reviced on Feb 07, 2001

Introduction of 1kt Water System

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1 Schematic View of Water Recirculation at Neutrino Hall

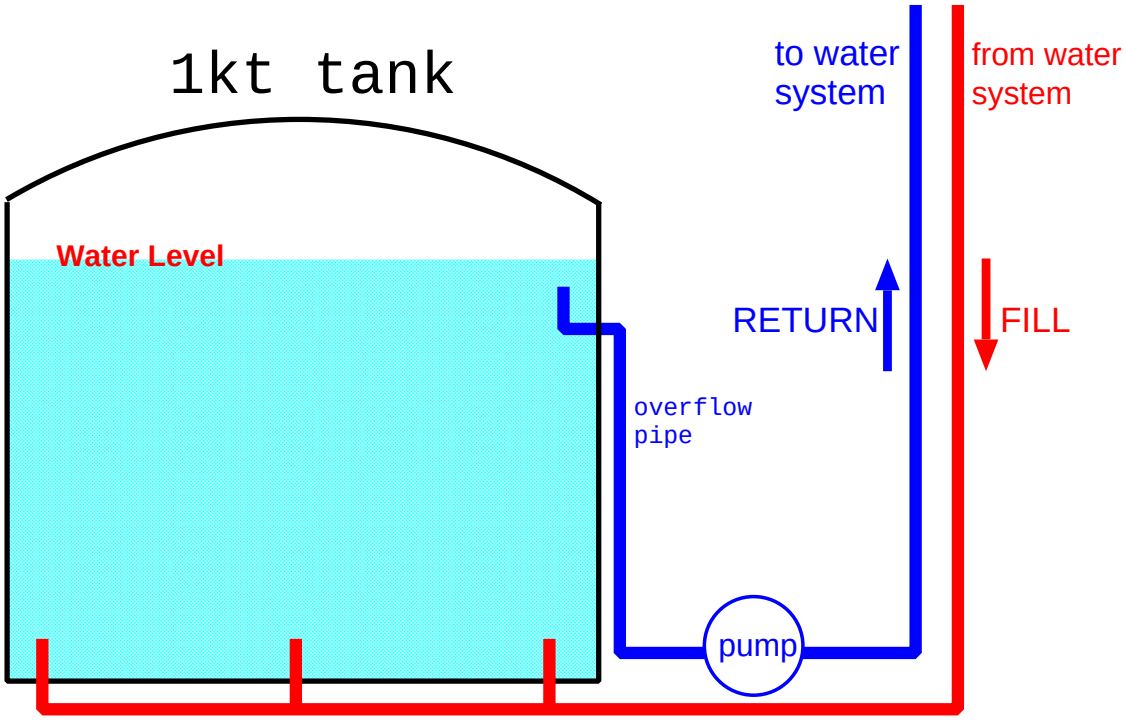

Figure 1:

The tank water is taken from the tank-top through overflow pipes and sent to the water system by a pump located at the bottom of the neutrino hall (normal operation). The return water passes though the water purification system (See next page.) in the tent house. Then, the pure water is filled from the tank-bottom again.

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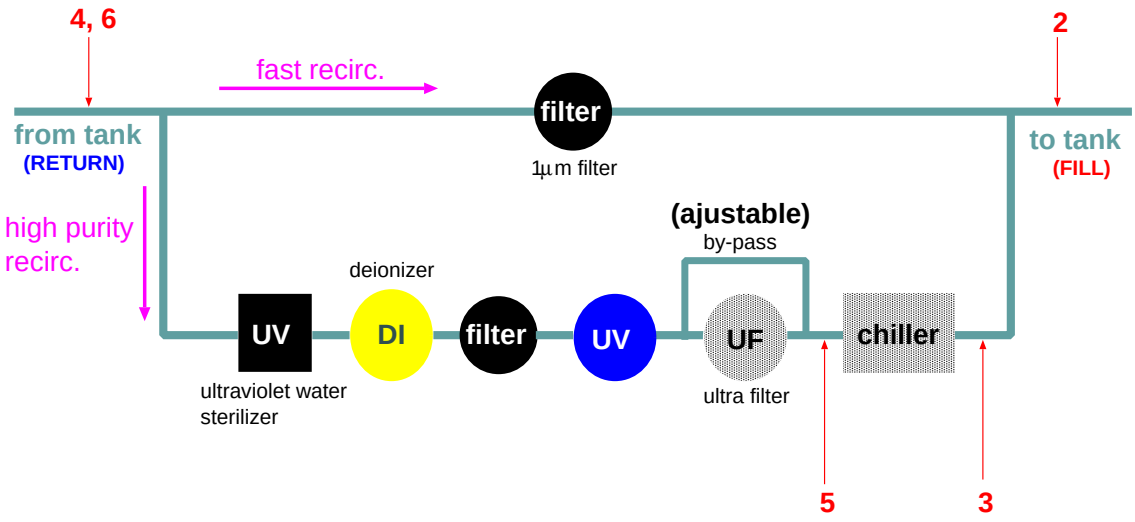
2 Schematic View of Water Purification System in Tent House



