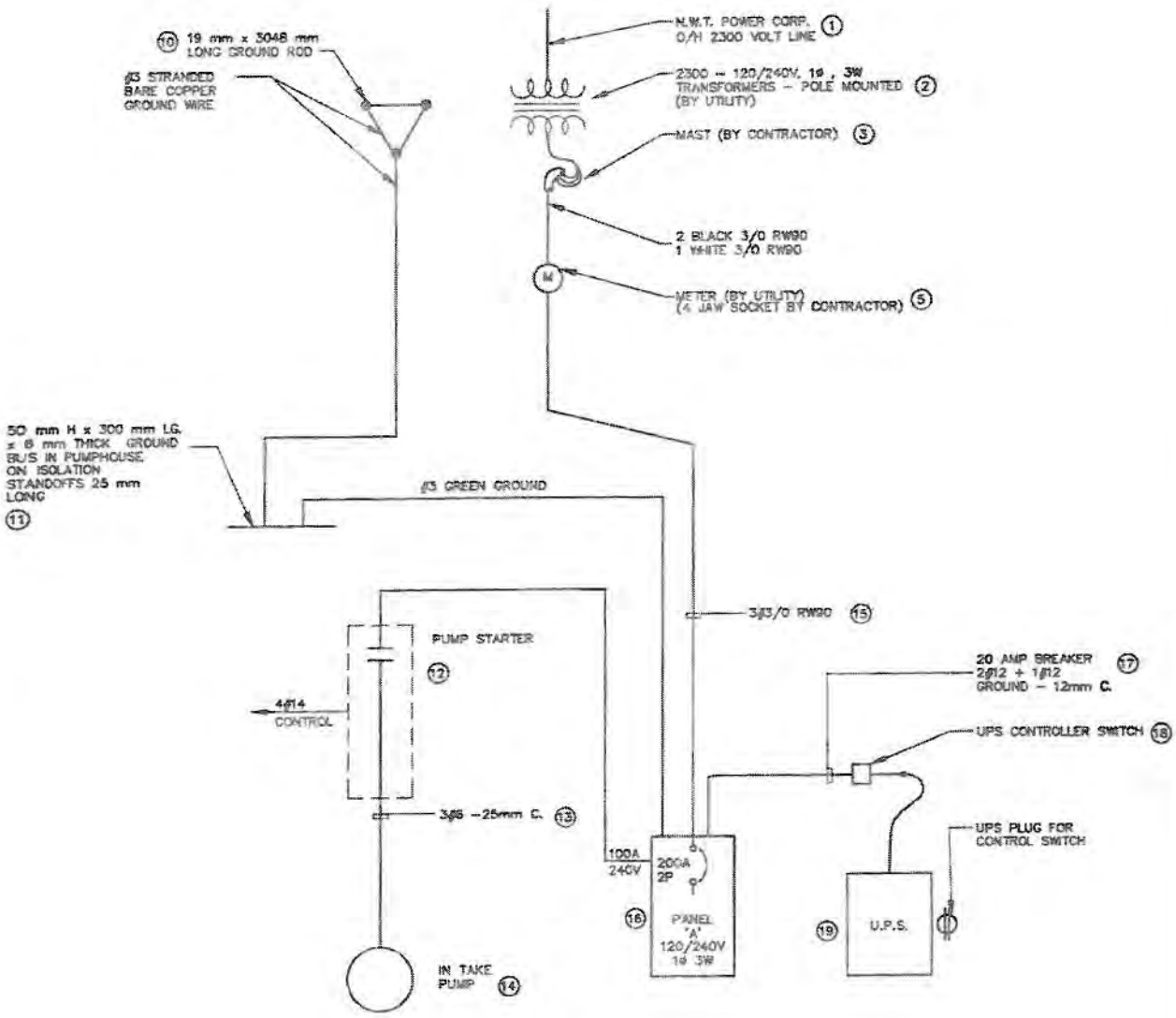
TITLE: WATER TREATMENT SYSTEM

PROJECT NUMBER: 96-3817

DATE: JUNE 98

FIGURE NUMBER: 4.1

86
88



POWER DISTRIBUTION SYSTEM

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