CLEAN DEVELOPMENT MECHANISM MONITORING REPORT

PERIOD 29th May 2006 – 30th September 2006

TABLE OF CONTENTS

1 INTRODUCTION……..5

2 IMPLEMENTATION AND CURRENT STATUS……..6

3 MONITORING PERIOD……7

4 MONITORING PROCEDURES……..8

4.1 Calibration and Maintenance of Monitoring Equipment and Instruments..8

4.2 Gathering of Data from Steam Wells and Power Generation…… 9

4.3 Calculation of GHG Emission Reductions……12

4.4 Management and Storage of Data……..14

4.5 Supervision of the Quality of the Monitoring Process……..14

4.6 Issuance of Reports for Internal and External Verification……..14

APPENDICES

Appendix 1 Monitoring Equipment Details……16

Appendix 2 Standard Operating Procedures……19

Appendix 3 Calibration Test Results……24

Appendix 4 Gas Analyses Method and Results……32

Appendix 5 Power Generation Raw Data……42

Appendix 6 Emission Reduction Calculations……57

ABBREVIATIONS AND GLOSSARY OF TERMS

CDM	Clean Development Mechanism
HFO	Heavy Fuel Oil
IGNS	Institute of Geological and Nuclear Sciences
LGL	Lihir Gold Limited
LGPP	Lihir Geothermal Power Plant
MIMS	Mine Information Management System
MW	Megawatt
MWhrs	Megawatt Hours
NCG	Non-Condensable Gas
PDD	Project Design Document
PI	Process Information
t CO2 e	tonnes of Carbon Dioxide equivalent
YTD	Year To Date

1. Introduction

The Lihir Geothermal Power Plant (LGPP) project is designed to utilise geothermal steam produced from mining operations to create an ultimate nominal power producing capacity of 55MW (52.8 MW net capacity). The project will displace electricity currently generated through the combustion of carbon-intensive heavy fuel oil (HFO) at the LGL Power Station.

Emission reductions from the LGPP are calculated by subtracting project emissions and leakage emissions from baseline emissions. Baseline emissions are those taken from the baseline scenario which has been established as a projection of the likely future outcomes. In order to accurately calculate emission reductions, various aspects of the power producing process must be monitored.

As stated in the Project Design Document (PDD), approved consolidated monitoring methodology ACM0002 "*Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources*" has been applied to the LGPP. Therefore, specifically, electricity generation from the LGPP will be monitored and data on the fugitive carbon dioxide and methane emission from the combustion of fossil fuels required to operate the LGPP are to be calculated.

2. Implementation and Current Status

Monitoring of emission reductions for the LGPP started officially on the 29th of May, 2006. The reporting period for this document, is from 29th May to 30th September 2006.

Net electricity production is monitored from the LGPP using on-site metering equipment at the sub-station. To determine if any project emissions are being released, the amount of steam consumed by the LGPP, the drilling of new wells specifically for the LGPP, the use of fossil fuels within the LGPP and the quantity of greenhouse gases in the steam are also monitored.

3. Monitoring Period

The monitoring period for calculating emission reductions began on 29th May 2006 and will continue up till 2016.

The LGPP is expected to have a total net power producing capacity of 52.8MW to displace an average of 411 GWhrs of HFO generated power per year. Total emission reductions expected are 2.789 MtCO2 e as estimated from the baseline scenario.

4. Monitoring Procedures

4.1 Calibration and Maintenance of Monitoring Equipment and Instruments

4.1.1 Sampling Equipment and Instruments.

Sampling of geothermal steam is conducted on-site and monitored by the Mine Technical Department, Geothermal and Dewatering Section. Webber separators used to separate the two phase steam/water mixture are calibrated and maintained on-site. Calibration is conducted every three months after sampling in preparation for the next. For a list of other sampling equipment, refer to Appendix 3.

Figure 4.1.1 Mini-separator used for steam sampling

4.1.2 Laboratory Equipment and Instruments

Gas samples are sent to the Institute of Geological and Nuclear Sciences (IGNS) in Auckland, New Zealand. The laboratory is accredited by International Accreditation New Zealand and the tests conducted are performed in accordance with its terms of accreditation.

4.1.3 Steam Flow and Electricity Monitoring Equipment and Instruments

Steam released from wells is monitored with a flow meter, tag number PGS:S700_FTn_020_FInn. Steam consumed by the LGPP is monitored by Flow Transmitter 100-FIT-011. The present flow transmitter for Total Main steam flow into the turbines is faulty and not reading correctly. It is to be replaced with a brand new one during the process plant shutdown in January 2007. The old one will be sent off for recalibration and a calibration certificate should accompany the new flow meter.

Energy meters are required for electricity monitoring. For certification purposes, the energy meters have been manufactured under an ISO9001 registered system and conforms to IEC 947-1, IEC 1010-1. The latest test were conducted on the 9-10/10/06 and meter results were considered satisfactory, refer to Appendix 2. Original certificates of test results are with LGPP personnel. For a list of electricity monitoring instruments and calibration and maintenance details refer to Appendix 1.

4.2 Gathering of Data from Steam Wells and Power Generation

4.2.1 Gas Sampling

Currently, four geothermal wells (GW24, GW26, GW27, and GW28) which were originally drilled for mine depressurization purposes are supplying steam to the LGPP. The average amount of steam passing through from the separator for a 24 hour period is calculated and recorded daily.

Gas sampling is conducted in accordance with ASTM E1675-83: Standard Practice for Sampling Two-Phase Geothermal Fluid for the Purposes of Chemical Analysis, every three months. For a description of the sampling process, refer to Appendix 3, Standard Operating Procedure (SOP) 2500-006 Geothermal Steam and Water Sampling. Main problems faced are with sampling points on wells

GW24 and GW26 being damaged due to vibrations. These however, are repaired before sampling time.

Gas sampling is conducted by experienced and trained personnel from Century Drilling and Engineering Services (NZ) Limited and LGL.

Figure 4.2.1 Brine and Gas Sampling Set-up

Non-condensable gases (NCG's) in the samples are analysed every quarter by the Institute of Geological and Nuclear Sciences (IGNS). Since the monitoring of emission reductions began, gas analyses have been carried out three times. For results, refer to Appendix 4. IGNS uses a method titled Geothermal Gas Analysis by Gas Chromatography to analyse the gas samples also refer to Appendix 4 for further detail.

In relation to the emission reductions, the fraction of carbon dioxide (CO2) and methane (CH4) in the produced steam is monitored along with the other NCG's every quarter. Results for the greenhouse gases in the steam are negligible. Carbon dioxide and methane have been analysed on three occasions and carbon dioxide values range between 1.6% and 1.8% w/w whilst methane values are <0.005%.

4.2.2 Electricity Generation

Electricity generation is monitored in the control room of the LGPP. Power production figures for a 24 hour period is taken at midnight and entered into the MIIMS database.

Gross power production for this reporting period was 88 491MWhrs; auxiliary consumption was 6471MWhrs leaving net power production at 82 020MWhrs.

Power generation for turbine 3 declined during the month of July due to its intermittent shutdown associated with the construction of the new 20MW power station. Table 4.2.1 and Figure 4.2.2 shows monthly electricity generation for each turbine for the reporting period. For daily raw data, refer to Appendix 5.

Table 4.2.1 Electricity Generation of the LGPP YTD

	Turbine 1 Power Generation	Turbine 2 Power Generation	Turbine 3 Power Generation	Total Power Production	Auxiliary Consumption	Net Energy Produced
	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)
May	700	760	690	2150	173	1977
June	7050	7489	7674	22213	1585	20628
July	7379	7292	4750	19421	1490	17931
August	7325	7596	8225	23146	1645	21501
September	6749	7167	7645	21561	1578	19983
Total YTD	**29203**	**30304**	**28984**	**88491**	**6471**	**82020**

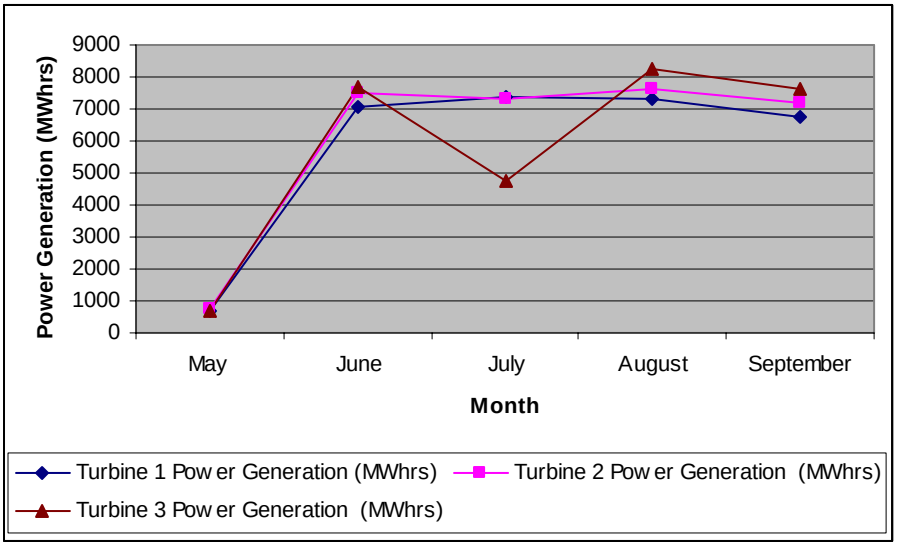

Figure 4.2.2 Graph showing the Gross Power Production of each Turbine

4.2.3 Steam Flow

Steam released from wells due to mine operations is measured from the separator. LGL uses a PI database system which allocates tag numbers to meters used throughout process plant operations. Tag number PGS: S700_FTn_020_FInn has been allocated to the meter that measures steam flow from the separator. A daily reading is taken and figures for this reporting period are consistent (See Table 4.2.2). Problems with the measurement of steam flow occur when the PI server fails. Readings are given as 'No Good Data for Calculation' until the system is restarted and takes measurements again. Normal values for steam flow were recorded during July and August whereas the PI server failed for a few days in May, June and September.

