



Managing Leachate to Achieve Project Success at González Catán Landfill in Argentina

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Objective

- To explore the challenges that leachate management in Clean Development Mechanism (CDM) projects represent and to use the the González Catán Landfill Development Project as a case study to illustrate them

González Catán Landfill

- Located in the town of González Catán, in the Municipality of Matanza, Province of Buenos Aires
- Operating since 1979
- Receives approximately 1,800 tonnes per day of municipal solid waste (MSW)
- Composed of five modules – four of the five are currently closed, only one still in operation



González Catán Landfill

- Approximately 120 Hectares
- Equipped with leachate treatment plant and retrofitted leachate collection system
- Current tonnage of waste disposed approximately 14.5 million tonnes

González Catán Landfill



Aerial Photograph of González Catán Landfill

Catán Landfill

- Located in proximity to the largest estuary of the world, La Plata River
- González Catán is 45 feet above sea level

Environmental Challenges

- Buenos Aires area is warm and wet, with an average rainfall of approximately 43 inches per year and an average temperature of 60°F
- As a result:
 - greatly affects recoverability of landfill gas from the site
 - direct contributor, along with the cover conditions, to the high leachate mounds encountered.

Baseline

- Fundamental requirement of Kyoto-style projects – emission be additive
- Project baseline definition:
 - no active control system to limit the uncontrolled release of LFG into the atmosphere
 - In Argentina there is no regulatory requirement to combust LFG
 - All LFG combusted for project qualifies for consideration and contributes to the generation of CERs

Description of the Project

- Clean Development Mechanism (CDM) project for collection and combustion of landfill gas (LFG) over a ten year-period utilizing a high efficiency enclosed flare
- Reduce greenhouse gas emissions (GHGs) to generate Certified Emission Reductions (CERs) for revenue generation purposes and the environmental benefits.



Description of the Project

- Involved the construction of
 - a LFG collection system consisting of vertical LFG extraction wells
 - horizontal trenches
 - centrifugal blower(s), flare
 - all other supporting mechanical and electrical subsystems and appurtenances necessary to collect the LFG

Description of the Project

- The LFG collected from the Sites is combusted in enclosed LFG flares with full process controls and instrumentation installed and operating in accordance with the performance specifications
- Quarterly flare emission monitoring



