Projects to Reduce Emissions Palmerston North Awapuni Landfill Gas to Electricity Generation Project 2008 Annual Report Independent Verification Report

Project verified: Palmerston North Awapuni Landfill Gas to

Electricity Generation Project Palmerston North City Council

Philip Burt

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Independent verifier: Noim Uddin

DNV Certification Pty Ltd

Date of verification: 1-2/04/2009

PRE Project Information			
Name of Project: Palmerston North Awapuni Landfill Gas to Electricity Generation Project			
Project Site Address: Awapuni Ward, Palmerston	North City		
Name of Project Participant:			
Palmerston North City Council			
Name of Project contact:	Telephone:		
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Verification Team Members:			
Noel Peters (DNV Sydney) & Kakaraparthi Venkata Raman (DNV Bangalore)			
PRE Annual Report Verified			
Annual Report 2008			

1 Verification Statement

To:

Philip Burt
Services Engineer – Water & Waste
Palmerston North City Council
Palmerston North, New Zealand

1.1 Introduction

DNV Certification has been engaged by Palmerston North City Council (PP) on behalf of the Crown to undertake a verification of the Participant's Projects to Reduce Emissions (PRE Project) 2008 Annual Report (2008 Annual Report). The verification has been planned and performed in accordance with the Verification Plan of 30/03/2009 and our contract of 25/02/2009.

We have reviewed the nature of the *Palmerston North City Council Awapuni Landfill Gas to Electricity Project (PNCC LFG) 2008* Annual Report and have concluded that we are able to conduct a reasonable assurance verification of the criteria items directly related to operation of the project and limited assurance verification of the scope items which describe competence of the Project Participant and the interaction of the project with local regulatory authorities. We have indicated the relevant scope items in the Scope of Verification below.

1.2 Objective

The objective of the verification engagement is to form an opinion as to whether the *PNCC LFG 2008* Annual Report is prepared in accordance with the PRE Project Agreement between the Crown and the Project Participant (Project Agreement) and is free from material discrepancy.

1.3 Criteria

DNV Certification conducted sufficient verification procedures to enable us to express a reasonable assurance verification opinion on the following matters that, in all material respects:

- 1. The *PNCC LFG 2008* Annual Report includes the information detailed in Schedule 4 of the Project Agreement;
- 2. The recording and calculation of the emission reductions for the year uses the relevant (e.g., electricity) emission factors set out in Schedule 2 (or elsewhere as defined with another applicable Agreement);
- The calculation behind the Emission Units claimed for 2008, uses the net emission reduction and the request ratio ("C") set out in clause 5.1 of the Project Agreement;
- 4. If applicable: the construction emissions calculations uses (a) the emission factors set out in Schedule 2, and (b) the records of the quantities of materials, fuels, electricity purchased etc. relevant to emissions during construction;
- 5. Metering and recording equipment installed has been certified by an independent reputable quality assured service provider;

- 6. Any other (electricity, heat) generation, not part of the project, that flows through these meters has been identified, measured and subtracted from the gross total;
- 7. If applicable, records of emissions as a result of the operation of the project are fairly stated;
- 8. The participant has justified and documented any significant changes to the PRE project and its baseline scenario that lead to material change in the project's emissions, removals and emission reductions since the previous verification, and which affect the projects ability to conform to the principles, and requirements of the PRE project; and
- 9. Within the context of verification, any other requirement relating to the PRE project Agreement.

DNV Certification conducted sufficient verification procedures to enable us to express a limited assurance verification opinion on the following matter that, in all material respects:

- 10. The participant has adequate understanding of the principles and requirements of the PRE programme and is competent to conform to those principles and requirements; and
- 11. Compliance with the regulatory requirements of local and central government agencies.

1.4 Verification scope

The scope of verification of the PNCC LFG 2008 Annual Report is as follows:

1.4.1 GHG project and baseline scenarios relevant to the Project

The relevant project and baseline scenarios are as follows:

- 1. baseline scenario: business as usual electricity generation in New Zealand without electricity from PNCC LFG project; and
- 2. project scenario: PNCC LFG to electricity generation has been built as additional.

1.4.2 Physical infrastructure, activities, technologies and processes of the GHG project

The elements of the project subject to verification are as follows:

- 1. Physical infrastructure: rated capacity of the electricity generation unit, construction of the LFG collection facility, back-up LFG flaring facility, electricity supply network to the grid;
- 2. Project activities: destruction of LFG by flaring, electricity generation from LFG;
- 3. Technologies: gas-to-electricity conversion, treatment of LFG, flaring of LFG; and
- 4. Processes: collection of LFG, treatment of LFG, monitoring of LFG flow, supplying of electricity to the national grid, maintenance of metering, calibration and data archiving.

1.4.3 GHG sources, sinks and/or reservoirs included within the Project boundary

Project GHG sources, sinks and reservoirs within the Project boundary are:

- 1. GHG sources: CO₂ emission avoidance due to destruction of LFG, CO₂ emission avoidance due to switching electricity from the national grid, CO₂ emission due to import and use of electricity from the national grid, CO₂ emission due to construction and operation of the project. Although avoidance of CO₂ via replacing natural gas-based heat use was included in the Project Agreement, no heat (thermal energy) was produced from the gas-to-electricity generation system.
- 2. GHG sinks and GHG reservoirs are not applicable to this project.

