

CONTROLLING AND ELIMINATING FAILURES ON GRP PIPE NETWORK LAID IN MOVING GROUNDS

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Agenda

1. The Problem
2. Elements
3. Consequences
4. Action Plan

The Problem

Failure of the CHW GRP pipe network, which is caused by a number of reasons, this problem branches in to two main elements,

1. FIRST ELEMENT

Frequent failure of the buried GRP CHW network.

2. SECOND ELEMENT

Pinpointing the exact location of the failure

FIRST ELEMENT

a. Natural causes

High Water Table



FIRST ELEMENT

b. Workmanship

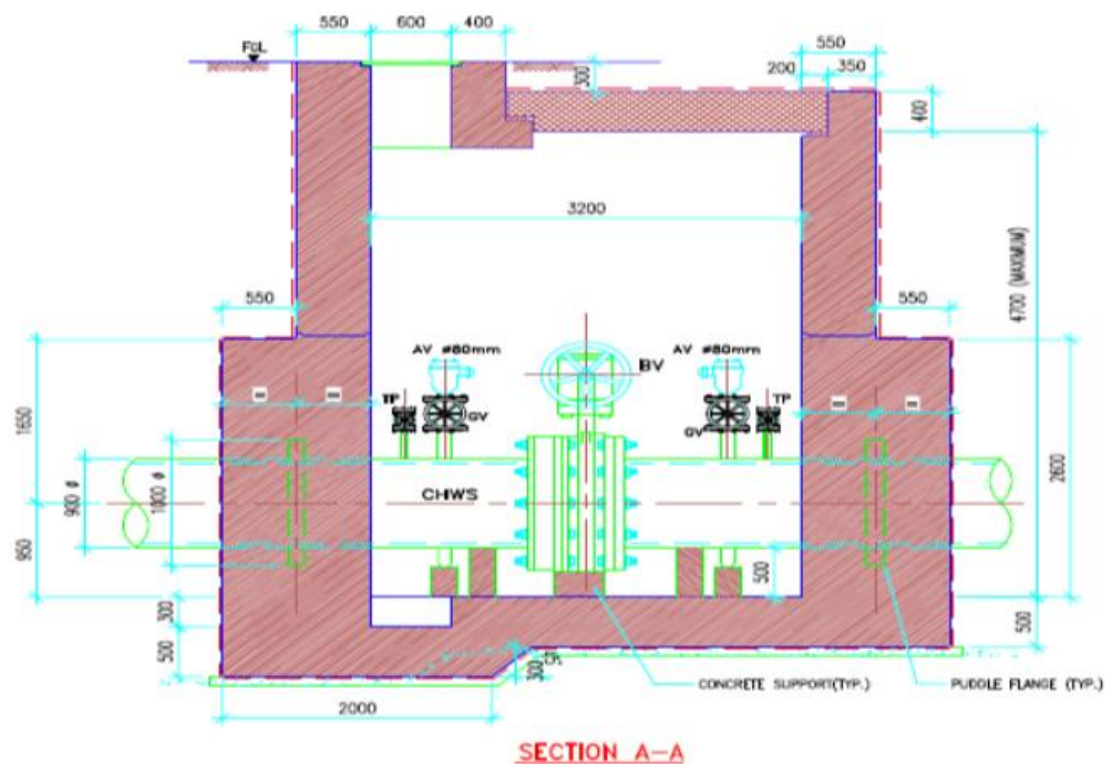
Improper installation of the GRP



FIRST ELEMENT

c. Design Issues

1. The exaggerated design of the valve chambers



FIRST ELEMENT

c. Design Issues

2. Casting the chamber around the pipe



SECOND ELEMENT:

a. Pinpointing the exact location of the failure

- Difficulty in detection due to the GEO nature of the areas (High Water Table)
- The depth of the network



- The large number of branches
- Nose level and frequency logger technology failed during the test due to the noise interference from the primary pumps and other machinery that produces high frequency noises
- Water leaks IR cameras and the ultrasound leak detection systems.

THIRD ELEMENT: Accessibility and Ground Water Factors

- 1. Wasted Repair Time



- 2. Safety Concerns



- 3. Cost Implication

Consequences

Some of the possible consequences of the pipe failure

- Partial or, in very rare cases complete service interruption to the customers
- significant commercial burdens on the company, in terms of CHW losses, and the cost of third party services
- Manpower utilization and its negative impact on the scheduled preventive maintenance program and progress
- Other inconveniences to the public, such as road detours and diversions, access blockage, car park blockage and noise pollution caused by the equipment's used for the repair activities.

Action Plan

Service continuity assurance

As the company is committed to 100% customer satisfaction, it has developed and invested in (temporary) alternative solutions to prevent total service interruption to the customers during a network failure,

- Trailer mounted Mobile Chillers and Generators



- Extra air cooled chillers to be mobilized as and when there is a pipe failure



Service continuity assurance

- Temporary hose connection from the main network to the affected building



- A team fully equipped with tools and the knowledge that is always ready to rectify the problem
- A supporting fabrication shop for any modification work on site or shop fabrication
- Finalizing contracts for on call services such as crane and transportation service, GRP lamination material suppliers and manpower supply services.
- Consult major civil and mechanical (Pipe) contractors to find feasible solution
- Develop contingency plans with major developers, hotels and hospitals

Discussion

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