



MINNESOTA ARDEN HILLS ARMY TRAINING SITE (AHATS) MICRO-HYDRO GROUNDWATER RECOVERY SYSTEM

NATIONAL DEFENSE CENTER FOR ENERGY AND ENVIRONMENT

PROJECT OVERVIEW

The Groundwater Recovery System (TGRS) at the former Twin Cities Army Ammunition Plant discharges treated groundwater into an infiltration basin on land licensed to the Minnesota National Guard, known as the Arden Hills Army Training Site (AHATS). This project will design and install a micro-hydro turbine in the effluent pipeline of the TGRS, which is re-claimed groundwater being discharged on the AHATS. The volume of water being pumped is approximately 2,000,000 gallons per day. TGRS effluent has 200 feet of head at the discharge site and is expected to continue for 40 years.

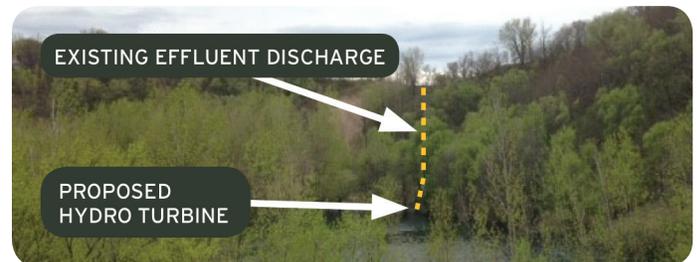
BENEFITS

The Minnesota National Guard is pursuing Net Zero energy at the AHATS and the electrical energy produced by the turbine will be recovered and used on-site. Approximately 40kW of recoverable power is available, which represents savings of about 40% of the recovery system's consumed power. This leads to annual savings of about \$32,000. Pump and treat systems across the Department of Defense could benefit from the precedence this project creates related to energy recovery systems being applied to treatment systems already operating or future designs. In addition, the local communities of Arden Hills and New Brighton benefit from the renewable energy produced from this turbine through the reduced energy demand from long-term operation of the TGRS, a previously unchangeable long-term energy consumer.

PATH FORWARD

The project team will develop and design the micro-hydro system and install and demonstrate its effectiveness through testing and analysis, prior to project closeout. During the development and design, prior to installation and demonstration and prior to project closeout, the Minnesota Pollution Control Agency and the Environmental Protection Agency will be provided opportunity to review and comment on the process. This is a unique opportunity to engage and educate the environmental restoration community with

energy recovery and sustainability perspectives that are outside of their normal expectations. Given a successful project outcome it is anticipated that both of these organizations will promote similar technologies and/or approaches throughout their respective areas of responsibility.



Illustrating the effluent discharge into the infiltration basin, viewed from the north side of the basin facing south.



Aerial view showing the existing effluent discharge into the infiltration basin, represented by dashed line.

FOR FURTHER INFORMATION:

NATIONAL DEFENSE CENTER FOR ENERGY AND ENVIRONMENT (NDCEE): <http://ndcee.army.mil/>

MINNESOTA ARMY NATIONAL GUARD – FACILITIES MANAGEMENT OFFICE:
<http://www.minnesotanationalguard.org>

ENGINEER RESEARCH AND DEVELOPMENT CENTER – US ARMY CORPS OF ENGINEERS:
<http://www.erd.usace.army.mil>