



Sindicatum
carbon capital



Landfill Gas to Energy

โครงการโรงไฟฟ้าจากก๊าซชีวภาพจากหลุมฝังกลบขยะ

25 February 2011

Agenda

- ✧ Who is SCC?
- ✧ What we do?
- ✧ SCC in Thailand
- ✧ Investment Criteria



SCC – A leading sustainable resources company



* **Established in 2005**

- Over 150 professionals in 10 countries
- Strong Asia focus; headquartered in Singapore

* **Principal investor and developer of clean energy projects**

- 3 core investment sectors: Landfill Gas-to-Energy, Coal Mine Methane, Agricultural Solutions

* **28 fully financed unlevered projects across key markets**

- China, India, South East Asia and USA

* **CDM Delivery**

- 5.5 million CERs sold to 2012
- 1.2 million CERs issued
- 800,000 VERs issued

* **5 Registered LFGE Projects**

- 13 total registered projects

Fully integrated business with diverse revenues

SCC is a principal developer, owner and operator of projects that produce clean energy and environmental commodities

*Clean Energy
Environmental Commodities*



Renewable Power 
Renewable Energy Certificates (“RECs”)
Carbon Credits 
Biomass as a resource 
Liquid bio-fuels 
“Green” Gas 
Water 

✦ **SCC provides in-house capital and expertise for its projects**

- Core team encompasses sector specific skills
- All 28 projects 100% equity funded

3 core sector specialisations

Landfill Gas-to-Energy

- **Activity:** Capture and combustion of methane gas
- **Geography:** US, China, South East Asia
- **Products:** Electricity & environmental commodities



Coal Mine Methane

- **Activity:** Mitigation of methane emissions from coal mines
- **Geography:** China and US (two largest global markets)
- **Products:** Electricity & environmental commodities



Agricultural Solutions

- **Activity:** Optimisation of agricultural waste
- **Geography:** South East Asia, India, China, US
- **Products:** Physical & environmental commodities



Others

- **Activity:** Diverse, includes energy efficiency, consulting, water, oil & gas, etc
- **Geography:** Global (all regions)
- **Products:** Electricity, natural gas, peat, water, environmental commodities



SCC in Thailand



- ✦ **Two existing VSPP landfill gas-to-energy projects (16 MW)**

- Already operational for 11 months

- ✦ **Project Milestones – Parallel Development**

Power Generation

- Mar 2008 MOU signed with Landfill Owner
- Jan 2009 PPA signed
- Apr 2009 Start Construction
- Dec 2009 Start Gas Flaring
- Mar 2010 COD first 2 MW
- Aug 2010 COD 9 MW
- Jun 2011 COD 14 MW
- End 2011 COD 16 MW

CDM

- Mar 2009 PDD
- Jul 2009 LoA
- Aug 2009 SGS Suspended
- Dec 2010 Completeness Check
- XX 2011 Registration with EB
- XX Issuance



