HAZARDOUS WASTE TREATMENT SITE: REMEDIATION BEGINS

Ramat Hovav, aerial view /Photo: ESC

A seven year remediation program for the hazardous waste treatment site situated at the Ramat Hovav Industrial Zone begins.

A 220 million shekel remediation (more than $55 million) program, one of the largest and most complex environmental projects in Israel ever, has begun in the Environmental Services Company's hazardous waste treatment plant. According to an agreement signed between the Ministry of Environmental Protection and the Environmental Services Company (ESC), a seven year remediation project, administered by ESC on behalf of the state, has gone into effect. At its conclusions, the plant should be transformed from a contaminated site into a state-of-the-art plant for the treatment of hazardous waste, complying with the most stringent safety and environmental standards.

Preparing for Remediation

Calls for the remediation of the site have been sounded repeatedly in recent years. A November 2004 government decision, in particular, called for accelerating the remediation of the national hazardous waste treatment site within the context of a comprehensive pollution abatement action plan for the Ramat Hovav industrial park, formulated by the Ministry of Environmental Protection.

While bureaucratic obstacles have delayed the implementation of the decision until now, the groundwork for remediation has been carefully laid by the Ministry of Environmental Protection over the past several years in the form of business licensing conditions, field surveys and a master plan which sets out both the remediation targets and the remediation sequence. Moreover, the Ministry of Environmental Protection has prepared technical specifications for the remediation of two acidic tar ponds, which were identified in the master plan as the most contaminated areas at the site and for plot 181 in the older southern part of the site. These specifications were incorporated in international tenders issued by ESC for pond remediation.

Environmental Services Company Ltd (ESC): ID

ESC Ltd. is a government-owned company founded in 1990. The company is responsible for operating the plant for the treatment of hazardous waste at the Ramat Hovav industrial zone in the southern part of the country.

The hazardous waste treatment plant is Israel's national site for the disposal and treatment of hazardous waste originating in all parts of the country. It handles inorganic, organic, liquid and solid hazardous waste using different treatment processes and technologies: neutralization, detoxification, recycling and, in the future, stabilization for inorganic waste; on site incineration, transfer for thermal treatment or recycling abroad or biological treatment for organic waste; and secured landfilling.

Objectives of the Remediation Process

The agreement for the remediation of ESC's plant is designed to facilitate the achievement of two critical objectives: the remediation of the acidic ponds and old waste reservoirs in what is known as plot 181 in the southern part of the site and, in parallel, upgrading the treatment of inorganic solid waste before landfilling by means of a solidification/stabilization process.

Some 220 million shekels will be allocated toward the remediation of plot 181. Prior to the establishment of ESC in 1990, this area included evaporation and sedimentation ponds and temporary reservoirs and landfills. The two acidic ponds in this area, containing hazardous effluents from oil recycling processes, are targeted for first priority in the remediation sequence. This entire area will be remediated using state funds under the administration of ESC.

Another 10 million shekels of state funds will be allocated toward the establishment of a solidification/stabilization facility. ESC has high hopes for this 50 million shekel facility which will treat the wastes

destined for a new on-site landfill designed to meet the needs of Israeli industry over the next ten years. The stabilization facility, originally envisioned as a 30,000 ton per year facility to provide for the company's day-to-day needs, will be expanded to 60,000 to serve the additional function of treating some of the waste of the remediation process. The product of the solidification/stabilization process will comply with the values stipulated in the European Directive on landfilling (2003/33/EC).

According to Dr. Eitan Silbiger, General Manager of ESC, the stabilization technology represents the last word in hazardous solid waste secured landfilling. It will prevent the leaching of toxic components to groundwater and to the air for a period of more than 1000 years, even when in contact with water, as opposed to existing technologies which can only guarantee such protection for about 100 years.

Different Technologies – Common Goal

In general, different remediation plans and technologies will be implemented in different parts of the site. In some areas, material will be taken out, treated, landfilled or incinerated. In others, *in situ* treatment and capping to prevent leaching will be the methods of choice. The choice of technologies was based on safety, environmental and economic considerations. The activities themselves will either be implemented by ESC or by external contractors, under the supervision and funding of the Ministry of Environmental Protection.

