Monitoring report form
(Version 05.1)

Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form" at the end of this form.

MONITORING REPORT		
Title of the project activity	Catalytic N_2O destruction project at the new nitric acid plant PANNA 4 of Enaex S.A.	
UNFCCC reference number of the project activity	5393	
Version number of the monitoring report	Version 1	
Completion date of the monitoring report	20/03/2017	
Monitoring period number and duration of this monitoring period	Monitoring period number: 8 Duration: 01/01/2016 – 31/12/2016	
Project participant(s)	Enaex S.A. Carbon Climate Protection GmbH Mitsubishi Corporation Nordic Environment Finance Corporation	
Host Party	Republic of Chile	
Sectoral scope(s)	Sectoral scope 5: Chemical industries	
Selected methodology(ies)	ACM0019 "N_2O abatement from nitric acid production" (Version 02.0.0)	
Selected standardized baseline(s)	N/A	
Estimated amount of GHG emission reductions or net GHG removals by sinks for this monitoring period in the registered PDD	264 007	
Total amount of GHG emission reductions or net GHG removals by sinks achieved in this monitoring period	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	0	144 823

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

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1. The purpose of the proposed project activity is to significantly reduce expected levels of N_2O emissions from the production of nitric acid at the PANNA 4 plant of Enaex S.A., Chile (secondary N_2O abatement). The PANNA 4 nitric acid plant was erected in 2010 as part of the Enaex S.A. chemical complex site, Prillex® America, at Mejillones. The new nitric acid plant, designed for a capacity of 925 metric tons of HNO_3 per day (100% of weight), has been commercially operational since November 5th, 2010 and produces nitric acid as an intermediate product for the ammonium nitrate plant within the complex.

2. Under the project activity, a N_2O catalyst was inserted below the primary catalyst (NH_3 catalyst) in the ammonia oxidation reactor. The N_2O catalyst largely results in decomposition of N_2O to nitrogen (N_2) and oxygen (O_2) without any further energy, nor material inputs. Catalytic decomposition of N_2O occurs when the N_2O is split into its constituent elements by contact with a catalyst. A catalyst is a material which accelerates speed of the reaction without itself being transformed or consumed by the reaction.

3. The secondary N_2O abatement system was installed at the end of November 2011, with a commissioning phase of the technical equipment during the first weeks of December 2011.

4. Total emission reductions achieved in this monitoring period: **144 823 tCO_2e**

A.2. Location of project activity

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a) Host Party(ies): Republic of Chile
b) Province: 2nd Region (Region of Antofagasta), Province of Antofagasta
c) Town: Mejillones
d) GPS coordinates: -23.097400, -70.430153

Figure 1: Location of the project within the Prillex® América Plant (green arrow)

A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate whether the Party involved wishes to be considered as project participant (yes/no)
Republic of Chile (Host)	Enaex S.A.	No
Republic of Austria	Carbon Climate Protection GmbH	No
Japan	Mitsubishi Corporation	No
Norway	Nordic Environment Finance Corporation	No

A.4. Reference of applied methodology and standardized baseline

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a) Approved consolidated baseline and monitoring methodology ACM0019 "N_2O abatement from nitric acid production" (Version 02.0.0)[1]
b) "Tool to determine the mass flow of a greenhouse gas in a gaseous stream"[2]

A.5. Crediting period of project activity

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Type of the crediting period:	Fixed
Starting date of the first crediting period:	19/12/2011
End date of the first crediting period:	18/12/2021
Length of the first crediting period:	10 years (Fixed)

A.6. Contact information of responsible persons/entities

>>

Mrs. Josefina Diaz
ENAEX S.A.
El Trovador 4253, Piso 5
Las Condes
Santiago

Tel: + 56 2 28377648
E mail: josefina.diaz@enaex.com

ENAEX S.A. is a project participant. For further information please see Appendix 1.

1 http://cdm.unfccc.int/methodologies/DB/MNMFNF10VUEOJACEIRX3EHYC9QXGDC
2 https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-08-v3.0.pdf

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

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(a) Information on the implementation of the project activity

General description

Nitrous oxide (N_2O) is an unwanted, invisible and previously neglected by-product of the manufacture of nitric acid. It is formed alongside the main, desired product nitric oxide (NO) during the catalytic oxidation of ammonia in air over noble metal gauzes. N_2O is a potent greenhouse gas with a Global Warming Potential (GWP) of 310. This value was used for the ex-ante calculation of the emission reduction (also after 2012). The production of nitric acid takes place in three main process steps as indicated by the following reactions:

1. Ammonia (NH_3) combustion to form nitric oxide (NO):

   Ammonia is reacted with air on noble metal catalyst in the oxidation section of nitric acid plants. Nitric oxide and water are formed in this process according to the following equation:

   $$4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O \quad \text{(main reaction 1)} \quad (1)$$

   Simultaneously, nitrous oxide (N_2O), nitrogen (N) and water (H_2O) are formed as well, in accordance with the following equations:

   $$4NH_3 + 3O_2 \rightarrow 2N_2 + 6H_2O \quad \text{(side reaction 1)} \quad (2)$$

   $$4NH_3 + 4O_2 \rightarrow 2N_2O + 6H_2O \quad \text{(side reaction 2)} \quad (3)$$

   NO yield depends mainly on pressure and temperature in the ammonia oxidation process and usually is in a range of 95% to 97%.

2. NO is oxidized to nitrogen dioxide (NO_2):

   $$2NO + O_2 \rightarrow 2NO_2 \quad \text{(main reaction 2)} \quad (4)$$

3. (According to the technical process) Absorption of NO_2 in water to form nitric acid (HNO_3):

   $$3NO_2 + H_2O \rightarrow 2HNO_3 + NO \quad \text{(main reaction 3)} \quad (5)$$

   (NO is oxidized to NO_2 according to main reaction 2)

Nitric acid plants are, in the vast majority of cases, part of a chemical complex and are built and operated to supply acid for consumption in downstream process units. The most common use for nitric acid is for fertilizers, with smaller quantities going into the manufacture of organic compounds and mining explosives. In the case of PANNA 4, nitric acid is employed as a feed stock to produce ammonium nitrate (NH_4NO_3), which is used as a raw material for mining and civil explosives, which are used in the mining and construction industries. The nitric acid is also used as raw material for other explosives (PETN and Nitro-glycerin), which are also used as civil and mining explosives.

Project specific description

Under the project activity, an N_2O catalyst was inserted below the primary catalyst (NH_3 catalyst) in the ammonia oxidation reactor. The N_2O catalyst largely results in decomposition of N_2O to nitrogen (N_2) and oxygen (O_2) without any further energy, nor material inputs. Catalytic decomposition of N_2O occurs when the N_2O is split into its constituent elements by contact with a catalyst. A catalyst is a material which accelerates speed of the reaction without itself being transformed or consumed by the reaction.

Overall reaction: $2N_2O \rightarrow 2N_2 + O_2$ (6)

The new PANNA 4 nitric acid plant was designed to produce nitric acid as an intermediate product for the ammonium nitrate production plant in this complex with a designed capacity of 925 metric tons of HNO_3 per day (100% of weight). The plant is designed to operate as a dual pressure nitric acid plant, whereas the ammonia oxidation reactor is operated at a design pressure of about 4.5 bar (medium pressure combustion plant) and the absorption tower at a design pressure of 10.2 bar. The reactor is operated at a design temperature in zone 1 of 220°C, in zone 2 of 480°C, in zone 3 of 910°C and in zone 4 of 520°C.

The PANNA 4 nitric acid plant is equipped with a secondary N_2O abatement, by installing baskets inside the ammonia oxidation reactor and equipping them with the N_2O decomposition catalyst right below the platinum gauze in the high temperature zone of the reactor. The measurement devices for the monitoring of N_2O concentration and tail gas flow are located directly in the stack.

