



RINA

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Final

“Adana Landfill Waste Management Project - Turkey”
in
Turkey

Monitoring period: 01/01/2011 to 31/12/2012

Report N° 2013-TQ-19-MD

Revision N° 1.3

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Project Title: Adana Landfill Waste Management Project - Turkey	Country: Turkey	Estimated VERs (tCO_{2e}): 615,410 (for this monitoring period)
GS Registration Reference N°: 715	Monitoring period: 01/01/2011 to 31/12/2012	Certified VERs (tCO_{2e}): 396,231
Client: ITC Invest Trading & Consulting A.G. Turkish Ankara Branch	Client contact: Tuğba KIRER	
Report No.: 2013-TQ-19-MD	Revision: 1.3	Date of this report: 09/09/2013
Approved by (Final Report – Authorized officer signing for the DOE):  Laura Severino		Date of approval: 11/09/2013

Methodology

Number:	Version:	Title:	Scale	SS(s):
ACM0001	11 of 28/05/2009	Consolidated baseline and monitoring methodology for landfill gas project activities	Large	13
AM0025	12 of 30/07/2010	Avoided emissions from organic waste through alternative waste treatment processes		

RINA Services S.p.A. (RINA), commissioned by ITC Invest Trading & Consulting A.G. Turkish Ankara Subesi, has verified the greenhouse gas emission reductions reported for the project activity "Adana Landfill Waste Management Project - Turkey" in Turkey, GS Registration Reference N° 715, for the period 01/01/2011 to 31/12/2012, with regard to the relevant requirements for CDM and GS activities. The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable GS VER requirements, which refer to CDM rules, in order to be certified.

The project was validated by Det Norske Veritas (validation report N° 2011-9118 revision 01 issued on 14/03/2012) and it was registered on 14/06/2012 under the GS registration reference N° 715. The GHG emission reductions were calculated on the basis of the approved methodology ACM0001, version 11, "Consolidated baseline and monitoring methodology for landfill gas project activities" of 28/05/2009 and AM0025, version 12, "Avoided emissions from organic waste through alternative waste treatment processes" of 30/07/2010 and the monitoring plan included in the registered Project Design Document, version 10 of 20/12/2012.

In conclusion, it is RINA's opinion that the project activity "Adana Landfill Waste Management Project – Turkey", in "Turkey, as described in the Monitoring Report version 05.0 of 17/08/2013, meets all relevant requirements for GS and CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology "ACM0001", "Consolidated baseline and monitoring methodology for landfill gas project activities", version 11 of 28/05/2009 and "AM0025", "Avoided emissions from organic waste through alternative waste treatment processes", version 12 of 30/07/2010. Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/01/2011 to 31/12/2012 amount to 396,231 tCO_{2e}.

Baseline Emissions	403,330 tCO _{2e}
Project Emissions	2.9 tCO _{2e}
Leakage	7,095 tCO _{2e}
Net GHG emission reductions/removal	396,231 tCO _{2e}

Work carried out by:

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Work verified by:

Rita Valoroso


Keywords:

Climate Change, Kyoto Protocol, Verification, Gold Standard

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Abbreviations

AF	Adjustment Factor
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CEF	Carbon Emission Factor
CH ₄	Methane
CR	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission Reductions
GHG(s)	Greenhouse gas(es)
GS	Gold Standard
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LFG	Landfill gas
LoA	Letter of Approval
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PGU	Power Generation Unit
PMUM	Market Financial Conciliation Center (Piyasa Mali Uzlastirma Merkezi)
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SDI	Sustainable Development Indicator
SS(s)	Sectoral Scope(s)
TEIAS	Turkish Electricity Transmission Company (Turkiye Elektrik Iletim A.S.)
UNFCCC	United Nations Framework Convention on Climate Change
VERs	Verified Emission Reduction(s)
VVS	Validation and Verification Standard

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1 INTRODUCTION

ITC Invest Trading & Consulting A.G. Türkiye Ankara Branch has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered “Adana Landfill Waste Management Project - Turkey” project in Turkey, GS Registration Reference N° 715, for the period 01/01/2011 to 31/12/2012.

This report summarizes the findings of the verification of the project, performed on the basis of GS VER requirements, which refer to CDM rules, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The objective of the verification is to have an independent review ex post determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered GS project activity during a defined monitoring period and to monitor the impact of project activity on sustainable development, throughout the monitoring of the non-neutral Sustainable Development Indicators and moreover to monitor all the mitigation and compensation measures put in place. Certification is the written assurance by the DOE that, during a specific time period, a proposed GS project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified and that all the defined Sustainable Development Indicators to be monitored have been monitored according to the sustainability monitoring plan and that all the mitigation measures forecast have been correctly and effectively implemented.

The objective of this verification/certification was to verify and certify emission reductions and effective implementation of the monitoring of sustainable development indicators and mitigation measures, reported for the “Adana Landfill Waste Management Project - Turkey” project in Turkey for the period 01/01/2011 to 31/12/2012.

1.2 Scope

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence;
- to evaluate whether all the mitigation measures have been effectively put in place according to the monitoring plan and that all the sustainable development indicators have been correctly monitored.

Verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable GS VER requirements, which refer to CDM rules, in order to be certified.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

The GS criteria refer to GS requirements, GS Toolkit and supporting annexes.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

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2 METHODOLOGY

Verification was conducted using RINA procedures in line with the requirements specified in the GS Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The verification consisted of the following three phases:

- Desk review;
- On-site assessment;
- The resolution of outstanding issues and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

2.1 Desk Review

The monitoring report version 05.0 of 17/08/2013 [/3/](#), the emission reduction calculations provided in the form of a spreadsheet, “Adana Landfill Waste Management Project Emission Reduction Calculation v2 11062013.xlsx” version 02 of 11/06/2013 [/4/](#), the approved baseline and monitoring methodology ACM0001 version 11 [/11/](#) and AM0025 version 12 [/12/](#), all the documentation provided to support the monitoring period [/01 – 137/](#) were assessed as part of the verification. In addition, the Project Design Document (PDD) [/1/](#) and GS Passport [/2/](#), in particular as regards the baseline estimations, the monitoring plan, and the Validation Report revision 01 of 14/03/2012 [/13/](#) for the project, were reviewed.

The following table lists the documentation that was reviewed during the verification.

/1/	OAK Danışmanlık: CDM-PDD for “Adana Landfill Waste Management Project - Turkey” in Turkey, version 10 of 20/12/2012
/2/	OAK Danışmanlık: GS Passport for “Adana Landfill Waste Management Project - Turkey” in Turkey
/3/	OAK Danışmanlık: Monitoring Report for “Adana Landfill Waste Management Project - Turkey” in Turkey, version 01.0 of 21/03/2013 OAK Danışmanlık: Monitoring Report for “Adana Landfill Waste Management Project - Turkey” in Turkey, version 02.0 of 11/06/2013 OAK Danışmanlık: Monitoring Report for “Adana Landfill Waste Management Project - Turkey” in Turkey, version 03.0 of 12/06/2013 OAK Danışmanlık: Monitoring Report for “Adana Landfill Waste Management Project - Turkey” in Turkey, version 04.0 of 04/07/2013 OAK Danışmanlık: Monitoring Report for “Adana Landfill Waste Management Project - Turkey” in Turkey, version 05.0 of 17/08/2013
/4/	OAK Danışmanlık: Emission Reduction Calculation Spreadsheet “Adana Landfill Waste Management Project_Emission Reduction Calculation_v1.0_21032013.xlsx” version 01 of 21/03/2013 OAK Danışmanlık: Emission Reduction Calculation Spreadsheet “Adana Landfill Waste Management Project Emission Reduction Calculation v2 11062013.xlsx” version 02 of 11/06/2013
/5/	The Gold Standard: The Gold Standard Validation & Verification Standard for Voluntary Offset Projects of June 2007
/6/	The Gold Standard: Voluntary Emission Reductions (VERs) Manual for Project Developers, of May 2006
/7/	Gold Standard Foundation: Gold Standard Requirements, version 2.1 of 01/07/2009
/8/	Gold Standard Foundation: Gold Standard Toolkit, version 2.1 of 01/07/2009
/9/	The Gold Standard Foundation: Adana Landfill Gas Collection and Energy Utilization Project, Turkey (GS715) 8-week Registration Review Period Document of 05/11/2012

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/10/	CDM Executive Board: Validation and Verification Standard, 03.0 of 23/11/2012
/11/	CDM Executive Board: Baseline and Monitoring Methodology "ACM0001", "Consolidated baseline and monitoring methodology for landfill gas project activities", version 11 of 28/05/2009
/12/	CDM Executive Board: Baseline and Monitoring Methodology "AM0025", "Avoided emissions from organic waste through alternative waste treatment processes", version 12 of 30/07/2010
/13/	Det Norske Veritas (DNV): Validation Report for "Adana Landfill Waste Management Project - Turkey" in Turkey, No. 2011-9118 revision 01 of 14/03/2012
/14/	CDM Executive Board: Methodological Tool "Tool to determine project emissions from flaring gases containing methane", version 01 of December 2006
/15/	CDM Executive Board: Methodological Tool "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", version 05 of 30/07/2010
/16/	CDM Executive Board: Methodological tool "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", version 01 of 28/05/2009
/17/	CDM Executive Board: Methodological Tool "Tool to calculate the emission factor for an electricity system", version 02 of 16/10/2009
/18/	CDM Executive Board: Monitoring Report Form (F-CDM-MR), version 03.1 of 02/01/2013
/19/	CDM Executive Board: Guideline for Completing the Monitoring Report Form, version 03.2 of 06/12/2012
/20/	The Gold Standard Foundation: Email about the confirmation of start date of crediting period of 01/03/2013
/21/	Ministry of Energy and Natural Resources: Provisional Acceptance Protocol of 02/09/2010 (GM-1, GM-2, GM-3, GM-4, GM-5, GM-6 and GM-7) Ministry of Energy and Natural Resources: Provisional Acceptance Protocol of 06/10/2011 (GM-8) Ministry of Energy and Natural Resources: Provisional Acceptance Protocol of 01/12/2012 (GM-9-, GM-10, GM-11)
/22/	ITC Invest Trading & Consulting AG: Internal Protocol for start of operation of the first 3 digester of 15/12/2010 (operation date 21/01/2011)
/23/	ITC Invest Trading & Consulting AG: Internal Protocol for connection of GM-1, GM-2 and GM-3 to Booster 1 of 02/05/2011 (connection date 15/05/2011)
/24/	ITC Invest Trading & Consulting AG: Internal Protocol for connection of GM-4 to Booster 1 of 19/12/2011 (connection date 26/12/2011)
/25/	ITC Invest Trading & Consulting AG: Internal Protocol for start of operation of the additional 3 digester of 26/03/2012 (operation date 18/04/2012)
/26/	ITC Invest Trading & Consulting AG: Booster 2 data logbook from 01/01/2011 to 31/12/2012, "Adana Booster2 LFG.xlsx"
/27/	ITC Invest Trading & Consulting AG: Booster 1 and Booster 2 raw data from 01/01/2011 to 31/12/2012, "Booster 1 & 2 (2011 and 2012).xlsx"
/28/	Market Financial Settlement Center (PMUM): Monthly Electricity Record of January 2011 Monthly Electricity Record of February 2011 Monthly Electricity Record of March 2011 Monthly Electricity Record of April 2011 Monthly Electricity Record of May 2011 Monthly Electricity Record of June 2011 Monthly Electricity Record of July 2011 Monthly Electricity Record of August 2011 Monthly Electricity Record of September 2011 Monthly Electricity Record of October 2011

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	Monthly Electricity Record of November 2011 Monthly Electricity Record of December 2011 Monthly Electricity Record of January 2012 Monthly Electricity Record of February 2012 Monthly Electricity Record of March 2012 Monthly Electricity Record of April 2012 Monthly Electricity Record of May 2012 Monthly Electricity Record of June 2012 Monthly Electricity Record of July 2012 Monthly Electricity Record of August 2012 Monthly Electricity Record of September 2012 Monthly Electricity Record of October 2012 Monthly Electricity Record of November 2012 Monthly Electricity Record of December 2012
/29/	Adana Çevre Merkezi: Stack Gas Analysis Report No AÇM/11/E-059/08.09.2011 of 07/09/2011
/30/	Adana Çevre Merkezi: Stack Gas Analysis Report No AÇM/11/E-063/28.09.2011 of 26/09/2011
/31/	Ekosistem Çevre Analiz Laboratuvarı: Stack Gas Analysis Report No N-6428/11 of 03/12/2011
/32/	Ekosistem Çevre Analiz Laboratuvarı: Stack Gas Analysis Report No N-330/12 of 30/01/2012
/33/	Adana Çevre Merkezi: Stack Gas Analysis Report No AÇM/11/E-076 of 01/08/2012
/34/	Ekosistem Çevre Analiz Laboratuvarı: Stack Gas Analysis Report No N-4444/12 of 22/09/2012
/35/	Ekosistem Çevre Analiz Laboratuvarı: Stack Gas Analysis Report No N-5511/12 of 29/11/2012
/36/	ITC Invest Trading & Consulting AG: Operating Hours of Engines GM1 to GM11 Monthly Reading Form, from 01/01/2011 to 31/12/2012
/37/	ITC Invest Trading & Consulting AG: Composition Analysis Form (10 records in 2011, 21 records in 2012)
/38/	ITC Invest Trading & Consulting AG: Training List (41 records), submitted on 15/04/2013
/39/	ITC Invest Trading & Consulting AG: Device Changing Forms (23 records), submitted on 11/04/2013
/40/	Social Security Institution: Payroll Sheet List for all Employees of 10/04/2013
/41/	Tunaylar Baskul San. ve Tic. A.S.: Calibration Certificate No 10031818– Belt Weighter SEG BK of 18/03/2010
/42/	ITC Invest Trading & Consulting AG: Organic Weighbridge Database, Submitted on 11/05/2013
/43/	SEG: Data Sheet for Loadcell KN4, submitted on 10/04/2013
/44/	Toroslar Electricity Distribution Co.: Meter Control, Power Cut Off/Export and Sealing Form (2 records) of 22/07/2010
/45/	ITC Invest Trading & Consulting AG: Measurement Equipment Installation Protocol of 15/05/2010
/46/	Itron France: Certificate of Conformity for the Meters of 11/04/2013
/47/	ITC Invest Trading & Consulting AG: Fermentation Output-Compost Weighing Form (5 records), submitted on 11/04/2013
/48/	ITC Invest Trading & Consulting AG: Subcontractor Scavenger Personnel List (84

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	employees), submitted on 10/04/2013 ITC Invest Trading & Consulting AG: ITC Scavenger Personnel List (6 employees), submitted on 10/04/2013
/49/	Tekon Teknolojik Endustriyel Kontrol Sistemleri San ve Tic Ltd. Sti: Thermocouple Specifications submitted on 10/04/2
/50/	ABB Elektrik Sanayi A.S.: Calibration Certificate No 1000471291 of 25/08/2011 – Pressure Transducers ABB 2600T sn 3K646611009247
/51/	ABB Elektrik Sanayi A.S.: Calibration Certificate No 1000299153 of 19.02.2008 - Flow Meter ABB 2600T sn 6408005055
/52/	ABB Elektrik Sanayi A.S.: Calibration Certificate No 1000386949 of 17/12/2009 – Flow Meter ABB 2600T sn 6409029293
/53/	ABB Elektrik Sanayi A.S.: Calibration Certificate No 1000386959 of 16.12.2009 - Flow Meter ABB 2600T sn 6409029303
/54/	Uzmanlar Metroloji Servisi: Calibration Certificate No M11S29220 of 17/02/2012 - Temperature Transmitter ELIMKO RT03-1P08-5-U-Tr sn 08/14623T
/55/	Uzmanlar Metroloji Servisi: Calibration Certificate No C9S1930 of 04/02/2010 - Thermocouple ELIMKO TC02-1S4Y10-50/10-R1/2-Tr-S sn 08/30902
/56/	Uzmanlar Metroloji Servisi: Calibration Certificate No C10S3338 of 02/03/2010 – Temperature Transmitter ELIMKO RT03-1P06-7,5-Tr sn 08/33886
/57/	Uzmanlar Metroloji Servisi: Calibration Certificate No C10S3341 of 02/03/2010 – Temperature Transmitter ELIMKO RT03-1P06-7,5-Tr sn 08/33890
/58/	Uzmanlar Metroloji Servisi: Calibration Certificate No C10S3342 of 02/03/2010 – Temperature Transmitter ELIMKO RT03-1P06-7,5-Tr sn 08/33892
/59/	Uzmanlar Metroloji Servisi: Calibration Certificate No 10S1886 of 20/10/2010 - Temperature Transmitter ELIMKO Pt-100 sn 09/6659
/60/	Uzmanlar Metroloji Servisi: Calibration Certificate No S56822 of 24/02/2012 – Temperature Transmitter ELIMKO RT03-1K09-70-U-Tr sn 09/6659
/61/	Uzmanlar Metroloji Servisi: Calibration Certificate No C11S27284 of 17/02/2011 - Temperature Transmitter ELIMKO Pt-100 sn 09/23188
/62/	NETES Muhendislik ve Dis Tic. LTD. STI.: Calibration Certificate No S08090722 of 17/09/2008 - Thermocouple HAASE 1 PTRH-PT/S sn 2006000477/920-1
/63/	Uzmanlar Metroloji Servisi: Calibration Certificate No 10B0092 of 09/03/2010 - Pressure Transducers KELLER PAA-21S sn 70188
/64/	Uzmanlar Metroloji Servisi: Calibration Certificate No E11B29226 of 04/03/2011 - Pressure Transducers KELLER PAA-21S sn 128862
/65/	Uzmanlar Metroloji Servisi: Calibration Certificate No B56827 of 24/02/2012 - Pressure Transducers KELLER PAA-21S sn 128866
/66/	Uzmanlar Metroloji Servisi: Calibration Certificate No E11B29229 of 04/03/2011 - Pressure Transducers KELLER PAA-21S sn 128872
/67/	Uzmanlar Metroloji Servisi: Calibration Certificate No B56823 of 24/02/2012 - Pressure Transducers KELLER PAA-21S sn 128873
/68/	Turk Standartlari Enstitusu: Calibration Certificate No 10B0093 of 10/03/2010 - Pressure Transducers KELLER PR23 sn 129590
/69/	Uzmanlar Metroloji Servisi: Calibration Certificate No B55303 of 15/02/2012 - Pressure Transducers KELLER PR23 sn 138895
/70/	NETES Muhendislik ve Dis Tic. LTD. STI.: Calibration Certificate No M11020251 of 23/02/2011 - Pressure Transducers KELLER PR23 sn 138899
/71/	Uzmanlar Metroloji Servisi: Calibration Certificate No B43379 of 09/09/2011 - Pressure Transducers KELLER PR23 sn 145076
/72/	Uzmanlar Metroloji Servisi: Calibration Certificate No C8S326 of 05/11/2008 - Temperature

