

Novel Approach to Leachate Management at an Older Landfill:

Solar Photovoltaic Leachate Extraction System

Shawn Matz Waste and Recycling Services The City of Calgary

22/10/2015

Spyhill Waste Management Facility



- One of three active Waste Management Facilities operated by The City of Calgary
 - Began accepting waste in 1968
- Located in the northwest of the City

Calgary







Stage 1 Environmental Assessment and Management Plan



22/10/2015



2013/2014 Leachate Investigation



22/10/2015



- Well construction and pump type left standing head
- Diesel generator high maintenance
- Wide range of recovery rates
- Intermittent pumping is appropriate



What would the ideal pumping system look like?

Pump	Power	Safety
Portable	Portable	Explosion-proof
Rates up to 3 LPM	Matches pump requirements	Secondary containment
Heads up to 20 m	Low maintenance	Stable (wind and snow)
Minimal standing head		
Can operate dry		

Calgary

What Power Options are Available?







22/10/2015

What Pump Options are Available?



22/10/2015

Calgary



Pumping choice







13-02L



Sunlight Dependent

13-02L - Pumping May 27



Water Level Datalogger (corrected for barometric pressure)

22/10/2015





Water Level Datalogger (corrected for barometric pressure)

22/10/2015



1. A pump can be run on a solar panel

Operates as late as NovemberOperates in cloud cover

- Wells can be reduced to minimal standing head during daylight hours
- 3. The pumping system is mobile
- 4. Low O&M Requirements



- Leachate quality didn't impact pump and components
- Winter operations not feasible



- Tank Sizing, secondary containment
- Leachate level monitoring
- 2" wells

• TBD: Long term maintenance



How Will this Work Help Leachate Management in the Future?

- 1. Expand to other landfills
- 2. Use in gas collection systems



22/10/2015

