

# Sealing the Eff'e Landfill



## The Challenge

The Eff'e landfill site – the largest landfill in Israel, is located in the Rotem plain in the Negev and serves as the landfill for mixed domestic garbage, at a scope of over 3,000 tons daily.

The landfill compartments at the site are excavated in the ground and as part of the landfill preparation process, a solution was required to prevent the seepage of leachates into the subterranean water. Furthermore, a solution for the drainage and removal of the leachates for further treatment was required.

## The solution

The solution implemented by Admir included sealing the landfill compartments and double layered sealing of the leachates basin. The sealing layers included:

- ◆ H.D.P.E type sealing mats manufactured in Israel by **Ginegar Plastic Products LTD.**
- ◆ Non woven geotechnical mats – manufactured by **Noam Urim Industries.**
- ◆ Geonet type drainage mats.

H.D.P.E type sealing mats are highly resistant to chemicals and are mechanically flexible – properties that enable compliance with the most stringent environmental quality standards.

The geotechnical mats are used as a covering for the sealing mats to prevent mechanical damage of the sealing system.



The drainage mats conduct the leachates to the drainage pipes and allow monitoring and control of leaks.

## The Execution

- ◆ Preparation of the landfill compartment and leachates basin infrastructure and landscaping slopes to adapt them for the deployment of the mats.
- ◆ The deployment of H.D.P.E sealing mats on the bottom and sidewalls of the landfill compartments and in the leachates reservoir was carried out using a special deployment machine.
- ◆ Deployment of non woven geo-textile mats for covering and protecting the sealing mats.
- ◆ Deployment of drainage mats between the sealing mats to monitor leaks.
- ◆ The mats were welded together using dedicated machine.

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Quality control tests were carried out on all the seams and for all the mats at the site by means of air pressure test device and vacuum boxes.

## The Results

In total some 75 dunam (19 acres) of the various landfill compartments were sealed. The sealing work included:

- ◆ Sealing of the leachates reservoir (dual layer sealing).
- ◆ Sealing of a compartment for burying asbestos rubble.
- ◆ Sealing of a compartment for burying domestic garbage.
- ◆ Sealing of a compartment for burying contaminated earth.

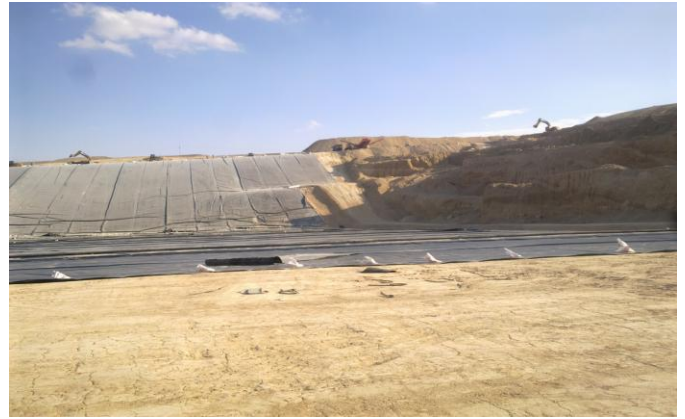
During the course of the work and after completion, air pressure testing and other field tests were carried out.

All the seams were tested and successfully passed the tests.

The leachates are efficiently streamed to the reservoir where they accumulate for further treatment – without seeping into the ground water.

Since the completion of the sealing work, the site has been approved for the burying of some 5,000 tons of waste daily.

Thanks to the sealing of the various compartments, the site is operating in compliance with the requirements of the Ministry of Environmental Protection and the various authorities involved, with maximum stringency while preventing ecological damages.



- ◆ **Customer - "Tamar" Regional Council Enterprises Company**
- ◆ **Main Contractor - PIKA Infrastructure & Development works LTD**
- ◆ **Design - Afik Engineering LTD**
- ◆ **Supervision - Ludan Engineering Co. LTD.**
- ◆ **Execution - Admir Projects, 2011**



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