VERIFICATION REPORT
JSC "IVANO-FRANKIVSK CEMENT"

VERIFICATION OF THE IVANO-FRANKIVSK CEMENT SWITCH FROM WET-TO-DRY CEMENT AND FUEL SAVINGS FOR COAL DRYING

INITIAL AND FIRST PERIODIC (2008)

REPORT NO. UKRAINE/0057/2009

REVISION NO. 01

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE/0057/2009

VERIFICATION REPORT

Date of first issue: 30 October 2009	Organizational unit: Bureau Veritas Certification Holding SAS
Client: JSC «Ivano-Frankivsk Cement»	Client ref.: Mykola Makoviychuk

Summary:

Bureau Veritas Certification has made the verification of the "Ivano-Frankivsk Cement Switch from Wet-to-Dry Cement and fuel savings for coal drying" project of JSC "Ivano-Frankivsk Cement" located in vil. Yamnytsya, Tysmenytsya district, Ivano-Frankivsk Region, Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting, as well as the host country criteria.

The verification scope is defined as a periodic independent review and post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the Monitoring Report, Project Design Document and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures. The first output of the verification process is a list of Clarification Requests, Corrective Actions Requests, Forward Actions Requests (CL, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated without material misstatements.

Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on information seen and evaluated we confirm that the implementation of the project has resulted in 62 698 t CO2e reductions during period from 01/01/2008 up to 31/12/2008.

On the behalf of verification team, Flavio Gomes, the Bureau Veritas Certification Holding SAS Global Product Manager for Climate Change, approved final version of the Verification Report and it is signed by Ivan Sokolov authorized Bureau Veritas Certification Holding SAS Local product manager for Climate Change in Ukraine.

Report No.: UKRAINE/0057/2009	Subject Group: JI
Project title: Ivano-Frankivsk Cement Switch from Wet-to-Dry Cement and fuel savings for coal drying	
Work carried out by: Team Leader : Nadiia Kaiun Team Member : Kateryna Zinevych Specialist : Viktoriya Legka	
Work verified by: Ivan Sokolov	
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Indexing terms

Climate Change, Kyoto Protocol, Joint Implementation, Emission Reductions, Verification

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Abbreviations

AIE	Accredited Independent Entity
BVCH	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CL	Clarification Request
CO_2	Carbon Dioxide
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
IETA	International Emissions Trading Association
JI	Joint Implementation
JISC	JI Supervisory Committee
MoV	Means of Verification
MP	Monitoring Plan
PCF	Prototype Carbon Fund
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change

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1 INTRODUCTION

JSC Ivano-Frankivsk Cement has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Ivano-Frankivsk Cement Switch from Wet-to-Dry Cement and fuel savings for coal drying") at vil Yamnytsya, Tysmenytsya district, Ivano-Frankivsk Region, Ukraine (JI Reference Number UA1000100).
This report summarizes the findings of the verification of the project, performed on the basis of criteria given to provide for consistent project operations, monitoring and reporting, and contains a statement for the verified emission reductions. The order includes the initial and first periodic verification of the project for 2008.
This report includes the findings of the initial and first periodic verification. It is based on the Initial Verification Report Template Version 3.0, December 2003 and on the Periodic Verification Report Template Version 3.0, December 2003, both part of the Validation and Verification Manual (VVM) published by International Emission Trading Association (IETA).
Initial and first periodic verification has been performed as one integrated activity. It consisted of a desk review of the project documents including PDD, monitoring plan, determination report, monitoring report and further documentation.
The results of the determination were documented by Bureau Veritas Certification Holding SAS in the report: "Ivano-Frankivsk Cement Switch from Wet-to-Dry Cement and fuel savings for coal drying" Report No. UKRAINE/0043/2009 dated August 26th, 2009 See Section 7).
Project is approved by the National Environmental Investment Agency of Ukraine and the Ministry of Economic Affairs of the Netherlands (Letters of approval are presented, see Section 7) and registered under Track 1.

1.1 Objective

Verification is the periodic independent review and ex post determination by the AIE of the monitored reductions in GHG emissions during defined verification period.
The objective of verification can be divided in Initial Verification and Periodic Verification.
Initial Verification: The objective of an initial verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project will generate verifiable emission reductions. A separate initial verification prior to the project entering into regular operations is not a mandatory requirement.
Periodic Verification: The objective of the periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; furthermore the periodic verification evaluates the GHG emission reduction data and express a conclusion with a high, but not absolute,

level of assurance about whether the reported GHG emission reduction data is free of material misstatements; and verifies that the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records. If no prior initial verification has been carried out, the objective of the first periodic verification also includes the objectives of the initial verification.
The verification follows UNFCCC criteria referring to the Kyoto Protocol criteria, the JI rules and modalities, and the subsequent decisions by the JISC, as well as the host country criteria.

1.2 Scope

Verification scope is defined as an independent and objective review and ex post determination by the Designated Operational Entity of the monitored reductions in GHG emissions. The verification is based on the submitted monitoring report and the determined project design document including the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. Bureau Veritas Certification has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the verification, focusing on the identification of significant risks of the project implementation and the generation of ERUs.
The verification is not meant to provide any consulting towards the Client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.
The audit team has been provided with a Monitoring Report version 1.11 dated 13th of October 2009 and underlying data records, covering the period 01 January 2008 to 31 December 2008 inclusive (see Section 7).

1.3 GHG Project Description

Situation existing prior to the start of the project: Cement manufacturing is a highly complex process which requires the consumption of substantial amounts of energy. As a result of having high energy consumption, cement manufacturing produces significant amounts of greenhouse gas (GHG), specifically CO_2 emissions. Cement production generally creates three main sources of emissions which are a result of the following main activities; (1) Combustion of fossil fuel (2) Electricity consumption, and (3) Chemical decomposition of limestone (referred to as the calcination process). This project aims to substantially reduce the first two streams of emissions by implementing two primary project activities, as follows:

1) Switch from wet to dry clinker production (including capacity expansion) resulting in significant fuel savings
2) Utilization of waste heat for drying coal that is used as fuel source in the kiln

Description of baseline scenario: The baseline scenario identified for the project is a hybrid between a project-specific and sector-wide baseline. This is due to a clinker production capacity expansion in project which must be compared against a sector-wide energy intensity, using the assumption that if the additional capacity had not been produced at the IF Cement facility, it would have been produced by other production facilities in the Ukraine. Therefore, for all production capacity up to 456, 960 tonnes clinker/year (i.e. the previous production capacity) the baseline is derived from the energy intensity of the previous wet production process. For all increases in production beyond 456, 960 tonnes clinker/year, the baseline is derived from the energy intensity in a sector wide baseline that has been estimated using the Volyn Cement PDD* method for calculating emissions from incremental production.

2 METHODOLOGY

The verification is a desk review and field visit including discussions and interviews with selected experts and stakeholders.

In order to ensure transparency, a verification protocol was customized for the project, according to the Validation and Verification Manual (IETA/PCF) a verification protocol is used as part of the verification (see Section 7). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:
It organises, details and clarifies the requirements the project is expected to meet; and
It ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification;

The verification protocol consists of one table under Initial Verification checklist and four tables under Periodic verification checklist. The different columns in these tables are described in Figure 1.

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification procedures.

* Adapted from Volyn-Cement Project Design Document, PDD version 1.5, January 30, 2008, http://ji.unfccc.int/UserManagement/FileStorage/UWCFRFLURJEJMZ0SELJI9F7ECR33CU accessed on April 1, 2009

The completed verification protocol is enclosed in Appendix A to this report.

Initial Verification Protocol Table 1			
Objective	**Reference**	**Comments**	**Conclusion (CARs/FARs)**
The requirements the project must meet	Gives reference to where the requirement is found.	Description of circumstances and further comments on the conclusion	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance of the stated requirements. Forward Action Request (FAR) indicates essential risks for further periodic verifications.