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	Transmitter NOVA-Z ODE-RTD-OR03-B1H09-2310 sn 0801-00553
/73/	Uzmanlar Metroloji Servisi: Calibration Certificate No C11S28514 of 25/02/2011 - Temperature Transmitter NOVA-Z ODE-RTD-OR03-B1H09-ÜHT sn 0802-01120
/74/	S-E-G Instrument AB: Calibration Certificate of Loadcell SEG KN4-100 sn A0928006 of 16/01/2012
/75/	S-E-G Instrument AB: Calibration Certificate of Loadcell SEG KN4-100 sn A0928006 of 17/01/2011
/76/	Türk Standartları Enstitüsü: Calibration Certificate No 10G0006 of 12/02/2011 – Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196
/77/	Türk Standartları Enstitüsü: Calibration Certificate No 10G0006 of 19/02/2010 – Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196
/78/	Türk Standartları Enstitüsü: Calibration Certificate No 10G0006 of 21/01/2012 – Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196
/79/	Uzmanlar Metroloji Servisi: Calibration Certificate No M11S29219 of 04/03/2011 – Temperature Transmitter TEKON TRT03-B1E06-12Ü-TR sn 10/0748
/80/	Uzmanlar Metroloji Servisi: Calibration Certificate No M11S29220 of 04/03/2011 - Temperature Transmitter TEKON TRT03-B1E06-12-Ü-TR sn 10/0749
/81/	Uzmanlar Metroloji Servisi: Calibration Certificate No 11SC060 of 24/01/2011 - Temperature Transmitter TEKON 1xPt-100(3W) sn 11/0072
/82/	Türk Standartları Enstitüsü: Calibration Certificate No 10B0077 of 18/03/2010 - Pressure Transducers WIKA S-10 sn I970T/4103354
/83/	The Governor of Adana-Provincial Science and Technology Directorate of Industry: Calibration Certificate No 869 of 12/03/2012 - Weigh bridge Ozkanlar B2 sn E-888
/84/	The Governor of Adana-Provincial Science and Technology Directorate of Industry: Calibration Certificate No 1857 of 20/05/2011 - Weigh bridge Ozkanlar B2 sn E-637
/85/	The Governor of Adana-Provincial Science and Technology Directorate of Industry: Calibration Certificate No D10-09-003 of 26/12/2010 - Weigh bridge Ozkanlar B2 sn E-888
/86/	Adana Cimento: Brochure of Slag Cement (2 documents), submitted on 10/04/2013
/87/	Adana Cimento: Blastfurnace Slag Cement Catalog, submitted on 10/04/2013
/88/	Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 177052 of 07/06/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 177796 of 28/06/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 178068 of 07/07/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 177894 of 30/06/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 178586 of 22/07/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 178448 of 16/07/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 180713 of 30/09/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 180378 of 21/09/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 180586 of 28/09/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 180110 of 07/09/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 180109 of 07/09/2010 Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 179913 of 31/08/2010

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	Bozkurtlar Insaat Malzemeleri San. Tic. Ltd. Sti.: Invoice of Ready-Mixed Concrete No: 179799 of 28/08/2010
/89/	Adana Cimento: Cover Letter for Information about Slag Cement of 19/02/2009
/90/	Ministry of Education: Certificate of Garbage Collection Training (12 employees) of 12/08/2011-14/09/2011
/91/	Erkan Egitim Kurumlari: Certificate of Basic First Aid Training (14 employees) of 20-21/12/2011
/92/	Chamber of Chemical Engineers: Certificate of Medical Waste Management Training (1 employee) of 18-20/04/2012
/93/	Chamber of Chemical Engineers: Certificate of Environmental Legislation and Seveso Training (1 employee) of 13-14-15/06/2012
/94/	Bingol Yangin Sondurme Sistemleri: Pictures, Movies and Attendance List (27 employees) of the Fire Drill Training of 04/08/2012
/95/	Attendance List (14 employees) of Electrical Equipment Training given by Murat Ozbek of 06/09/2012
/96/	Pictures and Attendance List (27 employees) of Health and Safety Training given by Yildirim Cakar (H&S Expert-A Class) of 08/09/2012
/97/	Pictures and Attendance List (15 employees) of Protection from Hazards of Methane Gas Training given by Ibrahim Caputcu of 12/09/2012
/98/	Pictures and Attendance List (21 employees) of Prevention of Occupational Accidents and Disease Training given by Dr. Ahmet Ugur of 19/09/2012
/99/	Attendance List (15 employees) of Heat Pumps and Air Compressors Training given by Ozgur Dagtas of 26/09/2012
/100/	Attendance List (16 employees) of Health and Safety Training given by R. Kaan Sinan of 05/10/2012
/101/	Chamber of Mechanical Engineers: Certificate of Industrial Boiler Operation (1 employee) of 25/07/1977
/102/	Pictures and Attendance List (17 employees) of Electrical Equipment Training given by Murat Ozbek of 10/10/2012
/103/	Wavin TR Plastik Sanayi A.S.: Certificate of Electro Fusion Welding Training of 10/10/2012 (3 employees)
/104/	Attendance List (23 employees) of Safe Driving Technics given by Cagatay Vural of 16/10/2012
/105/	Attendance List (13 employees) of Protection from Hazards of Methane and Biogas Training given by Ibrahim Caputcu of 17/10/2012
/106/	Pictures and Attendance List (17 employees) of Safe Driving Technics given by Cagatay Vural of 23/10/2012
/107/	Attendance List (19 employees) of Safe Driving Technics given by Cagatay Vural of 30/10/2012
/108/	Attendance List (17 employees) of Occupational Disease Training given by Dr. Ahmet Ugur of 31/10/2012
/109/	Pictures, Movies and Attendance List (21 employees) of Pneumatic Systems Training given by Ufuk Yavuz (SMC) of 07/11/2012
/110/	Attendance List (12 employees) of Radio Speech Training given by Mustafa Ustuner of 07/11/2012
/111/	Pictures and Attendance List (31 employees) of Fire Training given by Suleyman Turker of 15/11/2012
/112/	Attendance List (10 employees) of Safe Driving Technics Training given by Cagatay Vural of 20/11/2012
/113/	Attendance List (14 employees) of Protection from Hazards of Methane and Biogas Training

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	given by Ibrahim Caputcu of 22/11/2012
/114/	Attendance List (20 employees) of The Use of Oil Training given by Sedat Biskin of 26/11/2012
/115/	Attendance List (16 employees) of Safe Driving Technics given by Cagatay Vural of 28/11/2012
/116/	Attendance List (89 employees) of Health and Safety Training given by M. Caglar Cakar of 29/11/2012
/117/	Attendance List (11 employees) of Safe Driving Technics given by Cagatay Vural of 11/12/2012
/118/	Attendance List (17 employees) of the Use of Oxygen Cylinder Training given by Ahmet Ugur of 12/12/2012
/119/	Attendance List (9 employees) of Safe Driving Technics given by Cagatay Vural of 18/12/2012
/120/	Attendance List (25 employees) of Emergency Response Training given by M. Caglar Cakar of 20/12/2012
/121/	ELIMKO: Temperature Data Sheet of Model Series E-KC-100
/122/	Novazet Endüstriyel Ürünleri Pazarlama Tic. Ltd. Şti.: Stability Protocol of 04/03/2010 - ELIMKO Temperature Transmitter
/123/	ABB Group Company: Data Sheet No.DS/266HSH/NSH-EN - ABB 2600 T Pressure Transmitter
/124/	KELLER AG: Pressure Data Sheet of PAA-21S
/125/	KELLER AG: Pressure Data Sheet of PR-23
/126/	WIKA Instrument: Data Sheet No. PE 81.01-08/2007 - WIKA S-10 Pressure Transmitter
/127/	ELIMKO: Temperature Data Sheet of Model Series E-KC-100
/128/	HAASE Energietechnik AG: Thermocouple Data Sheet No. 101379
/129/	SIEMENS: Data Sheet for Gas Analyzer Siemens Ultramat 23
/130/	ABB Group Company: Data Sheet for 2600 T Flow Meter No SS264XS_6
/131/	KELLER AG: Manual for Pressure Transmitters No 08/2008
/132/	SIEMENS: Manual for Gas Analyzer Siemens Ultramat 23
/133/	Oyak Beton: Cement Analysis Reports of 29/04/2013
/134/	ITC Invest Trading & Consulting AG: Copy of Birth Certificate for Huseyin Mugan and Mehmet Ertem, submitted on 11/06/2013
/135/	ITC Invest Trading & Consulting AG: Protocol for GM9 and GM10 connection of 18/06/2012
/136/	Ozkanlar Baskul: Mail for Accuracy of the Dedicated Balance of 10/06/2013
/137/	The Ministry of Industry and Trade: Regulation of Metering and Testing of Metering Systems of 24/07/1994
/138/	ITC Invest Trading & Consulting AG: Examination of Occupational Physician to the Employees, submitted on 01/09/2013
/139/	Fisek Saglik Hiz. Ve Ar. Ens. Ltd. Sti: Invoice of Periodic Health Examination, no: 056335 of 01/02/2012
/140/	ITC Invest Trading & Consulting AG: Manufacturing Information of the Flaring Unit, submitted on 09/09/2013

2.2 On-site assessment

On 10-11/04/2013, RINA visited the plant located in Sofulu district, Adana province of Turkey. During the on-site assessment of the project, all the equipments and the systems were accessible. RINA assessed the implementation and operation of the proposed project activity, reviewed the information

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flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment including calibration performance, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters, checked the correct and effective implementation of the mitigation measures foreseen in the sustainability monitoring plan, to prevent violation or the risk of violating a safeguarding principle of the "Do No Harm" Assessment or to "neutralize" a Sustainable Development Indicator.

The project personnel were interviewed with the purpose to see how the monitoring procedures were implemented; the whole process was explained to the verification team during the site visit on 10-11/04/2013. The carbon consultants were interviewed about the monitoring report and related parameters on, which the whole process related emission reduction calculation and sustainability monitoring plan was explained.

During the site visit, the employees were interviewed about the water quality, air quality, soil condition, trainings, employment caused by the project activity. The Environmental Protection Manager of Ankara Metropolitan Municipality (İbrahim Yavuz) has been interviewed about the environmental and social benefit of the project activity. According to the interview with him, he explained that wastes are collected separately at source (toki, hospitals, halls of residence, schools and universities) in Sarıcam Municipality.

The scavengers (Saban Ertem and İrfan Cicek) were interviewed about social benefit and working conditions of the project activity. Positive feedbacks have been received from all stakeholders about the project activity. They justified that before the establishment of the ITC, there are dumpsites in Adana until 2011. Also, mayor of the neighboring districts (Cengiz Karabudak) was interviewed. No negative feedbacks were received. The key personnel interviewed and the main topics of the interviews are summarized in the table below.

	Date	Name and Role	Organization	Topic
/a/	10-11/04/2013	Tuğba KIRER <i>Environment Manager</i>	ITC Invest Trading & Consulting A.G.	Monitoring plan Monitoring methodology
/b/	10-11/04/2013	Fikret SERT <i>Project Manager</i>	ITC Invest Trading & Consulting A.G.	Monitoring data Implementation status of the project
/c/	10/04/2013	Suna ERCAN <i>Public Relations Director</i>	ITC Invest Trading & Consulting A.G.	Monitoring equipments and operation Calibration certificates
/d/	11/04/2013	Cevdet KURTAY <i>Project Manager</i>	ITC Invest Trading & Consulting A.G.	Emission Reductions calculation
/e/	11/04/2013	Kaan SİNAN <i>Environmental Engineer</i>	ITC Invest Trading & Consulting A.G.	Monitoring of Gold Standard Parameters
/f/	11/04/2013	Murat ÖZBEK <i>Electrical Engineer</i>	ITC Invest Trading & Consulting A.G.	Benefit of the project to the stakeholders Noise Emissions Project Effects
/g/	11/04/2013	Özgür DAĞTAŞ <i>Plant Supervisor</i>	ITC Invest Trading & Consulting A.G.	
/h/	11/04/2013	İbrahim ÇAPUTÇU <i>Chemist</i>	ITC Invest Trading & Consulting A.G.	
/i/	11/04/2013	Kenan EROL <i>Electrical Engineer</i>	ITC Invest Trading & Consulting A.G.	
/j/	10-11/04/2013	Ömer AKYÜREK <i>Carbon Project Developer</i>	OAK Danışmanlık	
/k/	11/04/2013	Hinrich BORNEBUSCH <i>Carbon Project Developer</i>	Ecoblu	

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/I/	11/04/2013	Hasan AÇIK <i>Adana Plant Supervisor</i>	Oyak Beton	The quality of cement used for the construction of anaerobic digester
/m/	11/04/2013	Şaban ERTEM <i>Scavenger</i>	Subcontractor Company of ITC	Benefit of the project Working Conditions
/n/	11/04/2013	İrfan ÇİÇEK <i>Scavenger</i>	Subcontractor Company of ITC	
/o/	11/04/2013	Hülya KUŞ <i>Environmental Protection Manager</i>	Adana Metropolitan Municipality	Benefit of the project to the stakeholders
/p/	11/04/2013	Cengiz KARABUDAK <i>Head of Gültepe</i>	Gültepe Neighborhood	Noise Emissions
				Project Effects

2.3 Resolution of outstanding issues

The objective of this phase of the verification is to resolve any outstanding issues, which need to be clarified for RINA's positive conclusion on the monitoring report and emission reductions.

To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three tables; the different columns in these tables are described in the figure below (see Figure 1). The completed verification protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CR) is raised if information is insufficient or not clear enough to determine whether the applicable GS VER requirements, which refer to CDM rules, have been met.

CARs, CRs identified are included in the verification protocol in Appendix A of this report.

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Figure 1 Gold Standard Verification protocol tables

Verification Protocol, Table 1 - Requirement checklist					
Checklist Question	Ref.	MoV	Comments	Draft Conclusion	Final Conclusion
Checklist questions organized in seven different sections.	Makes reference to documents where the answer to the checklist question or item is found.	Explain how conformance with the checklist question is investigated. Examples are document review (DR), interview or any other follow-up actions (I), cross-checking (CC) with available information relating to projects, (N/A) means not applicable.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with checklist question so far.	For CAR, CR and FAR see the definitions above.	OK is used if the information and evidence provided is adequate to demonstrate compliance with GS VER requirements, which refer to CDM rules.

Verification Protocol, Table 2: Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 1	Response by project participants	Verification Conclusion
The CAR and/or CRs raised in table 1 are repeated here.	Reference to the checklist question number in Table 1 where the CAR or CR is explained.	The responses given by the project participants to address the CARs and/or CRs.	The verification team's assessment and final conclusion of the CARs and/or CRs.

Verification Protocol, Table 3 - Forward Action Requests		
Forward action request	Reference to Table 1	Response by project participants Verification Conclusion
The FAR raised in table 1 is repeated here.	Reference to the checklist question number in Table 1 where the FAR is explained.	Response by the project participants on how forward action request will be addressed.

2.4 Internal quality control

All the revisions of the verification report, before being submitted to the client, were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM/GS validation and verification.

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2.5 Verification team and the technical reviewer(s)

The verification team and the technical reviewers consist of the following personnel:

Role/Qualification	Last Name	First Name	Country
GS Team Leader, GS Verifier, Technical Expert in Training	Timuroğlu	Işıl	Turkey
GS Verifier in Training, Technical Expert	Kıratlı	Tuğçe	Turkey
Technical Reviewer	Valoroso	Rita	Italy

3 VERIFICATION FINDINGS

The findings of the verification related to the monitoring period from 01/01/2011 to 31/12/2012 as documented and described in the monitoring report version 05.0 of 17/08/2013 [/3/](#) are stated in the following sections.

The verification requirements, the means of verification and the results from verifying the identified criteria are documented in more detail in the verification protocol in Appendix A.

3.1 Description of the project activity

The main information of the project is summarized in the table below.

Project Participant(s)	ITC Invest Trading & Consulting A.G. Türkiye Ankara Branch		
Project Title	Adana Landfill Waste Management Project - Turkey		
Location of the project	Sofulu district, Adana province of Turkey		
Methodology(ies)	ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities", version 11 of 28/05/2009 /11/ AM0025 "Avoided emissions from organic waste through alternative waste treatment processes", version 12 of 30/07/2010 /12/		
Sectoral Scope(s)	13	RINA's Technical Area(s)	13.1, 1.2
Registered PDD	Version 10 of 20/12/2012		
Date of registration	13/06/2012	GS Registration Reference N°	715
Starting date of the crediting period	01/01/2011		
Project's crediting period	01/01/2011 to 31/12/2017		
Monitoring period	01/01/2011 to 31/12/2012 (both days included)		
Project documentation link	http://mer.markit.com/br-reg/public/project.jsp?project_id=103000000002212		

The purpose of the project activity is the generation of the electricity by using the LFG from the landfill and the biogas from the anaerobic digester. It involves the installation of gas engines, gas extraction system, flaring system, anaerobic digester and a leachate drainage system. The total capacity is expected to reach 15.4 MW through the crediting period. The electricity produced is delivered to the

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Turkish national grid (TEIAS). The annual emission reductions are estimated to be 615,410 tCO₂e from start date of crediting period to 31/12/2012. During the monitoring period of 01/01/2011 to 31/12/2012 (both days included) the emission reductions to 396,231 tCO₂e.

3.2 Remaining issues (FARs) from previous validation or verification

Based on the review of Validation Report of 14/03/2012 [/13/](#) and 8-week Registration Review Period Document of 05/11/2012 [/9/](#), 2 FARs have been raised during the validation period.

FAR#1: *Ensure that emission reductions from facilities that are part of the “general project” but are not eligible for VERs under Gold Standard regulation are effectively excluded from the emission reduction calculations. This should be reflected in the monitoring of electricity generation.*

The gasification has not implemented yet, this FAR have to be evaluated at the next monitoring period. Hence, FAR#1 is not closed.

FAR#2: *The technical specifications of the anaerobic digester to be installed as part of the project activity need to be checked to ensure that emissions due to physical leakage are correctly accounted for.*

The anaerobic digester, installed as part of the project activity, was checked during on site visit. Digesters are designed to prevent physical leakage of biogas. Special concrete walls and foundation includes additives (cement based insulation material resistance to sulphide) and concrete walls were coated with cement based epoxy-anthracene oil mixture to prevent leakage. According to the brochure [/86/](#) and the catalog of the concrete [/87/](#), the invoices [/88/](#) and the cover letter. blast-furnace slag cement (Cem III/A 42.5 N) which is resistant to sulphide was used during construction. The analysis report [/133/](#) of used cement in the anaerobic digester construction has been reviewed and the results confirm the quality and a minimum standard of C30. All the risks for leakage are prevented steadily; hence, FAR#2 is closed.

3.3 Project implementation

It was verified during the site visit conducted on 10-11/04/2013 that the proposed project activity has been implemented and it is in operation in accordance with the project activity described in the registered PDD [/1/](#).

The project activity is registered as Gold Standard Project activity on 14/06/2012. As per the GS Requirements 2.1 [/7/](#), the start date of the Gold Standard Crediting Period shall be the date of start of operation or a maximum of two years prior to Gold Standard registration, whichever occurs later for VER project activities proceeding under the regular project cycle. Therefore, the starting date of crediting period could be 14/06/2010. However, PP has requested to start the crediting period from 01/01/2011 and this request has been found acceptable by Gold Standard as confirmed through the email correspondence between PP and Gold Standard [/20/](#). Therefore, the starting date of crediting period is defined as 01/01/2011.

It was confirmed during on site visit that the gas collection system, the enclosed flares, power generation unit and anaerobic digestion were installed by the end of first monitoring period. The total installed capacity of the project activity has reached to 15.4 MW with two booster installed. There are 11 units of gas engines installed with a capacity of 1.4 MW each. 5 gas engines with a total installed capacity of 7 MW are connected to Booster 2, which is the dedicated booster for the LFG and 6 gas engines with a total installed capacity of 8.4 MW are connected to Booster 1, which is dedicated to the AD system. The following occurred during this monitoring period:

- On 02/09/2010, seven power generation units (GM-1, GM-2, GM-3, GM-4, GM-5, GM-6 and GM-7) were connected to Booster 2 for the LFG system as confirmed through the Temporary Acceptance Protocol [/21/](#).
- On 21/01/2011, the first three digesters started operation as confirmed through the internal protocol [/22/](#).
- On 15/05/2011, three power generation units (GM-1, GM-2 and GM-3) which were previously connected to Booster 2 were connected to Booster 1 for the biogas system as confirmed through the internal protocol [/23/](#).