Project Description



Installation of gas collection pipes



Collected landfill gas transported via carrier pipes to generation compound



Landfill Gas enters pre-treatment plant



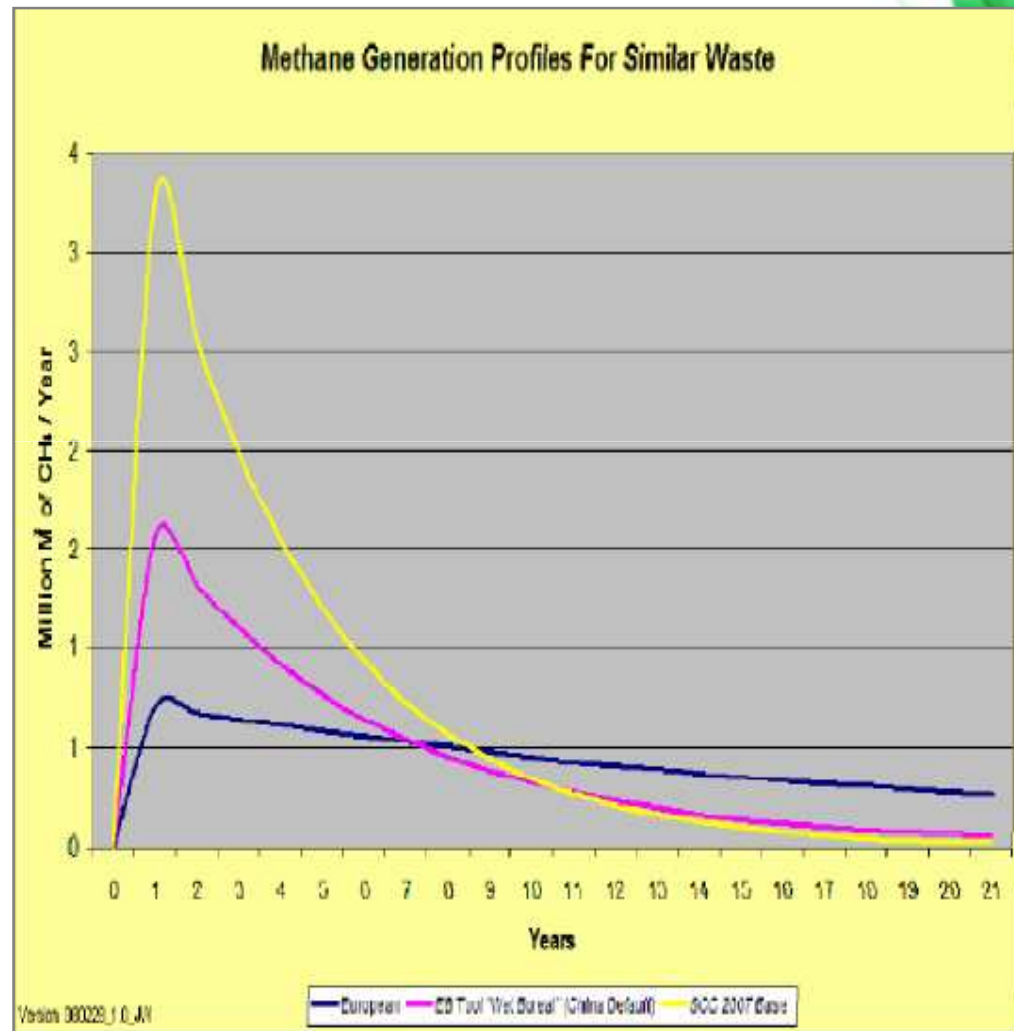
Gas not required for generation is flared



Electricity generated using GE 320 1063KW biogas engines

SCC SEA Asian Waste Management Solution

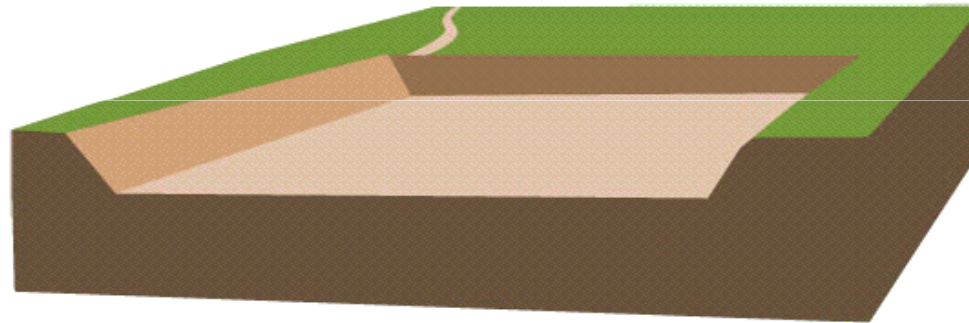
- * Waste biogas is generated rapidly in tropical conditions
- * Vital that waste characteristics are understood
- * Water management essential – storm water and water draining from the waste require control
- * Odors are minimised and gas collection are maximised by quickly collecting biogas
- * SCC's proprietary OBC System[®] can then be used