Periodic Verification Checklist Protocol Table 2: Data Management System/Controls		
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**
The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table.	A score is assigned as follows: • Full - all best-practice expectations are implemented. • Partial - a proportion of the best practice expectations is implemented • Limited - this should be given if little or none of the system component is in place.	Description of circumstances and further commendation to the conclusion. This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non compliance with stated requirements. The corrective action requests are numbered and presented to the client in the verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications.

Periodic Verification Protocol Table 3: GHG calculation procedures and management control testing		
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**
Identify and list potential reporting risks based on an assessment of the emission estimation procedures, i.e. ➢ the calculation methods, ➢ raw data collection and sources of supporting documentation, ➢ reports/databases/information systems from which	Identify the key controls for each area with potential reporting risks. Assess the adequacy of the key controls and eventually test that the key controls are actually in operation. Internal controls include (not exhaustive): ➢ Understanding of responsibilities and roles ➢ Reporting, reviewing and	Identify areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks Areas where data accuracy, completeness and consistency could be improved are highlighted.

data is obtained. Identify key source data. Examples of source data include metering records, process monitors, operational logs, laboratory/analytical data, accounting records, utility data and vendor data. Check appropriate calibration and maintenance of equipment, and assess the likely accuracy of data supplied. Focus on those risks that impact the accuracy, completeness and consistency of the reported data. Risks are weakness in the GHG calculation systems and may include: ➢ manual transfer of data/manual calculations, ➢ unclear origins of data, ➢ accuracy due to technological limitations, ➢ lack of appropriate data protection measures? For example, protected calculation cells in spreadsheets and/or password restrictions.	formal management approval of data; ➢ Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data trails etc. ➢ Controls to ensure the arithmetical accuracy of the GHG data generated and accounting records e.g. internal audits, and checking/ review procedures; ➢ Controls over the computer information systems; ➢ Review processes for identification and understanding of key process parameters and implementation of calibration maintenance regimes ➢ Comparing and analysing the GHG data with previous periods, targets and benchmarks. When testing the specific internal controls, the following questions are considered: 1. Is the control designed properly to ensure that it would either prevent or detect and correct any significant misstatements? 2. To what extent have the internal controls been implemented according to their design; 3. To what extent have the internal controls (if existing) functioned properly (policies and procedures have been followed) throughout the period? 4. How does management assess the internal control as reliable?	

Periodic Verification Protocol Table 4: Detailed audit testing of residual risk areas and random testing		
Areas of residual risks	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including Forward Action Requests)**
List the residual areas	The additional verification	Having investigated the residual risks, the

of risks (Table 2 where detailed audit testing is necessary. In addition, other material areas may be selected for detailed audit testing.	testing performed is described. Testing may include: 1. Sample cross checking of manual transfers of data 2. Recalculation 3. Spreadsheet 'walk throughs' to check links and equations 4. Inspection of calibration and maintenance records for key equipment ➢ Check sampling analysis results ➢ Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.	conclusions should be noted here. Errors and uncertainties should be highlighted. Errors and uncertainty can be due to a number of reasons: ➢ Calculation errors. These may be due to inaccurate manual transposition, use of inappropriate emission factors or assumptions etc. ➢ Lack of clarity in the monitoring plan. This could lead to inconsistent approaches to calculations or scope of reported data. ➢ Technological limitations. There may be inherent uncertainties (error bands) associated with the methods used to measure emissions e.g. use of particular equipment such as meters. ➢ Lack of source data. Data for some sources may not be cost effective or practical to collect. This may result in the use of default data which has been derived based on certain assumptions/conditions and which will therefore have varying applicability in different situations. The second two categories are explored with the site personnel, based on their knowledge and experience of the processes. High risk process parameters or source data (i.e. those with a significant influence on the reported data, such as meters) are reviewed for these uncertainties.

Verification Protocol Table 5: Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	**Ref. to checklist question in tables 2/3**	**Summary of project owner response**	**Verification conclusion**
If the conclusions from the Verification are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the verification team should be summarized in this section.	This section should summarize the verification team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion".

Figure 1 Verification protocol tables

2.1 Review of Documents

The Monitoring Report (MR) dated 6 of October 2009 submitted by GreenStream Network and additional background documents related to the project design and baseline, i.e. country Law, Project Design

Document (PDD), applied methodology, Kyoto Protocol, Clarifications on Verification Requirements to be checked were reviewed. To address Bureau Veritas Certification corrective action and clarification requests, GreenStream Network revised the MR and resubmitted it on 13 of October 2009 as version 1.11.

The verification findings presented in this report relate to the project as described in the PDD version 1.4 and Monitoring Report version 1.11.

2.2 Follow-up Interviews

On 13/10/2009 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of JSC Ivano-Frankivsk Cement, developer and local stakeholders were interviewed (see 7 References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
JSC Ivano-Frankivsk Cement	Organizational structure. Responsibilities and authorities. Training of personnel. Quality management procedures and technology. Implementation of equipment (records). Metering equipment control. Metering record keeping system, database.
Local Stakeholder: District State Administration	Social impacts. Environmental impacts.
Consultant: GreenStream Network	Baseline methodology. Monitoring plan. Monitoring report. Deviations from PDD.

2.3 Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

Findings established during the initial verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CAR) are issued, where:

i) there is a clear deviation concerning the implementation of the project as defined by the PDD;
ii) requirements set by the MP or qualifications in a verification opinion have not been met; or
iii) there is a risk that the project would not be able to deliver (high quality) ERUs.

Forward Action Requests (FAR) are issued, where:
iv) the actual status requires a special focus on this item for the next consecutive verification, or
v) an adjustment of the MP is recommended.

The verification team may also use the term Clarification Request (CL), which would be where:
vi) additional information is needed to fully clarify an issue.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

3 VERIFICATION FINDINGS

In the following sections, the findings of the verification are stated. The verification findings for each verification subject are presented as follows:
1) The findings from the desk review of the original project activity documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Verification Protocol in Appendix A.
2) The conclusions for verification subject are presented.

In the final verification report, the discussions and the conclusions that followed the preliminary verification report and possible corrective action requests are encapsulated in this section.

3.1 Remaining issues CAR's, FAR's from previous determination/verification

One task of the verification is to check the remaining issues from the previous determination and verification or issues which are clearly defined for assessment in the PDD. The determination report, prepared by Bureau Veritas Certification Holding SAS notes following open issues.

Corrective Action Request (CAR) 5

There is no evidence of written project approvals by the Parties involved.

Response

Letter of Approval № 1220/23/7 was issued by the National Agency of Ecological Investments from 14th of October 2009. The Letter of Approval from the Dutch side was issued 10th of December 2009 (see References).

Conclusion of the Verification team

The issue is closed.

3.2 Project Implementation

3.2.1 Discussion

Though the physical components of project implementation are not mentioned in the monitoring report the evidence of the equipment put into operation were seen and validated on-site (see the List of the Documents checked).
Utilization of waste heat for drying coal that is used as fuel source in the kiln started of the year 2008. The dry kiln was put into operation 28th of July 2008 that is why this part of emissions was not included into calculations of emission reductions.

3.2.2 Findings

Corrective Action Request (CAR) 1
Letter of Approval from the buyer's side is not received yet.

Response

See CAR5 left from the determination.

Conclusion of the verification team

See CAR5 left from the determination.

3.2.3 Conclusion

The project complies with the requirements.

3.3 Internal and External Data

3.3.1 Discussion

Data from Project Activity Emissions

Emissions from the project year are a combination of two distinct sets of calculations representing all aspects of the project location affected by the implementation of the project. The two components affected by the

project are (1) the emissions from fuel combustion for coal processing and (2) fuel combustion for the production of clinker. These two project aspects each contribute to the overall emission reductions, and have been calculated separately for transparency.