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- On 06/10/2011, one power generation unit (GM-8) was connected to Booster 2 for the LFG system as confirmed through the Temporary Acceptance Protocol [/21/](#).
- On 26/12/2011, one power generation unit (GM-4) which was previously connected to Booster 2 were connected to Booster 1 for the biogas system as confirmed through the internal protocol [/24/](#).
- On 18/04/2012, the additional three digesters started operation as confirmed through the internal protocol [/25/](#).
- On 28/06/2012, one power generation unit (GM-9) was connected to Booster 1 for the biogas system. [/135/](#).
- On 28/06/2012, one power generation unit (GM-10) was connected to Booster 2 for the LFG system. [/135/](#).

No change in the registered PDD [/1/](#) have been occurred during the 1st monitoring period of 01/01/2011 to 31/12/2012.

Based on the on-site inspection and checking the above documents, RINA confirms that the project activity has been implemented and it is in operation as described above in accordance with the project activity in the registered PDD [/1/](#).

3.4 Methodology for determining Emission Reductions

According to the applied methodology ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities" version 11 [/11/](#) and AM0025 "Avoided emissions from organic waste through alternative waste treatment processes" version 12 [/12/](#), the emission reductions have been calculated based on the following formula:

$$ER_y = BE_y - PE_y - L_y$$

Where:

BE_y = Baseline emissions in year y (tCO₂e/yr)

PE_y = Project emissions in year y (tCO₂e/yr)

L_y = Leakage emissions in year y (tCO₂e/yr)

Baseline emissions

According to the registered PDD [/1/](#), the baseline emissions have been calculated based on the following formula, which is defined as per the methodology AM0025 version 12 [/12/](#) and ACM0001 version 11 [/11/](#):

$$BE_y = (MB_y - MD_{reg,y}) + BE_{EN,y}$$

Where:

MB_y = methane produced in the landfill in the absence of the project activity in year y

$MD_{reg,y}$ = methane that would be destroyed in the absence of the project activity in year y

$BE_{EN,y}$ = baseline emissions from generation of energy displaced by the project activity in year y

According to methodology ACM0001 version 11 [/11/](#), the baseline emissions have been calculated based on the following formula:

$$BE_y = (MD_{project,y} - MD_{BL,y}) * GWP_{CH_4} + EL_{LFG,y} * CEF_{elec,y}$$

Where:

$MD_{project,y}$ = amount of methane that would have been destroyed/combusted during the year y in tonnes of methane (tCH₄) in project scenario

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- MD_{BL,y} = amount of methane that would have been destroyed/combusted during the year y, in absence of the project due to regulatory and/or contractual requirement, in tonnes of methane
- GWP_{CH₄} = Global warming potential value for methane (for the first commitment period is 21 tCO₂e/tCH₄)
- EL_{LFG,y} = net quantity of electricity produced using LFG which in the absence of the project activity would have been produced by power plants connected to the grid during a year
- CEF_{elec,y} = CO₂ emissions intensity of the baseline source of electricity displaced in tCO₂e/MWh

Project emissions

According to methodology ACM0001 version 11 [/11/](#), and methodology AM0025 version 12 [/12/](#), the project emissions have been calculated based on the following formula:

$$PE_y = PE_{elec,y} + PE_{a,y}$$

PE_{elec,y} = emissions from electricity consumption on-site due to the project activity in year y

PE_{a,y} = emission from the anaerobic digestion process in year y

Leakage

According to methodology ACM0001 version 11 [/11/](#), no leakage effects need to be accounted. The project activity does not involve off-site transportation of waste materials.

According to the methodology AM0025 [/12/](#), the leakage emissions from the residual waste from the anaerobic digestion are calculated as per the following formula:

$$BE_{CH_4,SWDS,y} = \varphi \cdot (1 - f) \cdot GWP_{CH_4} \cdot (1 - OX) \cdot \frac{16}{12} \cdot F \cdot DOC_f \cdot MCF \cdot \sum_{x=1}^y \sum_j W_{j,x} \cdot DOC_j \cdot e^{-k_j(y-x)} \cdot (1 - e^{-k_j})$$

Where:

- BE_{CH₄, SWDS,y} Methane emissions avoided during the year y from preventing waste disposal at the solid waste disposal site (SWDS) during the period from the start of the project activity to the end of the year y (tCO₂e)
- φ Model correction factor to account for model uncertainties (0.9)
- f Fraction of methane captured at the SWDS and flared, combusted or used in another manner
- GWP_{CH₄} Global Warming Potential of methane valid for the commitment period (tCO₂e/tCH₄)
- OX Oxidation factor (reflecting the amount of methane from SWDS that is oxidised in the soil or other material covering the waste)
- F Fraction of methane in the SWDS gas (volume fraction) (0.5)
- DOC_f Fraction of degradable organic carbon (DOC) that can decompose
- MCF Methane correction factor
- W_{j,x} Amount of organic waste type j prevented from disposal in the SWDS in the year x (tonnes)
- DOC_j Fraction of degradable organic carbon (by weight) in the waste type j
- k_j Decay rate for the waste type j
- j Waste type category (index)
- x Year during the crediting period: x runs from the first year of the first crediting period (x=1) to the year y for which avoided emissions are calculated (x=y)
- y Year for which methane emissions are calculated

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3.4.1 Compliance of the monitoring plan with the monitoring methodology

The registered project activity applies the approved baseline and monitoring methodology ACM0001 version 11 [/11/](#) and AM0025 version 12 [/12/](#). RINA confirms that the monitoring plan in the registered PDD [/1/](#) complies with the applied CDM methodology and with the sustainability indicators established by the Appendix D of the Gold Standard requirements [/7/](#).

3.4.2 Deviation in GHG emission reduction

Additionality assessment has been performed according to the “Tool for the demonstration and assessment of additionality” approved by UNFCCC in the registered PDD [/1/](#). The baseline scenario selection and the calculation of emission reductions have been carried out in a conservative manner. An approved CDM methodology, ACM0001 version 11 [/11/](#) and AM0025 version 12 [/12/](#) have been applied in order to determine the baseline scenario and calculate emission reductions.

3.4.3 Compliance of monitoring with monitoring plan

The monitoring plan in the monitoring report version 05.0 of 17/08/2013 [/3/](#) complies with the monitoring plan in the registered PDD [/1/](#) and both the monitoring methodologies, ACM0001 version 11 [/11/](#) and AM0025 version 12 [/12/](#) have been properly implemented and followed. All the parameters, as listed in the following sections, have been monitored according the applied methodology and the relevant CDM EB decisions and GS requirements. The sustainability indicators in the monitoring report [/3/](#) comply with the sustainability indicators established by the Appendix D of the Gold Standard Requirements. All information about organization, responsibility, reporting procedure and data flow have been defined in the Gold Standard Monitoring Manual [/6/](#); the daily and internal records [/26/](#) [/27/](#), monthly protocols of meter reading [/28/](#), the ER calculation [/4/](#) were provided and reviewed. Any change has been occurred to the key sustainable development indicators during the monitoring period. RINA can thus confirm the implementation of the project monitoring was appropriate.

The following parameters have been monitored in accordance with the monitoring plan in the registered PDD [/1/](#) and the monitoring report [/3/](#).

3.4.3.1 Data fixed ex-ante

DATA/PARAMETER	Source of data	Reported value for the project period	Assessment/Observation
GWP_{CH4} Global Warming Potential of Methane	IPPC	21 tCO ₂ e/tCH ₄	As per the IPCC the value is fixed for the first commitment period. It shall be updated according to any future COP/MOP decision.
GWP_{N2O} Global Warming Potential of Nitrous Oxide	IPPC	310 tCO ₂ e/N ₂ O	As per the IPCC the value is fixed for the first commitment period. It shall be updated according to any future COM/MOP decision.
D_{CH4} Density of methane	ACM0001 version 11.0 /11/	0.0007168 tCH ₄ /m ³ CH ₄	The value considered is according with the approved methodology ACM0001 and it is fixed at standard temperature 0°C and pressure 1.013 bar.
φ Model correction factor to account for model uncertainties	Methodological tool /15/	0.9	The value has been applied according to the methodological tool “Tool to determine emissions avoided from disposal of waste at a solid waste disposal site”.
OX Oxidation Factor	IPCC 2006 Guidelines for	0	According to IPCC, the oxidation factor is taken zero (for other types of solid

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	National Greenhouse Gas Inventories		disposal site) since the baseline scenario the landfill area is uncovered.
F Fraction of methane in the SWDS gas	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.5	A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories.
DOC_f Fraction of degradable organic carbon	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.5	A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories.
MCF Methane correction factor	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.8	According to IPCC the value of 0.8 has been used justified for unmanaged solid waste disposal sites – deep and/or with high water table.
DOC_j Fraction of degradable organic carbon	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	Different values	The following values for the different waste types have been applied (% wet waste): – 43% wood and wood products – 40% pulp, paper and cardboard – 15% food, food waste, beverages and tobacco – 20% non-food organic
k_j Decay rate of the waste	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	Different values	The following values for the different waste types have been applied (boreal and temperature – dry): – 0.02% wood, wood products and straw – 0.04% pulp, paper, cardboard – 0.06% food, food waste, sewage sludge, beverage and tobacco – 0.05% non-food organics, putrescible garden and park waste
f Fraction of methane captured at SWDS and flared, combusted or used in another manner	Registered PDD /1/	0	As per the registered PDD /1/ is used a conservative approach of 0.
CEF_d Emission factor for the production of electricity	Registered PDD /1/	0.561 tCO ₂ /MWh	According to the registered PDD /1/ , the combined emission factor has been determined using the ex-ante option and so it is not requested to monitor and recalculate it during the first crediting period.
EF_{SO2} SO ₂ emissions per MWh electricity generation from fossil fuels	Registered GS Passport /2/	0.45 kg/MWh	The parameter is used for Gold Standard Sustainable Development Monitoring Parameter SD.1 “Air Quality”.

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EF_{NO2} NO ₂ emissions per MWh electricity generation from fossil fuels	Registered GS Passport /2/	1.81 kg/MWh	The parameter is used for Gold Standard Sustainable Development Monitoring Parameter SD.1 "Air Quality".
W_{H2S} Sulphide content	Registered GS Passport /2/	0.5%	As per the registered GS Passport /2/ is used a conservative approach of 0.005 Nm ³ H ₂ S/Nm ³ LFG for sulphide content.

3.4.3.2 Monitored data

DATA/PARAMETER	LFG _{total,y} – ID.22
Data Unit	m ³
Description	Total amount of landfill gas captured
Source of data to be used	The parameter is monitored continuously by volume flow meters.
Value data for the monitoring period	2011: 19,804,151.075 2012: 21,731,003.730
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. The amount is reported daily and aggregated into monthly reports. Each booster has a server unit, which receives all the data from the flow meter and saves automatically every 30 minutes.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. During the monitoring period the following instruments have been used: – Booster 2: Flow Meter ABB 2600T sn 6409029293 The accuracy of the flow meter is 0.075% as confirmed through the initial calibration of supplier /52/ .
Calibration frequency/interval	The flow meter has been calibrated on 17/12/2009 by the supplier as confirmed through the calibration record /52/ . The calibration frequency has been defined every 5 years by the supplier as confirmed through the data sheet of supplier /130/ . No calibrations have been carried out during this monitoring period as it has been considered still valid the supplier calibration.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with logbooks for Booster /26/ /27/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	LFG _{flare,y} – ID.23
Data Unit	m ³
Description	Total amount of landfill gas sent to flare at normal temperature and pressure
Source of data to be used	The parameter is monitored continuously by volume flow meters.
Value data for the monitoring period	2011: 0 2012: 0
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 30 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: – Booster 2: Flow Meter ABB 2600T sn 6408005055 The accuracy of the flow meter is 0.075% as confirmed through the initial calibration of supplier /51/ .
Calibration frequency/interval	The flow meter has been calibrated on 19/02/2008 by the supplier as confirmed through the calibration record /51/ . The calibration frequency has been defined every 5 years by the supplier as confirmed through the data sheet of supplier /130/ . No calibrations have been carried out during this monitoring period as it has been considered still valid the supplier calibration.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with logbooks for Booster /26/ /27/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	LFG _{electricity,y} – ID.24
Data Unit	m ³
Description	Total amount of landfill gas combusted to produce electricity
Source of data to be used	The parameter is monitored continuously by volume flow meters.
Value data for the monitoring period	2011: 19,765,603.166 2012: 21,770,504.981
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 30 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instruments have been used: – Booster 2: Flow Meter ABB 2600T sn 6409029303 The accuracy of the flow meter is 0.075% as confirmed through the initial calibration of supplier /53/ .
Calibration frequency/interval	The flow meter has been calibrated on 16/12/2009 by the supplier as confirmed through the calibration record /53/ . The calibration frequency has been established every 5 years by the supplier as confirmed through the data sheet /130/ . No calibrations have been carried out during this monitoring period as it has been considered still valid the supplier calibration.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with logbooks for Booster /26/ /27/ . The lowest value between LFG _{total} and LFG _{electricity} has been adopted in the calculations of MD _{project,y} as given in the excel sheet /4/ . It is in line with the registered PDD /1/ and methodology requirements /11/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	Temperature – ID.25
Data Unit	°C
Description	Temperature of the landfill gas
Source of data to be used	Temperature is monitored with separate monitoring using temperature meter.
Value data for the monitoring period	/
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. Each booster has a server unit that received all the data from the temperature meters. Temperature is measured for LFG sent to booster (LFG captured), LFG sent to flare (LFG flared) and LFG to engines (LFG combusted for electricity production). During this monitoring period since no gas is flared, the temperature related to the gas flares is not measured. Each booster has a server unit that received all the data from the temperature meters and saves automatically every 30 minutes.
Type of monitoring equipment and its accuracy	It is measured using temperature meters. During this monitoring period the following temperature meters have been used: - LFG captured by Booster 2 - ELIMKO RT03-1P06-7,5-Tr sn 08/33890 from 20.05.2010 till 02.03.2011 - ELIMKO PT 100 sn 09/6659 from 02.03.2011 till 15.08.2011 - TEKON TRT03-B1E06-12Ü-TR sn 10/0748 from 15.08.2011 till 03.03.2012 - ELIMKO RT03-1K09-70-U-Tr sn 09/6659 from 03.03.2012 till 08.02.2013 - LFG sent to engine - ELIMKO RT03-1P06-7,5-Tr sn 08/33892 from 20.05.2010 till 02.03.2011 - ELIMKO PT 100 sn 09/23188 from 02.03.2011 till 24.01.2012 - NOVA-Z ODE-RTD-OR03-B1H09-2310 sn 0801-00553 from 24.01.2012 till 03.03.2012 - NOVA-Z ODE-RTD-OR03-B1H09-ÜHT sn 0802-01120 from 03.03.2012 - LFG sent to Flare - ELIMKO RT03-1P06-7,5-Tr sn 08/33886 from 20.05.2010 till 02.03.2011 - TEKON 1xPt100(3W) sn 11-0072 from 02.03.2011 till 19.09.2011 - TEKON TRT03-B1E06-12-Ü-TR sn 10/0749 from 19.09.2011 till 03.03.2012 - ELIMKO RT03-1P08-5-U-Tr sn 08/14623 T from 03.03.2012 till 08.02.2013 The accuracy of the ELIMKO temperature meters is 0.5% as confirmed through the data sheet of supplier /121/.

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	The accuracy of the NOVA-Z temperature meters is 0.1% as confirmed through the stability protocol of the supplier /122/. The accuracy of the TEKON temperature meter is 0.2% as confirmed through the data sheet of the supplier /49/.
Calibration frequency/interval	The calibration frequency has been established every year for ELIMKO temperature meters as confirmed through the recommendation of the supplier /121/. The calibration frequency has been established every 10 years for NOVA-Z temperature meters as confirmed through the recommendation of the supplier /122/. The calibration frequency has been established every five years for TEKON temperature meters as confirmed through the recommendation of the supplier /49/. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: - LFG captured by Booster 2 ELIMKO RT03-1P06-7,5-Tr sn 08/33890, calibrated on 02/03/2010 /57/ ELIMKO PT 100 sn 09/6659, calibrated on 20/10/2010 /59/ TEKON TRT03-B1E06-12Ü-TR sn 10/0748, calibrated on 04/03/2011 /79/ ELIMKO RT03-1K09-70-U-Tr sn 09/6659, calibrated on 24/02/2012 /60/ - LFG sent to engine ELIMKO RT03-1P06-7,5-Tr sn 08/33892, calibrated on 02/03/2010 /58/ ELIMKO PT 100 sn 09/23188, calibrated on 17/02/2011 /61/ NOVA-Z ODE-RTD-OR03-B1H09-2310 sn 0801-00553, calibrated on 05/11/2008 /72/ NOVA-Z ODE-RTD-OR03-B1H09-ÜHT sn 0802-01120, calibrated on 25/02/2011 /73/ - LFG sent to Flare ELIMKO RT03-1P06-7,5-Tr sn 08/33886, calibrated on 02/03/2010 /56/ TEKON 1xPt100(3W) sn 11-0072, calibrated on 24/01/2011 /81/ TEKON TRT03-B1E06-12-Ü-TR sn 10/0749, calibrated on 04/03/2011 /80/ ELIMKO RT03-1P08-5-U-Tr sn 08/14623 T, calibrated on 17/02/2012 /54/
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with logbooks for Booster /26/ /27/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive.

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If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?

In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	Pressure – ID.26
Data Unit	Mbar
Description	Pressure of the landfill gas
Source of data to be used	Pressure is monitored with separate monitoring using pressure equipment.
Value data for the monitoring period	/
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 30 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	Pressure is measured using pressure meters. During the monitoring period the following pressure meters have been used: – LFG captured by Booster 2 - KELLER PR-23 sn 129590 from 20.05.2010 till 10.03.2011 - KELLER PR-23 sn 138899 from 10.03.2011 to 24.01.2012 - KELLER PR-23 sn 145076 from 24.01.2012 till 16.05.2012 - KELLER PR-23 sn 138895 from 16.05.2012 till 08.02.2013 – LFG sent to the engines by Booster 2 - KELLER PAA - 21S sn 70188 from 20.05.2010 to 09.03.2011 - KELLER PAA-21S sn 128872 from 09.03.2011 till 03.03.2012 - KELLER PAA-21S sn 128866 from 03.03.2012 till 16.05.2012 - ABB 2600 T sn 3K646611009247 from 16.05.2012 – LFG sent to flare Booster 2 - WIKA S-10 sn I970T/4103354 from 20.05.2010 till 10.03.2011 - KELLER PAA-21S sn 128862 from 10.03.2011 till 03.03.2012 - KELLER PAA-21S sn 128873 from 03.03.2012 till 08.02.2013 The accuracy of the ABB 2600 T pressure meters is 0.1% as confirmed through the data sheet of supplier /123/. The accuracy of the KELLER PAA-21S pressure meters is 0.5% as confirmed through the data sheet of supplier /124/ and the accuracy of the KELLER PR-23 pressure meters is 0.25% as confirmed through the data sheet of supplier /125/. The accuracy of the WIKA S-10 pressure meter is 0.2% as confirmed through the data sheet of supplier /126/.
Calibration frequency/interval	The calibration frequency has been established every year for KELLER pressure meters as confirmed through the recommendation of the supplier /131/ .

