

Dismantling of the Former Phoenix Glassworks in Konstein (Germany) Contributing to Land Recycling



BAUEREnvironmentGroup



On the premises of the former Phoenix glassworks, a total of 22 buildings were taken down enclosing an interior space of 62.000 m². The newly established surface was covered with a multi-layer capping system preventing rain water infiltration.

From 1952 to 1986, the Phoenix glassworks in Konstein produced lighting glass and lead-crystal. The soil and the production buildings were contaminated with heavy metals, especially lead and arsenic, which had been used as additives in glass manufacture.

The base slabs exhibited localized contamination with petroleum-based hydrocarbons and polycyclic aromatic hydrocarbons originating from the operation of machines and subsequent uses of the premises. The air inside the buildings contained dusts polluted with

heavy metals, artificial mineral fibres and asbestos from roof panels, facade claddings and insulating materials.

A total of 22 buildings were taken down enclosing an interior space of 62.000 m².



The demolition of the 22 blocks, some of which were as much as 12 metres tall, required the deployment of several excavators simultaneously.

The demolition rubble was broken up and reinstalled on the site. 350 tonnes of material with more serious contamination was disposed off. Finally, the site was covered with a multi-layer capping system preventing rain water infiltration.

Remediation site

The project site is situated within the Natural Parc of the Altmuehl valley attracting tourists. After the remediation the site will be used for an industrial park and green space.

Results

BAUER Environment Group began the deconstruction project by decontaminating the 22 production buildings. Owing to the air pollution in the buildings, some



The air in the buildings was contaminated with asbestos, artificial mineral fibres and heavy metals. This required special occupational safety measures. Parts of the buildings were sealed off and made accessible only by way of a three-chamber airlock with a sub-atmospheric pressure system.



To secure the site against rainwater infiltration, a multi-layer cover system was constructed. Its base is a 2.5 mm thick HDPE sheet, the strips of which were sealed together and the joint then checked for leaks.

parts of the buildings were sealed off and made accessible only by way of a three-chamber airlock with a sub-atmospheric pressure system. The contaminated air was extracted and purified by a fine-dust filter. The workmen were provided with dust masks and protective clothing.

Following the decontamination the halls were dismantled and railway tracks removed. The demolition rubble was broken up and reinstalled on the site. 350 tonnes of material with more serious contamination were disposed off.

To prevent the pollutants remaining in the subsoil from being flushed into the groundwater, the site had to be secured against rainwater infiltration. To that end, a multi-layer cover system was constructed, covering an area of 16,500 square metres. Its layers consisted of:

- a sub-base of broken limestone material
- a protective layer of sand
- an HDPE sheet, 2.5 mm thick
- geotextile drainage elements with filter and separating fleeces
- a frost-proof overburden
- a recultivation layer

Via the inclined surface and drainage trenches the rainwater was discharged to the local creek.

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| Client: | Markt Wellheim, Wellheim |
| Planning: | ARCADIS Consult GmbH, Munich |
| Supervision: | ARCADIS Consult GmbH, Darmstadt |
| Scope of Works: | Dismantling of 22 production buildings, multi-layer cover system |
| Contract Period: | June till December 2005 |