

Report for 2008 / 2009	JI Project – Nitrous Oxide Reduction at Agropolychim Fertilizer Plant	Date of issue:	Rev. №	Number of pages:
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Annual Monitoring Report for the Nitrous Oxide Reduction in the Project of the Fertilizers Plant Agropolychim, Devnya, Bulgaria		Industrial area, Devnia, Bulgaria Tel.: +359-519-97-526 Fax: + 359-519-97-594 e-mail: berbenkov@agropolychim.bg		
Name of plant:		Time period for monitoring:		
AGROPOLYCHIM JSCo		01.01.08 – 31.12.09		

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INTRODUCTION

Agropolychim JSC is located in Devnia, near the city Varna, in Northeast Bulgaria.

Agropolychim was founded in 1974 and was privatized in November 1999. Acid & Fertilizers, USA acquired 63% of the company from the Bulgaria Privatization Agency.

Acid & Fertilizers LLC, USA is a joint venture between DAVENPORT INDUSTRIES – 99% and AURUBIS BULGARIA, PIRDOP– 1%.

A major restructuring program was implemented. Currently Acid & Fertilizers LLC controls 97% of Agropolychim JSCo. Board members are Vassil Alexandrov (CEO), Hristo Petrov (CEO), Philippe Rombaut (CEO), Krassimir Berbenkov (Vice CEO), Georgy Nakov (CFO), Martin Martinov (Chief Legal Advisor).

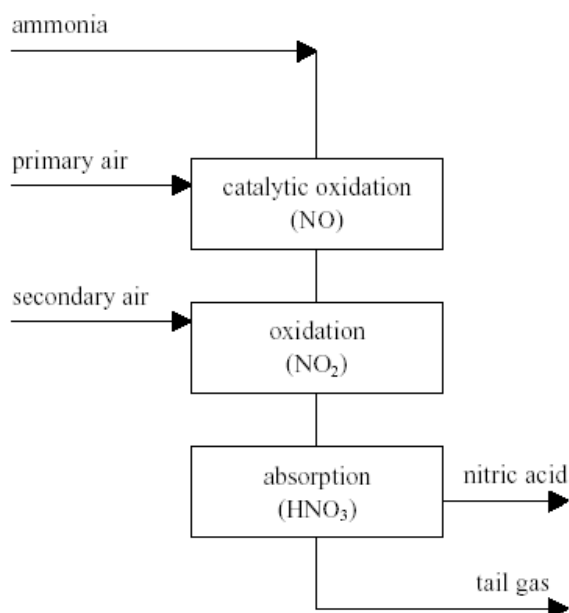
1. NITRIC ACID PRODUCTION IN GENERAL

The crucial step in the nitric acid production - the catalytic combustion of ammonia, was developed by Ostwald around the beginning of this century. The first production facility employing the Ostwald process came on stream in 1906 at Gerthe, Germany.

All plants for the production of weak nitric acid (concentrations ranging from 30 to 70 percent nitric acid) are based on the Ostwald process and use the same basic chemical operations:

- a) oxidation of ammonia (NH₃) with air to the nitric oxide (NO)
- b) oxidation of nitric oxide (NO) in to the nitrogen dioxide (NO₂)
- c) absorption of nitrogen dioxide (NO₂) in water to produce nitric acid (HNO₃)

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1.1. Raw material preparation

The liquid ammonia (NH₃) is evaporated and filtered. Air is purified by using two or three stage filtration and is pressurized. Both the ammonia filter and the air filter should remove all particles as good as possible. The air is split in two streams: one stream is led to the catalytic reactor, while the other stream is led to (the bleaching section of) the absorption column.

1.2. Oxidation of ammonia

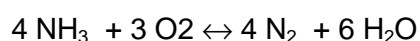
The evaporated ammonia (NH₃) is mixed with the purified air in a ratio of approx. 1:10 and (optionally) filtered. This ammonia/air mixture leads across a technological oxidation catalyst. The mixture reacts according to the following equation:



Simultaneously nitrous oxide (N₂O), nitrogen (N₂) and water (H₂O) are formed as well, in accordance with the following equations:



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Note: forming of laughing gas

Both reactions are undesirable, because they influence on the yield of nitric oxide disadvantageously and they have great impact on the environment. The yield (percentage of ammonia that is converted to NO) depends on pressure and temperature as indicated in the following figure:

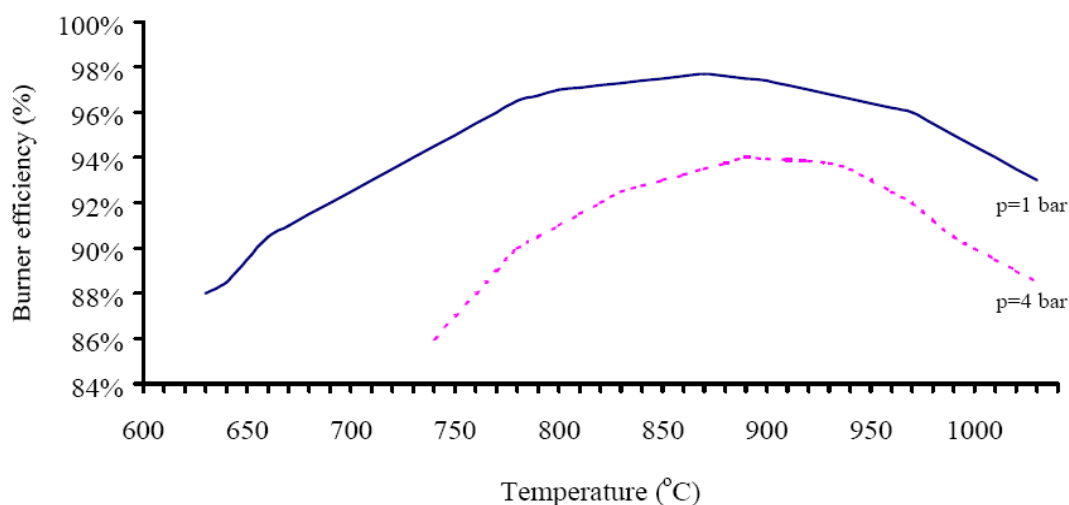


Figure 1 Possible conversion of NH_3 to NO on Platinum gauze as a function of temperature

The most universally preferred catalyst consists of platinum wire that is knitted into mesh gauze. Five to ten percent rhodium normally is added to the platinum to increase its strength and to reduce platinum costs, and up to 5% palladium is used to reduce cost. Catalyst poisoning (by air pollution or contamination from the ammonia) and unfavorable conditions (like poor ammonia/air mixing and poor gas distribution across the catalyst) may reduce the NO-yield.

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During the reaction process, some of the platinum and rhodium from the catalyst vaporises. In most cases a platinum recovery system is installed below the catalyst, known as a "getter" or catchment. This system consists of a palladium alloy. A "getter" allows a 60 to 80% recovery of the total catalyst loss.

Due to loss of the platinum the efficiency of the catalyst drops over time. This leads to an increasing generation of N_2O over the campaign (time between change of platinum gauze). In general in the start of the campaign the generation of N_2O is approx. 20% below the average, while the generation is approx. 20% above the average at the end of a campaign. The generation of N_2O is shown in the following figure:

N_2O generation during a campaign

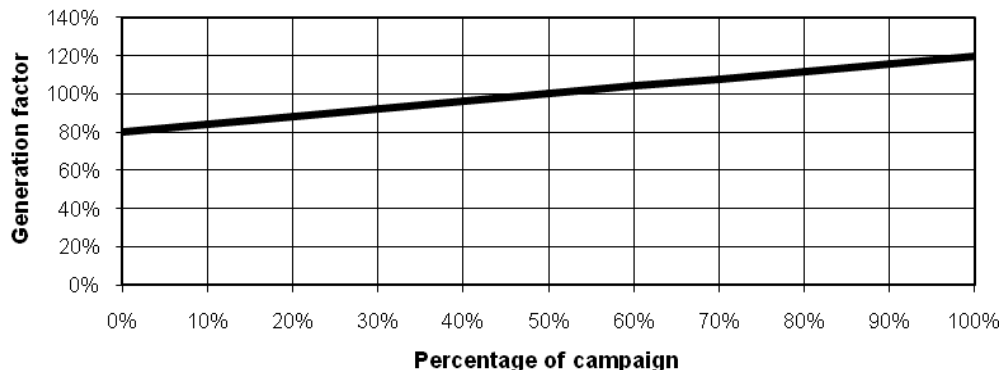


Figure 2 Typical N_2O generation as a function of time

The oxidation of ammonia (NH_3) is a strongly exothermic process. Transferring heat to a steam system cools down the gases from the catalytic reactor. Further cooling is obtained by transferring heat to the tail gas that leaves the absorbing column. The rest of the process heat is transferred to the cooling water circuit.

In the reactors / burners under above described technological oxidation catalyst the new so called secondary catalyst is installed. The role of this catalyst is to destroy and reduce N_2O concentration in tail gas that is emitted from Nitric acid plant.

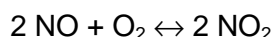


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1.3. Oxidation of nitric oxide

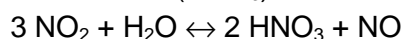
After the catalytic formation of nitric oxide, the gases are cooled down in a cooler condenser and in some cases also compressed. This enhances the oxidation of nitric oxide to nitrogen dioxide. Due to the condensation of water, weak acid solution is formed. This solution is separated and led to the absorption tower. The nitrous gas from the cooler condenser is mixed with NO_x-bearing secondary air from the bleaching section, which is sometimes housed within the absorption column.

In the absorption section of the absorption column, the remaining nitric oxide (NO) reacts non-catalytically with oxygen (O₂) to form nitrogen dioxide (NO₂):



1.4. Absorption of nitrogen dioxide

Demineralised water or steam condensate is added at the top of the absorption column. The weak acid solution (approx. 43%) produced in the cooler condenser is also added to the absorption column. The nitrogen dioxide (NO₂) in the absorption column is led in counter-current flow with the water (H₂O), reacting to nitric acid (HNO₃) and nitric oxide (NO):



Both the reactions are favored by a higher pressure and lower temperature. Besides that, both reactions are exothermic so continuous cooling is necessary. The nitric acid produced is rich in dissolved nitrogen oxides and is passed to a bleaching tower (or bleaching section within the absorption tower) where it is contacted with a counter current flow of air. The air and the nitrogen oxides that have been stripped out are used as secondary air, mixed with the gases leaving the cooler condenser and recycled to the absorption section.

An aqueous solution of nitric acid is withdrawn from the bottom of the absorption tower. The acid concentration can vary depending on the temperature, pressure, number of

absorption stages and the concentration of nitrogen oxides entering the absorber. The gases that were not absorbed in the nitric acid solution leave the absorption column at the top, at a temperature of approx. 20-30°C.

This gas mixture is commonly referred to as tail gas and is heated in the heat recovery section. The hot tail gas is in certain cases led through a NO_x abatement system and through a tail gas expander for energy recovery. The resulting expanded tail gas is vented through the stack.



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1.5. Plant types in general

In general, two types of nitric acid plants can be distinguished: mono pressure and dual pressure plants. In mono pressure (single pressure) processes, ammonia oxidation and NO_2 absorption take place at the same pressure. In the past, nitric acid plants worked at atmospheric pressure or low pressure (mono pressure below 1,7 bar).

Nowadays, mono pressure/low pressure plants hardly exist anymore. Mono pressure/medium pressure plants (pressure between 1,7 bar and 6,5 bar) and mono pressure/high pressure plants (pressure between 6,5 bar and 13 bar) are commonly present. Most plants operate with dual pressure due to a higher yield and less environmental impact.

Older plants operate with low pressure/medium pressure, while more modern plants operate with medium pressure/high pressure. To make a higher pressure in the absorption section possible, a compressor is installed between the cooler condenser and the absorption column. The heat of compression is removed by heat exchange with the tail gas and/or by heat recovery in a steam boiler. A second cooler condenser reduces the temperature to 50 °C by cooling with water

The next figure gives a simplified scheme of a typical dual pressure plant.

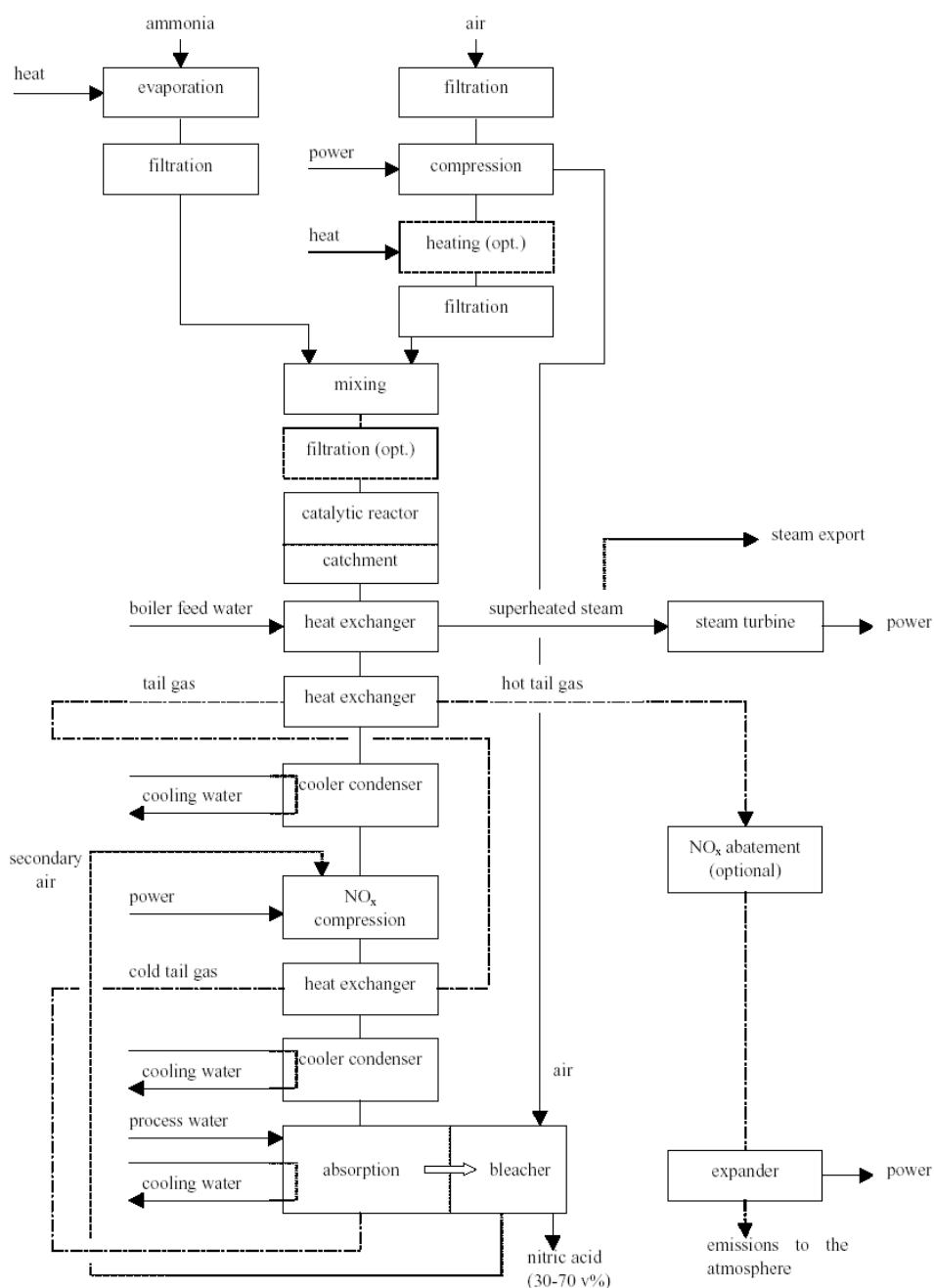


Figure 3 Dual pressure nitric acid plant principal scheme



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1.6. Agropolychim's nitric acid plant

The nitric acid plant at Agropolychim is a French made dual pressure plant commissioned in 1974. Basic key information of the plant is summarized in the following table:

Parameter	Grand Paroisse plant
Production in 2009	208, 856 tons nitric acid 100 v%
Production in 2008	266,491.2 tons nitric acid 100 v%
Production in 2007	341,604.58 tons nitric acid 100 v%
Production in 2006	226,357 tons nitric acid 100 v%
Production in 2005	311,265 tons nitric acid 100 v%
Production in 2004	324,835 tons nitric acid 100 v%
Production in 2003	223,815 tons nitric acid 100 v%
Production in 2002	250,312 tons nitric acid 100 v%
Capacity	1,100 tons nitric acid per day 100 v%
Oxidation	4 burners Pressure for catalytic oxidation is 3,5 bara Oxidation temperature is 835 °C Gauzes are knitted Burner diameter is 4,254 m Basket diameter is 4,254 m
Absorption	Pressure in absorption column is 12,8 bara Absorption temperature is 20-40 °C
Abatement Technologies	None
Tail gas	NOx concentration is around 170-200 ppm _{vol} N ₂ O concentration is around 895 ppmv (average) The flow temperature is around 20 °C The flow is around 148.500 Nm ³ /h

Table 1 Key information for the plant (Grande Paroisse)



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Figure 5 Two of the four reactors (NH_3 burners)

1.7. N_2O Emissions

N_2O emissions vary significantly from one nitric acid plant to another. The emissions depend very much on site-specific factors such as plant design, process conditions and abatement technologies employed.

The following specification of N_2O emission from the plant is based on actual measured emissions and stated productions of 100 % nitric acid.

Subject	Production of Nitric Acid (tons/year)	Emission of N_2O (tons/year)	GWP factor	Annual emission of CO_2 - equivalent (tons/year)
JI – Project	325.000	1.800	310	558.000

Table 2 Specifications of present N_2O emissions



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The plant operates around the clock with planned shut down normally during the period June-August.

The N₂O emissions generated on the Agropolychim's site is 5,54 kg N₂O per ton 100% nitric acid, based on measurements.

The following figures show the N₂O generation from European nitric acid plants /9/:

European designed dual pressure plants: 2-10 kg N₂O / ton 100% HNO₃

Older plants pre 1975 without NSCR: 10-19 kg N₂O / ton 100% HNO₃

2. Objective

2.1. Project Stakeholders

The following key stakeholders are identified for the project:

- Agropolychim JSCo
- Government of Bulgaria (Ministry of Environment and Water)
- Government of Denmark (Ministry for Climate and Energy, Danish Energy Agency)

2.2. The Nitrous Oxide Reduction in the Project of Agropolychim

The objective for the project is to reduce the N₂O emission by utilizing new developed technology (i.e. a catalyst) that converts the Nitrous Oxide into Oxygen and Nitrogen, which have zero Global Warming Potentials.

The new technology is applied by introducing a new catalyst bed, which is installed directly under the Platinum Gauze in the reactors. This new catalyst does not have any effects on the present production (no yield loss).

The technology is owned and patented by Heraeus. The technology has been installed in a few plants and operated without problems. The supplier guarantees the performance of the catalyst technology. The pressure drop over the catalyst is not significant and is normally about 15 mbar. The lifetime of the catalyst is expected to be maximum 3 years. In case the performance throughout this period is not satisfactory it will be replaced at the next possible shutdown.

The formation of N₂O is unavoidable, since the NO yield is limited. From an environmental point of view, emissions of N₂O need to be prevented. N₂O has a global Warming Potential (GWP) of 310 times greater than CO₂.



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Only N₂O emissions from the nitric acid plant are determined, as only these emissions of Agropolychim are affected by the project. The project does not have any impact related to the energy consumption or generation, waste, raw material consumption and emissions other than N₂O.

A baseline N₂O emission factor (5.54 kg N₂O per tonne of nitric acid) was determined based on N₂O concentration measurements, tail gas flow rate, temperature and pressure and nitric acid production. The N₂O concentration of 860 ppmv measured in 2004 is comparable to the N₂O concentration measurements carried out at other plants (*see Annex I "Data calculations for emission baseline" – JI PDD, DEPA file M124/000-0043t, April 2004*).

The catalyst for converting N₂O was supplied by Heraeus. This product was installed and operated without problems and great success in the Nitric Acid Plant.

The design and the installation of the catalyst were ready on September 15th 2005. The reductions of N₂O emissions started immediately following the installation of the new technology.

At the next page are pictures that show the process of N₂O reduction catalyst installation:





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2.3. GHG Emission Accounting

The catalyst provided reduction of N₂O concentration in the tail gas from 860 ppmv to 120-180 ppmv and is expected to reduce Agropolychim's emissions by 11000 tonnes N₂O (i.e. about 3 410 000 tonnes CO₂eq.) within the period 2005-2012.

2.4. Project sustainability

The plant is functional and running and is well maintained. Many investments are under way. The sustainability of the project is related to future maintenance of the plant and the situation of the fertilizer market.

There are no significant risks related to the project in technical terms, but it is essential that the plant keeps on producing nitric acid in the future. The risks are more related to the prediction of the market situation for fertilisers in the future and the company's investment plans for rehabilitation of the plant.

3. DESCRIPTION OF PLANT PERFORMANCE

3.1. PRODUCTION AND KEY FIGURES

Within the period 01.01.2008 - 31.12.2009 production details are described below:

Subject	Values 2009	Values 2008
Produced of HNO ₃	208, 856 t HNO ₃ 100 v%	266,491.2 t HNO ₃ 100 v%
Hour production of HNO ₃	43.5 t HNO ₃ 100 v%/hour	44.6 t HNO ₃ 100 v%/hour
Real time operation period	4 802 h	6005 h
Idle time of installation	3 958 h	2779 h
O ₂ in tail gas (average)	3.13 % v	3.01 % v
NO _x in tail gas (average concentration)	166.4 ppm _{vol}	176.4 ppm _{vol}
N ₂ O in tail gas (average concentration)	367.3 ppm _{vol}	358.8 ppm _{vol}
Tail gas temperature (average)	18,5 °C	15,4 °C
Tail gas flow (average)	136 518,22 Nm ³ /h	140 925,41 Nm ³ /h

Table 3 Operation conditions in Nitric Acid Plant for the period 01.01.2008 - 31.12.2009

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3.2. Results

The monitoring results give information about the GHG emission reductions and GHG emissions, generated for the period 01.01.2008 - 31.12.2009.

The baseline N₂O generation at Agropolychim is accepted to be 5,54 kg N₂O per ton 100 % nitric acid.

The monitoring results are presented according to the requirements (Annex IV from PDD) shown in **Annex I and Annex II (Monitoring Data for the period 01.01.2008 - 31.12.2009 and N₂O Emission Reduction for the period 01.01.2008 - 31.12.2009)**.

3.3. Environmental impact

Since the project does not affect the production and near surroundings, no environmental impacts are expected from the project.

The Nitric Acid Plant in Agropolychim JSCo at Devnya complies with the relevant environmental legislation in Bulgaria.

4. MONITORING REPORT

4.1. Objective of the Monitoring Report

The objective of the Monitoring Plan (MP) is to provide a practical framework for collection and management of performance data, in order to monitor and verify the GHG emission reduction generated by the JI-project. The project comprises reduction of nitrous oxide by means of a new catalyst introduced to the reactors of the nitric acid plant.

The MP has been developed in accordance with the French standard BP X 30-331 "Protocol for quantification for nitrous oxide emissions in the manufacture of nitric acid".

This MP provides monitoring methodologies for monitoring and estimation of GHG emission reduction referring to the emission baseline. There is no any difference between approved in Determination report / 2005 Monitoring plan and Monitoring plan nowadays. During the period 2005 – 2009 there wasn't any deviations or revisions to the registered PDD. This JI project is approved from both sides respectively:

- LoA from MoEw, Bulgaria from 14/07/2004
- LoA from DEPA, Denmark from 26/07/2004

The monitoring results are filled in the forms, according to requirement in Annex IV from PDD (Monitoring Plan) for the entire monitoring period.

The monitoring plan is based on an on-line measurement of the tail gas and the production flow. Emission factors are calculated in the baseline and measured on-line continuously. The on-line data are filed on a PC and two hard disk and monthly recording on a CD do a back up.

The proposed monitoring methodology, data collection, data management and guidelines can only be changed after agreement with the Bulgarian Government, the Danish Government and the Verifier.

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The Main JI project stages are:

- 1) 27.07.2004 - Signing of the Reduction emission trading Contract between DEA and “Agropolychim” JSCo
- 2) July 2005 – The end of the negotiations between “Agropolychim” JSCo and HERAEUS and its quotation for secondary catalytic system, that will reduce the N₂O emission quantity.
- 3) August 2005 – reconstruction of the four burners in Nitric acid plant for the purposes of new catalytic system mounting.
- 4) September 2005 – delivery the new on – line automatic measurement system from ABB and its acceptance from the authorities. 15.09.2005 – start of on – line measurement process.
- 5) September 2005 – new catalytic system delivery and mounting. The date 15.09.2005 is considering for the start up date for JI project “Reduction of N₂O emissions from Nitric acid plant – Agropolychim JSCo”.

JI project summary:

2005 – During this period Nitric acid plant worked in accordance of all technological requirements and without any deviations. The performances were in the expecting limits.

2006 – During this period Nitric acid plant worked with lower capacity and performance because of the problems in Ammonia plant.

2007 - During this period Nitric acid plant worked in accordance of all technological requirements and without any deviations. But the secondary catalytic system began to lose its catalytic activity and the plant performances became worse.

End of 2008 - Replacement of the catalytic system with the same type of catalyst from the same supplier. Normal work for the rest of the period.

2009 – During this period Nitric acid plant worked in accordance of all technological requirements and without any deviations. The performance was slightly below expectations.

The figures for the period 2004-2007 are in the table below:

Year – emitted	Year - verified	Year - transmitted	AAUs	With accumulation	AAUs real	Accumulated , corrected
2004	2005	2008	0	0	0	0
2005	2006	2008	146,000	146,000	146,129	146,129
2006	2007	2008	310,000	456,000	285,497	431,626
2007	2008	2008	470,000	926,000	376,558	808,184
Total				926,000		808,184

The project is registered under Track 1 under UNFCCC requirements. A project link is hereunder:

<http://ji.unfccc.int/JIITLProject/DB/FLNN4VZ1KA7QAK8I2CXMIDWFZC4EOX/details>

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4.2. Requirements for the Monitoring Activities

- Monitoring of the GHG emission reduction generated by the project shall be performed by data collection at Agropolychim's nitric acid plant.
- Monitoring reports include the actual GHG emission reduction and GHG emission generated by the project and should be issued annually during the entire crediting period.
- Based on monitoring results the GHG emission reductions and GHG emissions shall be calculated and submitted for verification as approved ERUs.
- Persons trained in the monitoring procedure shall conduct the monitoring.
- QA system shall be implemented to secure accurate and transparent monitoring.
- The governing language is English in monitoring reports.
- The outcome of the MP shall enable a legacy entity to accrediting the ERUs generated by the project according to requirements of the Executive Board/JI Supervisory Committee, the Bulgarian government and the Danish government.
- The monitoring procedures shall follow the guidelines in the Marrakech Accords.
- Draft versions of the annual monitoring reports shall be submitted to the Bulgarian government and the Danish Government or their representatives before issuing the final version. The annual monitoring reports shall be issued to:

Receiver of annual reports	Draft version monitoring report	Final version monitoring report
Bulgarian Government	2 copies	2 copies
Danish Government	2 copies	2 copies
Verifier	none	2 copies

Table 4 Monitoring reports

4.3. General information

The monitoring plan is based on an on-line measurement of the tail gas and the production flow. Emission factors are calculated in the baseline and measured on-line continuously. The on-line data are filled on a PC and two hard disk and monthly recording on a CD do a back up.

The emission reduction is calculated as the difference between the emission factor (baseline: 5,54 kg N₂O per ton 100 % nitric acid) and the actual emission factor multiplied by the actual production.



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The monitoring methodology reflects good practice and is according to the approved Monitoring methodologies for the Clean Development Mechanism.

4.4. Monitoring equipment

N₂O emissions are continuously measured after the installation of the catalyst. The monitoring methodology was built upon the on-line measurements of:

- N₂O concentration (IR measuring technology - Infrared Analyzer Module, manufactured by Hartmann & Braun, Frankfurt, Germany);
- Tail gas flow (system for measuring of tail gas flow – Durag system D-FL 100, with transmitters for temperature and pressure);
- Temperature of tail gas;
- Absolute pressure of tail gas;
- Concentration of O₂ in tail gas;
- Nitric acid production /as 100 % HNO₃/ (mass-flow meter, manufactured by Yokogava).

4.5. Methodology

4.5.1. Emission baseline

The baseline is based on the assumptions of an annual production of 325.000 tons of 100% HNO₃ and an average concentration of N₂O of 250 ppm in the tail gas, after implementation.

A baseline N₂O emission factor (**5.54 kg N₂O per ton produced 100% nitric acid**) was determined based on N₂O concentration measurements, tail gas flow rate, temperature and pressure and nitric acid production. The N₂O concentration of 860 ppmv measured in 2004 is comparable to the N₂O concentration measurements carried out at other plants (see Annex I “Data calculations for emission baseline” – JI PDD, DEPA file M124/000-0043t, April 2004).

4.5.2. Emission factors

The GWP used for N₂O is 310 times greater than CO₂.

The following conversion factors from ppm to mg/Nm³ (Nm³: 1 m³ air at 273 K, 101.3 kPa, dry) for various emissions to air:

Emission	Conversion factor
N ₂ O	1,96

Table 7 Conversion factors

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Annual Monitoring Report for the Nitrous Oxide Reduction in the Project of the Fertilizers Plant Agropolychim JSCo, Devnya, Bulgaria	
Reported period 01.01.2008 – 31.12.2009	

4.5.3. Actual emission reduction

The emission reduction is calculated as the difference between the emission factor (baseline: 5,54 kg N₂O per ton 100 % nitric acid) and the actual emission factor multiplied by the actual production.

The actual emission reduction (over a period of monitoring) is obtained by the following equations:
The *emission factors* are calculated as follows (both before and after the project):

$$F_{N_2O} = \frac{1}{t} \times \sum_0^t \frac{C_{N_2O} \times Q_s \times 44}{P_{N_2O} \times V_M} \times 10^{-6} \Delta t$$

Where

F_{N_2O}	kg/T	N ₂ O emission in kg per ton of 100% HNO ₃ produced
t	hours	Period of time
C_{N_2O}	ppm	N ₂ O concentration in tail gas
Q_s	Nm ³ /h	Output air flow (tail gas)
V_M	22,4 l/mol	Molar volume N ₂ O (normal conditions)
P_{N_2O}	T/h	Production of 100% HNO ₃

The actual *emission reduction* is calculated as follows:

$$ERU = \frac{GWP}{1.000} \times \sum_0^t (F_{N_2O \text{ baseline}} - F_{N_2O \text{ actual}}) \times P_{N_2O} \Delta t$$

Where

ERU	CO ₂ eq.	Emission Reduction Units
GWP	310	Global Warming Potential for N ₂ O
$F_{N_2O \text{ baseline}}$	5,54 kg/T	N ₂ O emission in kg per ton of 100% HNO ₃ produced (baseline)
$F_{N_2O \text{ actual}}$	kg/T	N ₂ O emission in kg per ton of 100% HNO ₃ produced (actual)
t	hours	Period of time
P_{N_2O}	T/h	Production of 100% HNO ₃ (actual)

The actual monitoring results are filled in the forms, according to requirement in Annex IV from PDD (Monitoring Plan) for the entire monitoring period (01.01.2009 - 31.12.2009) – **see Annex II.**



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4.6. Responsibility

“Agropolychim” JSCo is responsible for the monitoring and reporting in accordance with the guidelines of the monitoring plan. The authority and the responsibility for the project management, operation, maintenance, monitoring and reporting are clearly defined. The technology supplier (Heraeus) was responsible for ensuring the appropriate installation, operation and maintenance of the catalyst, including the necessary renewal of the catalyst.

The supplier of the monitoring equipment (ABB Automation Products, Germany) was responsible for the installation, test and check for compliance of the monitoring devices and whether the reporting of the emissions reductions were carried out according to the monitoring plan.

4.7. Quality Assurance System

The quality assurance system secures that monitoring procedures and requirements are followed. The QA system is not according to any ISO 9000 or similar standards. The QA system comprises inspection of the monitoring procedure by an independent third part. The management of Agropolychim is responsible for QA system.

The QA system can be changed according to request from the verifier. After discussions with verifier (DNV) it was agreed the calibration period of measuring devices to be once per year. This has been also recommended by equipment supplier and the independent third part.

QA – Procedure		Time for Inspection	Inspection
1.0	Calibration of measuring devices and transmitters. All flow meters and transmitters have to be calibrated and checked at least ones every year during planned shut down. Calibration reports must be obtained, including name, official company registration number, address, phone and fax number.	Annual	Independent third party
2.0	Control of measuring devices and transmitters	Weekly	Operational staff
3.0	Control of monitoring data The data and the calculations have to be controlled every day, to secure minimum errors	Daily	Operational staff
4.0	Observations, comments, control of calibration reports and measurements of N ₂ O concentration.	Annual	Independent third party

5.0	Training of staff members	Before commissioning of project and hereafter annually	Management
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Table 6 Quality Assurance System

4.8. Training and instruction of operational staff

Training of operational staff members was conducted before commissioning of project. Training shall be replicated, when needed, in order to secure full understanding of the monitoring procedures and to secure the highest possible reliability of the monitoring results.

The management is responsible for training and instruction of operational staff.

4.9. Summary - Management of the monitoring plan

The summary aims to highlight the key elements and responsibilities of the management of the MP.

Obligations	Utility	Independent third party	Verifier
Monitoring Plan	Review of the MP and comments. Review management of monitoring plan Preparation of monitoring procedures Training of staff members performing monitoring procedures Updating of MP if necessary Preparation for data collection, data handling and data holding.	Elaboration of inspection reports every 6 months	Review of MP and comments Review of management system
Data collection	Review of methods and system for data collection system including updating of these if necessary		Review of methods and system for data collection including comments
Data handling	Appointment of person(s) responsible for data handling		Review of data handling systems
Data holding	Establishment of data holding system for written and digital data Establishment of back-up system for data holding		Review of data holding system including backup systems
Monitoring	Timetable for monitoring activities		Review and assist elaborating timetables, monitoring sheets etc.
Reporting	Establish framework for reporting which fulfil MP requirements		Review of framework for reporting
Instruction	Instruction of staff members		Assist during performance of the training

Table 7 Management of Monitoring Plan

Here below is given the procedure For internal control and insuring the correctness of the data from the monitoring system

All data are checked, validated and verified on monthly basis. The persons involved and their responsibilities are listed below:



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Roles and Responsibilities for JI project monitoring plan fulfilling - Nitric acid plant, “Agropolychim” JSCo		
Function	Role	Summary and other information
1.Chief engineer “Automation & Control” – eng. Stefan Ralchev ; 2. Engineer “Automation & Control” Nitric acid plant – eng. Emil Stefanov 3. Chief of Nitric acid plant– eng. Georgy Boshov	Participate in the process of the follow-up of engineering and the support of the measuring devices. Responsible for archived data storage and for control of the measuring devices. <u>Mr Stefanov is responsible for regular calibration and certification of all measuring devices.</u>	In case of registered deviations correction steps must be submitted and applied after confirmation from chief of Nitric acid plant. To report to the Production Director and to the JI project contact person.
Technologist of the nitric acid plant – eng. Nickolay Dimanov	Follow and register the process material balance, the material and energy flows, and tcompare the data with the production figures.	To report to the chief of Nitric acid plant, to Production Director and to JI project contact person.
Chief of the Nitric acid plant Mr. Georgy Boshov	Responsible for the follow-up of normal technological and production process. Responsible for the preparation of the monthly reports.	To follow-up on regular basis the operation of the plant and the proper data management on plant level as well as to prepare the monthly production/monitoring reports. To implement the corresponding correction operations in case of registered deviations
Chief of Production department – eng. Dimitar Dimitrov	Responsible for complete material balance of the production and consumption of materials. To determine the productivity of the plant in accordance with approved production programme.	To report for the registered deviations to the Production director and to the Vice CEO.

Process engineer, Production department – eng. Todor Todorov	To analyse the prime data, required for the preparing of Monitoring report	Follows any changes in the monitoring plan and makes checking on the monitoring data.
Eng. Miroslava Vasileva – JI project coordinator and contact person	Responsible for the follow- up, collecting, summarising and interpretation of the monitoring data. Follows the overall implementation of the monitoring plan. Validates the monthly reports. Prepares the yearly monitoring report. Summarise all deviation in measured data, check them, calculate according “Procedure for false data correcting” and validate on monthly basis.	To propose and to carry out after confirmation corrective action in case of registered deviations and/or changes in accordance with the regulatory and legal requirements. To coordinate the actions with Production director and with Dep. Exe Director. To organise the verification process of the annual monitoring report and communicate with the JI parties (Danish and Bulgarian institutions)
Vice Executive Director – eng. Krasimir Berbenkov	Overall follow-up of the JI project. Approves and verifies the monitoring procedures and control system as well as the monthly and yearly reports. <u>Mr Berbenkov is responsible for final check of all collected and recalculated data.</u>	To perform a management control of the monitoring system and the performed operations insuring the quality of the emission monitoring of the greenhaus gases. Follows the QA and staff training.

