SHELL CANADA LIMITED
FAX COVERSHEET

SEND TO	FROM
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SUBJECT: ***Water License N7L1-1762 – Notification of Modification***

DESCRIPTION / REMARKS:

Please find attached the revised, as requested, notification of modification at Camp Farewell's wastewater treatment plant. It has been revised to enhance the process description, include volumetric rates, and benefits over the previous RBC system.

Should additional information be required, please feel free to contact the undersigned.

Yours truly,

R.(Randy) H. Hetman

Cc S. F. Gallupe – Inspector – Inuvik District Office (867) 777-2090

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Shell Farewell – License N7L1-1762

Proposed
Wastewater Treatment Plant Modifications

Mod. 2002-1

Background

A RBC system was installed at Camp Farewell in January, 2001 and operated until the end of April before being shutdown for the summer. It was again started up in December and operated until March 1, 2002. Difficulties were experienced in achieving License discharge criteria during both operating periods. The plant was also modified in an effort to improve its performance however insufficient time until camp shutdown did not allow for conclusive results.

Modification

The wastewater treating plant will be replaced with an "extended aeration system" which is a modified activated sludge system. The activated sludge process has been in existence for close to 100 years and presently represents the most widespread technology for wastewater purification. In general, the activated sludge process is a continuous or semi-continuous aerobic method for biological wastewater treatment.
The activated sludge process is based on:

- Waste water is aerated in a tank
- Bacteria are encouraged to grow by providing oxygen, Food(BOD), correct temperature and time
- As bacteria consume BOD, they grow and multiply
- Treated wastewater flows into a secondary clarifier
- Bacteria cells settle, and removed from clarifier as sludge
- Part of the sludge is recycled back to the activated sludge tank to maintain bacteria population
- Remainder of sludge is wasted

The attached P&ID shows the system design. The proposed process is:

- Raw sewage enters the equalization tank - purpose to smooth out the flows through the unit
- Wastewater is then pumped to the first aeration tank where complete mixing occurs and then flows to the second aeration tank.
- Water then flows to the aerated sludge digester(SHT). It can be recycled from this point for constant flow maintenance.
- Water then enters the final clarifier (FC) which has a sloped bottom for effective sludge removal and recycling.
- Water flows to the chlorine contact tank however this feature will not be utilized at this time.
- The effluent will be disinfected using a dual, oversized ultraviolet light system in series.

The plant has been designed for 120+ people as well as taking into consideration peak loading. It has a nominal treatment capacity of 9000 usgpd and/or a maximum of 37 lbs. BOD5/day. Total volume of the system is approximately 18000 USG.

Benefits of the System over Previous System

The system is conventional in nature, and all design parameters meet typical textbook requirements. Provided these requirements are met, there is extensive operation data available proving that the system can achieve the desired effluent results.

It is being designed and manufactured by Sanitherm Engineering who have 50 years experience in treatment design and a proven track record for camp style units.

The air blowers and the wastewater equalization pumps are duplexed for 100% standby.

This system is not as rate sensitive as the RBC system and has provision for recycling.

The design has taken peak flows into consideration, which the RBC did not.

The RBC had basic design flaws such as flat clarification tank bottom rather than sloped for effective sludge removal.

This system has dual, large ultraviolet lights for disinfection, which are designed for ease of cleaning. The RBC system had one unit, more suitable for potable water disinfection, and very difficult to clean.