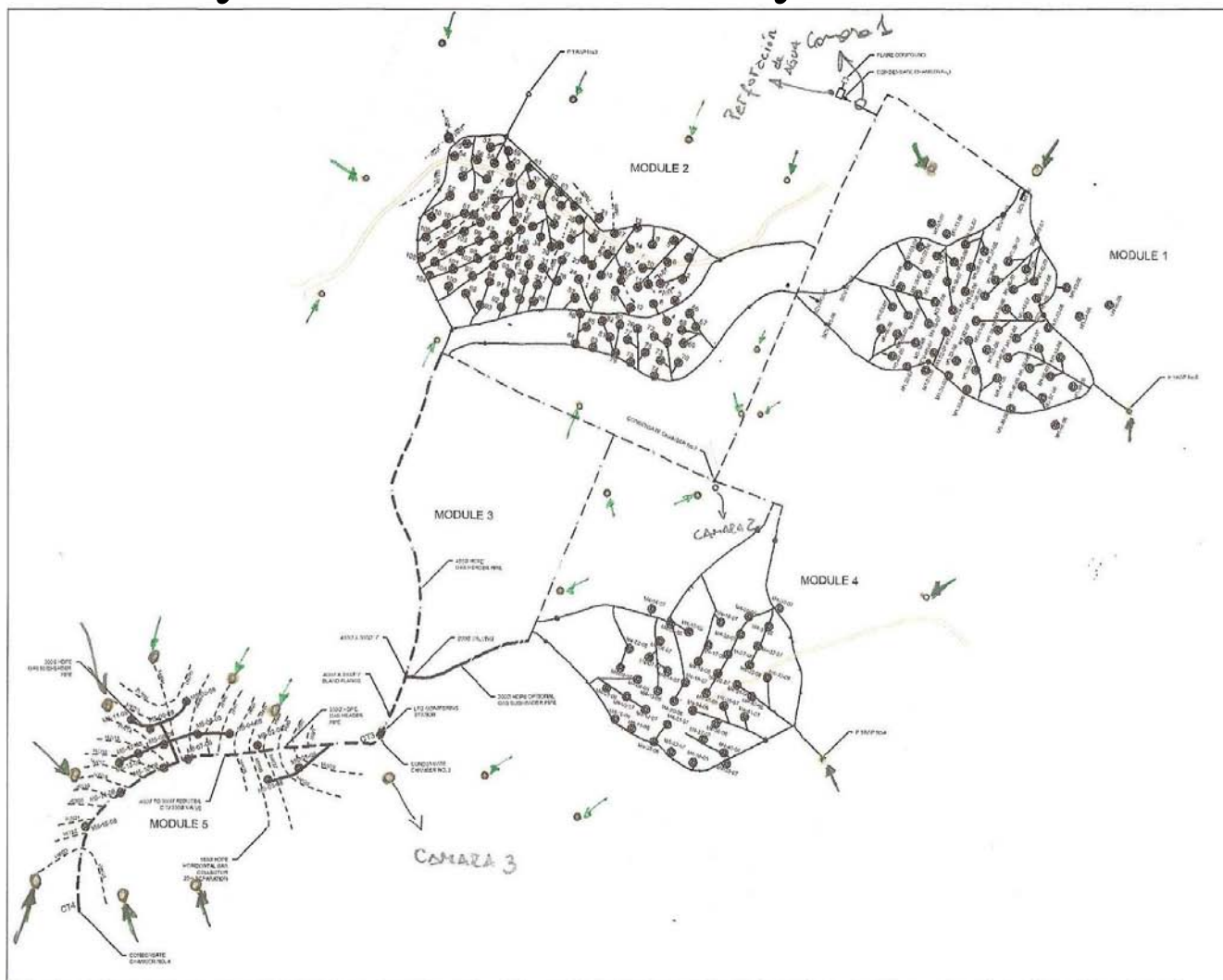
Technology Used

- a grid of vertical gas extraction wells and horizontal trenches within the landfill
- centralized blower system used to induce vacuum
- state-of-the-art high-efficiency enclosed flare

Technology Used

- Vertical gas extraction wells and horizontal trenches - connected to the blower system through a network of piping installed on and around the perimeter of the landfill
- Extraction wells are connected to the sub-header or directly to the header through smaller diameter laterals
- a vacuum is applied through the piping network - LFG out of the waste.

Layout of Collection System - Catán



NO	Revisión	Día	Año

1:1000

LEGENDA

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SCALE VERIFICATION

THIS DRAWING IS NOT TO BE USED FOR ANY OTHER PROJECT

DRAWING STATUS

NO	Revisión	Día	Año

RELLENO SANITARIO CATAN
BUENOS AIRES, ARGENTINA
SISTEMA DE RECOLECCION Y COMBUSTION DE BIOSGAS
CONCEPTUAL DESIGN
MODULO 5

CONESTOGA-ROVERS & ASSOCIATES

Project Design HAZENUS	Reference REVISION	Date FEBRUARY 2001
Scale 1:1000	Project No. 39415-C0	Stationing 019 Contour C-02

Technology Used

- Valves are used to control the flow
- Non-perforated LFG collection piping is utilized to convey the LFG from the extraction wells to the gas control plant at each Site
- Extracted LFG is sent to the enclosed flares for destruction of the methane component of the extracted LFG.

Technical Challenges during Project Implementation



➤ Limited cover system over the waste and the high leachate mound within the waste masses