Table 4.2.2 Steam Flow from Separator

	Average Daily Steam Flow (tonnes)
May	No Good Data for Calculation
June	2099.86
July	2088.69
August	2091.42
September	2094.39

4.3 Calculation of GHG Emission Reductions

4.3.1 Project Activity Emissions

Project activity emissions are calculated from reductions on burning of fossil fuels compared to baseline years 2002 – 2004. For this reporting period, four wells have been used to obtain steam for the LGPP. Emissions associated with these wells are not considered under the CDM as they are used for mine depressurization purposes. There have also been nil project emissions from the combustion of fossil fuels in relation to the LGPP as zero fossil fuels are used by

the LGPP. Thus the calculated project activity emissions for this reporting period are zero.

4.3.2 Emissions Offset from the Grid

The emissions offset from the grid associated with the project activity are zero based on detail provided in Section 4.3.1.

4.3.3 Emission Reductions

Since CDM monitoring started on 29th May 2006, the YTD total of emission reductions is 55 613 t CO2 e. Figures have been consistent since the monitoring period started except for July which decreased due to lower power production (See Table 4.3.1). For daily calculations of emission reductions, refer to Appendix 6.

Table 4.3.1 Emission Reductions

Month	Net Energy Produced	Fossil Fuels Used	CO2 Emission Factor	Emission Reduction
	(MWhrs)	(MWhrs)		(t CO2 e)
May	1977	0	0.678	1340
June	20628	0	0.678	13989
July	17931	0	0.678	12158
August	21501	0	0.678	14577
September	19983	0	0.678	13549
Total YTD	**82020**	**0**	**0.678**	**55613**

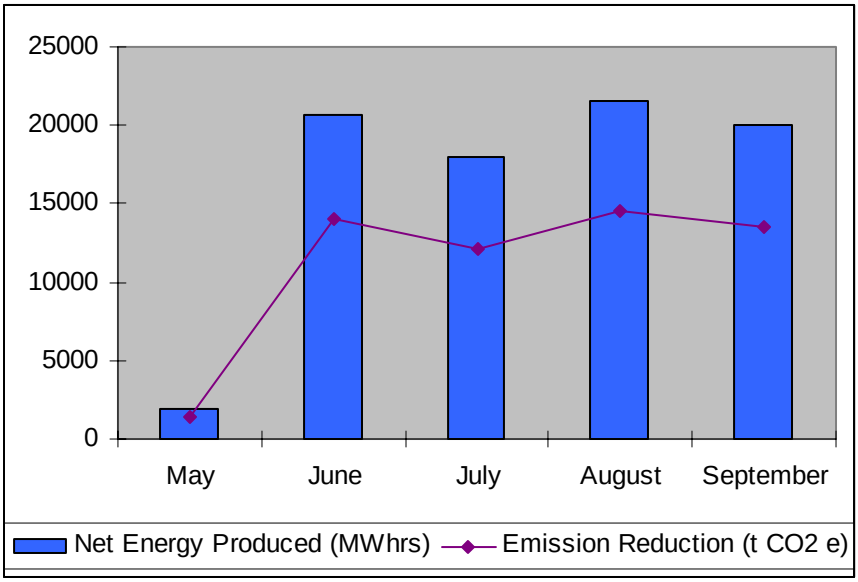

Figure 4.3.1 Graph showing emission reductions produced from net energy generation

4.4 Management and Storage of Data

Data collected in order to monitor emissions from the geothermal power plant is collected daily and entered into a spreadsheet titled 2006_CDM_Daily_Verfication located on W:\Environment\ENV_Data\ENV_EMMP\4.22_Clean_Development_Mechanism. As previously stated, LGL uses a tag database system known as PI for all monitoring meters used in process plant operations. Steam flow data is obtained via PI and entered into the spreadsheet. Power generation figures and HFO usage values are entered in MIMS by LGPP personnel and extracted and entered into the spreadsheet by CDM monitoring officer. All data is summarised at the end of the month and submitted as an end-of-month report.

4.5 Supervision of the Quality of the Monitoring Process

End of month reports are submitted to the Environment Superintendent for review and stored on the department drive at W:\Environment\ENV_Communication\Periodicals\Monthly\ENV_Clean_Development_Mechanism.

Regular communication between CDM Monitoring Officer and LGPP staff ensure changes in operating conditions are picked-up and reported.

CDM officer attended a training programme on Good Practices in Refrigeration and Air Conditioning Servicing.

4.6 Issuance of Reports for Internal and External Verification

This report is issued to General Manager External Affairs and Sustainable Development Murray Eagle, Chief Financial Officer Paul Fulton, External Auditors and summarised reports contained in LGL's Annual Environment Report.

Appendix 1

Gas Sampling Instrument Details:

Name of Item	Two-phase Steam/Water Separator
Unit	Bar Gauge (barg)
Instrument	Webber Separators
Re-calibration	Every three months

Electricity Monitoring Instrument Details:

- Flow Transmitter 100-FIT-011 Main Steam Flow Transmitter. The present installed one is to be replaced with a brand new one and the old to be sent off for recalibration. Calibration certificates should come with the new transmitter.

- Energy Meters for Units 1, 2 & 3 were tested on the 9-10/10/2006 by ADN Testing Services. Results were found to be satisfactory.

Name of Item	Unit	Instrument	Tag No.	Re-calibration
Steam Main	Ton/hr	Steam Main Flowmeter	PGS:S100_FTn_011_TOTn	
Turbine Inlet	Ton/hr	Steam Flowmeter Unit 1	PGS:S100_FTn_011_FInn	None Required
First Stage Ejector Steam Flow	Ton/hr	Steam Flowmeter Unit 1	PGS:S100_FTn_113_FInn	None Required
Second Stage Ejector Steam Flow	Ton/hr	Steam Flowmeter Unit 1	PGS:S100_FTn_123_FInn	None Required
Steam Vent Position	Ton/hr	Steam Flowmeter Unit 1	PGS:S700_ZTn_023_ZInn	None Required
Power Output	MWhr	Voltage Transformer Unit 1	PGS:S100_GNn_001_PP	
Turbine Inlet	Ton/hr	Steam Flowmeter Unit 2	PGS:S200_FTn_011_FInn	None Required
First Stage Ejector Steam Flow	Ton/hr	Steam Flowmeter Unit 2	PGS:S200_FTn_113_FInn	None Required
Second Stage Ejector Steam Flow	Ton/hr	Steam Flowmeter Unit 2	PGS:S200_FTn_123_FInn	None Required

Steam Vent Position	Ton/hr	Steam Flowmeter Unit 2	PGS:S700_ZTn_024_ZInn	None Required
Voltage Transformer Unit 2	MWhr	Power Output	PGS:S200_GNn_001_PP	
Turbine Inlet	Ton/hr	Steam Flowmeter Unit 3	PGS:S300_FTn_011_FInn	None Required
First Stage Ejector Steam Flow	Ton/hr	Steam Flowmeter Unit 3	PGS:S300_FTn_113_FInn	None Required
Second Stage Ejector Steam Flow	Ton/hr	Steam Flowmeter Unit 3	PGS:S300_FTn_123_FInn	None Required
Steam Vent Position	Ton/hr	Steam Flowmeter Unit 3	PGS:S700_ZTn_025_ZInn	None Required
Power Output	MWhr	Voltage Transformer	PGS:S300_GNn_001_PP	