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	The calibration frequency has been established every 10 years for ABB pressure meter as confirmed through the recommendation of the supplier /130/. The calibration frequency has been established every year for WIKA pressure meter as confirmed through the recommendation of the supplier /126/. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: - LFG captured by Booster 2 - KELLER PR-23 sn 129590, calibrated on 10/03/2010 /68/ - KELLER PR-23 sn 138899, calibrated on 23/02/2011 /70/ - KELLER PR-23 sn 145076, calibrated on 09/09/2011 /71/ - KELLER PR-23 sn 138895, calibrated on 14/02/2012 /69/ - LFG sent to the engines by Booster 2 - KELLER PAA - 21S sn 70188, calibrated on 09/03/2010 /63/ - KELLER PAA-21S sn 128872, calibrated on 04/03/2011 /66/ - KELLER PAA-21S sn 128866, calibrated on 24/02/2012 /65/ - ABB 2600 T sn 3K646611009247, calibrated on 25/08/2011 /50/ - LFG sent to flare Booster 2 - WIKA S-10 sn I970T/4103354, calibrated on 18/03/2010 /82/ - KELLER PAA-21S sn 128862, calibrated on 04/03/2011 /64/ - KELLER PAA-21S sn 128873, calibrated on 24/02/2012 /67/
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with logbooks for Booster /26/ /27/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	T _{flare} – ID.27
Data Unit	°C
Description	Temperature in the exhaust gas of the enclosed flare
Source of data to be used	The temperature is measured in continuous by thermocouple. Measurement of temperature above 500 °C in the exhaust gas stream in the flare indicated that the flare is operating in a reliable way.
Value data for the monitoring period	Flare was not operated in this monitoring period since all gas has sent to engines connected to the LFG.
Measuring and reporting frequency; recording procedure	The thermocouple measures continuously and it is programmed to save automatically on real time with pressure. Each booster has a server unit that received all the data from the monitoring equipment and saves automatically every 30 minutes.
Type of monitoring equipment and its accuracy	Temperature is measured using temperature meter. During the monitoring period the following temperature meters have been used: – Flare Booster 2 ELIMKO TC02-1S4Y10-50/10-R1/2-Tr-S sn 08/30902 from 20.05.2010 till 04.02.2011 HAASE 1 PTRH-PT/S sn 2006000477/920-1 from 04.02.2011 The accuracy of the ELIMKO temperature meters is 0.5% as confirmed through the data sheet of supplier /127/ . The accuracy of the HAASE temperature meters is 2.5% as confirmed through the HAASE data sheet of supplier /128/ .
Calibration frequency/interval	The calibration frequency has been established every year for ELIMKO temperature meters as confirmed through the recommendation of the supplier /121/ . According to the recommendation of the supplier /128/ , no calibration is necessary for the HAASE temperature meters. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: – Flare Booster 2 ELIMKO TC02-1S4Y10-50/10-R1/2-Tr-S sn 08/30902, calibrated on 04/02/2010 /55/ HAASE 1 PTRH-PT/S sn 2006000477/920-1, calibrated on 17/09/2008 /62/ .
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with logbooks for Booster /26/ /27/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a

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	computer and a back-up hard drive.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	$\eta_{\text{flare,h}}$ – ID.28
Data Unit	%
Description	Flare efficiency in hour
Source of data to be used	The flare efficiency is calculated based on the monitoring parameters ID23 (landfill gas flared) and ID27 (temperature in the exhaust gas of the enclosed flare).
Value data for the monitoring period	According to the methodological tool “tool to determine project emissions from flaring containing methane” the project adopted the default value for the flare efficiency of 90% (enclosed flare). Flare was not operated in this monitoring period since all gas has sent to engines connected to the LFG.
Measuring and reporting frequency; recording procedure	The flare efficiency is calculated based on the monitoring parameters ID.23 (landfill gas flared) and ID.27 (temperature in the exhaust gas of the enclosed flare).
Type of monitoring equipment and its accuracy	The flare efficiency is calculated based on the monitoring parameters ID.23 (landfill gas flared) and ID.27 (temperature in the exhaust gas of the enclosed flare).
Calibration frequency/interval	The flare efficiency is calculated based on the monitoring parameters ID.23 (landfill gas flared) and ID.27 (temperature in the exhaust gas of the enclosed flare).
How were the values in the monitoring report verified and cross-checked?	The flare efficiency is calculated based on the monitoring parameters ID.23 (landfill gas flared) and ID.27 (temperature in the exhaust gas of the enclosed flare).
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	W_{CH4} – ID.29
Data Unit	% (m ³ CH ₄ /m ³ LFG)
Description	Methane fraction in the landfill gas
Source of data to be used	The methane fraction is measured continuously by a gas analyzer.
Value data for the monitoring period	2011: 50.75% 2012: 52.79%
Measuring and reporting frequency; recording procedure	The gas analyzer measures continuously and it is programmed to save automatically on real time. Each booster has a server unit that received all the data from the monitoring equipment and saves automatically every 30 minutes
Type of monitoring equipment and its accuracy	The methane fraction is measured continuously by a gas analyzer. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: – Booster 2: Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196 from 20/05/2010 The accuracy of Gas Analyzer SIEMENS ULTRAMAT 23 is 0.2% as confirmed through the HAASE data sheet of supplier /129/ .
Calibration frequency/interval	The calibration frequency has been established 6-12 months for Siemens Ultramat 23 gas analyzer as confirmed through the recommendation of the supplier /132/ . The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: Booster 1: Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196, calibrated on 19/02/2010 /76/ Booster 1: Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196, calibrated on 12/02/2011 /77/ Booster 1: Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196, calibrated on 21/01/2012 /78/
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with logbooks for Booster /18/ /19/ /20/ /21/ /22/ /23/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	Operating hours of the energy plant – ID.30
Data Unit	hours/year
Description	Operation hours of the energy plant
Source of data to be used	The operation of the energy plant is measured for each engine by a counting device.
Value data for the monitoring period	2011: 38,946 h (engine hours) 2012: 69,478 h (engine hours)
Measuring and reporting frequency; recording procedure	The operation of the energy plant is measured for each power generation unit by a counting device. Every power generation unit has its own counting device totalizing the amount of hours. The total number of operating hours is recorded manually once per month as confirmed during on site visit.
Type of monitoring equipment and its accuracy	Counting device
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	The operation hours were verified through the internal records /36/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The amount of hours is registered by the counting device in each PGU and the total number of operating hours is recorded manually daily. No special events occurred during the monitoring period.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	EC _{PJ,i,y} – ID.31
Data Unit	MWh
Description	Amount of electricity consumed from the grid as a result of the project activity
Source of data to be used	It is measured by electricity meters of the grid company.
Value data for the monitoring period	2011: 2.37 MWh 2012: 2.86 MWh
Measuring and reporting frequency; recording procedure	The electricity consumption is measured from electricity meters monthly in line with the registered monitoring plan. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The monitoring team collects monthly measuring protocols for power delivered from the grid.
Type of monitoring equipment and its accuracy	The installed Electricity meters are Actaris SL7000 as observed during the site visit. The accuracy of the meter is 0.5s as confirmed through the meter control form /44/ .
Calibration frequency/interval	The amount of electricity produced by the project and delivered to the grid is measured by an electricity meters operated by the grid company who is the owner of the monitoring equipment. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The meter is calibrated on 22/07/2010 as confirmed through the meter control forms /44/ . As per the “Regulation of Metering and Testing of Metering Systems” /136/ , the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with monthly PMUM records /28/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	TDL _{ty} – ID.32
Data Unit	%
Description	Average technical transmission and distribution losses for providing electricity in year y
Source of data to be used	The value is provided by the grid company.
Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	Annually provided by the Turkish grid company. For the monitoring period, the grid company calculated the TDL factor monthly and uses the factor directly for the creation of the monthly reports /28/ .
Type of monitoring equipment and its accuracy	NA
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	The value data for the monitoring period is 0% as confirmed through the PMUM records /28/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The monitoring activities are regulated by the Monitoring Manual /6/ .
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	SG _{a,y} – ID.33
Data Unit	m ³ /year
Description	Stack gas volume flow rate
Source of data to be used	This figure is measured by an external laboratory. As per the approved methodology and registered PDD /1/ , the stack gas flow rate and the concentration of N ₂ O and CH ₄ have been determined by direct measurement.
Value data for the monitoring period	2011: 50,202,842 Nm ³ 2012: 171,175,629 Nm ³
Measuring and reporting frequency; recording procedure	The monitoring of the stack gases takes places by an independent laboratory following standards and procedure. The concentrations are measured during normal operation in order to be representative. The average concentrations are determined on an hourly basis taking into account the operating hours of the engines /36/ . The values from the test report are transferred in the ERs calculation spreadsheet.
Type of monitoring equipment and its accuracy	This figure is measured by an external laboratory.
Calibration frequency/interval	The measurement of the stack gas volume and the concentration of N ₂ O and CH ₄ have been outsourced to a laboratory.
How were the values in the monitoring report verified and cross-checked?	It is calculated by the average measured flow rates at the engines multiplied by the operational hours of the engines extracted from ID.30.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	It is measured by an external laboratory quarterly in a year. It is transferred correctly to the excel-sheet to calculate the project emission.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period.

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DATA/PARAMETER	MC_{N₂O,a,y} – ID.34
Data Unit	T N ₂ O/m ³
Description	Concentration of N ₂ O in stack gas
Source of data to be used	This figure is measured by an external laboratory. As per the approved methodology and registered PDD /1/ , the stack gas flow rate and the concentration of N ₂ O and CH ₄ have been determined by direct measurement.
Value data for the monitoring period	0 ppm
Measuring and reporting frequency; recording procedure	The monitoring of the stack gases takes places by an independent laboratory following standards and procedure. The concentrations are measured during normal operation in order to be representative. The average concentrations are determined on an hourly basis taking into account the operating hours of the engines /36/ . The values from the test report are transferred in the ERs calculation spreadsheet.
Type of monitoring equipment and its accuracy	This figure is measured by an external laboratory.
Calibration frequency/interval	The measurement of the stack gas volume and the concentration of N ₂ O and CH ₄ have been outsourced to a laboratory.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with the third party reports /29/ /30/ /31/ /32/ /33/ /34/ /35/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	It is measured by an external laboratory quarterly in a year. It is transferred correctly to calculate the project emission.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period.

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DATA/PARAMETER	MC_{CH₄,a,y} – ID.35
Data Unit	T CH ₄ /m ³
Description	Concentration of CH ₄ in stack gas
Source of data to be used	This figure is measured by an external laboratory. As per the approved methodology and registered PDD /1/ , the stack gas flow rate and the concentration of N ₂ O and CH ₄ have been determined by direct measurement.
Value data for the monitoring period	0 ppm
Measuring and reporting frequency; recording procedure	The monitoring of the stack gases takes places by an independent laboratory following standards and procedure. The concentrations are measured during normal operation in order to be representative. The average concentrations are determined on an hourly basis taking into account the operating hours of the engines /36/ . The values from the test report are transferred in the ERs calculation spreadsheet.
Type of monitoring equipment and its accuracy	This figure is measured by an external laboratory.
Calibration frequency/interval	The measurement of the stack gas volume and the concentration of N ₂ O and CH ₄ have been outsourced to a laboratory.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with the third party reports /29/ /30/ /31/ /32/ /33/ /34/ /35/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	It is measured by an external laboratory quarterly in a year. It is transferred correctly to calculate the project emission.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period.

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DATA/PARAMETER	W_x – ID.36
Data Unit	tonnes
Description	Total amount of organic waste prevented from disposal and fed into the anaerobic digester
Source of data to be used	The waste is measured with a belt scale, especially designed to weigh materials which are carried on conveyers.
Value data for the monitoring period	2011: 57,845 t 2012: 175,202 t
Measuring and reporting frequency; recording procedure	The amount of organic waste is measured continuously, read daily and transferred to the ERs spreadsheet calculation manually.
Type of monitoring equipment and its accuracy	It is measured continuously, read daily and transferred to the ERs spreadsheet calculation manually. During the monitoring period the following instrument has been used: – Loadcell SEG KN4-100 sn A0928006 from 21.01.2011 till 15.01.2013 The accuracy of Loadcell SEG KN4-100 is 0.2% as confirmed through the SEG data sheet /43/ .
Calibration frequency/interval	The calibration frequency has been established one year for SEG KN4-100 Loadcell in the monitoring report. For all that, no information about calibration frequency is given in the recommendation of the supplier /41/ . The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: - Loadcell SEG KN4-100 sn A0928006, calibrated on 17/01/2011 /74/ - Loadcell SEG KN4-100 sn A0928006, calibrated on 16/01/2012 /75/
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with the balance record which is included to the ER calculation sheet /9/ in sheet named “AD Residues”. The balance is recorded the automatically weighted amount daily on the conveyor band to the excel sheet.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The values are aggregated and manually transferred to the ERs spreadsheet calculation.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period.

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DATA/PARAMETER	P _{n,j,x} – ID.37
Data Unit	%
Description	Weight fraction of the waste type j in the sample n collected during the year
Source of data to be used	The collected sample is weighted by a dedicated balance.
Value data for the monitoring period	The following value data in percentage according to the weekly sampling procedure /37/ : – food waste; 2011: 73.89%; 2012: 73.90% – non-food organics; 2011: 8.17%; 2012: 8.04% – paper; 2011: 8.97%; 2012: 9.03% – wood; 2011: 3.92%; 2012: 4.00% – inorganic/inert wastes; 2011: 5.04%; 2012: 5.01%
Measuring and reporting frequency; recording procedure	The composition analysis is performed 10 times in 2011 and 21 times in 2012. The sampling is statistically significant as the uncertainty range at a confidence level of 95% is significantly below 20% as required by the “Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site” version 4 /15/ .
Type of monitoring equipment and its accuracy	It is measured by the dedicated balance with the collected samples in a year. During the monitoring period the following instruments have been used: – Weigh bridge Ozkanlar B2 sn E-888 from 18.12.2010 – Weigh bridge Ozkanlar B2 sn E-637 from 18.12.2010 The accuracy of Ozkanlar B2 is confirmed through the Regulation on Metering and Metering Equipment /137/ .
Calibration frequency/interval	The calibration frequency has not been established in the monitoring report. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: - Weigh bridge Ozkanlar B2 sn E-888, calibrated on 26/12/2010 /83/ - Weigh bridge Ozkanlar B2 sn E-888, calibrated on 20/05/2011 /84/ - Weigh bridge Ozkanlar B2 sn E-637, calibrated on 12/03/2012 /85/
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with the internal daily organic weigh bridge database /44/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	It is transferred correctly to calculate the baseline emission.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance	In case of failures of the data recording system, no emission reduction will be claimed for that period.

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	
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GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

DATA/PARAMETER	Z – ID.38
Data Unit	n
Description	Number of samples collected during the year
Source of data to be used	The collected sample is weighted by a dedicated balance.
Value data for the monitoring period	2011: 10 samples 2012: 21 samples
Measuring and reporting frequency; recording procedure	The composition analysis is performed 10 times in 2011 and 21 times in 2012. The sampling is statistically significant as the uncertainty range at a confidence level of 95% is significantly below 20% as required by the “Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site” version 4 /15/.
Type of monitoring equipment and its accuracy	NA
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with the internal daily organic weighbridge database /44/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	It is transferred correctly to calculate the baseline and leakage emission.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period.

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

DATA/PARAMETER	MB _y – ID.39
Data Unit	tCO ₂ e
Description	Methane produced in the landfill in the absence of the project activity
Source of data to be used	The parameter is calculated according to the methodological tool “Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site” /15/ using the default values established by the tool and parameters as W _x (ID.36), P _{njx} (ID.37), Z (ID.38).
Value data for the monitoring period	2011: 2,621.56 tCO ₂ 2012: 10,514.14 tCO ₂
Measuring and reporting frequency; recording procedure	Please refer to monitoring equipment used for the parameters W _x (ID.36), P _{njx} (ID.37), Z (ID.38).
Type of monitoring equipment and its accuracy	The value has been determined according to the methodological tool “tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site” /15/ using the default values established by the tool and parameters as W _x , P _{njx} , and Z. Please refer to monitoring equipment used for the parameters W _x (ID.36), P _{njx} (ID.37), Z (ID.38).
Calibration frequency/interval	The parameter is calculated as per the Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site” /15/. Data is derived from ID.36, ID.37 and ID.38.
How were the values in the monitoring report verified and cross-checked?	The parameter is calculated by using ID.36, ID.37 and ID.38. Please refer to monitoring equipment used for the parameters W _x (ID.36), P _{njx} (ID.37), Z (ID.38).
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The values are aggregated and manually transferred to the ERs spreadsheet calculation.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period.

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

DATA/PARAMETER	EG _{d,y} – ID.40
Data Unit	MWh
Description	Amount of electricity generated utilizing biogas and LFG
Source of data to be used	The parameter is read manually from electricity meters of each power generation unit.
Value data for the monitoring period	2011: 44,157.28 MWh 2012: 73,687.35 MWh
Measuring and reporting frequency; recording procedure	The parameter is read continuously from electricity meters of each power generation unit. The data is recorded and aggregated monthly.
Type of monitoring equipment and its accuracy	The installed Electricity meters are Actaris SL7000 as observed during the site visit. The accuracy of the meter is 0.5s as confirmed through the meter control form /44/ .
Calibration frequency/interval	As per the "Regulation of Metering and Testing of Metering Systems" /136/ , the meters shall be calibrated every 10 years.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with monthly PMUM records /28/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

DATA/PARAMETER	AF – ID.41
Data Unit	%
Description	Methane destroyed due to regulatory or other requirements
Source of data to be used	It is fixed to zero in the registered PDD /1/ .
Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	NA
Type of monitoring equipment and its accuracy	It is fixed to zero in the registered PDD /1/ .
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	NA
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	NA
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	LFG usage – ID.42
Data Unit	%
Description	Percentage of LFG applied to PGUs divided by the total amount of LFG captured.
Source of data to be used	Data is calculated with the monitoring parameters ID.21 and ID.23
Value data for the monitoring period	100% As per the Annex C of Gold Standard, version 2.1, at least 65% of the recovered gas must be used for energy generation. The project activity have used the 100% of the LFG for electricity generation. Therefore, the applicability criterion of GS has been met.
Measuring and reporting frequency; recording procedure	NA
Type of monitoring equipment and its accuracy	NA.
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	NA
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	NA
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	PE _{flare,y} – ID.43
Data Unit	tCO _{2e}
Description	Project emissions from flaring of the residual gas stream
Source of data to be used	The calculation is derived from ID.22, ID.27, ID.28 and ID.29
Value data for the monitoring period	0 (for the whole period)
Measuring and reporting frequency; recording procedure	The temperature is measured by thermocouples for each 30 minutes, the gas flow sent to flare and the methane concentration is recorded and PE _{flare,y} is calculated.
Type of monitoring equipment and its accuracy	/
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	NA
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	NA
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	A_{ci,x} – ID.44
Data Unit	Tonnes/year
Description	Amount of residual waste type “ci” from anaerobic digestion.
Source of data to be used	The collected sample is weighted through a dedicated balance
Value data for the monitoring period	According to the Fermentation Output-Compost Weighing Form /47/ and the emission reduction excel sheet /4/ , total residues are measured as 34,671.6 in 2011 and 107, 057.3 in 2012. Inert wastes are measured as 2,915.4 in 2011 and 8, 776.8 in 2012. Composts (food wastes) are measured as 31,756.2 in 2011 and 98, 280.5 in 2012.
Measuring and reporting frequency; recording procedure	It is measured continuously, read daily and transferred to the ERs spreadsheet calculation manually.
Type of monitoring equipment and its accuracy	It is measured by the dedicated balance. During the monitoring period the following instrument has been used: – Weigh bridge Ozkanlar B2 sn E-888 from 18.12.2010 – Weigh bridge Ozkanlar B2 sn E-637 from 18.12.2010
Calibration frequency/interval	The calibration frequency of the Ozkanlar is 10 years according to the mail The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: - Weigh bridge Ozkanlar B2 sn E-888, calibrated on 26/12/2010 /83/ - Weigh bridge Ozkanlar B2 sn E-888, calibrated on 20/05/2011 /84/ - Weigh bridge Ozkanlar B2 sn E-637, calibrated on 12/03/2012 /85/
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /9/ and reported in the monitoring report /2/ have been crosschecked with the composition analysis form /37/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	It is measured continuously, read daily and transferred correctly to the ERs spreadsheet calculation manually to calculate the baseline emission by the electricity meters.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	Other flare operation parameters – ID.45
Data Unit	/
Description	Data and parameters that are required to monitor whether the flare operates within the range of operating conditions according to manufacturer's specifications
Source of data to be used	The parameter is monitored continuously by volume flow meters.
Value data for the monitoring period	/
Measuring and reporting frequency; recording procedure	The parameter is checked if the measured value of the gas flow is within the specification range of the flare. As the flare was not in operation during the monitoring period, the measurement was not required.
Type of monitoring equipment and its accuracy	The flow meters is used for measuring LFG_{flare} / ID.23 The norm flow according to manufacture specification is: $265 \text{ Nm}^3 < LFG_{flare} < 1,125 \text{ Nm}^3$ /140/.
Calibration frequency/interval	The calibration frequency has been established every 5 years.
How were the values in the monitoring report verified and cross-checked?	NA
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	NA
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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3.4.3.3 Gold Standard sustainability monitored parameters

Data variable	Source of Data	Reported value for the project period
SDI.1 Air Quality Electricity delivered to the grid	The electricity delivered to the grid by the project activity result in 0.45 kg/MWh SO ₂ and 1.81 kg/MWh NO ₂ emission reductions.	53,029 kg SO ₂ 213,297 kg NO ₂
Assessment		
The majority of energy generation is dependent on fossil fuels which result in high emission levels of SO ₂ and NO _x in the baseline situation. It is calculated that 53,029 kg of SO ₂ and 213,297 kg of NO ₂ has been reduced due to the project activity within this monitoring period.		