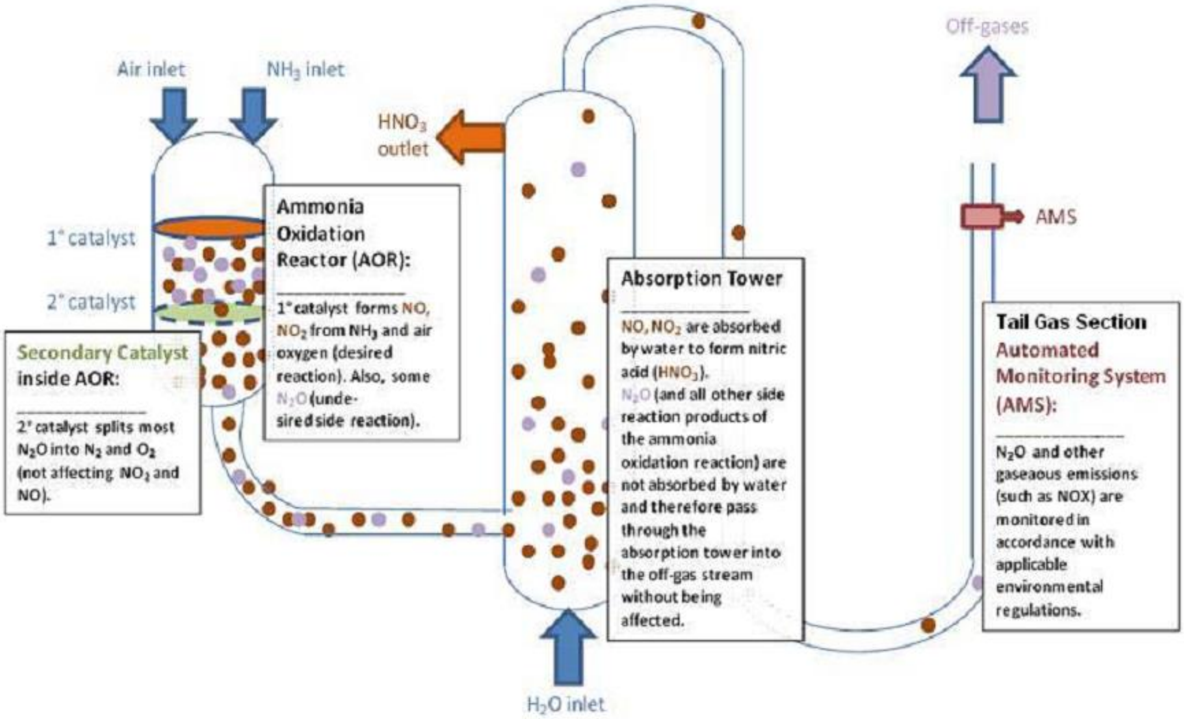

Figure 2: Project boundary

(b) Starting date of operation of the project activity

The project has been implemented and is operated as per the registered and revised PDD with all physical features (technology, project equipment, and monitoring and metering equipment) in place, monitoring is done according to the applied methodology and the monitoring plan. The operation of the project activity started in December 2011.

(c) Actual operation of the project activity during the covered monitoring period

It should be noted that actual hours as given in the Excel book as per Annex 1 are to be read as follows: e.g. 01/01/2016, 01:00 summarizes the hour from 01/01/2016 00:00 to 01:00. The time as given in the tables below is expressed in this regard.

Start		End		Description
Date	**Time**	**Date**	**Time**	
05/01/2016	18:00	06/01/2016	10:00	NA plant shutdown (due to emergency)
09/03/2016	06:00	10/03/2016	03:00	NA plant shutdown (due to problem with electricity supply)
03/04/2016	03:00	04/04/2016	10:00	NA plant shutdown (due to problem with electricity supply)
19/04/2016	01:00	19/04/2016	20:00	NA plant shutdown (due to problem with electricity supply)
03/07/2016	00:00	31/08/2016	19:00	NA plant shutdown (due to general overhaul)
05/09/2016	09:00	06/09/2016	13:00	NA plant shutdown (due to emergency)
11/09/2016	08:00	11/09/2016	23:00	NA plant shutdown (due to emergency)
24/09/2016	21:00	12/10/2016	06:00	NA plant shutdown (due to expander re-installation)
13/10/2016	11:00	13/10/2016	22:00	NA plant shutdown (due to problem with electricity supply)
10/11/2016	13:00	11/11/2016	15:00	NA plant shutdown (due to emergency)

Table 1: Shutdown periods of nitric acid plant

For relevant hours of nitric acid plant shutdowns (and consequently of secondary N_2O abatement system) no emission reductions were claimed for these hours in accordance with the applied methodology. This approach ensures the most conservative way to determine emission reductions.

Start		End		Description
Date	**Time**	**Date**	**Time**	
07/01/2016	00:00	07/01/2016	01:00	Monthly calibration PT-45091 and PT-45095
14/02/2016	00:00	14/02/2016	01:00	Monthly calibration PT-45091 and PT-45095
08/03/2016	00:00	08/03/2016	01:00	Monthly calibration PT-45091 and PT-45095
08/04/2016	00:00	08/04/2016	01:00	Monthly calibration PT-45091 and PT-45095
07/05/2016	00:00	07/05/2016	01:00	Monthly calibration PT-45091 and PT-45095
11/06/2016	00:00	11/06/2016	01:00	Monthly calibration PT-45091 and PT-45095
13/07/2016	00:00	13/07/2016	01:00	Monthly calibration PT-45091 and PT-45095
27/08/2016	00:00	27/08/2016	01:00	Monthly calibration PT-45091 and PT-45095
09/09/2016	00:00	09/09/2016	01:00	Monthly calibration PT-45091 and PT-45095
04/10/2016	00:00	04/10/2016	01:00	Monthly calibration PT-45091 and PT-45095
05/11/2016	00:00	05/11/2016	01:00	Monthly calibration PT-45095
09/11/2016	00:00	09/11/2016	01:00	Monthly calibration PT-45091
05/12/2016	00:00	05/12/2016	01:00	Monthly calibration PT-45091 and PT-45095

Table 2: Service works

It has been proven that the nitric acid plant (and consequently the secondary N_2O abatement system) was in full operation during scheduled Delta V or analyzer service and monthly calibration.

Start		End		Description
Date	Time	Date	Time	
10/01/2016	00:00	15/01/2016	00:00	Shewhart deviation
07/02/2016	00:00	14/02/2016	00:00	Delay in calibration PT-45091 and PT-45095
10/02/2016	00:00	19/02/2016	00:00	Shewhart deviation
07/06/2016	00:00	11/06/2016	00:00	Delay in calibration PT-45091 and PT-45095
04/11/2016	00:00	05/11/2016	00:00	Delay in calibration PT-45095
04/11/2016	00:00	09/11/2016	00:00	Delay in calibration PT-45091
05/11/2016	09:00	05/11/2016	14:00	Failure in PT-45095
18/11/2016	13:00	18/11/2016	15:00	AST test influenced N_2O measurement

Table 3: Other issues

For relevant hours, a conservative recalculation in accordance with the methodology was applied.

B.2. Post-registration changes

B.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

>>
No temporary deviations from registered monitoring plan or applied methodology have been applied during this monitoring period.

B.2.2. Corrections

>>
No corrections have been applied during this monitoring period, neither to any previous monitoring periods.

B.2.3. Changes to start date of crediting period

>>
No such changes have been applied to this monitoring period.

B.2.4. Inclusion of a monitoring plan to the registered PDD that was not included at registration

>>
No such changes have been applied to this monitoring period.

B.2.5. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

>>
No permanent changes from registered monitoring plan, applied methodology or applied standardized baseline have been applied during this monitoring period.

B.2.6. Changes to project design of registered project activity

>>
No changes from the project design have been done during this monitoring period.

B.2.7. Types of changes specific to afforestation or reforestation project activity

>>
Not applicable.