Appendix 2

ADN TESTING SERVICES

SPECIALISTS IN HIGH VOLTAGE PROTECTION SYSTEM TESTING
AND COMMISSIONING

LIHIR GOLD MINE

LGL

TESTING OF CURRENT TRANSFORMERS ON THE GENERATOR PANELS

10TH OCTOBER 2006

ADN004 rev 2

ADN TESTING SERVICES

CURRENT TRANSFORMER TESTS

SITE / CUSTOMER :	LIHIR GOLD MINE / LGL	DATE :	10/10/06
CIRCUIT :	GEOTHERMAL POWER STATION - PSG007 GENERATOR 1		
SYSTEM VOLTS :	11000		
C.T. RATIO :	1000/5A	C.T. CLASS :	5P100F20
R PHASE S/N°. :	040206	W PHASE S/N°. :	040203
B PHASE S/N°. :	040207	C.T. PURPOSE :	PROTECTION

MAGNETISATION CURVES

PHASE	VOLTS @ mA	mA	mA	mA	mA
R					
W					
B					

AMMETER S/N°. : VOLTMETER S/N°. :

RATIO TESTS

PHASE	PRIMARY AMPS INJECTED	SECONDARY AMPS MEASURED
R	50A	0.250A
W	50A	0.250A
B	50A	0.250A

PRIM. AMMETER S/N°. : 91850071 SEC. AMMETER S/N°. : 85130248

HAS SINGLE POINT EARTHING BEEN PROVEN ? N/A

HAVE POLARITIES BEEN PROVEN AGAINST SCHEMATICS ? N/A

ARE RESULTS CONSIDERED SATISFACTORY ? YES

OTHER INFORMATION :

TESTED BY : J COOKE SIGNED : JCCle

WITNESSED BY : SIGNED :

Page 2 of 4

ADN004 rev 2

ADN TESTING SERVICES

CURRENT TRANSFORMER TESTS

SITE / CUSTOMER : LIHIR GOLD MINE / LGL DATE : 9/10/06

CIRCUIT : GEOTHERMAL POWER STATION - PSG010 GENERATOR 2

SYSTEM VOLTS : 11000

C.T. RATIO : 1000/5A C.T. CLASS : 5P100F20

R PHASE S/N°. : 040208 W PHASE S/N°. : 040202

B PHASE S/N°. : 040204 C.T. PURPOSE : PROTECTION

MAGNETISATION CURVES

PHASE	VOLTS @ mA	mA	mA	mA	mA
R					
W					
B					

AMMETER S/N°. : VOLTMETER S/N°. :

RATIO TESTS

PHASE	PRIMARY AMPS INJECTED	SECONDARY AMPS MEASURED
R	50A	0.250A
W	50A	0.250A
B	50A	0.250A

PRIM. AMMETER S/N°. : 91850071 SEC. AMMETER S/N°. : 85130248

HAS SINGLE POINT EARTHING BEEN PROVEN ? N/A

HAVE POLARITIES BEEN PROVEN AGAINST SCHEMATICS ? N/A

ARE RESULTS CONSIDERED SATISFACTORY ? YES

OTHER INFORMATION :

TESTED BY : J COOKE SIGNED : JCL

WITNESSED BY : SIGNED :

Page 3 of 4

ADN004 rev 2

ADN TESTING SERVICES

CURRENT TRANSFORMER TESTS

SITE / CUSTOMER :	LIHIR GOLD MINE / LGL	DATE :	9/10/06
CIRCUIT :	GEOTHERMAL POWER STATION - PSG014 GENERATOR 3		
SYSTEM VOLTS :	11000		
C.T. RATIO :	1000/5A	C.T. CLASS :	5P100F20
R PHASE S/N°. :	040209	W PHASE S/N°. :	040201
B PHASE S/N°. :	040205	C.T. PURPOSE :	PROTECTION

MAGNETISATION CURVES

PHASE	VOLTS @ mA	mA	mA	mA	mA
R					
W					
B					

AMMETER S/N°. : VOLTMETER S/N°. :

RATIO TESTS

PHASE	PRIMARY AMPS INJECTED	SECONDARY AMPS MEASURED
R	50A	0.250A
W	50A	0.250A
B	50A	0.250A

PRIM. AMMETER S/N°. : 91850071 SEC. AMMETER S/N°. : 85130248

HAS SINGLE POINT EARTHING BEEN PROVEN ? N/A

HAVE POLARITIES BEEN PROVEN AGAINST SCHEMATICS ? N/A

ARE RESULTS CONSIDERED SATISFACTORY ? YES

OTHER INFORMATION :

TESTED BY : J COOKE SIGNED : JCL

WITNESSED BY : SIGNED :

Page 4 of 4

Appendix 3

	Procedure No.: 2500 - 006
	Page 25 of 7
STANDARD OPERATING PROCEDURE	**Department:** Geothermal & Dewatering
TITLE: GEOTHERMAL STEAM AND WATER SAMPLING	**Location:** Mine Office

Procedure Created (Rev 0):	April 2004	**Author:**	Century Resources
Next Revision (Rev 2):	May 2004	Editor:	Markos Melaku
Subsequent Revision (Rev 3):	July 2005	Editor:	Markos Melaku, Shah Abdul-Rahman

Scope: This SOP outlines the process to be undertaken to allow the safe collection of water and gas samples from geothermal pipelines using a mini separator.

Description of Hazard / Environmental Issue:	**Control Strategy:**
• High temperature/pressure steam and water • Toxic gases • Hot pipes and fittings • H_2SO_4 and NaOH in Rotaflo's	• Evacuate non essential staff from immediate vicinity of the well • Use PPE as defined under HSE Notes. • Exercise extreme caution when working in close proximity to discharging well head. • Inspect Rotaflo's before use.
References:	**Located:**
RE74 – Lihir PTQ Manual	Hard copy version available from Century Resources.

Prerequisites:	Competent person as nominated by the Superintendent of Geothermal and Dewatering.

Approval:

Superintendent*	Name:	_____	Sign:	_____	Date: _____
Manager	Name:	_____	Sign:	_____	Date: _____

	TITLE: GEOTHERMAL STEAM AND WATER SAMPLING	**Procedure No:**
		Revision 3
		Page 2 of 7

STAGE A brief description of what is to be done in the correct order.	**KEY POINTS** How to do it. Highlight OHS&E requirements.	**PERSON RESPONSIBLE**
Functional Description	During this procedure, steam and water from the pipeline is extracted for collection. Mini separators are attached to sample point valves, where the two phase steam/water mixture is separated, before being collected into glassware and plastic bottles.	
Health, Safety & Environment Notes	• Standard PPE (Hard hat, safety glasses, personal gas monitor, safety boots, long sleeves and long pants, hearing protection, leather gloves) • First Aid burns module (burns blanket) and / or water supply for the treatment of burns is readily accessible.	
Work Preparation / Tools Required	• 2x mini separators, 2x Pressure gauges, 2x cooling coils, 2x 25l water/ice filled containers, sampling containers, Temperature gauge. • See RE70e for complete list (attached at end of document)	
Prior to Sampling		
1. Inspect all equipment	• Check for any signs of damage to equipment and don protective gloves, glasses and ear protection until sampling has finished.	Competent person
2. Check sample point valve status	• Ensure that the sample point valve is closed before removing the pressure gauge (if present). Remove gauge **slowly** to safely disperse any trapped steam. • Once the gauge is removed, crack the sample point valve to ensure it is operational and not blocked. Open fully and then shut.	Competent person

STAGE A brief description of what is to be done in the correct order.	KEY POINTS How to do it. Highlight OHS&E requirements.	PERSON RESPONSIBLE
3. Check the sampling apparatus	• Attach the separator and pressure gauges in accordance with sampling manual procedures. • Ensure valves V1, V2 are closed. (and V3 for steam mini separator) • **Ensure that the outlet flow tubes are facing away from the operator.** If not adjust accordingly. • Open the sample point valve and allow the system to pressurise. • Inspect the apparatus for leaks. • Depending on the sampling containers used, an appropriate length of rubber hose may need to be attached. • For the steam separator, open valves V1, V2 and V3 in accordance with sampling manual procedures and allow to vent for 5 minutes. • For the water separator, open valve V2 fully. Open V1 only briefly to ensure it is not blocked and that the discharge is clean. • When checking the dryness of the steam in accordance with the sampling procedures manual, ensure that the correct rubber gloves are worn. • If connecting a cooling coil, shut off the corresponding valve before attaching.	Competent person

During Vertical Discharge:		
1. Rotaflo – Steam Collection	• Check for traces of chemicals in valve area, and clean if necessary. • Shake flask and listen for a click. This indicates that the vacuum has been maintained. • Displace oxygen in the inlet with steam. • Watch the tee piece discharge plume while opening Rotaflo valve, and when putting a flask in a bucket of water. If the plume is sucked into the tee piece then the sample will be contaminated with air.	Competent person
2. 5l glass collection flask – Steam	•	
3. Cooling Coil – Steam condensate / water	•	
Burns		
4. In the event of a burn injury	• Quickly shut down the discharge by shutting the appropriate valves. • Apply continuous cool water (not cold water) or apply burn blanket over the location of the burn and depending upon burn severity contact emergency services by: - Contacting trunk or radio 333, stating Emergency Emergency Emergency and - State your name, department, and location, - State clearly what has happened, and - State the nature of the injury • Continue to apply cool water to the affected location/s until the arrival of the emergency services.	