1.4.4 Types of GHGs included within the project boundary

The GHG species included within the Project Agreement are:

- 1. CO₂ in respect to the destruction of LFG and avoidance via switching electricity from the national grid.
- 2. CH₄ in respect to capturing LFG and not vented to the atmosphere.
- 3. While N₂O, SF₆, PFCs, and CFCs are included in the Project Agreement, no such emissions were observed during audit of this PRE Project

1.4.5 Time period of the Annual Report

The verification is of all project activities in the period 1 January 2008 to 31 December 2008.

1.5 Verification Principles

DNV Certification conducted the verification in accordance with ISO 14065 and our contract with the *Crown* and the verification principles under clause 7 of the Project Agreement.

1.6 Project Participant's Responsibilities

The PP is responsible for preparing the *PNCC LFG 2008* Annual Report and maintaining an effective internal control environment and data management system, including control procedures supporting the inputs into this documentation, in accordance with accepted good practice.

1.7 Verifier Responsibilities

The verification has been conducted in accordance with ISO14064-3 and ISO14065 in order to provide a reasonable and limited level of assurance as described in the verification scope. As such *DNV Certification* has undertaken the following procedures that we considered appropriate to be able to provide a reasonable and limited level of assurance.

1.8 Verification Procedures

Our verification has been conducted in accordance with ISO14064-3 and ISO14065 to provide reasonable assurance that the greenhouse gas assertions and other information contained in the 2008 Annual Report is free from material misstatement. Accordingly, we have conducted such tests and procedures as we considered appropriate including:

- On-site visit at the PNCC LFG facility at Awapuni Ward, Palmerston North City Council, New Zealand to examining collection and destruction of LFG, generation of electricity from LFG, supply of electricity to the grid, on-site record keeping procedure, consumption of any other fossil fuels and electricity.
- Interviews with operational, management and record keeping personnel responsible for maintenance, operation, management and reporting at the facility.
- Review of key documents, including:
 - Projects to Reduce Emissions Agreement with the Crown dated 13 April 2004.
 - PNCC LFG 2008 Annual Report to be submitted to the Ministry for the Environment, New Zealand.
 - PNCC LFG 2008 Annual Report to be submitted to the Austrian CDM/JI Program.
- Random sample testing of source data, including:
 - Flow, pressure and temperature of LFG.
 - o Electricity generation, supply and import.
 - Any other fossil fuel consumption (LPG, diesel and petrol).
- Confirmation that the calculation methodology is in compliance with the Schedule 2 of the Project Agreement.
- Discussions with the relevant Ministry for the Environment personnel.
- Observation and review of relevant documentation.

The results of the verification procedures undertaken are set out in the appended Attachment 1 – Verification Checklist.

PNCC LFG personnel have overall responsibility for the project including maintenance and operational data management.

DNV Certification confirms that it is not aware of any actual or perceived conflict of interest in having completed this engagement.

1.9 Independent Review

DNV Certification has completed an independent review, undertaken by competent personnel who did not participate in the verification, to:

- confirm that all verification activities have been undertaken; and
- conclude whether or not the assertions in the PNCC LFG 2008 Annual Report are free from material discrepancy, and whether the verification activities provide a reasonable level of assurance and a limited level of assurance for the scope items nominated above.

In making this verification statement, we confirm that:

 DNV is currently accredited as a Designated Operational Entity (DOE) by the Conference of Parties as per the Ministry for the Environment requirements.

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- This verification has been conducted in accordance with the requirements of ISO 14064-3.
- The findings and conclusions documented in this report are guided by professional judgment and supported by verification records held by us.

1.10 Inherent Limitations

Because of the inherent limitations in any internal control environment and data management system, it is possible that fraud, error, or non-compliance with the Project Agreement may occur and may not be detected. Further, the verification was not designed to detect all weakness or errors in the internal control environment and data management system so far as they relate to the scope set out above, as the verification has not been performed continuously throughout the period and the procedures performed on the relevant internal information and data management system were on a test basis. Any extrapolation from this verification to future periods is subject to the risk that the procedures may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

DNV Certification did not conduct any verification procedures with respect to the internal control environment and data management system of the PP as a whole. As such, no assurance is provided on any internal control environment and data management system not associated with the PNCC LFG 2008 Annual Report.

The verification opinion expressed in this Report has been formed on the above basis.

1.11 Verification Opinion

Our opinion, following the reasonable assurance verification undertaken at *Palmerston North City* of the GHG assertions included in the *PNCC LFG 2008* Annual Report and the subsequent review of associated documents is that the following matter is fairly presented, in all material aspects, in accordance with the PRE requirements:

- 1. the 2008 Annual Report includes the information detailed in Schedule 4 of the Project Agreement;
- 2. the recording and calculation of the emission reductions for the year using the relevant emission factors set out in Schedule 2:
- the calculation behind the Emission Reduction Units claimed for 2008, using the net emission reduction and the request ratio ("C") set out in clause 5.1 of the Project Agreement;
- 4. the construction emissions calculation uses (a) the emissions factors set out in Schedule 2 of the project agreement, and (b) the records of the quantities of materials, fuels, electricity purchased etc. relevant to emissions during construction;
- 5. metering and recording equipment installed has been certified by an independent reputable quality assured service provider;
- 6. any other (electricity, heat) generation, not part of the project, that flows through these meters is identified, measured and subtracted;
- 7. records of emissions as a result of the PRE Project;
- 8. any significant changes to the PRE Project and its baseline scenario; and

9. within the context of verification, any other requirement relating to the Project Agreement.