In order to calculate project emissions from the coal drying and crushing such internal data were used:

- the electricity due to coal drying and handling (kWh/ tonne coal)
- the fuel consumption for drying of the coal mill in year y (m^3 /tonne coal),

And such external fixed parameters were used:

- Net calorific value of fuel (kcal/tonne or m^3)
- Volume of Coal Processed within the project year (tonnes coal)
- the emission factor of Ukraine electricity grid in year y (tCO_2/MWh)
- the emission factor for the fuel (tCO_2/GJ)
- Conversion from kcal to kJ (constant) (kJ/kcal)

In order to calculate project emissions from cement production the summary of project emissions due to calcination from both existing capacity and capacity expansion production (tCO_2e), project emissions from combustion of kiln fuels from both existing capacity and capacity expansion production (tCO_2e) and project emissions from the consumption of electricity for cement production from both existing capacity and capacity expansion production (tCO_2e) is used.

Project emissions from combustion of kiln fuels

The fuel used within the kilns is comprised of a number of different fuel types; the summation of all energy, in GJ, provided by the kiln fuels will be quantified as the combustion emissions of the three kilns; including the new dry kiln. Fuel mix providing the heat energy will be taken as the fuel mix from the project year, as fluctuations in fuel mix are not affected by the project activity. The fuel mix is primarily influenced by price and availability considerations. Overall fuel usage is seen to decrease over the crediting period, on a per tonne of clinker basis, as the increased dry kiln production phases out the production in the remaining wet kilns. Quantification of emissions for kiln fuel has been adapted from the approved CDM methodology ACM0003 version 07.2.

In order to calculate project emissions from kiln fuel consumption of fuel type was used as an internal datum. And external fixed parameters:

- Emission factor for fuel type *i* (tCO_2/ GJ)
- Net calorific value of fuel *i* (kcal/tonne or m^3)
- Conversion from kcal to kJ (constant) (kJ/kcal)

Project Emissions from Electricity Consumption

Indirect emissions caused by the consumption of electricity are accounted for within the production of cement. Electricity is utilized within the cement manufacturing process to power fans, conveyers and grinders and other such electric devices throughout the cement production process. Electricity consumption is affected by the project activity as the process of raw mill preparation and kiln consumption differs between the wet and

dry cement process. Electricity consumption has been broken down into three main components for quantification:

- Electricity for the raw materials preparation and transport to the site (MWh)
- Electricity for the kiln (MWh)
- Electricity consumption for clinker milling (MWh)

Quantification of emissions for electricity consumption has been adapted from the approved CDM methodology ACM0005 version 04. And the external fixed parameter used is carbon emission factor of Ukraine electricity grid (tCO_2/MWh), which is taken from JI PDD 0018 'Introduction of energy efficiency measures at ISTIL mini steel mill, Ukraine'.

Project Emissions from Calcination

Calcination emissions are only included in the capacity expansion calculations (and not project or baseline totals) since it is assumed that the mix of raw materials will not change between the project and the baseline and therefore, the calcination emissions will not change for the existing capacity calculation.

Data from Baseline Activity Emissions

Emissions from the baseline year are a combination of two distinct sets of calculations representing all aspects of emissions occurring in absence of the project activity. These two sources are (1) the emissions from coal drying and processing and (2) the production of clinker using wet production technology. Due to a capacity expansion that results from the addition of the dry kiln, the baseline emissions have been calculated to account for incremental production volumes as a result of the project. Overall the incremental production has been accounted for as a 'capacity expansion' from the baseline's maximum capacity; as defined below. The methodological approach to account for incremental cement production has been taken from Annex 2 of the Volyn cement PDD[1].

Baseline emission values were calculated averaging data from the previous 3 years (2005-2007).

Overall the emissions from coal drying and wet cement production makeup the baseline emissions. These baseline aspects each contribute to the overall emissions of the everyday operations and have been calculated separately for transparency. As previously noted, calculations for capacity expansion did not result in ERUs for 2008. For this reason, capacity expansion calculations have been omitted from the monitoring report but will be included in subsequent years.

Overall Baseline Emissions for 2008 consist of the baseline emissions from the coal mill in year y (tCO_2e), the baseline emissions from wet cement production in year y (tCO_2e) and the baseline emissions from incremental production (capacity expansion) (tCO_2e).

Baseline Emissions from Coal Processing

In order to calculate baseline emissions from the coal drying and crushing such internal data were used:

- electricity for coal preparation and handling
- the natural gas consumption of coal dryer
- Quantity of coal processed in project year

And external data:

- the carbon emission factor of Ukraine electricity grid (tCO_2/MWh)
- the carbon emission factor (tCO_2/GJ)
- Net calorific value of fuel (kcal/tonne or m^3)
- Conversion from kcal to kJ

Baseline Emissions from Cement Production (Kiln, Electricity and Calcination) consist of summary of baseline emissions from the production of cement using the wet process (tCO_2), baseline emissions due to calcinations for existing capacity (tCO_2), baseline emissions from combustion of kiln fuels for existing capacity (tCO_2) and baseline emissions from the consumption of electricity for cement production for existing capacity (tCO_2).

Baseline Emissions from Kiln Fuel

In order to calculate baseline emissions from kiln fuel such internal data were used:

- The average baseline kiln efficiency for 3 years prior to the project (2005-2007) for the existing kiln (GJ/tonne clinker)
- Clinker production in the baseline scenario on the existing kilns in year y (tonnes clinker),

And emission factor for fuel mix (tCO_2 / GJ) (based on identified fuel mix from project year) as an external parameter.

Baseline Emissions from Electricity Consumption consist of summary indirect emissions from electricity consumption for the raw material processing (tCO_2), indirect emissions from electricity consumption for wet kiln operation (tCO_2) and indirect emissions from the consumption of electricity for grinding of cement (tCO_2).

Calcination emissions are only included in the capacity expansion calculations (and not project or baseline totals) since it is assumed that the mix of raw materials will not change between the project and the baseline and therefore, the calcination emissions will not change for the existing capacity calculation.

3.3.2 Findings

Corrective Action Request (CAR) 2

There is a mechanical mistake in the data table that represents internal data summarized for 2008 for kiln#1 (coal, April 2008). Please correct and provide corrections in all following calculations (including final GHG emission reductions number).

Response

As stated in response to CL1 (section 1.d in project owner response) this data mistake has been updated and resolved to the correct value. The resulting ERU values have been calculated and the final value has been calculated to be 62,698 tones of CO_2. All resulting corrections to calculations (including final GHG emission reductions number) have been provided within the Monitoring report.

Conclusion of the verification team

Issue is closed.

Clarification Request (CL) 7

The external parameters are obtained according to the monitoring plan. Please provide the information considering access to external data.

Response

External parameters, such as emission factors (P5, P7, P22, B7, B9, B28) and conversion factors (P24, B39) are obtained from external sources within the scope of the JI project. Such parameters are being constantly monitored for relevance to ensure that IF Cement calculations are based on the most current and best sources available (i.e: IPCC).

Since, in specific cases, the production capacity of the new dry kiln exceeds pre-project conditions, efficiency ratings must be compared to the external sector wide performance currently occurring in Ukraine. Comparing to external sources allows the production efficiency of the IF Cement plant to be compared to typical Cement efficiencies in Ukraine Sector. To complete this comparison the method developed, and approved, under the VolynCement PDD will be utilized as most current and directly relevant to the IF Cement situation.

However, this analysis was not completed in 2008; as no capacity increase was obtained over the existing site capacity. Thus all capacity produced in 2008 was compared to the IF Cement specific efficiency values calculated internally. (It is expected however that in future years IF Cement will be comparing to the external sector wide energy efficiency values).

External sector wide baseline performance will be monitored over the coming years.

Conclusion of the verification team

Issue is closed.

3.3.3 Conclusion

The project complies with the requirements.

