

UPPER ASSINIBOINE RIVER CONSERVATION DISTRICT

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Activity Report Alternative use of Municipal Waste Water R.M. of Miniota

The following is a brief synopsis of the demonstration of irrigation of municipal effluent from the Miniota waste water treatment facility located at NW-25-13-27-W

The Upper Assiniboine River Conservation District undertook a demonstration project where by staff set up and ran a Cadman 3000s traveling irrigation unit to demonstrate the feasibility of finding alternative end uses for treated grey water from the municipal lagoon.

The unit was set up on a nearby improved grass field used for hay production in August of 2014. The unit was run for a total of 6 hrs over two days. The process required the use of two tractors, one located at the secondary treatment cell operating a PTO driven water pump. This unit withdrew water from the lagoon and transferred water 1300ft to the irrigation unit where the second tractor was used to run a second PTO driven pump needed to increase the inlet pressure to an operating range of about 80psi. The irrigation gun was extended 700 ft from the unit base and retracted at various speeds to familiarize operators with the operation of the unit. For the majority of the test run the unit was set to retrieve at a speed of 24 inches /min which basically simulated a .25inch rain event.

Several challenges surfaced in this initial demonstration. The unit was new to the staff and setup was plagued with small issues such as battery failure, nozzle adjustments, and mechanical issues at the lagoon pump. This demonstration was also complicated due to simultaneous draw down of the secondary cell for construction purposes. The demonstration was cut short due to the lack of water available. Therefore an insufficient amount of water was applied to the site to show either a response by the vegetation or the soil.

The demonstration of this unit was valuable for many reasons. The activity, however challenging was useful in demonstrating the complexity of the system and parts involved. Once small kinks were worked out, the unit performed reliably and was easy to operate.

- Conditions at the intake or water source need to be stable. The site at which water is withdrawn should be set up to accept a surface line and be deep enough to prevent pressure loss due to air entering the inlet.
- The distance from water source to irrigation site should be minimized. This will be a major factor in ranking the feasibility of future demonstrations. Communities such as Miniota will need to decide if investments to move water to a suitable site are warranted.

More demonstrations may be required to assess the benefits of irrigating adjacent crop and forage fields.

In conclusion, we are hoping to repeat the demonstration in Miniota and in other communities around the district to further test the equipment and analyze the benefits of the irrigation option. In locations where irrigation sites are directly adjacent to water sources much less equipment and effort will be needed to run the system.

Please see attached site map for further explanation.

Sincerely

A handwritten signature in cursive script that reads "Ryan Canart".

Ryan Canart P. Ag BNRS
Manager
Upper Assiniboine River CD.

Site of effluent irrigation demonstration 2014



