



Conestoga-Rovers & Associates Project Summary

KEY PROJECT ELEMENTS

- Site restrictions meant renewable energy was the best available option
- System has recovered over 300 barrels of LNAPL for reuse
- Operation and Maintenance to the system has been kept to a minimum
- Power requirement based on product and groundwater recharge rates determined by bail down tests

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DESIGN OF A RECOVERY AND REMEDIAL SYSTEM USING RENEWABLE ENERGY SOURCES WEST TEXAS, USA



CLIENT: CONFIDENTIAL
DURATION: DECEMBER 2007 - ONGOING
COST: CONFIDENTIAL

CRA is providing green remediation services to a confidential client within the oil and gas transport sector for a site located in west Texas. This one-acre site is monitored with a network of 20 monitor wells and 2 observation wells on a quarterly basis. Eleven of the 17 wells contain liquid nonaqueous phase liquid (LNAPL) and both observation wells contain LNAPL. Due to the presence of LNAPL in the first eight installed monitoring wells, a Xitech skimmer pump recovery system was installed. This system is powered using a hybrid of solar and wind power.

The system includes an all-in-one controller and air compressor system that run eight pumps in a weatherproof job box. The system utilizes two 12-volt batteries recharged by two solar panels. Currently, two 180-watt solar panels power eight 6-volt deep cycle batteries to run the compressor, which supplies the air needed for the Xitech Pumps. Supplemental power is supplied by a Whisper windmill. The windmill charges two 12-volt batteries that provide the supplemental power.

The skimmer pumps run during the daylight hours (6 am to 6 pm) due to recharge rates determined by bail down tests performed on the pumping wells. The bail down test allowed CRA to set pumping times and number of cycles to the most optimum settings to allow for greater product removal. The skimmer pumps run one at a time and are individually set to a certain cycle and duration times. Each pump is set to run at individually set times.

The skimmer pump system has currently recovered more than 300 barrels of crude oil condensate and it is placed back into the pipeline system for reuse. LNAPL thickness has been on a decline since the system was installed.