3.4 Environmental and Social Indicators

3.4.1 Discussion

The project improved efficiency of use of natural gas and electricity at the enterprise and thus leaded to decrease of harmful emissions. This project by reducing GHG emissions contributes towards a better environment and hence works towards social well-being for all. Project implementation will lead to improvement of ecological climate of the region, increase of payments to the budgets of all levels for social needs, prevention of reduction of working places and better working conditions at JSC Ivano-Frankivsk Cement.

3.4.2 Findings

Clarification Request (CL)8

Please provide information considering impact on the environmental and social components.

Response

Switching to a dry process allowed the company to significantly reduce emissions of harmful substances. This is confirmed by the test records kept by the plant's laboratory. Improved environmental performance of three kilns in 2008 is demonstrated by the following emission reductions: dust - by 58%, CO - by 31%, NO2 - by 49%, SO2 - by 44%. An aggregate maximum concentration of the substances at the border of the sanitary buffer zone (1000 m) is twice less than the maximum permissible level. The closest residential area is located at the distance of 1100 meters from the plant. Therefore the plant's emissions do not have negative impacts on the local population. The project implementation has a positive impact on health and safety of the plant's personnel. As a result of the training program, the plant's operating personnel obtained skills relevant to dry processing line which is newer technology in Ukraine.

Conclusion of the verification team

Issue is closed.

3.4.3. Conclusion

The project complies with the JI requirements as well as with the local requirements.

3.5 Management and Operational System

3.5.1 Discussion

There is no approved CDM methodology that can be directly applied to the proposed project. However approved CDM Methodologies, such as ACM0003 v07.2 and ACM0005 v04, have been consulted in detail for general principles and guidance with regards to cement projects.

Further guidance has been taken from two similar JI projects that have already been determined by an Independent Entity: the Podilsky Cement project* and the Volyn Cement project[1]. The Podilsky Cement PDD outlines a change in cement process from a wet clinker production technology to a dry process. Volyn Cement has also switched cement production from a wet process to semi-dry, as well as implementing changes in the raw material composition for kiln fuel. The Podilsky Project Design Document (PDD) has passed the JISC review process, while the Volyn Cement PDD has passed stakeholder review, therefore using this guidance while developing the project design document for IF Cement is feasible.

This monitoring plan used these methods as guidance, rather than full adoption, due to slight differences in the project activity.
Monitoring was carried out as according to the PDD monitoring plan for the monitoring period of the year 2008.

A detailed records management system has been established at Ivano-Frankivsk Cement to record and document all required data. The records management system includes paper records maintained by staff of the laboratory and production staff as well as electronic records maintained by the departments. These records are available as part of the verification process, as they outline all consumption values for the project site.
Data collection and manipulation for the monitoring plan are the responsibility of 4 departments within IF Cement (Power and Electrical Department, Engineering and Metrologist Department, Laboratory, Shift man, shop economist and superintendant).

3.5.2 Findings

Clarification Request (CL) 2

Please clarify why Shift man, shop economist and superintendant

* Switch from wet to dry process at Podilsky Cement, Ukraine, version 2.1, February 2, 2007, http://ji.unfccc.int/UserManagement/FileStorage/62HINFHR08HYV4Y0O6C0074UVY11VL, accessed April 1, 2009

department is responsible for parameter B24, which is emission factor for fuel mix.

Response
From our records, B24 is representative of the CaO content entering the kilns, as demonstrated within table 5 of the PDD, not emission factor for fuel mix. Therefore the CaO*in* records are the area in question regarding B24. After revising the monitoring procedures it has been confirmed that B24 is monitored by the laboratory, not the shiftman or shop economist. This correction will be made in future versions of the Document.

Conclusion of the verification team

Issue is closed.

3.5.2 Conclusion
The Monitoring Report and the Management and Operational Systems are eligible for reliable project monitoring.

4 FIRST PERIODIC VERIFICATION FINDINGS

4.1 Completeness of Monitoring

4.1.1 Discussion
The reporting procedures reflect the monitoring plan completely. It is confirmed that the monitoring report does comply with the monitoring methodology and PDD.
All parameters were determined as prescribed. The complete data is stored electronically and documented. The necessary procedures have been defined in internal procedures.
According to PDD version 1.4, emission reductions during 2008 monitoring period were expected to be 61 587 t CO2e. According to Monitoring Report version 1.11 emission reductions achieved are 62 698 t CO2e.

4.1.2 Findings

Clarification Request (CL) 1
Please clarify the difference.

Response
The difference is due to two small changes that have taken place between the PDD version 12 and the submission of the Monitoring report.
(1) Four values have been updated based on revised data records a. Clinker production volume of the new dry kiln in December 2008: Value

changed from 54,740 tonnes of clinker to 54,710 tonnes of clinker
b. Natural gas used for coal preparation in January 2008 changed from 10,660.70 to 106,607.00 (decimal change)

c. Natural gas used for coal preparation in June 2008 changed from 4,719.90 to 47,199.00 (decimal change)
d. Coal used to fuel kiln #1 in April 2008 was changed from 3,630.93 tonnes to 2,630.93 tonnes

(2) The method of calculating electricity emissions was updated to be consistent with monitoring records. Electricity use is calculated using average intensity values, by month, for each of the reporting years included within this monitoring report. Total electricity consumption is then divided by total cement production to find the incremental electricity consumption per tonne of cement produced.

Therefore, based on the updated and corrected data values and the updated electricity average the values are slightly different between the PDD and the Monitoring report. All changes have been made to provide the most accurate conservative estimate of emission reductions.

Conclusion of the verification team
Issue is closed.

4.1.3 Conclusion

The project complies with the requirements.

4.2 Accuracy of Emission Reduction Calculations

4.2.1 Discussion

The audit team confirms that emission reduction calculations have been performed according to the Monitoring Plan.
According to the Article 10 paragraph 1 of the Ukrainian Law “On Metrology and Metrological Activity” measurement results can be used in case if appropriate characteristics of errors and uncertainty are known. Characteristics of errors are presented in the passports of the equipment. The level of uncertainty is considered as low which is why it can be neglected in the calculations.
Project consists of the 29 project and 41 baseline parameters that are being monitored. Some of the parameters that are used in the calculation of the baseline and project emissions are measured directly with the use of special equipment while others are estimated with the use of appropriate coefficients.

4.2.2 Findings

Clarification Request (CL) 3

Please provide information on how the level of uncertainty is taken into account. And please define if the level of uncertainty is taken into account in the final emission reductions calculations.

Response

According to system certification the meter counts within the error given by the manufacturer, this value is scanty as its accuracy is 0.5%, and we do not take it into account.

Conclusion of the verification team

Issue is closed.

4.2.3 Conclusion

The project complies with the requirements.

4.3 Quality Evidence to Determine Emissions Reductions

4.3.1 Discussion

Concerning verification the calculation of emission reductions is based on internal data. The origin of those data was explicitly checked. Further on, entering and processing of those data in the monitoring workbook Excel sheet was checked where predefined algorithms compute the annual value of the emission reductions. All equations and algorithms used in the different workbook sheets were checked. Inspection of calibration and maintenance records for key equipment was performed for all relevant meters.
Necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the various parameters on daily basis.

4.3.2 Findings

None

4.3.3 Conclusion

The project complies with the requirements.

4.4 Management System and Quality Assurance

4.4.1 Discussion

A detailed records management system has been established at Ivano-Frankivsk Cement to record and document all required data. The records management system includes paper records maintained by staff of the laboratory and production staff as well as electronic records maintained by the departments. These records are available as part of the verification process, as they outline all consumption values for the project site.
Data collection and manipulation for the monitoring plan are the responsibility of 4 departments within IF Cement (Power and Electrical Department, Engineering and Metrologist Department, Laboratory, Shift man, shop economist and superintendant).