1.12 Verification Opinion

In our opinion, nothing came to our attention during the limited assurance verification undertaken at *Palmerston North City* of the *PNCC LFG 2008* Annual Report and subsequent review of associated documents is that the assertion that the regulatory requirements of local and central government agencies have been met to indicate is not, in all material aspects, in accordance with the PRE Guidance requirements.

- 1. The Project Participant has adequate understanding of the principles and requirements of the PRE programme and is competent to perform those principles and requirements; and
- 2. Compliance with the regulatory requirements of local and central government agencies (including any requirement of environmental monitoring or reporting).

1.13 Suggestions

It is suggested that:

- PNCC LFG Project ensures maintaining compliance with the Resource Consent dated 19/07/2009 by the Horizons Regional Council as well as other compliance requirement by the local PNCC.
- PNCC ensures routine inspection of the LFG flow meter according to the warranty certificated dated 12/04/2006 by Instromet New Zealand Ltd.

1.14 Limitations on use

This Verification Statement has been prepared for the *Crown* solely for use in relation to the *Projects to Reduce Emissions* programme. The *DNV Certification* disclaims any liability for reliance upon this Report by any other party or for any other purpose other than for which it was prepared.

Name of Lead Verifier(s):	Noim Uddin & Chandrashekara Kumaraswamy
Position:	Noim Uddin, Lead Climate Change Verifier Chandrashekara Kumaraswamy, Regional Manager, Climate Change Services
Company and Location:	DNV Certification Pty Ltd, Sydney
Signature of Lead Verifier:	Mudd
Date:	28 July 2009
Name of Independent Reviewer(s)	Noel Peters (DNV Sydney) Kakaraparthi Venkata Raman (DNV Bangalore)
Signature of Independent Reviewer:	
Date:	28 July 2009

Attachment 1 - Verification Procedures and Findings

2 Attachment 1 – verification procedures and findings

Attachment 1 is a record of the verification procedures conducted in accordance with ISO 14064-3 and ISO 14065 and of the verification findings. The checklist is not a comprehensive description of all the verification procedures performed or all verification evidence obtained during the verification process, but is a fair presentation of the procedures and findings in sufficient detail to enable all findings (both positive and negative) to be verified.

Criteria Item 1 verified	The PNCC LFG 2008 Annual Report includes the information detailed in Schedule 4 of the Project Agreement.		
Description of requirement	That all of the information detailed in Schedule 4 of the Project Agreement for inclusion in the Annual Report has been included and is fairly stated.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Cross check of Annual Report information with the requirements documented in Schedule 4 of the Project Agreement.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.	The PNCC LFG 2008 Annual Report is in compliance with Schedule 4 of the Project Agreement. An alternative method was adopted as a proxy measure to estimate the amount of LFG (as tonnes of methane) combusted for the period 1 April to 31 May 2008.
Findings	Annual report has been completed according to the Schedule 4 of the Project Agreement. A proxy measure has been adopted in order to estimate the emission reduction units for the period 1 April to 31 May 2008.		
	The PNCC LFG 2008 Annual Report was sighted during this review and the required items checked against Schedule 4 of the Project Agreement (Contents of Annual Reports), these being:		
	total LFG (methane) combusted: 1641.9 tonnes (p2) of		

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Conclusion	All of the information detailed in Schedule 4 of the Project Agreement has been included and is fairly stated.	
	Calculation of tonnes CO ₂ -e emission units calculated in accordance to the methodology from Schedule 2 of the Project Agreement. The calculation is documented in p3 of the 2008 Annual Report.	
	total electricity imported/purchased: 0.314 GWh	
	total electricity generated: 7.665 GWh	
	the Report	

Criteria Item 2 verified	The recording and calculation of the emission reductions for the year uses the relevant (e.g., electricity) emission factors set out in Schedule 2 (or as otherwise defined).		
Description of requirement	That the emission factors used in the Annual Report are the same as those in Schedule 2 (or as otherwise defined) of the Project Agreement, and that the mathematical calculation of emission reductions using the emission factors and project activity parameters are fairly stated		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Cross check of emission factors used in the emission reduction calculation with the emission factors in Schedule 2 (or as otherwise defined) of the Project Agreement.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.	The relevant emission factors have been correctly applied in accordance with Schedule 2 – Measurement of Emission Reductions.
	Emission factors not included in Schedule 2 are from properly authorised sources or are based on test results from properly accredited laboratories.	Not applicable	Not applicable as no emission factors were used other than in Schedule 2.
	Confirmation that the measurement of project activity parameters has been properly undertaken.	Project operational control documents including: • methane flow and methane	All project activity parameters are monitored and reported. LFG (methane) flow is measured by an