Annex I

Monitoring Data for the period 01.01.2008 - 31.12.2008

N:	Дата / Date	N ₂ O Meas / измерени mg/nm ³	N ₂ O Meas / измерени ppmv	O ₂ газ O ₂ gass % vol	Температура Temperature °C	Разход Flow rate Nm ³ / h	Налягане Pressure hPa
1	2		7	10	11	12	13
1	01.01.2008 00:00		373.3	2.37	15.9	149227	1062
2	02.01.2008 00:00		380.8	2.47	14.4	149512	1058
3	03.01.2008 00:00		379.8	2.84	13.1	150495	1061
4	04.01.2008 00:00	719.5	367.1	3.06	12.6	150060	1073
5	05.01.2008 00:00	643.5	328.3	3.82	11.5	147220	1086
6	06.01.2008 00:00	521.5	266.1	4.59	12.3	137867	1072
7	07.01.2008 00:00	522.8	266.7	4.46	12	136794	1060
8	08.01.2008 00:00	534.6	272.8	4.37	12	137142	1063
9	09.01.2008 00:00	541	276	4.43	11.4	137670	1067
10	10.01.2008 00:00	594.4	303.3	3.62	12.5	137010	1067

11	11.01.2008 00:00	681.1	347.5	3.24	12.7	143181	1066
12	12.01.2008 00:00	814.1	415.4	2.52	14.6	150074	1064
13	13.01.2008 00:00	814.6	415.6	2.57	14.5	150295	1064
14	14.01.2008 00:00	800.2	408.3	2.49	15.5	149803	1066
15	15.01.2008 00:00	798.1	407.2	2.46	15	149899	1066
16	16.01.2008 00:00	788.2	402.1	2.48	15.2	149803	1065
17	17.01.2008 00:00	795.2	405.7	2.44	15.7	149615	1065
18	18.01.2008 00:00	798.5	407.4	2.46	15.3	149827	1065
19	19.01.2008 00:00	804.3	410.4	2.47	15.5	149923	1067
20	20.01.2008 00:00	801.2	408.8	2.42	15.3	149780	1065
21	21.01.2008 00:00	788.9	402.5	2.39	15.7	149072	1061
22	22.01.2008 00:00	781.6	398.8	2.35	15.8	148455	1054
23	23.01.2008 00:00	787	401.5	2.44	14.9	149606	1061
24	24.01.2008 00:00	743	379.1	2.42	14.2	144154	1026
25	25.01.2008 00:00	769.2	392.4	2.52	15.2	149929	1069
26	26.01.2008 00:00	766.5	391.1	2.5	15.1	149607	1066
27	27.01.2008 00:00	743.9	379.5	2.29	15.2	148088	1056
28	28.01.2008 00:00	788.5	402.3	2.57	13.7	149250	1056
29	29.01.2008 00:00	783.9	399.9	2.58	14	150098	1065
30	30.01.2008 00:00	770.2	393	2.55	14.4	149855	1066
31	31.01.2008 00:00	763.9	389.7	2.44	15	149198	1062
32	01.02.2008 00:00	789.9	403	2.44	15.1	149276	1062
33	02.02.2008 00:00	818.9	417.8	2.39	15.1	149441	1063
34	03.02.2008 00:00	824.7	420.8	2.56	15.4	149892	1069
35	04.02.2008 00:00	822.5	419.6	2.55	14.8	150098	1067
36	05.02.2008 00:00	828.6	422.8	2.54	15	149652	1065
37	06.02.2008 00:00	831.5	424.2	2.49	14.8	149833	1066
38	07.02.2008 00:00	820.1	418.4	2.56	15.1	149613	1065
39	08.02.2008 00:00	822.1	419.4	2.65	13.8	150445	1069
40	09.02.2008 00:00	785.1	400.6	2.64	14.4	150093	1071
41	10.02.2008 00:00	781.6	398.8	2.51	14.5	149959	1070
42	11.02.2008 00:00	769.1	392.4	2.71	14.1	149825	1069
43	12.02.2008 00:00	772.7	394.2	2.57	14.7	149794	1070
44	13.02.2008 00:00	763.3	389.4	2.69	15	148034	1067
45	14.02.2008 00:00	791.2	403.7	2.45	14.7	149309	1065
46	15.02.2008 00:00	776.6	396.2	2.29	15.5	145143	1062
47	16.02.2008 00:00	6.8	3.5	2.21	6	78	1062
48	17.02.2008 00:00	687.4	350.7	4.66	12.6	148453	1070
49	18.02.2008 00:00	750.1	382.7	2.55	9.9	150634	1068
50	19.02.2008 00:00	777.8	396.8	2.55	10.3	149553	1060
51	20.02.2008 00:00	812.8	414.7	2.44	11	150247	1069
52	21.02.2008 00:00	810.2	413.4	2.32	10.9	149443	1068
53	22.02.2008 00:00	808.1	412.3	2.42	10.9	150177	1068
54	23.02.2008 00:00	814.9	415.8	2.26	11.5	149718	1066
55	24.02.2008 00:00	840.7	428.9	2.33	11	150257	1068

56	25.02.2008 00:00	827.6	422.2	2.4	11.3	150041	1065
57	26.02.2008 00:00	817.7	417.2	2.34	12	149527	1065
58	27.02.2008 00:00	815.3	416	2.23	12.8	148788	1061
59	28.02.2008 00:00	841	429.1	2.32	11.7	149229	1062
60	29.02.2008 00:00	823.1	419.9	2.34	8.5	150182	1064
61	01.03.2008 00:00	801.7	409	2.16	9.6	148427	1055
62	02.03.2008 00:00	845.8	431.5	2.35	7.7	149187	1050
63	03.03.2008 00:00	841.2	429.2	2.41	8	149394	1056
64	04.03.2008 00:00	681.2	347.6	3.83	5.2	143743	1054
65	05.03.2008 00:00	651.7	332.5	4.71	2.3	141624	1056
66	06.03.2008 00:00	664.7	339.1	4.12	8.5	140383	1065
67	07.03.2008 00:00	793.8	405	2.93	13.6	145243	1064
68	08.03.2008 00:00	889.2	453.7	2.23	15.8	148310	1058
69	09.03.2008 00:00	886.2	452.1	2.35	15.7	148224	1056
70	10.03.2008 00:00	887.5	452.8	2.46	14.8	147211	1056
71	11.03.2008 00:00	678.6	346.2	4.62	8.3	139881	1054
72	12.03.2008 00:00	816.8	416.7	3.08	14.3	144442	1053
73	13.03.2008 00:00	901.3	459.8	2.15	16.4	147545	1050
74	14.03.2008 00:00	908.6	463.6	2.48	14.7	148970	1056
75	15.03.2008 00:00	890.8	454.5	2.31	15.6	148582	1057
76	16.03.2008 00:00	917.3	468	2.47	15.6	148694	1058
77	17.03.2008 00:00	890.3	454.2	2.21	18.2	146704	1052
78	18.03.2008 00:00	883.2	450.6	2.12	17.6	146897	1051
79	19.03.2008 00:00	918.4	468.6	2.34	14.9	148601	1053
80	20.03.2008 00:00	915.2	466.9	2.29	14.7	148865	1055
81	21.03.2008 00:00	903.8	461.1	2.14	15.1	147975	1050
82	22.03.2008 00:00	905.3	461.9	2.11	16.4	147250	1048
83	23.03.2008 00:00	941.5	480.4	2.18	16.9	147279	1048
84	24.03.2008 00:00	895.5	456.9	2.1	18.3	145972	1045
85	25.03.2008 00:00	895.5	456.9	2.11	16.2	146759	1042
86	26.03.2008 00:00	915.3	467	2.3	14.7	148599	1052
87	27.03.2008 00:00	931.9	475.5	2.42	15.5	148968	1057
88	28.03.2008 00:00	957.4	488.5	2.39	15.3	149039	1058
89	29.03.2008 00:00	963.4	491.5	2.47	15.1	149346	1061
90	30.03.2008 00:00	961.6	490.6	2.54	14.5	149593	1061
91	31.03.2008 00:00	953.5	486.5	2.58	14.4	149229	1057
92	01.04.2008 00:00	921.5	470.2	2.37	14.3	142888	1013
93	02.04.2008 00:00	973.5	496.7	2.44	15.5	149004	1058
94	03.04.2008 00:00	967.9	493.8	2.39	16.2	148369	1056
95	04.04.2008 00:00	967.8	493.8	2.36	16	148438	1056
96	05.04.2008 00:00	965.5	492.6	2.41	16.5	148096	1055
97	06.04.2008 00:00	962.7	491.2	2.19	17	147320	1049
98	07.04.2008 00:00	970.3	495.1	2.44	16.5	147588	1051
99	08.04.2008 00:00	842.8	430	1.82	17.9	147252	1057
100	09.04.2008 00:00	1027.6	524.3	2.34	17.3	147571	1055

101	10.04.2008 00:00	1031.3	526.2	2.52	17.8	147552	1055
102	11.04.2008 00:00	1034.4	527.8	2.58	18.4	146901	1057
103	12.04.2008 00:00	990.3	505.3	2.51	21.1	145728	1059
104	13.04.2008 00:00	986.4	503.3	2.49	19.9	146739	1062
105	14.04.2008 00:00	1075	548.5	2.69	15.8	149440	1062
106	15.04.2008 00:00	1018.6	519.7	2.52	17.1	147687	1054
107	16.04.2008 00:00	1066.7	544.2	2.57	15.8	148435	1053
108	17.04.2008 00:00	1044.5	532.9	2.58	15.4	148859	1060
109	18.04.2008 00:00	1029.1	525.1	2.51	16.8	147938	1057
110	19.04.2008 00:00	1044.1	532.7	2.51	18	147306	1057
111	20.04.2008 00:00	1027.7	524.3	2.47	18.4	146939	1057
112	21.04.2008 00:00	1040.3	530.8	2.35	18.5	146896	1056
113	22.04.2008 00:00	1044.6	533	2.2	19.5	145384	1052
114	23.04.2008 00:00	1078.4	550.2	2.2	17.4	147134	1056
115	24.04.2008 00:00	1185.2	604.7	2.32	14.8	149511	1063
116	25.04.2008 00:00	1171.6	597.8	2.38	14.8	149910	1066
117	26.04.2008 00:00	1164.2	594	2.36	14.5	149895	1063
118	27.04.2008 00:00	1166.7	595.3	2.3	14.2	149318	1058
119	28.04.2008 00:00	1163.1	593.4	2.26	14.9	148596	1054
120	29.04.2008 00:00	938.2	478.7	3.76	11.7	144902	1054
121	30.04.2008 00:00	765.8	390.7	4.95	9.2	141719	1057
122	01.05.2008 00:00	788.2	402.1	5	9.8	141801	1061
123	02.05.2008 00:00	792	404.1	4.95	9.7	141663	1060
124	03.05.2008 00:00	837.8	427.4	5.05	8.2	142809	1060
125	04.05.2008 00:00	831.8	424.4	4.95	8.6	142552	1061
126	05.05.2008 00:00	839.4	428.3	5	8.1	143377	1064
127	06.05.2008 00:00	817.4	417	5.06	7.2	143589	1063
128	07.05.2008 00:00	922.9	470.9	4.29	10	145060	1060
129	08.05.2008 00:00	961.7	490.7	3.82	11.1	146451	1060
130	09.05.2008 00:00	986.3	503.2	3.84	11	146557	1059
131	10.05.2008 00:00	1004	512.2	3.85	10.6	147143	1062
132	11.05.2008 00:00	998.4	509.4	3.66	10.8	147111	1063
133	12.05.2008 00:00	979.5	499.7	3.69	10.9	146772	1063
134	13.05.2008 00:00	910.6	464.6	3.64	12.9	145119	1064
135	14.05.2008 00:00	833.9	425.5	3.22	15.7	142895	1060
136	15.05.2008 00:00	860.4	439	3.1	16.7	142579	1061
137	16.05.2008 00:00	846.6	431.9	2.95	17.9	141908	1061
138	17.05.2008 00:00	871.8	444.8	2.87	18.8	141582	1062
139	18.05.2008 00:00	920.2	469.5	2.71	20	141051	1060
140	19.05.2008 00:00	921	469.9	2.71	20.2	140927	1058
141	20.05.2008 00:00	827	421.9	3.53	18.5	138047	1058
142	21.05.2008 00:00	476	242.9	4.35	28.4	88117	1059
143	22.05.2008 00:00	763	389.3	4	17	140275	1058
144	23.05.2008 00:00	767.6	391.6	4.22	14.8	140065	1058
145	24.05.2008 00:00	731.6	373.3	4.17	15.4	139366	1060

146	25.05.2008 00:00	743.5	379.3	4.15	15.7	139806	1062
147	26.05.2008 00:00	770.1	392.9	4.18	15.1	140822	1063
148	27.05.2008 00:00	790.7	403.4	3.64	17.4	137292	1064
149	28.05.2008 00:00	766.5	391.1	3.56	19.4	136747	1062
150	29.05.2008 00:00	772.5	394.1	4.35	12.5	142151	1065
151	30.05.2008 00:00	782.5	399.2	4.4	12.9	141870	1064
152	31.05.2008 00:00	787	401.5	4.19	13.7	140827	1062
153	01.06.2008 00:00	798.2	407.2	4.15	15.1	140361	1060
154	02.06.2008 00:00	782.8	399.4	4.2	13.8	141303	1064
155	03.06.2008 00:00	792.9	404.5	4.33	12.7	141967	1064
156	04.06.2008 00:00	779.1	397.5	4.26	13.3	141174	1060
157	05.06.2008 00:00	790.8	403.5	4.17	14.7	140216	1058
158	06.06.2008 00:00	867.5	442.6	3.7	16.6	140165	1059
159	07.06.2008 00:00	924.5	471.7	3.18	18	140382	1059
160	08.06.2008 00:00	949	484.2	3.22	18	140523	1059
161	09.06.2008 00:00	862.3	439.9	3.34	18.3	138017	1063
162	10.06.2008 00:00	856	436.7	3.51	18.6	136743	1065
163	11.06.2008 00:00	807.8	412.1	3.94	17.9	137000	1063
164	12.06.2008 00:00	794.9	405.6	4.35	16.8	137844	1060
165	13.06.2008 00:00	858.2	437.9	4.44	16	138331	1058
166	14.06.2008 00:00	834.1	425.6	4.3	16.4	137887	1058
167	15.06.2008 00:00	210.9	107.6	0.87	25.8	32746	1056
168	16.06.2008 00:00	0	0	0	23.2	0	1059
169	17.06.2008 00:00	0	0	0	23.7	0	1061
170	18.06.2008 00:00	0	0	0	25.9	0	1062
171	19.06.2008 00:00	0	0	0	26.7	0	1059
172	20.06.2008 00:00	0	0	0	25.3	0	1061
173	21.06.2008 00:00	0	0	0	25.3	0	1063
174	22.06.2008 00:00	0	0	0	24.8	0	1065
175	23.06.2008 00:00	0.2	0.1	0	24.8	0	1043
176	24.06.2008 00:00	0.1	0.1	0	27	0	1062
177	25.06.2008 00:00	0	0	0	27.9	0	1062
178	26.06.2008 00:00	0	0	0	27	0	1064
179	27.06.2008 00:00	0	0	0	26.3	0	1062
180	28.06.2008 00:00	0	0	0	25.4	0	1061
181	29.06.2008 00:00	0	0	0	24.1	0	1063
182	30.06.2008 00:00	0	0	0	24.5	0	1063
183	01.07.2008 00:00	0	0	0	24.7	0	1061
184	02.07.2008 00:00	0	0	0	24.6	0	1060
185	03.07.2008 00:00	0	0	0	24.5	0	1060
186	04.07.2008 00:00	448.2	228.7	0.95	24.3	63509	1059
187	05.07.2008 00:00	1107.6	565.1	2.44	21.6	143634	1058
188	06.07.2008 00:00	1078.9	550.5	2.38	18.2	145224	1061
189	07.07.2008 00:00	1105.8	564.2	2.51	18.2	145339	1065
190	08.07.2008 00:00	1084.7	553.4	2.3	21	143678	1061

191	09.07.2008 00:00	1161.4	592.6	2.35	19.6	144912	1060
192	10.07.2008 00:00	1082.9	552.5	2.37	17.8	145710	1063
193	11.07.2008 00:00	1138.8	581	2.43	17.4	146463	1064
194	12.07.2008 00:00	1110.1	566.4	2.4	18.3	145690	1064
195	13.07.2008 00:00	1127.9	575.5	2.35	19	145433	1064
196	14.07.2008 00:00	1119.1	571	2.35	20.1	144801	1065
197	15.07.2008 00:00	174.3	88.9	0.4	32.3	24934	1061
198	16.07.2008 00:00	0	0	0	20.5	0	1058
199	17.07.2008 00:00	0	0	0	22.8	0	1058
200	18.07.2008 00:00	0	0	0	24.9	0	1059
201	19.07.2008 00:00	0	0	0	26.1	0	1060
202	20.07.2008 00:00	0	0	0	27.2	0	1062
203	21.07.2008 00:00	0	0	0	26.9	0	1060
204	22.07.2008 00:00	0	0	0	26.1	0	1058
205	23.07.2008 00:00	0	0	0	24.2	0	1055
206	24.07.2008 00:00	0	0	0	22.3	0	1054
207	25.07.2008 00:00	0	0	0	22.4	0	1054
208	26.07.2008 00:00	0	0	0	22.4	0	1054
209	27.07.2008 00:00	0	0	0	23.8	0	1056
210	28.07.2008 00:00	0	0	0	23	0	1059
211	29.07.2008 00:00	0	0	0	23.4	0	1061
212	30.07.2008 00:00	0	0	0	23.5	0	1063
213	31.07.2008 00:00	0	0	0	23.7	0	1064
214	01.08.2008 00:00	0	0	0	23.1	0	1065
215	02.08.2008 00:00	0	0	0	22.8	0	1064
216	03.08.2008 00:00	0	0	0	22.4	0	1062
217	04.08.2008 00:00	0	0	0	22.6	0	1060
218	05.08.2008 00:00	0	0	0	24.6	0	1059
219	06.08.2008 00:00	0	0	0	26	0	1059
220	07.08.2008 00:00	0	0	0	24.1	0	1061
221	08.08.2008 00:00	0	0	0	22.8	0	1059
222	09.08.2008 00:00	0	0	0	23.1	0	1057
223	10.08.2008 00:00	0	0	0	22.5	0	1056
224	11.08.2008 00:00	0	0	0	22.2	0	1057
225	12.08.2008 00:00	0	0	0	24.5	0	1059
226	13.08.2008 00:00	0	0	0	25.4	0	1061
227	14.08.2008 00:00	0	0	0	26.4	0	1062
228	15.08.2008 00:00	0	0	0	26.9	0	1059
229	16.08.2008 00:00	0	0	0	26.5	0	1055
230	17.08.2008 00:00	0	0	0	26	0	1055
231	18.08.2008 00:00	0	0	0	28.1	0	1059
232	19.08.2008 00:00	0	0	0	25.6	0	998
233	20.08.2008 00:00	0	0	0	24.2	0	966
234	21.08.2008 00:00	0	0	0	25.5	0	1011
235	22.08.2008 00:00	0	0	0	26.8	0	1011

236	23.08.2008 00:00	0	0	0	26	0	1007
237	24.08.2008 00:00	0	0	0	26.7	0	1002
238	25.08.2008 00:00	0	0	0	25.5	0	1010
239	26.08.2008 00:00	0	0	0	24	0	1015
240	27.08.2008 00:00	0	0	0	23.7	0	1017
241	28.08.2008 00:00	0	0	0	23.7	0	1014
242	29.08.2008 00:00	4.8	2.4	0.03	31.2	15263	1009
243	30.08.2008 00:00	184.4	94.1	1.52	16.2	132103	1011
244	31.08.2008 00:00	142.2	72.6	2.15	8.3	144706	1020
245	01.09.2008 00:00	122.1	62.3	2.69	14.3	144433	1020
246	02.09.2008 00:00	106.9	54.5	3.17	17	144111	1018
247	03.09.2008 00:00	108.5	55.4	3.08	17.3	143737	1017
248	04.09.2008 00:00	113.3	57.8	3.03	17.4	143441	1016
249	05.09.2008 00:00	120.7	61.6	3	18.3	142983	1017
250	06.09.2008 00:00	128.9	65.8	3	18.7	142865	1016
251	07.09.2008 00:00	136.4	69.6	3	19.2	142447	1016
252	08.09.2008 00:00	145.5	74.2	2.94	20.5	141565	1015
253	09.09.2008 00:00	163.9	83.6	2.43	20.5	141819	1015
254	10.09.2008 00:00	172.9	88.2	2.01	20.7	141953	1017
255	11.09.2008 00:00	186.8	95.3	1.89	20.8	141459	1014
256	12.09.2008 00:00	197.7	100.9	1.9	21.5	140429	1008
257	13.09.2008 00:00	210.7	107.5	1.87	22.3	140070	1008
258	14.09.2008 00:00	228.5	116.6	2.29	16.2	144588	1017
259	15.09.2008 00:00	228.7	116.7	2.14	18.8	142947	1013
260	16.09.2008 00:00	231.7	118.2	1.95	19.5	141442	1007
261	17.09.2008 00:00	247.9	126.5	2.14	16.1	142958	1010
262	18.09.2008 00:00	246.9	126	2.6	13.4	146537	1014
263	19.09.2008 00:00	249	127	2.59	13.6	146600	1015
264	20.09.2008 00:00	260.4	132.9	2.17	15.1	144225	1014
265	21.09.2008 00:00	273.1	139.3	2.15	15.1	143871	1011
266	22.09.2008 00:00	281.6	143.7	2.2	15.1	143779	1012
267	23.09.2008 00:00	294.9	150.5	2.18	15.2	143598	1012
268	24.09.2008 00:00	32.3	16.5	0.3	24.5	17945	1013
269	25.09.2008 00:00	267.9	136.7	2.03	22.5	116155	1015
270	26.09.2008 00:00	353.3	180.3	2.18	15.9	144484	1016
271	27.09.2008 00:00	363.8	185.6	2.11	15.3	144996	1020
272	28.09.2008 00:00	368	187.8	2.15	15.1	145238	1022
273	29.09.2008 00:00	368.6	188.1	2.06	15.4	144483	1017
274	30.09.2008 00:00	377.8	192.8	2.03	15.9	144069	1017
275	01.10.2008 00:00	391.5	199.7	2.06	16	143835	1016
276	02.10.2008 00:00	400.5	204.3	2.15	16.7	143249	1015
277	03.10.2008 00:00	421.2	214.9	2.09	18	142510	1011
278	04.10.2008 00:00	420.5	214.5	1.95	19.3	141767	1009
279	05.10.2008 00:00	432.9	220.9	1.97	16.1	143031	1005
280	06.10.2008 00:00	385.9	196.9	3.18	11.8	139827	1011

281	07.10.2008 00:00	343.8	175.4	3.91	11	136104	1015
282	08.10.2008 00:00	347.9	177.5	4.16	11.2	136229	1019
283	09.10.2008 00:00	352	179.6	4.19	10.9	136768	1025
284	10.10.2008 00:00	352.9	180.1	4.25	9.8	137641	1030
285	11.10.2008 00:00	362.6	185	4.28	10.1	137531	1030
286	12.10.2008 00:00	367.2	187.3	4.23	10.1	137435	1029
287	13.10.2008 00:00	440.4	224.7	3.13	12.7	140542	1024
288	14.10.2008 00:00	498.6	254.4	2.32	15	142906	1022
289	15.10.2008 00:00	408.2	208.3	3.65	11.6	137237	1018
290	16.10.2008 00:00	0	0	0	24.5	379	1014
291	17.10.2008 00:00	309.9	158.1	2.82	21.9	108036	1012
292	18.10.2008 00:00	427.6	218.2	4.25	10.3	138147	1023
293	19.10.2008 00:00	409.7	209	4.75	9.4	138955	1027
294	20.10.2008 00:00	521	265.8	3.38	13.5	142420	1024
295	21.10.2008 00:00	584.6	298.3	2.34	16.7	145259	1023
296	22.10.2008 00:00	583.7	297.8	2.27	16.9	145052	1023
297	23.10.2008 00:00	578.9	295.4	2.25	16.9	145002	1023
298	24.10.2008 00:00	521	265.8	3.66	11.3	147610	1026
299	25.10.2008 00:00	483.4	246.6	4.73	7.5	149502	1029
300	26.10.2008 00:00	477.8	243.8	4.66	7.7	149328	1028
301	27.10.2008 00:00	477.1	243.4	4.61	9	148174	1021
302	28.10.2008 00:00	483	246.4	4.51	9	147770	1019
303	29.10.2008 00:00	495	252.6	4.51	9.4	147755	1020
304	30.10.2008 00:00	476.8	243.3	4.53	10.7	144966	1015
305	31.10.2008 00:00	467.2	238.4	4.73	10.4	144341	1019
306	01.11.2008 00:00	496	253.1	4.86	10.1	145013	1022
307	02.11.2008 00:00	496	253.1	4.77	11.3	143966	1018
308	03.11.2008 00:00	528.5	269.6	4.47	10.3	145235	1022
309	04.11.2008 00:00	565.2	288.4	4.25	10.6	146196	1027
310	05.11.2008 00:00	548	279.6	4.55	9.7	145638	1025
311	06.11.2008 00:00	517.8	264.2	4.98	8.7	143414	1022
312	07.11.2008 00:00	513.3	261.9	5.05	8.2	143022	1026
313	08.11.2008 00:00	511.2	260.8	5.09	6.8	143864	1029
314	09.11.2008 00:00	519.2	264.9	5.12	6.7	144181	1032
315	10.11.2008 00:00	519.6	265.1	5.1	6.4	144224	1031
316	11.11.2008 00:00	518.1	264.3	5.09	6.6	143604	1027
317	12.11.2008 00:00	516.9	263.7	5.05	6.5	143202	1023
318	13.11.2008 00:00	522.8	266.7	5.05	6.4	143274	1023
319	14.11.2008 00:00	175.6	89.6	1.7	13.6	48579	1024
320	15.11.2008 00:00	0	0	0	7.2	0	1026
321	16.11.2008 00:00	0	0	0	7.2	0	1021
322	17.11.2008 00:00	0	0	0	7.8	0	1015
323	18.11.2008 00:00	0	0	0	8	0	1018
324	19.11.2008 00:00	0	0	0	7.5	0	1014
325	20.11.2008 00:00	0	0	0	8	0	1011

326	21.11.2008 00:00	0	0	0	9.8	0	1002
327	22.11.2008 00:00	0	0	0	9.4	0	985
328	23.11.2008 00:00	0	0	0	3.2	0	1002
329	24.11.2008 00:00	0	0	0	3.2	0	1011
330	25.11.2008 00:00	0	0	0	10.3	0	1008
331	26.11.2008 00:00	0	0	0	11.5	0	1011
332	27.11.2008 00:00	0	0	0	3.4	0	1022
333	28.11.2008 00:00	0	0	0	3.2	0	1023
334	29.11.2008 00:00	0	0	0	7.3	0	1014
335	30.11.2008 00:00	0	0	0	5.8	0	1015
336	01.12.2008 00:00	0	0	0	7.5	0	1015
337	02.12.2008 00:00	0	0	0	10.2	0	1013
338	03.12.2008 00:00	0	0	0	13.5	0	1011
339	04.12.2008 00:00	0	0	0	14.5	0	1009
340	05.12.2008 00:00	0	0	0	16.3	0	1010
341	06.12.2008 00:00	0	0	0	12.2	0	1012
342	07.12.2008 00:00	0	0	0	12.5	0	1006
343	08.12.2008 00:00	0	0	0	6.5	0	1011
344	09.12.2008 00:00	0	0	0	4.6	0	1019
345	10.12.2008 00:00	0	0	0	2.1	0	1022
346	11.12.2008 00:00	0	0	0	6.4	0	1023
347	12.12.2008 00:00	0	0	0	9.7	0	1017
348	13.12.2008 00:00	0	0	0	10.3	0	1014
349	14.12.2008 00:00	0	0	0	9.5	0	1018
350	15.12.2008 00:00	0	0	0	8.8	0	1025
351	16.12.2008 00:00	0	0	0	7.2	0	1026
352	17.12.2008 00:00	0	0	0	9.5	0	1020
353	18.12.2008 00:00	0	0	0	11	0	1014
354	19.12.2008 00:00	0	0	0	10.3	0	1012
355	20.12.2008 00:00	0	0	0	8.1	0	1012
356	21.12.2008 00:00	0	0	0	4.8	0	1013
357	22.12.2008 00:00	0	0	0	4	0	1019
358	23.12.2008 00:00	0	0	0	3.6	0	1012
359	24.12.2008 00:00	0	0	0	1.8	0	1015
360	25.12.2008 00:00	0	0	0	0.6	0	1020
361	26.12.2008 00:00	0	0	0	0.4	0	1028
362	27.12.2008 00:00	0	0	0	0	0	1030
363	28.12.2008 00:00	0	0	0	0	0	1030
364	29.12.2008 00:00	0	0	0	0	0	1032
365	30.12.2008 00:00	0	0	0	0	0	1035
366	31.12.2008 00:00s	0	0	0	0	0	

Note: The above data is based on average daily values. Specific cases like shut-downs and start-ups are evaluated case by case and where needed recalculations are made – see relevant Protocols for 2008.

Report for 2008 / 2009	JI Project – Nitric Oxide Reduction at Agropolychim JSC
Report name:	
Annual Monitoring Report for the Nitrous Oxide Reduction in the Project of the Fertilizers Plant Agropolychim JSCo, Devnya, Bulgaria	
Reported period 01.01.2008 – 31.12.2009	

Monitoring Data for the period 01.01.2009 - 31.12.2009

№	дата / час date / hour	N ₂ O изм. meas. mg/Nm ³	N ₂ O изм. meas. ppmv.	O ₂ (газ) O ₂ (gas) об.% Vol. %	Температура Temperatur e °C	Разход Flow Nm ³ /h	Налягане Pressure hPa
1	2	6	7	10	11	12	13
1	01.01.2009 00:00	0	0	0	0.4	0	1021
2	02.01.2009 00:00	0	0	0	0.7	0	1018
3	03.01.2009 00:00	0	0	0	0	0	1021
4	04.01.2009 00:00	0	0	0	0	0	1015
5	05.01.2009 00:00	0	0	0	0	0	1015
6	06.01.2009 00:00	0	0	0	0.3	0	1018
7	07.01.2009 00:00	0	0	0	0.1	0	1020
8	08.01.2009 00:00	0	0	0	0	0	1021
9	09.01.2009 00:00	0	0	0	0	0	1032
10	10.01.2009 00:00	0	0	0	0	0	1026
11	11.01.2009 00:00	0	0	0	0	0	1033
12	12.01.2009 00:00	0	0	0	0	0	1035
13	13.01.2009 00:00	0	0	0	0.3	0	1029
14	14.01.2009 00:00	0	0	0	3.2	0	1019
15	15.01.2009 00:00	0	0	0	7	0	1016
16	16.01.2009 00:00	0	0	0	4.3	0	1014
17	17.01.2009 00:00	0	0	0	2.1	0	1020
18	18.01.2009 00:00	0	0	0	0.6	0	1018
19	19.01.2009 00:00	0	0	0	2,9	0	1010
20	20.01.2009 00:00	0	0	0	4,5	0	1012
21	21.01.2009 00:00	0	0	0	8,1	0	1014

22	22.01.2009 00:00	0	0	0	9,1	0	1012
23	23.01.2009 00:00	0	0	0	9,4	0	997
24	24.01.2009 00:00	126.4	64.5	0.52	15,7	35783	991
25	25.01.2009 00:00	584.1	298	3.22	15,2	132456	996
26	26.01.2009 00:00	595.5	303.8	3.49	12.8	139282	999
27	27.01.2009 00:00	630	321.4	3.82	10,7	144780	1011
28	28.01.2009 00:00	627.3	320.1	3.78	11,1	144188	1006
29	29.01.2009 00:00	631.7	322.3	3.86	10,7	144446	1008
30	30.01.2009 00:00	631.7	322.3	3.94	9,6	145276	1012
31	31.01.2009 00:00	639.4	326.2	3.99	9,4	145924	1016
32	01.02.2009 00:00	645.3	329.2	4.01	9,2	146483	1020
33	02.02.2009 00:00	616.5	314.5	4.46	9,3	146343	1025
34	03.02.2009 00:00	698.3	356.3	3.16	12,6	144348	1021
35	04.02.2009 00:00	749.5	382.4	2.27	17,1	142272	1009
36	05.02.2009 00:00	753.9	384.6	2.28	16,8	143426	1007
37	06.02.2009 00:00	645	329.1	1.97	16	138103	966
38	07.02.2009 00:00	761.7	388.6	2.27	16,7	143651	1005
39	08.02.2009 00:00	769.1	392.4	2.23	17,7	142705	998
40	09.02.2009 00:00	755.1	385.3	2.33	16,3	143030	1001
41	10.02.2009 00:00	772.5	394.1	2.4	15,8	144679	1009
42	11.02.2009 00:00	774.9	395.4	2.34	16,7	143775	1003
43	12.02.2009 00:00	771.6	393.7	2.3	17,1	143002	998
44	13.02.2009 00:00	775.4	395.6	2.38	15,9	144184	1004
45	14.02.2009 00:00	790.5	403.3	2.51	15,4	144502	1006
46	15.02.2009 00:00	804.9	410.7	2.55	15,3	145052	1012
47	16.02.2009 00:00	813.9	415.3	2.55	14,9	145797	1017
48	17.02.2009 00:00	811	413.8	2.54	15,1	145194	1017
49	18.02.2009 00:00	813.2	414.9	2.42	15,5	144323	1013
50	19.02.2009 00:00	823.8	420.3	2.38	16,9	143213	1008
51	20.02.2009 00:00	815.8	416.2	2.4	16	143371	1007
52	21.02.2009 00:00	831.9	424.4	2.54	14,7	145046	1019
53	22.02.2009 00:00	838.5	427.8	2.59	14,8	145314	1020
54	23.02.2009 00:00	837.3	427.2	2.57	15,2	144927	1017
55	24.02.2009 00:00	847.6	432.4	2.57	15,4	144983	1018
56	25.02.2009 00:00	860	438.8	2.62	15	145686	1025
57	26.02.2009 00:00	850.1	433.7	2.58	15,1	145201	1020
58	27.02.2009 00:00	841.3	429.2	2.47	15,9	144155	1013
59	28.02.2009 00:00	852.3	434.8	2.45	16,4	144085	1014
60	01.03.2009 00:00	864.3	441	2.46	16,2	144602	1018
61	02.03.2009 00:00	868.5	443.1	2.47	15,7	144789	1019
62	03.03.2009 00:00	876.4	447.1	2.45	16,1	144743	1019
63	04.03.2009 00:00	880.3	449.1	2.41	16.40	144293	1017
64	05.03.2009 00:00	855.2	436.3	2.55	16.4	142623	1005
65	06.03.2009 00:00	883.7	450.9	2.24	18.3	141630	996
66	07.03.2009 00:00	916.5	467.6	2.31	16.6	142761	996

