

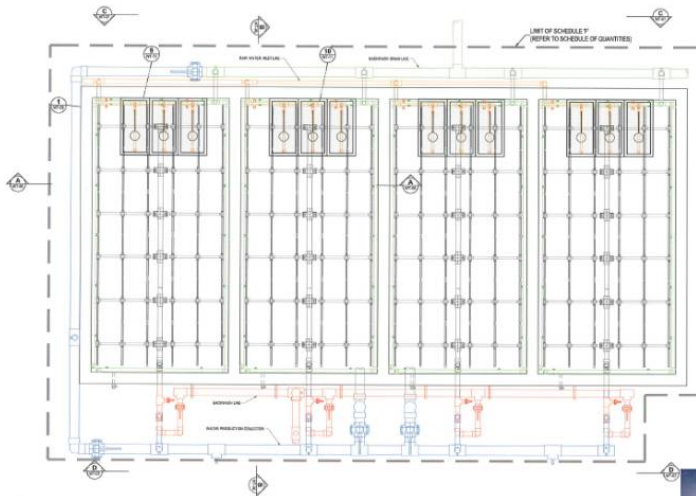
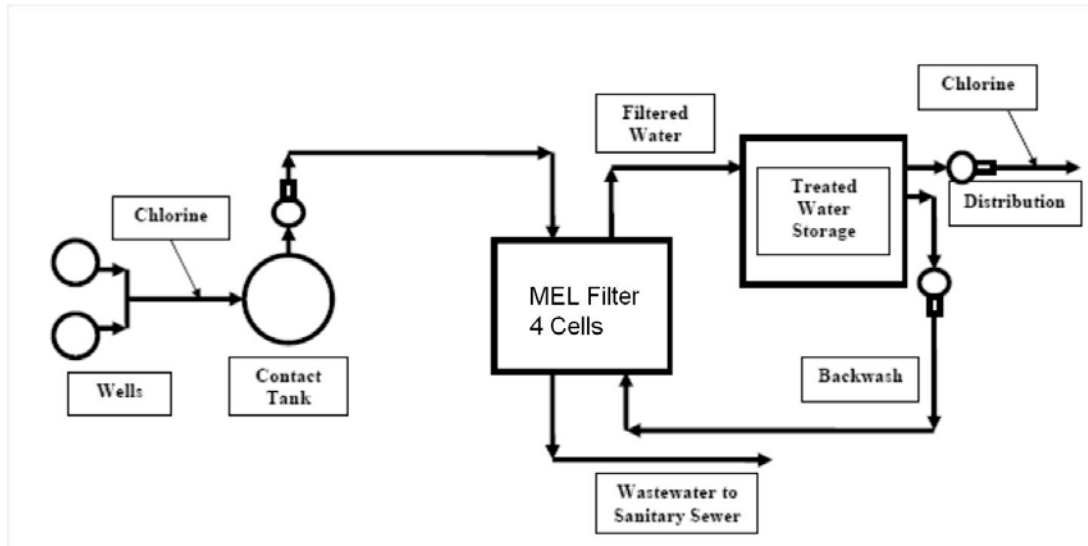
**Hamlet of Exshaw Water Treatment Plant  
MD of Bighorn, Alberta, Canada  
Iron, Manganese and H<sub>2</sub>S Removal using  
MEL type Filters as polishing sand filters (PSF's).**



## **Design constraints and objectives:**

- Groundwater supply not under direct influence of surface water.
- Iron above 1.0 mg/L.
- Manganese above 0.15 mg/L.
- Hydrogen sulfide (significant) and presence of sulfate reducing bacteria.
- Required treatment capacity of 1,200 m<sup>3</sup>/day or 50,000 litres per hour. Expandable to 100,000 litres per hour.
- Minimum chemical requirements.
- Minimum level of automation.
- Minimum complexity – Operator Level 1 if possible.
- Backwash water to be disposed of in town lagoon through existing sanitary sewer.

## Process flow diagram for Fe and Mn removal.



- 4 (3 m x 5 m) MEL-PF type cells
- Each cell can treat a maximum of 15,000 L/h. (Loading of 1.0 m<sup>3</sup>/m<sup>2</sup>/h)

**Winner of Provincial and National Engineering Awards 2013.**

