

CASE STUDY

Project Title	MINING CAMP IN NORTHERN QUEBEC
Year	2017
Country	Canada
Distributor	DBO Expert
Project	Installation of a System O)) septic system for a mining camp in Northern Quebec
Treatment Capacity	49,500 L/day
Soil Analysis	Permeable
System Surface Area	1 520.6 m²
Particularities of the Site	With many workers living on site, the volume of wastewater produced is extremely high. Being over 5 hours away from the nearest city, they also required a system with very low maintenance that doesn't have moving parts that can break and need to be replaced.

Treatment results available upon request.



Aerial view of the site

BACKGROUND

This project was to install a wastewater treatment system for a recently expanded mining camp in Northern Quebec. A conventional septic system was installed in 2007 and another slightly larger one in 2016. As the camp continued to grow, a holding tank was installed that required emptying every day. Temperatures are extremely low here in the winter, so a system was needed that could handle these conditions as well as the wastewater parameters.



PRIMARY TREATMENT

The System O)) is preceded by a primary treatment. Raw wastewater leaving the camp passes through a 22 m³ grease trap before being collected in a septic tank with an effective volume of 46 m³. The effluent of the 46 m³ septic tank is pumped into a septic tank with an effective volume of 25 m³. Inside the septic tank, the wastewater separates into layers as the fats float to the top and the solids sink to the bottom.

DISTRIBUTION

The effluent of the septic tank is pumped into six different inter-laced cells. Each cell is fed by the same pumping station. This pump distributes wastewater evenly into the 21 rows of Advanced Enviro))Septic pipes found in each cell. The proper functioning of the System O)) depends on a uniform distribution of wastewater between the Advanced Enviro))Septic pipe rows. This is achieved with the help of equalizers installed inside the distribution box. These



Transporting the large amount of Advanced Enviro))Septic pipes needed for this project

equalizers have weirs that are manually adjusted by a dial during the installation. They are the only moveable parts in the entire system. Once they are set during the installation, they don't need to be adjusted again. The treated effluent of the system is discharged into the ground.



SECONDARY TREATMENT

This System O)) uses six interlaced cells consisting of 21 rows of six Advanced Enviro))Septic pipes for a total of 756 pipes. The wastewater flows along the length of the rows where it is treated by bacteria living in the pipes and in the system sand during the infiltration process.

SYSTEM FEATURES AND BENEFITS

- All wastewater at the site is treated passively,
- No maintenance is required,
- No energy is spent on wastewater treatment,
- No products are required for wastewater treatment,
- Wastewater odours cannot develop,
- The treated water is perfectly clear and free of pollution.



ECONOMIC ADVANTAGES

By using a System O)), the client saves money in the long term. A System O)) costs roughly the same as a conventional system, but has a lifespan of over 30 years. Conventional installations can start to fail after 15 years even if they are treated well.

This system is perfect for this project because the System O)) doesn't require maintenance and there isn't any filter media or parts that can break. Due to the isolation of this site, parts would take a long time to arrive.

The previous holding tank needed to be emptied every day and the wastewater shipped to the nearest municipal wastewater treatment factory, 5 hours away. The client would save about CA\$2-3,000 per day just in wastewater transportation costs.

If the camp continues to grow, sections can be added onto the system instead of needing to install an entire new system.

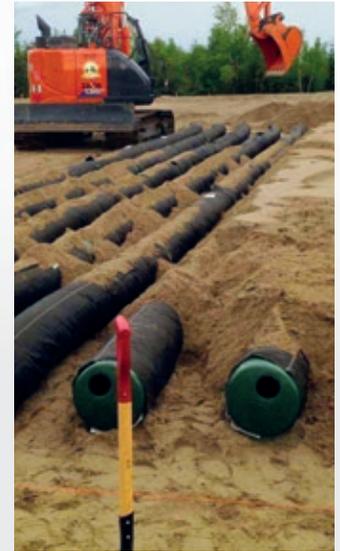


ENVIRONMENTAL ADVANTAGES

On average, the treated water leaving System O)) has:

- 10.5 times less CBOD₅,
- 7.3 times less TSS, and
- 49.6 times less fecal coliform

than a conventional installation. The treatment process of a conventional installation occurs in the soil, while System O)) treats the wastewater within the system, protecting the native soil.



Covering the Advanced Enviro))Septic pipes with system sand