SECTION C. Description of monitoring system

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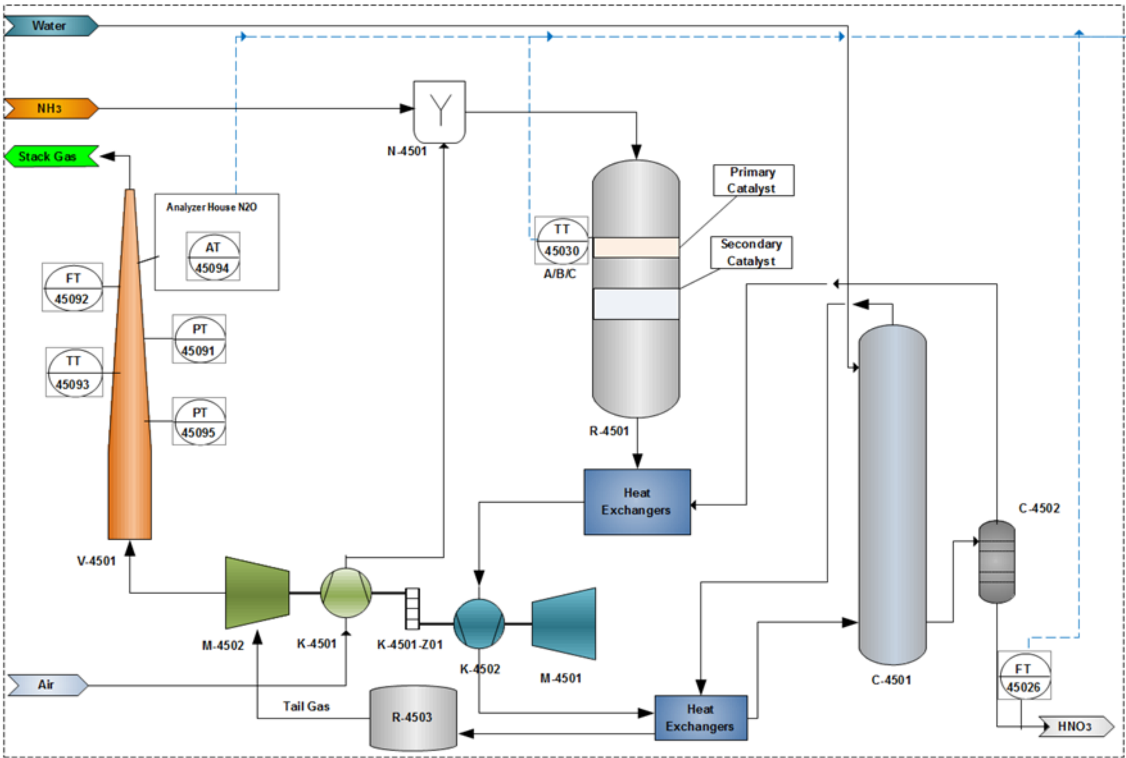
1. Information Flow / Data collection procedures

The instruments transmitters continuously provide a 4 – 20 mA analogue signal according to range and units configured. These signals are transmitted to I/O cards (analogue input/output cards) and collected by the Delta V Processor. Resulting digital values are made available in the network to be further processed (e.g. in controller blocks, calculation of other variables) and are stored as 1 second raw data in the protected continuous historian server (CHS).

Modifications of the Delta V, which are protected by security levels by the supplier, are tracked by a Version Control Tool.



	TAG	DESCRIPTION	TAG	DESCRIPTION		
INSTRUMENTS	PT-45091	Differential pressure between the gaseous stream and atmosphere	PT-45095	Atmospheric pressure	ENAEX S.A	Enaex
	FT-45092	Volumetric flow of the gaseous stream	FT-45026	Nitric acid produced		
	TT-45093	Temperature of the gaseous stream	TT-45030A/B/C	Reactor Temperature (T1, T2, T3)	Project	"Catalytic N2O destruction project at the new nitric acid plant PANNA 4 of Enaex S.A"
	AT-45094	Volumetric fraction of greenhouse gas (N2O)	TT-45050	Nitric acid temperature	Version	1
EQUIPMENTS	V-4501	Stack gas PANNA 4	C-4501	Absorption Tower	Date	February 29th, 2012
	M-4502	Expander	C-4502	Cleaning Tower	Project Engineer	Ricardo Camus
	K-4501	Air Compressor	K-4502	Process gas compressor	Project Chief	Ricardo Camus
	N-4501	Ammonia/Air Mixer	M-4501	Steam turbine	Process Engineers	Carlos Araneda / Claudia Bravo
	R-4501	Oxidation Reactor	R-4503	DeNOx Reactor		

Figure 3: Line diagram showing all relevant monitoring points

The reporting module of the Delta V system automatically generates aggregated daily reports based on the stored raw data from the continuous historian server. Daily reports contain following kinds of data relevant for calculation of claimed emission reductions:

- Concentrations of N_2O at stack gas of PANNA 4 system ($v_{i,t,db}$)
- Volume Flow ($V_{t,db}$ / T_t / P_t)
- Operating parameters of the nitric acid plant (T_1, T_2, T_3)
- Nitric Acid Production ($P_{production,y}$)

Relevant parameters as above (N_2O concentration, volume flow, operating parameters of nitric acid plant and nitric acid production) are exported from the digitally available daily reports to excel sheets for presentation of required parameters and calculation of baseline emissions (BE_y), project emissions (PE_y / $PE_{N2O,y}$ / $F_{N2O,tail\ gas,\ h}$), and emission reductions (ER_y) according to the formula as required. Details on source of data can be found directly at the respective parameter tables in section *D*.

The N_2O concentration at stack gas of PANNA 4 is manually recalculated using the QAL 2 parameters. All values above 200 ppm are recalculated using the parameters for the range 0 – 2 000 ppm and all values below use the parameters from the range 0 – 200 ppm. The range changes from 0 – 2 000 ppm to 0 – 200 ppm whenever the N_2O concentration falls below 180 ppm. These range changes are performed by the operator of DCS and takes place when the concentration reaches the values mentioned above.