67	08.03.2009 00:00	924.1	471.5	2.43	16.2	143491	1002
68	09.03.2009 00:00	937.6	478.4	2.52	15.1	144698	1005
69	10.03.2009 00:00	929.4	474.2	2.46	14.7	144829	1006
70	11.03.2009 00:00	869.3	443.5	3	13.7	147976	1017
71	12.03.2009 00:00	893.5	455.9	2.41	15.4	148020	1017
72	13.03.2009 00:00	925.3	472.1	2.33	15.4	146569	1013
73	14.03.2009 00:00	926.3	472.6	2.72	14.1	145795	1014
74	15.03.2009 00:00	900.9	459.6	2.71	14.4	146048	1020
75	16.03.2009 00:00	908.5	463.5	2.71	14.3	146350	1022
76	17.03.2009 00:00	856.4	436.9	2.56	15.8	140197	1023
77	18.03.2009 00:00	557.3	284.3	1.58	22.8	92526	1012
78	19.03.2009 00:00	936.4	477.8	2.46	15.4	144951	1013
79	20.03.2009 00:00	952.4	485.9	2.54	15.4	145787	1021
80	21.03.2009 00:00	952.9	486.2	2.51	15.7	145561	1019
81	22.03.2009 00:00	946.1	482.7	2.46	16.4	144367	1010
82	23.03.2009 00:00	934.1	476.6	2.4	16.4	143840	1005
83	24.03.2009 00:00	938.7	478.9	2.41	17.3	143184	1001
84	25.03.2009 00:00	931.6	475.3	2.34	17	143380	1001
85	26.03.2009 00:00	945.5	482.4	2.43	16.3	144620	1010
86	27.03.2009 00:00	953.4	486.4	2.48	16.2	145157	1015
87	28.03.2009 00:00	970.8	495.3	2.49	16.3	145564	1019
88	29.03.2009 00:00	979.5	499.7	2.46	16.2	145514	1019
89	30.03.2009 00:00	975.8	497.9	2.36	17.4	144561	1016
90	31.03.2009 00:00	976.9	498.4	2.26	18.1	144379	1018
91	01.04.2009 00:00	993.7	507	2.3	17.4	145159	1021
92	02.04.2009 00:00	1002.9	511.7	2.33	17.5	145386	1022
93	03.04.2009 00:00	1001.4	510.9	2.39	16.7	146032	1025
94	04.04.2009 00:00	980	500	2.34	17.2	145301	1021
95	05.04.2009 00:00	953.3	486.4	2.31	17.7	144777	1019
96	06.04.2009 00:00	988.6	504.4	2.37	16.8	145240	1016
97	07.04.2009 00:00	1004.5	512.5	2.32	16.8	144927	1014
98	08.04.2009 00:00	988.9	504.5	2.27	17.4	144783	1017
99	09.04.2009 00:00	1003.9	512.2	2.29	17.1	145227	1020
100	10.04.2009 00:00	1018.8	519.8	2.28	17.1	145218	1020
101	11.04.2009 00:00	1017.7	519.2	2.3	16.8	145409	1021
102	12.04.2009 00:00	1007.6	514.1	2.32	17.2	145317	1021
103	13.04.2009 00:00	1000.2	510.3	2.25	17.8	144463	1015
104	14.04.2009 00:00	1009.9	515.3	2.21	18.4	143519	1008
105	15.04.2009 00:00	1002.7	511.6	2.24	17.6	143943	1010
106	16.04.2009 00:00	1014.4	517.6	2.28	17.8	144275	1014
107	17.04.2009 00:00	1013.5	517.1	2.28	17.4	144644	1015
108	18.04.2009 00:00	1023.9	522.4	2.23	18	144332	1016
109	19.04.2009 00:00	1022.5	521.7	2.22	18.7	144212	1020
110	20.04.2009 00:00	1054	537.8	2.24	18	145119	1023
111	21.04.2009 00:00	1048.3	534.8	2.28	17.6	144977	1019

112	22.04.2009 00:00	1038.7	529.9	2.32	17	145035	1017
113	23.04.2009 00:00	338.2	172.6	0.77	20	48986	1017
114	24.04.2009 00:00	0	0	0	12.5	0	1018
115	25.04.2009 00:00	0	0	0	11.8	0	1018
116	26.04.2009 00:00	0	0	0	10.8	0	1022
117	27.04.2009 00:00	0	0	0	11.6	0	1020
118	28.04.2009 00:00	0	0	0	11.4	0	1014
119	29.04.2009 00:00	0	0	0	12.3	0	1007
120	30.04.2009 00:00	0	0	0	13.9	0	1003
121	01.05.2009 00:00	0	0	0	14.9	0	1004
122	02.05.2009 00:00	0	0	0	13.1	0	1012
123	03.05.2009 00:00	0	0	0	14	0	1016
124	04.05.2009 00:00	0	0	0	13.1	0	1011
125	05.05.2009 00:00	0	0	0	13.9	0	1009
126	06.05.2009 00:00	0	0	0	16.2	0	1011
127	07.05.2009 00:00	0	0	0	15.8	0	1011
128	08.05.2009 00:00	0	0	0	15.1	0	1017
129	09.05.2009 00:00	0	0	0	14.9	0	1018
130	10.05.2009 00:00	0	0	0	17.1	0	1019
131	11.05.2009 00:00	0	0	0	18.2	0	1016
132	12.05.2009 00:00	0	0	0	20	0	1012
133	13.05.2009 00:00	0	0	0	17.6	0	1014
134	14.05.2009 00:00	0	0	0	17.3	0	1014
135	15.05.2009 00:00	0	0	0	20.3	0	1011
136	16.05.2009 00:00	0	0	0	22	0	1011
137	17.05.2009 00:00	0	0	0	22.2	0	1014
138	18.05.2009 00:00	0	0	0	21.3	0	1016
139	19.05.2009 00:00	0	0	0	19.3	0	1017
140	20.05.2009 00:00	0	0	0	18.4	0	1016
141	21.05.2009 00:00	0	0	0	19.4	0	1015
142	22.05.2009 00:00	0	0	0	21.7	0	1014
143	23.05.2009 00:00	0	0	0	22.4	0	1011
144	24.05.2009 00:00	0	0	0	22.2	0	1015
145	25.05.2009 00:00	0	0	0	19.4	0	1013
146	26.05.2009 00:00	0	0	0	19.1	0	1014
147	27.05.2009 00:00	0	0	0	17.8	0	1017
148	28.05.2009 00:00	0	0	0	18.4	0	1017
149	29.05.2009 00:00	0	0	0	15.7	0	1015
150	30.05.2009 00:00	0	0	0	16.8	0	1017
151	31.05.2009 00:00	0	0	0	16.1	0	1020
152	01.06.2009 00:00	0	0	0	17.2	0	1016
153	02.06.2009 00:00	0	0	0	21	0	1007
154	03.06.2009 00:00	0	0	0	21.2	0	1002
155	04.06.2009 00:00	0	0	0	22.4	0	1005
156	05.06.2009 00:00	0	0	0	21	0	1010

157	06.06.2009 00:00	0	0	0	23	0	1010
158	07.06.2009 00:00	0	0	0	25.8	0	1009
159	08.06.2009 00:00	0	0	0	26.1	0	1010
160	09.06.2009 00:00	0	0	0	24	0	1014
161	10.06.2009 00:00	0	0	0	23.7	0	1014
162	11.06.2009 00:00	0	0	0	24.2	0	1010
163	12.06.2009 00:00	0	0	0	24.7	0	1007
164	13.06.2009 00:00	0	0	0	23.1	0	1013
165	14.06.2009 00:00	0	0	0	22	0	1017
166	15.06.2009 00:00	0	0	0	22.2	0	1019
167	16.06.2009 00:00	0	0	0	23.2	0	994
168	17.06.2009 00:00	0	0	0	24.1	0	994
169	18.06.2009 00:00	0	0	0	21.7	0	1020
170	19.06.2009 00:00	0	0	0	21.9	0	1019
171	20.06.2009 00:00	0	0	0	20.7	0	1013
172	21.06.2009 00:00	0	0	0	22.3	0	1008
173	22.06.2009 00:00	0	0	0	22.9	0	1005
174	23.06.2009 00:00	0	0	0	24.6	0	1005
175	24.06.2009 00:00	0	0	0	24.9	0	1004
176	25.06.2009 00:00	0	0	0	25.5	0	1003
177	26.06.2009 00:00	0	0	0	23.5	0	1005
178	27.06.2009 00:00	0	0	0	23.5	0	1006
179	28.06.2009 00:00	0	0	0	23	0	1008
180	29.06.2009 00:00	0	0	0	23.7	0	1009
181	30.06.2009 00:00	0	0	0	23.1	0	1011
182	01.07.2009 00:00	0	0	0	24.4	0	1013
183	02.07.2009 00:00	0	0	0	24.3	0	1012
184	03.07.2009 00:00	0	0	0	24.3	0	1006
185	04.07.2009 00:00	0	0	0	23.9	0	1003
186	05.07.2009 00:00	0	0	0	24.8	0	1003
187	06.07.2009 00:00	0	0	0	26.1	0	1005
188	07.07.2009 00:00	0	0	0	26.8	0	1007
189	08.07.2009 00:00	0	0	0	26.5	0	1007
190	09.07.2009 00:00	0	0	0	27	0	1008
191	10.07.2009 00:00	0	0	0	24.9	0	1009
192	11.07.2009 00:00	0	0	0	24.3	0	1007
193	12.07.2009 00:00	0	0	0	22	0	1005
194	13.07.2009 00:00	0	0	0	22	0	1009
195	14.07.2009 00:00	0	0	0	23.4	0	1012
196	15.07.2009 00:00	0	0	0	25.6	0	1014
197	16.07.2009 00:00	0	0	0	27.5	0	1012
198	17.07.2009 00:00	0	0	0	28	0	1009
199	18.07.2009 00:00	0	0	0	28.6	0	1007
200	19.07.2009 00:00	0	0	0	27.7	0	1006
201	20.07.2009 00:00	0	0	0	25.8	0	1014

202	21.07.2009 00:00	0	0	0	24.5	0	1016
203	22.07.2009 00:00	0	0	0	24.9	0	1016
204	23.07.2009 00:00	0	0	0	25.6	0	1015
205	24.07.2009 00:00	0	0	0	27.6	0	1011
206	25.07.2009 00:00	0	0	0	29.1	0	1008
207	26.07.2009 00:00	0	0	0	24.9	0	1011
208	27.07.2009 00:00	0	0	0	23.5	0	1015
209	28.07.2009 00:00	0	0	0	23	0	1016
210	29.07.2009 00:00	0	0	0	23.7	0	1015
211	30.07.2009 00:00	0	0	0	24.1	0	1014
212	31.07.2009 00:00	0	0	0	24.4	0	1012
213	01.08.2009 00:00	0	0	0	25	0	1012
214	02.08.2009 00:00	0	0	0	25.3	0	1014
215	03.08.2009 00:00	0	0	0	24.9	0	1013
216	04.08.2009 00:00	0	0	0	26	0	1010
217	05.08.2009 00:00	0	0	0	25.4	0	1010
218	06.08.2009 00:00	0	0	0	25.1	0	1009
219	07.08.2009 00:00	0	0	0	24.3	0	1010
220	08.08.2009 00:00	0	0	0	24.2	0	1012
221	09.08.2009 00:00	0	0	0	23.2	0	1015
222	10.08.2009 00:00	0	0	0	23.2	0	1017
223	11.08.2009 00:00	306.5	156.4	0.85	21.5	46549	996
224	12.08.2009 00:00	1005.8	513.2	2.83	18.7	139926	1018
225	13.08.2009 00:00	805.3	410.9	3.23	18.4	139532	1016
226	14.08.2009 00:00	750.4	382.9	3.31	19.5	140607	1016
227	15.08.2009 00:00	707.6	361	3.71	18.8	143327	1019
228	16.08.2009 00:00	727.1	371	3.44	19.2	143470	1020
229	17.08.2009 00:00	713.7	364.1	3.65	18	143717	1018
230	18.08.2009 00:00	707.6	361	3.83	17	143766	1017
231	19.08.2009 00:00	753.6	384.5	3.22	19.2	141389	1019
232	20.08.2009 00:00	770.2	393	3.27	19.6	142939	1024
233	21.08.2009 00:00	749	382.1	3.72	17.1	144875	1022
234	22.08.2009 00:00	741	378.1	3.82	17	144470	1017
235	23.08.2009 00:00	751.2	383.3	3.7	17.5	144271	1017
236	24.08.2009 00:00	770.7	393.2	3.69	17.6	144466	1016
237	25.08.2009 00:00	767	391.3	3.74	17.7	144354	1018
238	26.08.2009 00:00	747.4	381.3	3.98	16.5	144966	1021
239	27.08.2009 00:00	761.5	388.5	3.85	16.5	145057	1021
240	28.08.2009 00:00	716.2	365.4	4.03	16.4	135887	1017
241	29.08.2009 00:00	707.4	360.9	4.27	17.5	133661	1014
242	30.08.2009 00:00	670.4	342	4.89	16.9	134887	1016
243	31.08.2009 00:00	668.1	340.9	5.13	14.1	137019	1020
244	01.09.2009 00:00	705.2	359.8	4.54	13.9	136802	1022
245	02.09.2009 00:00	782.8	399.4	3.53	15.3	137545	1018
246	03.09.2009 00:00	809.7	413.1	3.28	17.4	137458	1014

247	04.09.2009 00:00	251.7	128.4	0.94	27.8	41001	990
248	05.09.2009 00:00	0	0	0	22.1	0	862
249	06.09.2009 00:00	0	0	0	23.8	11952	1013
250	07.09.2009 00:00	791.3	403.7	2.75	21.1	128106	1016
251	08.09.2009 00:00	864.4	441	3.15	18.2	142456	1017
252	09.09.2009 00:00	860.8	439.2	3.04	19.5	141817	1018
253	10.09.2009 00:00	877.3	447.6	2.83	20.5	142389	1018
254	11.09.2009 00:00	913.5	466.1	2.54	21.8	142892	1014
255	12.09.2009 00:00	903.4	460.9	2.57	21.1	142608	1012
256	13.09.2009 00:00	775.2	395.5	4.2	15.1	141788	1014
257	14.09.2009 00:00	654	333.7	5.52	13.6	133878	1017
258	15.09.2009 00:00	649.3	331.3	5.78	14.2	130545	1019
259	16.09.2009 00:00	796.7	406.5	4.27	16.6	137488	1019
260	17.09.2009 00:00	898.6	458.5	3.15	19.6	142352	1016
261	18.09.2009 00:00	897.1	457.7	3.04	20.8	141837	1015
262	19.09.2009 00:00	881.8	449.9	3.3	17.5	143786	1018
263	20.09.2009 00:00	287.1	146.5	1.31	22.6	51751	1018
264	21.09.2009 00:00	0	0	0	16.5	0	1019
265	22.09.2009 00:00	0	0	0	16	0	1021
266	23.09.2009 00:00	0	0	0	16.9	0	1023
267	24.09.2009 00:00	201.3	102.7	1.07	19	40475	1020
268	25.09.2009 00:00	755.4	385.4	4.62	14.2	137369	1019
269	26.09.2009 00:00	761.4	388.5	4.72	13.5	138237	1024
270	27.09.2009 00:00	749.8	382.6	4.95	12.1	139411	1027
271	28.09.2009 00:00	745.3	380.3	4.89	12.6	138878	1024
272	29.09.2009 00:00	731.7	373.3	4.92	13	136546	1016
273	30.09.2009 00:00	225.2	114.9	1.88	24.3	46430	1012
274	01.10.2009 00:00	0	0	0	20.9	0	1014
275	02.10.2009 00:00	0	0	0	20.9	0	1009
276	03.10.2009 00:00	0	0	0	19	0	1010
277	04.10.2009 00:00	0	0	0	14.8	0	1012
278	05.10.2009 00:00	0	0	0	16	0	1016
279	06.10.2009 00:00	0	0	0	15.5	0	998
280	07.10.2009 00:00	0	0	0	16.6	0	1019
281	08.10.2009 00:00	0	0	0	17	0	1017
282	09.10.2009 00:00	0	0	0	17.8	0	1014
283	10.10.2009 00:00	0	0	0	17.8	0	1016
284	11.10.2009 00:00	0	0	0	17.1	0	1012
285	12.10.2009 00:00	0	0	0	17.7	0	1006
286	13.10.2009 00:00	0	0	0	17.9	0	998
287	14.10.2009 00:00	0	0	0	9.3	0	1009
288	15.10.2009 00:00	0	0	0	6.7	0	1019
289	16.10.2009 00:00	0	0	0	8.8	0	1013
290	17.10.2009 00:00	0	0	0	8	0	1013
291	18.10.2009 00:00	0	0	0	12.2	5022	1012

292	19.10.2009 00:00	869.1	443.4	2.7	22.9	140112	1014
293	20.10.2009 00:00	827.9	422.4	2.53	20.7	118535	994
294	21.10.2009 00:00	477.5	243.6	2.51	16.7	84766	1019
295	22.10.2009 00:00	720.7	367.7	5.38	12.5	133372	1020
296	23.10.2009 00:00	695.3	354.7	5.61	13.4	129316	1016
297	24.10.2009 00:00	712.5	363.5	5.59	15	128306	1013
298	25.10.2009 00:00	822.6	419.7	4.86	14.8	135913	1018
299	26.10.2009 00:00	850.2	433.8	4.42	14.3	140168	1020
300	27.10.2009 00:00	947.6	483.5	3.45	16.2	143902	1017
301	28.10.2009 00:00	860.4	439	4.17	13.9	142040	1016
302	29.10.2009 00:00	750.8	383.1	4.78	13.1	132755	996
303	30.10.2009 00:00	732.6	373.8	5.2	19.8	129617	1020
304	31.10.2009 00:00	732	373.5	5.23	13	131539	1024
305	01.11.2009 00:00	716.1	365.4	5.08	10.8	129024	1001
306	02.11.2009 00:00	719.6	367.1	5.4	11.1	131441	1019
307	03.11.2009 00:00	712.7	363.6	5.38	12.3	129960	1009
308	04.11.2009 00:00	740.3	377.7	5.14	13.6	128795	1001
309	05.11.2009 00:00	752	383.7	5.21	13.1	129914	1012
310	06.11.2009 00:00	865.7	441.7	4.65	14.1	137595	1016
311	07.11.2009 00:00	855.7	436.6	4.58	14.5	139051	1014
312	08.11.2009 00:00	880.8	449.4	4.27	14.3	140547	1010
313	09.11.2009 00:00	977.6	498.8	3.6	16.2	143673	1013
314	10.11.2009 00:00	1002.7	511.6	3.12	18	144119	1009
315	11.11.2009 00:00	923.4	471.1	3.31	14.6	141219	1004
316	12.11.2009 00:00	827.9	422.4	4.86	10.1	141299	1010
317	13.11.2009 00:00	832.2	424.6	4.97	9.6	142526	1020
318	14.11.2009 00:00	833	425	5	9.8	143068	1024
319	15.11.2009 00:00	838.8	428	4.94	10.2	142126	1019
320	16.11.2009 00:00	835.9	426.5	4.88	10.3	141754	1019
321	17.11.2009 00:00	883.6	450.8	4.57	14.5	142532	1023
322	18.11.2009 00:00	901.7	460.1	4.38	12.3	143974	1024
323	19.11.2009 00:00	901.3	459.8	4.41	28.9	140346	1026
324	20.11.2009 00:00	967.9	493.8	3.78	37.2	140899	1028
325	21.11.2009 00:00	995.6	508	3.4	29.2	143708	1029
326	22.11.2009 00:00	999.7	510.1	3.36	32.4	142440	1023
327	23.11.2009 00:00	497	253.6	1.69	27.6	72534	1016
328	24.11.2009 00:00	867.6	442.7	2.69	20	138114	1017
329	25.11.2009 00:00	1012.3	516.5	3.22	15.8	145968	1020
330	26.11.2009 00:00	1016.4	518.6	3.37	15.1	146418	1021
331	27.11.2009 00:00	1020.7	520.8	3.08	15.7	145629	1018
332	28.11.2009 00:00	1038.2	529.7	2.87	16.5	145136	1017
333	29.11.2009 00:00	1051.6	536.5	2.89	16.2	145448	1019
334	30.11.2009 00:00	1052.9	537.2	2.91	16.5	145522	1020
335	01.12.2009 00:00	1069	545.4	2.86	17.9	144704	1018
336	02.12.2009 00:00	1063.8	542.8	2.83	17.5	144718	1016

337	03.12.2009 00:00	1037.3	529.2	3.04	16.3	144628	1011
338	04.12.2009 00:00	1033.8	527.4	3.13	16.1	144912	1012
339	05.12.2009 00:00	1052.1	536.8	3.01	15.6	144974	1014
340	06.12.2009 00:00	1049.8	535.6	3.1	13.7	145987	1019
341	07.12.2009 00:00	749.4	382.3	2.15	24.1	104578	1020
342	08.12.2009 00:00	0	0	0	50	0	1017
343	09.12.2009 00:00	0	0	0	50	0	1014
344	10.12.2009 00:00	297.7	151.9	2.57	35	137609	1019
345	11.12.2009 00:00	278.3	142	3.1	15.6	145491	1016
346	12.12.2009 00:00	257.8	131.5	3.05	15.3	145030	1013
347	13.12.2009 00:00	242	123.5	3.22	14.7	145755	1017
348	14.12.2009 00:00	243.5	124.2	3.03	15.6	146001	1022
349	15.12.2009 00:00	198.2	101.1	2.45	17.2	144064	1012
350	16.12.2009 00:00	231.6	118.2	2.6	16.2	143799	1004
351	17.12.2009 00:00	255.2	130.2	2.75	16	144247	1006
352	18.12.2009 00:00	256.7	131	2.75	15.5	143723	1002
353	19.12.2009 00:00	259.7	132.5	2.81	15.4	144369	1007
354	20.12.2009 00:00	264.1	134.7	2.64	16.7	143042	1000
355	21.12.2009 00:00	266.2	135.8	2.93	15.3	145632	1019
356	22.12.2009 00:00	277.8	141.7	2.58	16.2	145776	1020
357	23.12.2009 00:00	293.6	149.8	2.24	17.3	145039	1014
358	24.12.2009 00:00	299	152.6	2.2	17.8	144878	1015
359	25.12.2009 00:00	304.2	155.2	2.16	18.8	143969	1010
360	26.12.2009 00:00	305.5	155.9	2.22	17.8	144694	1010
361	27.12.2009 00:00	305	155.6	2.15	18.4	144206	1007
362	28.12.2009 00:00	192.8	98.4	1.4	23.3	101233	1002
363	29.12.2009 00:00	298.6	152.3	2.4	16.7	144118	1011
364	30.12.2009 00:00	303.4	154.8	2.35	16.8	144894	1012
365	31.12.2009 00:00	307.5	156.9	2.18	17	143612	1003

Note: The above data is based on average daily values. Specific cases like shut-downs and start-ups are evaluated case by case and where needed recalculations are made - see relevant Protocols for 2009.



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Annex II

N₂O Emission Reduction for the period 01.01.2008 - 31.12.2008

MONITORING PLAN - EMISSION OF N₂O

AGROPOLYCHIM JSC, BULGARIA

Nitric Acid Plant

DATE: 2008y.

Period	Production of 100 % HNO ₃ [ton]	N ₂ O emission [kg]	Emission factor calc. [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N ₂ O [kg]	Emission reduction CO ₂ [eq. ton]	Corrections reduction CO ₂ [eq. ton]
1	2	3	4	5	6	7	8
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000	
01.01.2008 - 06.01.2008	6662.53	14528.8	2.18	5.54	22381.62	6938.3	
07.01.2008 - 13.01.2008	7124.12	15316.42	2.15	5.54	24151.2	7486.87	
14.01.2008 - 20.01.2008	8222.29	20082.39	2.44	5.54	25469.1	7895.42	
21.01.2008 - 27.01.2008	8210.23	19393.43	2.36	5.54	26091.24	8088.29	+24.84
28.01.2008 - 31.01.2008	4678.52	11153.6	2.38	5.54	14765.4	4577.27	
01.02.2008 - 03.02.2008	3503.41	8733.3	2.49	5.54	10675.59	3309.43	
04.02.2008 - 10.02.2008	8195.07	20483.41	2.5	5.54	24917.28	7724.36	
11.02.2008 - 17.02.2008	6844.91	15973.76	2.33	5.54	21947.04	6803.58	+14.76
18.02.2008 - 24.02.2008	8152.84	20161.74	2.47	5.54	25004.99	7751.55	
25.02.2008 - 29.02.2008	5851.73	14804.6	2.53	5.54	17613.98	5460.34	
01.03.2008 - 02.03.2008	2325.14	5883.74	2.53	5.54	6997.54	2169.24	
03.03.2008 - 09.03.2008	7480.78	18855.38	2.52	5.54	22588.14	7002.32	

10.03.2008 - 16.03.2008	7773.6	21095.49	2.71	5.54	21970.25	6810.78	
17.03.2008 - 23.03.2008	8054.21	22528.81	2.8	5.54	22091.51	6848.37	
24.03.2008 - 30.03.2008	8106.45	23212.26	2.86	5.54	21697.47	6726.22	
31.03.2008 - 31.03.2008	1162.42	3414.81	2.94	5.54	3025	937.75	
01.04.2008 - 06.04.2008	6895.71	20508.31	2.97	5.54	17693.92	5485.12	+39.33
07.04.2008 - 13.04.2008	7635.55	23879.21	3.13	5.54	18421.74	5710.74	+ 225.1
14.04.2008 - 20.04.2008	7935.57	25964.71	3.27	5.54	17998.35	5579.49	
21.04.2008 - 27.04.2008	8020.52	27941.83	3.48	5.54	16491.85	5112.47	
28.04.2008 - 30.04.2008	3073.78	9982.28	3.25	5.54	7046.46	2184.4	
01.05.2008 - 04.05.2008	3610.52	11091.56	3.07	5.54	8910.72	2762.32	
05.05.2008 - 11.05.2008	6902.09	22820.98	3.31	5.54	15416.6	4779.15	
12.05.2008 - 18.05.2008	7159.11	21376.39	2.99	5.54	18285.08	5668.37	
19.05.2008 - 25.05.2008	6176.67	17213.74	2.79	5.54	17005.01	5271.55	-26.87
26.05.2008 - 31.05.2008	5574.6	15683.75	2.81	5.54	15199.53	4711.86	
01.06.2008 - 01.06.2008	928.12	2688.7	2.9	5.54	2453.08	760.46	
02.06.2008 - 08.06.2008	6664.55	19894.27	2.99	5.54	17027.34	5278.47	
09.06.2008 - 15.06.2008	5680.75	17327.3	3.05	5.54	14144.06	4384.66	
16.06.2008 - 22.06.2008	0	0	0	5.54	0	0	
23.06.2008 - 29.06.2008	0	0	0	5.54	0	0	
30.06.2008 - 30.06.2008	0	0	0	5.54	0	0	
01.07.2008 - 06.07.2008	2505.33	9169.65	3.66	5.54	4709.88	1460.06	+102.4
07.07.2008 - 13.07.2008	7722.38	27244.22	3.53	5.54	15537.77	4816.71	
14.07.2008 - 20.07.2008	1276.89	4502.95	3.53	5.54	2571.02	797.02	-39.8
21.07.2008 - 27.07.2008	0	0	0	5.54	0	0	
28.07.2008 - 31.07.2008	0	0	0	5.54	0	0	
01.08.2008 - 03.08.2008	0	0	0	5.54	0	0	
04.08.2008 - 10.08.2008	0	0	0	5.54	0	0	
11.08.2008 - 17.08.2008	0	0	0	5.54	0	0	
18.08.2008 - 24.08.2008	0	0	0	5.54	0	0	
25.08.2008 - 31.08.2008	3274.23	1129.07	0.34	5.54	17010.16	5273.15	+7
01.09.2008 - 07.09.2008	7489.59	2880.39	0.38	5.54	38611.94	11969.7	

08.09.2008 - 14.09.2008	7483.91	4441.6	0.59	5.54	37019.26	11475.97	
15.09.2008 - 21.09.2008	7652.46	6008.57	0.79	5.54	36386.06	11279.68	
22.09.2008 - 28.09.2008	6448.28	6790.73	1.05	5.54	28932.74	8969.15	-22.6
29.09.2008 - 30.09.2008	2222.13	2584.66	1.16	5.54	9725.94	3015.04	
01.10.2008 - 05.10.2008	5472.4	7086.25	1.29	5.54	23230.85	7201.56	
06.10.2008 - 12.10.2008	6311.29	8282.27	1.31	5.54	26682.28	8271.51	
13.10.2008 - 19.10.2008	5402.5	8299.72	1.54	5.54	21630.13	6705.34	-17.7
20.10.2008 - 26.10.2008	7379.17	13169.56	1.78	5.54	27711.04	8590.42	
27.10.2008 - 31.10.2008	4874.54	8441.19	1.73	5.54	18563.76	5754.77	
01.11.2008 - 02.11.2008	1869.86	3439.87	1.84	5.54	6919.15	2144.94	
03.11.2008 - 09.11.2008	6557.07	12843.12	1.96	5.54	23483.05	7279.74	
10.11.2008 - 16.11.2008	3943.36	7763.89	1.97	5.54	14082.32	4365.52	
17.11.2008 - 23.11.2008	0	0	0	5.54	0	0	
24.11.2008 - 30.11.2008	0	0	0	5.54	0	0	
01.12.2008 - 07.12.2008	0	0	0	5.54	0	0	
08.12.2008 - 14.12.2008	0	0	0	5.54	0	0	
15.12.2008 - 21.12.2008	0	0	0	5.54	0	0	
22.12.2008 - 28.12.2008	0	0	0	5.54	0	0	
29.12.2008 - 31.12.2008	0	0	0	5.54	0	0	
Corrections							+306.46
TOTAL after recalculation	266491.2	623863.9	2.36	5.54	852 497.3	264 274.2	
TOTAL after corrections						264 578.66	
Validated by: Dep. Exe Dir. Kr. Berbenkov							



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Notes:

1. In order to ensure the necessary authenticity of the monitoring data and elimination of the abnormal emission levels detected at a start-up and a shut-down of the Nitric Acid Plant in the monitoring system was integrated a filter, based on the indicative for the operation of the plant index “flow rate of the effluent gasses”. At a limit value of the flow rate $< 90\,000\text{ Nm}^3/\text{h}$ these abnormal emissions are excluded/ filtered (made equal to zero) and the same participate when making the calculations.
2. All data has been manually recalculated to ensure compliance with data management procedures
3. During the period 16.7.2008(9:00h) -29.8.2008 (4:00h) the pant was in annual planned shut-down. The data were corrected and described in protocol No. 06/2008, attached in Annex III.
4. The plant was stopped for repair. The stops and the data corrections are described as follow:
 - 12.01.2008 (12:00h - 13:00h) and described in protocol No.01/2008 (see Annex III)
 - 15.02.2008 (23:00h) – 17.02.2008 (2:00h) and described in protocol No.02/2008 (see Annex III)
 - 21.05.2008 (5:00h - 15:00h) and described in protocol No.04/2008 (see Annex III)
 - 4.07.2008 (00:00h) - 15.07.2008 (03:00h) and described in protocol No.05/2008 (see Annex III)
 - 24.09.2008 (2:00h) – 25.09.2008 (7:00h) and described in protocol No. 07/2008 (see Annex III)
 - 15.10.2008 (23:00h) – 17.10.2008 (7:30h) and described in protocol No. 08/2008 (see Annex III)
5. The data were not recorded because of the maintence of the continuous monitoring system for NOx emissions. The data were replaced according to the procedure for the correcting of false-recorded data from the continuous monitoring system for NOx emissions from the nitric acid plant (attached in Annex III):
 - 08.04.2008 (10:30h - 14:30h) and described in protocol No.03/2008 (see Annex III)
 - 09.04.2008 (11:30h – 13:30h) and described in protocol No. 3/2008 (see Annex III)
6. The data were not recorded because of the error of the continuous monitoring system for NOx emissions. The data were replaced according to the procedure for the correcting of false-recorded data from the continuous monitoring system for NOx emissions from the nitric acid plant (attached in Annex III):
 - 01.04.2008 (7:30h - 8:30h) and described in protocol No.03/2008 (see Annex III)



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N₂O Emission Reduction for the period 01.01.2009 - 31.12.2009

MONITORING PLAN - EMISSION OF N₂O

AGROPOLYCHIM JSC, BULGARIA Nitric Acid Plant

DATE: 2009 y

Period	Production of 100 % HNO ₃ [ton]	N ₂ O emission [kg]	Emission factor calc. [kg/ton]	Emission factor baseline [kg/ton]	N ₂ O Emission reduction [kg]	CO ₂ Emission reduction [eq. ton]	Correction CO ₂ reduction [eq. ton]
1	2	3	4	5	6	7	8
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000	
01.01.2009 - 04.01.2009	0	0	0	5.54	0	0	
05.01.2009 - 11.01.2009	0	0	0	5.54	0	0	
12.01.2009 - 18.01.2009	0	0	0	5.54	0	0	
19.01.2009 - 25.01.2009	1047,99	2270,64	2,17	5.54	3535,22	1095,92	
26.01.2009 - 31.01.2009	5987,22	12977,56	2,17	5.54	20191,64	6259,41	
01.02.2009 - 01.02.2009	1010,06	2268,61	2,25	5.54	3327,12	1031,41	
02.02.2009 - 08.02.2009	7327,88	17293,36	2,36	5.54	23303,1	7223,96	+155.8
09.02.2009 - 15.02.2009	7680,41	18822,23	2,45	5.54	23727,24	7355,44	
16.02.2009 - 22.02.2009	7663,05	19949,33	2,6	5.54	22503,97	6976,23	
23.02.2009 - 28.02.2009	6562,83	17688,27	2,7	5.54	18669,81	5787,64	
01.03.2009 - 01.03.2009	1094,55	2999,59	2,74	5.54	3064,22	949,91	
02.03.2009 - 08.03.2009	7603,49	21365,38	2,81	5.54	20757,95	6434,97	
09.03.2009 - 15.03.2009	7773,63	22405,81	2,88	5.54	20660,1	6404,63	

16.03.2009 - 22.03.2009	7182,67	21308,49	2,97	5.54	18483,5	5729,89	- 3.3
23.03.2009 - 29.03.2009	7728,58	23069,1	2,98	5.54	19747,23	6121,64	
30.03.2009 - 31.03.2009	2214,99	6770,8	3,06	5.54	5500,24	1705,08	
01.04.2009 - 05.04.2009	5589,18	17199,91	3,08	5.54	13764,15	4266,89	
06.04.2009 - 12.04.2009	7829,47	24491,43	3,13	5.54	18883,83	5853,99	
13.04.2009 - 19.04.2009	7802,07	24527,42	3,14	5.54	18696,05	5795,77	
20.04.2009 - 26.04.2009	3729,04	12111,36	3,25	5.54	8547,52	2649,73	
27.04.2009 - 30.04.2009	0	0	0	5.54	0	0	
01.05.2009 - 03.05.2009	0	0	0	5.54	0	0	
04.05.2009 - 10.05.2009	0	0	0	5.54	0	0	
11.05.2009 - 17.05.2009	0	0	0	5.54	0	0	
18.05.2009 - 24.05.2009	0	0	0	5.54	0	0	
25.05.2009 - 31.05.2009	0	0	0	5.54	0	0	
01.06.2009 - 07.06.2009	0	0	0	5.54	0	0	
08.06.2009 - 14.06.2009	0	0	0	5.54	0	0	
15.06.2009 - 21.06.2009	0	0	0	5.54	0	0	
22.06.2009 - 28.06.2009	0	0	0	5.54	0	0	
29.06.2009 - 30.06.2009	0	0	0	5.54	0	0	
01.07.2009 - 05.07.2009	0	0	0	5.54	0	0	
06.07.2009 - 12.07.2009	0	0	0	5.54	0	0	
13.07.2009 - 19.07.2009	0	0	0	5.54	0	0	
20.07.2009 - 26.07.2009	0	0	0	5.54	0	0	
27.07.2009 - 31.07.2009	0	0	0	5.54	0	0	
01.08.2009 - 02.08.2009	0	0	0	5.54	0	0	
03.08.2009 - 09.08.2009	0	0	0	5.54	0	0	
10.08.2009 - 16.08.2009	5348,2	14673,42	2,74	5.54	14955,61	4636,24	+ 84
17.08.2009 - 23.08.2009	7249,23	17878,31	2,47	5.54	22282,42	6907,55	
24.08.2009 - 30.08.2009	6843,31	17330,17	2,53	5.54	20581,77	6380,35	
31.08.2009 - 31.08.2009	871,15	2197,18	2,52	5.54	2628,99	814,99	
01.09.2009 - 06.09.2009	3149,42	8407,71	2,67	5.54	9040,08	2802,42	
07.09.2009 - 13.09.2009	6096,37	20309,66	3,33	5.54	13464,23	4173,91	+ 50.7

14.09.2009 - 20.09.2009	6078,98	16865,34	2,77	5.54	16812,21	5211,78	- 42,1
21.09.2009 - 27.09.2009	2917,91	8270,08	2,83	5.54	7895,14	2447,49	+ 35.2
28.09.2009 - 30.09.2009	2060,21	5604,65	2,72	5.54	5808,91	1800,76	
01.10.2009 - 04.10.2009	0	0	0	5.54	0	0	
05.10.2009 - 11.10.2009	0	0	0	5.54	0	0	
12.10.2009 - 18.10.2009	0	0	0	5.54	0	0	
19.10.2009 - 25.10.2009	5577,65	16550,34	2,97	5.54	14349,84	4448,45	+ 91.93
26.10.2009 - 31.10.2009	5571,84	16099,05	2,89	5.54	14768,94	4578,37	
01.11.2009 - 01.11.2009	823,14	2312,87	2,81	5.54	2247,33	696,67	+ 14.5
02.11.2009 - 08.11.2009	6066,94	17761,25	2,93	5.54	15849,6	4913,38	
09.11.2009 - 15.11.2009	7059,31	21337,09	3,02	5.54	17771,49	5509,16	
16.11.2009 - 22.11.2009	7291,69	22140,01	3,04	5.54	18255,95	5659,35	
23.11.2009 - 29.11.2009	7130,91	22682,53	3,18	5.54	16822,71	5215,04	+ 6.3
30.11.2009 - 30.11.2009	1136,3	3677,45	3,24	5.54	2617,71	544,20	
01.12.2009 - 06.12.2009	6750,44	21942,15	3,25	5.54	15455,29	4791,14	
07.12.2009 - 13.12.2009	5115,06	6352,45	1,24	5.54	21984.98	6815,34	+ 10.6
14.12.2009 - 20.12.2009	7751,31	5947,54	0,77	5.54	36994.72	11468.36	+ 136.7
21.12.2009 - 27.12.2009	8060,26	7132,83	0,88	5.54	37521,01	11631,51	
28.12.2009 - 31.12.2009	4079,22	3804,55	0,93	5.54	18794.33	5826.24	- 55.39
Corrections							+ 541.67
TOTAL after recalculation	208 856	544542.4	2.6	5.54	612519.8	189 881.2	
TOTAL after corrections						190 422.87	
Validated by: Dep. Exe Dir. Kr. Berbenkov							



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Notes:

7. In order to ensure the necessary authenticity of the monitoring data and elimination of the abnormal emission levels detected at a start-up and a shut-down of the Nitric Acid Plant in the monitoring system was integrated a filter, based on the indicative for the operation of the plant index “flow rate of the effluent gasses”. At a limit value of the flow rate $< 90\,000\text{ Nm}^3/\text{h}$ these abnormal emissions are excluded/ filtered (made equal to zero) and the same participate when making the calculations.
8. All data has been manually recalculated to ensure compliance with data management procedures
9. During the period 23.04.2009 (12:00h) - 11.08.2009 (12:00h) the plant was in annual planned shut-down. The data were corrected and described in protocol No. 03/2009, attached in Annex III.
10. The plant was stopped for repair. The stops and the data corrections are described as follow:
 - 17.03.2009 (23:00h) until 18.03.2009 (10:00h) and described in protocol No.02/2009 (see Annex III)
 - 04.09.2009 (07:00h) – 07.09.2009 (03:30h), 20.09.2009 (08:00h) – 24.09.2009 (18:30h) and described in protocol No.04/2009 (see Annex III)
 - 19.10.2009 (02:30h) and 21.10.2009 (10:30h) described in protocol No.05/2009 (see Annex III)
 - 24.11.2009 (03:00h) described in protocol No.06/2009 (see Annex III)
 - 10.12.2009 (03:30h) and 28.12.2009 (20:30h) described in protocol No. 07/2009 (see Annex III)
11. The data were not recorded because of the maintainance of the continuous monitoring system for NO_x emissions. The data were replaced according to the procedure for the correcting of false-recorded data from the continuous monitoring system for NO_x emissions from the nitric acid plant (attached in Annex III):
 - 06.02.2009 (08:30h - 09:00h, 19:30 – 22:30h) and described in protocol No.01/2009 (see Annex III)
 - 12.08.2009 (00:00h – 17:30h) described in protocol No. 3/2009 (see Annex III)
 - 19.10.2009 (13:30 – 15:00h), 20.10.2009 (09:00 – 10:00h) and 29.10.2009 (08:30 – 09:00h) described in protocol No 05 / 2009 (see Annex III)
 - 01.11.2009 (20:00 – 20:30 h) and 24.11.2009 (09:00h) described in protocol No 06 / 2009 (see Annex III)
 - 10.12.2009 (09:30 – 10:00h), 15.12.2009 (09:11:00h and 13:00 – 14:30h), 16.12.2009 (09:00 – 10:30h) described in protocol No 07 / 2009 (see Annex III)

All above given corrections and the procedure for making them is in accordance with previous audit requirements from DNV. Corrections are needed in order to assure that the data and the results are presented in the most correct and transparent way. Corrections are done in cases when the online analyser data is distorted for technical reasons (0 values or minus values) during normal operation or start-up of the nitric acid plant.