Data variable	Source of Data	Reported value for the project period
SDI.2 Water Quality Collection of leachate	Interview with the head of Environmental Protection Department	Leachate is collected and transferred
Assessment		
The leachate from the landfill area is collected and transferred to the Municipalities Waste Water Treatment Centre. During the site visit, Director of Environmental Protection has been interviewed.		

Data variable	Source of Data	Reported value for the project period
SDI.3 Other Pollutants Levels of sulphide combusted in the landfill gas engines	Calculated based on the amount of landfill gas combusted in the engine as followed: $V_{\text{sulphidedestroyed}} = V_{\text{LFGdestroyed}} * 0.005$	41,535,154 m ³ LFG destroyed 207,675 m ³ H ₂ S destroyed
Assessment		
The amount of sulphide is calculated based on the amount of landfill gas combusted in the engine. It is calculated that 207,675 m ³ of H ₂ S has been reduced due to the project activity within the monitoring period.		

Data variable	Source of Data	Reported value for the project period
SDI.4 Quality of Employment The number of contracts, trainings and attendance of employees	List and attendance of trainings	31 internal and external trainings were organized
Assessment		
The number of staff attended to various trainings is monitored through the training certificates and attendance list. During this monitoring period, 31 internal and external trainings were organized. The training certificates and attendance list were checked during the on-site inspection, from /90/ to /120/.		

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Data variable	Source of Data	Reported value for the project period
SDI.5 Soil Condition Collection of leachate	Interview with the head of Environmental Protection Department	Leachate is collected and transferred
Assessment		
The leachate from the landfill area is collected and transferred to the Municipalities Waste Water Treatment Centre.		

Data variable	Source of Data	Reported value for the project period
SDI.6 Livelihood of the poor Number of scavengers receiving a contract with social security	Social security documents	90 employee (9 of them are directly employed by ITC and 84 of them are employed under a company working as a subcontractor of the project)
Assessment		
There are 90 ex-scavengers contracted as an employee in Total. 6 of them are directly employed by ITC /40/ and 84 of them are employed under a company working as a subcontractor of to the project. All employees received a social security.		

Data variable	Source of Data	Reported value for the project period
SDI.7 Access to affordable and clean energy services	PMUM records	117,844 MWh
Assessment		
According to the PMUM records /28/, 117,844 MWh of electricity generated and delivered to the grid is monitored through destruction of 41,535,154 m ³ of LFG within the monitoring period.		

Data variable	Source of Data	Reported value for the project period
SDI.8 Human and Institutional Capacity Awareness campaign	Interviews with Saricam Municipality, Deputy Director of Cleaning Jobs	Over 100 seminars
Assessment		
Awareness campaigns have been arranged in corporation with national NGO "ÇEVKO Foundation" (Environmental Protection and Packaging Waste Recycling Foundation). It is confirmed as per the interviews with Ibrahim Yavuz, Deputy Director of Cleaning Jobs of Saricam Municipality that over 100 seminars have been arranged towards awareness building including universities and public. Also recycling waste collection points have been established such as Saricam Administrative District, Saricam Municipality, health centers, state buildings within the municipality, ÇEAŞ kindergartens, university campus, and educational facilities within the university campus, shopping malls and dormitories etc.		

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Data variable	Source of Data	Reported value for the project period
SDI.9 Quantitative Employment and income generation Number of contracts	Payroll Sheets of Social Security Institution	134 people are employed currently
Assessment		
The number of employment created by the project is monitored through the monthly salary payment sheets. 151 people are employed by the project activity as confirmed through the "Payroll Sheets of Social Security Institution" /40/.		

3.4.4 Accuracy of emission reduction calculations

The emission reduction calculations provided in the spreadsheet /4/ have been verified to be correct and in line with the registered PDD /1/.

The emission reductions from the project for the monitoring period as reported in the monitoring report revision 04.0 of 04/07/2013 /3/ is equivalent to 396,231 tCO₂e. The reported emission reductions are 35.6% lower than the estimated emission reduction of 615,410 tCO₂e for the period as per the registered PDD /1/.

The data presented in the monitoring report /3/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidence was presented and verified by RINA for the reported emission reductions as listed in the above Section 3.4.3.2.

3.4.5 Accuracy of the GS indicators of sustainable development

All the documented evidences related to the sustainable monitored parameters such as payroll sheets of social security institution /40/, training certificates and attendance list from /90/ to /120/, gas analysis reports /29-35/ and PMUM records /28/ are provided as objective evidence.

3.4.6 Management system and quality control

A Monitoring Manual /6/ has been developed that covers all the procedures required as per the approved methodology ACM0001 /11/ and AM0025 /12/ and validated monitoring plan presented in the registered PDD /1/. To guarantee the accuracy of the monitoring data periodic calibration of the installed monitoring equipment has been carried out according to definitions included in the monitoring plan of the registered PDD /1/ and in accordance with the requirements of the manufacturer. All data are registered and processed electronically. At each booster station, a server unit receives all data sent from the meters and data in real time is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The server also automatically calculates every 30 minutes the normal flow of landfill gas captured and of the biogas produced by the digester; the gas flow is multiplied with the real gas formula normating the gas flow to standard temperature and pressure. Temperature and pressure are real time values. The data stored at the booster station server are transferred once per month to a computer and a backup hard drive. In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the period without data recording. The electricity generations supplied to the grid and electricity consumption from the grid are read remotely from the electricity meters by Automatic Meter Reading System (OSOS) by the TEIAS personnel. The data from the protocols are transferred to the excel sheet used for the emission reduction calculations.

The calculation of GS VERs for the fourth verification period is carried out through the spreadsheet "Adana Landfill Waste Management Project Emission Reduction Calculation v2 11062013.xlsx" /4/. The on-site visit at Adana landfill waste management plant confirmed that the monitoring and reporting is carried out consistently and in line with the established procedures.

The collected data during the monitoring period will be kept by the project owner at least two years after the last issuance of VERs as stated in the registered PDD /1/ and monitoring manual /6/.

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4 VERIFICATION AND CERTIFICATION OPINION

RINA Services Spa (RINA) has performed verification of the emission reductions reported for the project activity “Adana Landfill Waste Management Project – Turkey” in Turkey, GS Registration Reference N° 715, for the period 01/01/2011 to 31/12/2012, with regard to the relevant requirements for GS activities.

The project participants of the “Adana Landfill Waste Management Project – Turkey” project are responsible for:

- the preparation of greenhouse gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered project design document revision 01 of 14/03/2012
- the development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project

It is the responsibility of RINA to express an independent verification opinion about the project's conformity with the requirements of paragraph 62 of the CDM modalities and procedures, GS requirements and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- the project has been implemented and operated as per the registered PDD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable CDM and GS VER requirements;
- monitoring is in place as per the applied baseline and monitoring methodology;
- monitoring complies with the monitoring plan in the registered PDD;
- the monitoring plan in the registered PDD is as per the applied baseline and monitoring methodology.

It is RINA's opinion that the GHG emission reductions stated in the monitoring report version 05.0 of 17/08/2013 for the “Adana Landfill Waste Management Project – Turkey” project in Turkey for the period 01/01/2011 to 31/12/2012 are fairly stated. The GHG emission reductions were calculated correctly, the sustainability development indicators were correctly monitored, on the basis of the approved monitoring methodology “ACM0001”, “Consolidated baseline and monitoring methodology for landfill gas project activities”, version 11 of 28/05/2009, “AM0025”, “Avoided emissions from organic waste through alternative waste treatment processes”, version 12 of 30/07/2010 and the monitoring plan contained in the registered PDD.

Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/01/2011 to 31/12/2012 amount to 396,231 tCO₂e.

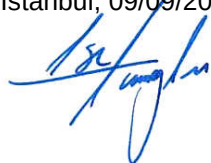
Year 2011 01/01/2011 to 31/12/2011 177,187 tCO₂e

Year 2012 01/01/2012 to 31/12/2012 219,044 tCO₂e

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	403,330,4
Project Emissions	2.9
Leakage	7095,41
Net GHG emission reductions or removals	396,231

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Istanbul, 09/09/2013



Isil TIMUROGLU
GS Team Leader
RINA Denizcilik ve Belgelendirme Ltd. Sti.

Genova, 11/09/2013



Laura Severino
Authorized officer signing for the DOE
RINA Services S.p.A.

APPENDIX A

GOLD STANDARD VERIFICATION PROTOCOL

TABLE 1 REQUIREMENTS CHECKLIST

Checklist Question		Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
A Description of Project Activity						
A.1	Title of the project activity, revision number and date of Monitoring Report	/1/ /3/ /13/	DR, CC	The title of the project activity is defined as “Adana Landfill Waste Management Project” in the registered PDD /1/ and Validation Report /13/. However, the title of the project activity is given as “Adana Landfill Waste Management Project” in the Monitoring Report version 01.0 of 21/03/2013 /3/. The title is not in line with the registered PDD /1/ and Validation Report /13/.	GR-1	OK
A.2	Is the actual implementation and operation of the proposed project activity in accordance with the project activity in the registered PDD?	/1/ /3/ /21/	DR, CC, I	It is confirmed during the site visit performed on 10-11/04/2013 that the project activity is implemented and operated as per the registered PDD /1/. Based on the onsite visit, the implementation of the project is in accordance with the project activity in the registered PDD /1/. It was confirmed during on site visit that the gas collection system, the enclosed flares, power generation unit and anaerobic digestion were installed by the end of first monitoring period. The total installed capacity of the project activity has reached to 15.4 MW with two booster installed. There are 11 units of gas engines installed with a capacity of 1.4 MW each. 5 gas engines with a total installed capacity of 7 MW are connected to Booster 2, which is the dedicated booster for the LFG and 6 gas engines with a total installed capacity of 8.4 MW are connected to Booster 1, which is dedicated to the AD system. On 28/06/2012, one power generation unit (GM-9) was connected to Booster 1 for the biogas system and one	CAR-1	OK

¹ MoV: DR document review, I interview, CC cross checking

Checklist Question		Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
				power generation unit (GM-10) was connected to Booster 2 for the LFG system. Please justify the date by providing document. The end date of crediting period is defined as 31/12/2012 in the Monitoring Report version 01.0 /3/ that is not correct.		
A.3	Methodology applied for the registered project activity	/1/ /11/ /12/	DR	The registered project activity applies the approved baseline and monitoring methodology ACM0001 version 11 of 28/05/2009 /11/ and AM0025 version 12 of 30/07/2010 /12/ .		OK
B Monitoring						
B.1 Monitoring plan						
B.1.1	Does the monitoring plan included in the registered GS project activity comply with the applied methodology?	/1/ /3/ /11/ /12/	DR, CC	The monitoring plan of the registered GS project activity complies with the applied methodology ACM0001 version 11 of 28/05/2009 /11/ and AM0025 version 12 of 30/07/2010 /12/ .		OK
B.1.2	Does the monitoring comply with the monitoring plan in the registered PDD?	/1/ /2/ /3/	DR, CC	The monitoring does not comply with the monitoring plan presented in the registered GS Passport /2/ . The "Air Quality" and "Water Quality" that need to be monitored as per the GS Passport /2/ are not included in the Monitoring Report version 01.0 /3/ .	CAR-2	OK
B.1.3	Does the sustainability indicators included in the monitoring report comply with the minimum contents specified in paragraph 4.1 of the GS toolkit?	/1/ /3/ /8/	DR, CC	The sustainability indicators included in the monitoring report /3/ complies with the minimum contents specified in paragraph 4.1 of the GS Toolkit /8/ .		OK
B.1.4	Have any changes been made to the key sustainable development indicators?	/1/ /3/	DR, CC, I	No change has been occurred during the monitoring period of 01/01/2011 to 31/12/2012 as confirmed through the site inspection and interviews.		OK
B.2 Data and parameters that are available at validation and that are not monitored						
B.2.1	Which parameters were available at validation and how were they verified?	/1/ /2/ /3/ /11/	DR, CC	The following parameters were available at validation stage and that doesn't need to be monitoring during the crediting period: ID.2 Global Warming Potential of methane (GWP_{CH4}):		OK

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			It is defined as 21 tCO₂e/tCH₄ as per the Kyoto Protocol in the registered PDD. ID.3 Global Warming Potential of methane (GWP_{N2O}): It is defined as 310 tCO₂e/tN₂O as per the Kyoto Protocol in the registered PDD. ID.4 Density of methane (D_{CH4}): It is defined as 0.0007168 tCH₄/m³ CH₄ at standard temperature and pressure as per the approved methodology ACM0001 /11/. ID.13 Model Correction Factor to Account for Model Uncertainties (φ): It is defined as 0.9 as per “Tool to Determine Methane Emissions Avoided from Dumping Waste at a Solid Waste Disposal Site, version 05”. ID. 14 Oxidation factor (OX): It is used for calculation of baseline emissions and leakage according to IPCC 2006 Guidelines for National Greenhouse Gas Inventories. It is defined as “0” zero as per the IPCC Guidelines for National Greenhouse Gas Inventories.. ID.15 Fraction of methane in the SWDS gas (F): It is used for calculation of the baseline emissions and leakage, and it is defined as 0.5 according to IPCC 2006 Guidelines for National Greenhouse Gas Inventories. ID.16 Fraction of degradable organic carbon that can decompose (DOC_f): It is defined as 0.5 as per the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. ID.17 Methane correction factor (MCF): It is defined as 0.8 as per IPCC 2006 Guidelines for National Greenhouse Gas Inventories. ID.18 Fraction of degradable organic carbon (by weight) in waste type j (DOC_j): According to IPCC 2006, wood and wood products have %43, pulp, paper and cardboard have %40, food, food waste, beverages		

Checklist Question		Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
				and tobacco have %15, non-food organics have %20 wet waste. ID.19 Decay rate for the waste type j (k_j): According to IPCC 2006, wood and wood products have 0.02, pulp, paper and cardboard have 0.04, food, food waste, sewage sludge, beverages and tobacco have 0.06, non-food organic putrescible garden and park waste have 0.05 dry waste. ID.20 Fraction of methane captured at the SWDS and flared, combusted or used in another manner (f): It is defined as “0” zero in the registered PDD /1/. ID.21 Emission factor for the production of electricity in the project activity (CEF_{grid}): The combined emission factor has been determined using the ex-ante option, so it is not requested to monitor and recalculate in this crediting period. The combined emission factor is determined to be 0.561 tCO₂/MWh in the registered PDD /1/. SD.1.a SO₂ emissions per MWh electricity generation from fossil fuels determined ex-ante for SD.1 (EF_{SO_2}): It is defined as 0.45 in the registered GS Passport /2/. SD.1.b NO₂ emissions per MWh electricity generation from fossil fuels determined ex-ante for SD.1 (EF_{NO_2}): It is defined as 1.81 in the registered GS Passport /2/. SD.3 Fraction of sulphide within the LFG determined ex-ante for SDI.3 (W_{H_2S}): It is defined as 0.5% in the registered GS Passport /2/.		
B.3 Data and parameters monitored						
B.3.1	Data/Parameter monitored / Data unit / Description / Source of data to be used / Value data for the monitoring period	/1/ /3/ /4/ /14/ /15/ /26/ /28/	DR, CC, I	The ID number of parameters defined in the ER excel sheet /4/ does not match with the Monitoring Report Version 01.0 /3/ .	CR-2	OK