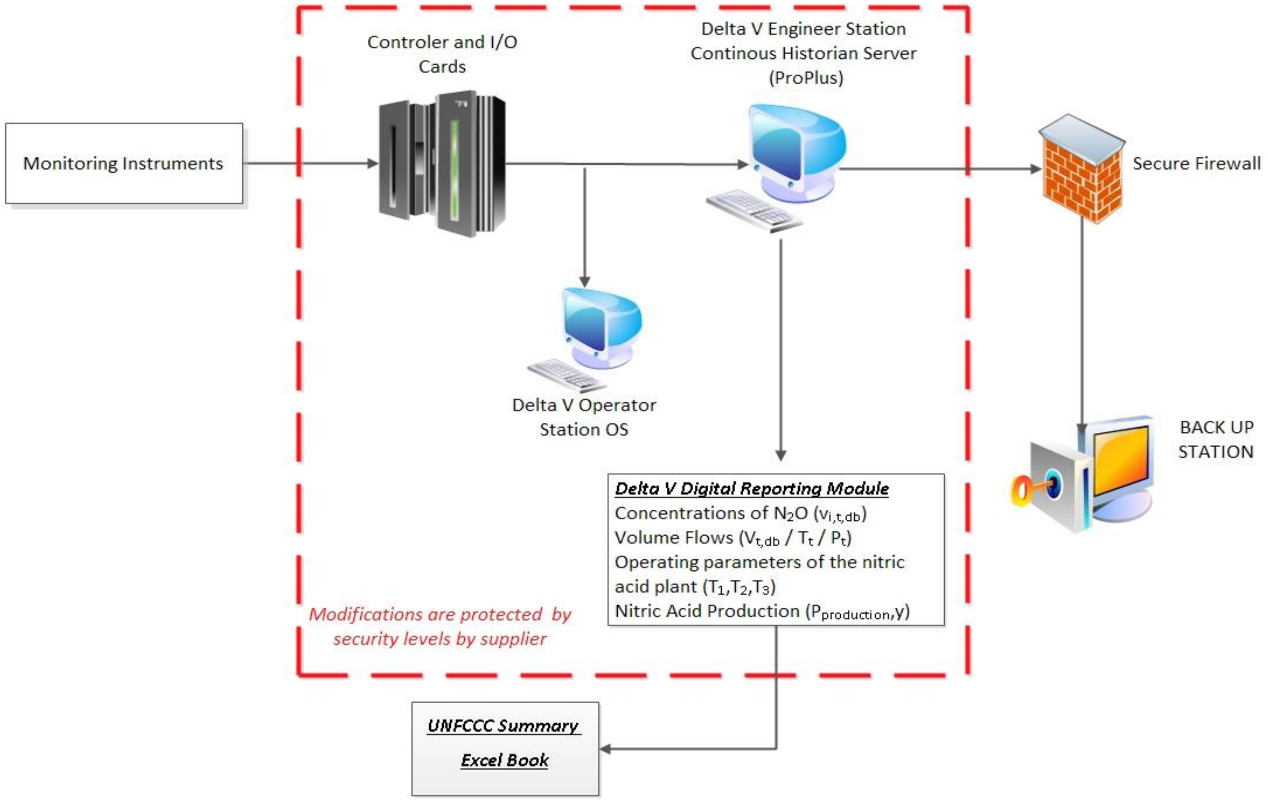


Figure 4: Information flow diagram

This approach and all implemented formulas in the Delta V system fully comply with the approved Consolidated Baseline and Monitoring Methodology AMC0019 v2 "N_2O abatement for Nitric Acid production" and the registered project documentation (Monitoring Plan and respective PDD).

2. Roles and responsibilities of personnel

Project Operator is Enaex S.A. (furthermore called "Enaex"), a privately owned entity registered under the laws of the Republic of Chile and an incorporated company listed on the Santiago stock exchange, major shareholder is Sigdo Koppers S.A. Enaex is a leading producer of ammonium nitrate and explosives for rock fragmentation. The Prillex® América production facility of Enaex, of which PANNA 4 is one of the plants, is certified according to ISO 9001:2008 NCh 9001 of 2009.

The PANNA 4 CDM operating team has been trained by the technology provider (secondary N_2O abatement system) and the supplier of the digital process control system. Enaex´ CDM team is responsible for monitoring and reporting of data under the CDM project. In terms of performing general supervision and cross-checks of monitoring and reporting data, Carbon Climate Protection GmbH supports Enaex, also giving their final approval on the supporting documents as well as the CDM-MR before submitting to the respective DOE for periodic verification.

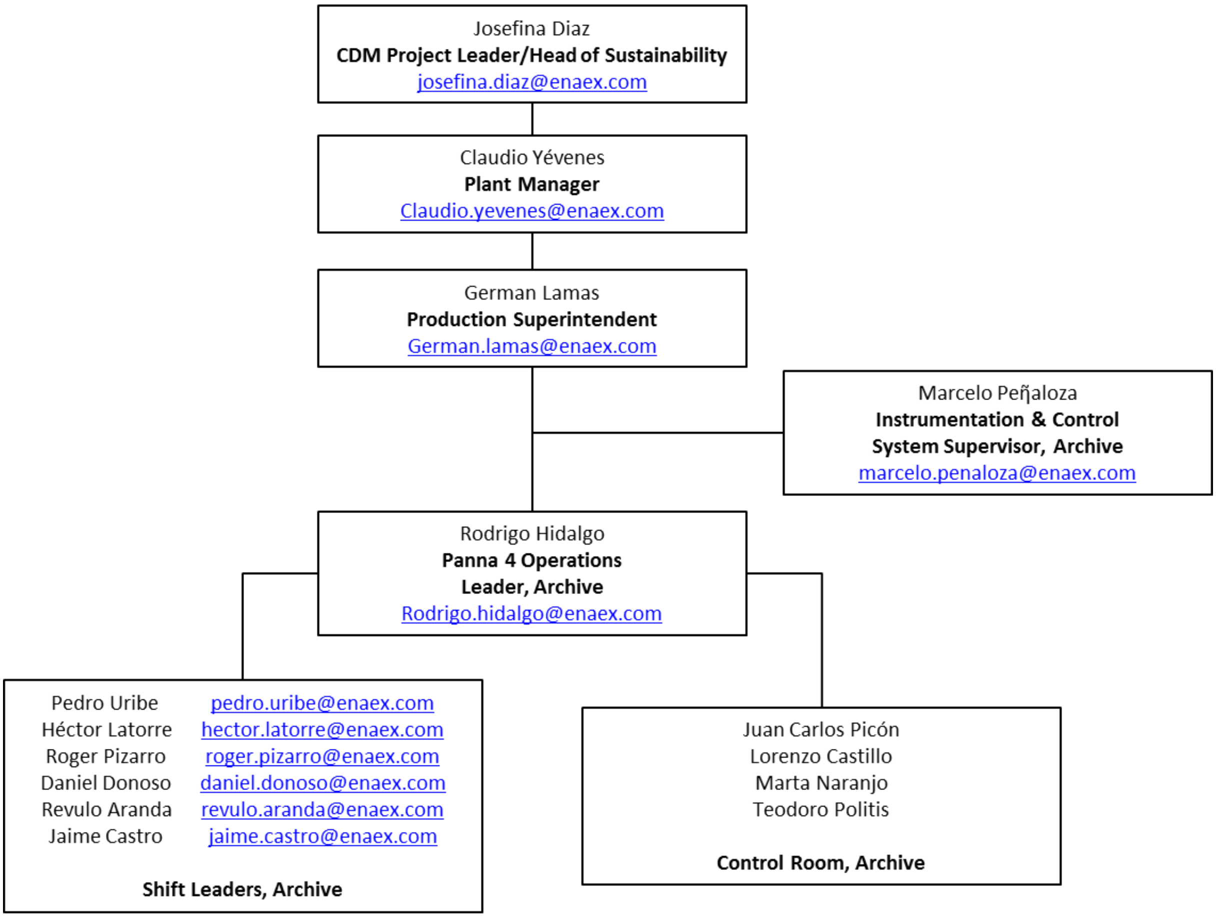


Figure 5: Organizational Chart: Onsite structure at Enaex

3. Back up plans / Emergency procedures for monitoring system / Periodic observation of the automated monitoring system

PANNA 4 – automatic DCS system

The PANNA 4 automatic DCS system is designed for automatic operation, so that activities by the operation personnel are not required for during normal operation. However, all alarms and any action taken by the operating personnel (events) are automatically logged at the engineering and the operation station (Alarm & Event List) of the DCS system.

Malfunction of system components is indicated on the operator console in the control room as an alarm. Occurrence of such an alarm requires the operator to immediately take measures to remedy the problem. This is done by informing Enaex maintenance personnel and CDM Project team. It is then deciding whether the problem can be fixed immediately by themselves or whether external support from Emerson is required. In addition to the quality control and quality assurance procedures according to Enaex quality management system and in order to avoid possible failures of the automated monitoring system several procedures are implemented for the project activity.

Back Up –Delta V and Analyzer support

In order to avoid possible failures of the automated monitoring system Delta V, Enaex is in negotiations to contract Emerson Argentina Group to execute periodic on-site **Health Checks**. The

health checks visits are to conduct observation of the PANNA 4 automatic DCS system, the monitoring equipment required for the CDM project and the automated monitoring system.

Back Up – Weekly inspection
The responsible project managers of Enaex carry out **on-site inspections** on a weekly basis.

Back Up – Spare Parts on Stock On-site
As a further important part of the back-up plan to deal with events like measuring equipment out of service, Enaex stocks a comprehensive range of spare part devices on-site.