	TITLE: GEOTHERMAL STEAM AND WATER SAMPLING	**Procedure No:**
		Revision 3
		Page 5 of 7

PROCEDURE CHECKLIST

1. List down the critical steps and points related to this procedure.
2. Use the checkboxes as a guide to ensure personnel doing the job are covering each critical step.

NOTE: This checklist is to be used in conjunction with the procedure as a means of highlighting the critical procedural stages as they are accomplished. It is not comprehensive and should not be used without reference to the full procedure.

	1.	Ensure that the appropriate PPE is available and a burns treatment kit is available (ie. Burns module / clean water supply).
	2.	Check equipment for damage.
	3.	Check sample point valve is closed before removing pressure gauge.
	4.	Removal of the pressure gauge must be undertaken slowly to disperse trapped steam.
	5.	Crack valve to ensure sample point valve is operational.
	6.	Once separator is attached, ensure all outflow tubes face away from the operator.
	7.	Check valves V1, V2 and V3 are closed.
	8.	Check the apparatus for leaks.

	TITLE: GEOTHERMAL STEAM AND WATER SAMPLING	**Procedure No:**
		Revision 3
		Page 6 of 7

TWO PHASE SAMPLING CHECK LIST

- ☐ RE70d Chemistry Field Sheets
- ☐ cellphone
- ☐ Pen
- ☐ Marker pens x 2
- ☐ RE70a Geothermal sampling techniques manual
- ☐ Sampling containers ie rotaflo's, 5L etc
- ☐ Gloves (rubber x2, leather)
- ☐ earmuffs and earplugs
- ☐ safety glasses
- ☐ All other PPE, eg boots, overalls, coats, hardhats.
- ☐ 2 litre jug
- ☐ 2 x 25 litre water containers
- ☐ Fluke & thermocouple wire
- ☐ Gazebo
- ☐ Bailer for sampling weir boxes
- ☐ Mini Separators x 2(1 for Steam & 1 for Water)
- ☐ Keller Presure gauges (L3111 & L3112)
- ☐ seats x2
- ☐ spare swagelok fittings
- ☐ Dry steam tubing
- ☐ Silicon tubing for ends (carry spare)
- ☐ Cooler x 2
  - armoured teflon tubing
  - cooling coil
- ☐ Wire brush for cleaning threads
- ☐ red silicon end tubing for water sampling
- ☐ Chilly bins with ice
- ☐ **Chemistry box**

distilled water
syringes x 2
swinnex filter & filter paper
pipettes (12)
acid (HNO_3)
plastic bag to dispose of rubbish

- ☐ **Toolbox**

2 x spanners
2 x rigids
pliers/cutters/knife
screwdriver
thread tape
valve spanner
tig wire for unblocking valves
cable ties

If sampling at Rotokawa reinjection line

- ☐ - 1/4" swaglok to 1/4" NPT fitting

- [ ]
- [ ]
- [ ]

If sampling at Rotokawa combined water leg

- [ ] - 1/4" swaglok to 3/8" swagelok fitting

If Mercury Sampling

- [ ] 3/8"Armoured teflon tubing **(Acid Washed by GNS)**
- [ ] Rotaflo flasks containing H_2SO_4
- [ ] Green rectangular bucket
- [ ] Wooden stand for bucket

If mercury sampling at Rotokawa

- [ ] 1/2" female NPT to 3/4" male fitting

Appendix 4

CHAPTER 20

GEOTHERMAL GAS ANALYSIS BY GAS CHROMATOGRAPHY

Application: **Analysis of geothermal gases, namely H_2, CH_4, He, O_2, Ar, N_2.**

References: Giggenbach, W.F. (1975), A simple method for the collection and analysis of volcanic geothermal samples. Bulletin Volcanologique; Journal of the International Association of Volcanology and Chemistry of the Earths Interior of the International Union of Geodesy and Geophysics. Vol 39, No. 4. pp. 132-145.

Giggenbach, W.F. and Goguel, R.L. (1989), Collection and Analysis of Geothermal and Volcanic Water and Gas Discharges. DSIR Chemistry Division Report Number C.D. 2401.

Klyen, L.E. (1982), Sampling Techniques for Geothermal Fluids. DSIR Chemistry Division Report Number C.D. 2322.

Significance: This method offers the most accurate means available for determining the concentration of gases in geothermal and volcanic gas samples.

Interferences: There are little or no significant interferences in the GC analysis of geothermal gases.

Quality Control: An alpha gas standard mixture is run on the GC at the start of every set of sample analyses. Gas standards are supplied by BOC New Zealand and BOC NZ is certified to ISO 9002 standard. The reference number of the alpha standard is AS0359.

Quality control limits and rules can be found in Table 1 in this document. In order to get consistently good results it is imperative that the quality control rules are followed precisely.

CLIENT:
Lynell Stevens
Century Resources
P.O.Box 341
TAUPO

Wairakei Analytical Laboratory
Private Bag 2000 Taupo
ph. 07 - 374 8211
fax. 07 - 376 0141
e.mail .labmanager@gns.cri.nz

ANALYTICAL REPORT :: INTERIM LIHIR GASES MARCH 2006

	Lab. Ref. no.	2601211	2601212	2601213	2601214	2601215	2601216	2601217
	Collection Date	29/03/2006	28/06/2006	303/2006	30/03/2006	30/03/2006	31/03/2006	31/03/2006
	Lab. ID							
	Clients Field ID	GW 21	GW24	GW 28	GW1306	GW1307	GW 1310A	GW1311
Carbon Dioxide	mmoles/100 moles H2O	836	770	834	290	282	414	391
Hydrogen sulphide	mmoles/100 moles H2O	17.9	14.5	43	29	24	30	26
Methane	mmoles/100 moles H2O	2.0	3.5	0.56	<0.001	<0.005	0.35	0.46
Nitrogen	mmoles/100 moles H2O	6.7	7.5	4.9	1.8	1.8(1.6)[1]	2.8	2.4
Argon	mmoles/100 moles H2O	0.03	0.03	0.03	0.02	0.03	0.02	0.02
Oxygen	mmoles/100 moles H2O	<0.001	<0.001	<0.001	<0.001	0.05	<0.001	<0.001
Helium	mmoles/100 moles H2O	0.007	0.008	0.005	0.001	0.001	0.002	0.002
Hydrogen	mmoles/100 moles H2O	2.5	1.9	4.1	4.3	7.1	3.6	3.4
Ammonia	mmoles/100 moles H2O	1.7	2.1	0.85	0.96	0.71	1.1	0.94

Analyst Comments: The results pertain to samples as received. This document shall not be reproduced, except in full.
This is an interim report - results were calculated using a NaOH blank from the previous set of Lihir samples.
Final report will be produced when new caustic blank has been received by the laboratory.
[1] Results in brackets have been normalised to zero oxygen.

Report Date.	**4/05/2006**
Report No.	**WAL 060411002G**
Customer Ref.	**NTC LH0405/15**
Page	**1 of 2**

Moya Appleby
Analyst

CLIENT:
Lynell Stevens
Century Resources
P.O.Box 341
TAUPO

Wairakei Analytical Laboratory
Private Bag 2000 Taupo
ph. 07 - 374 8211
fax. 07 - 376 0141
e.mail w.labmanager@gns.cri.nz

ANALYTICAL REPORT :: INTERIM LIHIR GASES MARCH 2006

	Lab. Ref. no.	**2601218**
	Collection Date	**29/03/2006**
	Lab. ID	
	Clients Field ID	**30 MW**
Carbon Dioxide	**mmoles/100 moles H2O**	**729**
Hydrogen sulphide	**mmoles/100 moles H2O**	**21**
Methane	**mmoles/100 moles H2O**	**3.1**
Nitrogen	**mmoles/100 moles H2O**	**6.4**
Argon	**mmoles/100 moles H2O**	**0.02**
Oxygen	**mmoles/100 moles H2O**	**<0.001**
Helium	**mmoles/100 moles H2O**	**0.007**
Hydrogen	**mmoles/100 moles H2O**	**2.4**
Ammonia	**mmoles/100 moles H2O**	**1.4**

Analyst Comments: The results pertain to samples as received. This document shall not be reproduced, except in full.
This is an interim report - results were calculated using a NaOH blank from the previous set of Lihir samples.

Final report will be produced when new caustic blank has been received by the laboratory.

