



A Profile in Using Green Remediation Strategies

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Former St. Croix Alumina Plant
St. Croix, VI

RCRA

Cleanup Objectives: Recover hydrocarbons from ground water at RCRA site

Green Remediation Strategy: Uses a hybrid system employing solar and wind energy

- Began operating four wind-driven turbine compressors in 2002 to drive compressed air into hydraulic skimming pumps
- Began operating three 55-W photovoltaic panels in 2003 to power some recovery wells
- Added three 110-W photovoltaic panels and two wind-driven electric generators in 2006 to power a total of nine submersible total-fluid pumps and the fluid-gathering system
- Recycles recovered petroleum product by transfer to adjacent oil refinery for use as feed stock

Results:

- Recovered 228,000 gallons of free-product oil (approximately 20% of the estimated volume) by the end of 2006
- Integrated multiple renewable-energy technologies and resources over time to meet increasing portions of the recovery system's energy demand
- Avoids air emissions associated with consumption of grid electricity during petroleum recovery
- Provides for beneficial use of recovered material by local industry
- Avoids off-site transfer and disposal of petroleum product, along with associated air emission

Property End Use: Industrial operations

More detail is available about this site in the May 2008 issue of EPA's [Technology News and Trends](#) newsletter.

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Trade winds averaging 11 mph bring nearly a constant source of renewable energy for remediation at the former St. Croix Alumina site.



Each wind turbine compressor is powered by a windmill with 4.3-foot blades that begin rotating at a wind speed of 4 mph. The air compressor is located directly behind the windmill on a hinged tower.



Selection of fixed-position modular panels allows easy expansion to accommodate additional enhancements to the fluid gathering system.



Recovered subsurface fluid accumulates in aboveground tanks at the adjacent HOVENSA oil refinery, where separated oil is used as refinery feedstock.

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http://www.cluin.org/greenremediation/profiles/subtab_d7.cfm



**United States Environmental Protection Agency
Office of Solid Waste and Emergency Response (5202P)**

For more information:
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