

US EPA ARCHIVE DOCUMENT

Recirculation-To-Energy Crow Wing County, Minnesota

RTE . . . Small Landfill . . . Big Results

Fred Doran

EPA Bioreactor Workshop

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Outline

- Site Background
- Visual Tour
- Project Goals and Supporting Data
- Nitrification - Denitrification
- RTE Development
- The Future

Site Background

- Began Operation in 1991
- 40,000 tons/year
- Annual Precipitation - 30 inches
- 3 cells
 - 7.8 acres open
 - Remaining Life - 20+ years
- Integrated Public System
 - Recycling
 - Yard waste
 - Demolition Debris
 - HHW
 - Industrial Waste
 - MSW Disposal

Leachate Management

- Pretreatment
- Hauling to WWTP
- Land Application - 1996
- Recirculation - 1998





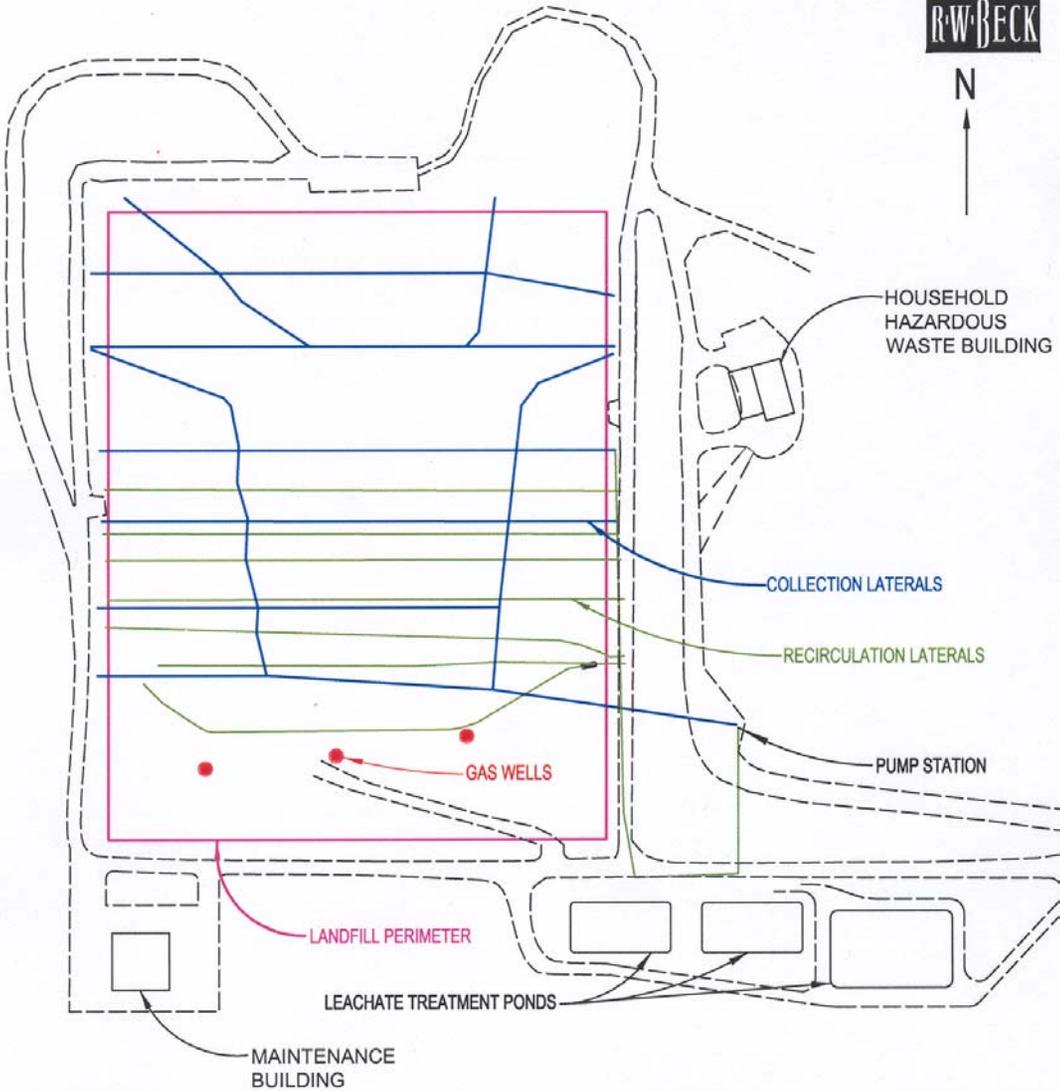




Site Layout



N



RTE Operation Goals

- Minimize leachate hauling
- On-site responsibility
- Optimize airspace
- Minimize long-term liability
- Energy recovery

Leachate Generation and Disposal

Year	Total Leachate Generated (gallons)	Leachate Hauled (gallons)	Leachate Land Applied (gallons)	Leachate Recirculated (gallons)
1992	1,900,000	1,600,000	NA	NA
1993	2,200,000	2,000,000	NA	NA
1994	1,600,000	1,700,000	NA	NA
1995	2,200,000	2,000,000	24,000	NA
1996	2,800,000	500,000	1,500,000	NA
1997	2,600,000	1,000,000	1,700,000	36,000
1998	2,200,000	0	1,800,000	400,000
1999	2,000,000	0	2,500,000	900,000
2000	1,700,000	0	1,600,000	900,000
2001	2,000,000	0	2,800,000	1,400,000
2002	4,400,000	200,000	4,200,000	2,300,000
NA = Not Available				

Recirculation Volume per Ton Disposed

Year	Recirculation Volume (gal)	Tonnage Disposed	Gallons per Ton
1998	434,830	33,110	13.1
1999	877,675	33,174	26.5
2000	869,988	35,731	24.2
2001	1,395,782	38,673	36.1
2002	2,276,015	42,863	53.1
Total	5,848,290	183,551	31.9
DSWA			6.8

Field Capacity: 50 to 130 Gallons/ton

Comparison of BOD Concentration Crow Wing vs. DSWA