Report for 2008 / 2009	JI Project – Nitrous Oxide Reduction at Agropolychim Fertilizer Plant
Report name:	
Annual Monitoring Report for the Nitrous Oxide Reduction in the Project of the Fertilizers Plant Agropolychim JSCo, Devnya, Bulgaria	
Reported period 01.01.2008 – 31.12.2009	

Emission reduction summary, 2008 _ 2009

period	base line emission factor	Calculated. emission factor	JI project emission	Loss	emission reduction	JI project emission reduction
	kg N ₂ O / t HNO ₃ 100%	kg N ₂ O / t HNO ₃ 100%	kg N ₂ O / y	kg N ₂ O/ y	kg N ₂ O / y	t CO ₂ / y
2008	5,54	2,35	626 072,68	0	850 288,46	263 895,882
2009	5,54	2,6	546 426,64	0	610 635,38	189 781,907
for both years	5,54	2,475	1 172 499,32	0	1 460 923,84	453 677,789

Annex III
Protocols for the data corrections 2008



AGROPOLYCHIM

Member of the Acid & Fertilizers Group

Industrial zone, Devnya 9160, tel.: 052/ 661 526, fax: 052/ 661 594, www.agropolychim.bg

Confirmed:

Vice CEO
(eng. Kr. Berbenkov)

PROCEDURE

for the correcting of false-recorded data from the continuous monitoring
system for NO_x emissions from the nitric acid plant

1. This procedure applies for that cases in that the values of some of the data required for the report preparing for the emission reduction of nitrous oxide on DEPA are not correct recorded by technical causes.
2. The data that differ more than 3% from the mean data for the corresponding parameter from the last 6 hours are checked, under condition that the productivity of the plant was not changed. By the check obligatory all the data are taking into account, archived in the continuous monitoring system.
3. The correction of the data was calculated by the expression:
$$X = \Delta \cdot t,$$
where:
X – correction of the data for period t. It is added or subtracted in dependence of the deviation
 Δ – the deviation of the parameter from the mean value for the last 6 hours
t – the time of the recorded deviation, h
4. A protocol was composed for the deviation documentation.

drafted by:

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms

5.10.2007



AGROPOLYCHIM

Member of the Acid & Fertilizers Group

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Confirmed:

Vice CEO
(eng. Kr. Berbenkov)

Protocol No.01/2008

The gas analyzer was stopped for the technical maintenance on the 24th of January 2008 from 12:00 to 13:00. During the period the plant worked under normal working conditions and a change of the NOx emission is not expected. The data were corrected in accordance with the procedure for the correcting of false-recorded data from the continuous monitoring system for NOx emissions from the nitric plant using the data from the previous one hour normal work of the plant.

The data for the 24.01.2008 are presented in table 1.

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms

R. Gavrilov

1

Table 1

Day	Production of 100 % HNO3	N2O emission	Emission factor actual	Emission factor baseline	Emission reduction N2O	Emission reduction CO2	Corrected emission reduction N2O	Corrected emission reduction CO2
	[ton]	[kg]	[kg/ton]	[kg/ton]	[kg]	[eq. ton]	[kg]	[eq. ton]
1/24/2008 0:00	49.2	121.91	2.48	5.54	150.66	46.7	150.66	46.7
1/24/2008 0:30	49.1	121.29	2.47	5.54	150.72	46.72	150.72	46.72
1/24/2008 1:00	49.29	117.63	2.39	5.54	155.44	48.19	155.44	48.19
1/24/2008 1:30	49.08	115.96	2.36	5.54	155.94	48.34	155.94	48.34
1/24/2008 2:00	49.1	116.23	2.37	5.54	155.78	48.29	155.78	48.29
1/24/2008 2:30	49.17	116.24	2.36	5.54	156.16	48.41	156.16	48.41
1/24/2008 3:00	49.23	116.4	2.36	5.54	156.33	48.46	156.33	48.46
1/24/2008 3:30	49.19	116.02	2.36	5.54	156.49	48.51	156.49	48.51
1/24/2008 4:00	49.28	116.24	2.36	5.54	156.77	48.6	156.77	48.6
1/24/2008 4:30	49.36	116.24	2.35	5.54	157.21	48.74	157.21	48.74
1/24/2008 5:00	49.31	115.91	2.35	5.54	157.27	48.75	157.27	48.75
1/24/2008 5:30	49.18	116.29	2.36	5.54	156.17	48.41	156.17	48.41
1/24/2008 6:00	49.33	115.93	2.35	5.54	157.36	48.78	157.36	48.78
1/24/2008 6:30	49.35	116	2.35	5.54	157.4	48.79	157.4	48.79
1/24/2008 7:00	49.39	115.3	2.33	5.54	158.32	49.08	158.32	49.08
1/24/2008 7:30	49.31	113.84	2.31	5.54	159.34	49.39	159.34	49.39
1/24/2008 8:00	49.33	113.5	2.3	5.54	159.79	49.53	159.79	49.53
1/24/2008 8:30	49.25	115.4	2.34	5.54	157.45	48.81	157.45	48.81
1/24/2008 9:00	49.22	116.37	2.36	5.54	156.31	48.46	156.31	48.46
1/24/2008 9:30	49.1	116.67	2.38	5.54	155.34	48.16	155.34	48.16
1/24/2008 10:00	49.15	116.83	2.38	5.54	155.46	48.19	155.46	48.19
1/24/2008 10:30	49.07	117.14	2.39	5.54	154.71	47.96	154.71	47.96
1/24/2008 11:00	49.15	117.51	2.39	5.54	154.78	47.98	154.78	47.98

1/24/2008 11:30	48.97	116.32	2.38	5.54	154.97	48.04	154.97	48.04
1/24/2008 12:00	49.04	115.67	2.36	5.54	156.01	48.36	156.01	48.36
1/24/2008 12:30	0	0	0	5.54	0	0	154.78	47.98
1/24/2008 13:00	0	0	0	5.54	0	0	154.97	48.04
1/24/2008 13:30	75.82	114.54	1.51	5.54	305.5	94.71	156.01	48.36
1/24/2008 14:00	49.08	116.48	2.37	5.54	155.42	48.18	155.42	48.18
1/24/2008 14:30	48.89	116.73	2.39	5.54	154.12	47.78	154.12	47.78
1/24/2008 15:00	48.91	116.76	2.39	5.54	154.2	47.8	154.2	47.8
1/24/2008 15:30	49.06	116.08	2.37	5.54	155.71	48.27	155.71	48.27
1/24/2008 16:00	49.66	116.34	2.34	5.54	158.78	49.22	158.78	49.22
1/24/2008 16:30	48.56	117.1	2.41	5.54	151.92	47.1	151.92	47.1
1/24/2008 17:00	48.87	117.11	2.4	5.54	153.63	47.63	153.63	47.63
1/24/2008 17:30	48.97	116.85	2.39	5.54	154.44	47.88	154.44	47.88
1/24/2008 18:00	49.01	117.23	2.39	5.54	154.29	47.83	154.29	47.83
1/24/2008 18:30	48.94	117.51	2.4	5.54	153.62	47.62	153.62	47.62
1/24/2008 19:00	48.99	117.93	2.41	5.54	153.47	47.58	153.47	47.58
1/24/2008 19:30	49	117.29	2.39	5.54	154.17	47.79	154.17	47.79
1/24/2008 20:00	49.07	117.32	2.39	5.54	154.53	47.9	154.53	47.9
1/24/2008 20:30	49.09	116.83	2.38	5.54	155.13	48.09	155.13	48.09
1/24/2008 21:00	49.29	116.57	2.36	5.54	156.5	48.51	156.5	48.51
1/24/2008 21:30	49.25	116.91	2.37	5.54	155.94	48.34	155.94	48.34
1/24/2008 22:00	49.2	116.74	2.37	5.54	155.83	48.31	155.83	48.31
1/24/2008 22:30	49.13	116.48	2.37	5.54	155.7	48.27	155.7	48.27
1/24/2008 23:00	49.24	116.32	2.36	5.54	156.47	48.51	156.47	48.51
1/24/2008 23:30	49.11	116.37	2.37	5.54	155.7	48.27	155.7	48.27
TOTAL:	1143.65	2682.17	2.30	5.54	3653.63	1132.62	3733.76	1157.46

Verified,
Vice Exe Director
Eng. Kr. Berbenkov:



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Confirmed:
Vice CEO
(eng. Kr. Berbenkov)

Protocol No.02/2008


The nitric acid plant was stopped because of an inadmissible temperature of the bearing of the stream turbine outlet. At 23:24 on the 15.02.2008 the bearing temperature began to increase from 107°C to 117°C (the blocking temperature for the bearing is 115°C). The blocking system was activated and the shut down of the nitric acid plant was initialized. More details are given in the average report № 11/2008. The plant was started at 1:50 on the 17th of February 2008.

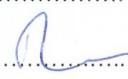
The data recorded at 15.02.2008 are correctly recorded from the monitoring system and there is no correction required. The data are presented in table 1.

The data for the 16th of February 2008 are presented in table 2. The data were corrected automatically.

The registered value for the N₂O emission recorded at 0:00 on the 17.02.2008 was corrected from -0.27 kg to 0 kg N₂O etc. till 2:00 on the 17.02.2008, where the value was corrected from -107.4 kg N₂O to 0 kg N₂O. The same procedure was used for the correction of the CO₂ emission reduction. The data are presented in table 3.

The monitoring system was restarted on the 17.02.2008. The system made automatically working test and calibration test. The measurements are not performed from 9:30 recorded at 10:00 to 11:00. The data are corrected according to the procedure for the correction of the false-recorded data. The data are shown in table 4.

Eng. G. Boshov – Manager nitric acid plant 

Eng. R. Gavrilov – Chemical engineer ecoprograms 

R. Gavrilov

1

Table 1

Day	Production of 100 % HNO3	N2O emission	Emission factor actual	Emission factor baseline	Emission reduction N2O	Emission reduction CO2
	[ton]	[kg]	[kg/ton]	[kg/ton]	[kg]	[eq. ton]
2/15/2008 0:00	48.74	122.56	2.51	5.54	147.46	45.71
2/15/2008 0:30	48.67	122.12	2.51	5.54	147.51	45.73
2/15/2008 1:00	48.58	122.81	2.53	5.54	146.32	45.36
2/15/2008 1:30	48.44	123.16	2.54	5.54	145.2	45.01
2/15/2008 2:00	48.45	122.46	2.53	5.54	145.95	45.25
2/15/2008 2:30	48.64	121.2	2.49	5.54	148.27	45.96
2/15/2008 3:00	48.57	121.59	2.5	5.54	147.49	45.72
2/15/2008 3:30	48.65	121.33	2.49	5.54	148.19	45.94
2/15/2008 4:00	48.77	120.99	2.48	5.54	149.2	46.25
2/15/2008 4:30	48.73	121.12	2.49	5.54	148.84	46.14
2/15/2008 5:00	48.51	122.08	2.52	5.54	146.67	45.47
2/15/2008 5:30	48.59	120.22	2.47	5.54	148.97	46.18
2/15/2008 6:00	48.76	120	2.46	5.54	150.13	46.54
2/15/2008 6:30	48.69	120.91	2.48	5.54	148.83	46.14
2/15/2008 7:00	48.6	121.88	2.51	5.54	147.36	45.68
2/15/2008 7:30	48.78	122.06	2.5	5.54	148.18	45.94
2/15/2008 8:00	48.82	121.22	2.48	5.54	149.24	46.27
2/15/2008 8:30	48.91	120.8	2.47	5.54	150.16	46.55
2/15/2008 9:00	49.04	119.05	2.43	5.54	152.63	47.32
2/15/2008 9:30	48.97	120.28	2.46	5.54	151.01	46.81
2/15/2008 10:00	48.85	120.34	2.46	5.54	150.29	46.59
2/15/2008 10:30	48.89	121.17	2.48	5.54	149.68	46.4
2/15/2008 11:00	48.72	120.73	2.48	5.54	149.18	46.25
2/15/2008 11:30	48.81	119.75	2.45	5.54	150.66	46.7
2/15/2008 12:00	49.04	120.16	2.45	5.54	151.52	46.97
2/15/2008 12:30	48.96	119.82	2.45	5.54	151.42	46.94
2/15/2008 13:00	49.02	119.44	2.44	5.54	152.13	47.16
2/15/2008 13:30	49.07	118.75	2.42	5.54	153.1	47.46
2/15/2008 14:00	48.89	119.7	2.45	5.54	151.15	46.86
2/15/2008 14:30	48.75	121.28	2.49	5.54	148.79	46.13
2/15/2008 15:00	48.73	120.07	2.46	5.54	149.89	46.47
2/15/2008 15:30	49.04	119.91	2.45	5.54	151.77	47.05
2/15/2008 16:00	49.18	120.08	2.44	5.54	152.38	47.24
2/15/2008 16:30	48.73	120.6	2.47	5.54	149.36	46.3
2/15/2008 17:00	48.91	120.16	2.46	5.54	150.8	46.75
2/15/2008 17:30	48.96	120.49	2.46	5.54	150.75	46.73
2/15/2008 18:00	48.97	120.55	2.46	5.54	150.74	46.73
2/15/2008 18:30	49.05	120.65	2.46	5.54	151.09	46.84
2/15/2008 19:00	48.84	120.89	2.48	5.54	149.68	46.4
2/15/2008 19:30	48.93	121.13	2.48	5.54	149.94	46.48
2/15/2008 20:00	48.94	121.44	2.48	5.54	149.69	46.4
2/15/2008 20:30	48.98	121.39	2.48	5.54	149.96	46.49
2/15/2008 21:00	48.9	121.7	2.49	5.54	149.21	46.25
2/15/2008 21:30	48.91	121.37	2.48	5.54	149.59	46.37
2/15/2008 22:00	49.09	120.36	2.45	5.54	151.6	47

2/15/2008 22:30	49.14	120.79	2.46	5.54	151.45	46.95
2/15/2008 23:00	0	0	0	5.54	0	0
2/15/2008 23:30	0	0	0	5.54	0	0
TOTAL:	1123.1	2780.3	2.5	5.54	3441.7	1066.9
Verified, Vice Exe Director Eng. Kr. Berbenkov:						

Table 2

Day	Production of 100 % HNO3	N2O Emission	Emission factor Actual	Emission factor baseline	Emission reduction N2O	Emission reduction CO2	Corrected emission reduction N2O	Corrected emission reduction CO2
	[ton]	[kg]	[kg/ton]	[kg/ton]	[kg]	[eq. ton]	[kg]	[eq. ton]
2/16/2008 0:00	0	0	0	5.54	0	0	0	0
2/16/2008 0:30	0	0	0	5.54	0	0	0	0
2/16/2008 1:00	0	0	0	5.54	0	0	0	0
2/16/2008 1:30	0	0	0	5.54	0	0	0	0
2/16/2008 2:00	0	0	0	5.54	0	0	0	0
2/16/2008 2:30	0	0	0	5.54	0	0	0	0
2/16/2008 3:00	0	0	0	5.54	0	0	0	0
2/16/2008 3:30	0	0	0	5.54	0	0	0	0
2/16/2008 4:00	0	0	0	5.54	0	0	0	0
2/16/2008 4:30	0	0	0	5.54	0	0	0	0
2/16/2008 5:00	0	0	0	5.54	0	0	0	0
2/16/2008 5:30	0	0	0	5.54	0	0	0	0
2/16/2008 6:00	0	0	0	5.54	0	0	0	0
2/16/2008 6:30	0	0	0	5.54	0	0	0	0
2/16/2008 7:00	0	0	0	5.54	0	0	0	0
2/16/2008 7:30	0	0	0	5.54	0	0	0	0
2/16/2008 8:00	0	0	0	5.54	0	0	0	0
2/16/2008 8:30	0	0	0	5.54	0	0	0	0

2/16/2008 9:00	0	0	0	5.54	0	0	0	0
2/16/2008 9:30	0	0	0	5.54	0	0	0	0
2/16/2008 10:00	0	0	0	5.54	0	0	0	0
2/16/2008 10:30	0	0	0	5.54	0	0	0	0
2/16/2008 11:00	0	0	0	5.54	0	0	0	0
2/16/2008 11:30	0	0	0	5.54	0	0	0	0
2/16/2008 12:00	0	0	0	5.54	0	0	0	0
2/16/2008 12:30	0	0	0	5.54	0	0	0	0
2/16/2008 13:00	0	0	0	5.54	0	0	0	0
2/16/2008 13:30	0	0	0	5.54	0	0	0	0
2/16/2008 14:00	0	0	0	5.54	0	0	0	0
2/16/2008 14:30	0	0	0	5.54	0	0	0	0
2/16/2008 15:00	0	0	0	5.54	0	0	0	0
2/16/2008 15:30	0	0	0	5.54	0	0	0	0
2/16/2008 16:00	0	0	0	5.54	0	0	0	0
2/16/2008 16:30	0	0	0	5.54	0	0	0	0
2/16/2008 17:00	0	0	0	5.54	0	0	0	0
2/16/2008 17:30	0	0	0	5.54	0	0	0	0
2/16/2008 18:00	0	0	0	5.54	0	0	0	0
2/16/2008 18:30	0	0	0	5.54	0	0	0	0
2/16/2008 19:00	0	0	0	5.54	0	0	0	0
2/16/2008 19:30	0	0	0	5.54	0	0	0	0
2/16/2008 20:00	0	0	0	5.54	0	0	0	0
2/16/2008 20:30	0	0	0	5.54	0	0	0	0
2/16/2008 21:00	0	0	0	5.54	0	0	0	0
2/16/2008 21:30	0	0	0	5.54	0	0	0	0
2/16/2008 22:00	0	0	0	5.54	0	0	0	0

2/16/2008 22:30	0	0	0	5.54	0	0	0	0
2/16/2008 23:00	0	0	0	5.54	0	0	0	0
2/16/2008 23:30	0.04	1.15	28.75	5.54	-0.93	-0.29	0	0
TOTAL:	0	0.3	0	5.54	-0.93	-0.29	0	0

Verified,
Vice Exe Director
Eng. Kr. Berbenkov:

Table 3

Day	Production of 100 % HNO3	N2O emission	Emission factor actual	Emission factor baseline	Emission reduction N2O	Emission reduction CO2	Corrected emission reduction N2O	Corrected emission reduction CO2
	[ton]	[kg]	[kg/ton]	[kg/ton]	[kg]	[eq. ton]	[kg]	[eq. ton]
2/17/2008 0:00	0.08	0.71	8.88	5.54	-0.27	-0.08	0	0
2/17/2008 0:30	0.83	0	0	5.54	4.6	1.43	0	0
2/17/2008 1:00	0.93	0	0	5.54	5.15	1.6	0	0
2/17/2008 1:30	0.12	74.18	618.17	5.54	-73.52	-22.79	0	0
2/17/2008 2:00	1.84	117.57	63.9	5.54	-107.38	-33.29	0	0
2/17/2008 2:30	39.8	118.34	2.97	5.54	102.15	31.67	102.15	31.67
2/17/2008 3:00	45.52	120.36	2.64	5.54	131.82	40.86	131.82	40.86
2/17/2008 3:30	51.25	121.12	2.36	5.54	162.81	50.47	162.81	50.47
2/17/2008 4:00	48.35	120.47	2.49	5.54	147.39	45.69	147.39	45.69
2/17/2008 4:30	50.94	119.75	2.35	5.54	162.46	50.36	162.46	50.36
2/17/2008 5:00	49.08	117.33	2.39	5.54	154.57	47.92	154.57	47.92
2/17/2008 5:30	50.42	114	2.26	5.54	165.33	51.25	165.33	51.25
2/17/2008 6:00	50.95	115.33	2.26	5.54	166.93	51.75	166.93	51.75
2/17/2008 6:30	49.78	113.89	2.29	5.54	161.89	50.19	161.89	50.19
2/17/2008 7:00	49.7	114.36	2.3	5.54	160.98	49.9	160.98	49.9
2/17/2008 7:30	49.73	113.73	2.29	5.54	161.77	50.15	161.77	50.15
2/17/2008 8:00	49.45	123.13	2.49	5.54	150.82	46.76	150.82	46.76

2/17/2008 8:30	49.96	115.37	2.31	5.54	161.41	50.04	161.41	50.04
2/17/2008 9:00	49.43	117.24	2.37	5.54	156.6	48.55	156.6	48.55
2/17/2008 9:30	49.34	119.72	2.43	5.54	153.62	47.62	153.62	47.62
2/17/2008 10:00	49.48	0.22	0	5.54	273.9	84.91	161.41	50.04
2/17/2008 10:30	49.44	0	0	5.54	273.9	84.91	156.6	48.55
2/17/2008 11:00	0	0	0	5.54	0	0	153.62	47.62
2/17/2008 11:30	49.5	120.01	2.42	5.54	154.22	47.81	154.22	47.81
2/17/2008 12:00	48.92	118.85	2.43	5.54	152.17	47.17	152.17	47.17
2/17/2008 12:30	49.21	118.88	2.42	5.54	153.74	47.66	153.74	47.66
2/17/2008 13:00	48.87	120.25	2.46	5.54	150.49	46.65	150.49	46.65
2/17/2008 13:30	49.02	120.11	2.45	5.54	151.46	46.95	151.46	46.95
2/17/2008 14:00	48.93	119.09	2.43	5.54	151.98	47.11	151.98	47.11
2/17/2008 14:30	49.07	118.85	2.42	5.54	153	47.43	153	47.43
2/17/2008 15:00	48.86	119.47	2.45	5.54	151.21	46.88	151.21	46.88
2/17/2008 15:30	48.93	119.81	2.45	5.54	151.26	46.89	151.26	46.89
2/17/2008 16:00	48.85	118.61	2.43	5.54	152.02	47.13	152.02	47.13
2/17/2008 16:30	49.1	116.73	2.38	5.54	155.28	48.14	155.28	48.14
2/17/2008 17:00	49.37	118.44	2.4	5.54	155.07	48.07	155.07	48.07
2/17/2008 17:30	48.74	120.14	2.46	5.54	149.88	46.46	149.88	46.46
2/17/2008 18:00	49.11	120.53	2.45	5.54	151.54	46.98	151.54	46.98
2/17/2008 18:30	49.2	119.91	2.44	5.54	152.66	47.32	152.66	47.32
2/17/2008 19:00	49.26	118.97	2.42	5.54	153.93	47.72	153.93	47.72
2/17/2008 19:30	49.19	118.62	2.41	5.54	153.89	47.71	153.89	47.71
2/17/2008 20:00	49.51	118.99	2.4	5.54	155.3	48.14	155.3	48.14
2/17/2008 20:30	49.05	118.69	2.42	5.54	153.05	47.44	153.05	47.44
2/17/2008 21:00	48.58	120	2.47	5.54	149.13	46.23	149.13	46.23
2/17/2008 21:30	48.2	121.94	2.53	5.54	145.09	44.98	145.09	44.98

2/17/2008 22:00	48.82	120.92	2.48	5.54	149.54	46.36	149.54	46.36
2/17/2008 22:30	49.22	116.87	2.37	5.54	155.81	48.3	155.81	48.3
2/17/2008 23:00	47.51	115.61	2.43	5.54	147.6	45.75	147.6	45.75
2/17/2008 23:30	49.3	116.62	2.37	5.54	156.5	48.52	156.5	48.52
TOTAL:	1030.37	2466.87	2.4	5.54	3241.38	1004.84	3289.00	1019.60

Verified,
Vice Exe Director
Eng. Kr. Berbenkov:



AGROPOLYCHIM

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Industrial zone, Devnya, 9160, tel.: 0519/97526, fax: 0519/97594, www.agropolychim.bg



Confirmed:

Vice CEO
(eng. Kr. Berbenkov)

Protocol No. 3/2008

Because of the error of the continuous monitoring system for NO_x emissions from the nitric acid plant, the emissions were not recorded on the 1.04.2008 from 7:30 to 8:30. During the period the plant worked under the normal working conditions and a change of the NO_x emission is not expected. The data were corrected in accordance with the procedure for correcting of false-recorded data from the continuous monitoring system for NO_x emissions from the nitric acid plant using the data from the previous hours normal work of the plant. In this case, the data for the previous 1 hour normal work of the plant were used.

The system was stopped for the maintenance of the software on the 8.06.2008 from 10:00 to 15:00 and on the 9.06.2008 from 11:30 to 14:00. The recording of the zero values was improved as well as the calculation of the mean values and total values. Here the plant worked under normal working conditions and the procedure for correcting of false-recorded data from the continuous monitoring system for NO_x emissions from the nitric acid plant was also used to correct the data.

The data from the 1th of April 2008 are presented in table 1.

The data from the 8th of April 2008 are presented in table 2.

The data from the 9th of April 2008 are presented in table 3.

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms

Table 1

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
01.4.2008 00:00	48.54	142.5	2.94	5.54	126.41	39.19	126.41	39.19
01.4.2008 00:30	48.48	142.64	2.94	5.54	125.94	39.04	125.94	39.04
01.4.2008 01:00	48.57	142.04	2.92	5.54	127.04	39.38	127.04	39.38
01.4.2008 01:30	48.54	142.44	2.93	5.54	126.47	39.21	126.47	39.21
01.4.2008 02:00	48.46	141.9	2.93	5.54	126.57	39.24	126.57	39.24
01.4.2008 02:30	48.52	142.08	2.93	5.54	126.72	39.28	126.72	39.28
01.4.2008 03:00	48.54	141.93	2.92	5.54	126.98	39.36	126.98	39.36
01.4.2008 03:30	48.55	141.9	2.92	5.54	127.07	39.39	127.07	39.39
01.4.2008 04:00	48.46	141.91	2.93	5.54	126.56	39.23	126.56	39.23
01.4.2008 04:30	48.55	141.58	2.92	5.54	127.39	39.49	127.39	39.49
01.4.2008 05:00	48.57	142.22	2.93	5.54	126.86	39.33	126.86	39.33
01.4.2008 05:30	48.61	141.78	2.92	5.54	127.52	39.53	127.52	39.53
01.4.2008 06:00	48.53	142.32	2.93	5.54	126.54	39.23	126.54	39.23
01.4.2008 06:30	48.57	142.02	2.92	5.54	127.06	39.39	127.06	39.39
01.4.2008 07:00	48.59	141.99	2.92	5.54	127.2	39.43	127.2	39.43
01.4.2008 07:30	48.54	142.05	2.93	5.54	126.86	39.33	126.86	39.33
01.4.2008 08:00	0	0	0	5.54	0	0	127.2	39.43
01.4.2008 08:30	0	0	0	5.54	0	0	126.86	39.33
01.4.2008 09:00	48.5	142.56	2.94	5.54	126.13	39.1	126.13	39.1
01.4.2008 09:30	48.71	141.88	2.91	5.54	127.97	39.67	127.97	39.67
01.4.2008 10:00	48.56	142.85	2.94	5.54	126.17	39.11	126.17	39.11
01.4.2008 10:30	48.5	144.05	2.97	5.54	124.64	38.64	124.64	38.64
01.4.2008 11:00	48.62	141.87	2.92	5.54	127.48	39.52	127.48	39.52
01.4.2008 11:30	48.64	141.91	2.92	5.54	127.56	39.54	127.56	39.54
01.4.2008 12:00	48.54	142.59	2.94	5.54	126.32	39.16	126.32	39.16
01.4.2008 12:30	48.45	143.03	2.95	5.54	125.38	38.87	125.38	38.87
01.4.2008 13:00	48.49	143.52	2.96	5.54	125.11	38.79	125.11	38.79
01.4.2008	48.7	143.13	2.94	5.54	126.67	39.27	126.67	39.27

13:30								
01.4.2008 14:00	48.6	143.81	2.96	5.54	125.43	38.88	125.43	38.88
01.4.2008 14:30	48.44	143.7	2.97	5.54	124.66	38.64	124.66	38.64
01.4.2008 15:00	48.25	143.62	2.98	5.54	123.69	38.34	123.69	38.34
01.4.2008 15:30	48.64	143.89	2.96	5.54	125.58	38.93	125.58	38.93
01.4.2008 16:00	48.46	144.28	2.98	5.54	124.19	38.5	124.19	38.5
01.4.2008 16:30	48.68	143.95	2.96	5.54	125.74	38.98	125.74	38.98
01.4.2008 17:00	48.47	144.26	2.98	5.54	124.26	38.52	124.26	38.52
01.4.2008 17:30	48.46	144.08	2.97	5.54	124.39	38.56	124.39	38.56
01.4.2008 18:00	48.48	145.09	2.99	5.54	123.49	38.28	123.49	38.28
01.4.2008 18:30	48.52	144.38	2.98	5.54	124.42	38.57	124.42	38.57
01.4.2008 19:00	48.46	144.8	2.99	5.54	123.67	38.34	123.67	38.34
01.4.2008 19:30	48.42	144.96	2.99	5.54	123.29	38.22	123.29	38.22
01.4.2008 20:00	48.56	145.5	3	5.54	123.52	38.29	123.52	38.29
01.4.2008 20:30	48.55	145.35	2.99	5.54	123.62	38.32	123.62	38.32
01.4.2008 21:00	48.63	145.26	2.99	5.54	124.15	38.49	124.15	38.49
01.4.2008 21:30	48.62	145.27	2.99	5.54	124.08	38.47	124.08	38.47
01.4.2008 22:00	48.58	145.35	2.99	5.54	123.78	38.37	123.78	38.37
01.4.2008 22:30	48.65	145.91	3	5.54	123.61	38.32	123.61	38.32
01.4.2008 23:00	48.72	145.14	2.98	5.54	124.77	38.68	124.77	38.68
01.4.2008 23:30	48.68	145.55	2.99	5.54	124.14	38.48	124.14	38.48
TOTAL:	1116.6	3297.4	3	5.54	2888.6	895.5	3015.58	934.83
Verified, Vice Exe Director Eng. Kr. Berbenkov:								

Table 2

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
08.4.2008 00:00	48.32	145.96	3.02	5.54	121.73	37.74	121.73	37.74
08.4.2008 00:30	48.39	146.41	3.03	5.54	121.67	37.72	121.67	37.72
08.4.2008 01:00	48.38	145.95	3.02	5.54	122.08	37.84	122.08	37.84
08.4.2008 01:30	48.31	145.61	3.01	5.54	122.03	37.83	122.03	37.83

08.4.2008 02:00	48.43	146.52	3.03	5.54	121.78	37.75	121.78	37.75
08.4.2008 02:30	48.23	147.09	3.05	5.54	120.1	37.23	120.1	37.23
08.4.2008 03:00	48.33	146.77	3.04	5.54	120.98	37.5	120.98	37.5
08.4.2008 03:30	48.31	146.87	3.04	5.54	120.77	37.44	120.77	37.44
08.4.2008 04:00	48.47	146.93	3.03	5.54	121.59	37.69	121.59	37.69
08.4.2008 04:30	48.39	147.31	3.04	5.54	120.77	37.44	120.77	37.44
08.4.2008 05:00	48.38	147.06	3.04	5.54	120.97	37.5	120.97	37.5
08.4.2008 05:30	48.31	147.44	3.05	5.54	120.2	37.26	120.2	37.26
08.4.2008 06:00	48.46	147.55	3.04	5.54	120.92	37.48	120.92	37.48
08.4.2008 06:30	48.5	148.52	3.06	5.54	120.17	37.25	120.17	37.25
08.4.2008 07:00	48.56	148.74	3.06	5.54	120.28	37.29	120.28	37.29
08.4.2008 07:30	48.57	148.12	3.05	5.54	120.96	37.5	120.96	37.5
08.4.2008 08:00	48.43	144.21	2.98	5.54	124.09	38.47	124.09	38.47
08.4.2008 08:30	48.36	139.1	2.88	5.54	128.81	39.93	128.81	39.93
08.4.2008 09:00	48.01	141.34	2.94	5.54	124.64	38.64	124.64	38.64
08.4.2008 09:30	48.03	147.68	3.07	5.54	118.41	36.71	118.41	36.71
08.4.2008 10:00	48.05	146.54	3.05	5.54	119.66	37.09	119.66	37.09
08.4.2008 10:30	48.07	136.94	2.85	5.54	129.37	40.1	129.37	40.1
08.4.2008 11:00	0	0	0	5.54	0	0	120.17	37.25
08.4.2008 11:30	0	0	0	5.54	0	0	120.28	37.29
08.4.2008 12:00	0	0	0	5.54	0	0	120.96	37.5
08.4.2008 12:30	0	0	0	5.54	0	0	124.09	38.47
08.4.2008 13:00	0	0	0	5.54	0	0	128.81	39.93
08.4.2008 13:30	0	0	0	5.54	0	0	124.64	38.64
08.4.2008 14:00	0	0	0	5.54	0	0	118.41	36.71
08.4.2008 14:30	0	0	0	5.54	0	0	119.66	37.09
08.4.2008 15:00	0	0	0	5.54	0	0	129.37	40.1
08.4.2008 15:30	46.1	113.53	2.46	5.54	141.86	43.98	141.86	43.98
08.4.2008 16:00	45.94	122.14	2.66	5.54	132.37	41.03	132.37	41.03
08.4.2008 16:30	45.87	126.16	2.75	5.54	127.96	39.67	127.96	39.67
08.4.2008 17:00	45.96	129.7	2.82	5.54	124.92	38.72	124.92	38.72
08.4.2008 17:30	46.43	128.02	2.76	5.54	129.2	40.05	129.2	40.05
08.4.2008 18:00	46.29	136.93	2.96	5.54	119.52	37.05	119.52	37.05