4.4.2 Findings

Clarification Request (CL) 4

Please provide more information on roles and responsibilities of people in charge of monitoring procedures as well as on the person who developed Monitoring report.

Response

The collection of data on parameters is the responsibility of: Laboratory - Head of the laboratory and engineer-chemist are responsible for data gathering.
- CaO content in clinker;
- CaO content in raw material meal, raw material slurry;
- MgO content in clinker;
- MgO content in raw material meal, raw material slurry.
- Net calorific value of fuel:
    - coal;
    - peat;
    - wood chipboards;
    - sawdust.

Department of chief engineering specialist - shop power engineering specialist, technician and economist are responsible for data collection:
- electricity consumption for clinker crushing;
- electricity for raw materials preparation and transportation to production facility;
- electricity for dry kiln;
- average electricity consumption for wet kiln operation;
- average electricity consumption in case of electricity consumption for

raw materials processing;
- electricity for preparation of coal, peat, wood chipboards, sawdust.

Department of engineer-metrologist - engineer-metrologist is responsible for calibration of devices for which the following data are collected:

- fuel consumption in the dryer;
- clinker production volumes;
- raw materials consumption at the dry kiln;
- fuel consumption:
  - -coal;
  - -gas;
  - -alternative fuel.
- raw materials consumption at the wet kiln;
- coal consumption volumes;
- scales for cement mills;
- scales for raw materials of dry kiln;
- scales of wet kiln.

Shop superintendent, economist and shift man are responsible for data collection:
- clinker production volumes;
- fuel consumption volumes;
- electricity consumption volumes;
- cement production volumes.

Conclusion of the verification team

Issue is closed.

Clarification Request (CL) 5

Please provide information on troubleshooting procedures.

Response
If the emergency situation happens the employee shall notify the shift man, the shift man shall notify the shop superintendent, mechanic, engineering specialist and then chief engineer; the situation is further considered and the decision on service responsible for elimination of the situation is accepted and reported to this service.

Conclusion of the verification team

Issue is closed.

Clarification Request (CL) 6

Please provide information considering reporting risks.

Response
The following stops can be considered as risks:
- cyclone blocking;
- ingress of metal in dryer crusher.
If this happens the employee shall notify the shift man, the shift man will notify the shop superintendent, the shop superintendent will notify the chief engineer. Corrective works are carried out by qualified shift men.

The shop has roundsmen who inspect the equipment and record its state in the journal of remarks on mechanical equipment. Shop mechanic, superintendent and chief engineer are informed.

Check-up on effectiveness of kilns is made on a quarterly basis via weighing through motor-car transportation on a motor-car balance.

Stocktaking of equipment and its calibration (scales, coal scales) is carried out by a service of metrology. PGNAA calibration is carried out by a service of metrology and laboratory on a quarterly basis.

Conclusion of the verification team

Issue is closed.

Clarification Request (CL) 9
Please provide more information concerning internal audits and management reviews.

Response
Check-up on effectiveness of kilns is made on a quarterly basis via weighing through motor-car transportation on a motor-car balance.
Stocktaking of equipment and its calibration (scales, coal scales) is carried out by a service of metrology. Neutron analyzer of raw materials PGNAA is installed at the entry to the raw materials silo. Its calibration is carried out by a service of metrology and laboratory on a quarterly basis.

Conclusion of the verification team

Issue is closed.

Forward Action Request (FAR) 1

Please include the information considering qualification and training of the stuff to the next version of the Monitoring Report.

Response
This will be included in the next version of the Monitoring report.

Conclusion of the verification team

Must be checked during next verification.

4.4.3 Conclusion

The project complies with the requirements.

5 PROJECT SCORECARD

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Calculated Emission Reductions	
Completeness	Source coverage/ boundary definition	✓	✓	✓	All relevant sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently.
Accuracy	Physical Measurement and Analysis	✓	✓	✓	State-of-the-art technology is applied in an appropriate manner. Appropriate backup solutions are provided.
	Data calculations	✓	✓	✓	Emission reductions are calculated correctly
	Data management & reporting	✓	✓	✓	Data management and reporting were found to be satisfying.
Consistency	Changes in the project	✓	✓	✓	Results are consistent to underlying raw data.

6 INITIAL AND FIRST PERIODIC VERIFICATION STATEMENT

Bureau Veritas Certification has performed a verification of the JI project "Ivano-Frankivsk Cement Switch from Wet-to-Dry Cement and fuel savings for coal drying". The verification is based on the currently valid documentation of the United Nations Framework Convention on the Climate Change (UNFCCC) and Host country criteria.

The management of the EMSS is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 1.4. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 1.11 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated we confirm the following statement:

Reporting period: From 01/01/2008 to 31/12/2008
Baseline emissions : 322 422 t CO2 equivalents.
Project emissions : 259 724 t CO2 equivalents.
Emission Reductions : 62 698 t CO2 equivalents.

7 REFERENCES

Category 1 Documents:
Documents provided by that relates directly to the GHG components of the project.

/1/ Project Design Document, version 1.4 dated 26 of August 2009

/2/ Monitoring Report dated 6 of October 2009

/3/ Monitoring Report version 1.11 dated 13 of October 2009

/4/ Determination Report by the Burea Veritas Certification Holding SAS, dated 31 of August 2009

/5/ Letter of Approval № 1220/23/7 from National Agency of Ecological Investment of Ukraine dated 14th of October 2009

/6/ Declaration of Approval from Ministry of Economic Affairs of the Netherlands and its agency SenterNovem dated 10th December 2009

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/7/ Documents checked during the verification onsite are presented in Annex C

Persons interviewed:

List of persons interviewed during the verification or persons that contributed with other information that are not included in the documents listed above.

/1/ Stanislav Korchynskiy – Labor safety and environment

/2/ Petro Kardash – Head energetic

/3/ Oleg Yarema – Head of the technological department

/4/ Lesya Ivantsiv – engineer-technologist

/5/ Andriy Demkiv – Head of the cement production

/6/ Mykola Makoviychuk – Head of the binding materials department

/7/ Vasyl Kalen – Head metrologist

/8/ Iryna Gevyuk – Head of the Laboratory

/9/ Vasyl Todos – Head of the Alternative Materials Department

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APPENDIX A: COMPANY JI PROJECT VERIFICATION PROTOCOL

Initial Verification Protocol Table 1

Objective	Reference	Comments	Conclusion (CARs/FARs)
1. Opening Session			
1.1. Introduction to audits	/7/	The intention and the target of the audit were illustrated to the participants of the audit. Participants at the audit were the following persons: Verification team: Mrs. Kateryna Zinevych Verifier, Bureau Veritas Ukraine, Mrs. Viktoriya legka, , Bureau Veritas Ukraine, Mr. Igor Kachan, Auditor, Bureau Veritas Ukraine.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Interviewed persons JSC Ivano-Frankivsk Cement: Stanislav Korchynskiy – Labor safety and environment Petro Kardash – Head energetic Oleg Yarema – Head of the technological department Lesya Ivantsiv – engineer-technologist Andriy Demkiv – Head of the cement production Mykola Makoviychuk – Head of the binding materials department Vasyl Kalen – Head metrologist Iryna Gevyuk – Head of the Laboratory Vasyl Todos – Head of the Alternative Materials Department	
1.2. Clarification of access to data archives, records, plans, drawings etc.	/2/	The verification team got open access to all required plans, data, records, drawings and to all relevant facilities.	OK
1.3. Contractors for equipment and installation works	/2,7/	Project has been implemented as defined in the PDD version 1.4 and the implementation is evidenced by statements of work completion.	OK
1.4. Actual status of installation works	/2/	The dry kiln was put in operation in July of 2008 and the process of utilization of waste heat for drying coal that is used as fuel source in the kiln started just in December of 2008.	OK
2. Open issues indicated in validation report			