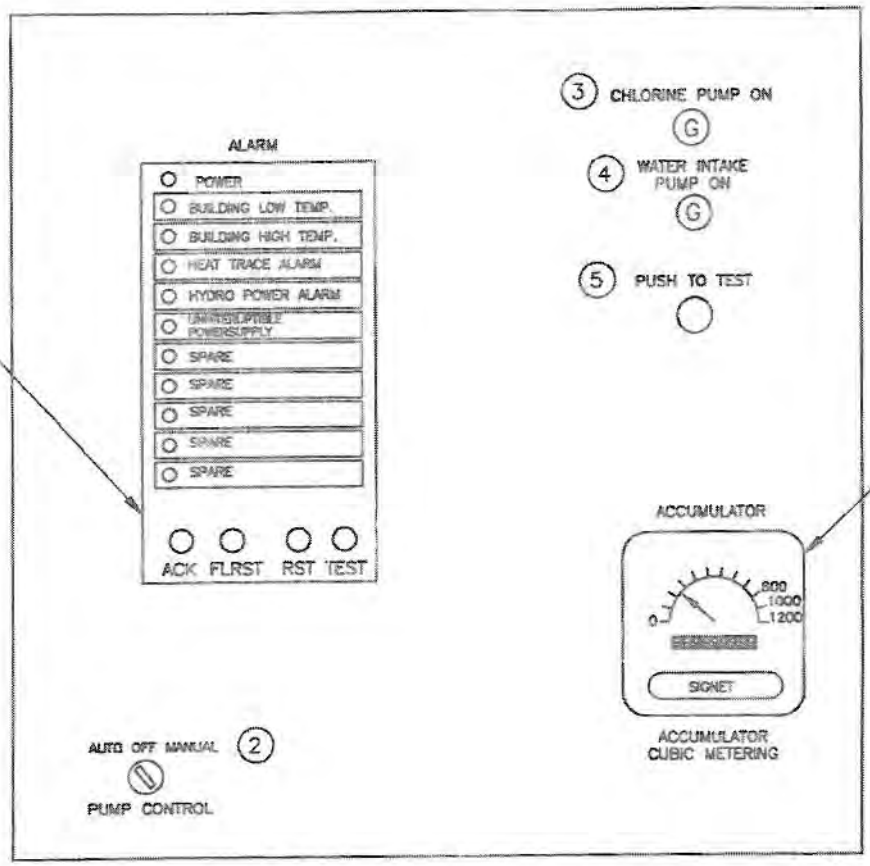

CONTROL PANEL (1)

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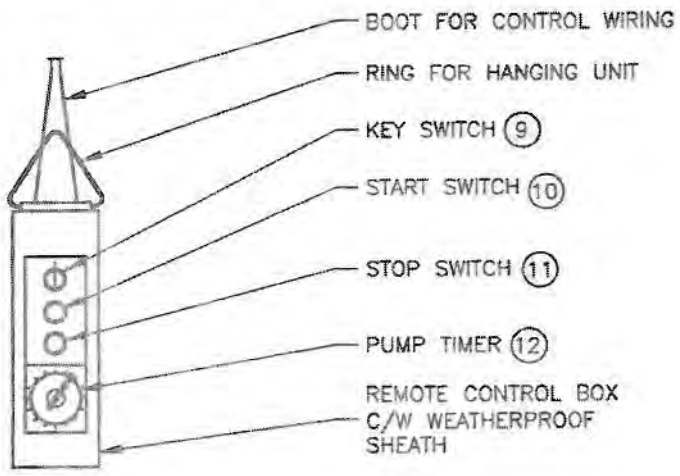

REMOTE CONTROLLER (8)

