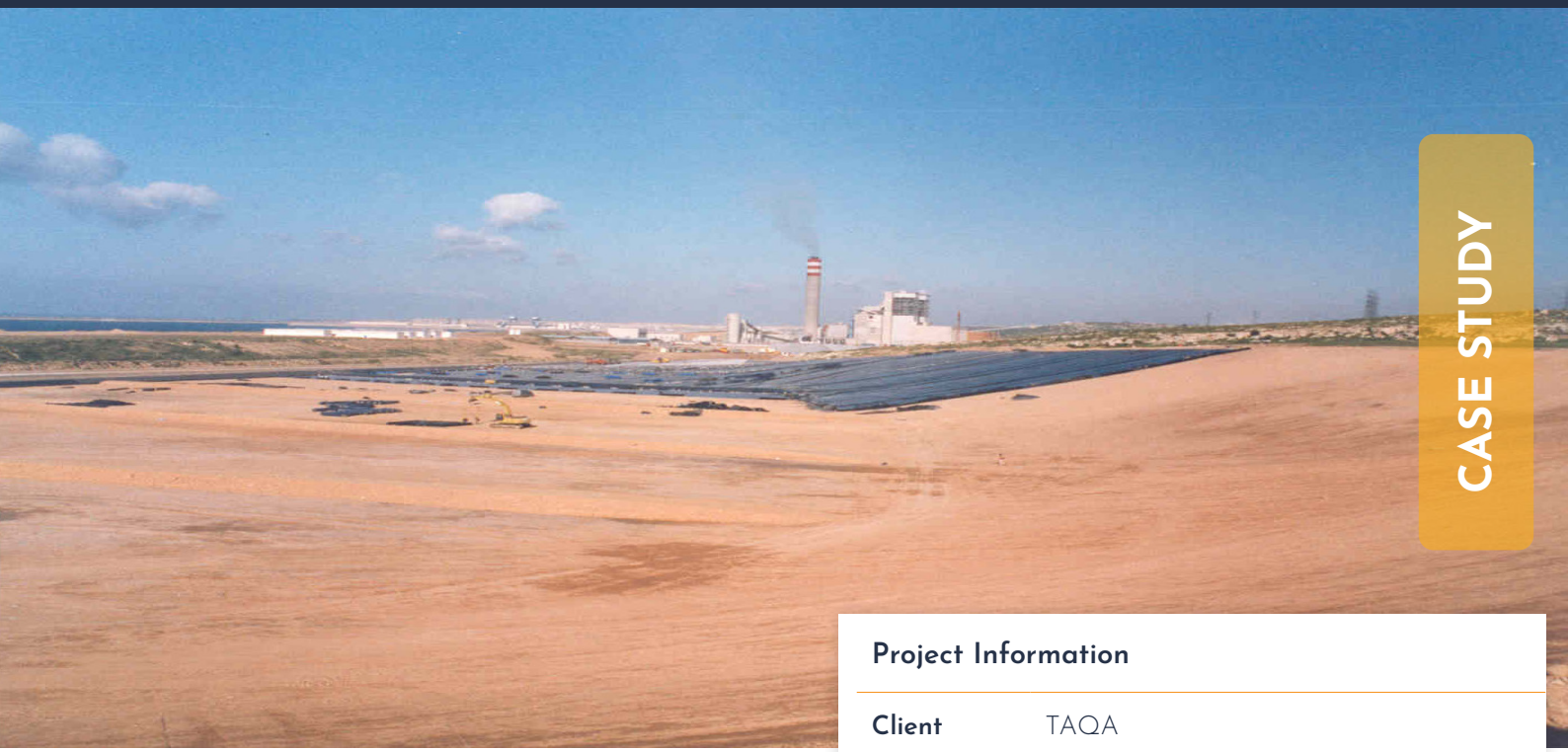
Coal Ash Containment

Basal and Capping, Pozidrain, Jorf Lasfar, Morocco



CASE STUDY

Project Information

Client	TAQA
Contractor	CMS / ABB, Environmental Lining Systems
Consultant	Jacobs
Products	**Basal drainage:** Pozidrain 12S500 **Basal membrane:** 2mm HDPE **Basal Textile:** Terrex SNW120 geotextile **Capping drainage:** Pozidrain 6S240D **Capping membrane:** 1mm textured HDPE
Quantity	78,000m² basal and capping each
Benefits	• Financial and environmental savings • Easy and fast installation • Proven filter and drainage characteristics