08.4.2008 18:30	46.09	150.86	3.27	5.54	104.48	32.39	104.48	32.39
08.4.2008 19:00	46.42	159.88	3.44	5.54	97.29	30.16	97.29	30.16
08.4.2008 19:30	47.06	162.19	3.45	5.54	98.52	30.54	98.52	30.54
08.4.2008 20:00	47.64	160.4	3.37	5.54	103.53	32.09	103.53	32.09
08.4.2008 20:30	47.31	158.96	3.36	5.54	103.14	31.97	103.14	31.97
08.4.2008 21:00	47.44	159.67	3.37	5.54	103.15	31.98	103.15	31.98
08.4.2008 21:30	47.59	158.41	3.33	5.54	105.24	32.62	105.24	32.62
08.4.2008 22:00	47.51	158.69	3.34	5.54	104.52	32.4	104.52	32.4
08.4.2008 22:30	47.85	158.98	3.32	5.54	106.11	32.89	106.11	32.89
08.4.2008 23:00	47.72	158.72	3.33	5.54	105.65	32.75	105.65	32.75
08.4.2008 23:30	47.83	158.59	3.32	5.54	106.39	32.98	106.39	32.98
TOTAL:	953.2	2910	3.1	5.54	2370.7	734.9	2851.11	883.825
Verified, Vice Exe Director Eng. Kr. Berbenkov:								

Table 3

Day	Product ion of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
09.4.2008 00:00	47.76	158.82	3.33	5.54	105.77	32.79	105.77	32.79
09.4.2008 00:30	47.94	158.64	3.31	5.54	106.95	33.15	106.95	33.15
09.4.2008 01:00	47.91	158.31	3.3	5.54	107.11	33.2	107.11	33.2
09.4.2008 01:30	47.86	158.12	3.3	5.54	107.02	33.18	107.02	33.18
09.4.2008 02:00	47.77	157.39	3.29	5.54	107.26	33.25	107.26	33.25
09.4.2008 02:30	47.89	157.42	3.29	5.54	107.89	33.45	107.89	33.45
09.4.2008 03:00	47.96	157.02	3.27	5.54	108.68	33.69	108.68	33.69
09.4.2008 03:30	47.63	156.65	3.29	5.54	107.22	33.24	107.22	33.24
09.4.2008 04:00	47.82	155.25	3.25	5.54	109.67	34	109.67	34
09.4.2008 04:30	47.87	156.36	3.27	5.54	108.84	33.74	108.84	33.74
09.4.2008 05:00	47.74	155.66	3.26	5.54	108.82	33.73	108.82	33.73
09.4.2008	47.83	155.27	3.25	5.54	109.71	34.01	109.71	34.01

05:30								
09.4.2008 06:00	47.76	155.65	3.26	5.54	108.94	33.77	108.94	33.77
09.4.2008 06:30	47.72	154.54	3.24	5.54	109.83	34.05	109.83	34.05
09.4.2008 07:00	47.82	153.59	3.21	5.54	111.33	34.51	111.33	34.51
09.4.2008 07:30	47.71	153.22	3.21	5.54	111.09	34.44	111.09	34.44
09.4.2008 08:00	47.29	154.77	3.27	5.54	107.22	33.24	107.22	33.24
09.4.2008 08:30	47.29	154.7	3.27	5.54	107.29	33.26	107.29	33.26
09.4.2008 09:00	47.52	153.22	3.22	5.54	110.04	34.11	110.04	34.11
09.4.2008 09:30	47.2	94.65	2.01	5.54	166.84	51.72	166.84	51.72
09.4.2008 10:00	46.34	139.11	3	5.54	117.61	36.46	117.61	36.46
09.4.2008 10:30	46.81	143.11	3.06	5.54	116.22	36.03	116.22	36.03
09.4.2008 11:00	46.27	142.08	3.07	5.54	114.26	35.42	114.26	35.42
09.4.2008 11:30	46.21	143.91	3.11	5.54	112.09	34.75	112.09	34.75
09.4.2008 12:00	0	0	0	5.54	0	0	166.84	51.72
09.4.2008 12:30	0	0	0	5.54	0	0	117.61	36.46
09.4.2008 13:00	0	0	0	5.54	0	0	116.22	36.03
09.4.2008 13:30	0	0	0	5.54	0	0	114.26	35.42
09.4.2008 14:00	0	0	0	5.54	0	0	112.09	34.75
09.4.2008 14:30	45.54	118.79	2.61	5.54	133.5	41.39	133.5	41.39
09.4.2008 15:00	45.74	144.03	3.15	5.54	109.37	33.9	109.37	33.9
09.4.2008 15:30	45.36	144.97	3.2	5.54	106.32	32.96	106.32	32.96
09.4.2008 16:00	46.1	120.68	2.62	5.54	134.71	41.76	134.71	41.76
09.4.2008 16:30	47.52	144.93	3.05	5.54	118.33	36.68	118.33	36.68
09.4.2008 17:00	47.11	148.35	3.15	5.54	112.64	34.92	112.64	34.92
09.4.2008 17:30	47.16	149.4	3.17	5.54	111.87	34.68	111.87	34.68
09.4.2008 18:00	47.19	151.08	3.2	5.54	110.35	34.21	110.35	34.21
09.4.2008 18:30	47.41	154.59	3.26	5.54	108.06	33.5	108.06	33.5
09.4.2008 19:00	47.51	157.18	3.31	5.54	106.03	32.87	106.03	32.87
09.4.2008 19:30	47.55	159.95	3.36	5.54	103.48	32.08	103.48	32.08
09.4.2008 20:00	47.71	156.39	3.28	5.54	107.92	33.46	107.92	33.46

09.4.2008 20:30	47.69	156.21	3.28	5.54	107.99	33.48	107.99	33.48
09.4.2008 21:00	47.63	156.96	3.3	5.54	106.91	33.14	106.91	33.14
09.4.2008 21:30	47.92	156.08	3.26	5.54	109.4	33.91	109.4	33.91
09.4.2008 22:00	47.86	156.93	3.28	5.54	108.21	33.55	108.21	33.55
09.4.2008 22:30	47.74	157.46	3.3	5.54	107.02	33.18	107.02	33.18
09.4.2008 23:00	47.93	156.68	3.27	5.54	108.85	33.74	108.85	33.74
09.4.2008 23:30	47.64	157.14	3.3	5.54	106.79	33.1	106.79	33.1
TOTAL:	1040.9	3296.1	3.2	5.54	2470.5	765.9	2716.235	842.04
Verified, Vice Exe Director Eng. Kr. Berbenkov:								



AGROPOLYCHIM

Member of the Acid & Fertilizers Group

Industrial zone, Devnya 9160, tel.: 0519/97526, fax: 0519/97594, www.agropolychim.bg



Confirmed:

Vice CEO
(eng. Kr. Berbenkov)

Protocol No. 4/2008

The nitric acid plant was stopped on the 21.05.2008. A torn coupling of a working pump P1206 led to the disrupted condensate feeding of the steam preheater. The steam temperature increased and the plant was automatically shut down at 5:17. A detailed description is given in the average report № 22/2008. The plant was started at 15:20. Stable work conditions were occurred at 16:30.

The data from the 21th of May 2008 are presented in table 1.

The registered value for the N₂O emission recorded at 11:30 on the 21.05.2008 was corrected from 0.14 kg to 0 kg N₂O etc., the negative value for the N₂O emission reduction at 13:30 was corrected from -18.77 kg N₂O to 0 kg N₂O. The same procedure was used for the correction of the CO₂ emission reduction.

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms

R. Gavrilov

1

Table 1

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
21.5.2008 00:00	37.91	109.03	2.88	5.54	100.99	31.31	100.99	31.31
21.5.2008 00:30	37.94	109.14	2.88	5.54	101.05	31.32	101.05	31.32
21.5.2008 01:00	38	108.75	2.86	5.54	101.77	31.55	101.77	31.55
21.5.2008 01:30	37.97	108.35	2.85	5.54	102	31.62	102	31.62
21.5.2008 02:00	38.04	108.08	2.84	5.54	102.66	31.83	102.66	31.83
21.5.2008 02:30	37.98	107.89	2.84	5.54	102.52	31.78	102.52	31.78
21.5.2008 03:00	38.1	107.95	2.83	5.54	103.12	31.97	103.12	31.97
21.5.2008 03:30	38.14	107.21	2.81	5.54	104.09	32.27	104.09	32.27
21.5.2008 04:00	38.1	106.78	2.8	5.54	104.29	32.33	104.29	32.33
21.5.2008 04:30	38.06	107.15	2.82	5.54	103.7	32.15	103.7	32.15
21.5.2008 05:00	0	0	0	5.54	0	0	0	0
21.5.2008 05:30	0	0	0	5.54	0	0	0	0
21.5.2008 06:00	0	0	0	5.54	0	0	0	0
21.5.2008 06:30	0	0	0	5.54	0	0	0	0
21.5.2008 07:00	0	0	0	5.54	0	0	0	0
21.5.2008 07:30	0	0	0	5.54	0	0	0	0
21.5.2008 08:00	0	0	0	5.54	0	0	0	0
21.5.2008 08:30	0	0	0	5.54	0	0	0	0
21.5.2008 09:00	0	0	0	5.54	0	0	0	0
21.5.2008 09:30	0	0	0	5.54	0	0	0	0
21.5.2008 10:00	0	0	0	5.54	0	0	0	0
21.5.2008 10:30	0	0	0	5.54	0	0	0	0
21.5.2008 11:00	0	0	0	5.54	0	0	0	0
21.5.2008	0.08	0	0	5.54	0.44	0.14	0	0

11:30								
21.5.2008 12:00	0.09	0	0	5.54	0.5	0.15	0	0
21.5.2008 12:30	0.09	0	0	5.54	0.5	0.15	0	0
21.5.2008 13:00	0.1	0	0	5.54	0.55	0.17	0	0
21.5.2008 13:30	0.05	19.05	381	5.54	-18.77	-5.82	0	0
21.5.2008 14:00	0	0	0	5.54	0	0	0	0
21.5.2008 14:30	0	0	0	5.54	0	0	0	0
21.5.2008 15:00	0.93	25.67	27.6	5.54	-20.52	-6.36	0	0
21.5.2008 15:30	0.4	136.88	342.2	5.54	-134.66	-41.75	0	0
21.5.2008 16:00	13.3	117.83	8.86	5.54	-44.15	-13.69	0	0
21.5.2008 16:30	37.09	101.22	2.73	5.54	104.26	32.32	104.26	32.32
21.5.2008 17:00	35.76	103.02	2.88	5.54	95.09	29.48	95.09	29.48
21.5.2008 17:30	44.83	103.91	2.32	5.54	144.45	44.78	144.45	44.78
21.5.2008 18:00	34.59	106.17	3.07	5.54	85.46	26.49	85.46	26.49
21.5.2008 18:30	42.79	106.31	2.48	5.54	130.75	40.53	130.75	40.53
21.5.2008 19:00	37.41	102.1	2.73	5.54	105.15	32.6	105.15	32.6
21.5.2008 19:30	38.2	107.47	2.81	5.54	104.16	32.29	104.16	32.29
21.5.2008 20:00	38.58	112.49	2.92	5.54	101.24	31.39	101.24	31.39
21.5.2008 20:30	38.92	114.39	2.94	5.54	101.23	31.38	101.23	31.38
21.5.2008 21:00	39.07	114.82	2.94	5.54	101.63	31.5	101.63	31.5
21.5.2008 21:30	39.44	115.61	2.93	5.54	102.89	31.9	102.89	31.9
21.5.2008 22:00	39.37	119.05	3.02	5.54	99.06	30.71	99.06	30.71
21.5.2008 22:30	39.74	108.21	2.72	5.54	111.95	34.7	111.95	34.7
21.5.2008 23:00	39.2	111.89	2.85	5.54	105.28	32.64	105.28	32.64
21.5.2008 23:30	39.29	113.09	2.88	5.54	104.58	32.42	104.58	32.42
TOTAL:	489.8	1315.1	2.7	5.54	1398.4	433.5	1311.69	406.63
Verified, Vice Exe Director Eng. Kr. Berbenkov:								



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Confirmed:

Vice CEO
(eng. Kr. Berbenkov)

Protocol No. 5/2008

The nitric acid plant was started on the 4.07.2008. Negative values for the reduction of the N_2O emission and respectively were occurred because of the strong drift of the input variables.

The nitric acid plant was stopped on the 15.07.2008 for the technical maintenance. N_2O reduction was measured although the installation was not working. These values were corrected.

The data from the 4th of July 2008 are presented in table 1.

The data from the 15th of July 2008 are presented in table 2.

The registered value for the N_2O emission recorded at 15:00 on the 4.07.2008 was corrected from -124.87 kg to 0 kg N_2O and at 15:30 was corrected from -85.44 kg N_2O to 0 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

The registered value for the N_2O emission at 3:30 on the 15.07.2008 was corrected from 256.23 kg to 0 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms

R. Gavrilov

1

Table 1

Day	Production of 100 % HNO ₃ [ton]	N ₂ O emission [kg]	Emission factor actual [kg/ton]	Emission factor Base line [kg/ton]	Emission reduction N ₂ O [kg]	Emission reduction CO ₂ [eq. ton]	Corrected emission reduction N ₂ O [kg]	Corrected emission reduction CO ₂ [eq. ton]
7/4/2008 0:00	0	0	0	5.54	0	0	0	0
7/4/2008 0:30	0	0	0	5.54	0	0	0	0
7/4/2008 1:00	0	0	0	5.54	0	0	0	0
7/4/2008 1:30	0	0	0	5.54	0	0	0	0
7/4/2008 2:00	0	0	0	5.54	0	0	0	0
7/4/2008 2:30	0	0	0	5.54	0	0	0	0
7/4/2008 3:00	0	0	0	5.54	0	0	0	0
7/4/2008 3:30	0	0	0	5.54	0	0	0	0
7/4/2008 4:00	0	0	0	5.54	0	0	0	0
7/4/2008 4:30	0	0	0	5.54	0	0	0	0
7/4/2008 5:00	0	0	0	5.54	0	0	0	0
7/4/2008 5:30	0	0	0	5.54	0	0	0	0
7/4/2008 6:00	0	0	0	5.54	0	0	0	0
7/4/2008 6:30	0	0	0	5.54	0	0	0	0
7/4/2008 7:00	0	0	0	5.54	0	0	0	0
7/4/2008 7:30	0	0	0	5.54	0	0	0	0
7/4/2008 8:00	0	0	0	5.54	0	0	0	0
7/4/2008 8:30	0	0	0	5.54	0	0	0	0
7/4/2008 9:00	0	0	0	5.54	0	0	0	0
7/4/2008 9:30	0	0	0	5.54	0	0	0	0
7/4/2008 10:00	0	0	0	5.54	0	0	0	0
7/4/2008 10:30	0	0	0	5.54	0	0	0	0
7/4/2008 11:00	0	0	0	5.54	0	0	0	0
7/4/2008 11:30	0	0	0	5.54	0	0	0	0
7/4/2008 12:00	0	0	0	5.54	0	0	0	0
7/4/2008	0	0	0	5.54	0	0	0	0

12:30								
7/4/2008 13:00	0	0	0	5.54	0	0	0	0
7/4/2008 13:30	0	0	0	5.54	0	0	0	0
7/4/2008 14:00	0	0	0	5.54	0	0	0	0
7/4/2008 14:30	0	152.97	152.97	5.54	0	0	0	0
7/4/2008 15:00	2.21	137.11	62.04	5.54	-124.87	-38.71	0	0
7/4/2008 15:30	5.86	117.9	20.12	5.54	-85.44	-26.49	0	0
7/4/2008 16:00	0	136.93	136.93	5.54	0	0	0	0
7/4/2008 16:30	28.83	143.77	4.99	5.54	15.95	4.94	15.95	4.94
7/4/2008 17:00	46.4	156.14	3.37	5.54	100.92	31.28	100.92	31.28
7/4/2008 17:30	45.16	157.85	3.5	5.54	92.34	28.62	92.34	28.62
7/4/2008 18:00	49.07	155.19	3.16	5.54	116.66	36.16	116.66	36.16
7/4/2008 18:30	44.43	153.51	3.46	5.54	92.63	28.72	92.63	28.72
7/4/2008 19:00	42.52	158.32	3.72	5.54	77.24	23.94	77.24	23.94
7/4/2008 19:30	43.96	158.71	3.61	5.54	84.83	26.3	84.83	26.3
7/4/2008 20:00	44.43	164.02	3.69	5.54	82.12	25.46	82.12	25.46
7/4/2008 20:30	45.17	159.64	3.53	5.54	90.6	28.09	90.6	28.09
7/4/2008 21:00	45.55	161.7	3.55	5.54	90.65	28.1	90.65	28.1
7/4/2008 21:30	45.72	170.2	3.72	5.54	83.09	25.76	83.09	25.76
7/4/2008 22:00	45.13	183.46	4.07	5.54	66.56	20.63	66.56	20.63
7/4/2008 22:30	45.56	183.65	4.03	5.54	68.75	21.31	68.75	21.31
7/4/2008 23:00	45.34	184.22	4.06	5.54	66.96	20.76	66.96	20.76
7/4/2008 23:30	45.45	183.88	4.05	5.54	67.91	21.05	67.91	21.05
TOTAL:	335.4	1589.3	4.7	5.54	268.8	83.3	598.6	185.7
Verified, Vice Exe Director Eng. Kr. Berbenkov:								

Table 2

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
7/15/200 8 0:00	46.19	174.58	3.78	5.54	81.31	25.21	81.31	25.21
7/15/200 8 0:30	46.26	173.83	3.76	5.54	82.45	25.56	82.45	25.56
7/15/200 8 1:00	46.24	173.77	3.76	5.54	82.4	25.54	82.4	25.54
7/15/200 8 1:30	46.17	174.58	3.78	5.54	81.2	25.17	81.2	25.17
7/15/200 8 2:00	46.34	175.97	3.8	5.54	80.75	25.03	80.75	25.03
7/15/200 8 2:30	46.34	177.11	3.82	5.54	79.61	24.68	79.61	24.68
7/15/200 8 3:00	46.31	176.87	3.82	5.54	79.69	24.7	79.69	24.7
7/15/200 8 3:30	46.25	0	0	5.54	256.23	79.43	0	0
7/15/200 8 4:00	0	0	0	5.54	0	0	0	0
7/15/200 8 4:30	0	0	0	5.54	0	0	0	0
7/15/200 8 5:00	0	0	0	5.54	0	0	0	0
7/15/200 8 5:30	0	0	0	5.54	0	0	0	0
7/15/200 8 6:00	0	0	0	5.54	0	0	0	0
7/15/200 8 6:30	0	0	0	5.54	0	0	0	0
7/15/200 8 7:00	0	0	0	5.54	0	0	0	0
7/15/200 8 7:30	0	0	0	5.54	0	0	0	0
7/15/200 8 8:00	0	0	0	5.54	0	0	0	0
7/15/200 8 8:30	0	0	0	5.54	0	0	0	0
7/15/200 8 9:00	0	0	0	5.54	0	0	0	0
7/15/200 8 9:30	0	0	0	5.54	0	0	0	0
7/15/200 8 10:00	0	0	0	5.54	0	0	0	0
7/15/200 8 10:30	0	0	0	5.54	0	0	0	0
7/15/200 8 11:00	0	0	0	5.54	0	0	0	0
7/15/200 8 11:30	0	0	0	5.54	0	0	0	0
7/15/200 8 12:00	0	0	0	5.54	0	0	0	0
7/15/200 8 12:30	0	0	0	5.54	0	0	0	0

7/15/200 8 13:00	0	0	0	5.54	0	0	0	0
7/15/200 8 13:30	0	0	0	5.54	0	0	0	0
7/15/200 8 14:00	0	0	0	5.54	0	0	0	0
7/15/200 8 14:30	0	0	0	5.54	0	0	0	0
7/15/200 8 15:00	0	0	0	5.54	0	0	0	0
7/15/200 8 15:30	0	0	0	5.54	0	0	0	0
7/15/200 8 16:00	0	0	0	5.54	0	0	0	0
7/15/200 8 16:30	0	0	0	5.54	0	0	0	0
7/15/200 8 17:00	0	0	0	5.54	0	0	0	0
7/15/200 8 17:30	0	0	0	5.54	0	0	0	0
7/15/200 8 18:00	0	0	0	5.54	0	0	0	0
7/15/200 8 18:30	0	0	0	5.54	0	0	0	0
7/15/200 8 19:00	0	0	0	5.54	0	0	0	0
7/15/200 8 19:30	0	0	0	5.54	0	0	0	0
7/15/200 8 20:00	0	0	0	5.54	0	0	0	0
7/15/200 8 20:30	0	0	0	5.54	0	0	0	0
7/15/200 8 21:00	0	0	0	5.54	0	0	0	0
7/15/200 8 21:30	0	0	0	5.54	0	0	0	0
7/15/200 8 22:00	0	0	0	5.54	0	0	0	0
7/15/200 8 22:30	0	0	0	5.54	0	0	0	0
7/15/200 8 23:00	0	0	0	5.54	0	0	0	0
7/15/200 8 23:30	0	0	0	5.54	0	0	0	0
TOTAL:	185.1	613.5	3.3	5.54	412	127.7	283.7	87.9
Verified, Vice Exe Director Eng. Kr. Berbenkov:								



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Confirmed:

Vice CEO
(eng. Kr. Berbenkov)

Protocol No. 6/2008

The negative value of the N₂O emission reduction was recorded on the 29.08.2008 during the technical maintenance of the nitric acid plant. The plant was not working at this time and the value was set to zero.

The data from the 29th of August 2008 are presented in table 1.

The registered value for the N₂O emission recorded at 16:30 on the 29.08.2008 was corrected from -24.82 kg to 0 kg. The same procedure was used for the correction of the CO₂ emission reduction.

Eng. G. Boshov – Manager nitric acid plant 

Eng. R. Gavrilov – Chemical engineer ecoprograms 

Table 1

	Production of 100 % HNO3	N2O emission	Emission factor actual	Emission factor baseline	Emission reduction N2O	Emission reduction CO2	Corrected emission reduction N2O	Corrected emission reduction CO2
Day	[ton]	[kg]	[kg/ton]	[kg/ton]	[kg]	[eq. ton]	[kg]	[eq. ton]
8/29/2008 0:00	0	0	0	5.54	0	0	0	0
8/29/2008 0:30	0	0	0	5.54	0	0	0	0
8/29/2008 1:00	0	0	0	5.54	0	0	0	0
8/29/2008 1:30	0	0	0	5.54	0	0	0	0
8/29/2008 2:00	0	0	0	5.54	0	0	0	0
8/29/2008 2:30	0	0	0	5.54	0	0	0	0
8/29/2008 3:00	0	0	0	5.54	0	0	0	0
8/29/2008 3:30	0	0	0	5.54	0	0	0	0
8/29/2008 4:00	0	0	0	5.54	0	0	0	0
8/29/2008 4:30	0	0	0	5.54	0	0	0	0
8/29/2008 5:00	0	0	0	5.54	0	0	0	0
8/29/2008 5:30	0	0	0	5.54	0	0	0	0
8/29/2008 6:00	0	0	0	5.54	0	0	0	0
8/29/2008 6:30	0	0	0	5.54	0	0	0	0
8/29/2008 7:00	0	0	0	5.54	0	0	0	0
8/29/2008 7:30	0	0	0	5.54	0	0	0	0
8/29/2008 8:00	0	0	0	5.54	0	0	0	0
8/29/2008 8:30	0	0	0	5.54	0	0	0	0
8/29/2008 9:00	0	0	0	5.54	0	0	0	0
8/29/2008 9:30	0	0	0	5.54	0	0	0	0
8/29/2008 10:00	0	0	0	5.54	0	0	0	0
8/29/2008 10:30	0	0	0	5.54	0	0	0	0
8/29/2008 11:00	0	0	0	5.54	0	0	0	0
8/29/2008 11:30	0	0	0	5.54	0	0	0	0
8/29/2008 12:00	0	0	0	5.54	0	0	0	0
8/29/2008	0	0	0	5.54	0	0	0	0

12:30								
8/29/2008 13:00	0	0	0	5.54	0	0	0	0
8/29/2008 13:30	0	0	0	5.54	0	0	0	0
8/29/2008 14:00	0	0	0	5.54	0	0	0	0
8/29/2008 14:30	0	0	0	5.54	0	0	0	0
8/29/2008 15:00	0	0	0	5.54	0	0	0	0
8/29/2008 15:30	0	0	0	5.54	0	0	0	0
8/29/2008 16:00	0	0	0	5.54	0	0	0	0
8/29/2008 16:30	0.12	25.48	212.33	5.54	-24.82	-7.69	0	0
8/29/2008 17:00	0	0	0	5.54	0	0	0	0
8/29/2008 17:30	0	0	0	5.54	0	0	0	0
8/29/2008 18:00	0	0	0	5.54	0	0	0	0
8/29/2008 18:30	0	0	0	5.54	0	0	0	0
8/29/2008 19:00	0	0	0	5.54	0	0	0	0
8/29/2008 19:30	0	0	0	5.54	0	0	0	0
8/29/2008 20:00	0	0	0	5.54	0	0	0	0
8/29/2008 20:30	0	0	0	5.54	0	0	0	0
8/29/2008 21:00	0	0	0	5.54	0	0	0	0
8/29/2008 21:30	0	0	0	5.54	0	0	0	0
8/29/2008 22:00	0	0	0	5.54	0	0	0	0
8/29/2008 22:30	0	0	0	5.54	0	0	0	0
8/29/2008 23:00	0	0	0	5.54	0	0	0	0
8/29/2008 23:30	0	0	0	5.54	0	0	0	0
TOTAL:	0.1	25.5	255	5.54	-24.9	-7	0	0

Verified,
Vice Exe Director
Eng. Kr. Berbenkov:



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Industrial zone, Devnya 9160, tel.: 0519/97526, fax: 0919/97594, www.agropolychim.bg

Confirmed:

Vice CEO
(eng. Kr. Berbenkov)

Protocol No. 7/2008

The incorrect value of the N₂O emission reduction was recorded on the 24.09.2008 during the breaking operation of the nitric acid plant. The continuous monitoring system for NO_x emissions recorded N₂O emission reduction while the reactors of the plant were not working.

The nitric acid plant was started on the 25.09.2008. Negative values for the reduction of the N₂O emission and respectively were occurred because of the strong drift of the input variables.

The data from the 24th of September 2008 are presented in table 1.

The data from the 25th of September 2008 are presented in table 2.

The registered value for the N₂O emission recorded at 2:30 on the 24.09.2008 was corrected from 222.42 kg to 0 kg. The same procedure was used for the correction of the CO₂ emission reduction.

The registered value for the N₂O emission recorded at 6:30 on the 25.09.2008 was corrected from 24.09 kg to 0 kg. The same procedure was used for the correction of the CO₂ emission reduction.

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms

Table 1

Day	Production of 100 % HNO ₃ [ton]	N ₂ O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N ₂ O [kg]	Emission reduction CO ₂ [eq. ton]	Corrected emission reduction N ₂ O [kg]	Corrected emission reduction CO ₂ [eq. ton]
9/24/2008 0:00	45.52	44.22	0.97	5.54	207.96	64.47	207.96	64.47
9/24/2008 0:30	45.78	44.61	0.97	5.54	209.01	64.79	209.01	64.79
9/24/2008 1:00	45.64	44.84	0.98	5.54	208.01	64.48	208.01	64.48
9/24/2008 1:30	45.66	45.03	0.99	5.54	207.93	64.46	207.93	64.46
9/24/2008 2:00	45.68	44.95	0.98	5.54	208.12	64.52	208.12	64.52
9/24/2008 2:30	40.15	0	0	5.54	222.43	68.95	0	0
9/24/2008 3:00	0	0	0	5.54	0	0	0	0
9/24/2008 3:30	0	0	0	5.54	0	0	0	0
9/24/2008 4:00	0	0	0	5.54	0	0	0	0
9/24/2008 4:30	0	0	0	5.54	0	0	0	0
9/24/2008 5:00	0	0	0	5.54	0	0	0	0
9/24/2008 5:30	0	0	0	5.54	0	0	0	0
9/24/2008 6:00	0	0	0	5.54	0	0	0	0
9/24/2008 6:30	0	0	0	5.54	0	0	0	0
9/24/2008 7:00	0	0	0	5.54	0	0	0	0
9/24/2008 7:30	0	0	0	5.54	0	0	0	0
9/24/2008 8:00	0	0	0	5.54	0	0	0	0
9/24/2008 8:30	0	0	0	5.54	0	0	0	0
9/24/2008 9:00	0	0	0	5.54	0	0	0	0
9/24/2008 9:30	0	0	0	5.54	0	0	0	0
9/24/2008 10:00	0	0	0	5.54	0	0	0	0
9/24/2008 10:30	0	0	0	5.54	0	0	0	0
9/24/2008 11:00	0	0	0	5.54	0	0	0	0
9/24/2008 11:30	0	0	0	5.54	0	0	0	0
9/24/2008 12:00	0	0	0	5.54	0	0	0	0

9/24/2008 12:30	0	0	0	5.54	0	0	0	0
9/24/2008 13:00	0	0	0	5.54	0	0	0	0
9/24/2008 13:30	0	0	0	5.54	0	0	0	0
9/24/2008 14:00	0	0	0	5.54	0	0	0	0
9/24/2008 14:30	0	0	0	5.54	0	0	0	0
9/24/2008 15:00	0	0	0	5.54	0	0	0	0
9/24/2008 15:30	0	0	0	5.54	0	0	0	0
9/24/2008 16:00	0	0	0	5.54	0	0	0	0
9/24/2008 16:30	0	0	0	5.54	0	0	0	0
9/24/2008 17:00	0	0	0	5.54	0	0	0	0
9/24/2008 17:30	0	0	0	5.54	0	0	0	0
9/24/2008 18:00	0	0	0	5.54	0	0	0	0
9/24/2008 18:30	0	0	0	5.54	0	0	0	0
9/24/2008 19:00	0	0	0	5.54	0	0	0	0
9/24/2008 19:30	0	0	0	5.54	0	0	0	0
9/24/2008 20:00	0	0	0	5.54	0	0	0	0
9/24/2008 20:30	0	0	0	5.54	0	0	0	0
9/24/2008 21:00	0	0	0	5.54	0	0	0	0
9/24/2008 21:30	0	0	0	5.54	0	0	0	0
9/24/2008 22:00	0	0	0	5.54	0	0	0	0
9/24/2008 22:30	0	0	0	5.54	0	0	0	0
9/24/2008 23:00	0	0	0	5.54	0	0	0	0
9/24/2008 23:30	0	0	0	5.54	0	0	0	0
TOTAL:	134.2	111.1	0.8	5.54	632.4	196	520.5	161.4
Verified, Vice Exe Director Eng. Kr. Berbenkov:								

Table 2

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
9/25/2008 0:00	0	0	0	5.54	0	0	0	0
9/25/2008 0:30	0	0	0	5.54	0	0	0	0
9/25/2008 1:00	0	0	0	5.54	0	0	0	0
9/25/2008 1:30	0	0	0	5.54	0	0	0	0
9/25/2008 2:00	0	0	0	5.54	0	0	0	0
9/25/2008 2:30	0	0	0	5.54	0	0	0	0
9/25/2008 3:00	0	0	0	5.54	0	0	0	0
9/25/2008 3:30	0	0	0	5.54	0	0	0	0
9/25/2008 4:00	0	0	0	5.54	0	0	0	0
9/25/2008 4:30	0	0	0	5.54	0	0	0	0
9/25/2008 5:00	0	0	0	5.54	0	0	0	0
9/25/2008 5:30	0	0	0	5.54	0	0	0	0
9/25/2008 6:00	0	50.71	50.71	5.54	0	0	0	0
9/25/2008 6:30	4.37	48.3	11.05	5.54	-24.09	-7.47	0	0
9/25/2008 7:00	35.76	51.84	1.45	5.54	146.27	45.34	146.27	45.34
9/25/2008 7:30	44.91	52.64	1.17	5.54	196.16	60.81	196.16	60.81
9/25/2008 8:00	50.15	52.67	1.05	5.54	225.16	69.8	225.16	69.8
9/25/2008 8:30	46.85	52.44	1.12	5.54	207.11	64.2	207.11	64.2
9/25/2008 9:00	45.7	53.79	1.18	5.54	199.39	61.81	199.39	61.81
9/25/2008 9:30	45.54	54.22	1.19	5.54	198.07	61.4	198.07	61.4
9/25/2008 10:00	45.25	54.46	1.2	5.54	196.23	60.83	196.23	60.83
9/25/2008 10:30	45.3	53.64	1.18	5.54	197.32	61.17	197.32	61.17
9/25/2008 11:00	45.17	52.94	1.17	5.54	197.3	61.16	197.3	61.16
9/25/2008 11:30	45.22	51.58	1.14	5.54	198.94	61.67	198.94	61.67
9/25/2008 12:00	45.42	50.93	1.12	5.54	200.7	62.22	200.7	62.22

9/25/2008 12:30	45.29	50.93	1.12	5.54	199.98	61.99	199.98	61.99
9/25/2008 13:00	45.39	51.05	1.12	5.54	200.41	62.13	200.41	62.13
9/25/2008 13:30	45.37	50.57	1.11	5.54	200.78	62.24	200.78	62.24
9/25/2008 14:00	45.34	50.69	1.12	5.54	200.49	62.15	200.49	62.15
9/25/2008 14:30	45.34	50.39	1.11	5.54	200.79	62.25	200.79	62.25
9/25/2008 15:00	45.79	50.51	1.1	5.54	203.17	62.98	203.17	62.98
9/25/2008 15:30	45.06	50.08	1.11	5.54	199.55	61.86	199.55	61.86
9/25/2008 16:00	45.36	50.1	1.1	5.54	201.19	62.37	201.19	62.37
9/25/2008 16:30	45.52	50.28	1.1	5.54	201.9	62.59	201.9	62.59
9/25/2008 17:00	45.5	50.08	1.1	5.54	201.99	62.62	201.99	62.62
9/25/2008 17:30	45.49	50.55	1.11	5.54	201.46	62.45	201.46	62.45
9/25/2008 18:00	45.45	50.33	1.11	5.54	201.46	62.45	201.46	62.45
9/25/2008 18:30	45.32	50.34	1.11	5.54	200.73	62.23	200.73	62.23
9/25/2008 19:00	45.51	50.42	1.11	5.54	201.71	62.53	201.71	62.53
9/25/2008 19:30	45.34	50.17	1.11	5.54	201.01	62.31	201.01	62.31
9/25/2008 20:00	45.22	50.17	1.11	5.54	200.35	62.11	200.35	62.11
9/25/2008 20:30	45.5	50.22	1.1	5.54	201.85	62.57	201.85	62.57
9/25/2008 21:00	45.42	49.95	1.1	5.54	201.68	62.52	201.68	62.52
9/25/2008 21:30	45.39	50.09	1.1	5.54	201.37	62.42	201.37	62.42
9/25/2008 22:00	45.26	50.05	1.11	5.54	200.69	62.21	200.69	62.21
9/25/2008 22:30	45.51	49.98	1.1	5.54	202.15	62.67	202.15	62.67
9/25/2008 23:00	45.37	49.76	1.1	5.54	201.59	62.49	201.59	62.49
9/25/2008 23:30	45.46	50.12	1.1	5.54	201.73	62.54	201.73	62.54
TOTAL:	771.9	919.8	1.2	5.54	3356.5	1040.5	3395.3	1052.5

Verified,
Vice Exe Director
Eng. Kr. Berbenkov:



AGROPOLYCHIM

Member of the Acid & Fertilizers Group

Industrial zone, Devnya 9160, tel.: 0519/97526, fax: 0519/97594, www.agropolychim.bg

Confirmed:

Vice CEO
(eng. Kr. Berbenkov)

Protocol No. 8/2008


The incorrect value of the N_2O emission reduction was recorded on the 15.10.2008 during the breaking operation of the nitric acid plant. The operation was initiated from leak of water in the steam generator in one of the reactors. More details are given in the average report № 38/2008.


The data from the 15th of October 2008 are presented in table 1.

The data from the 17th of October 2008 are presented in table 2.

The registered value for the N_2O emission recorded at 23:30 on the 15.10.2008 was corrected from 204.26 kg to 0 kg. The same procedure was used for the correction of the CO_2 emission reduction.

The registered value for the N_2O emission recorded at 7:00 on the 17.10.2008 was corrected from -86.4 kg to 0 kg. The same procedure was used for the correction of the CO_2 emission reduction.