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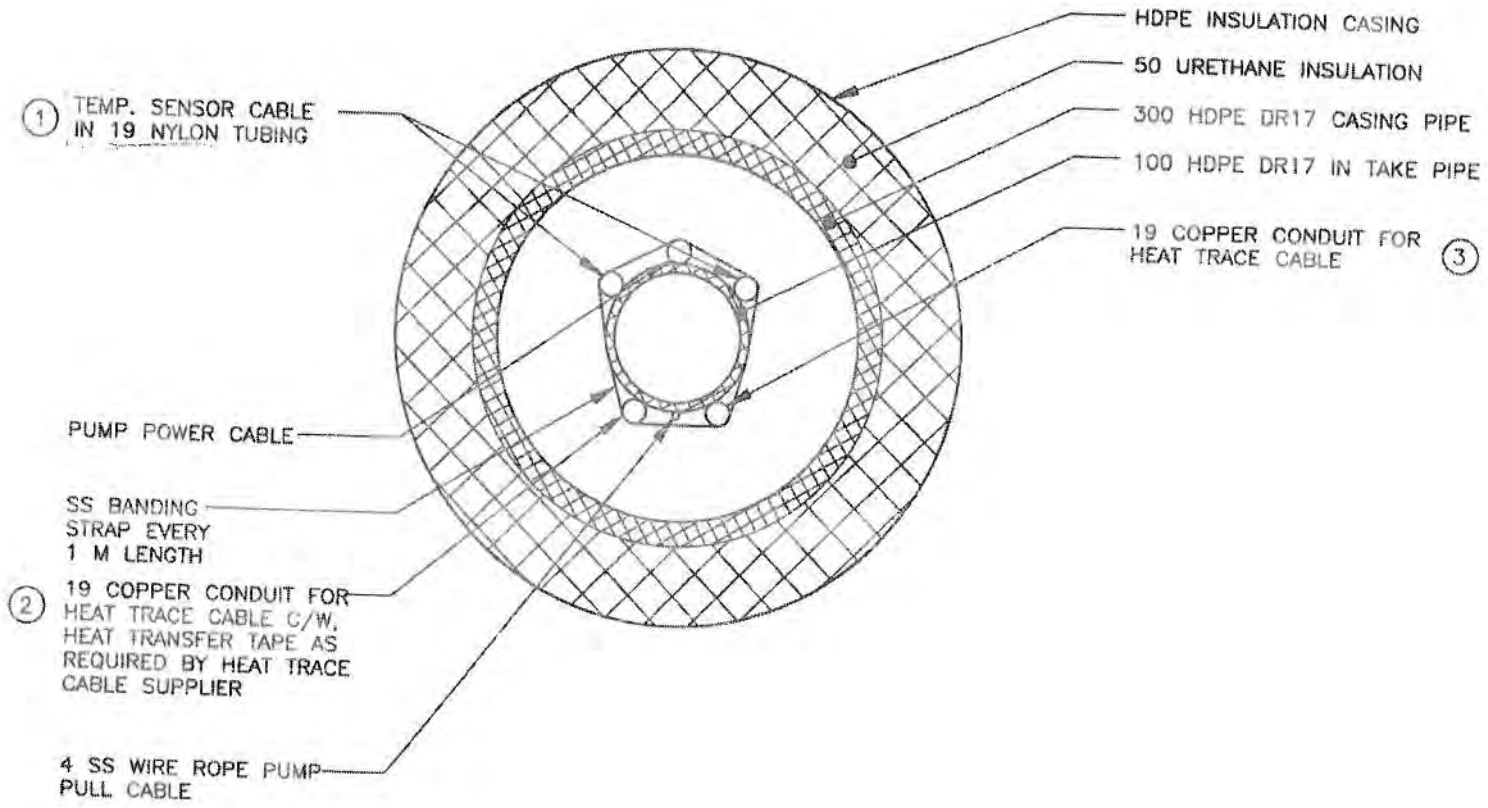