Back Up – Certified standard gases
Pressure levels of standard gases used for the regular, automatic calibration of the inlet and outlet analyzers are constantly monitored during the regular inspection by Enaex. Spare bottles of standard gases are purchased in proper time. Specifications of standard gases are available and submitted to the DOE for verification. The following table summarizes the periodically observations of the AMS:

Organization	Action	Frequency	Output
ENAEX CDM Team	Inspection	Weekly	Weekly checklist
ENAEX CDM Team	Supervision	Daily	Plausibility check of daily reporting
CARBON	Supervision	Periodically	Plausibility check of daily reporting

Table 4: AMS observation overview

All resulting documents are analyzed and evaluated by Enaex. In case of any upcoming problem or failure of the PANNA 4 system and/or the automated monitoring system Enaex immediately take measure to remedy the problem.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data/parameter:	**$EF_{new,y}$**
Unit	$kgN_2O/tHNO_3$
Description	Baseline N_2O emission factor for nitric acid production in year y (related to 100 per cent pure acid)
Source of data	According to methodology ACM0019 version 02.0.0
Value(s) applied	**Year** / **Emission factor (kgN_2O/HNO_3)**: 2011: 4.10; 2012: 3.90; 2013: 3.70; 2014: 3.50; 2015: 3.40; 2016: 3.20; 2017: 3.00; 2018: 2.80; 2019: 2.70; 2020: 2.50; 2021: 2.50
Choice of data or measurement methods and procedures	According to the PDD / ACM0019 v2
Purpose of data	Baseline emission calculation
Additional comments	The decrease in the value for the baseline emission factor over time is to reflect the technological development.

Data/parameter:	GWP_{N2O}
Unit	tCO_2e/tN_2O
Description	Global warming potential of N_2O valid for the commitment period
Source of data	According to PDD
Value(s) applied)	298 tCO_2e/tN_2O
Choice of data or measurement methods and procedures	According to the PDD / ACM0019 v2
Purpose of data	Baseline and project emission calculation
Additional comments	The values for the GWP considers the decision of EB69 – §66 and EB69, Annex 3.

Parameters from the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream"

Data/parameter:	R_u
Unit	$Pa.m^3/kmol.K$
Description	Universal ideal gases constant
Source of data	According to PDD
Value(s) applied)	8,314 $Pa.m^3/kmol.K$
Choice of data or measurement methods and procedures	According to the PDD / ACM0019 v2
Purpose of data	Project emission calculation
Additional comments	N/A

<table>
<tr><td>Data/parameter:</td><td>MM_i</td></tr>
<tr><td>Unit</td><td>kg/kmol</td></tr>
<tr><td>Description</td><td>Molecular mass of greenhouse gas i</td></tr>
<tr><td>Source of data</td><td>According to PDD</td></tr>
<tr><td>Value(s) applied)</td><td><table><tr><th>Compound</th><th>Structure</th><th>Molecular mass (kg/kmol)</th></tr><tr><td>Nitrous oxide</td><td>N_2O</td><td>44.02</td></tr></table></td></tr>
<tr><td>Choice of data or measurement methods and procedures</td><td>According to the PDD / ACM0019 v2</td></tr>
<tr><td>Purpose of data</td><td>Project emission calculation</td></tr>
<tr><td>Additional comments</td><td>N/A</td></tr>
</table>

D.2. Data and parameters monitored

Data/parameter:	$P_{production,y}$
Unit	$tHNO_3$
Description	Production of nitric acid in year y
Measured/calculated/default	Measured

Source of data	Production Logs The actual nitric acid production is measured according to the installed instruments. The coriolis type mass flowmeter and the integrated density measurement deliver values, which are used as basis for calculation of the concentration (taking into consideration the measured temperature of the nitric acid). The nitric acid at 100% is calculated by multiplying the mass flow with the concentration. Please also refer to section *C.1 Information Flow / Data collection procedures* of this Monitoring Report.
Value(s) of monitored parameter	270 176 $tHNO_3$
Monitoring equipment	**FT-45026** Type: Coriolis flow and density transmitter Endress Hauser Promass 80 F 3'' Accuracy class: 0.15% of instrument range Calibration frequency: 2 years New calibrated instrument of same type was installed: Serial number (old instrument): JB037416000 Date of last calibration: 13/11/2014 (Validity: 12/11/2016) Serial number (new instrument): KC075B16000 Date of last calibration: 05/01/2016 (Validity: 04/01/2018) **TT-45050** Type: Temperature transmitter Inor MESO H Accuracy class: 0.1% of range Calibration frequency: 2 years Serial number: N0809.842183/VO336261 Date of penultimate calibration: 10/05/2014 (Validity: 09/05/2016) Date of last calibration: 07/07/2016 (Validity: 06/07/2018)
Measuring/reading/recording frequency:	Measuring: Continuously Reading: 1(s) Recording: Hourly
Calculation method (if applicable):	The nitric acid at 100% is calculated by multiplying the mass flow with the concentration. The concentration is calculated at DCS using the density measurement of the coriolis flowmeter and the temperature instrument TT-45050.
QA/QC procedures:	Periodic calibration is performed according to manufacturer's recommendation. The quality assurance and quality control procedures, in terms of equipment operations and maintenance, have been incorporated in the ISO 9001:2008.
Purpose of data:	Baseline emission calculations
Additional comments:	The parameter $P_{NA,h}$ (Nitric acid produced in the hour h) represents the hourly value of $P_{production,y}$ and is used for determining $h_{r,y}$ as described in section *5.3.3* of the applied methodology (Equation 5).

Data/parameter:	**h_y**
Unit	h
Description	Number of hours of operation in year y
Measured/calculated/default	Measured

Source of data	Field instruments / Monitoring system (Delta V) The operation temperature of the oxidation burner ranges from 850 – 905°C (as defined by the technology supplier) and this range corresponds to the real operation hours of the reactor. The temperature is reported automatically by three independent measurement points (tag numbers TT-45030A, B and C) measuring the temperature at the same time. The value of the instrument with the tag number TT-45030A was selected as main signal for monitoring the operation temperature; TT-45030B and TT-45030C are used as backup signals in case TT-45030A is not fully functional.
Value(s) of monitored parameter	6 765 hours
Monitoring equipment	**TT-45030A** Type: Temperature transmitter Wika TC10 Type B Accuracy class: 0.4% of range Calibration frequency: 2 years <u>New calibrated instrument of same type was installed:</u> Serial number (old instrument): 1104NC51 Date of last calibration: 19/11/2015 (Validity:18/11/2017) Serial number (new instrument): 11077G8D Date of last calibration: 02/10/2016 (Validity: 01/10/2018) **TT-45030B** Type: Temperature transmitter Wika TC10 Type B Accuracy class: 0.4% of range Calibration frequency: 2 years <u>New calibrated instrument of same type was installed:</u> Serial number (old instrument): 1107GTB8 Date of last calibration: 19/11/2015 (Validity:18/11/2017) Serial number (new instrument): 11077G8B Date of last calibration: 02/10/2016 (Validity: 01/10/2018) **TT-45030C** Type: Temperature transmitter Wika TC10 Type B Accuracy class: 0.4% of range Calibration frequency: 2 years <u>New calibrated instrument of same type was installed:</u> Serial number (old instrument): 1107GTB6 Date of last calibration: 19/11/2015 (Validity:18/11/2017) Serial number (new instrument): 11077GTB6 Date of last calibration: 02/10/2016 (Validity: 01/10/2018)
Measuring/reading/recording frequency:	Measuring: Continuously Reading: 1(s) Recording: Hourly
Calculation method (if applicable):	N/A
QA/QC procedures:	Periodic calibration is performed according to manufacturer's recommendation. The quality assurance and quality control procedures, in terms of equipment operations and maintenance, have been incorporated in the ISO 9001:2008.
Purpose of data:	Project emission calculation
Additional comments:	NA