Meeting the Challenge

Since a fire broke out in the lithium batteries temporary storage shed at the Ramat Hovav site in August 1998, major efforts have been invested in making the ESC treatment plant safer and environmentally compliant. Alongside new treatment technologies and improved storage and handling procedures, the first steps toward remediation have already been taken including remediation of six leaking ponds at a cost of about $3 million and an organic sedimentation pond using biological treatment.

The contractual agreements signed by the Ministry of Environmental Protection and ESC represent a major milestone on the road to remediation. The agreements clearly set out criteria for remediation, timetables and priorities, supervision and reporting requirements and environmental conditions that must be met throughout the process to avoid nuisances and adverse impacts. As stated, the state will fund the remediation in the southern part of the site, while ESC will be responsible for funding the remediation in the northern part.

To date, liaisons and professional teams have been set up by both ESC and the Ministry of Environmental Protection to make sure remediation proceeds in full coordination and in an optimal manner. Moreover, the Ministry of Environmental Protection has commissioned supervision and consultation services to make sure that remediation proceeds according to plan.

At the completion of the remediation process, past degradation at the site will be treated, pollution sources will be eliminated, and, most importantly, the site will no longer be a source of pollution and nuisances. As the ambitious remediation plan is translated from words to action, a new era of environmentally sound hazardous waste treatment should be initiated in Israel.

Preliminary Steps Toward Remediation

- *Environmental Protection Ministry publishes an international tender for the preparation of a historical survey, field survey and master plan for the remediation of ESC's hazardous waste treatment site in 1999.*
- *Environmental Protection Ministry updates and upgrades the business licensing conditions to ESC in 2000. The conditions include, inter alia, requirements for site remediation.*
- *The historical survey is published in 2000, the field survey in 2001 and the remediation master plan in 2003.*
- *The Ministry of Environmental Protection prepares technical specifications for the design and remediation of two acidic tar ponds in 2005 and for the remediation of the old southern area (known as plot 181).*
- *The Ministry of Environmental Protection and ESC sign contracts for the remediation of the Ramat Hovav hazardous waste site in September 2006.*

Signing the agreement /Photo: ESC

Remediation in Ramat Hovav: The Role of ESC

Eitan Silbiger
General Manager, Environmental Services Company

What changes have been made in ESC since you were appointed General Manager in 1999?

Firstly, we introduced a wide variety of technologies for the treatment of hazardous waste (such as biological treatment, wastewater treatment based on membrane technology, thermal treatment and stabilization), and we adapted them to specific types of waste. This allows ESC to treat hazardous waste according to the most advanced standards defined in European Directives.

Secondly, as per our business licensing conditions, we are committed to remediation in three stages: 1) remediation of six acidic ponds at a cost of $3 million, which was carried out between 1999-2004, with government funding; 2) ongoing treatment of organic waste, at a rate of 5000 tons per year beginning in 2000; and 3) large-scale remediation, which was initiated in September 2006 after prolonged negotiations.

Why was ESC chosen to administer the large-scale remediation on behalf of the state?

The hazardous waste treatment plant, which is operated by ESC was not established on virgin ground but rather on land which was used as a hazardous waste site since the late 1970s. The site was operated using the methods and knowledge and under enforcement standards, which were in practice at that time.

The risks of fire, potentially hazardous air emissions, water contamination and human health risks made it clear that something had to be done. There was no disputing the fact that the state had to finance the remediation. After considering different possibilities, the Ministry of Environmental Protection and the Ministry of Finance decided to entrust the project to a company with a special orientation to the place and with proven ability to manage the remediation.

The reasons for selecting ESC, which has operated the site since 1990, were clear: Firstly the contaminated area is part of the operational area of ESC. We operate within this area, live in it and are impacted by it. Secondly, the company has accumulated wide experience over the past eight years in most of the technologies and operational requirements identified by the remediation master plan. In areas where we lack direct experience, the company will issue international tenders to purchase the necessary experience.

What will happen at the conclusion of the project in 2013?