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
	/29/ /31/ /32/ /33/ /34/ /35/ /36/ /37/ /39/ /42/		ID.22 Total amount of landfill gas captured at normal temperature and pressure ($LFG_{total,y}$ m³): The parameter is monitored continuously by volume flow meters. The 2011 value data is 19,804,151.075 m³ and 2012 value data is 21,731,003.730 m³, which could be confirmed through the excel sheet of Booster 2 /26/. ID.23 Total amount of landfill gas sent to flare at normal temperature and pressure ($LFG_{flare,y}$ m³): The parameter is monitored continuously by volume flow meters. The 2011 value data is 0 and 2012 value data is 0 m³, which could be confirmed through the excel sheet of Booster 2 /26/. Flare was not operated in this monitoring period since all gas has sent to gas engines. ID.24 Total amount of landfill gas combusted to produce electricity at normal temperature and pressure ($LFG_{electricity,y}$ m³): The parameter is monitored continuously by volume flow meters. The 2011 value data is 19,765,603.166 m³ and 2012 value data is 21,770,504.981, which could be confirmed through the excel sheet of Booster 2 /26/. ID.25 Temperature of the landfill gas (Temperature °C): The temperature is measured to determine the norm flow of the landfill gas by using a temperature meter and data is available at the excel sheet of Booster 2 /26/. ID.26 Pressure of the landfill gas (Pressure Mbar): The pressure is measured to determine the norm flow of the landfill gas and it is monitored separately using a pressure meter. The data is available at the excel sheet of Booster 2 /26/. ID.27 Temperature in the exhaust gas of the enclosed flare (T_{flare} °C): Measurement of temperature above 500 °C in the exhaust gas stream in the flare indicates that the flare is operating in a reliable way.		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			Flare was not operated in this monitoring period since all gas has sent to gas engines. The data is available at the excel sheet of Booster 2 /26/. ID.28 Flare efficiency in hour h ($\eta_{flare,h}$ %): According to the methodological tool “Tool to determine project emissions from flaring containing methane” /14/ the project adopted the default value for the flare efficiency of 90% (enclosed flare). However, during this monitoring period no LFG was sent to the flare and therefore the flare was not operational, so the efficiency was 0% in this monitoring period. ID.29 Methane fraction in the landfill gas (% W_{CH_4} m^3CH_4/m^3LFG): The methane fraction is measured continuously by a gas analyzer. The 2011 average value data is 50.75% and 2012 average value data is 52.79% as confirmed through the excel sheet of Booster 2 /26/. ID.30 Operation of the energy plant (hours/year): The operation of the energy plant is measured for each engine by a counting device in each power generation unit. The operation hours of 2011 is 38,946 hours and it is 69,478 hours for 2012 were verified through the internal records /36/. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,j,y}$ MWh): It is measured by electricity meters of the grid company. The 2011 value data is 2.37 MWh and 2012 value data is 2.86 MWh. It could be confirmed through the PMUM records /28/. ID.32 Average technical transmission and distribution losses for providing electricity source j, in year y ($TDL_{j,y}$ %): The value is provided by the grid company. The value data for the monitoring period is 0% as confirmed through the PMUM records /28/. ID.33 Stack Volume Flow Rate ($SG_{a,y}$): Flow rate is		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			measured quarterly by an external laboratory. Also, it is calculated by the average measured flow rates at the engines multiplied by the operational hours of the engines extracted from ID.30. The 2011 value data is 50,208,205 m³/year and 2012 value data is 171,175,629 m³/year. However, 2011 value data in the monitoring report does not match with the emission reduction calculation excel sheet /4/. ID.34 Concentration of NO₂ in stack gas (MC_{NO2,a,y}): It is measured by an external laboratory. The concentration is "0" (zero) ppm as per the laboratory reports /29/ /30/ /31/ /32/ /33/ /34/ /35/. ID.35 Concentration of CH₄ in stack gas (MC_{CH4,a,y}): It is measured by an external laboratory. The concentration is "0" (zero) ppm as per the laboratory reports /29/ /30/ /31/ /32/ /33/ /34/ /35/. ID.36 Total amount of Organic Waste Prevented from Disposal and Fed into the Anaerobic Digester in year x (W_x): It is measured by weighting with a belt scale. According to the weighbridge database /42/, the 2011 value data is 57,845 t and 2012 value data is 175,202 t. ID.37 Weight Fraction of the Waste Type j in the Sample Collected during year x (p_{n,j,x}): It is measured by weighting through the dedicated balance. The 2011 value data for food waste is 73,89%; non-food organics 8.17%; for wood 3.92%; for paper 8,97%; inorganic/inert waste 5,04% and The 2012 value data for food waste is 73,90%; non-food organics 8.04%; for wood 4.00%; for paper 9,03% and inorganic/inert waste 5,01% as per the composition analysis forms /37/. ID.38 Number of samples collected in year x (z): It is measured as 10 samples for 2011 and 21 samples for 2012 to calculate the weight fraction of the waste type as per the composition analysis forms /37/.		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			ID.39 Methane Produced in the Landfill in absence of the Project Activity in year y (MB_y): It is calculated as 2,621.56 tCO₂ in 2011 and 10,514.14 tCO₂ in 2012. The value has been determined as per “Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site” version 4 /15/ using the default values established by the tool and parameters as ID.36/W_x; ID.37/P_{n,j,x}; ID.38/z. ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The generated electricity is measured continuously by electricity meters of the grid company. The 2011 value data is 44,157.28 MWh and 2012 value data is 73,687.35 MWh. It could be confirmed through the PMUM records /28/. ID.41 Methane destroyed due to regulatory or other equipment (AF %): It is fixed to zero for the first crediting period in the registered PDD /1/. ID.42 Percentage of LFG applied to PGUs divided by the total amount of LFG captured (LFG_{usage} %): Data is derived from monitoring parameters ID.21 and ID.23. 100% as all of the LFG is combusted in the PGUs in 2011 as confirmed through the excel sheet of Booster 2 /26/. ID.43 Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): The parameter is calculated as per the Tool to determine project emissions from flaring containing methane” /14/. Data is derived from ID.22, ID.27, ID.28 and ID.29. Flare is not used in this monitoring period as confirmed through the excel sheet of Booster 2 /26/. ID.44 Amount of residual waste type “ci” from anaerobic digestion ($A_{ci,x}$): The collected sample is weighted through a dedicated balance. Total residues is weighted as 34,671.6 in 2011 and 107,057.3 in 2012;		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			inert waste is weighted 2,915.4 in 2011 and 8,776.8 in 2012; compost (food waste) is weighted 31,756.2 in 2011 and 98,280.5 in 2012 as per the ratio in ID.37. ID.45 Other flare operation parameters: Data and parameters that are required to monitor whether the flare operates within the range of operating conditions according to manufacturer's specifications. As the flare was not operational during this monitoring period, the measurement was not required.		
B.3.2 Is the measurement equipment described? Is the accuracy of the measurement equipment addressed and deemed appropriate?	/1/ /3/ /14/ /15/ /28/ /39/ /43/ /45/ /49/ /51/ /52/ /53/ /83/ /84/ /85/ /121/ /122/ /123/ /124/ /125/ /126/ /127/ /128/ /129/	DR, CC, I	The installation and de-installation of the measurement equipment explained below for each parameter could be confirmed through the measurement equipment forms /39/ and measurement equipment installation protocol /45/. The initial installation of the measurement equipment has been done on 20/05/2010 as confirmed through the measurement equipment installation protocol /45/. After initial installation, the installation and de-installation date of the measurement equipment could be confirmed through the measurement equipment forms /39/. ID.22 Total amount of landfill gas captured at normal temperature and pressure ($LFG_{total,y}$ m³): The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: – Booster 2: Flow Meter ABB 2600T sn 6409029293 The accuracy of the flow meter is 0.075% as confirmed through the initial calibration of supplier /52/. ID.23 Total amount of landfill gas sent to flare at normal temperature and pressure ($LFG_{flare,y}$ m³): The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas	CAR-3	OK

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: – Booster 2: Flow Meter ABB 2600T sn 6408005055 The accuracy of the flow meter is 0.075% as confirmed through the initial calibration of supplier /51/. ID.24 Total amount of landfill gas combusted to produce electricity at normal temperature and pressure ($LFG_{electricity,y} m^3$): The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instruments have been used: – Booster 2: Flow Meter ABB 2600T sn 6409029303 The accuracy of the flow meter is 0.075% as confirmed through the initial calibration of supplier /53/. ID.25 Temperature of the landfill gas (Temperature $^{\circ}C$): It is measured using temperature meters. During this monitoring period the following temperature meters have been used: – LFG captured by Booster 2 ELIMKO RT03-1P06-7,5-Tr sn 08/33890 from 20.05.2010 till 02.03.2011 ELIMKO PT 100 sn 09/6659 from 02.03.2011 till 15.08.2011 TEKON TRT03-B1E06-12Ü-TR sn 10/0748 from 15.08.2011 till 03.03.2012 ELIMKO RT03-1K09-70-U-Tr sn 09/6659 from 03.03.2012 till 08.02.2013 – LFG sent to engine ELIMKO RT03-1P06-7,5-Tr sn 08/33892 from		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			20.05.2010 till 02.03.2011 ELIMKO PT 100 sn 09/23188 from 02.03.2011 till 24.01.2012 NOVA-Z ODE-RTD-OR03-B1H09-2310 sn 0801-00553 from 24.01.2012 till 03.03.2012 NOVA-Z ODE-RTD-OR03-B1H09-ÜHT sn 0802-01120 from 03.03.2012 – LFG sent to Flare ELIMKO RT03-1P06-7,5-Tr sn 08/33886 from 20.05.2010 till 02.03.2011 TEKON 1xPt100(3W) sn 11-0072 from 02.03.2011 till 19.09.2011 TEKON TRT03-B1E06-12-Ü-TR sn 10/0749 from 19.09.2011 till 03.03.2012 ELIMKO RT03-1P08-5-U-Tr sn 08/14623 T from 03.03.2012 till 08.02.2013 The accuracy of the ELIMKO temperature meters is 0.5% as confirmed through the data sheet of supplier /121/. The accuracy of the NOVA-Z temperature meters is 0.1% as confirmed through the stability protocol of the supplier /122/. The accuracy of the TEKON temperature meter is 0.2% as confirmed through the data sheet of the supplier /49/. ID.26 Pressure of the landfill gas (Pressure Mbar): Pressure is measured using pressure meters. During the monitoring period the following pressure meters have been used: – LFG captured by Booster 2 KELLER PR-23 sn 129590 from 20.05.2010 till 10.03.2011 KELLER PR-23 sn 138899 from 10.03.2011 to 24.01.2012 KELLER PR-23 sn 145076 from 24.01.2012 till		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			16.05.2012 KELLER PR-23 sn 138895 from 16.05.2012 till 08.02.2013 – LFG sent to the engines by Booster 2 KELLER PAA - 21S sn 70188 from 20.05.2010 to 09.03.2011 KELLER PAA-21S sn 128872 from 09.03.2011 till 03.03.2012 KELLER PAA-21S sn 128866 from 03.03.2012 till 16.05.2012 ABB 2600 T sn 3K646611009247 from 16.05.2012 – LFG sent to flare Booster 2 WIKA S-10 sn I970T/4103354 from 20.05.2010 till 10.03.2011 KELLER PAA-21S sn 128862 from 10.03.2011 till 03.03.2012 KELLER PAA-21S sn 128873 from 03.03.2012 till 08.02.2013 The accuracy of the ABB 2600 T pressure meters is 0.1% as confirmed through the data sheet of supplier /123/. The accuracy of the KELLER PAA-21S pressure meters is 0.5% as confirmed through the data sheet of supplier /124/ and the accuracy of the KELLER PR-23 pressure meters is 0.25% as confirmed through the data sheet of supplier /125/. The accuracy of the WIKA S-10 pressure meter is 0.2% as confirmed through the data sheet of supplier /126/. ID.27 Temperature in the exhaust gas of the enclosed flare (T_{flare} °C): Temperature is measured using temperature meter. During the monitoring period the following temperature meters have been used: – Flare Booster 2 ELIMKO TC02-1S4Y10-50/10-R1/2-Tr-S sn		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			08/30902 from 20.05.2010 till 04.02.2011 HAASE 1 PTRH-PT/S sn 2006000477/920-1 from 04.02.2011 The accuracy of the ELIMKO temperature meters is 0.5% as confirmed through the data sheet of supplier /127/. The accuracy of the HAASE temperature meters is 2.5% as confirmed through the HAASE data sheet of supplier /128/. However, the accuracy of HAASE temperature meters is not defined in the Monitoring Report version 01.0 /3/. ID.28 Flare efficiency in hour h ($\eta_{flare,h}$ %): The flare efficiency is calculated based on the monitoring parameters ID.23 (landfill gas flared) and ID.27 (temperature in the exhaust gas of the enclosed flare). ID.29 Methane fraction in the landfill gas (% W_{CH_4} m^3CH_4/m^3LFG): The methane fraction is measured continuously by a gas analyzer. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: – Booster 2: Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196 from 20/05/2010 The accuracy of Gas Analyzer SIEMENS ULTRAMAT 23 is 0.2% as confirmed through the HAASE data sheet of supplier /129/. However, the accuracy class of Gas Analyzer SIEMENS ULTRAMAT 23 is not presented in the Monitoring Report version 01.0 /3/. ID.30 Operation of the energy plant (hours/year): The operation of the energy plant is measured for each power generation unit by a counting device. Every power generation unit has its own counting device totalizing the amount of hours.		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,j,y}$ MWh): It is measured by electricity meters of the grid company. The amount of electricity consumed from the grid is measured by two electricity meters operated by the grid company who is the owner of the monitoring equipment. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The Monitoring Report version 01.0 /3/ does not include the information of electricity meter. ID.32 Average technical transmission and distribution losses for providing electricity source j, in year y ($TDL_{j,y}$ %): The value is provided by the grid company as confirmed through the PMUM records /28/. ID.33 Stack Volume Flow Rate ($SG_{a,y}$): It is measured by an external laboratory. According to PDD /1/, calibration is under the responsibility of the third party laboratory that is performing the quarterly analysis. ID.34 Concentration of NO_2 in stack gas ($MC_{NO2,a,y}$): It is measured by an external laboratory. According to PDD /1/, calibration is under the responsibility of the third party laboratory that is performing the quarterly analysis. ID.35 Concentration of CH_4 in stack gas ($MC_{CH4,a,y}$): It is measured by an external laboratory. According to PDD /1/, calibration is under the responsibility of the third party laboratory that is performing the quarterly analysis. ID.36 Total amount of Organic Waste Prevented from Disposal and Fed into the Anaerobic Digester in year x (W_x): It is measured continuously, read daily and transferred to the ERs spreadsheet calculation manually.		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			During the monitoring period the following instrument has been used: – Loadcell SEG KN4-100 sn A0928006 from 21.01.2011 till 15.01.2013 The accuracy of Loadcell SEG KN4-100 is 0.2% as confirmed through the SEG data sheet /43/. However, the accuracy class of Loadcell SEG KN4-100 is not presented in the Monitoring Report version 01.0 /3/. ID.37 and ID.38 Weight Fraction of the Waste Type j in the Sample Collected during year x ($p_{n,j,x}$) / Number of samples collected in year x (z): It is measured by the dedicated balance with the collected samples in a year. During the monitoring period the following instruments have been used: – Weigh bridge Ozkanlar B2 sn E-888 from 18.12.2010 – Weigh bridge Ozkanlar B2 sn E-637 from 18.12.2010 In the list of monitoring equipment (Table 3), E-888 is identified for weighbridge. However, according to the certification documents /83/ /84/ /85/, another weighbridge with a different serial number (E-637) is defined. Please clarify it. The accuracy of Ozkanlar B2 could not be confirmed since the reference does not provided to the verification team. Also it is not presented in the Monitoring Report version 01.0 /3/. ID.39 Methane Produced in the Landfill in absence of the Project Activity in year y (MB_y): The parameter is calculated as per the Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site" /15/. Data is derived from ID.36, ID.37 and ID.38. ID.40 The amount of electricity generated utilising		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			the LFG ($EG_{d,y}$ MWh): The electricity generated from utilization of biogas and LFG is measured from electricity meters. The Monitoring Report version 01.0 /3/ does not include the information of electricity meter. Also, it is stated in Monitoring Report version 01.0 /3/ that the <u>consumed electricity</u> is measured continuously by electricity meters. ID.41 Methane destroyed due to regulatory or other equipment (AF %): It is fixed to zero for the first crediting period in the registered PDD /1/. ID.42 Percentage of LFG applied to PGUs divided by the total amount of LFG captured (LFG_{usage} %): Data is derived from monitoring parameters ID.21 and ID.23. ID.43 Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): The parameter is calculated as per the Tool to determine project emissions from flaring containing methane” /14/. Data is derived from ID.22, ID.27, ID.28 and ID.29. ID.44 Amount of residual waste type “ci” from anaerobic digestion ($A_{ci,x}$): It is measured by the dedicated balance. During the monitoring period the following instrument has been used: – Weigh bridge Ozkanlar B2 sn E-888 from 18.12.2010 – Weigh bridge Ozkanlar B2 sn E-637 from 18.12.2010 In the list of monitoring equipment (Table 3), E-888 is identified for weighbridge However, according to the certification documents /83/ /84/ /85/, another weighbridge with a different serial number (E-637) is defined. Please clarify it. The accuracy of Ozkanlar B2 could not be confirmed since the reference does not provided to the verification		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			team. Also it is not presented in the Monitoring Report version 01.0 /3/. ID.45 Other flare operation parameters: The flow meter required for measuring ID.22 LFG_{flare}. As the flare was not operational during this monitoring period, the measurement was not required.		
B.3.3 Are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate?	/1/ /3/ /14/ /15/ /28/ /41/ /44/ From /49/ to /82/ /121/ /122/ /126/ /128/ /132/ /130/ /131/	DR, CC, I	ID.22 Total amount of landfill gas captured at normal temperature and pressure (LFG_{total,y} m³): The flow meter has been calibrated on 17/12/2009 by the supplier as confirmed through the calibration record /52/. The calibration frequency has been defined every 5 years by the supplier as confirmed through the data sheet of supplier /130/. No calibrations have been carried out during this monitoring period as it has been considered still valid the supplier calibration. ID.23 Total amount of landfill gas sent to flare at normal temperature and pressure (LFG_{flare,y} m³): The flow meter has been calibrated on 19/02/2008 by the supplier as confirmed through the calibration record /51/. The calibration frequency has been defined every 5 years by the supplier as confirmed through the data sheet of supplier /130/. No calibrations have been carried out during this monitoring period as it has been considered still valid the supplier calibration. ID.24 Total amount of landfill gas combusted to produce electricity at normal temperature and pressure (LFG_{electricity,y} m³): The flow meter has been calibrated on 16/12/2009 by the supplier as confirmed through the calibration record /53/. The calibration frequency has been established every 5 years by the supplier as confirmed through the data sheet /130/. No calibrations have been carried out during this monitoring period as it has been considered still valid the supplier calibration. ID.25 Temperature of the landfill gas (Temperature	CAR-4	OK