1. Water Level (See Figure1)
2. Total Water Flow
3. Water Temperature (fill)
4. Water Temperature (return)
5. Water Resistance (fill)
6. Water Resistance (return)

Figure 2:

Shift people are required to check the water level, flow, temperatures, and resistances indicated in this figure. The position of each monitor is shown in this figure. Each number corresponds to each figure No. on WEB (See section 3.4).

3 K2K Shift Jobs

Please fill **"K2K FD HARDWARE CHECK LIST"** at the beginning of each shift. Contains related to the 1kt watersystem are:

- Looking around to see that things are normal:
  - **NO** water leak in&arround neutrino hall/tent (See section 3.1)
  - The pump is **OK** in neutrino hall (See section 3.2)
  - **NO** buzzer in shift room (See section 3.3)
- Check water operation on WEB (See section 3.4)

Details are explained below.

3.1 Water Leak Check

Confirm that there is no **big water leak** (like spray or spring! Greater than about 1 l/min) in (1) tent house, at (2) water pipes outside(between tent and neutrino hall), and at (3) 1kt tank in neutrino hall.

If you find big water leak, turn off the main power of the water system in the tent at first. Then, call expert. (See section 4)

In warm season (usually from May to Sep), there are condence water below water pipes. (because the water temperature is about 10°C.) You can neglect this kind of water drop.

3.2 Pump Check

Confirm following things:

- one of two pumps is working?
- no strange sound?
- no smoke?

If you find any obvious problem, turn off the breaker near the pump. Then, call expert. (See section 4)

3.3 Buzzer Check

(This is not in the check list.)

The buzzer (near entrance of shift room) is supposed to be ON, when a floating switch in ditch at the bottom of the neutrino hall (near the pump) is lifted up by about more than 10cm.

If the buzzer makes sound **continuously**, go to the bottom of the neutrino hall. Check whether there is big water leak (See 3.1) or not. If you find big water leak, first turn off the main power of the water system in the tent house. Then, report the situation to expert. (See section 4)

3.4 WEB Check

See http://neutrino.kek.jp/~berns/watersys/shift/. First of all, **click "RELOAD"** and confirm that the last updated time is within 2 hours. (If the data is not updated, kill/start netscape.)

Look at **6 figures** suggested in Figure 2 in this note. Check that current values are NORMAL or not.

No.	item	NORMAL
1	Water Level	1030−1045 cm
2	Water Total Flow	70−90 gallon/min
3	Water Temperature (fill)	40−60 °F (5−15 °C)
4	Water Temperature (return)	40−60 °F (5−15 °C)
5	Water Resistance (fill)	15-20 MΩ·cm
6	Water Resistance (return)	5-15 MΩ·cm

If any values are not in NORMAL range, check the water system again. Then, call expert. (See section 4)

4 Expert Call

Try from the top.

	name	telephone
1	**Shun'ichi Mine**	**5220 (US office) or 090-4136-8379 (cell)**
2	Yoshitaka Itow	090-2330-7093 (cell)
3	Makoto Sakuda	5433 (office)
4	Roy Hall	714-9-397873 (USA)