			adopted to estimate the emission reductions.
	Confirmation that the measured project activity parameters have been accurately transcribed to the Annual Report.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.	The measured project activity parameters have been accurately transcribed in the Annual Report.
	Confirmation by alternate or check calculation that the determination of emission reductions is fairly stated.	Spreadsheet Emission Reduction Calcs 2008.xls	The total emission reductions calculation was checked and found to be fairly stated.
Findings	The relevant emission factors have been correctly applied in accordance with Schedule 2 –Measurement of Emission Reductions. The emission factor used in the Annual Report are:		
	• Electricity – 6	00 tonnes CO ₂ e/GWh	
	• Diesel – 0.002	2617 tonnes CO₂e/litre	,
	 Petrol – 0.002298 tonnes CO₂e/litre 		
	A proxy measure has been adopted by PNCC to estimate the emission reductions. This was due to a software fault between the generator site and the Wastewater Treatment Plant data storehouse which resulted in no gas flow data being recorded accurately during April and May 2008.		
Conclusion	PNCC shall continue to monitor all project activity parameters.		
	It is recommended that an alarming response back system be installed in order to notify the Data Monitoring Personnel in the event that there is a data recording error.		

Provision of a back-up monitoring and recording facility shall be considered.

Criteria Item 3 verified	The calculation behind the Emission Units claimed for 2008 uses the net emission reduction and the request ratio ("C") set out in clause 5.1 of the Project Agreement.		
Description of requirement	That the calculation of Emission Units properly uses the net emission reduction calculated for the year 2008 taking due account of the request ratio ("C") set in Clause 5.1 of the Project Agreement.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Confirm that the calculation takes proper account of the request ratio.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.	The correct request ratio (C=1) has been used to estimate 2008 emission unit claims.
	Confirm that the calculation of Emission units is based on net emission reductions.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand.	The calculation of the emission units is based on net emission reductions.

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	Austrian CDM/JI Program.
Findings	Request ratio (C=1) has been applied correctly.
Conclusion	Request ratio (C=1) was used as defined in the Project Agreement.

Criteria Item 4 verified	If applicable: the construction emissions calculations uses (a) the emission factors set out in Schedule 2 (or as defined elsewhere), and (b) the records of the quantities of materials, fuels, electricity purchased etc. relevant to emissions during construction.		
Description of requirement	That calculation of construction emissions uses the emission factors set out in Schedule 2 (or as defined elsewhere) and measured quantities of construction materials, accurately transcribed to the Annual Report.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Confirm that the calculation uses the correct emission factors.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.	Since the construction and commissioning of the project activity occurred in 2005-2006 and not during the 2008 reporting period, construction is not applicable during this verification.
	Confirmation that all appropriate construction materials have been included.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008	Not applicable as the construction of the project occurred in 2005- 2006 and not during the 2008 reporting period.

	Annual Report prepared for the Austrian CDM/JI Program.	
Review of the record keeping arrangements to confirm that the measured quantities of construction materials are a fai presentation of actual usage.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.	Not applicable as the construction of the project occurred in 2005-2006 and not during the 2008 reporting period.
The exercise of professional judgement in relation to whethe the claimed quantity of construction materials was reasonable.	Project Agreement dated 13 April 2004. The Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.	The construction of the project occurred in 2005-2006 and not during the 2008 reporting period.

	Alternate calculations and cross checks to confirm that the calculation of construction emissions is fairly presented.	PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.	The construction of the project occurred in 2005- 2006 and not during the 2008 reporting period.	
Findings	By 2008, the year under verification all construction and commissioning activity had been completed and there were no construction emissions.			
Conclusion	This is, in the opinion of the verifier, reasonable for this facility.			

Criteria Item 5 verified	Metering and recording equipment installed has been certified by an independent reputable quality assured service provider.				
Description of requirement	That the metering and recording equipment installed has been certified by an independent reputable quality assured service provider.				
Verification procedures	Verification item	Information Source/Evidence	Comments		
	Examination of calibration and maintenance certificates to ensure that they are current.	Site visit during 1-2 April 2009 Calibration certificates: Export meter (serial no. 334950848) Installation Certificate No. 33815M dated 23 June 2006 (valid until 18 October 2015 by TSL E&T Meter Test House). Export/import electricity meter Installation Certificate No CERT-2007-9 (valid until 30 August 2011) by AccuCal. Gas flow meter Installation Certificate dated 12 April 2006 by Instromet New Zealand Ltd. Gas Composition meter (CH4%) Test Certificate No 8770 dated 4 November 2008 (valid until May 2009) by Drager Service. Genset DEUTZ TCG 2020 V12	Both export meter and export/import electricity meter calibration certificates are maintained and were found valid during the 2008 monitoring period. The gas flow meter installation certificate was examined and it was found that Instromet recommends a routine inspection after two to three years of installation. The first routine inspection is due during or before next periodic verification. The gas composition meter certificate was examined and was valid during the monitoring period 2008. ENGERGEN as owner of the Genset ensures engine maintenance as per schedule.		