Report Date.	**4/05/2006**
Report No.	**WAL 060411002G**
Customer Ref.	**NTC LH0405/15**
Page	**2 of 2**

Moya Appleby
Analyst

WAIRAKEI ANALYTICAL LABORATORY
Private Bag 2000, Taupo
Phone: (07) 374 8211
Fax: (07) 374 8199
e.mail: w.labmanager@gns.cri.nz

To:
Lynell Stevens
Century Resources Ltd
P O Box 341
Taupo

ANALYTICAL REPORT: Lihir Gases April 2006

	Lab. Ref. no.	2601537	2601538	2601539	2601536	2601540
	Sample Date	28/04/2006	27/04/2006	27/04/2006	2/05/2006	2/05/2006
	Site ID	LIHGW24	LIHGW27	LIHGW 38	LIHGW21	LIHGW30MW
Carbon dioxide	**mmol/100moles H2O**	868	597	614	203	696
Hydrogen sulphide	**mmol/100moles H2O**	18.6	30	20	10.1	1.3
Ammonia	**mmol/100moles H2O**				0.52	1.1
Argon	**mmol/100moles H2O**	0.01	0.02	0.03	0.01	
Helium	**mmol/100moles H2O**	0.01	0.004	0.007	0.002	
Hydrogen	**mmol/100moles H2O**	2.2	3.2	2.4	0.60	
Methane	**mmol/100moles H2O**	4.2	1.1	3.6	0.57	
Nitrogen	**mmol/100moles H2O**	7.7	3.8	6.7	2.1(1.9)	
Oxygen	**mmol/100moles H2O**	0.006	<0.001	<0.001	0.04	
WHP	**bg**	7.8	8.3	7.88	14.10	4.25
SPP	**bg**	6.4	7.5	6.5	12.25	4.25

Analyst Comments: The results pertain to samples as received. GNS accepts no responsibility for reports reproduced, except in full. Samples are held in storage for a period of twelve (12) months after the reporting of results.

[1] Numbers in brackets have been normalised to zero oxygen.

Ann Noddings
Analyst

Bruce Mountain,Ph.D.
Geochemist

Report Date	**14/06/2006**
Report No.	**WAL060516001**
Customer No.	**NTC # LH0405/17**
Page	**1 of 2**

WAIRAKEI ANALYTICAL LABORATORY
Private Bag 2000, Taupo
Phone: (07) 374 8211
Fax: (07) 374 8199
e.mail: w.labmanager@gns.cri.nz

To:
Lynell Stevens
Century Resources Ltd
P O Box 341
Taupo

ANALYTICAL REPORT: Lihir Wells April 2006

	Lab. Ref. no.	2601531	2601532	2601533	2601534	2601535
	Sample Date	2/05/2006	28/04/2006	27/04/2006	27/04/2006	1/05/2006
	Site	LIHGW21	LIHGW24	LIHGW27	LIHGW28	LIHGW 40
Bicarbonate (total)	**mg/L**	529	419	289	812	92
pH		8.17	4.79	4.84	6.82	6.73
Analysis temp.	**°C**	17	18	19	19	19
pH/HCO_3 Analysis Date		16/05/2006	17/05/2006	17/05/2006	17/05/2006	17/05/2006
Arsenic	**mg/L**	25	<0.1	2.6	24	3.1
Boron	**mg/L**	228	<0.1	31	227	122
Calcium	**mg/L**	44	<0.05	8.3	45	62
Chloride	**mg/L**	29065	3.9	827	27763	19640
Lithium	**mg/L**	15.7	<0.05	0.44	10.3	12.2
Potassium	**mg/L**	7386	1.3	282	6314	3950
Silica (as SiO_2)	**mg/L**	552	1.4	99	490	138
Sodium	**mg/L**	35635	2.8	738	33720	20265
Sulphate	**mg/L**	37830	53	570	41985	26624

Analyst Comments: The results pertain to samples as received. GNS accepts no responsibility for reports reproduced, except in full. Samples are held in storage for a period of twelve (12) months after the reporting of results.

Ann Noddings	Bruce Mountain,Ph.D.
Analyst	Geochemist

This laboratory is accredited by International Accreditation New Zealand.
The tests reported herein have been performed in accordance with its terms of accreditation, with the exception of the tests marked with a †

Report Date	**14/06/2006**
Report No.	**WAL060516001**
Customer No.	**NTC # LH0405/17**
Page	**2 of 2**

WAIRAKEI ANALYTICAL LABORATORY
Private Bag 2000, Taupo
Phone: (07) 374 8211
Fax: (07) 374 8199
e.mail: w.labmanager@gns.cri.nz

To:
Lynell Stevens
Century Resources Ltd
P O Box 341
Taupo

ANALYTICAL REPORT: Lihir Gases April 2006

	Lab. Ref. no.	2601537	2601538	2601539	2601536	2601540
	Sample Date	28/04/2006	27/04/2006	27/04/2006	2/05/2006	2/05/2006
	Site ID	LIHGW24	LIHGW27	LIHGW 38	LIHGW21	LIHGW30MW
Carbon dioxide	**mmol/100moles H2O**	868	597	614	203	696
Hydrogen sulphide	**mmol/100moles H2O**	18.6	30	20	10.1	1.3
Ammonia	**mmol/100moles H2O**				0.52	1.1
Argon	**mmol/100moles H2O**	0.01	0.02	0.03	0.01	
Helium	**mmol/100moles H2O**	0.01	0.004	0.007	0.002	
Hydrogen	**mmol/100moles H2O**	2.2	3.2	2.4	0.60	
Methane	**mmol/100moles H2O**	4.2	1.1	3.6	0.57	
Nitrogen	**mmol/100moles H2O**	7.7	3.8	6.7	2.1(1.9)	
Oxygen	**mmol/100moles H2O**	0.006	<0.001	<0.001	0.04	
WHP	**bg**	7.8	8.3	7.88	14.10	4.25
SPP	**bg**	6.4	7.5	6.5	12.25	4.25

Analyst Comments: The results pertain to samples as received. GNS accepts no responsibility for reports reproduced, except in full. Samples are held in storage for a period of twelve (12) months after the reporting of results.

[1] Numbers in brackets have been normalised to zero oxygen.

Ann Noddings
Analyst

Bruce Mountain,Ph.D.
Geochemist

Report Date	**14/06/2006**
Report No.	**WAL060516001**
Customer No.	**NTC # LH0405/17**
Page	**1 of 2**

WAIRAKEI ANALYTICAL LABORATORY
Private Bag 2000, Taupo
Phone: (07) 374 8211
Fax: (07) 374 8199
e.mail: w.labmanager@gns.cri.nz

To:
K Foong
Lihir Gold Ltd
P O Box
789
Port Moresby
Papua New Guinea

ANALYTICAL REPORT: Lihir Gases July 2006

	Lab. Ref. no.	2602118	2602119	26021120	2602121
	Sample Date	29/06/2006	29/06/2006	29/06/2006	29/06/2006
	Site ID	GW21	GW27	GW28	GW30 MW
Carbon dioxide	mmol/100moles H2O	652	1594	749	669
Hydrogen sulphide	mmol/100moles H2O	16.1	60	37	23
Ammonia	mmol/100moles H2O	---	---	---	1.4
Argon	mmol/100moles H2O	0.016	0.02	0.016	0.018
Helium	mmol/100moles H2O	0.005	0.011	0.004	0.006
Hydrogen	mmol/100moles H2O	1.9	10.0	3.7	2.3
Methane	mmol/100moles H2O	1.5	4.4	0.42	2.3
Nitrogen	mmol/100moles H2O	4.4	9.7	4.1	5.2
Oxygen	mmol/100moles H2O	<0.001	<0.001	<0.001	<0.001
Well Head Press.	bar(gauge)	6.5	22.3	6.5	
Sampling Pt Press	bar(gauge)	5.5	22.0	6.0	

Analyst Comments: The results pertain to samples as received. GNS accepts no responsibility for reports reproduced, except in full. Gas samples are held in storage for a period of two (2) months after the reporting of results.

