ALBARRIE GEOCOMPOSITES LTD

REMEDIATION CASE – SIGNIFICANT SPILL

TRANSFORMER SUBSTATION

10/6/2015

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SorbWeb™ Plus Secondary Oil Containment – Case Study

In 2015, a significant oil spill occurred in Southern Alberta for a major electrical utility

**Scope of Remediation**

A catastrophic oil failure occurs when a sudden or unexpected breakdown of the transformer’s electrical system, oil storage system, or other primary containment system malfunctions, and oil is released into the surrounding area.

The SorbWeb Plus™ system is a passive oil containment system that will provide sufficient containment of spilled oil as a result of a sudden oil spill following a catastrophic failure of the transformer.

In the event that a significant spill occurs, prompt action must be taken to remediate the spill to prevent the migration of oil into other areas or layers of the system. The longer the oil remains in the containment the greater the risk that the entire Sorbweb Plus system will require replacement.

The system is optimized to reduce the economic costs involved in replacing the most important elements of the system. The extent of the remediation and associated cost is limited to the quantity of oil released, and the response time of the remediation.

It is recommended that Albarrie be notified within 24 hours of the discovery of a spill.

A spill may be reported to 1-844-sorbweb(767-2932) which serves as Albarrie’s emergency contact number. Within 24 hours of receiving notice of a spill, Albarrie staff will review remediation procedures with the client and provide guidance as required.
Remediation Review

This turnkey remediation project was divided into three main tasks:

1) Site visit to determine the extent of the spill size throughout the SorbWeb™ Plus system layers
2) Remediation, removal and disposal the contaminated stone, sand layer, and system layers
3) Construction, SorbWeb™ Plus system rehabilitation.

Albarrie GeoComposites acted as the general contractor for the entire project.

Visual discolouration was observed from the area that came into contact with the oil.

The Vac-Truck was used to remove all the contaminated stone.

The impermeable liner within the contaminated area was inspected.

The top contaminated sand layer was removed within the contamination area using the Vac-truck.

The contaminated adsorbent layer was removed within the contamination area.

The existing non-woven geotextile showed signs of oil contamination and was removed and discarded.
The surface of the contaminated Albasorb layer had noticeable gelling which indicated reaction with oil.

All the contaminated layers were removed until clean Oilmat and Albasorb could be seen.

The sand beneath the congealed oilmat was observed to be clean and unaffected by the spill.

The construction crew removed and disposed of any layers that came into contact with the oil until satisfied the oil had not migrated any further.

The contaminated oilmat was removed and disposed of by the construction crew.

The new oilmat was cut and placed, maintaining the required minimum overlap in between the existing and new oil mat layers.
The remaining layers were re-installed.

Stone was replaced in the affected area.

The site was cleared of all debris and all equipment was removed from the substation.

Conclusion

The Sorbweb Plus ™ secondary oil containment system was an effective containment system for this substation transformer. Any oil that was spilled from the transformer after installation of the containment was contained within the containment. Any oil which reached the oilmat did not penetrate into to the bottom sand layer, or underlying subgrade soils, offering the client optimized clean up and remediation costs.