

Crane River Water Treatment Plant

Manitoba, Canada

Treatment of river water - pretreatment for nanofiltration

MEL type filters as polishing sand filters (PSF's)



Crane River Water Treatment Plant to the right

Design constraints and objectives:

- Remote community.
- River water (large river) – subject to significant variations in turbidity and TOC.
- Cryptosporidium to be removed by MEL filters, nanofiltration and UV disinfection.
- TOC to be removed by MEL filters and nanofiltration
- MEL polishing filters intended to reduce suspended solid load to nanofilters (minimize membrane maintenance and extend membrane life by several years).
- Two filters each with minimum operating capacity of 6,000 L/h or 144,000 L/day. (Maximum operating capacity of each filter is 8,000 L/h or 192,000 L/day)
- No chemical requirements (apart from chlorination).
- Manual operation.
- Minimum complexity – Local operator with minimum training or experience.
- Minimum backwash - Wastewater disposed of through existing sanitary sewer.
- No media replacement.
- Performance capable of being verified using pilot testing on site.

Treatment Process

River to Mechanical roughing filter to MEL polishing filters to Filtered water storage to Nanofiltration to UV disinfection to Chlorination to Treated water storage



Filters producing to storage tank



Filtered water pumped into nanofiltration system (Similar to Island Lake)

- **Two (prefabricated stainless steel 2m x 4m x 2m) MEL-PF filters.**
- **Each filter can treat a maximum of 8,000 L/h. (Surface loading of 1000 L/m²/h).**



Pilot filter pre- evaluates MEL-PF performance



Filters being transported to site in Canadian winter (1,200km/36hr road journey)