Objective	Reference	Comments	Conclusion (CARs/FARs)
2.1. Missing steps to final approval	/5,6/	Project is still waiting to be approved by NFP's. Corrective Action Request (CAR)1 Letter of Approval from the buyer's side is not received yet.	CAR1
3. Implementation of the project			
3.1. Physical components	/2/	Though the physical components of project implementation are not mentioned in the monitoring report the evidence of the equipment put into operation were seen and validated on-site (see the List of the Documents checked). The dry kiln was put in operation in July of 2008 and the process of utilization of waste heat for drying coal that is used as fuel source in the kiln started just in December of 2008.	OK
3.2. Project boundaries	/1/, /2/, /3/, /4/	Yes, the project boundaries are as defined in the PDD version 1.4.	OK
3.3. Emission reductions achieved	/2/	In the PDD version 1.4 it is stated that emission reduction units in 2008 are supposed to be 61 587 t CO_2 while the Monitoring Report says the amount of ERU's achieved in 2008 is 62 698 t CO_2. Clarification Request (CL) 1 Please clarify the difference.	CL1

Objective	Reference	Comments	Conclusion (CARs/FARs)
3.4. Monitoring and metering systems	/2/	There is no approved CDM methodology that can be directly applied to the proposed project. However approved CDM Methodologies, such as ACM0003 v07.2 and ACM0005 v04, have been consulted in detail for general principles and guidance with regards to cement projects. Further guidance has been taken from two similar JI projects that have already been determined by an Independent Entity: the Podilsky Cement project* and the Volyn Cement project[1]. The Podilsky Cement PDD outlines a change in cement process from a wet clinker production technology to a dry process. Volyn Cement has also switched cement production from a wet process to semi-dry, as well as implementing changes in the raw material composition for kiln fuel. The Podilsky Project Design Document (PDD) has passed the JISC review process, while the Volyn Cement PDD has passed stakeholder review, therefore using this guidance while developing the project design document for IF Cement is feasible. This monitoring plan used these methods as guidance, rather than full adoption, due to slight differences in the project activity. Monitoring as according to the monitoring plan for the	

* Switch from wet to dry process at Podilsky Cement, Ukraine, version 2.1, February 2, 2007, http://ji.unfccc.int/UserManagement/FileStorage/62HINFHR08HYV4Y0O6C0074UVY11VL, accessed April 1, 2009

Objective	Reference	Comments	Conclusion (CARs/FARs)
		monitoring period stated in section 1.4. A detailed records management system has been established at Ivano-Frankivsk Cement to record and document all required data. The records management system includes paper records maintained by staff of the laboratory and production staff as well as electronic records maintained by the departments. These records are available as part of the verification process, as they outline all consumption values for the project site. Data collection and manipulation for the monitoring plan are the responsibility of 4 departments within IF Cement (Power and Electrical Department, Engineering and Metrologist Department, Laboratory, Shift man, shop economist and superintendant). <u>Clarification Request (CL) 2</u> Please clarify why Shift man, shop economist and superintendant department is responsible for parameter B24, which is emission factor for fuel mix.	CL2
3.5. Data uncertainty	/2/	Best available techniques are used in order to minimize uncertainties. Uncertainties are generally low. <u>Clarification Request (CL) 3</u> Please provide information on how the level of uncertainty is taken into account. And please define if the level of	CL3

Objective	Reference	Comments	Conclusion (CARs/FARs)
		uncertainty is taken into account in the final emission reductions calculations.	
3.6. Calibration and quality assurance	/2/	All monitoring equipment is part of detailed calibration plan. On the date of verification, Calibration records of the measuring and monitoring equipment has been verified on-site. All the meters have been found to be calibrated regularly as per determined calibration plan for each site.	OK
3.7. Data acquisition and data processing systems	/2/	A detailed records management system has been established at Ivano-Frankivsk Cement to record and document all required data. The records management system includes paper records maintained by staff of the laboratory and production staff as well as electronic records maintained by the departments. These records are available as part of the verification process, as they outline all consumption values for the project site.	OK
3.8. Reporting procedures	/2/	The Monitoring Plan defines the responsibilities to consolidate the data required for emission reduction calculations. According to PDD version 1.4. the general coordination and reporting of the monitoring is responsibility of Chief Engineer.	OK
3.9. Documented instructions	/2/	Section 2 of the Monitoring Report #1. Key Monitoring Activities and Data provides with the necessary information relating the procedures for the monitoring, measurements and reporting. These were verified onsite and found	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		satisfactory.	
3.10. Qualification and training	/2/	During interviews onsite training was checked and found adequate. Information considering qualification and training is not provided in the Monitoring Report version 01 however the list of employees training of JSC Ivano-Frankivsk Cement was provided onsite. Forward Action Request (FAR) 1 Please include the information considering qualification and training of the stuff to the next version of the Monitoring Report.	FAR1
3.11. Responsibilities	/2/	Clarification Request (CL) 4 Please provide more information on roles and responsibilities of people in charge of monitoring procedures as well as on the person who developed Monitoring report version 01.	CL4
3.12. Troubleshooting procedures	/2/	Clarification Request (CL) 5 Please provide information on troubleshooting procedures.	CL5

Objective	Reference	Comments	Conclusion (CARs/FARs)
4. Internal Data			
4.1. Type and sources of internal data	/2/	The internal parameters are obtained according to the monitoring plan: monitoring report, section 2 contains the internal parameters that are monitored as well tables with the relevant data of these parameters. Also JSC Ivan-Frankivsk Cement provided all the necessary information on these parameters to the verification team, which was precisely checked. Corrective Action Request (CAR) 2 There is a mechanical mistake in the data table that represents internal data summarized for 2008 for kiln#1 (coal, April 2008). Please correct and provide corrections in all following calculations (including final GHG emission reductions number).	CAR2
4.2. Data collection	/2/	A detailed records management system has been established at Ivano-Frankivsk Cement to record and document all required data. The records management system includes paper records maintained by staff of the laboratory and production staff as well as electronic records maintained by the departments. These records are available as part of the verification process, as they outline all consumption values for the project site.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
4.3. Quality assurance	/2/	All monitoring equipment is part of detailed calibration plan. On the date of verification, Calibration records of the measuring and monitoring equipment has been verified on-site. All the meters have been found to be calibrated regularly as per determined calibration plan for each site.	OK
4.4. Significance and reporting risks	/2/	Clarification Request (CL) 6 Please provide information considering reporting risks.	CL6
5. External Data			
5.1. Type and sources of external data	/2/	The external parameters are obtained according to the monitoring plan.	OK
5.2. Access to external data	/2/	Clarification Request (CL) 7 The external parameters are obtained according to the monitoring plan. Please provide the information considering access to external data.	CL7
5.3. Quality assurance	/2/	See chapter 5.1.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
5.4. Data uncertainty	/2/	See chapter 5.1.	OK
5.5. Emergency procedures	/2/	See chapter 5.1.	OK
6. Environmental and Social Indicators			
6.1. Implementation of measures	/2/	Clarification Request (CL)8 Please provide information considering impact on the environmental and social components.	CL8
6.2. Monitoring equipment	/2/	See chapter 6.1.	OK
6.3. Quality assurance procedures	/2/	See chapter 6.1.	OK
6.4. External data	/2/	See chapter 6.1.	OK
7. Management and Operational System			
7.1. Documentation	/2/	The company complies with all legal and statutory requirements of the Ukraine and the same were made available to the verification team. JSC Ivano-Frankivsk Cement has all the necessary permissions and licenses, issued by the State Inspection on Labor Safety.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
7.2. Qualification and training	/2/	See chapter 3.9 of this protocol.	OK
7.3. Allocation of responsibilities	/2/	The responsibilities and authorities are described for each individual in job descriptions as required statutorily. Persons working at sites are aware of their responsibilities, and relative records are maintained.	OK
7.4. Emergency procedures	/2/	The emergency procedures with respect to operation controls are available in data control	OK
7.5. Data archiving	/2/	Data are archived in the physical and electronic forms and then stored in Planning Department.	OK
7.6. Monitoring report	/2/	Data information is laid down in the monitoring report.	OK
7.7. Internal audits and management review	/2/	Clarification Request (CL) 9 Please provide more information concerning internal audits and management reviews.	CL9

