AGNICO EAGLE

AMARUQ GOLD PROJECT

WWTS Operation and Maintenance Plan

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DOCUMENT CONTROL

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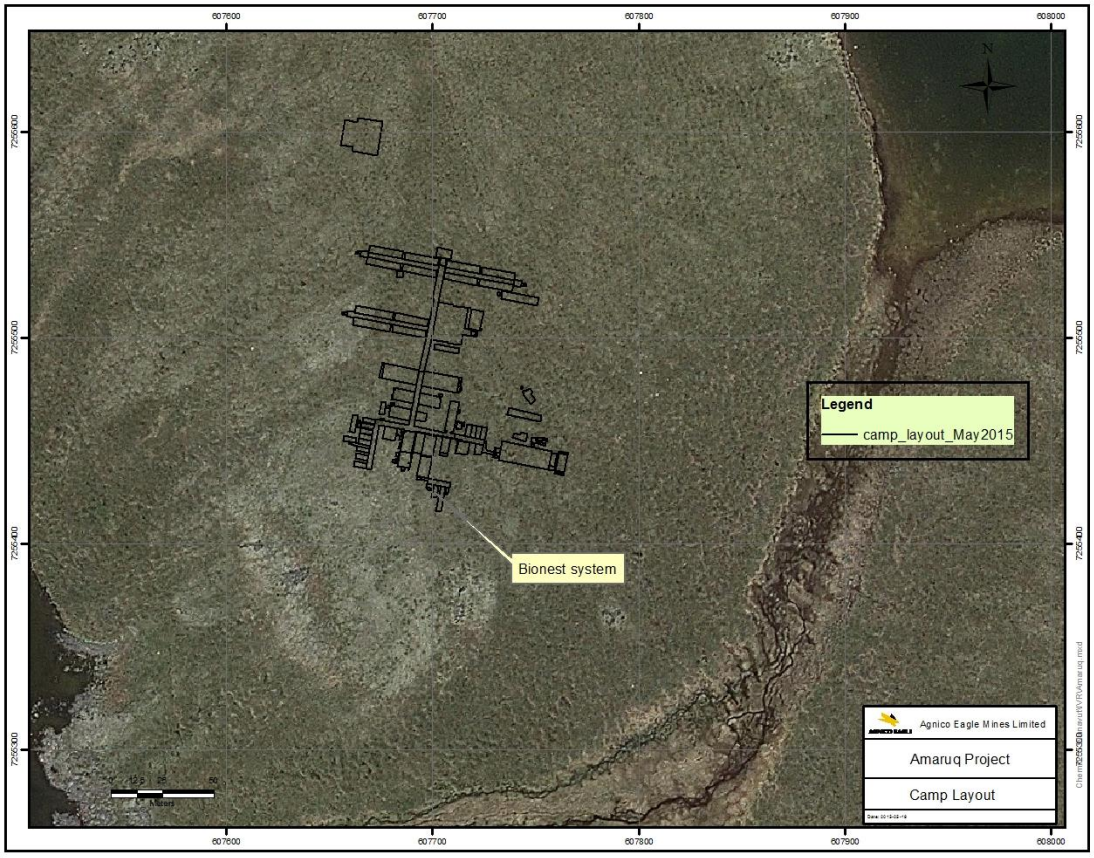
1.0 Introduction

This Operation and Maintenance plan is designed to reduce adverse impacts on the environment at the Agnico Eagle Mines Limited (AEM), Amaruq Gold Project's exploration camp, Nunavut. It is designed to comply with the terms and conditions for water use and waste management outlined in Nunavut Water Board License 2BE-MEA1318.

A site plan showing the general layout of the Amaruq Gold Project's exploration camp and associated infrastructure is given in Figure 1.

Figure 1: camp and related infrastructures



2.0 Waste Water Treatment System, Kodiak Bionest

AEM is presently using two Kodiak Bionest wastewater treatment systems designed to handle both black and grey water and produce effluent in compliance with NWB water license 2BE-MEA1318. Sewage wastes at the Amaruq Gold Project exploration camp were at first incinerated but this practice will progressively be phased out with the Kodiak Bionest commissioning. The grey water from the laundry and kitchen facilities would pass through a sump before being released into the environment. This grey water will also be redirected to the Kodiak Bionest.

2.1 Location

The two Kodiak Bionest have been positioned on the south side of the camp in a position amenable to the plumbing of influent piping from the kitchen, the showers and toilets.

Discharge plumbing delivers used water from these facilities to a storage tank adjacent to the Kodiak Bionest treatment plant. A grinder pump within the lift station delivers a sewage/grey water slurry to the Kodiak Bionest and is operated by a system of floats.

2.2 Kodiak Bionest Operation and Maintenance

2.2.1 General Description of Operation

The primary treatment consists in the removal of floating material and settling of heavier particles. This is carried out in the septic tank portion of the Kodiak Bionest unit. This step also plays a role in the advanced treatment process. The septic tank is divided into 2/3 and 1/3 sections by a partition wall. This helps to separate the solids from the liquid in the first section, allowing the liquid to flow to the second section, which is equipped with an effluent filter. It is important that routine maintenance be carried out. It is the owners' responsibility to have the septic tank pumped out at frequencies established according to local regulation or on a recommendation from the Kodiak Bionest maintenance technician. Please note that the pumping of the septic tank must be performed by a specialised firm and the tank must be filled with clean water after pumping.

2.2.2 Effluent filter

The septic tank is equipped with an effluent filter with openings of 1.6mm or less. The effluent filter must be cleaned every time the septic tank is inspected and pumped out. It is recommended that you inform the person emptying the septic tank about the presence of the effluent filter.

