

Landfill Gas Utilization

Update on Sale of Landfill Gas



Council Recommendation

March 24, 2005

- That staff be authorized to commence negotiations for an agreement with Genco to develop the landfill gas utilization project, as per the General Manager of Infrastructure & Emergency Services' report dated March 16, 2005.

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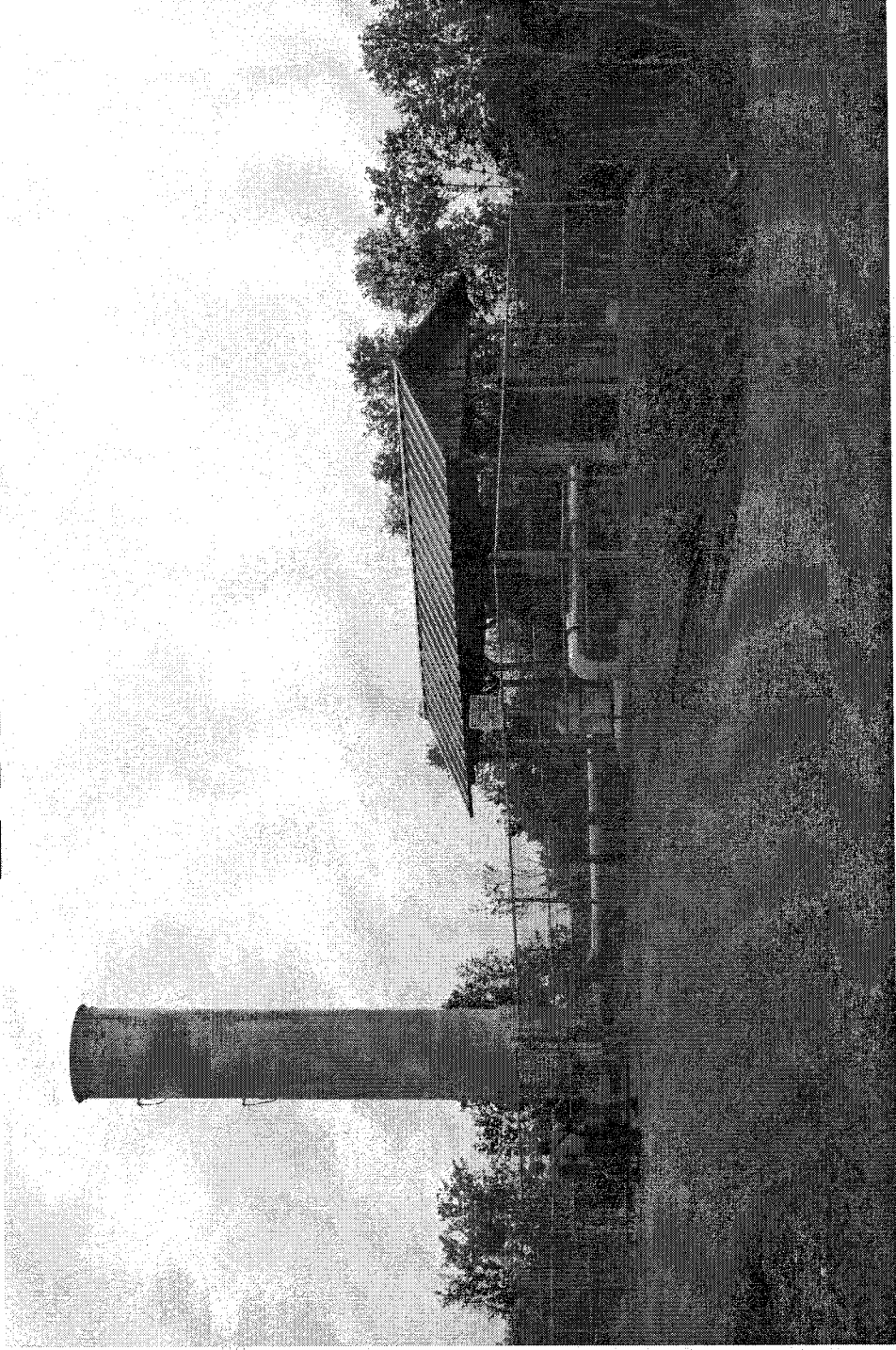
Steps to be completed