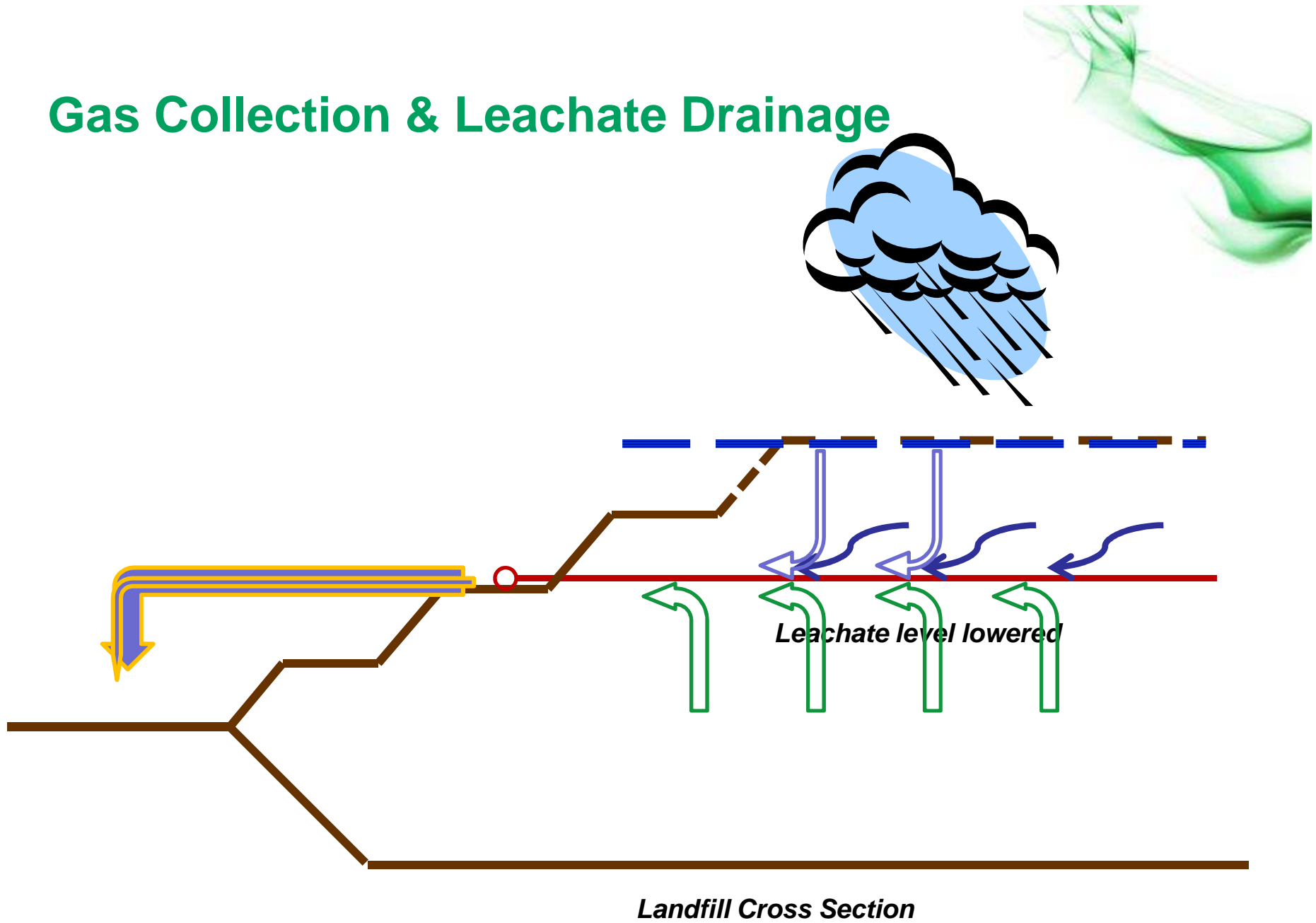
Tipping & Insertion of Wells



0 Months

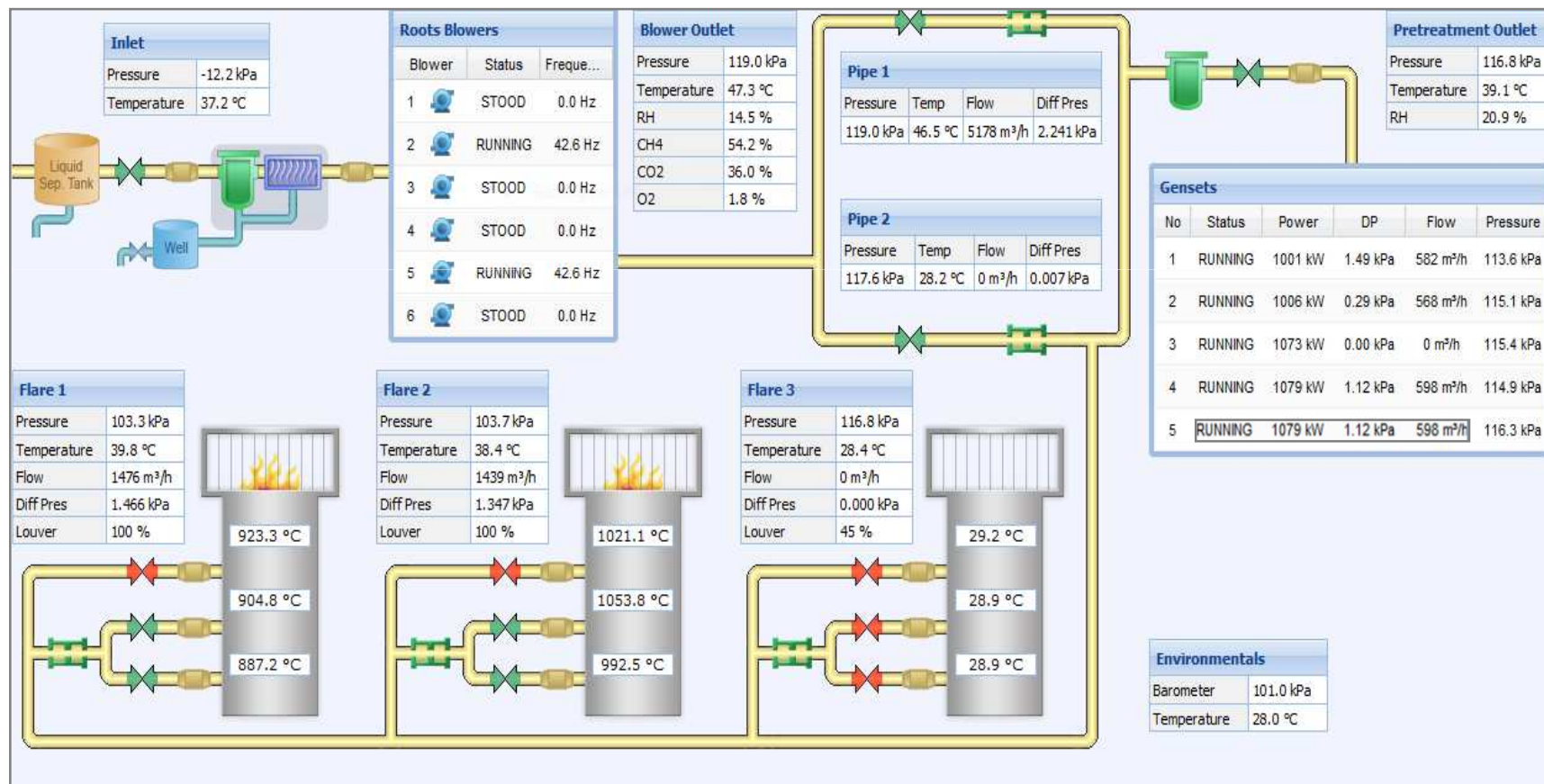


Gas Collection & Leachate Drainage

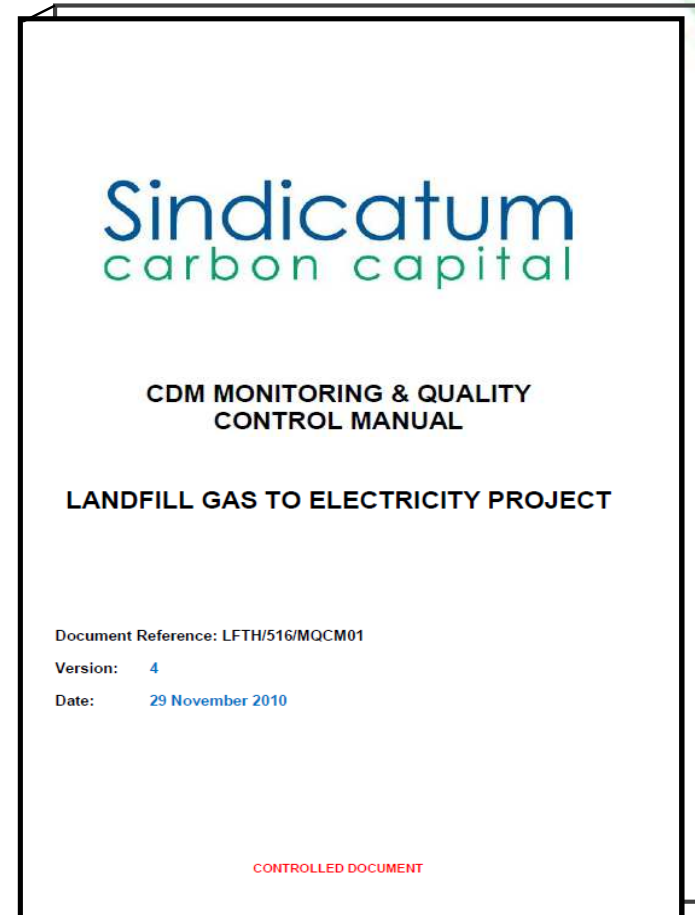
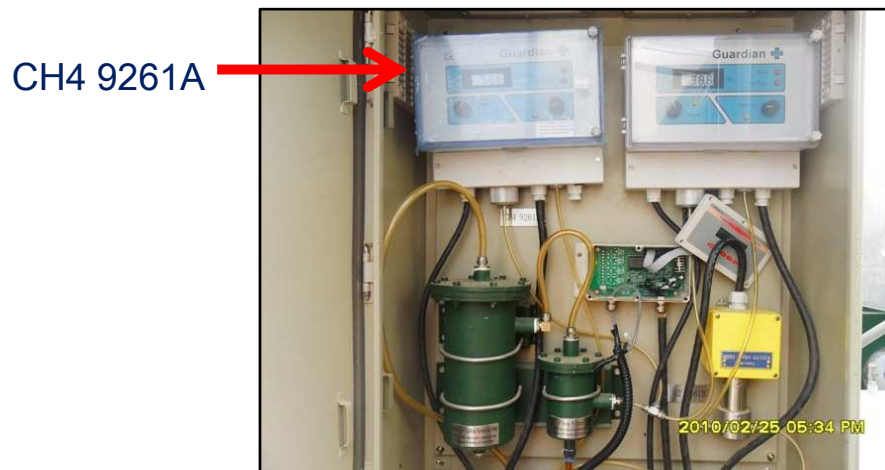
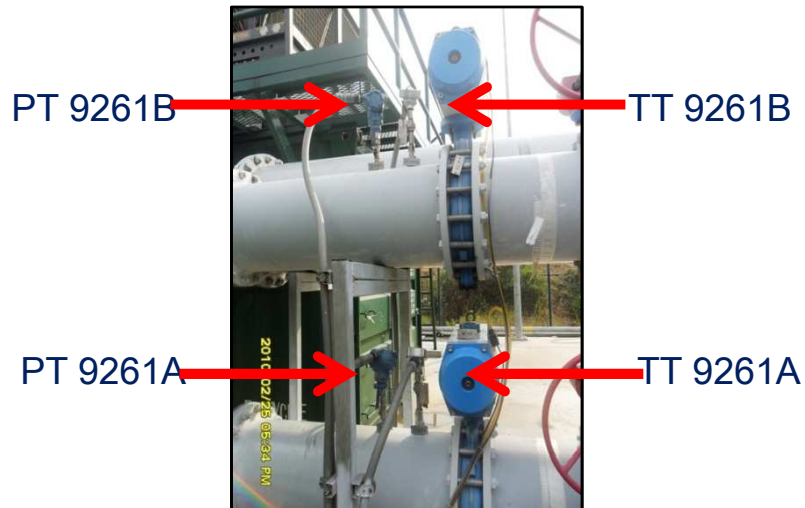


SCC Remote “Telgas” System

- Remote – online monitoring system which access to real time operation & CDM parameters of the project



Monitoring Manual



Investment Criteria – for Profitable LFGE



- ✧ **Key CDM conditions are met**
- ✧ **Waste delivery not less than xxx tpd for minimum YY years guaranteed**
- ✧ **Landfill operator is able to manage and adjust tipping plans to optimise gas collection**
- ✧ **Landfill operator tips and covers in the manner that ensures low water penetration**
- ✧ **Developer is granted a full and free access to the landfill area**
- ✧ **Developer is granted a registered title for power generation compound and also its right is recognised in the Landfill title**
- ✧ **Rights of gas developer contractually recognised by all relevant parties**



THANK YOU

ขอบคุณครับ

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