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			☐): The calibration frequency has been established every year for ELIMKO temperature meters as confirmed through the recommendation of the supplier /121/. The calibration frequency has been established every 10 years for NOVA-Z temperature meters as confirmed through the recommendation of the supplier /122/. The calibration frequency has been established every five years for TEKON temperature meters as confirmed through the recommendation of the supplier /49/. However, it is given as one year in the monitoring report /3/. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: – LFG captured by Booster 2 - ELIMKO RT03-1P06-7,5-Tr sn 08/33890, calibrated on 02/03/2010 /57/ - ELIMKO PT 100 sn 09/6659, calibrated on 20/10/2010 /59/ - TEKON TRT03-B1E06-12Ü-TR sn 10/0748, calibrated on 04/03/2011 /79/ - ELIMKO RT03-1K09-70-U-Tr sn 09/6659, calibrated on 24/02/2012 /60/ – LFG sent to engine - ELIMKO RT03-1P06-7,5-Tr sn 08/33892, calibrated on 02/03/2010 /58/ - ELIMKO PT 100 sn 09/23188, calibrated on 17/02/2011 /61/ - NOVA-Z ODE-RTD-OR03-B1H09-2310 sn 0801-00553, calibrated on 05/11/2008 /72/ - NOVA-Z ODE-RTD-OR03-B1H09-ÜHT sn 0802-01120, calibrated on 25/02/2011 /73/ – LFG sent to Flare - ELIMKO RT03-1P06-7,5-Tr sn 08/33886, calibrated on 02/03/2010 /56/		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			TEKON 1xPt100(3W) sn 11-0072, calibrated on 24/01/2011 /81/ TEKON TRT03-B1E06-12-Ü-TR sn 10/0749, calibrated on 04/03/2011 /80/ ELIMKO RT03-1P08-5-U-Tr sn 08/14623 T, calibrated on 17/02/2012 /54/ ID.26 Pressure of the landfill gas (Pressure Mbar): The calibration frequency has been established every year for KELLER pressure meters as confirmed through the recommendation of the supplier /131/. The calibration frequency has been established every 5 years for ABB pressure meter as confirmed through the recommendation of the supplier /130/. However, the calibration frequency of ABB 2600 T is given 10 years. The calibration frequency has been established every year for WIKA pressure meter as confirmed through the recommendation of the supplier /126/. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: – LFG captured by Booster 2 KELLER PR-23 sn 129590, calibrated on 10/03/2010 /68/ KELLER PR-23 sn 138899, calibrated on 23/02/2011 /70/ KELLER PR-23 sn 145076, calibrated on 09/09/2011 /71/ KELLER PR-23 sn 138895, calibrated on 14/02/2012 /69/ – LFG sent to the engines by Booster 2 KELLER PAA - 21S sn 70188, calibrated on 09/03/2010 /63/ KELLER PAA-21S sn 128872, calibrated on 04/03/2011 /66/		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			KELLER PAA-21S sn 128866, calibrated on 24/02/2012 /65/ ABB 2600 T sn 3K646611009247, calibrated on 25/08/2011 /50/ – LFG sent to flare Booster 2 WIKA S-10 sn I970T/4103354, calibrated on 18/03/2010 /82/ KELLER PAA-21S sn 128862, calibrated on 04/03/2011 /64/ KELLER PAA-21S sn 128873, calibrated on 24/02/2012 /67/ ID.27 Temperature in the exhaust gas of the enclosed flare (T_{flare} °C): The calibration frequency has been established every year for ELIMKO temperature meters as confirmed through the recommendation of the supplier /121/. According to the recommendation of the supplier /128/, no calibration is necessary for the HAASE temperature meters. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: – Flare Booster 2 ELIMKO TC02-1S4Y10-50/10-R1/2-Tr-S sn 08/30902, calibrated on 04/02/2010 /55/ HAASE 1 PTRH-PT/S sn 2006000477/920-1, calibrated on 17/09/2008 /62/ ID.28 Flare efficiency in hour h ($\eta_{flare,h}$ %): The flare efficiency is calculated based on the monitoring parameters ID.23 (landfill gas flared) and ID.27 (temperature in the exhaust gas of the enclosed flare). ID.29 Methane fraction in the landfill gas (% W_{CH_4} m^3CH_4/m^3LFG): The calibration frequency has been established 6-12 months for Siemens Ultramat 23 gas analyzer as confirmed through the recommendation of		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			the supplier /132/. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: Booster 1: Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196, calibrated on 19/02/2010 /76/ Booster 1: Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196, calibrated on 12/02/2011 /77/ Booster 1: Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-V6-0196, calibrated on 21/01/2012 /78/ ID.30 Operation of the energy plant (hours/year): The operation of the energy plant is measured for each power generation unit by a counting device. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,j,y}$ MWh): It is measured by electricity meters of the grid company. TEIAS has tested meters at time of installation as confirmed through the first index protocol /44/. The Monitoring Report version 01.0 /3/ does not include the information about the calibration frequency of electricity meters. ID.32 Average technical transmission and distribution losses for providing electricity source j, in year y ($TDL_{j,y}$ %): The value is provided by the grid company as confirmed through the PMUM records /28/. ID.33 Stack Volume Flow Rate ($SG_{a,y}$): It is measured by an external laboratory. According to PDD /1/ calibration is under the responsibility of the third party laboratory that is performing the quarterly analysis. ID.34 Concentration of NO_2 in stack gas ($MC_{NO_2,a,y}$): It is measured by an external laboratory. According to PDD /1/ calibration is under the responsibility of the third party laboratory that is performing the quarterly analysis.		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			ID.35 Concentration of CH₄ in stack gas ($MC_{CH_4,a,y}$): It is measured by an external laboratory. According to PDD /1/ calibration is under the responsibility of the third party laboratory that is performing the quarterly analysis. ID.36 Total amount of Organic Waste Prevented from Disposal and Fed into the Anaerobic Digester in year x (W_x): The calibration frequency has been established one year for SEG KN4-100 Loadcell in the monitoring report. For all that, no information about calibration frequency is given in the recommendation of the supplier /41/. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: - Loadcell SEG KN4-100 sn A0928006, calibrated on 17/01/2011 /74/ - Loadcell SEG KN4-100 sn A0928006, calibrated on 16/01/2012 /75/ ID.37 and ID.38 Weight Fraction of the Waste Type j in the Sample Collected during year x ($p_{n,j,x}$) / Number of samples collected in year x (z): The calibration frequency has not been established in the monitoring report. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: - Weigh bridge Ozkanlar B2 sn E-888, calibrated on 26/12/2010 /83/ - Weigh bridge Ozkanlar B2 sn E-888, calibrated on 20/05/2011 /84/ - Weigh bridge Ozkanlar B2 sn E-637, calibrated on 12/03/2012 /85/ ID.39 Methane Produced in the Landfill in absence of the Project Activity in year y (MB_y): The parameter is		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			calculated as per the Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site" /15/. Data is derived from ID.36, ID.37 and ID.38. ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The value is provided by the grid company as confirmed through the PMUM records /28/. ID.41 Methane destroyed due to regulatory or other equipment (AF %): It is fixed to zero for the first crediting period in the registered PDD /1/. ID.42 Percentage of LFG applied to PGUs divided by the total amount of LFG captured (LFG_{usage} %): Data is derived from monitoring parameters ID.21 and ID.23. ID.43 Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): The parameter is calculated as per the Tool to determine project emissions from flaring containing methane" /14/. Data is derived from ID.22, ID.27, ID.28 and ID.29. ID.44 Amount of residual waste type "ci" from anaerobic digestion ($A_{ci,x}$): The calibration frequency has not been established in the monitoring report. The calibration certificates related to this monitoring period have been checked and found to be correct as explained below: - Weigh bridge Ozkanlar B2 sn E-888, calibrated on 26/12/2010 /83/ - Weigh bridge Ozkanlar B2 sn E-888, calibrated on 20/05/2011 /84/ - Weigh bridge Ozkanlar B2 sn E-637, calibrated on 12/03/2012 /85/ ID.45 Other flare operation parameters: The flow meter required for measuring ID.22 LFG_{flare}. As the flare was not operational during this monitoring period, the		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
B.3.4 Is the monitoring frequency adequate for all monitoring parameters? Is it in line with the registered monitoring plan?	/1/ /3/ /14/ /15/	DR, CC, I	measurement was not required. The project has reported these values based on readings, in accordance with the registration requirement of the monitoring methodology and the monitoring plan. ID.22 Total amount of landfill gas captured at normal temperature and pressure ($LFG_{total,y} m^3$): The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 30 minutes. The data are stored automatically at the booster. ID.23 Total amount of landfill gas sent to flare at normal temperature and pressure ($LFG_{flare,y} m^3$): The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 30 minutes. The data are stored automatically at the booster. ID.24 Total amount of landfill gas combusted to produce electricity at normal temperature and pressure ($LFG_{electricity,y} m^3$): The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 30 minutes. The data are stored automatically at the booster. ID.25 Temperature of the landfill gas (Temperature $^{\circ}C$): The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 30 minutes. The data are stored automatically at the booster. ID.26 Pressure of the landfill gas (Pressure Mbar): The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 30 minutes. The data are stored automatically at the booster.		OK

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			ID.27 Temperature in the exhaust gas of the enclosed flare (T_{flare} °C): The parameter is measured continuously by thermocouple in line with the registered monitoring plan. It is programmed to save automatically every 30 minutes. The data are stored automatically at the booster. ID.28 Flare efficiency in hour h ($\eta_{flare,h}$ %): The flare efficiency is calculated based on the monitoring parameters ID.23 (landfill gas flared) and ID.27 (temperature in the exhaust gas of the enclosed flare). ID.29 Methane fraction in the landfill gas (% W_{CH_4} m^3CH_4/m^3LFG): The gas analyzer measures continuously and it is programmed to save automatically every 30 minutes. ID.30 Operation of the energy plant (hours/year): The total number of operating hours is recorded manually once per month as confirmed during on site visit. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,i,y}$ MWh): The electricity consumption is measured continuously by electricity meters. ID.32 Average technical transmission and distribution losses for providing electricity source j, in year y (TDL_{jy} %): The parameter is measured by TEIAS monthly. ID.33 Stack Volume Flow Rate ($SG_{a,y}$): It is measured by an external laboratory quarterly in a year. ID.34 Concentration of NO_2 in stack gas ($MC_{NO_2,a,y}$): It is measured by an external laboratory quarterly in a year. ID.35 Concentration of CH_4 in stack gas ($MC_{CH_4,a,y}$): It is measured by an external laboratory quarterly in a		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			year. ID.36 Total amount of Organic Waste Prevented from Disposal and Fed into the Anaerobic Digester in year x (W_x): It is measured continuously, read daily and transferred to the ERs spreadsheet calculation manually. ID.37 and ID.38 Weight Fraction of the Waste Type j in the Sample Collected during year x ($p_{n,j,x}$) / Number of samples collected in year x (z): The composition analysis is performed 10 times in 2011 and 21 times in 2012. The sampling is statistically significant as the uncertainty range at a confidence level of 95% is significantly below 20% as required by the “Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site” version 4 /15/. ID.39 Methane Produced in the Landfill in absence of the Project Activity in year y (MB_y): It is calculated as per “Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site” version 4 /15/ ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The electricity generation is measured continuously by electricity meters. ID.41 Methane destroyed due to regulatory or other equipment (AF %): It is fixed to zero in the registered PDD /1/. ID.42 Percentage of LFG applied to PGUs divided by the total amount of LFG captured (LFGusage %): Data is derived from monitoring parameters ID.21 and ID.23. ID.43 Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): The parameter is calculated as per the Tool to determine project emissions from flaring containing methane” /14/. Data is		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			derived from ID.22, ID.27, ID.28 and ID.29. ID.44 Amount of residual waste type “ci” from anaerobic digestion ($A_{ci,x}$): It is measured continuously, read daily and transferred to the ERs spreadsheet calculation manually. ID.45 Other flare operation parameters: The flow meter required for measuring ID.22 LFG_{flare}.		
B.3.5 Is the recording frequency adequate for all monitoring parameters? Is it in line with the registered monitoring plan?	/1/ /3/ /14/ /15/	DR, CC, I	The project has reported these values based on readings, in accordance with the registration requirement of the monitoring methodology and the monitoring plan. ID.22 Total amount of landfill gas captured at normal temperature and pressure ($LFG_{total,y}$ m³): The parameter is programmed to record automatically every 30 minutes. The data are stored automatically at the booster. ID.23 Total amount of landfill gas sent to flare at normal temperature and pressure ($LFG_{flare,y}$ m³): The parameter is programmed to record automatically every 30 minutes. The data are stored automatically at the booster. ID.24 Total amount of landfill gas combusted to produce electricity at normal temperature and pressure ($LFG_{electricity,y}$ m³): The parameter is programmed to record automatically every 30 minutes. The data are stored automatically at the booster. ID.25 Temperature of the landfill gas (Temperature °C): The parameter is programmed to record automatically every 30 minutes. The data are stored automatically at the booster. ID.26 Pressure of the landfill gas (Pressure Mbar): The parameter is programmed to record automatically every 30 minutes. The data are stored automatically at	CR-3	OK

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			the booster. ID.27 Temperature in the exhaust gas of the enclosed flare (T_{flare} °C): The parameter is programmed to record automatically every 30 minutes. The data are stored automatically at the booster. ID.28 Flare efficiency in hour h ($\eta_{flare,h}$ %): The flare efficiency is calculated based on the monitoring parameters ID.23 (landfill gas flared) and ID.27 (temperature in the exhaust gas of the enclosed flare). ID.29 Methane fraction in the landfill gas (% W_{CH_4} m^3CH_4/m^3LFG): The gas analyzer is programmed to record automatically every 30 minutes. ID.30 Operation of the energy plant (hours/year): The total number of operating hours is recorded manually once per month as confirmed during on site visit. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,y}$ MWh): The electricity consumption is recorded monthly by electricity meters. ID.32 Average technical transmission and distribution losses for providing electricity source j, in year y (TDL_{jy} %): The parameter is recorded by TEIAS monthly. ID.33 Stack Volume Flow Rate ($SG_{a,y}$): The monitoring of the stack gasses takes places quarterly by an independent laboratory. ID.34 Concentration of NO_2 in stack gas ($MC_{NO_2,a,y}$): The monitoring of the stack gasses takes places quarterly by an independent laboratory. The concentrations are measured during normal operation in order to be representative. The average concentrations are determined on hourly base taking into account the operating hours of the engines.		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			ID.35 Concentration of CH₄ in stack gas ($MC_{CH_4,a,y}$): The monitoring of the stack gasses takes places quarterly by an independent laboratory. The concentrations are measured during normal operation in order to be representative. The average concentrations are determined on hourly base taking into account the operating hours of the engines. ID.36 Total amount of Organic Waste Prevented from Disposal and Fed into the Anaerobic Digester in year x (W_x): It is measured continuously, read daily and transferred to the ERs spreadsheet calculation manually. ID.37 and ID.38 Weight Fraction of the Waste Type j in the Sample Collected during year x ($p_{n,j,x}$) / Number of samples collected in year x (z): The composition analysis is performed 10 times in 2011 and 21 times in 2012. The sampling is statistically significant as the uncertainty range at a confidence level of 95% is significantly below 20% as required by the "Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site" version 4 /15/. ID.39 Methane Produced in the Landfill in absence of the Project Activity in year y (MB_y): It is calculated as per "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" version 4 /15/. ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The recording frequency of electricity generation is not defined in the Monitoring Report 01.0 /3/. ID.41 Methane destroyed due to regulatory or other equipment (AF %): It is fixed to zero in the registered PDD /1/. ID.42 Percentage of LFG applied to PGUs divided by the total amount of LFG captured (LFGusage %):		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			Data is derived from monitoring parameters ID.21 and ID.23. ID.43 Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): The parameter is calculated as per the Tool to determine project emissions from flaring containing methane" /14/. Data is derived from ID.22, ID.27, ID.28 and ID.29. ID.44 Amount of residual waste type "ci" from anaerobic digestion ($A_{ci,x}$): It is measured continuously, read daily and transferred to the ERs spreadsheet calculation manually. ID.45 Other flare operation parameters: The flow meter required for measuring ID.22 LFG_{flare}.		
B.3.6 Does data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	/1/ /3/ /14/ /15/	DR, CC, I	ID.22 Total amount of landfill gas captured at normal temperature and pressure ($LFG_{total,y} m^3$): The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. ID.23 Total amount of landfill gas sent to flare at normal temperature and pressure ($LFG_{flare,y} m^3$): The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. ID.24 Total amount of landfill gas combusted to produce electricity at normal temperature and pressure ($LFG_{electricity,y} m^3$): The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory		OK

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. ID.25 Temperature of the landfill gas (Temperature °C): The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. ID.26 Pressure of the landfill gas (Pressure Mbar): The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. ID.27 Temperature in the exhaust gas of the enclosed flare (T_{flare} °C): The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. ID.28 Flare efficiency in hour h (η_{flare} %): The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. ID.29 Methane fraction in the landfill gas (% W_{CH_4} m^3CH_4/m^3LFG): The data stored at the booster station by a server unit, which receives all data from the meters,		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. ID.30 Operation of the energy plant (hours/year): The amount of hours is registered by the counting device in each PGU and the total number of operating hours is recorded manually daily. No special events occurred during the monitoring period. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,i,y}$ MWh): The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters. ID.32 Average technical transmission and distribution losses for providing electricity source j, in year y (TDL_{jy} %): The transmission losses is defined by TEIAS. ID.33 Stack Volume Flow Rate ($SG_{a,y}$): It is measured by an external laboratory quarterly in a year. It is transferred correctly to the excelsheet to calculate the project emission. ID.34 Concentration of NO_2 in stack gas ($MC_{NO_2,a,y}$): It is measured by an external laboratory quarterly in a year. It is transferred correctly to calculate the project emission. ID.35 Concentration of CH_4 in stack gas ($MC_{CH_4,a,y}$): It is measured by an external laboratory quarterly in a year. It is transferred correctly to calculate the project emission. ID.36 Total amount of Organic Waste Prevented from Disposal and Fed into the Anaerobic Digester in year x (W_x): It is transferred correctly to calculate the		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			baseline emission. ID.37 and ID.38 Weight Fraction of the Waste Type j in the Sample Collected during year x ($p_{n,j,x}$) / Number of samples collected in year x (z): It is transferred correctly to calculate the baseline and leakage emission. ID.39 Methane Produced in the Landfill in absence of the Project Activity in year y (MB_y): It is transferred correctly to calculate the baseline emission. ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters. ID.41 Methane destroyed due to regulatory or other equipment (AF %): It is fixed to zero in the registered PDD /1/. ID.42 Percentage of LFG applied to PGUs divided by the total amount of LFG captured (LFGusage %): Data is derived from monitoring parameters ID.21 and ID.23. ID.43 Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): The parameter is calculated as per the Tool to determine project emissions from flaring containing methane" /14/. Data is derived from ID.22, ID.27, ID.28 and ID.29. ID.44 Amount of residual waste type "ci" from anaerobic digestion ($A_{ci,x}$): It is measured continuously, read daily and transferred correctly to the ERs spreadsheet calculation manually to calculate the baseline emission by the electricity meters. ID.45 Other flare operation parameters: Since the flare was not operational during the whole monitoring		

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion	
			period, the measurement was not required.			
B.4 Monitoring of GS indicators of sustainable development /environmental impacts						
B.4.1	Data/Parameter monitored / Data unit / Description / Source of data to be used / Value data for the monitoring period	/1/ /2/ /3/ /22/ /23/ /25/ /26/ /27/ /28/ /29/ /30/ /31/ /38/ from /90/ to /121/	DR, CC, I	The following GS sustainable development parameters are monitored as per the monitoring plan presented in the registered PDD /1/. SD.1 Air Quality: Please refer to Section B.1.2 of this protocol. SD.2 Water Quality: Please refer to Section B.1.2 of this protocol. SD.3 Other Pollutants: The level of sulphide combusted in the landfill gas engine is monitored at each monitoring period. The amount of H₂S is calculated based on the amount of LFG destroyed in the engines. As per the registered GS Passport /2/, in the calculation is used a conservative approach of 0.5% for the sulphide content. The calculated value of destroyed H₂S is not correct since it is based on amount of LFG total. SD.4 Quality of Employment: The number of employment is monitored through payroll sheet list obtained from Social Security Institution /40/. The given trainings during this monitoring period could be confirmed through the training certificates and attendance list /90/-/121/. However, the Monitoring Report version 01.0 /3/ does not include training list /38/. SD.5 Soil Condition: During the site visit, according to the interview with the Director of Environmental Protection, leachate of the landfill are collected and transferred to the Municipality Water Treatment Plant at each monitoring period. SD.6 Livelihood of the poor: The number ex-scavengers contracted with social security is monitored	CAR-2 CAR-5	OK OK