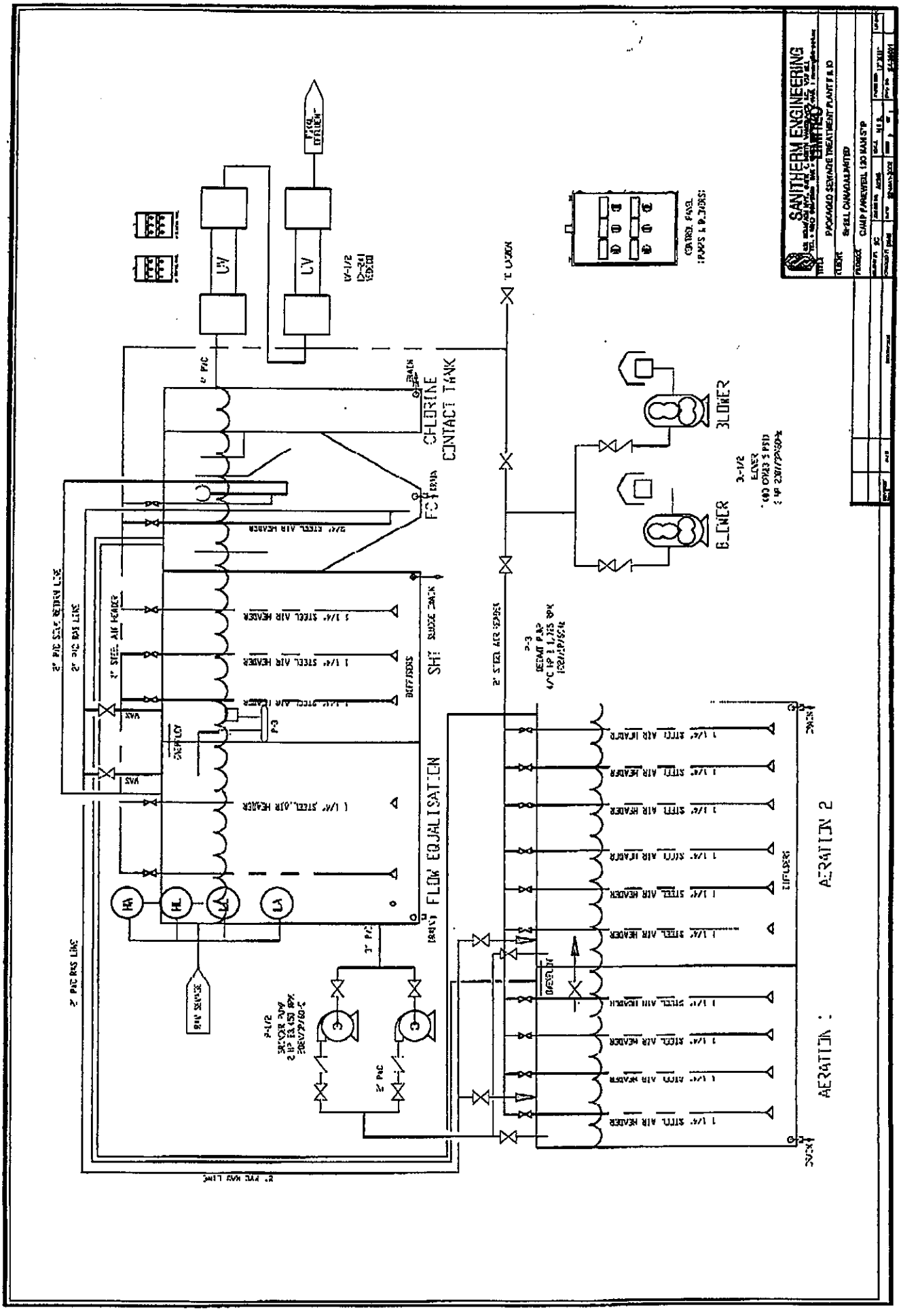
Sanitherm will be supplying an extensive operation manual with procedures and tips for the Operator.

Sanitherm has experienced operational personnel on staff and available for process optimization and operator training.

Startup

Installation is anticipated for early July, 2002. Sanitherm personnel with operational expertise will be on site for start up and training of our camp operations personnel.

The Camp Farewell Operations and Maintenance Plan will be updated once the required information on the new treating plant becomes available.


SANTHERM ENGINEERING
CHLORINE CONTACT TANK
FLOW EQUALISATION
BLOWER
BLOWER
AERATION 2
AERATION 1
CONTROL PANEL