Eng. G. Boshov – Manager nitric acid plant 

Eng. R. Gavrilov – Chemical engineer ecoprograms 

R. Gavrilov

1

Table 1

Day	Production of 100 % HNO3	N2O emission	Emission factor actual	Emission factor baseline	Emission reduction N2O	Emission reduction CO2	Corrected emission reduction N2O	Corrected emission reduction CO2
	[ton]	[kg]	[kg/ton]	[kg/ton]	[kg]	[eq. ton]	[kg]	[eq. ton]
10/15/2008 0:00	42.45	65.95	1.55	5.54	169.22	52.46	169.22	52.46
10/15/2008 0:30	42.35	65.85	1.55	5.54	168.77	52.32	168.77	52.32
10/15/2008 1:00	42.28	66.48	1.57	5.54	167.75	52	167.75	52
10/15/2008 1:30	42.24	66.07	1.56	5.54	167.94	52.06	167.94	52.06
10/15/2008 2:00	42.25	65.77	1.56	5.54	168.3	52.17	168.3	52.17
10/15/2008 2:30	42.26	65.81	1.56	5.54	168.31	52.18	168.31	52.18
10/15/2008 3:00	42.24	65.88	1.56	5.54	168.13	52.12	168.13	52.12
10/15/2008 3:30	42.28	65.99	1.56	5.54	168.24	52.15	168.24	52.15
10/15/2008 4:00	42.36	66.16	1.56	5.54	168.51	52.24	168.51	52.24
10/15/2008 4:30	42.31	66.69	1.58	5.54	167.71	51.99	167.71	51.99
10/15/2008 5:00	42.42	66.62	1.57	5.54	168.39	52.2	168.39	52.2
10/15/2008 5:30	42.31	63.34	1.5	5.54	171.06	53.03	171.06	53.03
10/15/2008 6:00	42.26	64.95	1.54	5.54	169.17	52.44	169.17	52.44
10/15/2008 6:30	42.31	65.07	1.54	5.54	169.33	52.49	169.33	52.49
10/15/2008 7:00	42.43	65.28	1.54	5.54	169.78	52.63	169.78	52.63
10/15/2008 7:30	41.41	59.1	1.43	5.54	170.31	52.8	170.31	52.8
10/15/2008 8:00	37.65	52.71	1.4	5.54	155.87	48.32	155.87	48.32
10/15/2008 8:30	36.64	52.24	1.43	5.54	150.75	46.73	150.75	46.73
10/15/2008 9:00	36.8	52.3	1.42	5.54	151.57	46.99	151.57	46.99
10/15/2008 9:30	36.69	52.68	1.44	5.54	150.58	46.68	150.58	46.68
10/15/2008 10:00	36.99	52.76	1.43	5.54	152.16	47.17	152.16	47.17
10/15/2008 10:30	36.91	52.99	1.44	5.54	151.49	46.96	151.49	46.96
10/15/2008 11:00	36.71	53.02	1.44	5.54	150.35	46.61	150.35	46.61
10/15/2008 11:30	36.59	52.94	1.45	5.54	149.77	46.43	149.77	46.43
10/15/2008 12:00	36.86	53.07	1.44	5.54	151.13	46.85	151.13	46.85

10/15/2008 12:30	36.48	53.35	1.46	5.54	148.75	46.11	148.75	46.11
10/15/2008 13:00	36.53	53.13	1.45	5.54	149.25	46.27	149.25	46.27
10/15/2008 13:30	36.48	52.84	1.45	5.54	149.26	46.27	149.26	46.27
10/15/2008 14:00	36.53	53.31	1.46	5.54	149.07	46.21	149.07	46.21
10/15/2008 14:30	36.59	52.55	1.44	5.54	150.16	46.55	150.16	46.55
10/15/2008 15:00	36.29	52.46	1.45	5.54	148.59	46.06	148.59	46.06
10/15/2008 15:30	37.83	52.66	1.39	5.54	156.92	48.64	156.92	48.64
10/15/2008 16:00	36.41	52.81	1.45	5.54	148.9	46.16	148.9	46.16
10/15/2008 16:30	36.62	52.87	1.44	5.54	150	46.5	150	46.5
10/15/2008 17:00	36.49	52.78	1.45	5.54	149.37	46.31	149.37	46.31
10/15/2008 17:30	36.62	53.27	1.45	5.54	149.6	46.38	149.6	46.38
10/15/2008 18:00	36.56	53.64	1.47	5.54	148.9	46.16	148.9	46.16
10/15/2008 18:30	36.74	53.74	1.46	5.54	149.8	46.44	149.8	46.44
10/15/2008 19:00	36.76	53.62	1.46	5.54	150.03	46.51	150.03	46.51
10/15/2008 19:30	36.79	53.46	1.45	5.54	150.36	46.61	150.36	46.61
10/15/2008 20:00	36.82	53.48	1.45	5.54	150.5	46.66	150.5	46.66
10/15/2008 20:30	36.84	53.32	1.45	5.54	150.77	46.74	150.77	46.74
10/15/2008 21:00	36.81	53.59	1.46	5.54	150.34	46.6	150.34	46.6
10/15/2008 21:30	36.95	53.85	1.46	5.54	150.85	46.76	150.85	46.76
10/15/2008 22:00	36.97	53.5	1.45	5.54	151.31	46.91	151.31	46.91
10/15/2008 22:30	36.86	54.04	1.47	5.54	150.16	46.55	150.16	46.55
10/15/2008 23:00	36.84	53.46	1.45	5.54	150.63	46.7	150.63	46.7
10/15/2008 23:30	36.87	0	0	5.54	204.26	63.32	0	0
TOTAL:	926.3	1344.5	1.5	5.54	3787.2	1174	3684.1	1142.1

Verified,
Vice Exe Director
Eng. Kr. Berbenkov:

Table 2

Day	Production of 100 % HNO ₃ [ton]	N ₂ O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N ₂ O [kg]	Emission reduction CO ₂ [eq. ton]	Corrected emission reduction N ₂ O [kg]	Corrected emission reduction CO ₂ [eq. ton]
10/17/2008 0:00	0	0	0	5.54	0	0	0	0
10/17/2008 0:30	0	0	0	5.54	0	0	0	0
10/17/2008 1:00	0	0	0	5.54	0	0	0	0
10/17/2008 1:30	0	0	0	5.54	0	0	0	0
10/17/2008 2:00	0	0	0	5.54	0	0	0	0
10/17/2008 2:30	0	0	0	5.54	0	0	0	0
10/17/2008 3:00	0	0	0	5.54	0	0	0	0
10/17/2008 3:30	0	0	0	5.54	0	0	0	0
10/17/2008 4:00	0	0	0	5.54	0	0	0	0
10/17/2008 4:30	0	0	0	5.54	0	0	0	0
10/17/2008 5:00	0	0	0	5.54	0	0	0	0
10/17/2008 5:30	0	0	0	5.54	0	0	0	0
10/17/2008 6:00	0	0	0	5.54	0	0	0	0
10/17/2008 6:30	0	0	0	5.54	0	0	0	0
10/17/2008 7:00	0.25	87.78	351.12	5.54	-86.4	-26.78	0	0
10/17/2008 7:30	29.92	70.92	2.37	5.54	94.84	29.4	94.84	29.4
10/17/2008 8:00	32.97	61.48	1.86	5.54	121.17	37.56	121.17	37.56
10/17/2008 8:30	40.74	59.87	1.47	5.54	165.83	51.41	165.83	51.41
10/17/2008 9:00	38.72	57.88	1.49	5.54	156.63	48.55	156.63	48.55
10/17/2008 9:30	38.34	56.96	1.49	5.54	155.44	48.19	155.44	48.19
10/17/2008 10:00	38.24	56.15	1.47	5.54	155.7	48.27	155.7	48.27
10/17/2008 10:30	37.67	55.94	1.49	5.54	152.75	47.35	152.75	47.35
10/17/2008 11:00	37.86	57.05	1.51	5.54	152.69	47.34	152.69	47.34
10/17/2008 11:30	37.34	56.19	1.5	5.54	150.67	46.71	150.67	46.71
10/17/2008 12:00	37.29	55.04	1.48	5.54	151.55	46.98	151.55	46.98

10/17/2008 12:30	36.81	53.8	1.46	5.54	150.13	46.54	150.13	46.54
10/17/2008 13:00	36.68	52.31	1.43	5.54	150.9	46.78	150.9	46.78
10/17/2008 13:30	36.26	51.77	1.43	5.54	149.11	46.22	149.11	46.22
10/17/2008 14:00	35.91	51.38	1.43	5.54	147.56	45.74	147.56	45.74
10/17/2008 14:30	35.94	51.41	1.43	5.54	147.7	45.79	147.7	45.79
10/17/2008 15:00	35.76	51.2	1.43	5.54	146.91	45.54	146.91	45.54
10/17/2008 15:30	36.65	50.89	1.39	5.54	152.15	47.17	152.15	47.17
10/17/2008 16:00	35.98	51.89	1.44	5.54	147.44	45.71	147.44	45.71
10/17/2008 16:30	35.94	53.1	1.48	5.54	146.01	45.26	146.01	45.26
10/17/2008 17:00	36.06	54.49	1.51	5.54	145.28	45.04	145.28	45.04
10/17/2008 17:30	36.2	55.98	1.55	5.54	144.57	44.82	144.57	44.82
10/17/2008 18:00	36.29	58.11	1.6	5.54	142.94	44.31	142.94	44.31
10/17/2008 18:30	36.59	59.54	1.63	5.54	143.17	44.38	143.17	44.38
10/17/2008 19:00	36.79	60.53	1.65	5.54	143.29	44.42	143.29	44.42
10/17/2008 19:30	36.87	61.32	1.66	5.54	142.94	44.31	142.94	44.31
10/17/2008 20:00	37.01	61.38	1.66	5.54	143.66	44.53	143.66	44.53
10/17/2008 20:30	37.11	54.22	1.46	5.54	151.37	46.92	151.37	46.92
10/17/2008 21:00	36.61	56.34	1.54	5.54	146.48	45.41	146.48	45.41
10/17/2008 21:30	36.67	58.33	1.59	5.54	144.82	44.89	144.82	44.89
10/17/2008 22:00	36.94	59.81	1.62	5.54	144.84	44.9	144.84	44.9
10/17/2008 22:30	37.07	59.97	1.62	5.54	145.4	45.07	145.4	45.07
10/17/2008 23:00	37.05	59.6	1.61	5.54	145.66	45.15	145.66	45.15
10/17/2008 23:30	37.04	59.77	1.61	5.54	145.43	45.08	145.43	45.08
TOTAL:	604.8	983.8	1.6	5.54	2366.8	733.7	2412.5	747.9
Verified, Vice Exe Director Eng. Kr. Berbenkov:								

Protocols for the data corrections 2009



AGROPOLYCHIM

Member of the Acid & Fertilizers Group

Industrial zone, Devnya 9160, tel.: 0519/97526, fax: 0519/97594, www.agropolychim.bg

Vice CEO

Confirmed:

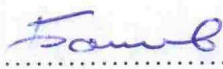
(eng. Kr. Berbenkov)



Protocol No.01/2009

Because of the error of the continuous monitoring system for NOx emissions from the nitric acid plant, the emissions were not recorded on the 6.02.2009 from 8:30 to 9:00 and from 19:30 to 22:30. During the period the plant worked under the normal working conditions and a change of the NOx emission is not expected. The data were corrected in accordance with the procedure for correcting of false-recorded data from the continuous monitoring system for NOx emissions from the nitric acid plant using the data from the previous hours normal work of the plant. In this case, the data for the previous hours normal work of the plant were used.

The data for the 6.02.2009 are presented in table 1.

Eng. G. Boshov – Manager nitric acid plant 

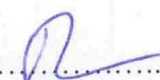
Eng. R. Gavrilov – Chemical engineer ecoprograms 

Table 1

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		$(2) \times (5) - (2) \times (4)$	$[(6) \times 310] / 1000$		
06/02/2009 00:00	46	108.9	2.37	5.54	145.94	45.24	145.94	45.24
06/02/2009 00:30	45.91	109.01	2.37	5.54	145.33	45.05	145.33	45.05
06/02/2009 01:00	45.98	108.48	2.36	5.54	146.25	45.34	146.25	45.34
06/02/2009 01:30	46.12	108.7	2.36	5.54	146.8	45.51	146.8	45.51
06/02/2009 02:00	45.92	108.82	2.37	5.54	145.58	45.13	145.58	45.13
06/02/2009 02:30	45.82	109.46	2.39	5.54	144.38	44.76	144.38	44.76
06/02/2009 03:00	45.85	108.63	2.37	5.54	145.38	45.07	145.38	45.07
06/02/2009 03:30	45.76	108.94	2.38	5.54	144.57	44.82	144.57	44.82
06/02/2009 04:00	45.84	108.64	2.37	5.54	145.31	45.05	145.31	45.05
06/02/2009 04:30	45.75	108.9	2.38	5.54	144.56	44.81	144.56	44.81
06/02/2009 05:00	45.87	108.16	2.36	5.54	145.96	45.25	145.96	45.25
06/02/2009 05:30	45.7	108.89	2.38	5.54	144.29	44.73	144.29	44.73
06/02/2009 06:00	45.84	108.57	2.37	5.54	145.38	45.07	145.38	45.07
06/02/2009 06:30	45.81	108.95	2.38	5.54	144.84	44.9	144.84	44.9
06/02/2009 07:00	45.97	108.85	2.37	5.54	145.82	45.21	145.82	45.21
06/02/2009 07:30	45.78	109.08	2.38	5.54	144.54	44.81	144.54	44.81
06/02/2009 08:00	45.91	109.22	2.38	5.54	145.12	44.99	145.12	44.99
06/02/2009 08:30	45.99	108.31	2.36	5.54	146.47	45.41	146.47	45.41
06/02/2009 09:00	0	0		5.54	0	0	146.47	45.41
06/02/2009 09:30	45.78	108.9	2.38	5.54	144.72	44.86	144.72	44.86
06/02/2009 10:00	45.92	109.39	2.38	5.54	145.01	44.95	145.01	44.95
06/02/2009 10:30	45.74	110.14	2.41	5.54	143.26	44.41	143.26	44.41
06/02/2009 11:00	45.75	109.7	2.4	5.54	143.76	44.56	143.76	44.56
06/02/2009 11:30	45.56	110.4	2.42	5.54	142	44.02	142	44.02
06/02/2009 12:00	45.46	110.78	2.44	5.54	141.07	43.73	141.07	43.73
06/02/2009 12:30	45.34	110.34	2.43	5.54	140.84	43.66	140.84	43.66
06/02/2009 13:00	45.23	110.52	2.44	5.54	140.05	43.42	140.05	43.42
06/02/2009 13:30	45.3	110.18	2.43	5.54	140.78	43.64	140.78	43.64
06/02/2009 14:00	45.38	110.07	2.43	5.54	141.34	43.81	141.34	43.81
06/02/2009 14:30	45.58	110.32	2.42	5.54	142.19	44.08	142.19	44.08

06/02/2009 15:00	45.51	109.81	2.41	5.54	142.32	44.12	142.32	44.12
06/02/2009 15:30	45.45	109.73	2.41	5.54	142.06	44.04	142.06	44.04
06/02/2009 16:00	45.46	110.01	2.42	5.54	141.84	43.97	141.84	43.97
06/02/2009 16:30	45.57	109.88	2.41	5.54	142.58	44.2	142.58	44.2
06/02/2009 17:00	45.61	109.84	2.41	5.54	142.84	44.28	142.84	44.28
06/02/2009 17:30	45.65	109.76	2.4	5.54	143.14	44.37	143.14	44.37
06/02/2009 18:00	45.74	109.05	2.38	5.54	144.35	44.75	144.35	44.75
06/02/2009 18:30	45.71	109.4	2.39	5.54	143.83	44.59	143.83	44.59
06/02/2009 19:00	45.76	109.43	2.39	5.54	144.08	44.66	144.08	44.66
06/02/2009 19:30	45.83	109.23	2.38	5.54	144.67	44.85	144.67	44.85
06/02/2009 20:00	0	0		5.54	0	0	142.84	44.28
06/02/2009 20:30	0	0		5.54	0	0	143.14	44.37
06/02/2009 21:00	0	0		5.54	0	0	144.35	44.75
06/02/2009 21:30	0	0		5.54	0	0	143.83	44.59
06/02/2009 22:00	0	0		5.54	0	0	144.08	44.66
06/02/2009 22:30	0	0		5.54	0	0	144.67	44.85
06/02/2009 23:00	45.73	87.26	1.91	5.54	166.08	51.49	166.08	51.49
06/02/2009 23:30	45.8	109.3	2.39	5.54	144.43	44.77	144.43	44.77
TOTAL:	937.3	2230.9	2.4	5.54	2961.9	918.8	3466.57	1074.645
Verified, Vice Exe Director Eng. Kr. Berbenkov:								



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Vice CEO



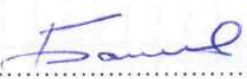
Protocol No.02/2009


The nitric acid plant was stopped because of a temperature increasing of the bearing of the compressor train. At 23:03 on the 17.03.2009 the bearing temperature began to increase. The blocking system was activated and the shut down of the nitric acid plant was initialized. More details are given in the average report № 4/2009. The plant was stated at 10:10 on the 18.03.2009.

The nitric acid was drained in a tank. The measuring system calculated wrong the draining as N_2O reduction. The data for the 17.03.2009 are presented in table 1. The registered value for the N_2O emission recorded at 23:00 on the 17.03.2009 was corrected from 214.9 kg to 0 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

During the plant start negative values for the emission reduction was calculated. These values were corrected.

The registered value for the N_2O emission recorded at 10:00 on the 18.03.2009 was corrected from -120.23 kg to 0 kg N_2O etc. till 10:30 on the 18.03.2009, where the value was corrected from -65.48 kg N_2O to 0 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

Eng. G. Boshov – Manager nitric acid plant 

Eng. R. Gavrilov – Chemical engineer ecoprograms 

R. Gavrilov

1

Table 1

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
			(3)/(2)		(2)*(5)- (2)*(4)	[(6)*310]/1000		
17/03/2009 00:00	46	133.77	2.91	5.54	121.07	37.53	121.07	37.53
17/03/2009 00:30	46.14	133.8	2.9	5.54	121.82	37.76	121.82	37.76
17/03/2009 01:00	46.02	134.39	2.92	5.54	120.56	37.37	120.56	37.37
17/03/2009 01:30	45.93	134.63	2.93	5.54	119.82	37.14	119.82	37.14
17/03/2009 02:00	46.03	133.46	2.9	5.54	121.55	37.68	121.55	37.68
17/03/2009 02:30	46.03	133.66	2.9	5.54	121.35	37.62	121.35	37.62
17/03/2009 03:00	46.08	133.66	2.9	5.54	121.62	37.7	121.62	37.7
17/03/2009 03:30	45.97	133.34	2.9	5.54	121.33	37.61	121.33	37.61
17/03/2009 04:00	46.01	132.88	2.89	5.54	122.02	37.82	122.02	37.82
17/03/2009 04:30	46	133.13	2.89	5.54	121.71	37.73	121.71	37.73
17/03/2009 05:00	45.99	133.43	2.9	5.54	121.35	37.62	121.35	37.62
17/03/2009 05:30	45.91	133.58	2.91	5.54	120.76	37.44	120.76	37.44
17/03/2009 06:00	45.98	133.4	2.9	5.54	121.33	37.61	121.33	37.61
17/03/2009 06:30	46.19	132.93	2.88	5.54	122.96	38.12	122.96	38.12
17/03/2009 07:00	46.21	133.47	2.89	5.54	122.53	37.99	122.53	37.99
17/03/2009 07:30	45.97	134.16	2.92	5.54	120.51	37.36	120.51	37.36
17/03/2009 08:00	45.99	134.3	2.92	5.54	120.48	37.35	120.48	37.35
17/03/2009 08:30	45.8	135.88	2.97	5.54	117.85	36.53	117.85	36.53
17/03/2009 09:00	45.89	134.87	2.94	5.54	119.36	37	119.36	37
17/03/2009 09:30	46.23	131.48	2.84	5.54	124.63	38.64	124.63	38.64
17/03/2009 10:00	45.99	132.67	2.88	5.54	122.11	37.86	122.11	37.86
17/03/2009 10:30	45.98	134.59	2.93	5.54	120.14	37.24	120.14	37.24
17/03/2009 11:00	45.99	134.49	2.92	5.54	120.29	37.29	120.29	37.29
17/03/2009 11:30	45.87	134.64	2.94	5.54	119.48	37.04	119.48	37.04
17/03/2009 12:00	46.09	133.55	2.9	5.54	121.79	37.75	121.79	37.75
17/03/2009 12:30	45.83	134.06	2.93	5.54	119.84	37.15	119.84	37.15
17/03/2009 13:00	46.05	133.66	2.9	5.54	121.46	37.65	121.46	37.65
17/03/2009 13:30	45.98	134.18	2.92	5.54	120.55	37.37	120.55	37.37
17/03/2009 14:00	45.91	133.68	2.91	5.54	120.66	37.41	120.66	37.41
17/03/2009 14:30	45.81	133.83	2.92	5.54	119.96	37.19	119.96	37.19

17/03/2009 15:00	45.82	134.32	2.93	5.54	119.52	37.05	119.52	37.05
17/03/2009 15:30	45.91	133.4	2.91	5.54	120.94	37.49	120.94	37.49
17/03/2009 16:00	45.88	133.44	2.91	5.54	120.74	37.43	120.74	37.43
17/03/2009 16:30	45.93	133.87	2.91	5.54	120.58	37.38	120.58	37.38
17/03/2009 17:00	45.79	133.42	2.91	5.54	120.26	37.28	120.26	37.28
17/03/2009 17:30	45.9	133.4	2.91	5.54	120.89	37.47	120.89	37.47
17/03/2009 18:00	45.9	133.83	2.92	5.54	120.46	37.34	120.46	37.34
17/03/2009 18:30	46.01	133.42	2.9	5.54	121.48	37.66	121.48	37.66
17/03/2009 19:00	45.87	134	2.92	5.54	120.12	37.24	120.12	37.24
17/03/2009 19:30	45.86	133.88	2.92	5.54	120.18	37.26	120.18	37.26
17/03/2009 20:00	45.78	133.97	2.93	5.54	119.65	37.09	119.65	37.09
17/03/2009 20:30	45.86	133.7	2.92	5.54	120.36	37.31	120.36	37.31
17/03/2009 21:00	45.92	133.52	2.91	5.54	120.88	37.47	120.88	37.47
17/03/2009 21:30	45.93	133.6	2.91	5.54	120.85	37.46	120.85	37.46
17/03/2009 22:00	45.84	133.85	2.92	5.54	120.1	37.23	120.1	37.23
17/03/2009 22:30	38.8	0	0	5.54	214.95	66.64	0	0
17/03/2009 23:00	0	0	0	5.54	0	0	0	0
17/03/2009 23:30	0	0	0	5.54	0	0	0	0
TOTAL:	1053.4	3009.7	2.9	5.54	2826.1	876	2719.0	842.9
Verified, Vice Exe Director Eng. Kr. Berbenkov:								

Table 2

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)- (2)*(4)	[(6)*310]/1000		
18/03/2009 00:00	0	0	0	5.54	0	0	0	0
18/03/2009 00:30	0	0	0	5.54	0	0	0	0
18/03/2009 01:00	0	0	0	5.54	0	0	0	0
18/03/2009 01:30	0	0	0	5.54	0	0	0	0
18/03/2009 02:00	0	0	0	5.54	0	0	0	0
18/03/2009 02:30	0	0	0	5.54	0	0	0	0

18/03/2009 03:00	0	0	0	5.54	0	0	0	0
18/03/2009 03:30	0	0	0	5.54	0	0	0	0
18/03/2009 04:00	0	0	0	5.54	0	0	0	0
18/03/2009 04:30	0	0	0	5.54	0	0	0	0
18/03/2009 05:00	0	0	0	5.54	0	0	0	0
18/03/2009 05:30	0	0	0	5.54	0	0	0	0
18/03/2009 06:00	0	0	0	5.54	0	0	0	0
18/03/2009 06:30	0	0	0	5.54	0	0	0	0
18/03/2009 07:00	0	0	0	5.54	0	0	0	0
18/03/2009 07:30	0	0	0	5.54	0	0	0	0
18/03/2009 08:00	0	0	0	5.54	0	0	0	0
18/03/2009 08:30	0	0	0	5.54	0	0	0	0
18/03/2009 09:00	0	0	0	5.54	0	0	0	0
18/03/2009 09:30	0	0	0	5.54	0	0	0	0
18/03/2009 10:00	0.02	120.34	6017	5.54	-120.23	-37.27	0	0
18/03/2009 10:30	19.41	173.01	8.91	5.54	-65.48	-20.3	0	0
18/03/2009 11:00	41.39	128.88	3.11	5.54	100.42	31.13	100.42	31.13
18/03/2009 11:30	41.09	140.72	3.42	5.54	86.92	26.94	86.92	26.94
18/03/2009 12:00	39.42	137.19	3.48	5.54	81.2	25.17	81.2	25.17
18/03/2009 12:30	46.79	133	2.84	5.54	126.22	39.13	126.22	39.13
18/03/2009 13:00	43.94	135.13	3.08	5.54	108.3	33.57	108.3	33.57
18/03/2009 13:30	45.52	134.98	2.97	5.54	117.2	36.33	117.2	36.33
18/03/2009 14:00	45.88	133.81	2.92	5.54	120.37	37.31	120.37	37.31
18/03/2009 14:30	46.08	133.36	2.89	5.54	121.92	37.8	121.92	37.8
18/03/2009 15:00	45.93	134.63	2.93	5.54	119.82	37.14	119.82	37.14
18/03/2009 15:30	45.54	134.51	2.95	5.54	117.78	36.51	117.78	36.51
18/03/2009 16:00	46.55	133.03	2.86	5.54	124.86	38.71	124.86	38.71
18/03/2009 16:30	45.73	135.68	2.97	5.54	117.66	36.48	117.66	36.48
18/03/2009 17:00	45.98	135.8	2.95	5.54	118.93	36.87	118.93	36.87
18/03/2009 17:30	45.85	136.65	2.98	5.54	117.36	36.38	117.36	36.38
18/03/2009 18:00	45.79	136.66	2.98	5.54	117.02	36.28	117.02	36.28
18/03/2009 18:30	45.79	136.6	2.98	5.54	117.08	36.29	117.08	36.29
18/03/2009 19:00	45.76	137.13	3	5.54	116.38	36.08	116.38	36.08
18/03/2009 19:30	45.76	136.53	2.98	5.54	116.98	36.26	116.98	36.26
18/03/2009 20:00	45.76	136.93	2.99	5.54	116.58	36.14	116.58	36.14
18/03/2009 20:30	45.68	136.69	2.99	5.54	116.38	36.08	116.38	36.08
18/03/2009 21:00	45.8	136.38	2.98	5.54	117.35	36.38	117.35	36.38

18/03/2009 21:30	45.77	136.46	2.98	5.54	117.11	36.3	117.11	36.3
18/03/2009 22:00	45.96	136.04	2.96	5.54	118.58	36.76	118.58	36.76
18/03/2009 22:30	46.11	135.54	2.94	5.54	119.91	37.17	119.91	37.17
18/03/2009 23:00	45.9	135.73	2.96	5.54	118.56	36.75	118.56	36.75
18/03/2009 23:30	45.66	135.76	2.97	5.54	117.2	36.33	117.2	36.33
TOTAL:	597.4	1908.6	3.2	5.54	1397.9	433.3	1494.0	463.1
Verified, Vice Exe Director Eng. Kr. Berbenkov:								



AGROPOLYCHIM

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Confirmed:

Vice CEO

(eng. Kr. Berbenkov)

Protocol No.03/2009

The internal calibration of the gas analyzer for the measurement of NO_x in the nitric acid plant was made on the 12.08.2009. The detailed description of the procedure is given in the report № 174 from 12.08.2009. During the test the plant worked under normal working conditions. All other process parameters were in the normal boundaries. The data were corrected in accordance with the procedure for the correcting of false-recorded data from the continuous monitoring system for NO_x emissions from the nitric plant using the data from the previous one hour normal work of the plant.

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms

Table 1

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000		
11/08/2009 00:00	0	0	0	5.54	0	0	0	0
11/08/2009 00:30	0	0	0	5.54	0	0	0	0
11/08/2009 01:00	0	0	0	5.54	0	0	0	0
11/08/2009 01:30	0	0	0	5.54	0	0	0	0
11/08/2009 02:00	0	0	0	5.54	0	0	0	0
11/08/2009 02:30	0	0	0	5.54	0	0	0	0
11/08/2009 03:00	0	0	0	5.54	0	0	0	0
11/08/2009 03:30	0	0	0	5.54	0	0	0	0
11/08/2009 04:00	0	0	0	5.54	0	0	0	0
11/08/2009 04:30	0	0	0	5.54	0	0	0	0
11/08/2009 05:00	0	0	0	5.54	0	0	0	0
11/08/2009 05:30	0	0	0	5.54	0	0	0	0
11/08/2009 06:00	0	0	0	5.54	0	0	0	0
11/08/2009 06:30	0	0	0	5.54	0	0	0	0
11/08/2009 07:00	0	0	0	5.54	0	0	0	0
11/08/2009 07:30	0	0	0	5.54	0	0	0	0
11/08/2009 08:00	0	0	0	5.54	0	0	0	0
11/08/2009 08:30	0	0	0	5.54	0	0	0	0
11/08/2009 09:00	0	0	0	5.54	0	0	0	0
11/08/2009 09:30	0	0	0	5.54	0	0	0	0
11/08/2009 10:00	0	0	0	5.54	0	0	0	0
11/08/2009 10:30	0	0	0	5.54	0	0	0	0
11/08/2009 11:00	0	0	0	5.54	0	0	0	0
11/08/2009 11:30	0	0	0	5.54	0	0	0	0
11/08/2009 12:00	0	0	0	5.54	0	0	0	0
11/08/2009 12:30	0	0	0	5.54	0	0	0	0
11/08/2009 13:00	0	0	0	5.54	0	0	0	0
11/08/2009 13:30	0	0	0	5.54	0	0	0	0
11/08/2009 14:00	0	0	0	5.54	0	0	0	0

11/08/2009 14:30	0	0	0	5.54	0	0	0	0
11/08/2009 15:00	0	0	0	5.54	0	0	0	0
11/08/2009 15:30	0	0	0	5.54	0	0	0	0
11/08/2009 16:00	0	0	0	5.54	0	0	0	0
11/08/2009 16:30	0	0	0	5.54	0	0	0	0
11/08/2009 17:00	0	0	0	5.54	0	0	0	0
11/08/2009 17:30	8.87	165.84	18.7	5.54	-116.7	-36.18	0	0
11/08/2009 18:00	31.82	148.74	4.67	5.54	27.54	8.54	27.54	8.54
11/08/2009 18:30	37.62	151.38	4.02	5.54	57.03	17.68	57.03	17.68
11/08/2009 19:00	39.42	155.37	3.94	5.54	63.02	19.54	63.02	19.54
11/08/2009 19:30	37.79	158.99	4.21	5.54	50.37	15.61	50.37	15.61
11/08/2009 20:00	36.56	160.94	4.4	5.54	41.6	12.9	41.6	12.9
11/08/2009 20:30	37.95	164.59	4.34	5.54	45.65	14.15	45.65	14.15
11/08/2009 21:00	37.7	162.24	4.3	5.54	46.62	14.45	46.62	14.45
11/08/2009 21:30	38.14	162.13	4.25	5.54	49.17	15.24	49.17	15.24
11/08/2009 22:00	38.55	155	4.02	5.54	58.57	18.16	58.57	18.16
11/08/2009 22:30	39	152.68	3.91	5.54	63.38	19.65	63.38	19.65
11/08/2009 23:00	38.74	152.4	3.93	5.54	62.22	19.29	62.22	19.29
11/08/2009 23:30	38.98	151.79	3.89	5.54	64.16	19.89	64.16	19.89
TOTAL:	230.6	1021.0	4.7	5.54	256.3	79.5	314.7	97.6
Verified, Vice Exe Director Eng. Kr. Berbenkov:								

Table 2

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000		
12/08/2009 00:00	39.37	150.5	3.82	5.54	67.61	20.96	67.61	20.96
12/08/2009 00:30	39.28	149.65	3.81	5.54	67.96	21.07	67.96	21.07
12/08/2009 01:00	39.47	144.74	3.67	5.54	73.92	22.92	73.92	22.92
12/08/2009 01:30	39.64	144.37	3.64	5.54	75.24	23.32	75.24	23.32
12/08/2009 02:00	39.69	144.5	3.64	5.54	75.38	23.37	75.38	23.37
12/08/2009	39.77	144.41	3.63	5.54	75.92	23.53	75.92	23.53

02:30								
12/08/2009 03:00	39.65	144.65	3.65	5.54	75.01	23.25	75.01	23.25
12/08/2009 03:30	39.88	144.29	3.62	5.54	76.65	23.76	76.65	23.76
12/08/2009 04:00	39.81	143.68	3.61	5.54	76.87	23.83	76.87	23.83
12/08/2009 04:30	39.88	143.13	3.59	5.54	77.81	24.12	77.81	24.12
12/08/2009 05:00	39.84	143.14	3.59	5.54	77.57	24.05	77.57	24.05
12/08/2009 05:30	39.99	143.25	3.58	5.54	78.29	24.27	78.29	24.27
12/08/2009 06:00	39.97	143.17	3.58	5.54	78.26	24.26	78.26	24.26
12/08/2009 06:30	40.02	141.58	3.54	5.54	80.13	24.84	80.13	24.84
12/08/2009 07:00	39.8	139.78	3.51	5.54	80.71	25.02	80.71	25.02
12/08/2009 07:30	39.79	141.48	3.56	5.54	78.96	24.48	78.96	24.48
12/08/2009 08:00	39.89	143.59	3.6	5.54	77.4	23.99	77.4	23.99
12/08/2009 08:30	40.04	139.6	3.49	5.54	82.22	25.49	82.22	25.49
12/08/2009 09:00	42.47	135.97	3.2	5.54	99.31	30.79	99.31	30.79
12/08/2009 09:30	43.79	132.22	3.02	5.54	110.38	34.22	110.38	34.22
12/08/2009 10:00	42.96	129.32	3.01	5.54	108.68	33.69	108.68	33.69
12/08/2009 10:30	42.4	124.97	2.95	5.54	109.93	34.08	109.93	34.08
12/08/2009 11:00	42.87	123.12	2.87	5.54	114.38	35.46	114.38	35.46
12/08/2009 11:30	42.18	125.02	2.96	5.54	108.66	33.68	108.66	33.68
12/08/2009 12:00	42.28	122.25	2.89	5.54	111.98	34.71	111.98	34.71
12/08/2009 12:30	42.22	121.36	2.87	5.54	112.54	34.89	112.54	34.89
12/08/2009 13:00	42.15	120.76	2.87	5.54	112.75	34.95	112.75	34.95
12/08/2009 13:30	42.05	119.72	2.85	5.54	113.24	35.1	113.24	35.1
12/08/2009 14:00	42.04	118.25	2.81	5.54	114.65	35.54	114.65	35.54
12/08/2009 14:30	42.06	417.51	9.93	5.54	-184.5	-57.19	113.24	35.1
12/08/2009 15:00	42.11	242.79	5.77	5.54	-9.5	-2.95	114.65	35.54
12/08/2009 15:30	42.09	120.65	2.87	5.54	112.53	34.88	112.53	34.88
12/08/2009 16:00	42.56	119.34	2.8	5.54	116.44	36.1	116.44	36.1
12/08/2009 16:30	42	118.74	2.83	5.54	113.94	35.32	113.94	35.32
12/08/2009 17:00	42.13	120.04	2.85	5.54	113.36	35.14	113.36	35.14
12/08/2009 17:30	42.01	121.29	2.89	5.54	111.45	34.55	111.45	34.55
12/08/2009 18:00	42.38	119.74	2.83	5.54	115.05	35.66	115.05	35.66
12/08/2009 18:30	42.75	121.32	2.84	5.54	115.52	35.81	115.52	35.81
12/08/2009 19:00	42.84	122.91	2.87	5.54	114.42	35.47	114.42	35.47
12/08/2009 19:30	42.68	125.72	2.95	5.54	110.73	34.33	110.73	34.33
12/08/2009 20:00	42.85	128.58	3	5.54	108.81	33.73	108.81	33.73
12/08/2009 20:30	42.91	130.05	3.03	5.54	107.67	33.38	107.67	33.38

12/08/2009 21:00	43.18	130.83	3.03	5.54	108.39	33.6	108.39	33.6
12/08/2009 21:30	43.11	131.01	3.04	5.54	107.82	33.42	107.82	33.42
12/08/2009 22:00	43.2	131.22	3.04	5.54	108.11	33.51	108.11	33.51
12/08/2009 22:30	43.37	129.97	3	5.54	110.3	34.19	110.3	34.19
12/08/2009 23:00	43.3	129.06	2.98	5.54	110.82	34.35	110.82	34.35
12/08/2009 23:30	43.23	128.2	2.97	5.54	111.29	34.5	111.29	34.5
TOTAL:	997	3377.6	3.4	5.54	2145.8	665.2	2358.475	731.11
Verified, Vice Exe Director Eng. Kr. Berbenkov:								



Confirmed:
Vice CEO
(eng. Kr. Berbenkov)



Protocol No.04/2009

The electric power was stopped on the 4.09.2009 at 7:02. The nitric acid plant was stopped according to the approved procedures. Details are given in the emergency protocol № 17 from 8.09.2009. During the plant start negative values for the emission reduction was calculated. These values were corrected and are presented in table 1.

