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AquaMaster
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CASE STUDY: ARMORLINER 40

TUMBLER RIDGE, BRITISH COLUMBIA, CANADA

The Details

Application: Installation of geomembrane as an environmental protective liner for coal and byproducts used to extract it. Addition of two freshwater lagoons.

Product: ArmorLiner™ 40

Quantity: 717,000 ft² (66,600 m²) installed of ArmorLiner 40. Also installed was 1,200,000 ft² (111,500 m²) of 16 oz/yd² (450 gsm) Non-woven Geotextile.

Contractor: BTL™ Liners

Install Time: 9 days (September 2012)



The Background

A coal mining operation near Tumbler Ridge, British Columbia needed an environmentally responsible solution for housing large quantities of coal extracted from the mining site. The primary site is approximately 454,500 ft² (42,224 m²) and has been designed to prevent the infiltration of toxic chemicals from coal and byproducts into the soil.

Because of site specific requirements the mine required two additional large lagoons approximately 140,000 ft² (13,000 m²). The first lagoon is designed to house fresh water used in the mining process and the second lagoon is used for holding excessive groundwater created from the horizontal shaft being drilled in the side of the mountain.



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The Challenge

The intended lifespan of the project is ten years and the unique location of the mine meant that the installation site would be exposed to wide ranging environmental conditions. In Northern British Columbia the site would experience temperatures ranging from a high of 95°F in the Summer months (35°C) and lows of -60°F (-51°C) in Winter months. Additionally, the site may experience up to 120 inches (300 cm) of snow load during heavy snow periods. These requirements meant that Intertape Polymer Group®'s (IPG®) AquaMaster® ArmorLiner™ 40 would be the perfect product for the job.

The Solution

For the coal containment pond, the design involved a detailed layering process. First the subgrade was smooth drum rolled and a 16oz/yd² (450 gsm) non-woven geotextile was installed with ArmorLiner 40 on top of it. Above the geomembrane was an additional 16 oz/yd² (450 gsm) non-woven geotextile and finally 18" (46 cm) of soil was placed on top.

For the freshwater lagoons, the subgrade was smooth drum rolled with ArmorLiner 40 geomembrane installed on top, but in these areas the geomembrane was left exposed. Each pond included two turbidity curtains across the 200' length to help settle out silt and solids in the water.



ARMOR LINER™



The IPG Advantage

The project was initially specified with the use of 40 mil HDPE. The ArmorLiner 40 was ultimately selected because of its superior physical properties, low cold crack numbers, and expedited installation.

By using ArmorLiner 40, approximately 90% of the seaming could be completed in advance at the BTL™ facility in Bend, Oregon. This translated to exceptional savings for the customer by reducing the amount of work that had to be completed in the field. The truckload quantities of prefabricated panels were being delivered sequentially while installation technicians were on site.

Moreover, Northern British Columbia is prone to snowfalls in September so the expedited installation reduced the risk of prolonged weather delays.*

*Over two feet of snow fell a few days after the installation!



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