Periodic Verification Checklist Protocol Table 2: Data Management System/Controls

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
1. Defined organizational structure, responsibilities and competencies		
1.1. Position and roles	Full	Data collection and manipulation for the monitoring plan are the responsibility of 4 departments within IF Cement (Power and Electrical Department, Engineering and Metrologist Department, Laboratory, Shift man, shop economist and superintendant).
1.2. Responsibilities	Full	Data collection and manipulation for the monitoring plan are the responsibility of 4 departments within IF Cement (Power and Electrical Department, Engineering and Metrologist Department, Laboratory, Shift man, shop economist and superintendant).
1.3. Competencies needed	Full	The responsibilities and authorities are described for each individual in job descriptions as required statutorily. Training needs were identified in advance and training was delivered that was checked onsite.
2. Conformance with monitoring plan		
2.1. Reporting procedures	Full	The monitoring plan is as per the registered PDD version 1.4. The applauded version of PDD version 1.4. is publicly available at the site http://www.bureauveritas.com

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
		where it was placed during determination process. The monitoring CDM Methodologies, such as ACM0003 v07.2 and ACM0005 v04 were used in monitoring process.
2.2. Necessary Changes	Full	There were two small changes to note that have taken place between the determination report and the submission of the monitoring report. (1) Three values have been updated based on revised data records a. Clinker production volume of the new dry kiln in December 2008: Value changed from 54,740 tonnes of clinker to 54,710 tonnes of clinker b. Natural gas used for coal preparation in January 2008 changed from 10,660.70 to 106,607.00 (decimal change) c. Natural gas used for coal preparation in June 2008 changed from 4,719.90 to 47,199.00 (decimal change) (2) The method of calculating electricity emissions was updated to be consistent with monitoring records. Electricity use is calculated using average intensity values, by month, for each of the reporting years included within this monitoring report. Total electricity consumption is then divided by total cement production to find the incremental electricity consumption per tonne of cement produced. Changes, as noted above, have affected the ERU estimate slightly (a reduction of 769 tonnes) from the published PDD document. These changes have been documented here for transparency and have been

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
		updated for this monitoring report.
3. Application of GHG determination methods		
3.1. Methods used	Full	The reporting procedures reflect the monitoring plan content. The calculation of the emission reduction is correct.
3.2. Information/process flow	Full	A detailed records management system has been established at Ivano-Frankivsk Cement to record and document all required data. The records management system includes paper records maintained by staff of the laboratory and production staff as well as electronic records maintained by the departments. These records are available as part of the verification process, as they outline all consumption values for the project site.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
3.3. Data transfer	Full	The complete data is stored electronically and also the part of Management information system which is controlled by accounts
3.4. Data trails	Full	The necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the all the parameters listed in the monitoring plan
4. Identification and maintenance of key process parameters		
4.1. Identification of key parameters	Full	The critical parameters for the determination of GHG emissions are the parameters listed in section D of the approved PDD version 1.4.
4.2. Calibration/maintenance	Full	The company maintains the elaborate calibration plan for each of the equipment. The audit team verified the status for all the equipment at the sites sampled for the audit and found them to be complying with the plan.
5. GHG Calculations		
5.1. Use of estimates and default data	Full	Emission factor for the fuel, Conversion from kcal to kJ, emission factor of Ukraine electricity grid in year, Emission factor for fuel mix, Baseline emission factor for incremental cement production in year, Clinker factor; average quantity of clinker in finished cement.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
5.2. Guidance on checks and reviews	Full	See section 7.7 of this protocol, table 1.
5.3. Internal validation and verification	Full	Monitoring procedure for JI Project includes the responsibility and frequency for carrying out internal audits. Internal audits did not reveal any non-conformances. The audit team did verify all the parameters listed in monitoring report.
5.4. Data protection measures	Full	The necessary procedures relating to Information technology are in place to provide necessary data security, and also prevent the unauthorized use of the same.
5.5. IT systems	Full	Data is collected in electronic database.

Periodic Verification Protocol Table 3: GHG calculation procedures and management control testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
Potential reporting risks based on an assessment of the emission estimation procedures can be expected in the following fields of action: ➢ the calculation methods, ➢ raw data collection and sources of supporting documentation, ➢ reports/databases/information systems from which data is obtained. Key source data applicable to the project assessed are hereby: ➢ metering records , ➢ process monitors, ➢ operational logs (metering records), ➢ laboratory/analytical data (for energy content of fuels), ➢ accounting records, Appropriate calibration and maintenance	Regarding the potential reporting risks identified in the left column the following mitigation measures have been observed during the document review and the on site mission: Key source data for this parameter are: • meter reading. • Invoices and record for Fuels (and coal) for consumption and purchase. The metering equipments are installed appropriately in the enclosure panels and same are of reputed make. Calculation methods: The reporting procedures reflect the monitoring plan content and the calculation of the emission reduction is correct and also additionally deducting the project emissions caused by fossil fuel.	The issue remaining is the way the data obtained is used to calculate the emission reduction in a conservative manner according to the approach prescribed in the PDD version 1.4 as well as the way data obtained is used to calculate the emissions reductions/

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
of equipment resulting in high accuracy of data supplied should be in place. It is hereby needed to focus on those risks that impact the accuracy, completeness and consistency of the reported data. Risks are weakness in the GHG calculation systems and may include: ➢ manual transfer of data/manual calculations, ➢ position of the metering equipment, ➢ unclear origins of data, ➢ accuracy due to technological limitations, ➢ lack of appropriate data protection measures (for example, protected calculation cells in spreadsheets and/or password restrictions).		

Periodic Verification Protocol Table 4: Detailed audit testing of residual risk areas and random testing

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
The issue remaining is the way the data obtained is used to calculate the emission reduction in a conservative manner according to the approach prescribed in the PDD.	There has been a complete check of data transferred from daily consumption and generation readings to the calculation tool. There was no error in such transfer. The correct installation of the metering equipment can be confirmed.	Having investigated the residual risks, the audit team comes to the following conclusion: Immediate action is not needed with respect to the current emission reduction calculation. Those corrections have been considered during the verification process, so no residual risk is open.

Verification Protocol Table 5: Resolution of Corrective Action and Clarification Requests

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
Corrective Action Request (CAR)1 Letters of Approval from buyer's side is not received yet.	2.1.	The application for investor country Letter of Approval has been submitted and is pending	
Corrective Action Request (CAR) 2 There is a mechanical mistake in the data table that represents internal data summarized for 2008 for kiln#1 (coal, April 2008). Please correct and provide corrections in all following calculations (including final GHG emission reductions number).	4.1.	As stated in response to CL1 (section 1.d in project owner response) this data mistake has been updated and resolved to the correct value. The resulting ERU values have been calculated and the final value has been calculated to be 62,698 tonnes of CO2. All resulting corrections to calculations (including final GHG emission reductions number) have been provided within the Monitoring report.	