Figure 2 : Effluent filter

2.3 Advanced treatment system

Primary effluent leaves the septic tank and flows to the second section of the Kodiak Bionest unit: The BIONESTMD reactor wastewater is put in contact with microbiological cultures naturally fixed on a synthetic material. This synthetic material is our patented non-biodegradable media called «BIONESTTM Media».

2.3.1 BIONESTTM bioreactor

The BIONESTTM bioreactor is a tank similar to the septic tank divided into 2/3 and 1/3 sections. The first section is aerated with fine air bubble diffusers while the 1/3 section is not aerated to create a non turbulent environment where biosolids will be degraded and filtered out. The very low volume occupied by the media reduces the risk of unlikely blockage: less than 2% of the BIONESTTM bioreactors' volume is occupied by the media while it still offers a huge surface for bacteria development. The media is distributed evenly in the tank. A surface of 92,5m2 of the media is used per cubic meter of wastewater. The texture of the BIONESTTM media, as developed after several years of research, provides strong adhesion and allows for faster growth of bacterial mass. The synthetic media is a non-biodegradable polymer and therefore, it does not deteriorate over time and does not need replacement.

Figure 3: Media

2.3.2 Aeration

Air is an essential element in any biological treatment system (BIONESTTM, biofilter, sand filter, leaching field, etc.). Temperature and winds vary continuously during the year, thus varying performances of systems using passive aeration. The BIONESTTM system provides consistent air quality and temperature year round, regardless of the season, allowing the performance of the system to be constant. Aeration in the first compartment of the bioreactor is made possible with air pumps and fine air bubble diffusers. The air comes from air pumps which are inside the mechanical room.

Figure 4: Air pump and diffusers

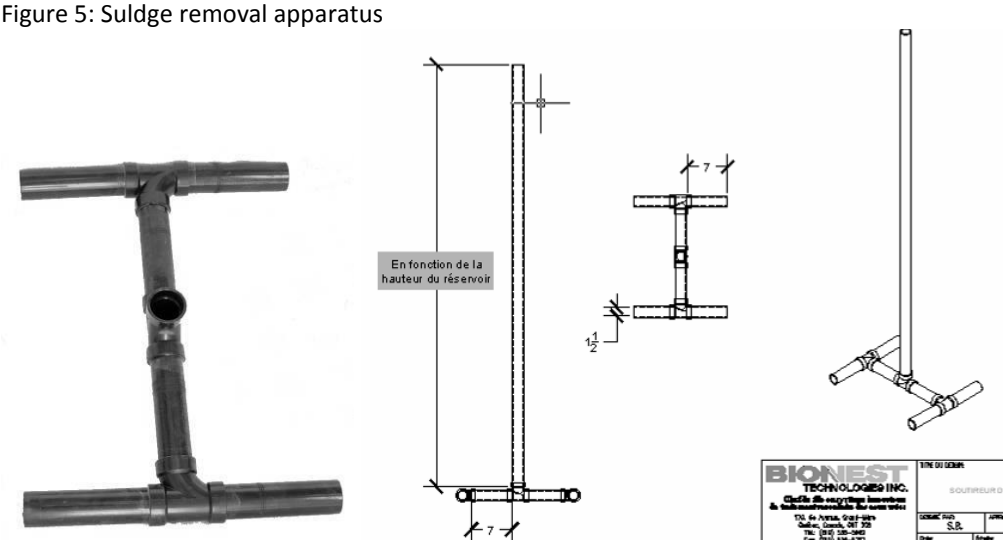
2.3.3 Recirculation

Recirculation of treated water back to the reactor inlet ensures several contacts with bacteria enhancing the transformation of nitrogen. The Kodiak Bionest system reduces not only ammonia, but also nitrates. Treated wastewater recirculating continuously in the treatment chain is beneficial in the treatment of BOD, the reduction pipe is insulated.

2.3.4 Sludge removal apparatus

The BIONESTTM Wastewater treatment system has been designed so that only the septic tank section requires periodic pump-outs. Even though most biosolids generated in the BIONESTTM reactor are degraded, some will accumulate with time. Biosolid removal in the reactor may be required after ± 2000 days of operation or based on a recommendation from a maintenance technician. A sludge removal apparatus has been integrated in both sections of the bioreactor to ensure easy sludge removal or in the event that toxic and/or prohibited products are released in the residence's water facilities.

Figure 5: Suldge removal apparatus



2.4 Sludge Disposal

The sludge accumulated in the primary tank will be removed and disposed of in latrine pits that will be located at a distance of at least thirty-one (31) metres above the ordinary high water mark of any water body, treated with lime and covered with native material to achieve the pre-existing natural contours of the land prior to abandonment.

2.5 Performance and Monitoring

The final point of control is the end of the pipe from the Kodiak Bionest and is noted in the water license as MEA-1. This station is established to monitor the performance of the Kodiak Bionest treatment plant. The parameters monitored include BOD_5, fecal coliforms, TSS, pH, and oil and grease. Weekly samples will be collected at the end of the pipe to document the performance of the plant vs the effluent requirements set in the water license, with the results submitted to the Water Board.

Table 1: License 2BE-MEA1318 requirement

Parameter	Maximum Concentration of any Grab Sample
pH	6.0 to 9.5
Biochemical Oxygen Demand (BOD5)	80 mg/L
Total Suspended Solids (TSS)	100 mg/L
Fecal Coliforms	1000 CFU/100mL
Oil and Grease	5 mg/L & No visible sheen