Data/parameter:	$h_{r,y}$
Unit	h
Description	Number of hours (h) in year y where for secondary N_2O abatement: abatement system was not installed, underperformed or failed
Measured/calculated/default	Measured
Source of data	Since the proposed project activity didn´t use AM0028 or AM0034 in the first crediting period, "Case 2: For other nitric acid plants" applies for the emission reduction calculation. Accordingly the abatement system is deemed to be not installed, underperforming or failed in the hour h in year y if: $F_{N2O,tail\ gas,h} > EF_{new,y} * P_{NA,h}$
Value(s) of monitored parameter	3 hours
Monitoring equipment	The parameters mentioned above will be determined and monitored as explained in the respective sections of this Monitoring Report ($F_{N2O,tail\ gas,h}$ → Parameter tables of "*Tool to determine the mass flow of a greenhouse gas in a gaseous stream*"; $EF_{new,y}$ → fixed ex ante; $P_{NA,h}$ → Parameter table of $P_{production,y}$).
Measuring/reading/recording frequency:	Measuring: Continuously Reading: 1(s) Recording: Hourly
Calculation method (if applicable):	N/A
QA/QC procedures:	Periodic calibration is performed according to manufacturer's recommendation. The quality assurance and quality control procedures, in terms of equipment operations and maintenance, have been incorporated in the ISO 9001:2008.
Purpose of data:	Project and baseline emission calculation
Additional comments:	Records to be maintained during project´s lifetime.

Parameters from the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream"

Data/parameter:	$V_{t,db}$
Unit	m³ dry gas/h
Description	Volumetric flow of the gaseous stream in time interval t on a dry basis
Measured/calculated/default	Measured
Source of data	Flow meter / Field instruments/Monitoring system (Delta V) Please also refer to section *C.1 Information Flow / Data collection procedures* of this Monitoring Report.
Value(s) of monitored parameter	183 245 m³ dry gas/h
Monitoring equipment	**FT-45092** Type: Differential pressure transmitter Durag/ABB 2600T Accuracy class: 2% of range Serial number: 265DS6600071043 Calibration frequency: 5 years (QAL2) Date of penultimate QAL2: 25/10/2013 (Validity: 24/10/2018) Date of last AST: 16/12/2015 – 18/12/2015 (Validity: 15/12/2016) Date of last QAL2: 17/11/2016 – 19/11/2016 (Validity: 16/11/2021)
Measuring/reading/recording frequency:	Measuring: Continuously Reading: 1(s) Recording: Hourly

Calculation method (if applicable):	N/A
QA/QC procedures:	Periodic calibration (QAL2) against a primary device by an independent accredited laboratory. The quality assurance and quality control procedures, in terms of equipment operations and maintenance, have been incorporated in the ISO 9001:2008.
Purpose of data:	Project emission calculations
Additional comments:	N/A

Data/parameter:	$\mathbf{v_{i,t,db}}$
Unit	m³ gas i/m³ dry gas
Description	Volumetric fraction of greenhouse gas i in a time interval t on a dry basis
Measured/calculated/default	Measured
Source of data	Non-dispersive infrared photometry (NDIR) for N_2O (gas analyzer equipment) Please also refer to *section C.1 Information Flow / Data collection procedures* of this Monitoring Report.
Value(s) of monitored parameter	$2.28*10^{-4}$ m³ gas i/m³ dry gas
Monitoring equipment	**AT-45094C** Type: Volumetric fraction of N_2O in the tail gas analyzer Emerson Process NGA 2000 MLT Accuracy class: 1% of range Serial number: 3709103038248 Calibration frequency: 5 years (QAL2) Date of penultimate QAL2: 25/10/2013 (Validity: 24/10/2018) Date of last AST: 16/12/2015 – 18/12/2015 (Validity: 15/12/2016) Date of last QAL2: 17/11/2016 – 19/11/2016 (Validity: 16/11/2021)
Measuring/reading/recording frequency:	Measuring: Continuously Reading: 1(s) Recording: Hourly
Calculation method (if applicable):	N/A
QA/QC procedures:	According to European Norm 14181 The quality assurance and quality control procedures, in terms of equipment operations and maintenance, have been incorporated in the ISO 9001:2008
Purpose of data:	Project emission calculation
Additional comments:	N/A

Data/parameter:	$\mathbf{C_{H2O,t,db,n}}$
Unit	mg H_2O/m³ dry gas
Description	Moisture content of the gaseous stream at normal conditions in time interval t
Measured/calculated/default	Measured
Source of data	Measurements according to USEPA CF 42 method 4 – Gravimetric determination of water content
Value(s) of monitored parameter	2 200 mg H_2O/m³ dry gas (Highest measured value) Option A of the tool can be applied as the moisture content is less than 0.05 kg H_2O/m³ dry gas.

Monitoring equipment	N/A
Measuring/reading/recording frequency:	Measuring / Reading / Recording: Yearly Measurements coincide with the Annual Surveillance Test (associated with requirements of the EN 14181 standard) or the calibration of the flow meter for the gaseous stream.
Calculation method (if applicable):	N/A
QA/QC procedures:	According to USEPA CF 42 method 4
Purpose of data:	Project emission calculation
Additional comments:	Option A parameter for proving that the gaseous stream is dry.

Data/parameter:	$\mathbf{T_t}$
Unit	K
Description	Temperature of the gaseous stream in time interval t
Measured/calculated/default	Measured
Source of data	Temperature Transmitter Please also refer to section *C.1 Information Flow / Data collection procedures* of this Monitoring Report.
Value(s) of monitored parameter	398.40 K
Monitoring equipment	**TT-45093** Type: Tail gas temperature transmitter Rosemount 3144P Accuracy class: 0.4 °C Serial number: 706088 Calibration frequency: 2 years Date of penultimate calibration: 19/02/2015 Date of last calibration: 13/07/2016 (Validity: 12/07/2018)
Measuring/reading/recording frequency:	Measuring: Continuously Reading: 1(s) Recording: Hourly
Calculation method (if applicable):	N/A
QA/QC procedures:	Periodic calibration against a primary device provided by an independent accredited laboratory. Calibration and frequency of calibration is according to manufacturer´s specifications. The quality assurance and quality control procedures, in terms of equipment operations and maintenance, have been incorporated in the ISO 9001:2008.
Purpose of data:	Project emission calculation
Additional comments:	N/A

Data/parameter:	$\mathbf{P_t}$
Unit	Pa
Description	Pressure of the gaseous stream in time interval t
Measured/calculated/default	Measured
Source of data	Pressure Transmitters The pressure of the gaseous stream is determined by the sum of the static pressure inside the stack and the barometric pressure. Please also refer to section *C.1 Information Flow / Data collection procedures* of this Monitoring Report.
Value(s) of monitored parameter	99 726 Pa

<table>
<tr><td>Monitoring equipment</td><td>
PT-45091
Type: Capacitive Differential pressure transmitter
Rosemount 2051
Accuracy class: 0.1% of range
Serial number: 58154
Calibration frequency: Monthly
<table>
<tr><th>Month</th><th>Date of Calibration</th></tr>
<tr><td>January</td><td>07/01/2016</td></tr>
<tr><td>February</td><td>14/02/2016</td></tr>
<tr><td>March</td><td>08/03/2016</td></tr>
<tr><td>April</td><td>08/04/2016</td></tr>
<tr><td>May</td><td>07/05/2016</td></tr>
<tr><td>June</td><td>11/06/2016</td></tr>
<tr><td>July</td><td>13/07/2016</td></tr>
<tr><td>August</td><td>27/08/2016</td></tr>
<tr><td>September</td><td>09/09/2016</td></tr>
<tr><td>October</td><td>04/10/2016</td></tr>
<tr><td>November</td><td>09/11/2016</td></tr>
<tr><td>December</td><td>05/12/2016</td></tr>
</table>
Validity: 04/01/2017