Report Date	**7/08/2006**
Report Number	**WAL060717002**
Page	**1 of 3**

Marshall Muller
Analyst

Bruce Mountain,Ph.D.
Geochemist

WAIRAKEI ANALYTICAL LABORATORY
Private Bag 2000, Taupo
Phone: (07) 374 8211
Fax: (07) 374 8199
e.mail: w.labmanager@gns.cri.nz

To:
K Foong
Lihir Gold Ltd
P O Box 789
Port Moresby
Papua New Guinea

ANALYTICAL REPORT: Lihir Geothermal Wells July 2006

	Lab. Ref. no.	2602113	2602114	2602115	2602117
	Sample Date	29/06/2006	29/06/2006	29/06/2006	29/06/2006
	Site ID	GW21	GW27	GW28	SEA WATER
Bicarbonate (total)	mg/L	899	54	454	131
pH		6.54	5.49	8.32	7.94
Analysis temp.	°C	19	19	19	19
HCO_3/Date Analysed		14/07/2006	14/07/2006	14/07/2006	14/07/2006
Aluminium	mg/L	<0.1	<0.1	<0.1	<0.1
Ammonia (as NH_3)	mg/L	4.9	3.2	1.1	<0.1
Arsenic	mg/L	24	1.1	30	<0.1
Boron	mg/L	223	1.2	269	6.2
Calcium	mg/L	34	1.9	49	316
Cesium	mg/L	1.8	<0.02	1.9	0.03
Chloride	mg/L	27913	5.9	31300	19920
Conductivity	µS/cm	9870	111	1077	---
Fluoride	mg/L	10.8	<0.1	15.5	---
Iron	mg/L	0.13	0.14	<0.02	<0.02
Lithium	mg/L	11.8	<0.05	8.8	0.2
Magnesium	mg/L	<0.01	0.12	<0.01	1014
Manganese	mg/L	0.03	0.24	0.008	---
Potassium	mg/L	6140	3.8	7114	400
Rubidium	mg/L	12.4	<0.01	11.3	0.12
Silica (as SiO_2)	mg/L	412	35	516	9.7
Sodium	mg/L	29945	9.9	39405	8850
Sulphate	mg/L	38580	15.2	43916	2112

Analyst Comments: The results pertain to samples as received. GNS accepts no responsibility for reports reproduced, except in full. Samples are held in storage for a period of twelve (12) months after the reporting of results.

Report Date	**7/08/2006**
Report Number	**WAL060717002**
Page	**2 of 3**

Marshall Muller
Analyst

Bruce Mountain,Ph.D.
Geochemist

This laboratory is accredited by International Accreditation New Zealand.
The tests reported herein have been performed in accordance with its terms of accreditation, with the exception of the tests marked with a †

Appendix 5

MAY 2006

Date	GN101		GN201		GN301		Gross Power Production
	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference	
	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)
29/05/2006	76366	236	80497	255	72049	212	703
30/05/2006	76596	230	80748	251	72302	253	734
31/05/2006	76830	234	81002	254	72527	225	713
Total		**930**		**1007**		**940**	**2877**

MAY 2006

Date	MCC01		MCC02		MCC03		SASS		Total Usage	Net Power Production
	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference		
	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)	(MWhrs)
29/05/2006	5930	18	5578	16	5017	18	1273	10	62	641
30/05/2006	5947	17	5594	16	5035	18	1283	10	61	673
31/05/2006	5965	18	5609	15	5052	17	1283	0	50	663
Total		**53**		**47**		**53**		**20**	**173**	**1977**

JUNE 2006

	GN101		GN201		GN301		
Date	**Meter Reading**	**24hr Difference**	**Meter Reading**	**24hr Difference**	**Meter Reading**	**24hr Difference**	**Gross Power Production**
	MWhrs	**MWhrs**	**MWhrs**	**MWhrs**	**MWhrs**	**MWhrs**	**MWhrs**
1/06/2006	77064	234	81254	252	72785	258	744
2/06/2006	77297	233	81506	252	73032	247	732
3/06/2006	77534	237	81763	257	73292	260	754
4/06/2006	77773	239	82021	258	73555	263	760
5/06/2006	78012	239	82279	258	73815	260	757
6/06/2006	78098	86	82536	257	74077	262	605
7/06/2006	78333	235	82783	247	74342	265	747
8/06/2006	78576	243	83046	263	74608	266	772
9/06/2006	78818	242	83308	262	74873	265	769
10/06/2006	79061	243	83571	263	75138	265	771
11/06/2006	79304	243	83833	262	75403	265	770
12/06/2006	79547	243	84095	262	75669	266	771
13/06/2006	79768	221	84349	254	75907	238	713
14/06/2006	80008	240	84607	258	76169	262	760
15/06/2006	80243	235	84845	238	76407	238	711
16/06/2006	80485	242	85104	259	76670	263	764
17/06/2006	80727	242	85360	256	76935	265	763
18/06/2006	80972	245	85611	251	77198	263	759
19/06/2006	81216	244	85862	251	77467	269	764
20/06/2006	81460	244	86111	249	77733	266	759
21/06/2006	81702	242	86358	247	77999	266	755
22/06/2006	81946	244	86506	148	78264	265	657
23/06/2006	82188	242	86756	250	78489	225	717
24/06/2006	82429	241	87004	248	78753	264	753
25/06/2006	82665	236	87249	245	79010	257	738
26/06/2006	82910	245	87501	252	79278	268	765
27/06/2006	83150	240	87748	247	79542	264	751
28/06/2006	83393	243	87996	248	79807	265	756
29/06/2006	83637	244	88242	246	80073	266	756
30/06/2006	83880	243	88491	249	80201	128	620
Total		**7050**		**7489**		**7674**	**22 213**

JUNE 2006

	MCC01		MCC02		MCC03		SASS		Total Usage	Net Power Production
	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference		
1/06/2006	5982	17	5623	14	5069	16	1288	9	56	688
2/06/2006	5999	17	5639	16	5086	17	1291	3	53	679
3/06/2006	6016	17	5654	15	5103	17	1291	0	49	705
4/06/2006	6033	17	5668	14	5120	17	1300	9	57	703
5/06/2006	6050	17	5683	15	5137	17	1300	0	49	708
6/06/2006	6061	11	5698	15	5154	17	1308	8	51	554
7/06/2006	6078	17	5713	15	5171	17	1308	0	49	698
8/06/2006	6095	17	5728	15	5188	17	1317	9	58	714
9/06/2006	6112	17	5743	15	5205	17	1317	0	49	720
10/06/2006	6130	18	5758	15	5223	18	1325	8	59	712
11/06/2006	6147	17	5773	15	5239	16	1325	0	48	722
12/06/2006	6163	16	5790	17	5255	16	1334	9	58	713
13/06/2006	6178	15	5807	17	5272	17	1334	0	49	664
14/06/2006	6193	15	5824	17	5289	17	1334	0	49	711
15/06/2006	6208	15	5841	17	5307	18	1342	8	58	653
16/06/2006	6223	15	5859	18	5324	17	1342	0	50	714
17/06/2006	6237	14	5876	17	5341	17	1351	9	57	706
18/06/2006	6252	15	5893	17	5358	17	1359	8	57	702
19/06/2006	6267	15	5910	17	5375	17	1359	0	49	715
20/06/2006	6282	15	5928	18	5392	17	1359	0	50	709
21/06/2006	6297	15	5945	17	5409	17	1367	8	57	698
22/06/2006	6313	16	5958	13	5426	17	1367	0	46	611
23/06/2006	6331	18	5974	16	5442	16	1367	0	50	667
24/06/2006	6348	17	5992	18	5457	15	1376	9	59	694
25/06/2006	6365	17	6009	17	5472	15	1376	0	49	689
26/06/2006	6383	18	6026	17	5486	14	1384	8	57	708
27/06/2006	6400	17	6043	17	5501	15	1384	0	49	702
28/06/2006	6417	17	6060	17	5516	15	1393	9	58	698
29/06/2006	6434	17	6078	18	5532	16	1393	0	51	705

30/06/2006	6451	17	6095	17	5544	12	1401	8	54	566
Total										

JULY 2006

	GN101		GN201		GN301		
	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Gross Power Production
	MWhrs	MWhrs	MWhrs	MWhrs	MWhrs	MWhrs	MWhrs
1/07/2006	84120	240	88739	248	80379	178	666
2/07/2006	84365	245	88991	252	80456	77	574
3/07/2006	84593	228	89232	241	80717	261	730
4/07/2006	84834	241	89479	247	80983	266	754
5/07/2006	85079	245	89730	251	81253	270	766
6/07/2006	85324	245	89983	253	81307	54	552
7/07/2006	85568	244	90235	252	81441	134	630
8/07/2006	85699	131	90295	60	81505	64	255
9/07/2006	85944	245	90303	8	81505	0	253
10/07/2006	86188	244	90554	251	81505	0	495
11/07/2006	86430	242	90805	251	81505	0	493
12/07/2006	86673	243	91056	251	81519	14	508
13/07/2006	86915	242	91307	251	81788	269	762
14/07/2006	87158	243	91557	250	81902	114	607
15/07/2006	87399	241	91806	249	82007	105	595
16/07/2006	87643	244	92058	252	82177	170	666
17/07/2006	87884	241	92307	249	82301	124	614
18/07/2006	88125	241	92555	248	82419	118	607
19/07/2006	88366	241	92805	250	82688	269	760
20/07/2006	88608	242	93055	250	82856	168	660
21/07/2006	88850	242	93304	249	82971	115	606
22/07/2006	89090	240	93551	247	83068	97	584
23/07/2006	89331	241	93800	249	83232	164	654
24/07/2006	89574	243	94050	250	83353	121	614
25/07/2006	89815	241	94297	247	83472	119	607
26/07/2006	90055	240	94544	247	83741	269	756
27/07/2006	90295	240	94792	248	84010	269	757
28/07/2006	90536	241	95039	247	84279	269	757
29/07/2006	90776	240	95287	248	84542	263	751
30/07/2006	91017	241	95535	248	84812	270	759
31/07/2006	91259	242	95783	248	84951	139	629
Total		**7379**		**7292**		**4750**	**19421**