The registered value for the N_2O emission recorded at 3:30 on the 07.09.2009 was corrected from -155.2 kg to 0 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

A breakdown in the ammonia plant on the 20.09.2009 at 1:20 was the reason for the shut-down of the nitric acid plant on the 20.09.2009 registered at 8:00.

The registered value for the N_2O emission recorded at 8:00 on the 20.09.2009 was corrected from 271.8 kg to 0 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction. The data are presented in table 2.

The nitric acid plant was started at 18:30 on 24.09.2009. During the plant start negative values for the emission reduction was calculated. These values were corrected.

The registered value for the N_2O emission recorded at 18:30 on the 24.09.2009 was corrected from -158.8 kg to 0 kg N_2O etc. The same procedure was used for the correction of the CO_2 emission reduction. The data are presented in table 3.

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms

Table 1

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000		
07/09/2009 00:00	0	0	0	5.54	0	0	0	0
07/09/2009 00:30	0	0	0	5.54	0	0	0	0
07/09/2009 01:00	0	0	0	5.54	0	0	0	0
07/09/2009 01:30	0	0	0	5.54	0	0	0	0
07/09/2009 02:00	0	0	0	5.54	0	0	0	0
07/09/2009 02:30	0	0	0	5.54	0	0	0	0
07/09/2009 03:00	0	0	0	5.54	0	0	0	0
07/09/2009 03:30	0.74	159.32	215.3	5.54	-155.22	-48.12	0	0
07/09/2009 04:00	19.77	132.78	6.72	5.54	-23.25	-7.21	0	0
07/09/2009 04:30	33.54	118.68	3.54	5.54	67.13	20.81	67.13	20.81
07/09/2009 05:00	36.05	117.66	3.26	5.54	82.06	25.44	82.06	25.44
07/09/2009 05:30	45.62	117.81	2.58	5.54	134.92	41.83	134.92	41.83
07/09/2009 06:00	45.04	117.59	2.61	5.54	131.93	40.9	131.93	40.9
07/09/2009 06:30	43.36	117.86	2.72	5.54	122.35	37.93	122.35	37.93
07/09/2009 07:00	40.5	118.63	2.93	5.54	105.74	32.78	105.74	32.78
07/09/2009 07:30	41.95	117.87	2.81	5.54	114.53	35.51	114.53	35.51
07/09/2009 08:00	41.07	117.56	2.86	5.54	109.97	34.09	109.97	34.09
07/09/2009 08:30	42.72	121.8	2.85	5.54	114.87	35.61	114.87	35.61
07/09/2009 09:00	42.68	127.59	2.99	5.54	108.86	33.75	108.86	33.75
07/09/2009 09:30	44.15	126.87	2.87	5.54	117.72	36.49	117.72	36.49
07/09/2009 10:00	0	0	0	5.54	0	0	117.72	36.49
07/09/2009 10:30	44.2	97.57	2.21	5.54	147.3	45.66	147.3	45.66
07/09/2009 11:00	44.18	120.87	2.74	5.54	123.89	38.41	123.89	38.41
07/09/2009 11:30	43.92	120.55	2.74	5.54	122.77	38.06	122.77	38.06
07/09/2009 12:00	43.73	120.82	2.76	5.54	121.44	37.65	121.44	37.65
07/09/2009 12:30	43.86	120.44	2.75	5.54	122.54	37.99	122.54	37.99
07/09/2009 13:00	43.81	120.16	2.74	5.54	122.55	37.99	122.55	37.99
07/09/2009 13:30	43.76	120.3	2.75	5.54	122.13	37.86	122.13	37.86
07/09/2009 14:00	43.66	119.85	2.75	5.54	122.03	37.83	122.03	37.83

07/09/2009 14:30	43.59	120.05	2.75	5.54	121.44	37.65	121.44	37.65
07/09/2009 15:00	44.34	120.47	2.72	5.54	125.17	38.8	125.17	38.8
07/09/2009 15:30	42.97	120.47	2.8	5.54	117.58	36.45	117.58	36.45
07/09/2009 16:00	43.47	120.35	2.77	5.54	120.47	37.35	120.47	37.35
07/09/2009 16:30	43.6	120.19	2.76	5.54	121.35	37.62	121.35	37.62
07/09/2009 17:00	43.54	120.02	2.76	5.54	121.19	37.57	121.19	37.57
07/09/2009 17:30	43.48	119.58	2.75	5.54	121.3	37.6	121.3	37.6
07/09/2009 18:00	43.52	119.36	2.74	5.54	121.74	37.74	121.74	37.74
07/09/2009 18:30	43.53	120.29	2.76	5.54	120.87	37.47	120.87	37.47
07/09/2009 19:00	43.78	120.12	2.74	5.54	122.42	37.95	122.42	37.95
07/09/2009 19:30	43.77	123.09	2.81	5.54	119.4	37.01	119.4	37.01
07/09/2009 20:00	43.88	122.56	2.79	5.54	120.54	37.37	120.54	37.37
07/09/2009 20:30	43.88	122.27	2.79	5.54	120.83	37.46	120.83	37.46
07/09/2009 21:00	43.89	122.03	2.78	5.54	121.12	37.55	121.12	37.55
07/09/2009 21:30	43.86	121.69	2.77	5.54	121.29	37.6	121.29	37.6
07/09/2009 22:00	43.85	121.58	2.77	5.54	121.35	37.62	121.35	37.62
07/09/2009 22:30	43.94	121.79	2.77	5.54	121.64	37.71	121.64	37.71
07/09/2009 23:00	43.92	122.1	2.78	5.54	121.22	37.58	121.22	37.58
07/09/2009 23:30	43.96	122.04	2.78	5.54	121.5	37.66	121.5	37.66
TOTAL:	852	2566.2	3	5.54	2153.9	667.7	2317.4	718.4

Verified,
Vice Exe Director
eng. Kr. Berbenkov:

Table 2

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000		
20/09/2009 00:00	44.49	125.57	2.82	5.54	120.9	37.48	120.9	37.48
20/09/2009 00:30	44.5	125.76	2.83	5.54	120.77	37.44	120.77	37.44
20/09/2009 01:00	44.75	122.02	2.73	5.54	125.89	39.03	125.89	39.03
20/09/2009 01:30	43.68	126.69	2.9	5.54	115.3	35.74	115.3	35.74
20/09/2009 02:00	45.08	126.64	2.81	5.54	123.1	38.16	123.1	38.16
20/09/2009 02:30	44.41	128.17	2.89	5.54	117.86	36.54	117.86	36.54
20/09/2009 03:00	44.72	126.14	2.82	5.54	121.61	37.7	121.61	37.7

20/09/2009 03:30	44.59	126.42	2.84	5.54	120.61	37.39	120.61	37.39
20/09/2009 04:00	44.55	126.63	2.84	5.54	120.18	37.25	120.18	37.25
20/09/2009 04:30	44.55	126.21	2.83	5.54	120.6	37.39	120.6	37.39
20/09/2009 05:00	44.46	125.56	2.82	5.54	120.75	37.43	120.75	37.43
20/09/2009 05:30	44.63	125.67	2.82	5.54	121.58	37.69	121.58	37.69
20/09/2009 06:00	44.59	126.57	2.84	5.54	120.46	37.34	120.46	37.34
20/09/2009 06:30	44.52	126.07	2.83	5.54	120.57	37.38	120.57	37.38
20/09/2009 07:00	44.48	125.62	2.82	5.54	120.8	37.45	120.8	37.45
20/09/2009 07:30	44.46	125.62	2.83	5.54	120.69	37.41	120.69	37.41
20/09/2009 08:00	49.06	0	0	5.54	271.79	84.26	0	0
20/09/2009 08:30	0	0	0	5.54	0	0	0	0
20/09/2009 09:00	0	0	0	5.54	0	0	0	0
20/09/2009 09:30	0	0	0	5.54	0	0	0	0
20/09/2009 10:00	0	0	0	5.54	0	0	0	0
20/09/2009 10:30	0	0	0	5.54	0	0	0	0
20/09/2009 11:00	0	0	0	5.54	0	0	0	0
20/09/2009 11:30	0	0	0	5.54	0	0	0	0
20/09/2009 12:00	0	0	0	5.54	0	0	0	0
20/09/2009 12:30	0	0	0	5.54	0	0	0	0
20/09/2009 13:00	0	0	0	5.54	0	0	0	0
20/09/2009 13:30	0	0	0	5.54	0	0	0	0
20/09/2009 14:00	0	0	0	5.54	0	0	0	0
20/09/2009 14:30	0	0	0	5.54	0	0	0	0
20/09/2009 15:00	0	0	0	5.54	0	0	0	0
20/09/2009 15:30	0	0	0	5.54	0	0	0	0
20/09/2009 16:00	0	0	0	5.54	0	0	0	0
20/09/2009 16:30	0	0	0	5.54	0	0	0	0
20/09/2009 17:00	0	0	0	5.54	0	0	0	0
20/09/2009 17:30	0	0	0	5.54	0	0	0	0
20/09/2009 18:00	0	0	0	5.54	0	0	0	0
20/09/2009 18:30	0	0	0	5.54	0	0	0	0
20/09/2009 19:00	0	0	0	5.54	0	0	0	0
20/09/2009 19:30	0	0	0	5.54	0	0	0	0
20/09/2009 20:00	0	0	0	5.54	0	0	0	0
20/09/2009 20:30	0	0	0	5.54	0	0	0	0
20/09/2009 21:00	0	0	0	5.54	0	0	0	0
20/09/2009 21:30	0	0	0	5.54	0	0	0	0

20/09/2009 22:00	0	0	0	5.54	0	0	0	0
20/09/2009 22:30	0	0	0	5.54	0	0	0	0
20/09/2009 23:00	0	0	0	5.54	0	0	0	0
20/09/2009 23:30	0	0	0	5.54	0	0	0	0
TOTAL:	380.8	1007.7	2.5	5.54	1101.7	341.5	965.8	299.4
Verified, Vice Exe Director eng. Kr. Berbenkov:								

Table 3

Day	Production of	N2O	Emission factor	Emission factor	Emission	Emission	Corrected emission	Corrected emission
	100 % HNO3	emission	actual	baseline	reduction N2O	reduction CO2	reduction N2O	reduction CO2
	[ton]	[kg]	[kg/ton]	[kg/ton]	[kg]	[eq. ton]	[kg]	[eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000		
24/09/2009 00:00	0	0	0	5.54	0	0	0	0
24/09/2009 00:30	0	0	0	5.54	0	0	0	0
24/09/2009 01:00	0	0	0	5.54	0	0	0	0
24/09/2009 01:30	0	0	0	5.54	0	0	0	0
24/09/2009 02:00	0	0	0	5.54	0	0	0	0
24/09/2009 02:30	0	0	0	5.54	0	0	0	0
24/09/2009 03:00	0	0	0	5.54	0	0	0	0
24/09/2009 03:30	0	0	0	5.54	0	0	0	0
24/09/2009 04:00	0	0	0	5.54	0	0	0	0
24/09/2009 04:30	0	0	0	5.54	0	0	0	0
24/09/2009 05:00	0	0	0	5.54	0	0	0	0
24/09/2009 05:30	0	0	0	5.54	0	0	0	0
24/09/2009 06:00	0	0	0	5.54	0	0	0	0
24/09/2009 06:30	0	0	0	5.54	0	0	0	0
24/09/2009 07:00	0	0	0	5.54	0	0	0	0
24/09/2009 07:30	0	0	0	5.54	0	0	0	0
24/09/2009 08:00	0	0	0	5.54	0	0	0	0
24/09/2009 08:30	0	0	0	5.54	0	0	0	0
24/09/2009 09:00	0	0	0	5.54	0	0	0	0
24/09/2009 09:30	0	0	0	5.54	0	0	0	0
24/09/2009 10:00	0	0	0	5.54	0	0	0	0
24/09/2009 10:30	0	0	0	5.54	0	0	0	0
24/09/2009 11:00	0	0	0	5.54	0	0	0	0

24/09/2009 11:30	0	0	0	5.54	0	0	0	0
24/09/2009 12:00	0	0	0	5.54	0	0	0	0
24/09/2009 12:30	0	0	0	5.54	0	0	0	0
24/09/2009 13:00	0	0	0	5.54	0	0	0	0
24/09/2009 13:30	0	0	0	5.54	0	0	0	0
24/09/2009 14:00	0	0	0	5.54	0	0	0	0
24/09/2009 14:30	0	0	0	5.54	0	0	0	0
24/09/2009 15:00	0	0	0	5.54	0	0	0	0
24/09/2009 15:30	0	0	0	5.54	0	0	0	0
24/09/2009 16:00	0	0	0	5.54	0	0	0	0
24/09/2009 16:30	0	0	0	5.54	0	0	0	0
24/09/2009 17:00	0	0	0	5.54	0	0	0	0
24/09/2009 17:30	0	0	0	5.54	0	0	0	0
24/09/2009 18:00	0	0	0	5.54	0	0	0	0
24/09/2009 18:30	0.44	161.25	366.48	5.54	-158.81	-49.23	0	0
24/09/2009 19:00	13.16	141.23	10.73	5.54	-68.32	-21.18	0	0
24/09/2009 19:30	36.1	133.28	3.69	5.54	66.71	20.68	66.71	20.68
24/09/2009 20:00	39.84	120.9	3.03	5.54	99.81	30.94	99.81	30.94
24/09/2009 20:30	42.64	111.12	2.61	5.54	125.11	38.78	125.11	38.78
24/09/2009 21:00	46.68	106.44	2.28	5.54	152.17	47.17	152.17	47.17
24/09/2009 21:30	41.04	104.94	2.56	5.54	122.42	37.95	122.42	37.95
24/09/2009 22:00	37.62	104.36	2.77	5.54	104.05	32.26	104.05	32.26
24/09/2009 22:30	43.66	103.62	2.37	5.54	138.26	42.86	138.26	42.86
24/09/2009 23:00	37.43	104.06	2.78	5.54	103.3	32.02	103.3	32.02
24/09/2009 23:30	37.91	105.41	2.78	5.54	104.61	32.43	104.61	32.43
TOTAL:	188.5	648.3	3.9	5.54	394.7	122.3	508.2	157.5
Verified, Vice Exe Director eng. Kr. Berbenkov:								



AGROPOLYCHIM

Member of the Acid & Fertilizers Group

Industrial zone, Devnya 9160, tel.: 0519/97526, fax: 0519/97594, www.agropolychim.bg

Confirmed:

Vice CEO
(eng. Kr. Berbenkov)



Protocol No.05/2009

During the plant start negative values for the emission reduction was calculated. These values were corrected. The data were corrected in accordance with the procedure for the correcting of false-recorded data from the continuous monitoring system for NO_x emissions from the nitric plant using the data from the previous one hour normal work of the plant.

The registered value for the N₂O emission recorded at 2:30 on the 19.10.2009 was corrected from -138, 32 kg to 0 kg N₂O. The same procedure was used for the correction of the CO₂ emission reduction.

The internal calibration of the gas analyzer for the measurement of NO_x in the nitric acid plant was made on the 19.10.2009 at 13:00.

The calibration affected the measurements of NO_x from 13:30 to 15:00 and the values were replaced in accordance with the procedure for the correcting of false-recorded data from the continuous monitoring system for NO_x emissions from the nitric plant using the data from the previous two hours normal work of the plant.

The registered value for the N₂O emission recorded at 13:30 on the 19.10.2009 was corrected from 207, 19 kg to 107, 96 kg N₂O. The same procedure was used for the correction of the CO₂ emission reduction.

The data are presented in table 1.

On the 20.10.2009 from 9:00 to 10:00 calibration procedures were made. The plant worked stationary and the false-recorded data were replaced.



The registered value for the N_2O emission recorded at 9:30 on the 20.10.2009 was corrected from 0 kg to 113, 37 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

The data are presented in table 2.

During the plant start on the 21.10.2009 at 10:30 negative values for the emission reduction was calculated. These values were corrected. The data were corrected in accordance with the procedure for the correcting of false-recorded data from the continuous monitoring system for NO_x emissions from the nitric plant using the data from the previous one hour normal work of the plant.

The registered value for the N_2O emission recorded at 10:30 on the 21.10.2009 was corrected from -119, 26 kg to 0 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

The data are presented in table 3.

The computer that controls the continuous monitoring system for NO_x emissions from the nitric plant was turned off on the 29.10.2009 at 9:00 for a half hour because of service maintenance. The false-recorded data were replaced according to the procedure.

The registered value for the N_2O emission recorded at 9:00 on the 29.10.2009 was corrected from 0 kg to 102.89 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

The data are presented in table 4.

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms

Table 1

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000		
19/10/2009 00:00	0	0	0	5.54	0	0	0	0
19/10/2009 00:30	0	0	0	5.54	0	0	0	0
19/10/2009 01:00	0	0	0	5.54	0	0	0	0
19/10/2009 01:30	0	0	0	5.54	0	0	0	0
19/10/2009 02:00	0	0	0	5.54	0	0	0	0
19/10/2009 02:30	0.17	139.26	819.18	5.54	-138.32	-42.88	0	0
19/10/2009 03:00	28.35	142.2	5.02	5.54	14.86	4.61	14.86	4.61
19/10/2009 03:30	38.27	162.83	4.25	5.54	49.19	15.25	49.19	15.25
19/10/2009 04:00	43.24	154.49	3.57	5.54	85.06	26.37	85.06	26.37
19/10/2009 04:30	49.32	151.29	3.07	5.54	121.94	37.8	121.94	37.8
19/10/2009 05:00	44.9	143.92	3.21	5.54	104.83	32.5	104.83	32.5
19/10/2009 05:30	45.53	147.85	3.25	5.54	104.39	32.36	104.39	32.36
19/10/2009 06:00	46.11	147.67	3.2	5.54	107.78	33.41	107.78	33.41
19/10/2009 06:30	46.14	149.29	3.24	5.54	106.33	32.96	106.33	32.96
19/10/2009 07:00	46.26	150.45	3.25	5.54	105.83	32.81	105.83	32.81
19/10/2009 07:30	46.07	149.45	3.24	5.54	105.78	32.79	105.78	32.79
19/10/2009 08:00	46.04	150.17	3.26	5.54	104.89	32.52	104.89	32.52
19/10/2009 08:30	46.26	150.38	3.25	5.54	105.9	32.83	105.9	32.83
19/10/2009 09:00	46.12	149.27	3.24	5.54	106.23	32.93	106.23	32.93
19/10/2009 09:30	46	150.38	3.27	5.54	104.46	32.38	104.46	32.38
19/10/2009 10:00	46.06	149.43	3.24	5.54	105.74	32.78	105.74	32.78
19/10/2009 10:30	45.82	148.98	3.25	5.54	104.86	32.51	104.86	32.51
19/10/2009 11:00	45.91	146.9	3.2	5.54	107.44	33.31	107.44	33.31
19/10/2009 11:30	45.83	145.94	3.18	5.54	107.96	33.47	107.96	33.47
19/10/2009 12:00	45.84	145.89	3.18	5.54	108.06	33.5	108.06	33.5
19/10/2009 12:30	45.93	145.1	3.16	5.54	109.35	33.9	109.35	33.9
19/10/2009 13:00	45.89	144.23	3.14	5.54	110	34.1	110	34.1
19/10/2009 13:30	45.76	46.32	1.01	5.54	207.19	64.23	107.96	33.47
19/10/2009 14:00	0	0	0	5.54	0	0	108.06	33.5

19/10/2009 14:30	0	0	0	5.54	0	0	109.35	33.9
19/10/2009 15:00	45.78	96.53	2.11	5.54	157.09	48.7	110	34.1
19/10/2009 15:30	46.04	144.51	3.14	5.54	110.55	34.27	110.55	34.27
19/10/2009 16:00	45.95	142.63	3.1	5.54	111.93	34.7	111.93	34.7
19/10/2009 16:30	45.75	141.61	3.1	5.54	111.85	34.67	111.85	34.67
19/10/2009 17:00	45.63	143.17	3.14	5.54	109.62	33.98	109.62	33.98
19/10/2009 17:30	45.96	144.43	3.14	5.54	110.19	34.16	110.19	34.16
19/10/2009 18:00	45.77	144.71	3.16	5.54	108.86	33.75	108.86	33.75
19/10/2009 18:30	45.74	144.65	3.16	5.54	108.75	33.71	108.75	33.71
19/10/2009 19:00	46.1	142.32	3.09	5.54	113.07	35.05	113.07	35.05
19/10/2009 19:30	45.93	142.72	3.11	5.54	111.73	34.64	111.73	34.64
19/10/2009 20:00	45.9	143.57	3.13	5.54	110.72	34.32	110.72	34.32
19/10/2009 20:30	46.02	141.64	3.08	5.54	113.31	35.13	113.31	35.13
19/10/2009 21:00	45.83	143.62	3.13	5.54	110.28	34.19	110.28	34.19
19/10/2009 21:30	46.04	142.76	3.1	5.54	112.3	34.81	112.3	34.81
19/10/2009 22:00	45.89	142.21	3.1	5.54	112.02	34.73	112.02	34.73
19/10/2009 22:30	46.07	143.23	3.11	5.54	112	34.72	112	34.72
19/10/2009 23:00	45.97	141.69	3.08	5.54	112.98	35.02	112.98	35.02
19/10/2009 23:30	45.97	143.52	3.12	5.54	111.15	34.46	111.15	34.46
TOTAL:	906.2	2995.1	3.3	5.54	2025.2	627.8	2203.78	683.185

Verified,
Vice Exe Director
eng. Kr. Berbenkov:

Table 2

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000		
20/10/200 9 00:00	46.04	141.3	3.07	5.54	113.76	35.27	113.76	35.27
20/10/200 9 00:30	45.79	142.98	3.12	5.54	110.7	34.32	110.7	34.32
20/10/200 9 01:00	46.2	140.91	3.05	5.54	115.04	35.66	115.04	35.66
20/10/200 9 01:30	45.9	142.75	3.11	5.54	111.54	34.58	111.54	34.58
20/10/200 9 02:00	46.09	140.66	3.05	5.54	114.68	35.55	114.68	35.55
20/10/200 9 02:30	45.89	142.26	3.1	5.54	111.97	34.71	111.97	34.71
20/10/200 9 03:00	46.09	140.83	3.06	5.54	114.51	35.5	114.51	35.5

20/10/200 9 03:30	45.8	141.79	3.1	5.54	111.94	34.7	111.94	34.7
20/10/200 9 04:00	46.17	140.84	3.05	5.54	114.94	35.63	114.94	35.63
20/10/200 9 04:30	45.86	142.04	3.1	5.54	112.02	34.73	112.02	34.73
20/10/200 9 05:00	45.97	140.08	3.05	5.54	114.59	35.52	114.59	35.52
20/10/200 9 05:30	46.08	141.03	3.06	5.54	114.25	35.42	114.25	35.42
20/10/200 9 06:00	45.94	141.36	3.08	5.54	113.15	35.08	113.15	35.08
20/10/200 9 06:30	45.96	141.04	3.07	5.54	113.58	35.21	113.58	35.21
20/10/200 9 07:00	45.96	140.91	3.07	5.54	113.71	35.25	113.71	35.25
20/10/200 9 07:30	45.99	140.73	3.06	5.54	114.05	35.36	114.05	35.36
20/10/200 9 08:00	45.96	140.84	3.06	5.54	113.78	35.27	113.78	35.27
20/10/200 9 08:30	45.9	140.92	3.07	5.54	113.37	35.14	113.37	35.14
20/10/200 9 09:00	45.94	113.88	2.48	5.54	140.63	43.59	140.63	43.59
20/10/200 9 09:30	0	0	0	5.54	0	0	113.37	35.14
20/10/200 9 10:00	0	0	0	5.54	0	0	140.63	43.59
20/10/200 9 10:30	45.9	139.3	3.03	5.54	114.99	35.65	114.99	35.65
20/10/200 9 11:00	45.62	142.3	3.12	5.54	110.43	34.23	110.43	34.23
20/10/200 9 11:30	45.95	146.59	3.19	5.54	107.97	33.47	107.97	33.47
20/10/200 9 12:00	46.16	138.27	3	5.54	117.46	36.41	117.46	36.41
20/10/200 9 12:30	46.2	141.44	3.06	5.54	114.51	35.5	114.51	35.5
20/10/200 9 13:00	46.23	137.52	2.97	5.54	118.59	36.76	118.59	36.76
20/10/200 9 13:30	45.93	137.33	2.99	5.54	117.12	36.31	117.12	36.31
20/10/200 9 14:00	45.97	139.58	3.04	5.54	115.09	35.68	115.09	35.68
20/10/200 9 14:30	46.07	138.35	3	5.54	116.88	36.23	116.88	36.23
20/10/200 9 15:00	46.01	141.1	3.07	5.54	113.8	35.28	113.8	35.28
20/10/200 9 15:30	46.27	139.59	3.02	5.54	116.75	36.19	116.75	36.19
20/10/200 9 16:00	46.35	137	2.96	5.54	119.78	37.13	119.78	37.13
20/10/200 9 16:30	44.11	125.17	2.84	5.54	119.2	36.95	119.2	36.95
20/10/200 9 17:00	38.87	108.65	2.8	5.54	106.69	33.07	106.69	33.07
20/10/200 9 17:30	29.29	94.54	3.23	5.54	67.73	21	67.73	21
20/10/200 9 18:00	35.36	91.04	2.57	5.54	104.85	32.5	104.85	32.5
20/10/200 9 18:30	34.28	93.55	2.73	5.54	96.36	29.87	96.36	29.87
20/10/200 9 19:00	34.55	94.01	2.72	5.54	97.4	30.19	97.4	30.19
20/10/200 9 19:30	34.55	94.18	2.73	5.54	97.23	30.14	97.23	30.14
20/10/200 9 20:00	0	0	0	5.54	0	0	0	0
20/10/200 9 20:30	0	0	0	5.54	0	0	0	0
20/10/200 9 21:00	0	0	0	5.54	0	0	0	0
20/10/200 9 21:30	0	0	0	5.54	0	0	0	0

20/10/2009 22:00	0	0	0	5.54	0	0	0	0
20/10/2009 22:30	0	0	0	5.54	0	0	0	0
20/10/2009 23:00	0	0	0	5.54	0	0	0	0
20/10/2009 23:30	0	0	0	5.54	0	0	0	0
TOTAL:	884.5	2637.1	3	5.54	2263	701.5	2254.52	698.89
Verified, Vice Exe Director eng. Kr. Berbenkov:								

Table 3

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000		
21/10/2009 00:00	0	0	0	5.54	0	0	0	0
21/10/2009 00:30	0	0	0	5.54	0	0	0	0
21/10/2009 01:00	0	0	0	5.54	0	0	0	0
21/10/2009 01:30	0	0	0	5.54	0	0	0	0
21/10/2009 02:00	0	0	0	5.54	0	0	0	0
21/10/2009 02:30	0	0	0	5.54	0	0	0	0
21/10/2009 03:00	0	0	0	5.54	0	0	0	0
21/10/2009 03:30	0	0	0	5.54	0	0	0	0
21/10/2009 04:00	0	0	0	5.54	0	0	0	0
21/10/2009 04:30	0	0	0	5.54	0	0	0	0
21/10/2009 05:00	0	0	0	5.54	0	0	0	0
21/10/2009 05:30	0	0	0	5.54	0	0	0	0
21/10/2009 06:00	0	0	0	5.54	0	0	0	0
21/10/2009 06:30	0	0	0	5.54	0	0	0	0
21/10/2009 07:00	0	0	0	5.54	0	0	0	0
21/10/2009 07:30	0	0	0	5.54	0	0	0	0
21/10/2009 08:00	0	0	0	5.54	0	0	0	0
21/10/2009 08:30	0	0	0	5.54	0	0	0	0
21/10/2009 09:00	0	0	0	5.54	0	0	0	0
21/10/2009 09:30	0	0	0	5.54	0	0	0	0
21/10/2009 10:00	0	0	0	5.54	0	0	0	0
21/10/2009 10:30	0.14	120.04	857.43	5.54	-119.26	-36.97	0	0
21/10/2009 11:00	21.4	131.06	6.12	5.54	-12.5	-3.88	0	0
21/10/2009 11:30	38.74	134.61	3.47	5.54	80.01	24.8	80.01	24.8
21/10/2009 12:00	37.81	133.16	3.52	5.54	76.31	23.66	76.31	23.66
21/10/2009 12:30	41.2	127.22	3.09	5.54	101.03	31.32	101.03	31.32
21/10/2009 13:00	51.35	119.2	2.32	5.54	165.28	51.24	165.28	51.24
21/10/2009 13:30	44.1	112.83	2.56	5.54	131.48	40.76	131.48	40.76
21/10/2009 14:00	39.54	110.14	2.79	5.54	108.91	33.76	108.91	33.76
21/10/2009 14:30	39.49	110.51	2.8	5.54	108.26	33.56	108.26	33.56
21/10/2009 15:00	40.22	112.35	2.79	5.54	110.47	34.25	110.47	34.25

21/10/2009 15:30	40.46	114.72	2.84	5.54	109.43	33.92	109.43	33.92
21/10/2009 16:00	40.26	115.33	2.86	5.54	107.71	33.39	107.71	33.39
21/10/2009 16:30	40.31	116.08	2.88	5.54	107.24	33.24	107.24	33.24
21/10/2009 17:00	41.08	116.07	2.83	5.54	111.51	34.57	111.51	34.57
21/10/2009 17:30	40.29	116.9	2.9	5.54	106.31	32.96	106.31	32.96
21/10/2009 18:00	39.81	116.88	2.94	5.54	103.67	32.14	103.67	32.14
21/10/2009 18:30	40	116.62	2.92	5.54	104.98	32.54	104.98	32.54
21/10/2009 19:00	40.13	116.21	2.9	5.54	106.11	32.89	106.11	32.89
21/10/2009 19:30	40.2	116.6	2.9	5.54	106.11	32.89	106.11	32.89
21/10/2009 20:00	40.32	115.4	2.86	5.54	107.97	33.47	107.97	33.47
21/10/2009 20:30	40.24	114.53	2.85	5.54	108.4	33.6	108.4	33.6
21/10/2009 21:00	39.88	114.26	2.87	5.54	106.68	33.07	106.68	33.07
21/10/2009 21:30	40.29	115.95	2.88	5.54	107.26	33.25	107.26	33.25
21/10/2009 22:00	40.71	116.56	2.86	5.54	108.97	33.78	108.97	33.78
21/10/2009 22:30	40.71	116.19	2.85	5.54	109.34	33.9	109.34	33.9
21/10/2009 23:00	40.47	116.15	2.87	5.54	108.05	33.5	108.05	33.5
21/10/2009 23:30	40.31	116.09	2.88	5.54	107.23	33.24	107.23	33.24
TOTAL:	519.8	1658.4	3.2	5.54	1221.3	378.6	1354.36	419.85
Verified, Vice Exe Director eng. Kr. Berbenkov:								

Table 4

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Corrected emission reduction N2O [kg]	Corrected emission reduction CO2 [eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5)-(2)*(4)	[(6)*310]/1000		
29/10/2009 00:00	39.99	115.5	2.89	5.54	106.04	32.87	106.04	32.87
29/10/2009 00:30	39.99	115.42	2.89	5.54	106.12	32.9	106.12	32.9
29/10/2009 01:00	40.06	115.47	2.88	5.54	106.46	33	106.46	33
29/10/2009 01:30	40.19	115.35	2.87	5.54	107.3	33.26	107.3	33.26
29/10/2009 02:00	40.14	115.73	2.88	5.54	106.65	33.06	106.65	33.06
29/10/2009 02:30	39.98	115.3	2.88	5.54	106.19	32.92	106.19	32.92
29/10/2009 03:00	39.88	114.5	2.87	5.54	106.44	32.99	106.44	32.99
29/10/2009 03:30	40.09	113.94	2.84	5.54	108.16	33.53	108.16	33.53
29/10/2009 04:00	40.23	114.24	2.84	5.54	108.63	33.68	108.63	33.68
29/10/2009 04:30	40.29	114.57	2.84	5.54	108.64	33.68	108.64	33.68
29/10/2009 05:00	40.12	115.23	2.87	5.54	107.03	33.18	107.03	33.18
29/10/2009 05:30	40.26	115.05	2.86	5.54	107.99	33.48	107.99	33.48
29/10/2009 06:00	40.14	115.27	2.87	5.54	107.11	33.2	107.11	33.2
29/10/2009 06:30	40.14	115.42	2.88	5.54	106.96	33.16	106.96	33.16
29/10/2009 07:00	40.17	115.4	2.87	5.54	107.14	33.21	107.14	33.21
29/10/2009 07:30	40.25	115.66	2.87	5.54	107.33	33.27	107.33	33.27
29/10/2009 08:00	39.97	115.87	2.9	5.54	105.56	32.72	105.56	32.72
29/10/2009 08:30	39.84	117.82	2.96	5.54	102.89	31.9	102.89	31.9
29/10/2009 09:00	0	0	0	5.54	0	0	102.89	31.9
29/10/2009 09:30	39.82	115.77	2.91	5.54	104.83	32.5	104.83	32.5
29/10/2009 10:00	40.11	112.45	2.8	5.54	109.76	34.03	109.76	34.03

29/10/2009 10:30	40.15	112.6	2.8	5.54	109.83	34.05	109.83	34.05
29/10/2009 11:00	40	114.63	2.87	5.54	106.97	33.16	106.97	33.16
29/10/2009 11:30	39.63	108.5	2.74	5.54	111.05	34.43	111.05	34.43
29/10/2009 12:00	36.82	97.05	2.64	5.54	106.93	33.15	106.93	33.15
29/10/2009 12:30	33.12	92.08	2.78	5.54	91.4	28.34	91.4	28.34
29/10/2009 13:00	33	91.96	2.79	5.54	90.86	28.17	90.86	28.17
29/10/2009 13:30	33.38	92.37	2.77	5.54	92.56	28.69	92.56	28.69
29/10/2009 14:00	34.29	92.92	2.71	5.54	97.05	30.08	97.05	30.08
29/10/2009 14:30	33.92	92.98	2.74	5.54	94.94	29.43	94.94	29.43
29/10/2009 15:00	33.95	93.11	2.74	5.54	94.97	29.44	94.97	29.44
29/10/2009 15:30	33.88	93.61	2.76	5.54	94.09	29.17	94.09	29.17
29/10/2009 16:00	34.2	93.28	2.73	5.54	96.19	29.82	96.19	29.82
29/10/2009 16:30	33.94	93.43	2.75	5.54	94.6	29.33	94.6	29.33
29/10/2009 17:00	33.72	93.54	2.77	5.54	93.27	28.91	93.27	28.91
29/10/2009 17:30	33.89	93.65	2.76	5.54	94.1	29.17	94.1	29.17
29/10/2009 18:00	33.83	93.7	2.77	5.54	93.72	29.05	93.72	29.05
29/10/2009 18:30	34.17	93.89	2.75	5.54	95.41	29.58	95.41	29.58
29/10/2009 19:00	34.04	93.98	2.76	5.54	94.6	29.33	94.6	29.33
29/10/2009 19:30	34	94.02	2.77	5.54	94.34	29.25	94.34	29.25
29/10/2009 20:00	34.01	94.13	2.77	5.54	94.29	29.23	94.29	29.23
29/10/2009 20:30	33.93	94.2	2.78	5.54	93.77	29.07	93.77	29.07
29/10/2009 21:00	34.06	94.37	2.77	5.54	94.32	29.24	94.32	29.24
29/10/2009 21:30	34.03	95.52	2.81	5.54	93.01	28.83	93.01	28.83
29/10/2009 22:00	33.95	96	2.83	5.54	92.08	28.55	92.08	28.55
29/10/2009 22:30	33.84	96.09	2.84	5.54	91.38	28.33	91.38	28.33
29/10/2009 23:00	33.84	96.15	2.84	5.54	91.32	28.31	91.32	28.31
29/10/2009 23:30	33.94	95.77	2.82	5.54	92.26	28.6	92.26	28.6
TOTAL:	888.5	2500.7	2.8	5.54	2421.6	750.7	2414.7	748.6
Verified, Vice Exe Director eng. Kr. Berbenkov:								



Protocol No.06/2009

Because of the error of the continuous monitoring system for NOx emissions from the nitric acid plant, the emissions were not recorded on the 1.11.2009 from 20:00 to 20:30. During the period the plant worked under the normal working conditions and a change of the NOx emission is not expected. The data were corrected in accordance with the procedure for correcting of false-recorded data from the continuous monitoring system for NOx emissions from the nitric acid plant using the data from the previous hours normal work of the plant. In this case, the data for the previous hours normal work of the plant were used.