		Engine	
		Maintenance Schedule.	
	Examination of installed instruments to confirm that the installed instruments are those covered by the calibration certificates.	Site visit during 1-2 April 2009 Calibration certificates: Export meter (serial no. 334950848) Installation Certificate No. 33815M dated 23 June 2006 (valid until 18 October 2015 by TSL E&T Meter Test House).	Installed electricity meters and gas flow measurement meter were examined and it was found that the installed instruments are covered by the calibration certificates.
		Export/import electricity meter Installation Certificate No CERT-2007-9 (valid until 30 August 2011) by AccuCal.	
		Gas flow meter: Installation Certificate dated 12 April 2006 by Instromet New Zealand Ltd.	
		Genset DEUTZ TCG 2020 V12 Engine Maintenance Schedule.	
	Confirmation that the calibration agency is appropriately qualified and accredited for the instruments which have been	Agency Accreditation scope	TSL E&T Meter Test House is an accredited test house under the Electricity Commission. AccuCal is a
	calibrated.		registered electricity meter test service
DDC Draggerone a Indone	andont Marification Depart f	or Palmerston North City Co	ouncil Awapuni 22

			provider under the Electricity Commission.
Findings	The metering and recording equipment installed at the PNCC LFG was found to be appropriate for its purpose and appeared to be in good operating conditions.		
Conclusion	certificates are maint	on, maintenance and in ained by PNCC LFG.	

Criteria Item 6 verified	Any other (electricity, heat) generation, not part of the project, that flows through these meters is identified, measured and subtracted from the gross total.				
Description of requirement	That any other (electricity, heat) generation, not part of the project, that flows through these meters is indentified, measured and subtracted fro the gross total and fairly stated.				
Verification procedures	Verification item	Information Source/Evidence	Comments		
	Review of the process and instrumentation diagram of the project to confirm the presence or absence of other energy flows through the project metering installation.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program. Site visit during 1-2 April 2009. Project Design Documents V6, 8 April 2005. PNCC Landfill	PNCC LFG gas-to- electricity generation facility generates electricity for on-site consumption (Waste Water Treatment Plant and Recycle Plant) and to supply excess electricity to the national grid. PNCC purchases electricity from the Mighty River Power (which is not part of the project) and flows through the export/import meter and is appropriately accounted for. There is no additional energy (electricity or gas) flow through the project metering		
		Generation and Waste Water Treatment Plant 11kV System Diagram dated 30 January 2009 by Power Distribution Solutions Ltd (PDS). Electricity import	installation other than those identified in the project boundary. The electricity meters are not shared with any other electricity generation facility.		

	Mighty River Power Ltd (Mercury Energy).	
Consideration of the nature and design of the project.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005.	PNCC LFG only generates electricity from captured LFG and supplies excess energy to the national grid.
	PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program. Site visit during 1-2 April 2009. Project Design Documents V6, 8 April 2005.	Although, thermal energy generation is included in the Project Design Document and PRE Project Agreement, at present only electricity is produced from the gas-to-electricity conversion facility and there is no facility for generating thermal energy. Monitoring of total generated and exported electricity is included for the 2008 monitoring and reporting period.
Review of the record keeping process to confirm that the metered data is accurately measured and recorded.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI	PNCC purchases electricity from the national grid (which is not part of the project) and flows through the export/import meter and is appropriately accounted for. The imported electricity data were cross checked with statement from Mighty River Power Ltd (Mercury Energy) and was found to be

	Program.	consistent.
	Site visit during 1-2 April 2009.	
	Project Design Documents V6, 8 April 2005.	
	Electricity import statement from Mighty River Power Ltd.	
Review of the metering arrangements to	Project Agreement dated 13 April 2004.	PNCC purchases electricity from the national grid (which
confirm that the measurements of other energy flows truly represent	Amendment Project Agreement dated 3 March 2005.	is not part of the project) and flows through the export/import meter
those flows.	PNCC LFG 2008 Annual Report prepared for the	and is appropriately accounted for.
	Ministry for the Environment, New Zealand.	There is no additional energy flow through the project metering
	PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.	installation other than those identified in the project boundary.
	Site visit during 1-2 April 2009.	Electricity meters are not shared with any other electricity
	Project Design Documents V6, 8 April 2005.	generation facility.
	PNCC Landfill Generation and Waste Water Treatment Plant 11kV System Diagram dated 30	
	January 2009 by Power Distribution Solutions Ltd (PDS).	

	Review of the energy calculation methodology to confirm that any other energy flows have been correctly subtracted and that the final result truly reflects the net energy flow attributable to the project.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program. Site visit during 1-2 April 2009. Project Design Documents V6, 8 April 2005.	A review of the energy calculation methodology has been performed and confirms that imported electricity has been subtracted. The net electricity export truly reflects the net energy flow attributable to the project activity.	
Findings	the project that flows Imported electricity w export/import meter.	(electricity, heat) requithrough the electricity as monitored and reconstruly reflects the neigect activity.	meter was identified. rded correctly via	
Conclusion	The energy calculation method was reviewed and import electricity flows due to purchase by PNCC has been subtracted from the total electricity exported to the national grid. The final result truly reflects the net electricity export attributable to the project.			