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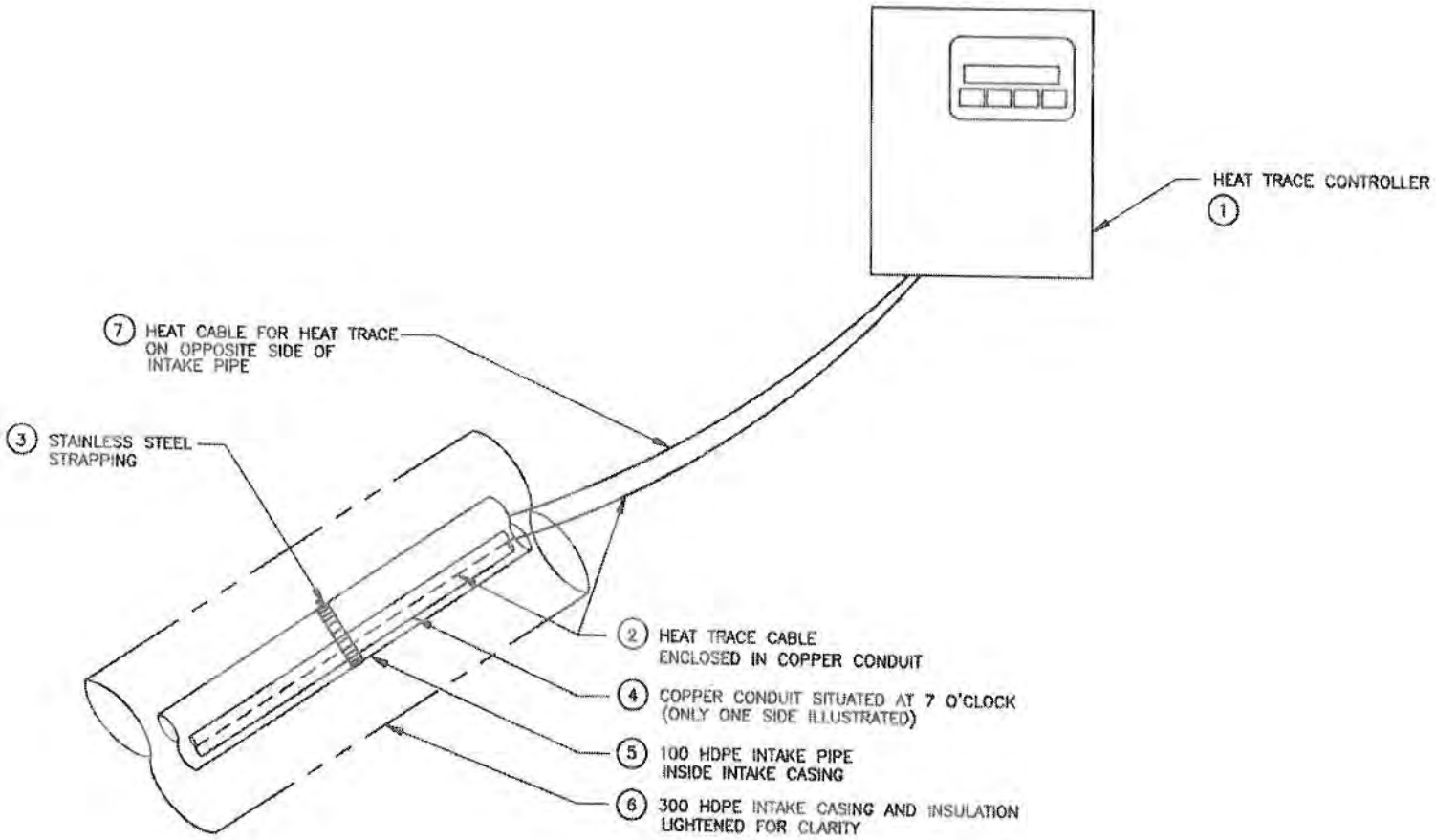
PROJECT NUMBER	96-3817
DATE	JUNE 98
FIGURE NUMBER	4.4



HEAT TRACE SCHEMATIC

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DILLON CONSULTING

PROJECT	CLYDE RIVER TRUCKFILL CLYDE RIVER, NT
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