Technical Challenges during Project Implementation



➤ High leachate mound levels, Catán

Technical Challenges during Project Implementation

- Engineering controls necessary for leachate and stormwater management



Limited access due to heavy storm

Technical Challenges during Project Implementation

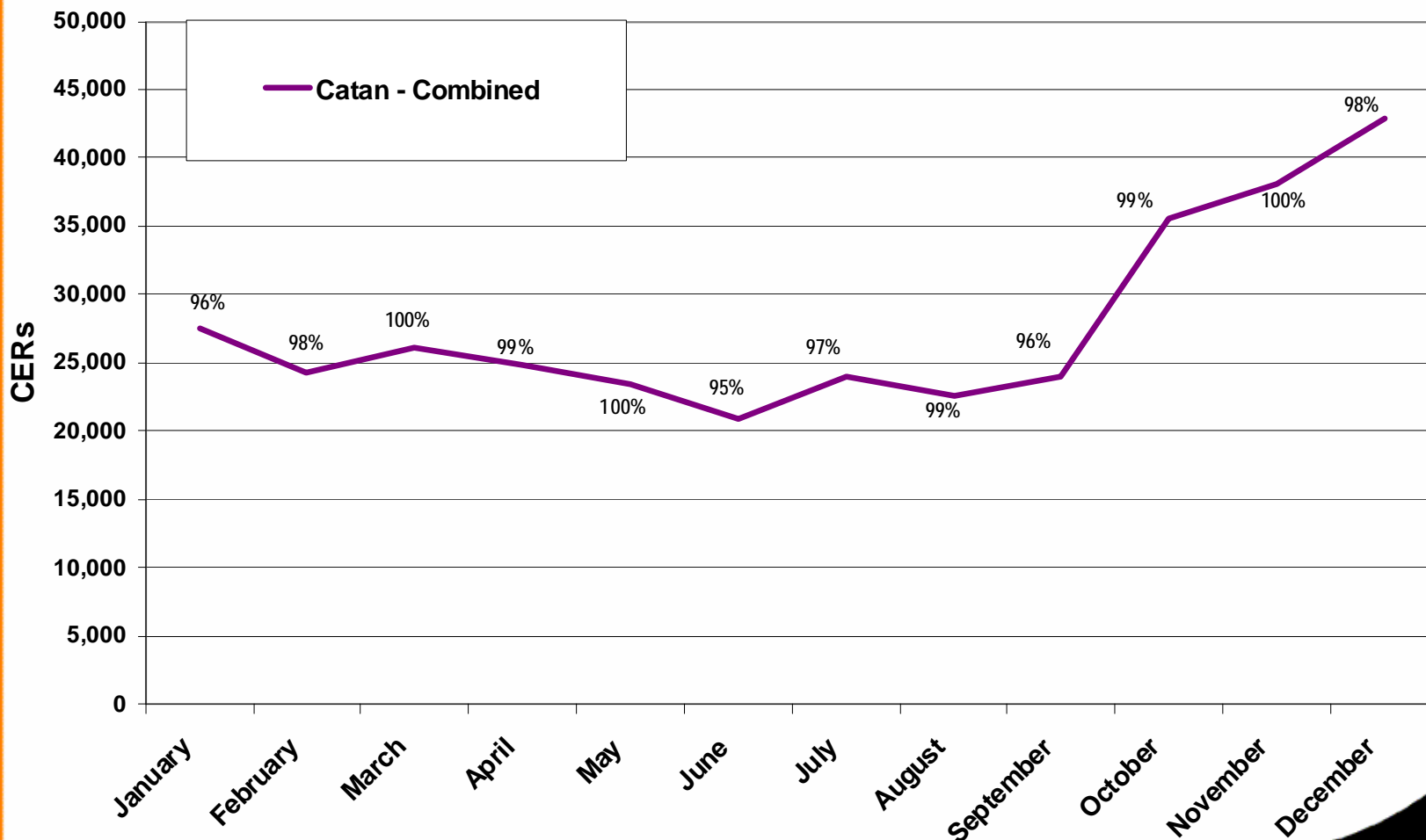


Cover over Module 2, Catán Landfill



Improvement on Credits Generation

2008 CERS and Monthly Average Run Time



Improvement on Credits Generation



Preparation of extended area – Module 5

Reasons

- Continue landfilling activities in modules

Improvement on Credits Generation

- Leachate control through deeper trenches draining towards the slope



Installation of deep trenches

Improvement on Credits Generation



- Installation in active areas making possible to collect LFG sooner

Conclusion

- care must be taken to understand the local challenges and inputs that could affect revenues and hinder the success of the project
- can become very rewarding and successful ventures
- offer many environmental benefits, which can foster technology transfer and support waste management systems development throughout the developing world