Criteria Item 7 verified	If applicable, the record of emissions as a result of the operation of the project is fairly stated				
Description of requirement	That the record of emissions as a result of operation of the project is fairly stated.				
Verification procedures	Verification item	Information Source/Evidence	Comments		
	Confirm that the calculation uses the correct emission factors.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005.	All emissions factors used in the emission reduction calculation are sourced from Schedule 2 of the Project Agreement.		
		PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand.			
		PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program.			
		Project Design Documents V6, 8 April 2005.			
	Confirmation that all appropriate operational activities	Project Agreement dated 13 April 2004.	Operational activities and metering include:		
have been included.	Amendment Project Agreement dated 3 March 2005.	Amount of LFG collected from the project wells (currently not)			
		PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand.	 Methane fraction in the LFG by a gas composition is monitored and 		
		PNCC LFG 2008 Annual Report	data are recorded by gas composition		

	prepared for the Austrian CDM/JI		meter.
	Program.	•	Amount of LFG
	Project Design		used for electricity
	Documents V6, 8		generation is
	April 2005.		monitored and data are
	Site visit during 1-		recorded by gas
	2 April 2009.		flow meter.
		•	Amount of LFG
			flared via the back-up flare
			(currently not
			monitored).
		•	Amount of
			electricity generated is
			monitored and
			data are recorded by an
			export meter.
		•	Combustion
			efficiency is monitored and is
			maintained by
			the engine
			supplier ENERGEN.
		•	Heat rate of
		•	generator
			(currently not
			monitored).
		•	LFG temperature and
			pressure are
			monitored and recorded by gas
			composition
			meter.
		•	Amount of LFG
			flared (currently not monitored).
			,
		•	Back up flare working hours
			(currently not
			-

	monitored).
	 Flare temperature (currently not monitored).
	Engine exhaust gases (currently not monitored).
	 Diesel and petrol use during the operation of the project is estimated.
	Amount of LFG flared, flare working hours and flare temperatures are not included in the project boundary.
	While monitoring and reporting of engine exhaust gases are not required as per PRE project Agreement, PNCC is yet to conform Regulatory Requirements with regard to discharge limits.
	Amount of diesel and petrol used are estimated and account for less than 1% of total greenhouse gas emission and in the opinion of the verifier is immaterial.

Review of the record keeping arrangements to confirm that the measured quantities of operational materials are a fair presentation of actual usage.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program. Project Design Documents V6, 8 April 2005. Spreadsheet Emission Reduction Calc. 2008.xls Site visit during 1- 2 April 2009.	Operational data (LFG consumption for electricity generation and gas composition) are monitored and maintained in a SQL central database. Data are transferred from the PNCC LFG facility to the SQL database located at Waste Water Treatment Plant. Electricity generation data are obtained via an online data source linked to the export/import meter. Electricity import data are obtained from export/import meter and are cross checked with statement from the Mighty River Power Ltd (Mercury Energy). All data are inserted into an emission reduction spreadsheet with active emission reduction calculation equations.
The exercise of professional judgement in relation to whether the claimed quantity of operational materials was reasonable.	PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI	All monitoring data records are kept electronically with a back up in the main server and archived accordingly. In the opinion of the verifier the data is a fair presentation of actual destruction of LFG, generation of

		Program. Project Design Documents V6, 8 April 2005. Spreadsheet Emission Reduction Calcs 2008.xls Site visit during 1- 2 April 2009.	electricity and use of other fossil fuels.
	Alternate calculations and cross checks to confirm that the calculation of operation emissions is fairly presented.	PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program. Project Design Documents V6, 8 April 2005. Spreadsheet Emission Reduction Calcs 2008.xls Site visit during 1- 2 April 2009.	Cross checking of sample raw data with the emission reduction calculation spreadsheet was performed. An alternative method was adopted to estimate emission reduction occurred during the period from 1 April to 31 May 2008. The verifier found that the calculation of emission reduction is fairly presented.
Findings	All operational activitie reduction calculation. To found to be satisfactory	The record keeping a	rrangement was
Conclusion	The record of emission project is fairly stated.	ns as a result of the o	peration of the

Criteria Item 8 verified Description of	The participant has justified and documented any significant changes to the PRE project and its baseline scenario that lead to material change in the project's emissions, removals and emission reductions since the previous verification, and which affect the projects ability to conform to the principles, and requirements of the PRE project.		
requirement		require verification ar	ated to the PRE Project nd verify those
Verification procedures	Verification item	Information Source/Evidence	Comments
	Availability of LFG to generate electricity.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program. Site visit during 1- 2 April 2009. Project Design Documents V6, 8 April 2005.	The PNCC LFG facility has been built at the Awapuni Landfill site that does not accept any new waste. Generation of electricity was reduced due to a decline in gas quantity/quality at the end of 2008. This is due to insufficient clay capping over part of the closed landfill and less than the optimum number of gas wells. Under stage 1 extension, installation of eight gas wells has been completed. Under stage 2 extension, installation of three out of six gas wells has been completed. PNCC is in the process of installing a second gas-to-electricity generation facility.

Findings	Currently PNCC LFG facility captures and uses landfill gas to generate electricity and the project activity is additional.
Conclusion	Currently there are no changes to the PRE project and its baseline remains same. Addition of a second Genset is currently under progress.
	Addition of a second Gensel is currently under progress.