Plot 181 (the contaminated area) will be fully remediated. Most of the materials taken from this area will be transferred into a landfill for the treated materials, with some of the area used for surface facilities such as a tank farm, reception area and a biological treatment area. Moreover, a state-of-the-art solidification/stabilization facility will be established, making sure that all of the hazardous waste destined for secured landfilling does not pose a risk to the environment.

One of our expectations is to get rid of the negative image that the company has carried from the past. Thus we view the remediation as an opportunity to use our experience to undertake the largest remediation project ever conducted in Israel, both in terms of funds and complexity. I personally do not know of another project which combines such scope, variety and complexity within one area. Therefore this will be both a huge challenge and a unique opportunity, allowing the company to position itself as a leading company in the field of hazardous waste treatment worldwide.

Sampling organic waste before treatment /Photo: ESC

Laboratory evaluation /Photo: ESC

Ramat Hovav Remediation

Michal Bar-Tov
Director, Hazardous Substances Division

Why did the ministry decide to let the Environmental Services Company conduct the remediation?

We chose the company because the remediation will take place in its own premises. This is a long-term project which will impact on the employees and on the activities of the company. The company has the professionals, tools and means necessary to do the job in what we hope will be the most efficient manner possible. Our job will be to supervise rather than implement the actual work.

How does the Ministry of Environmental Protection view the solidification/stabilization facility for the treatment of waste destined for landfilling?

The Ministry of Environmental Protection called for a stabilization facility within the framework of business licensing conditions as early as the year 2000 and incorporated this demand within the framework of plans for a landfill at the western part of the site. At the time, waste stabilization requirements were not yet incorporated in the European Directives and our demand seemed far-fetched and elicited major opposition. However, we persevered and I am gratified to see that the need for such a facility is now self-evident. There is no doubt that the establishment and operation of the facility will bring us to the forefront of hazardous solid waste treatment.

How will the Ministry of Environmental Protection supervise the work?

Last year, we prepared and published a supervision and consulting tender, which allowed us to hire a full-time supervisor to oversee the implementation of the remediation plan. The inspector will be present at the site throughout the remediation process and will oversee the quality of the work, ensure that environmental degradation is prevented and supervise payment schedules since state funds will be used.

Furthermore, the chosen company will also advise us on a variety of issues related to the remediation, including sampling, remediation, technologies, laboratory and statistical analysis and the setting of priorities.

What has been the role of the ministry in the remediation process?

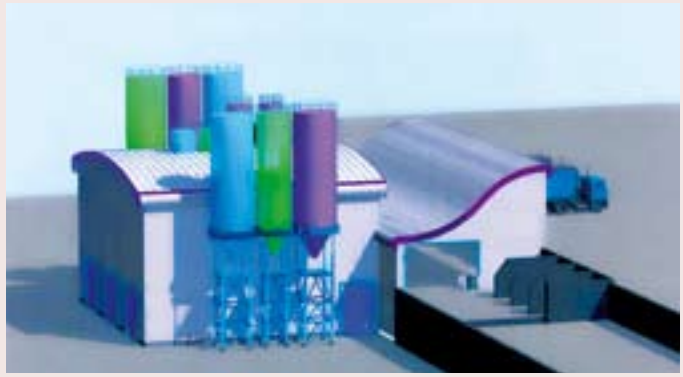
The Ministry of Environmental Protection initiated and spearheaded the path toward site remediation. It was responsible for commissioning the surveys and the master plan and for the technical specifications for the remediation of the two most contaminated ponds. It signed the remediation contracts and recruited the necessary funds from the Ministry of Finance.

I can't overemphasize the intensive activities which we undertook to reach this stage, and it is our intention to continue to closely inspect and supervise the work to make sure that the remediation is indeed conducted in the most optimal manner possible.

In parallel, in cooperation with the ESC, we are working out plans to prevent nuisances during the remediation itself, and for this purpose monitoring will be undertaken both before and during remediation. If pollution risks are suspected, the necessary preventative steps will be put into effect.

Conditions in Ramat Hovav today are already much better than they were in the past, and once remediation is undertaken, under the supervision and funding of the Ministry of Environmental Protection, this area will no longer pose a risk to the environment and to public health.

Landfill and storage area for organic waste before treatment /Photo: ESC



Stabilization facility/ ESC