Target dates

- Installation of collection system (CGS) Fall 2005 ✓
- Compilation data (CGS) 2006 ✓
- Order equipment (Genco) 2006 ✓
- Regulatory requirements (CGS & Genco) 2006
- Construct plant (Genco) 2006 revised 2007
- Produce electricity (Genco) Spring/Summer 2006 revised Spring/Summer 2007

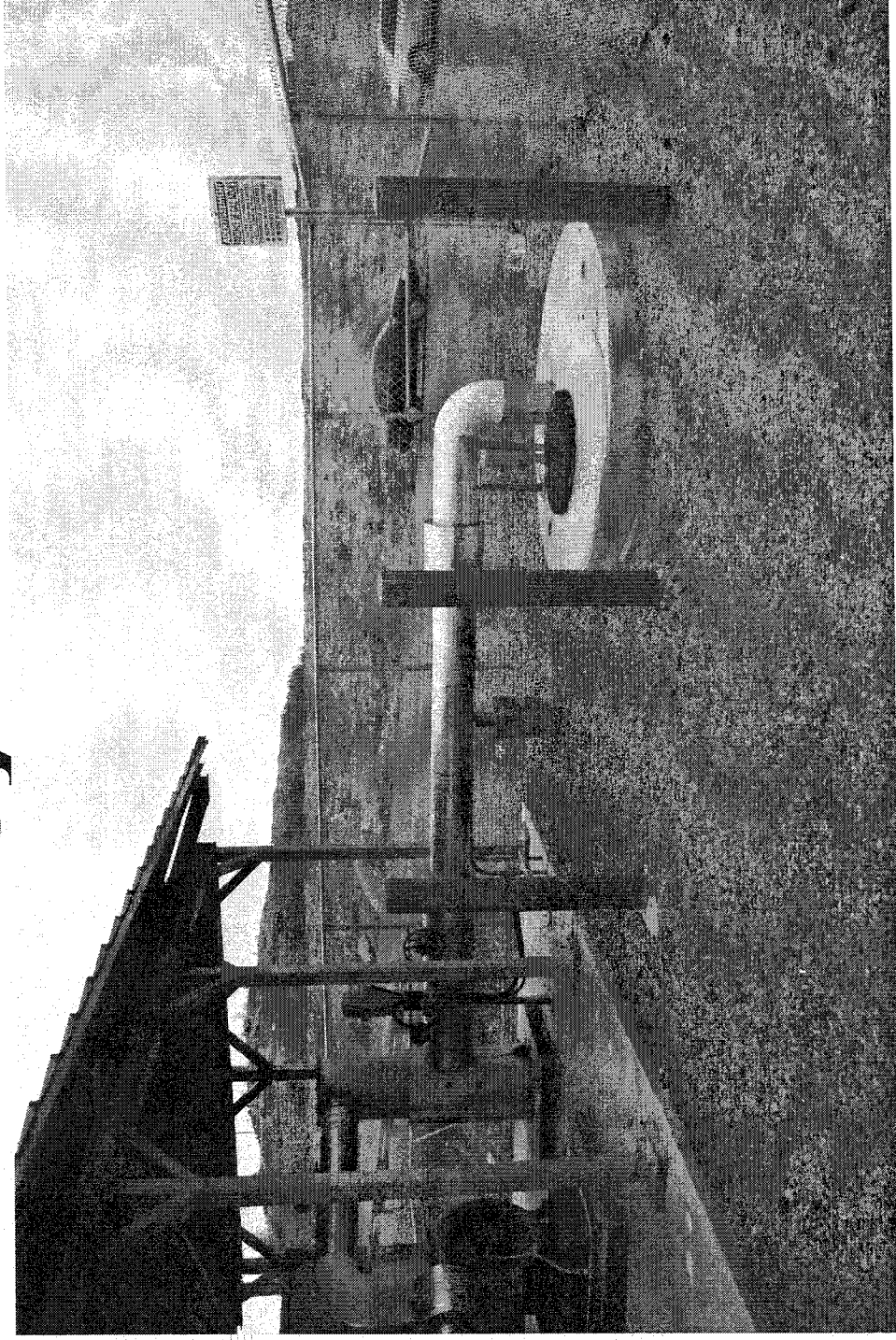


Collection and Flaring System



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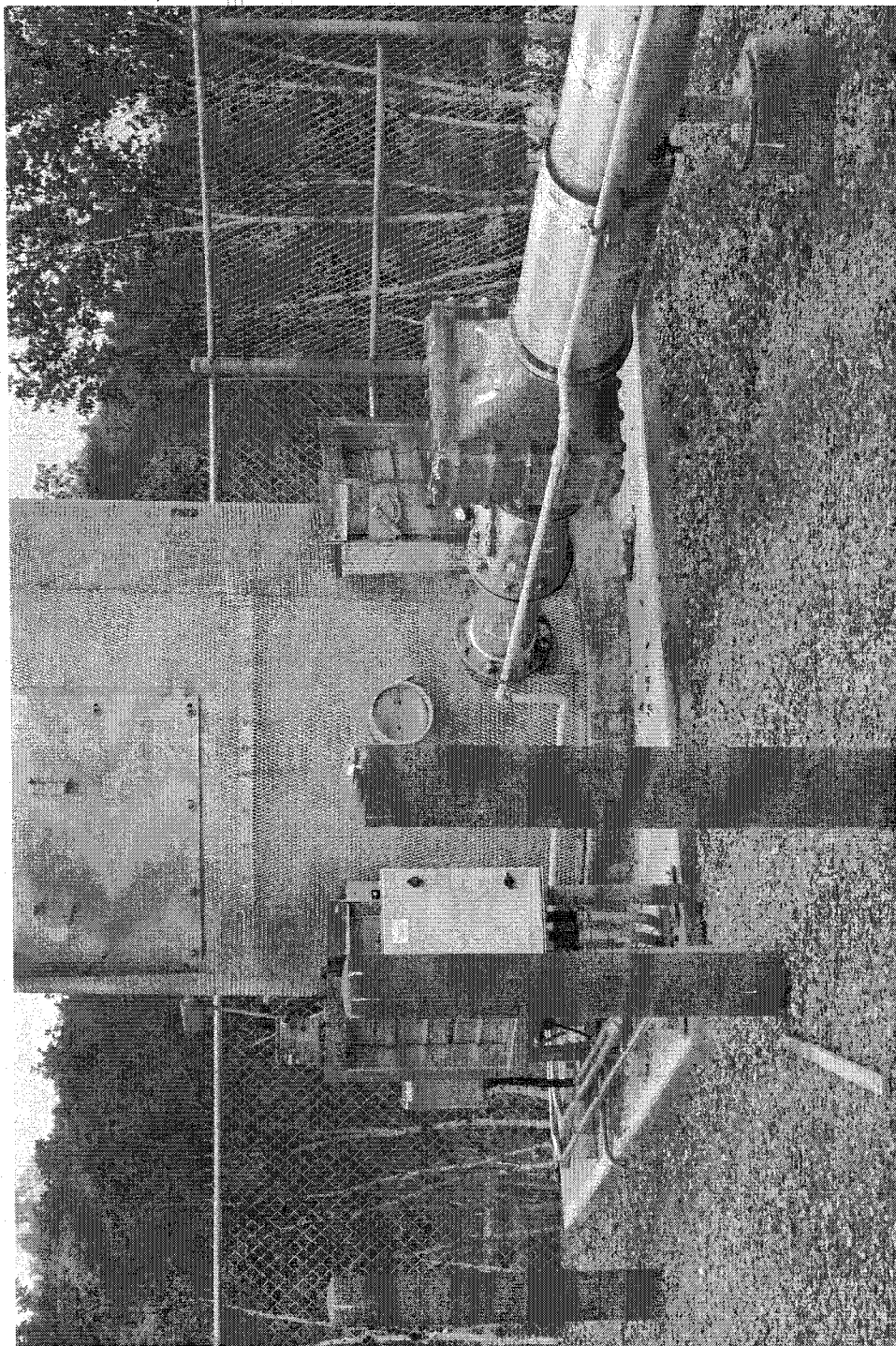
Landfill site and Collection System