Criteria Item 9 verified	Within the context of verification, any other requirement relating to the PRE project Agreement.		
Description of requirement	Identify any additional requirements related to the PRE Project Agreement which require verification and verify those requirements		
Verification procedures	Verification item	Information Source/Evidence	Comments
	The procedures are to be established by the Verifier based on professional judgement.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program. Site visit during 1- 2 April 2009. Project Design Documents V6, 8 April 2005.	All PRE project Agreement requirements have been met. Currently the project generates electricity for on-site consumption and excess electricity exported to the national grid. Currently no thermal energy (heat) is generated from the facility for on-site use or for export.
Findings	All requirements under the PRE Project Agreement are met.		
Conclusion	There are no other requirements relating to the PRE Project Agreement that have not been met.		

Criteria Item 10 verified	The participant has adequate understanding of the principles and requirements of the PRE programme and is competent to conform to those principles and requirements. Identify any additional requirements related to the PRE Project Agreement which require verification and verify those requirements		
Description of requirement			
Verification procedures	Verification item	Information Source/Evidence	Comments
	The procedures are to be established by the Verifier based on professional judgement.	Project Agreement dated 13 April 2004. Amendment Project Agreement dated 3 March 2005. PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment, New Zealand. PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program. Site visit during 1- 2 April 2009. Project Design Documents V6, 8 April 2005.	During the on-site visit interviews were held with Phillip Burt, Water & Waste Services Engineer, PNCC Chris Pepper, Water & Waste Services Manager, PNCC Natasha Simmons, Water & Waste Planning Engineer, PNCC Andrew Slack, Director, TBL Solutions Mr. Burt has been responsible for the operation, maintenance and monitoring of the Project since its inception in 2005. He has a very good understanding of LFG management and the gas-to-electricity facility. Mr. Pepper has been responsible for the project establishment since 2004. He has a comprehensive

			understanding of LFG management. Ms Simmons has been responsible for ensuring compliance to the requirements of local and regional governments.
			Mr Slack has been a carbon trading adviser and has a good understanding of LFG management.
			All project personnel are competent to conform to the PRE requirements.
Findings	Project personnel and monitoring personnel have a deep understanding of the PRE project and its requirement.		
Conclusion	It is the opinion of the verifier that the participant has an adequate understanding of the principles and requirements of the PRE programme and is competent to conform to those principles and requirements.		

That nothing came to the notice of the verifier to indicate that the project was not compliant with the regulatory requirements of local and central government agencies. Verification procedures	Criteria Item 11 verified	Compliance with the regulatory requirements of local and central government agencies.		
Review compliance conditions made within the Resource Consent or other regulatory approvals. Resource Consent Nos 103661 and 103790 – Discharge Permits – PNCC LFG, dated 19 July 2006. The following conditions were the basis for issuing a Resource Consent that: The activities will have minor actual or potential adverse effects on the environment. The activities are not contrary to any relevant plans or policies. The activities are consistent with purpose and principles of the Resource Management Act 1991. PNCC personnel have confirmed that the Project meets all the requirements as	-	the project was not compliant with the regulatory requirements		
conditions made within the Resource Consent or other regulatory approvals. Consent Nos 103790 – Discharge Permits – PNCC LFG, dated 19 July 2006. The following conditions were the basis for issuing a Resource Consent that: The activities will have minor actual or potential adverse effects on the environment. The activities are not contrary to any relevant plans or policies. The activities are consistent with purpose and principles of the Resource Management Act 1991. PNCC personnel have confirmed that the Project meets all the requirements as		Verification item		Comments
Decision Clauses 1, 2, 3, and 4. According to the		conditions made within the Resource Consent or other regulatory	Consent Nos 103661 and 103790 – Discharge Permits – PNCC LFG, dated 19	has been granted to PNCC with a term of 25 years Discharge Permits 103661 and 103790. The following conditions were the basis for issuing a Resource Consent that: • The activities will have minor actual or potential adverse effects on the environment. • The activities are not contrary to any relevant plans or policies. • The activities are consistent with purpose and principles of the Resource Management Act 1991. PNCC personnel have confirmed that the Project meets all the requirements as specified under The Decision Clauses 1, 2, 3, and 4.

Resource Consent requirements as specified under the Decision Clause 5, 6, and 10:

- The gas combustion engine shall be tuned at least once annually in the period between 1 July and 30 June of each year commencing 1 July 2006 – 30 June 2007.
- PNCC shall submit an annual report including operational efficiency for energy generation and emissions by 30 July of each year, commencing 30 July 2007.
- The Permit Holder shall ensure that the opacity of the emission from the discharge from the gas-to-electricity (cogeneration plant) is not darker than the Ringelmann Shade 1 as determined in accordance with the New Zealand standard NZS 5201:1973.