PT-45095
Type: Capacitive Barometric pressure transmitter
Rosemount 2051
Accuracy class: 0.1% of range
Serial number: 58157
Calibration frequency: Monthly
<table>
<tr><th>Month</th><th>Date of Calibration</th></tr>
<tr><td>January</td><td>07/01/2016</td></tr>
<tr><td>February</td><td>14/02/2016</td></tr>
<tr><td>March</td><td>08/03/2016</td></tr>
<tr><td>April</td><td>08/04/2016</td></tr>
<tr><td>May</td><td>07/05/2016</td></tr>
<tr><td>June</td><td>11/06/2016</td></tr>
<tr><td>July</td><td>13/07/2016</td></tr>
<tr><td>August</td><td>27/08/2016</td></tr>
<tr><td>September</td><td>09/09/2016</td></tr>
<tr><td>October</td><td>04/10/2016</td></tr>
<tr><td>November</td><td>05/11/2016</td></tr>
<tr><td>December</td><td>05/12/2016</td></tr>
</table>
Validity: 04/01/2017
</td></tr>
<tr><td>Measuring/reading/recording frequency:</td><td>Measuring: Continuously
Reading: 1(s)
Recording: Hourly</td></tr>
<tr><td>Calculation method
(if applicable):</td><td>The static pressure inside the stack and the barometric pressure are measured continuously. The hourly averages of these parameters are added in the attached excel book in order to obtain the pressure of the gaseous stream.</td></tr>
<tr><td>QA/QC procedures:</td><td>Periodic calibration against a primary device provided by an independent accredited laboratory. Calibration and frequency of calibration is according to manufacturer´s specifications. Pressure transmitter is calibrated according to the PDD on a monthly basis.
The quality assurance and quality control procedures, in terms of equipment operations and maintenance, have been incorporated in the ISO 9001:2008.</td></tr>
<tr><td>Purpose of data:</td><td>Project emission calculation</td></tr>
<tr><td>Additional comments:</td><td>N/A</td></tr>
</table>

D.3. Implementation of sampling plan

>>
Not applicable for the project activity.

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

>>
Baseline emissions are given by the following equation:

$$BE_y = P_{production,y} * EF_{new,y} * \frac{(h_y - h_{r,y})}{h_y} * GWP_{N2O} * 10^{-3}$$

Where:

BE_y	=	Baseline emissions in year y (tCO_2e)
$P_{production,y}$	=	Production of nitric acid in year y ($tHNO_3$)
$EF_{new,y}$	=	Baseline N_2O emission factor for nitric acid production in year y (kgN_2O / $tHNO_3$)
GWP_{N2O}	=	Global Warming Potential of N_2O valid for the commitment period
h_y	=	Number of hours in year y during which the plant was in operation (h)
$h_{r,y}$	=	Number of hours in year y where: (a) For secondary N_2O abatement. Abatement system was not installed, underperforming or failed. (b) For tertiary N_2O abatement. The abatement system is by-passed, underperformed or failed.

<u>Calculation of $h_{r,y}$</u>

An abatement system is deemed to be bypassed, not working, underperform or failed in the hour h in year y if:

$$F_{N2O,tail\ gas,h} > EF_{new,y} * P_{NA,h}$$

Where:

$P_{NA,h}$	=	Nitric acid produced in the hour h ($tHNO_3$)
$EF_{new,y}$	=	Baseline N_2O emission factor for nitric acid production in year y (kgN_2O / $tHNO_3$)
$F_{N2O,tail\ gas,h}$	=	Mass flow of N_2O in the gaseous stream of the tail gas in the hour h (kgN_2O / h)

The values for the present period are:

Parameter	Value	Unit
BE_y	257 525	tCO_2e
$P_{production,y}$	270 176	$tHNO_3$
$EF_{new,y}$	3.20	kgN_2O / $tHNO_3$
h_y	6 765	h
$h_{r,y}$	3	h
GWP_{N2O}	298	-

E.2. Calculation of project emissions or actual net GHG removals by sinks

>>
Project emissions include N_2O emissions, which have not been destroyed by the project activity and, in case of the installation of a tertiary N_2O abatement facility, CO_2 emissions resulting from the operation of the N_2O abatement facility. As the proposed CDM project activity does not comprise the installation of a tertiary N_2O abatement technology, no CO_2 emissions from the operation of such a facility need to be considered or monitored. Project emissions are calculated as follows:

$$PE_y = PE_{N2O,y} + PE_{CO2,tertiary,y}$$

Where:

PE_y	=	Project emissions in year y (tCO_2e)
$PE_{N2O,y}$	=	Project emissions of N_2O from the project plant in year y (tCO_2e)
$PE_{CO2,tertiary,y}$	=	Project emissions of CO_2 from the operation of the tertiary N_2O abatement facility in year y (tCO_2e)

The values for the present period are:

Parameter	Value	Unit
PE_y	112 701	tCO_2e
$PE_{N2O,y}$	112 701	tCO_2e
$PE_{CO2,tertiary,y}$	0	tCO_2e

<u>Project emissions of N_2O from the project plant ($PE_{N2O,y}$)</u>

a) The amount of N_2O emissions from the project activity are the emissions from the N_2O contained in the tail gas stream of the plant which is released to the atmosphere.

Accordingly, $PE_{N2O,y}$ is determined as follows:

$$PE_{N2O,y} = \sum_{1}^{h_y - h_{r,y}} F_{N2O,tail\ gas,\ h} * GWP_{N2O} * 10^{-3}$$

Where:

$PE_{N2O,y}$	=	Project emissions of N_2O from the project plant in year y (tCO_2e)
GWP_{N2O}	=	Global Warming Potential of N_2O valid for the commitment period
$F_{N2O,tail\ gas,h}$	=	Mass flow of N_2O in the gaseous stream of the tail gas in the hour h (kg N_2O/h)
h_y	=	Number of hours in year y during which the plant was in operation (h)
$h_{r,y}$	=	Number of hours (h) in year y where: (a) For secondary N_2O abatement. Abatement system was not installed, underperforming or failed; (b) For tertiary N_2O abatement. The abatement system is by-passed, underperforming or failed.

The values for the present period are:

Parameter	Value	Unit
$PE_{N2O,y}$	112 701	tCO_2e
h_y	6 765	h
$h_{r,y}$	3	h
$F_{N2O,tail\ gas,h}$	55.92	kg N_2O / h
GWP_{N2O}	298	-

<u>Determination of $F_{N2O,tail\ gas,h}$</u>

The amount of N_2O emissions from the tail gas stream of the project plant shall be determined using the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”. In applying the tool, the following provisions apply:

- Throughout the crediting periods of the project activity, the N_2O concentration and volume or mass flow of the tail gas are to be monitored continuously. The monitoring system is to be installed and maintained throughout the crediting period based on the European Norm 14181 or any more recent update of that standard;

- The monitoring system should provide separate hourly average values for the N_2O concentration and the volume or mass flow of the tail gas based on 2 seconds (or shorter) interval readings that are recorded and stored electronically. These N_2O data sets shall be identified by means of a unique time / date key indicating when exactly the values were observed;
- The correction factors derived from the calibration curve of the QAL2 audit for the monitoring components as determined during the QAL2-test in accordance with EN14181 must be applied to both the N_2O concentration and the volume or mass flow of the tail gas. This can either be applied automatically to the raw data recorded by the data storage system at the plant or it can be applied to the calculated hourly averages as part of the calculation of project emissions;
- If data for either the N_2O concentration or the volume or mass flow of the tail gas are not available for more than 1/3 of any hour while the plant was in operation, the value for that hour shall be replaced with the maximum value of N_2O concentration or volume or mass flow of the tail gas observed during the monitoring period. If data for neither the N_2O concentration nor the volume or mass flow of the tail gas are available for more than 1/3 of any hour while the plant was in operation, the maximum value of mass flow of N_2O calculated during the monitoring period shall be applied to any such hour. Values observed during five operating hours before and after a plant start-up and shut-down shall not be used for the determination of the maximum values;
- In the case that the N_2O concentration and the volume or mass flow of the tail gas and by-pass are automatically converted to normal conditions by the AMS during the monitoring process, the parameters P_t and T_t do not need to be monitored except, if applicable, for the purpose of determining the moisture content in the gaseous stream.