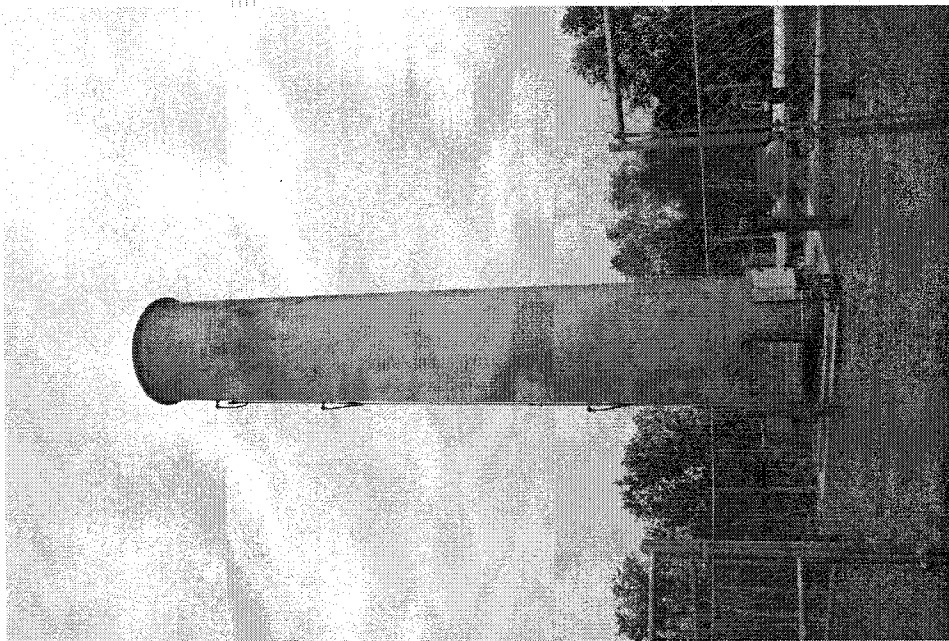
Connection to Blower



Flaring System



Flaring Tower



Compilation of data

Gas production rates

- | | |
|--|---------|
| ▪ Waste Optimazition Study estimated production: | 375 cfm |
| ▪ Current Performance: | 480 cfm |
| ▪ Methane content estimated: | 45% |
| ▪ Current Performance: | 50%-55% |
- **Results better than expected and will increase with continued site filling (2040+)**



Regulatory Approval Requirements

- CGS Certificate of Approval - CGS & Genco/Toromont
- Ontario Energy Board Act - notices and approvals
- Planning Act
- Municipal Act
- Electricity Act



Agreements

CGS, GSU, Genco & Toromont

- First Right of Refusal - SDEC
- Agreement for the use of the landfill gas
- Lease of Land for the Generating Plant
- Operating Agreement for the Collection System
- Agreement to supply and construct the Generating Plant
- Operating Agreement for the Generating Plant
- Agreement for the sale of electricity (Standard Offer)



Standard Offer

MOE March 2006

- Buy electricity @ 11¢ per kw for 20 yrs (study assumed Market Price of 8¢)
- Additional 3.52¢ incentive for performance for output at peak time
- Annual increase at CPI
- Max size: 10 MW
- GHG credits transferred to OPA to accrue to the benefits of Ontario electricity consumers
- November 2006



Equipment on Order

GSU/Genco

- **Reciprocating engine mature technology**
 - Similar to diesel engines that provide electricity to northern communities
- **Worldwide:** > 1,000 at landfill facilities
- **North America:** > 250 at landfill facilities
- **Canada:** 9 at landfill facilities



Construction of the plant

- Memorandum to Genco's Board of Directors -March 24, 2006
 - Resolution: That management proceed with negotiations with Toromont Power Systems/CAT and the City of Greater Sudbury to:
 - (i) develop a contract to supply and construct a landfill gas power plant at the Greater Sudbury Landfill site; and,
 - (ii) develop an operations and maintenance contract for a period of up to 20 years on terms and conditions as outlined in this document; and,
 - (iii) secure an agreement for the uninterrupted supply and access to the methane gas produced at the landfill site.
 - Schedule: 48 weeks from design approval to operational date.
- Proceeding – targeting Spring 2007



Preliminary Landfill Gas Project Evaluation

- Revenues Original Project Evaluation:
\$50,000 - \$100,000
- Revised Revenues based on Standard Offer:
\$300,000 - \$800,000

Note: Dependant of type of financial arrangement to finance the project.



Future Expansion

- Expand collection system as more waste is added to the landfill site
- Potential to add more engines
- Potential to capture more gas from anaerobic digester