The registered value for the N₂O emission recorded at 20:00 on the 1.11.2009 was corrected from 0 kg to 93.84 kg N₂O. The same procedure was used for the correction of the CO₂ emission reduction.

The data for the 1.11.2009 are presented in table 1.

During the plant start negative values for the emission reduction was calculated. These values were corrected according to the procedure.

The registered value for the N₂O emission recorded at 3:00 on the 24.11.2009 was corrected from -170.45 kg to 0 kg N₂O. The same procedure was used for the correction of the CO₂ emission reduction.

The gas analyzer of NOx was calibrated on the 24.11.2009. During the calibration procedure the plant worked stationary. The false recorded data from 8:30 to 10:00 was replaced with the data from the previous 90 minutes according to the procedure.



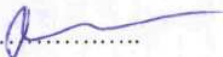
AGROPOLYCHIM

Member of the Acid & Fertilizers Group

Industrial zone, Devnya 9160, tel.: 0519/97526, fax: 0519/97594, www.agropolychim.bg

The registered value for the N_2O emission recorded at 9:00 on the 24.11.2009 was corrected from -48.62 kg to 107.99 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

Eng. G. Boshov – Manager nitric acid plant

Eng. R. Gavrilov – Chemical engineer ecoprograms 

R. Gavrilov

2

Table 1

Day	Production of	N ₂ O	Emission factor	Emission factor	Emission	Emission	Corrected Emission	Corrected Emission
	100 % HNO ₃	emission	actual	baseline	reduction N ₂ O [kg]	reduction CO ₂ [eq. ton]	reduction N ₂ O [kg]	reduction CO ₂ [eq. ton]
	[ton]	[kg]	[kg/ton]	[kg/ton]				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5) - (2)*(4)	[(6)*310]/1000		
01/11/2009 00:00	34.51	96.1	2.78	5.54	95.09	29.48	95.09	29.48
01/11/2009 00:30	34.34	96.7	2.82	5.54	93.54	29	93.54	29
01/11/2009 01:00	34.28	96.25	2.81	5.54	93.66	29.03	93.66	29.03
01/11/2009 01:30	34.34	96.3	2.8	5.54	93.94	29.12	93.94	29.12
01/11/2009 02:00	34.43	95.25	2.77	5.54	95.49	29.6	95.49	29.6
01/11/2009 02:30	34.49	95.21	2.76	5.54	95.86	29.72	95.86	29.72
01/11/2009 03:00	34.48	95.58	2.77	5.54	95.44	29.59	95.44	29.59
01/11/2009 03:30	34.43	95.73	2.78	5.54	95.01	29.45	95.01	29.45
01/11/2009 04:00	34.52	95.42	2.76	5.54	95.82	29.7	95.82	29.7
01/11/2009 04:30	34.55	95.39	2.76	5.54	96.02	29.77	96.02	29.77
01/11/2009 05:00	34.48	95.51	2.77	5.54	95.51	29.61	95.51	29.61
01/11/2009 05:30	34.49	95.97	2.78	5.54	95.1	29.48	95.1	29.48
01/11/2009 06:00	34.38	95.47	2.78	5.54	95	29.45	95	29.45
01/11/2009 06:30	34.42	96.13	2.79	5.54	94.56	29.31	94.56	29.31
01/11/2009 07:00	34.33	96.03	2.8	5.54	94.16	29.19	94.16	29.19
01/11/2009 07:30	34.28	95.95	2.8	5.54	93.96	29.13	93.96	29.13
01/11/2009 08:00	34.33	95.84	2.79	5.54	94.35	29.25	94.35	29.25
01/11/2009 08:30	34.33	96.12	2.8	5.54	94.07	29.16	94.07	29.16
01/11/2009 09:00	34.28	96.36	2.81	5.54	93.55	29	93.55	29
01/11/2009 09:30	34.19	96.43	2.82	5.54	92.98	28.82	92.98	28.82
01/11/2009 10:00	34.04	96.49	2.83	5.54	92.09	28.55	92.09	28.55
01/11/2009 10:30	34.15	97.32	2.85	5.54	91.87	28.48	91.87	28.48
01/11/2009 11:00	34.04	97.32	2.86	5.54	91.26	28.29	91.26	28.29
01/11/2009 11:30	33.98	97.25	2.86	5.54	91	28.21	91	28.21
01/11/2009 12:00	34.06	96.54	2.83	5.54	92.15	28.57	92.15	28.57
01/11/2009 12:30	34.08	95.93	2.81	5.54	92.87	28.79	92.87	28.79
01/11/2009 13:00	34.24	95.85	2.8	5.54	93.84	29.09	93.84	29.09
01/11/2009 13:30	34.38	95.87	2.79	5.54	94.6	29.32	94.6	29.32
01/11/2009 14:00	34.15	96.82	2.84	5.54	92.37	28.64	92.37	28.64
01/11/2009 14:30	34.06	97.13	2.85	5.54	91.56	28.38	91.56	28.38
01/11/2009 15:00	34.14	97.26	2.85	5.54	91.88	28.48	91.88	28.48
01/11/2009 15:30	34.04	96.96	2.85	5.54	91.62	28.4	91.62	28.4
01/11/2009 16:00	34.15	96.96	2.84	5.54	92.23	28.59	92.23	28.59
01/11/2009 16:30	34	96.77	2.85	5.54	91.59	28.39	91.59	28.39
01/11/2009 17:00	34.14	96.78	2.83	5.54	92.36	28.63	92.36	28.63
01/11/2009 17:30	34.12	96.63	2.83	5.54	92.39	28.64	92.39	28.64
01/11/2009 18:00	34.48	96.41	2.8	5.54	94.61	29.33	94.61	29.33
01/11/2009 18:30	34.29	96.58	2.82	5.54	93.39	28.95	93.39	28.95
01/11/2009 19:00	34.31	96.73	2.82	5.54	93.35	28.94	93.35	28.94
01/11/2009 19:30	34.37	96.57	2.81	5.54	93.84	29.09	93.84	29.09
01/11/2009 20:00	0	0	0	5.54	0	0	93.84	29.09

01/11/2009 20:30	34.36	96.37	2.8	5.54	93.98	29.14	93.98	29.14
01/11/2009 21:00	34.37	96.89	2.82	5.54	93.52	28.99	93.52	28.99
01/11/2009 21:30	34.32	96.73	2.82	5.54	93.4	28.95	93.4	28.95
01/11/2009 22:00	34.62	96.28	2.78	5.54	95.51	29.61	95.51	29.61
01/11/2009 22:30	34.3	97.04	2.83	5.54	92.98	28.82	92.98	28.82
01/11/2009 23:00	34.44	97.1	2.82	5.54	93.7	29.05	93.7	29.05
01/11/2009 23:30	34.41	97.03	2.82	5.54	93.6	29.02	93.6	29.02
TOTAL:	806.0	2264.7	2.8	5.5	2200.3	682.1	2247.3	696.6
Verified, Vice Exe Director eng. Kr. Berbenkov:								

Table 2

Day	Production of	N2O	Emission factor	Emission factor	Emission	Emission	Corrected Emission	Corrected Emission
	100 % HNO3	emission	actual	baseline	reduction N2O [kg]	reduction CO2 [eq. ton]	reduction N2O [kg]	reduction CO2 [eq. ton]
	[ton]	[kg]	[kg/ton]	[kg/ton]				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5) - (2)*(4)	[(6)*310]/1000		
24/11/2009 00:00	0	0	0	5.54	0	0	0	0
24/11/2009 00:30	0	0	0	5.54	0	0	0	0
24/11/2009 01:00	0	0	0	5.54	0	0	0	0
24/11/2009 01:30	0	0	0	5.54	0	0	0	0
24/11/2009 02:00	0	0	0	5.54	0	0	0	0
24/11/2009 02:30	0	0	0	5.54	0	0	0	0
24/11/2009 03:00	1.5	178.76	119.17	5.54	-170.45	-52.84	0	0
24/11/2009 03:30	24.4	151.28	6.2	5.54	-16.1	-4.99	0	0
24/11/2009 04:00	37.86	146.6	3.87	5.54	63.14	19.57	63.14	19.57
24/11/2009 04:30	41.43	150.98	3.64	5.54	78.54	24.35	78.54	24.35
24/11/2009 05:00	51.46	147.76	2.87	5.54	137.33	42.57	137.33	42.57
24/11/2009 05:30	46.06	146.23	3.17	5.54	108.94	33.77	108.94	33.77
24/11/2009 06:00	46.22	147.19	3.18	5.54	108.87	33.75	108.87	33.75
24/11/2009 06:30	46.42	148.21	3.19	5.54	108.96	33.78	108.96	33.78
24/11/2009 07:00	46.53	149.79	3.22	5.54	107.99	33.48	107.99	33.48
24/11/2009 07:30	46.49	150.36	3.23	5.54	107.19	33.23	107.19	33.23
24/11/2009 08:00	46.58	150.54	3.23	5.54	107.51	33.33	107.51	33.33
24/11/2009 08:30	46.47	150.3	3.23	5.54	107.14	33.21	107.14	33.21
24/11/2009 09:00	46.59	306.73	6.58	5.54	-48.62	-15.07	107.99	33.48
24/11/2009 09:30	46.44	0.32	0.01	5.54	256.96	79.66	107.19	33.23
24/11/2009 10:00	46.29	21.28	0.46	5.54	235.17	72.9	107.51	33.33
24/11/2009 10:30	46.62	126.01	2.7	5.54	132.26	41	107.14	33.21
24/11/2009 11:00	46.25	143.64	3.11	5.54	112.59	34.9	112.59	34.9
24/11/2009 11:30	46.34	142.71	3.08	5.54	114.01	35.34	114.01	35.34
24/11/2009 12:00	46.73	142.64	3.05	5.54	116.24	36.04	116.24	36.04
24/11/2009 12:30	46.44	142.62	3.07	5.54	114.66	35.54	114.66	35.54
24/11/2009 13:00	46.36	142.65	3.08	5.54	114.18	35.4	114.18	35.4
24/11/2009 13:30	46.36	141.91	3.06	5.54	114.92	35.63	114.92	35.63
24/11/2009 14:00	46.4	142.7	3.08	5.54	114.36	35.45	114.36	35.45

24/11/2009 14:30	46.35	142.1	3.07	5.54	114.68	35.55	114.68	35.55
24/11/2009 15:00	46.47	141.82	3.05	5.54	115.62	35.84	115.62	35.84
24/11/2009 15:30	46.39	142.39	3.07	5.54	114.61	35.53	114.61	35.53
24/11/2009 16:00	46.49	142.34	3.06	5.54	115.21	35.72	115.21	35.72
24/11/2009 16:30	46.49	142.39	3.06	5.54	115.16	35.7	115.16	35.7
24/11/2009 17:00	46.97	143.28	3.05	5.54	116.93	36.25	116.93	36.25
24/11/2009 17:30	46.37	144.09	3.11	5.54	112.8	34.97	112.8	34.97
24/11/2009 18:00	46.58	144.2	3.1	5.54	113.85	35.29	113.85	35.29
24/11/2009 18:30	46.53	144.19	3.1	5.54	113.59	35.21	113.59	35.21
24/11/2009 19:00	46.75	143.48	3.07	5.54	115.52	35.81	115.52	35.81
24/11/2009 19:30	46.64	143.3	3.07	5.54	115.09	35.68	115.09	35.68
24/11/2009 20:00	46.64	143.45	3.08	5.54	114.94	35.63	114.94	35.63
24/11/2009 20:30	46.76	142.74	3.05	5.54	116.31	36.06	116.31	36.06
24/11/2009 21:00	46.82	143.15	3.06	5.54	116.23	36.03	116.23	36.03
24/11/2009 21:30	46.9	142.63	3.04	5.54	117.2	36.33	117.2	36.33
24/11/2009 22:00	46.64	143.73	3.08	5.54	114.66	35.54	114.66	35.54
24/11/2009 22:30	46.47	142.75	3.07	5.54	114.69	35.56	114.69	35.56
24/11/2009 23:00	46.62	141.21	3.03	5.54	117.06	36.29	117.06	36.29
24/11/2009 23:30	46.96	140.92	3	5.54	119.24	36.96	119.24	36.96
TOTAL:	939.0	2992.7	3.2	5.5	2209.6	685.0	2229.9	691.3
Verified, Vice Exe Director eng. Kr. Berbenkov:								



Confirmed:
Vice CEO
(eng. Kr. Berbenkov)



Protocol No.07/2009

During the plant start on the 10.12.2009 at 3:30 negative values for the emission reduction was calculated. These values were corrected according to the procedure.

The registered value for the N_2O emission recorded at 3:30 on the 10.12.2009 was corrected from -37.9 kg to 0 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction.

The gas analyzer of NO_x was calibrated the 10.12.2009. During the calibration procedure the plant worked stationary. The false recorded data from 9:30 to 10:00 was replaced with the data from the previous 60 minutes according to the procedure.

The registered value for the N_2O emission recorded at 10:00 on the 10.12.2009 was corrected from 0 kg to 220.6 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction. The data are presented in Table 1.

The plant was stopped production because of a failure of a controller. A detailed description is given in the emergency protocol № 31.

The registered value for the N_2O emission recorded at 11:00 on the 28.12.2009 was corrected from 178.5 kg to 0 kg N_2O . The same procedure was used for the correction of the CO_2 emission reduction. The data are presented in Table 2.

The gas analyzer was stopped and calibrated on the 15.12.2009. During this procedure the plant was worked stationary with normal parameters. The false data for NO_x were recorded on the 15.12.2009 from 09:00 to 11:00 o'clock and from 13:00 to 14:30 o'clock. These false data were replaced with estimated data for N_2O and CO_2 from previous 6 parameters, according the procedure. The data are presented on Table 3.

During the same procedure for calibration false data for NO_x were recorded on the 16.12.2009 from 09:00 to 10:30 o'clock. The procedure for correction of N_2O and CO_2 false data from previous 4 parameters was done. Data are presented on Table 4.

Eng. G. Boshov – Manager nitric acid plant

Dr.Eng. R. Gavrilov – Chemical engineer ecoprograms

Table 1

	Production of 100 % HNO3	N2O emission	Emission factor actual	Emission factor baseline	Emission reduction N2O	Emission reduction CO2	Correction Emission reduction N2O	Corection Emission reduction CO2
Day	[ton]	[kg]	[kg/ton]	[kg/ton]	[kg]	[eq. ton]	[kg]	[eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5) - (2)*(4)	[(6)*310]/1000		
10/12/2009 00:00	0	0	0	5.54	0	0	0	0
10/12/2009 00:30	0	0	0	5.54	0	0	0	0
10/12/2009 01:00	0	0	0	5.54	0	0	0	0
10/12/2009 01:30	0	0	0	5.54	0	0	0	0
10/12/2009 02:00	0	0	0	5.54	0	0	0	0
10/12/2009 02:30	0	0	0	5.54	0	0	0	0
10/12/2009 03:00	0	0	0	5.54	0	0	0	0
10/12/2009 03:30	0.39	40.07	102.74	5.54	-37.91	-11.75	0	0
10/12/2009 04:00	25.21	54.21	2.15	5.54	85.45	26.49	85.45	26.49
10/12/2009 04:30	39.31	57.53	1.46	5.54	160.25	49.68	160.25	49.68
10/12/2009 05:00	40.43	55.33	1.37	5.54	168.65	52.28	168.65	52.28
10/12/2009 05:30	43.2	53.74	1.24	5.54	185.59	57.53	185.59	57.53
10/12/2009 06:00	47.91	52.63	1.1	5.54	212.79	65.97	212.79	65.97
10/12/2009 06:30	45.4	51.9	1.14	5.54	199.62	61.88	199.62	61.88
10/12/2009 07:00	46.26	51.52	1.11	5.54	204.76	63.48	204.76	63.48
10/12/2009 07:30	46.72	51.05	1.09	5.54	207.78	64.41	207.78	64.41
10/12/2009 08:00	46.83	50	1.07	5.54	209.44	64.93	209.44	64.93
10/12/2009 08:30	46.98	49.65	1.06	5.54	210.62	65.29	210.62	65.29
10/12/2009 09:00	47.02	140.08	2.98	5.54	120.41	37.33	120.41	37.33
10/12/2009 09:30	47.12	40.41	0.86	5.54	220.63	68.4	220.63	68.4
10/12/2009 10:00	0	0	0	5.54	0	0	220.63	68.4
10/12/2009 10:30	47.12	25.18	0.53	5.54	235.86	73.12	235.86	73.12
10/12/2009 11:00	47.14	47.6	1.01	5.54	213.56	66.2	213.56	66.2
10/12/2009	46.98	47.19	1	5.54	213.08	66.05	213.08	66.05

11:30								
10/12/2009 12:00	46.99	46.79	1	5.54	213.53	66.2	213.53	66.2
10/12/2009 12:30	47.02	47.23	1	5.54	213.26	66.11	213.26	66.11
10/12/2009 13:00	47.05	46.65	0.99	5.54	214.01	66.34	214.01	66.34
10/12/2009 13:30	46.84	48.3	1.03	5.54	211.19	65.47	211.19	65.47
10/12/2009 14:00	46.87	47.91	1.02	5.54	211.75	65.64	211.75	65.64
10/12/2009 14:30	46.91	47.64	1.02	5.54	212.24	65.79	212.24	65.79
10/12/2009 15:00	46.97	47.31	1.01	5.54	212.9	66	212.9	66
10/12/2009 15:30	47.41	47.18	1	5.54	215.47	66.8	215.47	66.8
10/12/2009 16:00	46.64	46.82	1	5.54	211.57	65.59	211.57	65.59
10/12/2009 16:30	46.86	46.62	0.99	5.54	212.98	66.03	212.98	66.03
10/12/2009 17:00	47.05	46.35	0.99	5.54	214.31	66.44	214.31	66.44
10/12/2009 17:30	47.03	46.16	0.98	5.54	214.39	66.46	214.39	66.46
10/12/2009 18:00	47.1	45.9	0.97	5.54	215.03	66.66	215.03	66.66
10/12/2009 18:30	47.1	45.72	0.97	5.54	215.21	66.72	215.21	66.72
10/12/2009 19:00	46.97	45.48	0.97	5.54	214.73	66.57	214.73	66.57
10/12/2009 19:30	47.22	45.17	0.96	5.54	216.43	67.09	216.43	67.09
10/12/2009 20:00	46.97	45.26	0.96	5.54	214.95	66.64	214.95	66.64
10/12/2009 20:30	46.81	44.62	0.95	5.54	214.71	66.56	214.71	66.56
10/12/2009 21:00	46.89	44.38	0.95	5.54	215.39	66.77	215.39	66.77
10/12/2009 21:30	46.87	44.03	0.94	5.54	215.63	66.85	215.63	66.85
10/12/2009 22:00	46.92	43.85	0.93	5.54	216.09	66.99	216.09	66.99
10/12/2009 22:30	46.88	43.65	0.93	5.54	216.07	66.98	216.07	66.98
10/12/2009 23:00	46.79	43.55	0.93	5.54	215.67	66.86	215.67	66.86
10/12/2009 23:30	46.86	43.19	0.92	5.54	216.41	67.09	216.41	67.09
TOTAL:	919.3	1020.8	1.1	5.54	4072.1	1262.4	4106.5	1273.0
Verified, Vice Exe Director eng. Kr. Berbenkov:								

Table 2

	Production of 100 % HNO3	N2O emission	Emission factor actual	Emission factor baseline	Emission reduction N2O	Emission reduction CO2	Correction Emission reduction N2O	Correction Emission reduction CO2
Day	[ton]	[kg]	[kg/ton]	[kg/ton]	[kg]	[eq. ton]	[kg]	[eq. ton]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			(3)/(2)		(2)*(5) - (2)*(4)	[(6)*310]/1000		
28/12/2009 00:00	48	45.13	0.94	5.54	220.79	68.44	220.79	68.44
28/12/2009 00:30	47.87	45.24	0.95	5.54	219.96	68.19	219.96	68.19
28/12/2009 01:00	47.99	43.74	0.91	5.54	222.12	68.86	222.12	68.86
28/12/2009 01:30	48.18	42.96	0.89	5.54	223.96	69.43	223.96	69.43
28/12/2009 02:00	47.88	41.87	0.87	5.54	223.39	69.25	223.39	69.25
28/12/2009 02:30	47.63	44.08	0.93	5.54	219.79	68.13	219.79	68.13
28/12/2009 03:00	47.63	45.4	0.95	5.54	218.47	67.73	218.47	67.73
28/12/2009 03:30	47.92	45.59	0.95	5.54	219.89	68.16	219.89	68.16
28/12/2009 04:00	48.06	45.49	0.95	5.54	220.76	68.44	220.76	68.44
28/12/2009 04:30	48.01	44.67	0.93	5.54	221.31	68.6	221.31	68.6
28/12/2009 05:00	47.88	45.55	0.95	5.54	219.71	68.11	219.71	68.11
28/12/2009 05:30	48.27	44.58	0.92	5.54	222.84	69.08	222.84	69.08
28/12/2009 06:00	48.25	41.93	0.87	5.54	225.38	69.87	225.38	69.87
28/12/2009 06:30	47.79	41.8	0.87	5.54	222.96	69.12	222.96	69.12
28/12/2009 07:00	47.64	42.97	0.9	5.54	220.96	68.5	220.96	68.5
28/12/2009 07:30	47.74	44.86	0.94	5.54	219.62	68.08	219.62	68.08
28/12/2009 08:00	47.72	45.6	0.96	5.54	218.77	67.82	218.77	67.82
28/12/2009 08:30	48.1	43.99	0.91	5.54	222.48	68.97	222.48	68.97
28/12/2009 09:00	48	44.31	0.92	5.54	221.61	68.7	221.61	68.7
28/12/2009 09:30	48.16	43.78	0.91	5.54	223.03	69.14	223.03	69.14
28/12/2009 10:00	48.35	42.25	0.87	5.54	225.61	69.94	225.61	69.94
28/12/2009 10:30	47.93	42.01	0.88	5.54	223.52	69.29	223.52	69.29
28/12/2009 11:00	32.23	0	0	5.54	178.55	55.35	0	0
28/12/2009 11:30	0	0	0	5.54	0	0	0	0
28/12/2009 12:00	0	0	0	5.54	0	0	0	0
28/12/2009 12:30	0	0	0	5.54	0	0	0	0

28/12/2009 13:00	0	0	0	5.54	0	0	0	0
28/12/2009 13:30	0	0	0	5.54	0	0	0	0
28/12/2009 14:00	0	0	0	5.54	0	0	0	0
28/12/2009 14:30	0	0	0	5.54	0	0	0	0
28/12/2009 15:00	0	0	0	5.54	0	0	0	0
28/12/2009 15:30	0	0	0	5.54	0	0	0	0
28/12/2009 16:00	0	0	0	5.54	0	0	0	0
28/12/2009 16:30	0	0	0	5.54	0	0	0	0
28/12/2009 17:00	0	0	0	5.54	0	0	0	0
28/12/2009 17:30	0	0	0	5.54	0	0	0	0
28/12/2009 18:00	0	0	0	5.54	0	0	0	0
28/12/2009 18:30	0	0	0	5.54	0	0	0	0
28/12/2009 19:00	0	0	0	5.54	0	0	0	0
28/12/2009 19:30	0	0	0	5.54	0	0	0	0
28/12/2009 20:00	0	0	0	5.54	0	0	0	0
28/12/2009 20:30	7.69	48.81	6.35	5.54	-6.21	-1.92	0	0
28/12/2009 21:00	40.27	43.84	1.09	5.54	179.26	55.57	179.26	55.57
28/12/2009 21:30	47.89	44.98	0.94	5.54	220.33	68.3	220.33	68.3
28/12/2009 22:00	45.25	42.02	0.93	5.54	208.67	64.69	208.67	64.69
28/12/2009 22:30	44.41	42.99	0.97	5.54	203.04	62.94	203.04	62.94
28/12/2009 23:00	44.5	44.07	0.99	5.54	202.46	62.76	202.46	62.76
28/12/2009 23:30	44.4	44.32	1	5.54	201.66	62.51	201.66	62.51
TOTAL:	700.8	657.5	0.9	5.54	3224.9	999.7	3046.175	944.31

Verified,
Vice Exe Director
eng. Kr. Berbenkov:

Table 3

DATE: 15 December
2009y.

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Correction Emission reduction N2O [kg]	Correction Emission reduction CO2 [eq. ton]
-1	-2	-3	-4	-5	-6	-7	-8	-9
			(3)/(2)		(2)*(5) - (2)*(4)	[(6)*310]/1000		
15.12.2009 00:00	46,98	35,88	0,76	5,54	224,39	69,56	224,39	69,56
15.12.2009 00:30	47,04	35,83	0,76	5,54	224,77	69,68	224,77	69,68
15.12.2009 01:00	47,16	35,77	0,76	5,54	225,5	69,9	225,5	69,9
15.12.2009 01:30	47,06	35,93	0,76	5,54	224,78	69,68	224,78	69,68
15.12.2009 02:00	46,93	36,04	0,77	5,54	223,95	69,43	223,95	69,43
15.12.2009 02:30	46,96	35,76	0,76	5,54	224,4	69,56	224,4	69,56
15.12.2009 03:00	46,99	35,74	0,76	5,54	224,58	69,62	224,58	69,62
15.12.2009 03:30	47,06	35,8	0,76	5,54	224,91	69,72	224,91	69,72
15.12.2009 04:00	46,89	35,75	0,76	5,54	224,02	69,45	224,02	69,45
15.12.2009 04:30	46,94	35,71	0,76	5,54	224,34	69,54	224,34	69,54
15.12.2009 05:00	46,99	35,76	0,76	5,54	224,56	69,62	224,56	69,62
15.12.2009 05:30	46,88	35,83	0,76	5,54	223,89	69,4	223,89	69,4
15.12.2009 06:00	46,97	35,97	0,77	5,54	224,24	69,52	224,24	69,52
15.12.2009 06:30	46,84	35,81	0,76	5,54	223,68	69,34	223,68	69,34
15.12.2009 07:00	46,86	35,75	0,76	5,54	223,85	69,39	223,85	69,39
15.12.2009 07:30	46,81	35,83	0,77	5,54	223,5	69,28	223,5	69,28
15.12.2009 08:00	46,81	35,82	0,77	5,54	223,51	69,29	223,51	69,29
15.12.2009 08:30	46,79	35,86	0,77	5,54	223,36	69,24	223,36	69,24
15.12.2009 09:00	47,11	35,92	0,76	5,54	225,07	69,77	225,07	69,77
15.12.2009 09:30	0	0	0	5,54	0	0	223,83	69,38
15.12.2009 10:00	0	0	0	5,54	0	0	223,85	69,39
15.12.2009	0	0	0	5,54	0	0	223,85	69,39

10:30								
15.12.2009 11:00	0	0	0	5,54	0	0	223,91	69,41
15.12.2009 11:30	47,14	5,37	0,11	5,54	255,79	79,29	255,79	79,29
15.12.2009 12:00	46,96	36,06	0,77	5,54	224,1	69,47	224,1	69,47
15.12.2009 12:30	46,88	36,12	0,77	5,54	223,6	69,31	223,6	69,31
15.12.2009 13:00	46,73	17,01	0,36	5,54	241,87	74,98	241,87	74,98
15.12.2009 13:30	0	0	0	5,54	0	0	236,34	73,26
15.12.2009 14:00	0	0	0	5,54	0	0	231,48	71,76
15.12.2009 14:30	0	0	0	5,54	0	0	233,32	72,33
15.12.2009 15:00	46,48	3,30	0,77	5,54	254,2	78,8	254,2	78,8
15.12.2009 15:30	46,8	18,72	0,4	5,54	240,55	74,57	240,55	74,57
15.12.2009 16:00	46,83	35,59	0,76	5,54	223,85	69,39	223,85	69,39
15.12.2009 16:30	46,89	35,7	0,76	5,54	224,07	69,46	224,07	69,46
15.12.2009 17:00	47,02	35,63	0,76	5,54	224,86	69,71	224,86	69,71
15.12.2009 17:30	47	35,9	0,76	5,54	224,48	69,59	224,48	69,59
15.12.2009 18:00	46,94	35,72	0,76	5,54	224,33	69,54	224,33	69,54
15.12.2009 18:30	46,91	35,95	0,77	5,54	223,93	69,42	223,93	69,42
15.12.2009 19:00	46,9	36	0,77	5,54	223,83	69,39	223,83	69,39
15.12.2009 19:30	46,8	35,93	0,77	5,54	223,34	69,24	223,34	69,24
15.12.2009 20:00	46,83	35,95	0,77	5,54	223,49	69,28	223,49	69,28
15.12.2009 20:30	46,87	35,88	0,77	5,54	223,78	69,37	223,78	69,37
15.12.2009 21:00	46,96	35,9	0,76	5,54	224,26	69,52	224,26	69,52
15.12.2009 21:30	46,8	35,95	0,77	5,54	223,32	69,23	223,32	69,23
15.12.2009 22:00	46,95	35,71	0,76	5,54	224,39	69,56	224,39	69,56
15.12.2009 22:30	46,85	35,89	0,77	5,54	223,66	69,33	223,66	69,33
15.12.2009 23:00	46,88	35,88	0,77	5,54	223,84	69,39	223,84	69,39
15.12.2009 23:30	47,04	35,98	0,76	5,54	224,62	69,63	224,62	69,63
TOTAL:	1032,3	714,5	0,7	5,54	5004,4	1551,4	5441,0	1651,9

Verified,
Vice Exe Director
eng. Kr. Berbenkov:

Table 4

DATE: 16 December
2009y.

Day	Production of 100 % HNO3 [ton]	N2O emission [kg]	Emission factor actual [kg/ton]	Emission factor baseline [kg/ton]	Emission reduction N2O [kg]	Emission reduction CO2 [eq. ton]	Correction Emission reduction N2O [kg]	Correction Emission reduction CO2 [eq. ton]
-1	-2	-3	-4	-5	-6	-7	-8	-9
			(3)/(2)		(2)*(5) - (2)*(4)	[(6)*310]/1000		
16.12.2009 00:00	46,77	35.99	0.77	5,54	223,12	69,17	223,12	69,17
16.12.2009 00:30	46,76	35.93	0.77	5,54	223,12	69,17	223,12	69,17
16.12.2009 01:00	46,7	35.87	0.77	5,54	222,85	69,08	222,85	69,08
16.12.2009 01:30	46,79	35.81	0.77	5,54	223,41	69,26	223,41	69,26
16.12.2009 02:00	46,78	35.95	0.77	5,54	223,21	69,2	223,21	69,2
16.12.2009 02:30	46,81	35.82	0.77	5,54	223,51	69,29	223,51	69,29
16.12.2009 03:00	46,78	35.81	0.77	5,54	223,35	69,24	223,35	69,24
16.12.2009 03:30	46,81	35.64	0.76	5,54	223,69	69,34	223,69	69,34
16.12.2009 04:00	47,09	35.57	0.76	5,54	225,31	69,85	225,31	69,85
16.12.2009 04:30	47,34	35.66	0.75	5,54	226,6	70,25	226,6	70,25
16.12.2009 05:00	47,2	35.81	0.76	5,54	225,68	69,96	225,68	69,96
16.12.2009 05:30	47,46	35.89	0.76	5,54	227,04	70,38	227,04	70,38
16.12.2009 06:00	46,82	36.04	0.77	5,54	223,34	69,24	223,34	69,24
16.12.2009 06:30	46,93	35.7	0.76	5,54	224,29	69,53	224,29	69,53
16.12.2009 07:00	47,13	35.81	0.76	5,54	225,29	69,84	225,29	69,84
16.12.2009 07:30	47,08	35.58	0.76	5,54	225,24	69,83	225,24	69,83
16.12.2009 08:00	46,83	35.79	0.76	5,54	223,65	69,33	223,65	69,33
16.12.2009 08:30	46,94	35.82	0.76	5,54	224,23	69,51	224,23	69,51
16.12.2009 09:00	46,89	9,40	0.2	5,54	250,37	77,61	250,37	77,61
16.12.2009 09:30	0	0	0	5,54	0	0	232,75	72,15
16.12.2009 10:00	0	0	0	5,54	0	0	235,78	73,09
16.12.2009 10:30	0	0	0	5,54	0	0	239,6	74,28
16.12.2009 11:00	46,99	27.82	0.59	5,54	232,5	72,08	232,5	72,08
16.12.2009 11:30	47,39	36.59	0.77	5,54	225,95	70,04	225,95	70,04
16.12.2009 12:00	47,4	36.57	0.77	5,54	226,03	70,07	226,03	70,07
16.12.2009 12:30	47,14	36.72	0.78	5,54	224,44	69,58	224,44	69,58

16.12.2009 13:00	47,18	36.69	0.78	5,54	224,69	69,65	224,69	69,65
16.12.2009 13:30	47,33	36.52	0.77	5,54	225,69	69,96	225,69	69,96
16.12.2009 14:00	47,42	36.91	0.78	5,54	225,8	70	225,8	70
16.12.2009 14:30	47,18	36.71	0.78	5,54	224,67	69,65	224,67	69,65
16.12.2009 15:00	47,06	36.67	0.78	5,54	224,04	69,45	224,04	69,45
16.12.2009 15:30	47,17	36.75	0.78	5,54	224,57	69,62	224,57	69,62
16.12.2009 16:00	47,8	36.59	0.77	5,54	228,22	70,75	228,22	70,75
16.12.2009 16:30	46,83	36.66	0.78	5,54	222,78	69,06	222,78	69,06
16.12.2009 17:00	47,38	36.64	0.77	5,54	225,85	70,01	225,85	70,01
16.12.2009 17:30	47,27	36.64	0.78	5,54	225,24	69,82	225,24	69,82
16.12.2009 18:00	47,34	36.67	0.77	5,54	225,59	69,93	225,59	69,93
16.12.2009 18:30	47,25	36.65	0.78	5,54	225,11	69,79	225,11	69,79
16.12.2009 19:00	47,35	36.53	0.77	5,54	225,79	69,99	225,79	69,99
16.12.2009 19:30	47,36	36.61	0.77	5,54	225,76	69,99	225,76	69,99
16.12.2009 20:00	47,22	36.57	0.77	5,54	225,03	69,76	225,03	69,76
16.12.2009 20:30	47,26	36.74	0.78	5,54	225,08	69,77	225,08	69,77
16.12.2009 21:00	47,08	36.73	0.78	5,54	224,09	69,47	224,09	69,47
16.12.2009 21:30	47,25	36.7	0.78	5,54	225,07	69,77	225,07	69,77
16.12.2009 22:00	47,21	36.55	0.77	5,54	224,99	69,75	224,99	69,75
16.12.2009 22:30	47,22	36.47	0.77	5,54	225,13	69,79	225,13	69,79
16.12.2009 23:00	47,31	36.73	0.78	5,54	225,37	69,86	225,37	69,86
16.12.2009 23:30	47,08	36.8	0.78	5,54	224,02	69,45	224,02	69,45
TOTAL:	1083,6	803,7	0,7	5,54	5199,4	1611,8	5315,9	1648,0

Verified,
Vice Exe Director
eng. Kr. Berbenkov:



Report for 2008 / 2009	JI Project – Nitrous Oxide Reduction at Agropolychim Fertilizer Plant
Report name:	
Annual Monitoring Report for the Nitrous Oxide Reduction in the Project of the Fertilizers Plant Agropolychim JSCo, Devnya, Bulgaria	
Reported period 01.01.2008 – 31.12.2009	

Annex IV ***Description of monitoring equipment***

No	Index	Devices	Measurement method	Range	Certificate
1	N ₂ O	IR analyzer module URAS 14	IR spectroscopy	0...5 000 ppmv.	TÜV, for the system Advance Analyzer Module URAS 14
2	O ₂	Electrochemical sensor	Electrochemical	0..10/25 Vol.%	TÜV, for the system Advance Analyzer Module URAS 14
3	Gas volumetric flow	System Durag D-FL 100 with a transformer of differential pressure and measuring unit type: D-FL 100-10 Temperature transmitter, differential and static pressure	Calculated on the bases of the cross section of the gas outlet pipe, velocity, pressure and the temperature by means of microprocessor unit type D-FL 100-10	- - -	The system DURAG D-FL 100 tested for functional suitability by TÜV, according to the protocol №128CU11650 / 29.03.1996
4	Temperature	System Durag D-FL 100 Temperature transmitter Pt 100 type – FL 100 TM-H	Thermo-resistant	0 ÷ 50 °C	
5	Flow rate	System Durag D-FL 100 a probe cross-fitted to the gas outlet pipe type - FL 100 DS2	Calculated on the basis of the differential pressure through air-speed tube (Pito tube)	> 3,0 m/s	
6	Gas pressure	System Durag D-FL 100 transmitter for differential pressure FL 100 DDM/H; pressure transmitter type: AMD 210	Physical	900–1200 hPa	



AGROPOLYCHIM

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