Project Description

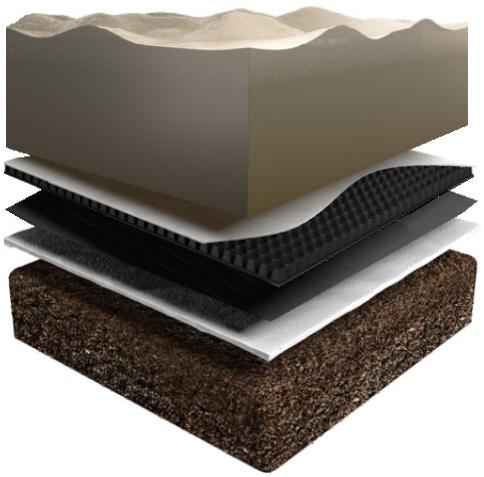
The existing coal fired power station at Jorf Lasfar, located on the Atlantic coast 20km from El Jadida, was to be doubled in size through an agreement with a joint venture of CMS and ABB to take on the operation of the facility. Prior to CMS / ABB taking over the plant in 1997, the coal combustion residues (CCR) had been pumped into the ocean. A condition of the new operation was that a fully lined containment area be constructed for storage of the CCR on site. Jacobs (then Sir Alexander Gibb) were to design the containment area which comprised a storage area of 78,000m² plus a waste water treatment lagoon.

The Challenge

With the high potential for pollution from water borne leachate from CCR, a completely sealed and protected geomembrane had to be installed under the whole storage area. The leachate needs draining efficiently from beneath the CCR to a sump area for collection and treatment. The traditional method would be to import selected stone from a distant quarry at great financial and environmental cost, use of a geotextile required that the filter had to work with the very fine CCR material.

The Solution

A joint venture of ABG/ELS won the supply and install contract based on the technical quality of our bid. ABG/ELS proposed geosynthetic basal containment comprising Terrex SNW120 protective geotextile, 2mm HDPE geomembrane and a Pozidrain 12S500 drainage layer in contact with the coal combustion waste. ABG provided technical supporting information demonstrating that the Pozidrain had a large



Basal Liner: ABG Pozidrain drainage composite on 2mm HDPE geomembrane on Terrex SNW120 geotextile

ABG LTD
E7 Meltham Mills Road, Meltham, Holmfirth, HD9 4DS • +44 (0)1484 852096 • www.abgltd.com
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factor of safety compared to a crushed stone drainage layer both in terms of in-plane flow capacity and resistance to load from the 40m depth of CCR. Furthermore, the geotextile filter bonded to the **Pozidrain** had been selected to be comparable with the very fine particle size of the CCR. The geosynthetic installation was completed in 12 weeks and placement of the CCR commenced immediately. ABG supplied a further 78,000m^2 of **1mm textured HDPE geomembrane** and **Pozidrain 6S240D geocomposite** drainage for capping the CCR stockpile. Up to 30% of the CCR is now sold to cement companies and 20 years afterwards the storage facility continues to function as intended with a significant improvement of the local environment.

The ABG Service

ABG's proposal was selected on technical merit and demonstrated the intended long term performance to contain the challenging coal combustion residuals. The project was completed on time and within budget.

The specially selected filter geotextile on the ABG Pozidrain drainage geocomposite had to filter the high proportion of fine particles in the coal combustion residues produced form the coal fired plant

Anchorage details around the perimeter of the facility

Finished facility with no leachate entering the environment

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