

# Leachate Treatment at the Slag Heap of the Former “Neue Maxhuetten” Steel works in Sulzbach-Rosenberg (Germany)



BAUEREnvironmentGroup

The “Neue Maxhuetten” steel works are located in Sulzbach-Rosenberg (Germany). From 1863 until the factory was shut down in 2002 steel was produced at this site. The slag from furnaces and converters was deposited nearby and formed a giant slag heap of 45 metres height. Beside 10 million tons of slag, oil sludge and filter-dust from flue gas treatment were disposed off. They destabilise the heap and cause additional contamination of the leachate.

The leachate is collected at the base of the slag heap. The limy water contains a wide range of organic compounds as well as cyanides.

## Remediation Site

The remediation works at the slag heap are expected to result in qualitative as well as quantitative changes of the leachate.

## Results

The pre-existing system for leachate collection was completed with a branch



A 80 m<sup>3</sup> water tank compensates for variations in the leachate quantity. In the tank, the liquid level is measured continuously. Based on these measurements the flow rate to the treatment plant is controlled.



The leachate collected at the base of the slag heap contains cyanides and organic compounds. The adapted water treatment plant of BAUER Environment Group ensures a long term cost-saving and efficient treatment.

pipe to the newly erected treatment plant. A pre-separator removes the light oil phases from the surface of the leachate. A 80 m<sup>3</sup> water tank compensates for variations in the leachate volume and guarantees a steady inflow of up to 3.6 m<sup>3</sup>/h to the treatment plant. Thus, in case of malfunction, the operator will gain 60 hours to eliminate the cause of the malfunction. In the tank, the liquid level is measured continuously. Based on these measurements the flow rate to the treatment plant is controlled.

A booster pump delivers the water to the fixed bed bioreactor. The following treatment stages are integrated into the piping:

- neutralisation with acid,
- oxygenation using a special nozzle technique to achieve supersaturation,
- addition of nutrients.



The treatment plant is controlled by a PLC system.

In the bioreactor, COD is reduced and part of the cyanides are adsorbed. Subsequently, remaining cyanides are eliminated by complexation in a filter. Finally, the water passes two activated carbon filters removing residual organic compounds. After treatment, the water is discharged to the sewer system.

The treatment plant is controlled by a PLC system. The equipment includes process visualisation and remote control.

Subsequent to installation and commissioning of the treatment plant, BAUER Environment Group renders the activated carbon service using a four-chamber silo vehicle.

<b>Client:</b>	State of Bavaria District Office Amberg - Sulzbach
<b>Engineering Design, Supervision and Operation:</b>	Protect Umweltschutz GmbH Sulzbach-Rosenberg
<b>Scope of Works:</b>	Installation of a treatment plant for slag heap leachate, activated carbon service
<b>Contract Period:</b>	May until September 2005