JULY 2006

	MCC01		MCC02		MCC03		SASS		Total Usage	Net Power Production
	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference		
1/07/2006	6468	17	6112	17	5560	16	1401	0	50	616
2/07/2006	6485	17	6129	17	5576	16	1409	8	58	516
3/07/2006	6502	17	6146	17	5590	14	1409	0	48	682
4/07/2006	6519	17	6163	17	5605	15	1418	8	57	697
5/07/2006	6537	18	6180	17	5620	15	1418	0	50	716
6/07/2006	6554	17	6198	18	5635	15	1418	0	50	502
7/07/2006	6571	17	6215	17	5649	14	1426	8	56	574
8/07/2006	6584	13	6224	9	5653	4	1426	0	26	229
9/07/2006	6599	15	6234	10	5653	0	1434	8	33	220
10/07/2006	6616	17	6251	17	5658	5	1434	0	39	456
11/07/2006	6633	17	6268	17	5664	6	1443	8	48	445
12/07/2006	6650	17	6285	17	5671	7	1443	0	41	467
13/07/2006	6667	17	6302	17	5685	14	1451	8	56	706
14/07/2006	6684	17	6320	18	5692	7	1451	0	42	565
15/07/2006	6701	17	6337	17	5700	8	1460	8	50	545
16/07/2006	6718	17	6354	17	5710	10	1460	0	44	622
17/07/2006	6734	16	6371	17	5719	9	1468	8	50	564
18/07/2006	6749	15	6388	17	5729	10	1468	0	42	565
19/07/2006	6764	15	6405	17	5746	17	1468	0	49	711
20/07/2006	6778	14	6422	17	5759	13	1476	8	52	608
21/07/2006	6793	15	6439	17	5769	10	1476	0	42	564
22/07/2006	6808	15	6456	17	5780	11	1485	8	51	533
23/07/2006	6822	14	6473	17	5793	13	1485	0	44	610
24/07/2006	6837	15	6491	18	5804	11	1493	8	52	562
25/07/2006	6852	15	6508	17	5816	12	1493	0	44	563
26/07/2006	6869	17	6524	16	5832	16	1502	9	58	698
27/07/2006	6886	17	6541	17	5847	15	1502	0	49	708
28/07/2006	6903	17	6558	17	5861	14	1510	8	56	701
29/07/2006	6920	17	6576	18	5876	15	1510	0	50	701

30/07/2006	6937	17	6593	17	5890	14	1518	8	56	703
31/07/2006	6954	17	6610	17	5899	9	1518	0	43	586
Total		**503**		**515**		**355**		**117**		**17931**

AUGUST 2006

	GN101		GN201		GN301		
	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Gross Power Production
	MWhrs	MWhrs	MWhrs	MWhrs	MWhrs	MWhrs	MWhrs
1/08/2006	91499	240	96030	247	85220	269	756
2/08/2006	91739	240	96278	248	85475	255	743
3/08/2006	91979	240	96526	248	85744	269	757
4/08/2006	92219	240	96774	248	86014	270	758
5/08/2006	92459	240	97023	249	86284	270	759
6/08/2006	92699	240	97271	248	86555	271	759
7/08/2006	92939	240	97519	248	86826	271	759
8/08/2006	93179	240	97769	250	87098	272	762
9/08/2006	93420	241	98018	249	87369	271	761
10/08/2006	93661	241	98267	249	87640	271	761
11/08/2006	93901	240	98515	248	87910	270	758
12/08/2006	94140	239	98763	248	88180	270	757
13/08/2006	94380	240	99011	248	88452	272	760
14/08/2006	94599	219	99238	227	88696	244	690
15/08/2006	94836	237	99484	246	88964	268	751
16/08/2006	95074	238	99731	247	89201	237	722
17/08/2006	95311	237	99976	245	89469	268	750
18/08/2006	95544	233	100215	239	89726	257	729
19/08/2006	95781	237	100460	245	89995	269	751
20/08/2006	96017	236	100705	245	90263	268	749
21/08/2006	96253	236	100949	244	90532	269	749
22/08/2006	96490	237	101195	246	90801	269	752
23/08/2006	96725	235	101438	243	91045	244	722
24/08/2006	96959	234	101680	242	91312	267	743
25/08/2006	97194	235	101925	245	91581	269	749
26/08/2006	97428	234	102169	244	91849	268	746
27/08/2006	97659	231	102411	242	92115	266	739
28/08/2006	97891	232	102653	242	92379	264	738
29/08/2006	98121	230	102893	240	92643	264	734
30/08/2006	98353	232	103136	243	92910	267	742
31/08/2006	98584	231	103379	243	93176	266	740
Total		**7325**		**7596**		**8225**	**23146**

AUGUST 2006

	MCC01		MCC02		MCC03		SASS		Total Usage	Net Power Production
	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference		
1/08/2006	6971	17	6627	17	5914	15	1527	8	57	699
2/08/2006	6988	17	6644	17	5928	14	1527	0	48	695
3/08/2006	7006	18	6661	17	5943	15	1535	8.39	58	699
4/08/2006	7023	17	6678	17	5958	15	1535	0	49	709
5/08/2006	7040	17	6695	17	5972	14	1544	8.38	56	703
6/08/2006	7057	17	6712	17	5987	15	1544	0	49	710
7/08/2006	7074	17	6729	17	6001	14	1552	8.39	56	703
8/08/2006	7091	17	6746	17	6016	15	1552	0	49	713
9/08/2006	7108	17	6763	17	6031	15	1560	8.39	57	704
10/08/2006	7125	17	6781	18	6045	14	1560	0	49	712
11/08/2006	7142	17	6796	15	6062	17	1569	8.39	57	701
12/08/2006	7159	17	6811	15	6078	16	1569	0	48	709
13/08/2006	7176	17	6826	15	6095	17	1577	8.39	57	703
14/08/2006	7193	17	6840	14	6112	17	1577	0	48	642
15/08/2006	7210	17	6855	15	6129	17	1585	8.39	57	694
16/08/2006	7227	17	6870	15	6146	17	1585	0	49	673
17/08/2006	7244	17	6885	15	6162	16	1594	8.39	56	694
18/08/2006	7261	17	6903	18	6176	14	1594	0	49	680
19/08/2006	7278	17	6920	17	6191	15	1602	8.38	57	694
20/08/2006	7295	17	6937	17	6205	14	1602	0	48	701
21/08/2006	7313	18	6954	17	6220	15	1611	8.39	58	691
22/08/2006	7329	16	6970	16	6237	17	1611	0	49	703
23/08/2006	7343	14	6987	17	6254	17	1619	8.39	56	666
24/08/2006	7358	15	7004	17	6270	16	1619	0	48	695
25/08/2006	7374	16	7021	17	6286	16	1627	8.39	57	692
26/08/2006	7391	17	7038	17	6301	15	1627	0	49	697
27/08/2006	7409	18	7055	17	6316	15	1636	8.39	58	681
28/08/2006	7426	17	7072	17	6330	14	1636	0	48	690
29/08/2006	7443	17	7088	16	6346	16	1644	8.39	57	677

30/08/2006	7460	17	7103	15	6363	17	1644	0	49	693
31/08/2006	7477	17	7117	14	6380	17	1653	8.39	56	684
Total		**523**		**507**		**481**		**134**	**1645**	**21501**

SEPTEMBER 2006

	GN101		GN201		GN301		
	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Gross Power Production
	MWhrs	MWhrs	MWhrs	MWhrs	MWhrs	MWhrs	MWhrs
1/09/2006	98816	232	103622	243	93444	268	743
2/09/2006	99049	233	103865	243	93712	268	744
3/09/2006	99281	232	104108	243	93976	264	739
4/09/2006	99513	232	104350	242	94238	262	736
5/09/2006	99745	232	104592	242	94506	268	742
6/09/2006	99977	232	104836	244	94774	268	744
7/09/2006	100208	231	105077	241	95025	251	723
8/09/2006	100438	230	105317	240	95289	264	734
9/09/2006	100667	229	105556	239	95553	264	732
10/09/2006	100896	229	105795	239	95815	262	730
11/09/2006	101126	230	106036	241	96081	266	737
12/09/2006	101354	228	106275	239	96344	263	730
13/09/2006	101585	231	106515	240	96610	266	737
14/09/2006	101815	230	106756	241	96876	266	737
15/09/2006	102048	233	106998	242	96957	81	556
16/09/2006	102275	227	107234	236	97218	261	724
17/09/2006	102506	231	107475	241	97464	246	718
18/09/2006	102734	228	107712	237	97727	263	728
19/09/2006	102963	229	107951	239	97990	263	731
20/09/2006	103192	229	108190	239	98254	264	732
21/09/2006	103322	130	108415	225	98486	232	587
22/09/2006	103525	203	108658	243	98753	267	713
23/09/2006	103756	231	108902	244	99021	268	743
24/09/2006	103987	231	109144	242	99288	267	740
25/09/2006	104218	231	109387	243	99553	265	739
26/09/2006	104449	231	109630	243	99817	264	738
27/09/2006	104678	229	109865	235	100053	236	700
28/09/2006	104903	225	110101	236	100312	259	720
29/09/2006	105123	220	110316	215	100567	255	690
30/09/2006	105333	210	110546	230	100821	254	694
Total		**6749**		**7167**		**7645**	**21561**