Checklist Question	Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
			at the first monitoring period as per the registered GS Passport /2/. There are 90 ex-scarvengers written in the monitoring report. 9 of them are employed by ITC and 84 of them are employed under a company working as a subcontractor of the project. 84 employees are confirmed through the Subcontractor Scavenger Lists /48/. However, 9 people could not be confirmed since in the ITC Scavenger List, 6 people are given and 2 of them are repeated. Please correct the list and the monitoring report. SD.7 Access to affordable and clean energy services: The electricity generated and delivered to the grid is monitored through the electricity meter at each monitoring period. 51,999 MWh of electricity has been generated and delivered to the grid as confirmed through the PMUM records /25/. However, the amount of LFG destroyed given as 41,535,154 m³ is not correct. SD.8 Human and Institutional Capacity: According to the interview with the Public Relations Director, awareness campaigns have been arranged in corporation with national NGO “ÇEVKO Foundation”. Also recycling waste collection points have been established in Saricam Administrative District. SD.9 Quantitative employment and income generation: The number of employment is monitored through payroll sheet list obtained from Social Security Institution /91/.		
B.4.2 Is the monitoring in line with the registered monitoring plan?	/1/ /3/ /86/ /87/ /88/	DR, CC	The monitoring does not comply with the monitoring plan presented in the registered GS Passport /2/. The “Air Quality” and “Water Quality” that need to be monitored as peer the GS Passport /2/ are not included in the Monitoring Report version 01.0 /3/. The following GS sustainable development parameters are monitored in the Monitoring Report version 01.0 /3/. - Other Pollutants	CAR-2	OK

Checklist Question		Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
				- Quality of Employment - Soil Condition - Livelihood of the poor - Access to affordable and clean energy services - Human and Institutional Capacity - Quantitative employment and income generation As per the FAR#2 raised by GS Foundation during registration review /9/, the technical specifications of the anaerobic digester to be installed as part of the project activity need to be checked to ensure that emissions due to physical leakage are correctly accounted for. The anaerobic digester, installed as part of the project activity, was checked during on site visit. Digesters are designed to prevent physical leakage of biogas. Special concrete walls and foundation includes additives (cement based insulation material resistance to sulphide) and concrete walls were coated with cement based epoxy-anthracene oil mixture to prevent leakage. According to the brochure /86/ and the catalog of the concrete /87/, the invoices /88/ and the cover letter. blast-furnace slag cement (Cem III/A 42.5 N) which is resistant to sulphide was used during construction. Please provide the analysis report of used cement in the anaerobic digester construction.	CR-4	OK
B.4.3	Does the monitoring report provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/ /2/ /3/ From /21/ to /132/	DR, CC	All the documented evidences related to the sustainable monitored parameters such as Booster logbook, internal records, training records, calibration records, PMUM records, payroll sheets of social security institution are collected and kept.		OK
B.5 Management, quality assurance and quality control						
B.5.1	How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?	/1/ /3/	DR, CC, I	An on-site inspection has been performed on 10-11/04/2013 and it is confirmed that the monitoring arrangements in the monitoring plan are feasible within		OK

Checklist Question		Reference	MoV ¹	Comments	Draft Conclusion	Final Conclusion
				the project design.		
B.5.2	Are procedures identified for day-to-day record handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/ /3/	DR, CC, I	The data stored at the booster station by a server unit, which receives all data from the meters, and data is saved to an internal memory every 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters.		OK
B.5.3	Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/1/ /3/	DR, CC, I	There are daily checks if the data from the day before was stored successfully on the servers in the booster station. Three times a day the operating hours of the engines are checked. Aggregation of data and cross checks takes place periodically.		OK
B.5.4	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of VERs, for this project activity, whichever occurs later?	/1/ /3/	DR, CC	It is not mentioned in the in the Monitoring Report version 01.0 /3/ that the collected data during the monitoring period how long will be kept by the project owner.	CR-5	OK

TABLE 2 RESOLUTIONS OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
CAR 1 1 On 28/06/2012, one power generation unit (GM-9) was connected to Booster 1 for the biogas system and one power generation unit (GM-10) was connected to Booster 2 for the LFG system. Please justify the date by providing document. 2 The end date of crediting period is defined as 31/12/2012 in the Monitoring Report version 01.0 /3/ that is not correct.	A.2	1. The protocol on connection of the GMs has been shared with the DOE. 2. The end date of the crediting period is corrected as 31.12.2017 under the Monitoring Report.	<u>Review 1 (11/06/2013):</u> 1. On 28/06/2012, it is confirmed through the instruction /134/ that one power generation unit (GM-9) was connected to Booster 1 for the biogas system and one power generation unit (GM-10) was connected to Booster 2 for the LFG system. 2. The end date of crediting period is corrected as 31/12/2017 in the Monitoring Report version 02.0 /3/. <u>Hence, CAR 1 is closed.</u>
CAR 2 The monitoring does not comply with the monitoring plan presented in the registered GS Passport /2/. The "Air Quality" and "Water Quality" that need to be monitored as per the GS Passport /2/ are not included in the Monitoring Report version 01.0 /3/.	B.1.2 B.4.1 B.4.2	Air Quality and Water Quality have been added to section F.1 of the monitoring plan.	<u>Review 1 (11/06/2013):</u> According to the GS Passport, "Air Quality" and "Water Quality" are added to the monitoring report version 02.0 /3/. Air Quality: Calculations for SO ₂ and NO ₂ are confirmed according to PMUM records /28/. Water Quality: During the site visit, it is confirmed according to the interviews with the Ministry of Environment and Urban Planning head of Environmental Protection Department that the leachate from the landfill area is collected and transferred to the Municipalities Waste Water Treatment Centre. <u>Hence, CAR 2 is closed.</u>
CAR 3 ID.27 Temperature in the exhaust gas of the enclosed flare (T_{flare} °C): The accuracy of the HAASE temperature meters is 2.5% as confirmed through the HAASE data sheet of supplier /38/. However, the accuracy of HAASE temperature	B.3.2	ID.27: The accuracy of the HAASE temperature meters has been included to the Monitoring Report as 2.5% in line with the data sheet of the supplier. ID.29: The accuracy of Siemens Ultramat-23 is 2% and has been included in the Monitoring	<u>Review 1 (11/06/2013):</u> ID.27 Temperature in the exhaust gas of the enclosed flare (T_{flare} °C): The accuracy of the HAASE temperature meters is now mentioned in the monitoring report as 2.5% according to the HAASE data sheet of supplier /38/.

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
meters is not defined in the Monitoring Report version 01.0 /3/. ID.29 Methane fraction in the landfill gas (% W_{CH_4} m^3CH_4/m^3LFG): The accuracy of Gas Analyzer SIEMENS ULTRAMAT 23 is 0.2% as confirmed through the ULTRAMAT data sheet of supplier /88/. However, the accuracy class of Gas Analyzer SIEMENS ULTRAMAT 23 is not presented in the Monitoring Report version 01.0 /3/. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,j,y}$ MWh): The Monitoring Report version 01.0 /3/ does not include the information of electricity meter. ID.36 Total amount of Organic Waste Prevented from Disposal and Fed into the Anaerobic Digester in year x (W_x): The accuracy of Loadcell SEG KN4-100 is 0.2% as confirmed through the SEG data sheet /43/. However, the accuracy class of Loadcell SEG KN4-100 is not presented in the Monitoring Report version 01.0 /3/. ID.37 and ID.38 Weight Fraction of the Waste Type j in the Sample Collected during year x ($p_{n,j,x}$) / Number of samples collected in year x (z): In the list of monitoring equipment (Table 3), E-888 is identified for weighbridge. However, according to the certification documents /83/ /84/ /85/, another weighbridge with a different serial number (E-637) is defined. Please clarify it. The accuracy of Ozkanlar B2 could not be confirmed since the reference does not provided to the verification team. Also it is not presented in the Monitoring Report version 01.0 /3/.		Report. ID.31: Monitoring report has been revised to include information on the brand, model serial number and the accuracy of the electricity meters. ID.36: The monitoring report has been revised to include the accuracy class of 0.2% for the Loadcell. ID.37 and ID.38: The certificate dated 20.05.2011 belongs to E-888. E-637 was the previous weighbridge which was replaced with E-888 during 2010. But when the governmental entity came for calibration for E-888 in 2011 they made a mistake to write the correct serial no. The communication on the accuracy of Weigh bridge with the manufacturer “Özkanlar” is shared with the DOE. The accuracy is 20 kg till to 60 t, 50 kg after 60 t. we did not measure more than 60 t therefore we can take the accuracy 20 kg. Please refer to the email from the manufacturer for more detailed explanation. ID.40: Monitoring report has been revised to include information on the brand, model serial number and the accuracy of the electricity meters. The editorial mistake has been corrected. ID.44: The certificate dated 20.05.2011 belongs to E-888. E-637 was the previous weighbridge which was replaced with E-888 during 2010. But when the governmental entity came for calibration for E-888 in 2011 they made a mistake to write the correct serial no. The communication on the accuracy of Weigh	ID.29 Methane fraction in the landfill gas (% W_{CH_4} m^3CH_4/m^3LFG): The accuracy of Gas Analyzer SIEMENS ULTRAMAT 23 is 0.2% as confirmed through the ULTRAMAT data sheet of supplier /88/. However, the accuracy class of Gas Analyzer SIEMENS ULTRAMAT 23 is defined as 2% in the monitoring report. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,j,y}$ MWh): The Monitoring Report version 02.0 /3/ is now include the information of electricity meter. However, the serial number of the primary meter is not correct according to the meter control forms /44/. ID.36 Total amount of Organic Waste Prevented from Disposal and Fed into the Anaerobic Digester in year x (W_x): The accuracy of Loadcell SEG KN4-100 is now mentioned in the monitoring report as 0.2% according to the SEG data sheet /43/. ID.37 and ID.38 Weight Fraction of the Waste Type j in the Sample Collected during year x ($p_{n,j,x}$) / Number of samples collected in year x (z): The information about the serial number of the weighbridge is sufficient. According to the e-mail from the manufacturer for the accuracy of Ozkanlar weighbridge is now provided to the verification team and mentioned in the monitoring report. ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The Monitoring Report version 02.0 /3/ is now include the information of electricity meter. However, the serial number of the primary meter is not correct according to the meter control forms /44/. ID.44 Amount of residual waste type “ci”

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The Monitoring Report version 01.0 /3/ does not include the information of electricity meter. Also, it is stated in Monitoring Report version 01.0 /3/ that the <u>consumed electricity</u> is measured continuously by electricity meters. ID.44 Amount of residual waste type “ci” from anaerobic digestion ($A_{ci,x}$): In the list of monitoring equipment (Table 3), E-888 is identified for weighbridge. However, according to the certification documents /83/ /84/ /85/, another weighbridge with a different serial number (E-637) is defined. Please clarify it. The accuracy of Ozkanlar B2 could not be confirmed since the reference does not provided to the verification team. Also it is not presented in the Monitoring Report version 01.0 /3/.		bridge with the manufacturer “Özkanlar” is shared with the DOE. The accuracy is 20 kg till to 60 t, 50 kg after 60 t. we did not measure more than 60 t therefore we can take the accuracy 20 kg. Please refer to the email from the manufacturer for more detailed explanation. PP Respond Round II: ID.29: The accuracy of Ultramat is corrected as 0.2% under the MR. ID.31: The serial number of the primer meter has been corrected. ID.40: The serial number of the primer meter has been corrected.	from anaerobic digestion ($A_{ci,x}$): The information about the serial number of the weighbridge is sufficient. According to the e-mail from the manufacturer for the accuracy of Ozkanlar weighbridge is now provided to the verification team and mentioned in the monitoring report. Hence, CAR 3 is not closed. Review 2 (12/06/2013): ID.29 Methane fraction in the landfill gas (W_{CH_4} m^3CH_4/m^3LFG): The accuracy of Gas Analyzer SIEMENS ULTRAMAT 23 is corrected as 0.2% in the monitoring report. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,i,y}$ MWh): The serial number of the primary meter is corrected according to the meter control forms /44/. ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The serial number of the primary meter is corrected according to the meter control forms /44/. Hence, CAR 3 is closed.
CAR 4 ID.25 Temperature of the landfill gas (Temperature $^{\circ}C$): The calibration frequency has been established every five years for TEKON temperature meters as confirmed through the recommendation of the supplier /49/. However, it is given as one year in the monitoring report /3/. ID.26 Pressure of the landfill gas (Pressure Mbar): The calibration frequency has been established every 5 years for ABB pressure meter	B.3.3	ID.25: The calibration frequency is determined as 10 years according to manufacturer's specifications. The specification has been shared with the DOE. ID.26: The calibration frequency has been corrected as 5 years under the Monitoring Report. ID.31: In accordance with the Regulation on Meterin Equipment, the calibration frequency is set to be 10 years (http://www.mevzuat.gov.tr/Metin.Aspix?Mevzua	Review 1 (11/06/2013): ID.25 Temperature of the landfill gas (Temperature $^{\circ}C$): TEKON temperature meter with a serial number 11-0072 is still defined as 1 year for the calibration period in the Table 3. ID.26 Pressure of the landfill gas (Pressure Mbar): The calibration frequency has been established every 10 years for ABB pressure meter as confirmed through the recommendation of the supplier /123/.

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
as confirmed through the recommendation of the supplier /130/. However, the calibration frequency of ABB 2600 T is given 10 years. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,j,y}$ MWh): The Monitoring Report version 01.0 /3/ does not include the information about the calibration frequency of electricity meters. ID.37 and ID.38 Weight Fraction of the Waste Type j in the Sample Collected during year x ($p_{n,j,x}$) / Number of samples collected in year x (z): The calibration frequency has not been established in the monitoring report. ID.44 Amount of residual waste type “ci” from anaerobic digestion ($A_{ci,x}$): The calibration frequency has not been established in the monitoring report.		tKod=7.5.6381&MevzuatIlski=0&sourceXmlSearch=) The information is inserted to the Monitoring Report. ID.37 and ID.38: In accordance with the Regulation on Metering and Metering Equipment, the calibration frequency is set to be 10 years (http://www.mevzuat.gov.tr/Metin.Aspix?MevzuatKod=7.5.6381&MevzuatIlski=0&sourceXmlSearch=)). The information is inserted to the Monitoring Report. ID.44: In accordance with the Regulation on Metering and Metering Equipment, the calibration frequency is set to be 10 years (http://www.mevzuat.gov.tr/Metin.Aspix?MevzuatKod=7.5.6381&MevzuatIlski=0&sourceXmlSearch=)). The information is inserted to the Monitoring Report. PP Respond Round II: ID.25: The accuracy of TEKON temperature meter with a serial number 11-0072 is corrected as 5 years. ID.31: The serial number of the primer meter has been corrected.	ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,j,y}$ MWh): The Monitoring Report version 02.0 /3/ is now include the information of electricity meter. However, the serial number of the primary meter is not correct according to the meter control forms /44/. ID.37 and ID.38 Weight Fraction of the Waste Type j in the Sample Collected during year x ($p_{n,j,x}$) / Number of samples collected in year x (z): The calibration frequency has now been established in the monitoring report. ID.44 Amount of residual waste type “ci” from anaerobic digestion ($A_{ci,x}$): The calibration frequency has now been established in the monitoring report. Hence, CAR 4 is not closed. Review 2 (12/06/2013) ID.25 Temperature of the landfill gas (Temperature $^{\circ}C$): TEKON temperature meter with a serial number 11-0072 is now corrected as 5 year for the calibration period in the Table 3. ID.31 Amount of electricity consumed from the grid as a result of the project activity ($EC_{PJ,j,y}$ MWh): The serial number of the primary meter is now corrected according to the meter control forms /44/. Hence, CAR 4 is closed.
CAR 5 SD.3 Other Pollutants: The calculated value of destroyed H_2S is not correct since it is based on amount of LFG total.	B.4.1	SD.3: The calculation is revised to take into account the LFG amount sent to engines. The Monitoring Report has been revised. SD.4: A list of trainings provided has been included to the Monitoring Report.	Review 1 (11/06/2013): SD.3 Other Pollutants: The calculated value of destroyed H_2S is now corrected according to the excel sheet.

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
SD.4 Quality of Employment: The given trainings during this monitoring period could be confirmed through the training certificates and attendance list /90/-/121/. However, the Monitoring Report version 01.0 /3/ does not include training list /38/. SD.6 Livelihood of the poor: There are 90 ex-scavengers written in the monitoring report. 9 of them are employed by ITC and 84 of them are employed under a company working as a subcontractor of the project. 84 employees are confirmed through the Subcontractor Scavenger Lists /48/. However, 9 people could not be confirmed since in the ITC Scavenger List, 6 people are given and 2 of them are repeated. Please correct the list and the monitoring report. SD.7 Access to affordable and clean energy services: The amount of LFG destroyed given as 41,535,154 m³ is not correct.		SD.6: Coincidentally there are two employees sharing the name "Mehmet Ertem" and Hüseyin Mugan". Four IDs have been shared with the DOE. SD.7: The number is revised to take into account the LFG destroyed in the engines under the Monitoring Period. PP Respond Round II: Sd.6: The number is corrected under the MR.	SD.4 Quality of Employment: The given trainings during this monitoring period is confirmed through the training list /38/ given in the monitoring report and the certificates & attendance list /90/-/121/. SD.6 Livelihood of the poor: There are 90 ex-scavengers written in the monitoring report. 9 of them are employed by ITC and 84 of them are employed under a company working as a subcontractor of the project. However, 9 people still could not be confirmed since in the ITC Scavenger List includes 6 people. Please correct the list or the number given in the monitoring report. SD.7 Access to affordable and clean energy services: The amount of LFG destroyed is corrected as 41,536,108 m³. Hence, CAR 5 is not closed. Review 2 (12/06/2013): SD.6 Livelihood of the poor: Monitoring report is revised as 6 employed by ITC and 84 employed under a company working as a subcontractor of the project. Hence, CAR 5 is closed.
CR 1 The title of the project activity is given as "Adana Landfill Waste Management Project" in the Monitoring Report version 01.0 of 21/03/2013 /3/ is not in line with the registered PDD /1/ and Validation Report /13/.	A.1	The title of the Project Activity is corrected as Adana Landfill Waste Management Project – Turkey.	Review 1 (11/06/2013): The title of the project activity is corrected and now in line with the registered PDD /1/ and Validation Report /13/. Hence, CR 1 is closed.
CR 2	B.3.1	ID numbers have been corrected accordingly.	Review 1 (11/06/2013):

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
The ID number of parameters defined in the ER excel sheet /4/ does not match with the Monitoring Report Version 01.0 /3/. ID.33 Stack Volume Flow Rate ($SG_{a,y}$): 2011 value data in the monitoring report does not match with the emission reduction calculation excel sheet /4/.		ID.33: The value has been corrected under the Monitoring Report.	The ID number of parameters defined in the ER excel sheet /4/ is revised and now match with the Monitoring Report Version 02.0 /3/. ID.33 Stack Volume Flow Rate ($SG_{a,y}$): 2011 value data in the monitoring report is corrected as 50,208,205 Nm³ in the monitoring report. Hence, CR 2 is closed.
CR 3 ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The recording frequency of electricity generation is not defined in the Monitoring Report 01.0 /3/.	B.3.5	ID.40: The data is recorded at least hourly and aggregated monthly. The Monitoring Report has been revised accordingly.	Review 1 (11/06/2013): ID.40 The amount of electricity generated utilising the LFG ($EG_{d,y}$ MWh): The recording frequency of electricity generation is now defined as “The data is recorded at least hourly and aggregated monthly” in the Monitoring Report 02.0 /3/. Hence, CR 3 is closed.
CR 4 Please provide the analysis report of used cement in the anaerobic digester construction.	B.4.2	The analysis report has been provided to the DOE.	Review 1 (11/06/2013): The analysis report /133/ of used cement in the anaerobic digester construction has been provided to the verification team. Hence, CR 4 is closed.
CR 5 It is not mentioned in the in the Monitoring Report version 01.0 /3/ that the collected data during the monitoring period how long will be kept by the project owner.	B.5.4	The Monitoring Report has been revised accordingly.	Review 1 (11/06/2013): The monitoring report version 02.0 now includes the definition that the data is archived and stored electronically during the crediting period and two years after. Hence, CR 5 is closed.