



Landfill Gas (LFG) Utilization Study

**Rapid City Public Works Committee
Phase 1 Update**

Tuesday, October 30, 2011

Karl Merbach- Superintendent- Solid Waste Operations



LFG Utilization Update

- SAIC- Consulting Engineer retained for Phase 1 LFG Study
- Phase 1 Scope
 - Existing gas collection system operations
 - LFG field testing
 - **Future Landfill, MRF, and Compost operations- Future LFG Generation**
- Phase 2 Scope
 - Potential reuse options for LFG



LFG Utilization Update

PHASE 1

- Existing & Future LFG Systems
 - *Existing- 34 wells- Cells 1-11*
 - Individual Well Generation- System Balance
 - LFG Flare Operation
 - Field testing to verify LFG Flows
 - Maximize methane extraction



LFG Utilization Update

PHASE 1 (Continued)

- Future LFG Generation Considerations
 - Cell 12 LFG (Closed in 2010)
 - Utilized Portable Gas Rig to verify potential flows
 - Cells 13 & 14 (Scheduled Closure 2013)
 - Yardwaste Compost Operations
 - MRF & Co-Compost Operations
 - Identify future potential industrial LFG users
 - Contact made with local industries



LFG Utilization Update

EXISTING/CONCEPTUAL LFG COLLECTION

- Anticipated LFG Flow 550 scfm (Wenck study)
- Actual Flows- 250 scfm
 - Factors influencing LFG production: moisture, age of waste, placement of cover soils, etc.



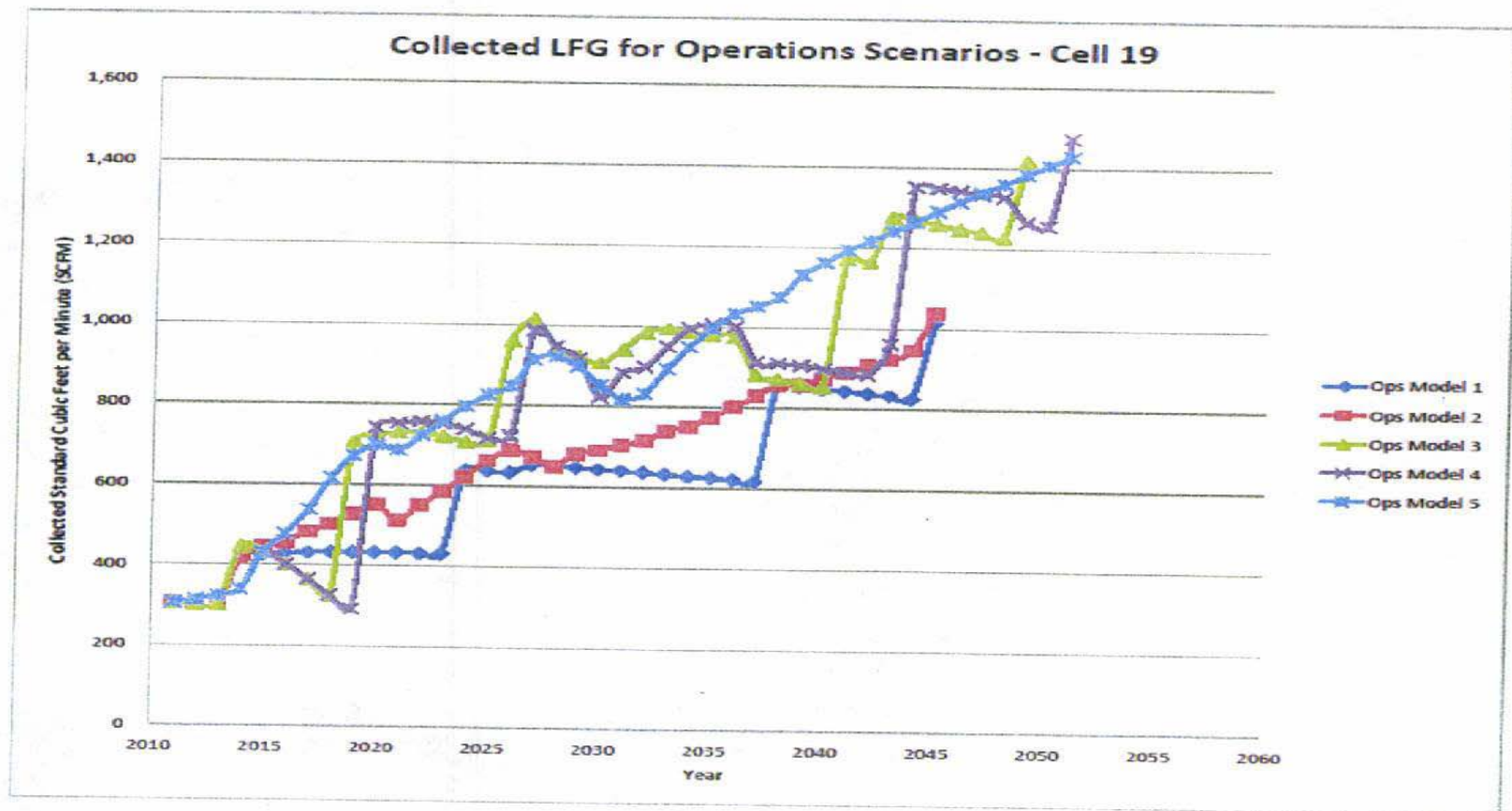
LFG Utilization Update

LFG GENERATION MODELING

- Variables effecting LFG production:
 - Waste Tonage
 - Waste Composition- organics MRF & Cocompost Operations
 - Yardwaste Operations
 - Moisture (Rainfall) & Temperature
 - Landfill Ops. – leachate recirc., LFG piping
- Completed *16 operational & sensitivity models*

LFG Utilization Update

LFG GENERATION MODELING



LFG Utilization Update





LFG Utilization Update

PHASE 1- SAIC

CONCLUSIONS & RECOMMENDATIONS

- *Review present Solid Waste operations, including future landfill, MRF, Cocompost Ops*
- *Pursue discussions with regulators regarding reduction of cover & leachate recirculation*
- *Based on maximum recoverable LFG following closure of Cell 13/14, there is sufficient justification to pursue LFG energy market.*



LFG Utilization Update

SOLID WASTE STAFF RECOMMENDATIONS

- Delay Phase 2 plan- Budget for 2014
- 2013 Design of Cell 12 & 13/14 LFG Collection
- Utilize LFG in Citizen Campus design
- Continue to maximize existing LFG collection from Cells 1-11



LFG Utilization Update

QUESTIONS

LFG Utilization Update

Solid Waste Electrical History