According to the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” the mass flow of greenhouse gas i in the gaseous stream in time interval t ($F_{i,t}$) is calculated based on measurements of (a) the total volume flow or mass flow of the gas stream, (b) the volumetric fraction of the gas in the gaseous stream and (c) the gas composition and water content. The flow and volumetric fraction may be measured on a dry basis or wet basis. The tool covers the possible measurement combinations, providing six different calculation options to determine the mass flow of a particular greenhouse gas (Option A to F).

Flow measurement on dry basis is not doable for a wet gaseous stream. Therefore, it is necessary to demonstrate that the gaseous stream is dry to use option A. There are two ways to do this:

a) Measure the moisture content of the gaseous stream ($C_{H2O,t,db,n}$) and demonstrate that this is less or equal to 0.05 kg H_2O / m³ dry gas; or
b) Demonstrate that the temperature of the gaseous stream (T_t) is less than 60°C (333.15 K) at the flow measurement point.

Option A of the tool (measurement option: volume flow of gaseous stream on dry basis, volumetric fraction on dry or wet basis) was applied since it was demonstrated by the last measurement that the gaseous stream is dry according to USEPA CF42 method 4. The measured moisture content in the stack gas is less than 0.05 kg / m³ dry gas.

Measuring Sequence	Date	Moisture content
1	17/11/2016	0.0020 kgH_2O / m³ dry gas
2	17/11/2016	0.0022 kgH_2O / m³ dry gas
3	18/11/2016	0.0020 kgH_2O / m³ dry gas

Table 4: Moisture content measurements

The mass flow of greenhouse gas i ($F_{i,t}$)[3] is calculated as follows:

$$F_{i,t} = V_{t,db} * v_{i,t,db} * \rho_{i,t}$$

With

$$\rho_{i,t} = \frac{P_t * MM_i}{R_u * T_t}$$

Where:

$F_{i,t}$	=	Mass flow of greenhouse gas i in the gaseous stream in time interval t (kg gas / h)
$V_{t,db}$	=	Volumetric flow of the gaseous stream in time interval t on a dry basis (m³ dry gas / h)
$v_{i,t,db}$	=	Volumetric fraction of greenhouse gas i in the gaseous stream in a time interval t on a dry basis (m³ gas i / m³ dry gas)
$\rho_{i,t}$	=	Density of greenhouse gas i in the gaseous stream in time interval t (kg gas i / m³ gas)
P_t	=	Absolute pressure of the gaseous stream in time interval t (Pa)
MM_i	=	Molecular mass of greenhouse gas i (kg / kmol)
R_u	=	Universal ideal gases constant (Pa.m³ / kmol.K)
T_t	=	Temperature of the gaseous stream in time interval t (K)

For detailed calculation please refer to excel book in the Annex of this monitoring report.

E.3. Calculation of leakage

>>

According to the methodology any leakage emissions sources are deemed to be negligible.

E.4. Summary of calculation of emission reductions or net GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO_2e)	Project emissions or actual net GHG removals by sinks (t CO_2e)	Leakage (t CO_2e)	GHG emission reductions or net GHG removals by sinks (t CO_2e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
Total	257 525	112 701	0	0	144 823	144 823

*) Note that actual calculation of emissions reductions as presented in sections *E.1* to *E.4* has been done in the excel book. Rounding in sections *E.1* to *E.4* has just been done for ease of presentation. Please note that conservative rounding has been made for final ER_y calculation only. This can be traced in the excel book attached to this monitoring report.

[3] $F_{i,t}$ corresponds to the parameter $F_{N2O,tail\ gas,h}$ of the methodology ACM0019 Version 02.0.0.

E.5. Comparison of actual emission reductions or net GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO_2e)	264 007	144 823

E.6. Remarks on difference from estimated value in registered PDD

>>

The emission reductions in this Monitoring Period are 144 823 tons of CO_2 equivalents. The yearly expected emission reduction according to the registered PDD is 264 007 tons of CO_2 equivalents. Hence the observed emission reduction is lower than expected.

Appendix 1. Contact information of project participants and responsible persons/entities

Project participant and/or responsible person/ entity	☒ Project Participant ☒ Responsible person/ entity for completing the CDM-MR-FORM
Organization name	Enaex S.A.
Street/P.O. Box	El Trovador 4253, piso 5, Las Condes
Building	-
City	Santiago
State/region	Región Metropolitana
Postcode	7550079
Country	Chile
Telephone	+56-2-8377600
Fax	+56-2-2066752
E-mail	-
Website	www.enaex.cl
Contact person	Josefina Diaz Fresno
Title	Project Manager
Salutation	Mrs.
Last name	Diaz Fresno
Middle name	-
First name	Josefina
Department	-
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Direct fax	+56-2-2066752
Direct tel.	+56-2-8377648
Personal e-mail	josefina.diaz@enaex.com

Project participant and/or responsible person/ entity	☒ Project Participant ☐ Responsible person/ entity for completing the CDM-MR-FORM
Organization name	Carbon Climate Protection GmbH
Street/P.O. Box	Am Südblick 5/2
Building	-
City	Langenlois
State/Region	-
Postcode	A-3550
Country	Austria
Telephone	+43 2734 322 70
Fax	+43 2734 322 70 99
E-mail	-
Website	www.carbon-austria.com
Contact person	Mr. Ferdinand Heilig
Title	Managing Director
Salutation	Mr.
Last name	Heilig
Middle name	-

First name	Ferdinand
Department	-
Mobile	+43 676 5721792
Direct fax	+43 2734 322 70 99
Direct tel.	+43 2734 322 70
Personal e-mail	heilig@carbon-austria.com

Project participant and/or responsible person/ entity	☒ Project Participant ☐ Responsible person/ entity for completing the CDM-MR-FORM
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Street/P.O. Box	3-1 Marunouchi 2-Chome, Chiyoda-Ku
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State/Region	Tokyo
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Country	Japan
Telephone	+81-3-3210-8759
Fax	-
E-mail	mc-focal-point@mitsubishicorp.com
Website	www.mitsubishi.com
Contact person	Yousuke Kuroda
Title	Project Team North & Latin Americas
Salutation	Mr.
Last name	Kuroda
Middle name	-
First name	Yosuke
Department	-
Mobile	-
Direct fax	-
Direct tel.	+81-3-3210-6361
Personal e-mail	yosuke.kuroda@mitsubishicorp.com

Project participant and/or responsible person/ entity	☒ Project Participant ☐ Responsible person/ entity for completing the CDM-MR-FORM
Organization name	Nordic Environment Finance Corporation
Street/P.O. Box	Fabianinkatu 34, P.O.Box 241
Building	-
City	Helsinki
State/Region	-
Postcode	FI-00171
Country	FINLAND
Telephone	+358 (0)10 618 003
Fax	+358 9 630 976
E-mail	info(at)nefco.fi
Website	http://www.nefco.org/
Contact person	Ms. Helle Lindegaard
Title	Head of Carbon Finance and Funds

Salutation	-
Last name	Lindegaard
Middle name	-
First name	Helle
Department	Carbon Finance and Funds
Mobile	-
Direct fax	-
Direct tel.	+358 10 618 0664
Personal e-mail	helle.lindegaard@nefco.fi

Appendix 2. Emission reduction calculation

An Excel book containing monitored data and calculations of baseline emissions, project emissions and emission reductions and additional checks and information is attached:

5393_MP8_UNFCCC summary v1_confidential.xlsx

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Document information

Version	*Date*	*Description*
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from *F-CDM-MR* to *CDM-MR-FORM*; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.

Decision Class: Regulatory
Document Type: Form
Business Function: Issuance
Keywords: monitoring report