It is found that the gas combustion engine has not been tuned since installation. However, ENERGEN, the gas

			combustion engine supplier maintains the engine according to the Engine Maintenance Schedule. PNCC is yet to submit an annual report including operational efficiency for energy generation and emissions. Currently PNCC does not monitor engine exhaust emissions. According to the Resource Consent requirements as specified under the Decision Clause 11: The Manawatu-Wanganui Regional Council,
			of the Act, may initiate a review of all conditions of the permit in the month of August 2007, 2008, 2009, 2010, 2015, 2020, 2025, and 2030.
			It is found that no such initiative has been taken by the Manawatu-Wanganui Regional Council.
	Review correspondence between the local authorities and the project operator to evaluate compliance with	Resource Consent Nos 103661 and 103790 – Discharge Permits – PNCC LFG, dated 19	Resource Consent has been granted to PNCC with a term of 25 years Discharge Permits 103661 and 103790. Following conditions
DDC Draggerone Indones	dent Verification Report for	, Palmaratan North City (

requirements.	July 2006.	were the basis for issuing a Resource Consent that:
		The activities will have minor actual or potential adverse effects on the environment.
		 The activities are not contrary to any relevant plans or policies.
		 The activities are consistent with purpose and principles of the Resource Management Act 1991.
		PNCC personnel have confirmed that it meets all the requirements as specified under The Decision Clauses 1, 2, 3, and 4.
		According to the Resource Consent requirements as specified under the Decision Clause 5, 6, and 10:
		• The gas combustion engine shall be tuned at least once annually in the period between 1 July and 30 June of each year commencing 1 July 2006 – 30 June 2007.
		 PNCC shall submit an annual report including

	operational
	efficiency for
	energy generation
	and emissions by
	30 July of each
	year, commencing
	30 July 2007.
,	The Permit Holder
	chall angura that

• The Permit Holder shall ensure that the opacity of the emission from the discharge from the gas-to-electricity (cogeneration plant) is not darker than the Ringelmann Shade 1 as determined in accordance with the New Zealand standard 5201:1973.

It is found that the gas combustion engine has not been tuned since installation. However, ENERGEN, the gas combustion engine supplier maintains the engine according to the Engine Maintenance Schedule.

PNCC is yet to submit annual report including operational efficiency for energy generation and emissions.

Currently PNCC does not monitor engine exhaust emissions.

According to the Resource Consent requirements as

		specified under the Decision Clause 11: • The Manawatu-Wanganui Regional Council, under section 128 of the Act, may initiate a review of all conditions of the permit in the month of August 2007, 2008, 2009, 2010, 2015, 2020, 2025, and 2030. It is found that no such initiative has been taken by the Manawatu-Wanganui Regional
Review the activities at the site to confirm that the project arrangements are generally compliant with regulatory requirements.	Resource Consent Nos 103661 and 103790 – Discharge Permits – PNCC LFG, dated 19 July 2006. Site visit during 1-2 April 2009.	It was observed during the site visit that the project arrangements are generally compliant with regulatory requirements as specified in the Resource Consent Decision 1, 2, 3, 4, 8, and 9. PNCC is yet to conform to the requirements as specified in the Resource Consent Decision 5, 6, 10 and 11.
Confirm that project monitoring includes relevant regulatory and compliance conditions.	Resource Consent Nos 103661 and 103790 – Discharge Permits – PNCC LFG, dated 19 July 2006. Site visit during	PNCC is yet to conform to the requirements as specified in the Resource Consent The Decision 5, 6 and 11.

		1-2 April 2009.	
Findings	Permits – PNCC LFG It was observed durin arrangements are ger requirements as specific Decision 1, 2, 3, 4, 8 PNCC is yet to conformal processing the process of the proc	Resource Consent Nos 103661 and 103790 – Discharge Permits – PNCC LFG, dated 19 July 2006. It was observed during the site visit that the project arrangements are generally compliant with regulatory requirements as specified in the Resource Consent the Decision 1, 2, 3, 4, 8 and 9. PNCC is yet to conform to the requirements as specified in the Resource Consent the Decision 5, 6, 10 and 11.	
Conclusion	PNCC LFG as a PRE Project is in compliance with the general regulatory requirements of local and regional government. PNCC is yet to conform to the requirements as specified in the Resource Consent The Decision 5, 6, 10 and 11.		

3 Documents Reviewed	4 Please include author, date prepared and date reviewed by Verifier
PNCC LFG 2008 Annual Report prepared for the Ministry for the Environment	Phil Burt, prepared in March 2009, verified in April 2009
PNCC LFG 2008 Annual Report prepared for the Austrian CDM/JI Program	Phil Burt, prepared in March 2009, verified in April 2009
Project Agreement	The Crown, dated 13 April 2004, verified in April 2009
Amendment Project Agreement	The Crown, dated 3 March 2005, verified in April 2009
Project Design Document Version 6	PNCC, dated 8 April 2005, verified in April 2009
Electricity import statement from Mighty River Power Ltd (Mercury Energy)	Mighty River Power, prepared in April 2009, verified in May 2009
Spreadsheet Emission Reduction Calcs 2008.xls	Phil Burt, prepared in April 2009, verified in April 2009

5 Site Visit location	6 Address, date of visit, personnel interviewed
Palmerston North City Council and Awanpuni Landfill Site	Address: The Square, Palmerston North, New Zealand
	Date of visit: 1-2 April 2009
	Personnel interviewed:
	Phil Burt, Water & Waste Services Engineer, PNCC
	Chris Pepper, Water & Waste Services Manager, PNCC
	Natasha Simmons, Water & Waste Planning Engineer, PNCC
	Andrew Slack, Director, TBL Solutions