SEPTEMBER 2006

	MCC01		MCC02		MCC03		SASS		Total Usage	Net Power Production
	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference	Meter Reading	24hr Difference		
1/09/2006	7494	17	7132	15	6397	17	1653	0	49	694
2/09/2006	7511	17	7147	15	6414	17	1661	8.38	57	687
3/09/2006	7528	17	7161	14	6430	16	1661	0	47	692
4/09/2006	7545	17	7176	15	6447	17	1669	8.39	57	679
5/09/2006	7562	17	7192	16	6463	16	1669	0	49	693
6/09/2006	7579	17	7209	17	6478	15	1678	8.39	57	687
7/09/2006	7596	17	7226	17	6492	14	1678	0	48	675
8/09/2006	7613	17	7243	17	6507	15	1686	8.39	57	677
9/09/2006	7630	17	7260	17	6521	14	1686	0	48	684
10/09/2006	7646	16	7277	17	6537	16	1686	0	49	681
11/09/2006	7662	16	7294	17	6553	16	1695	8.39	57	680
12/09/2006	7678	16	7310	16	6570	17	1703	8.39	57	673
13/09/2006	7695	17	7325	15	6586	16	1703	0	48	689
14/09/2006	7712	17	7341	16	6602	16	1711	8.39	57	680
15/09/2006	7729	17	7359	18	6609	7	1711	0	42	514
16/09/2006	7746	17	7376	17	6624	15	1720	8.38	57	667
17/09/2006	7763	17	7391	15	6640	16	1720	0	48	670
18/09/2006	7780	17	7406	15	6657	17	1728	8.39	57	671
19/09/2006	7797	17	7421	15	6674	17	1728	0	49	682
20/09/2006	7814	17	7437	16	6690	16	1736	8.39	57	675
21/09/2006	7830	16	7454	17	6704	14	1736	0	47	540
22/09/2006	7847	17	7472	18	6718	14	1745	8.39	57	656
23/09/2006	7864	17	7489	17	6733	15	1745	0	49	694
24/09/2006	7881	17	7506	17	6747	14	1753	8.38	56	684
25/09/2006	7898	17	7523	17	6762	15	1753	0.01	49	690
26/09/2006	7914	16	7541	18	6777	15	1762	8.39	57	681
27/09/2006	7931	17	7558	17	6792	15	1762	0	49	651
28/09/2006	7948	17	7575	17	6807	15	1770	8.39	57	663
29/09/2006	7965	17	7591	16	6822	15	1770	0	48	642

30/09/2006	7981	16	7607	16	6838	16	1778	8.39	56	638
Total		**504**		**490**		**458**		**126**	**1578**	**19983**

Appendix 6

MAY 2006

Date	Net Power Production	CO2 Emission Factor	Emission Reduction
29/05/2006	640	0.678	434
30/052006	673	0.678	456
31/05/2006	663	0.678	450
Total	**1976**	**0.678**	**1340**

JUNE 2006

Date	Net Power Production	CO2 Emission Factor	Emission Reduction
1/06/2006	685	0.678	464
2/06/2006	679	0.678	460
3/06/2006	705	0.678	478
4/06/2006	711	0.678	482
5/06/2006	708	0.678	480
6/06/2006	554	0.678	376
7/06/2006	698	0.678	473
8/06/2006	714	0.678	484
9/06/2006	720	0.678	488
10/06/2006	712	0.678	483
11/06/2006	722	0.678	490
12/06/2006	713	0.678	483
13/06/2006	664	0.678	450
14/06/2006	711	0.678	482
15/06/2006	653	0.678	443
16/06/2006	714	0.678	484
17/06/2006	706	0.678	479
18/06/2006	702	0.678	476
19/06/2006	715	0.678	485
20/06/2006	709	0.678	481
21/06/2006	698	0.678	473
22/06/2006	611	0.678	414
23/06/2006	667	0.678	452
24/06/2006	694	0.678	471
25/06/2006	689	0.678	467
26/06/2006	708	0.678	480
27/06/2006	702	0.678	476
28/06/2006	698	0.678	473
29/06/2006	705	0.678	478
30/06/2006	566	0.678	384
Total	**20633**	**0.678**	**13989**

JULY 2006

Date	Net Power Production	CO2 Emission Factor	Emission Reduction
1/07/2006	616	0.678	418
2/07/2006	516	0.678	350
3/07/2006	682	0.678	462
4/07/2006	696	0.678	472
5/07/2006	716	0.678	485
6/07/2006	502	0.678	340
7/07/2006	574	0.678	389
8/07/2006	233	0.678	158
9/07/2006	216	0.678	146
10/07/2006	456	0.678	309
11/07/2006	444	0.678	301
12/07/2006	467	0.678	317
13/07/2006	706	0.678	479
14/07/2006	565	0.678	383
15/07/2006	546	0.678	370
16/07/2006	622	0.678	422
17/07/2006	563	0.678	382
18/07/2006	565	0.678	383
19/07/2006	711	0.678	482
20/07/2006	608	0.678	412
21/07/2006	564	0.678	382
22/07/2006	532	0.678	361
23/07/2006	610	0.678	414
24/07/2006	562	0.678	381
25/07/2006	563	0.678	382
26/07/2006	698	0.678	473
27/07/2006	708	0.678	480
28/07/2006	701	0.678	475
29/07/2006	701	0.678	475
30/07/2006	703	0.678	477
31/07/2006	586	0.678	397
Total	**17932**	**0.678**	**12158**

AUGUST 2006

Date	Net Power Production	CO2 Emission Factor	Emission Reduction
1/08/2006	698	0.678	473
2/08/2006	695	0.678	471
3/08/2006	699	0.678	474
4/08/2006	709	0.678	481
5/08/2006	702	0.678	476
6/08/2006	710	0.678	481
7/08/2006	703	0.678	477
8/08/2006	713	0.678	483
9/08/2006	704	0.678	477
10/08/2006	712	0.678	483
11/08/2006	700	0.678	475
12/08/2006	709	0.678	481
13/08/2006	703	0.678	477
14/08/2006	642	0.678	435
15/08/2006	694	0.678	471
16/08/2006	673	0.678	456
17/08/2006	693	0.678	470
18/08/2006	680	0.678	461
19/08/2006	694	0.678	471
20/08/2006	701	0.678	475
21/08/2006	681	0.678	462
22/08/2006	712	0.678	483
23/08/2006	666	0.678	452
24/08/2006	695	0.678	471
25/08/2006	692	0.678	469
26/08/2006	693	0.678	470
27/08/2006	684	0.678	464
28/08/2006	690	0.678	468
29/08/2006	677	0.678	459
30/08/2006	693	0.678	470
31/08/2006	683	0.678	463
Total	**21500**	**0.678**	**14577**

SEPTEMBER 2006

Date	Net Power Production	CO2 Emission Factor	Emission Reduction
1/09/2006	694	0.678	471
2/09/2006	687	0.678	466
3/09/2006	693	0.678	470
4/09/2006	678	0.678	460
5/09/2006	693	0.678	470
6/09/2006	686	0.678	465
7/09/2006	675	0.678	458
8/09/2006	677	0.678	459
9/09/2006	684	0.678	464
10/09/2006	681	0.678	462
11/09/2006	679	0.678	460
12/09/2006	673	0.678	456
13/09/2006	689	0.678	467
14/09/2006	680	0.678	461
15/09/2006	514	0.678	348
16/09/2006	666	0.678	452
17/09/2006	670	0.678	454
18/09/2006	671	0.678	455
19/09/2006	682	0.678	462
20/09/2006	675	0.678	458
21/09/2006	540	0.678	366
22/09/2006	655	0.678	444
23/09/2006	694	0.678	471
24/09/2006	684	0.678	464
25/09/2006	690	0.678	468
26/09/2006	681	0.678	462
27/09/2006	651	0.678	441
28/09/2006	662	0.678	449
29/09/2006	642	0.678	435
30/09/2006	638	0.678	433
Total	**19984**	**0.678**	**13549**