Clarification Request (CL) 1 Please clarify the difference.	3.3.	The difference is due to two small changes that have taken place between the PDD version 12 and the submission of the Monitoring report. (1) Four values have been updated based on revised data records a. Clinker production volume of the new dry kiln in December 2008: Value changed from 54,740 tonnes of clinker to 54,710 tonnes of clinker b. Natural gas used for coal preparation in January 2008 changed from 10,660.70 to 106,607.00 (decimal change) c. Natural gas used for coal preparation in June 2008 changed from 4,719.90 to 47,199.00 (decimal change) d. Coal used to fuel kiln #1 in April 2008 was changed from 3,630.93 tonnes to 2,630.93 tonnes (2) The method of calculating electricity emissions was updated to be consistent with monitoring records. Electricity use is calculated using average intensity values, by month, for each of the reporting years included within this monitoring report. Total electricity consumption is then divided by total cement production to find the incremental electricity consumption per tonne of cement	

		produced. Therefore, based on the updated and corrected data values and the updated electricity average the values are slightly different between the PDD and the Monitoring report. All changes have been made to provide the most accurate conservative estimate of emission reductions.	
Clarification Request (CL) 2 Please clarify why Shift man, shop economist and superintendant department is responsible for parameter B24, which is emission factor for fuel mix.	3.4.	From our records, B24 is representative of the CaO content entering the kilns, as demonstrated within table 5 of the PDD, not emission factor for fuel mix. Therefore the CaO*in* records are the area in question regarding B24. After revisiting the monitoring procedures it has been confirmed that B24 is monitored by the laboratory, not the shiftman or shop economist. This correction will be made in future versions of the Document.	
Clarification Request (CL) 3 Please provide information on how the level of uncertainty is taken into account. And	3.5.	According to system certification the meter counts within the error given by the manufacturer, this value is scanty as its accuracy is 0.5%, and we do not take it into account.	

please define if the level of uncertainty is taken into account in the final emission reductions calculations.			
Clarification Request (CL) 4 Please provide more information on roles and responsibilities of people in charge of monitoring procedures as well as on the person who developed Monitoring report version 01.	3.11	The collection of data on parameters is the responsibility of: Laboratory - Head of the laboratory and engineer-chemist are responsible for data gathering. - CaO content in clinker; - CaO content in raw material meal, raw material slurry; - MgO content in clinker; - MgO content in raw material meal, raw material slurry. - Net calorific value of fuel: - coal; - peat; - wood chipboards; - sawdust. Department of chief engineering specialist - shop power engineering specialist, technician and economist are responsible for data collection: - electricity consumption for clinker crushing;	

		- electricity for raw materials preparation and transportation to production facility; - electricity for dry kiln; - average electricity consumption for wet kiln operation; - average electricity consumption in case of electricity consumption for raw materials processing; - electricity for preparation of coal, peat, wood chipboards, sawdust. Department of engineer-metrologist - engineer-metrologist is responsible for calibration of devices for which the following data are collected: - fuel consumption in the dryer; - clinker production volumes; - raw materials consumption at the dry kiln; - fuel consumption: -coal; -gas; -alternative fuel. - raw materials consumption at the wet kiln; - coal consumption volumes; - scales for cement mills; - scales for raw materials of dry kiln; - scales of wet kiln.	

		Shop superintendent, economist and shift man are responsible for data collection: - clinker production volumes; - fuel consumption volumes; - electricity consumption volumes; - cement production volumes.	
Clarification Request (CL) 5 Please provide information on troubleshooting procedures.	3.12.	If the emergency situation happens the employee shall notify the shift man, the shift man shall notify the shop superintendent, mechanic, engineering specialist and then chief engineer; the situation is further considered and the decision on service responsible for elimination of the situation is accepted and reported to this service.	
Clarification Request (CL) 6 Please provide information considering reporting risks.	4.4	The following stops can be considered as risks: - cyclone blocking; - ingress of metal in dryer crusher. If this happens the employee shall notify the shift man, the shift man will notify the shop superintendent, the shop superintendent will notify the chief engineer. Corrective works are carried out by qualified shift men. The shop has roundsmen who inspect the equipment and record its state in the journal of remarks on mechanical equipment. Shop	

		mechanic, superintendent and chief engineer are informed. Check-up on effectiveness of kilns is made on a quarterly basis via weighing through motor-car transportation on a motor-car balance. Stocktaking of equipment and its calibration (scales, coal scales) is carried out by a service of metrology. PGNAA calibration is carried out by a service of metrology and laboratory on a quarterly basis.	
Clarification Request (CL) 7 The external parameters are obtained according to the monitoring plan. Please provide the information considering access to external data.	5.2.	External parameters, such as emission factors (P5, P7, P22, B7, B9, B28) and conversion factors (P24, B39) are obtained from external sources within the scope of the JI project. Such parameters are being constantly monitored for relevance to ensure that IF Cement calculations are based on the most current and best sources available (i.e: IPCC). Since, in specific cases, the production capacity of the new dry kiln exceeds pre-project conditions, efficiency ratings must be compared to the external sector wide performance currently occurring in Ukraine. Comparing to external sources allows the production efficiency of the IF Cement plant	

		to be compared to typical Cement efficiencies in Ukraine Sector. To complete this comparison the method developed, and approved, under the VolynCement PDD will be utilized as most current and directly relevant to the IF Cement situation. However, this analysis was not completed in 2008; as no capacity increase was obtained over the existing site capacity. Thus all capacity produced in 2008 was compared to the IF Cement specific efficiency values calculated internally. (It is expected however that in future years IF Cement will be comparing to the external sector wide energy efficiency values). External sector wide baseline performance will be monitored over the coming years.	
Clarification Request (CL)8 Please provide information considering impact on the environmental and social components.	6.1.	Switching to a dry process allowed the company to significantly reduce emissions of harmful substances. This is confirmed by the test records kept by the plant's laboratory. Improved environmental performance of three kilns in 2008 is demonstrated by the following emission reductions: dust - by 58%, CO - by 31%, NO2 - by 49%, SO2 - by 44%. An aggregate maximum concentration of the	

		substances at the border of the sanitary buffer zone (1000 m) is twice less than the maximum permissible level. The closest residential area is located at the distance of 1100 meters from the plant. Therefore the plant's emissions do not have negative impacts on the local population. The project implementation has a positive impact on health and safety of the plant's personnel. As a result of the training program, the plant's operating personnel obtained skills relevant to dry processing line which is newer technology in Ukraine.	
Clarification Request (CL) 9 Please provide more information concerning internal audits and management reviews.	7.7.	Check-up on effectiveness of kilns is made on a quarterly basis via weighing through motor-car transportation on a motor-car balance. Stocktaking of equipment and its calibration (weighers, coal weighers) is carried out by a service of metrology. Neutron analyzer of raw materials PGNAA is installed at the entry to the raw materials silo. Its calibration is carried out by a service of metrology and laboratory on a quarterly basis.	
Forward Action Request (FAR) 1	3.10.	This will be included in the next version of the Monitoring report.	

Please include the information considering qualification and training of the stuff to the next version of the Monitoring Report.			

APPENDIX B: VERIFICATION TEAM

The verification team consists of the following personnel:

Ivan G. Sokolov, Dr.Sci (biology, microbiology)
Internal Technical Reviewer

Bureau Veritas Ukraine HSE Department manager.

He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 130 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the validation of 6 JI projects.

Nadiya Kaiiun, M.Sci. (environmental science)
Lead Verifier

Bureau Veritas Ukraine HSE Department manager.

She has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed over 15 audits since 2008. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and she is involved in the validation of 6 JI projects.

Kateryna Zinevych, M.Sci. (environmental science)
Verifier

Bureau Veritas Ukraine HSE Department manager.

She has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed 6 audits since March of 2009. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and she is involved in the validation of 3 JI projects.

Victoriya Legka, B.Sci. (biology)
specialist

Bureau Veritas Ukraine HSE Department manager.

She has graduated from National University of Kyiv-Mohyla Academy with the Bachelor Degree in Bilolgy. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed 6 audits since the beginning of 2009. She is involved in the validation of 3 JI projects.

APPENDIX C: DOCUMENTS CHECKED DURING VERIFICATION

Passport of electronic multifutional energy meter Landis&Gyr type ZxD400/300CR. Producer: Company "Landis & Gyr Ltd", Switzerland. Quality Standard ISO 9001. T-2 control. Cement.
Passport МДВГ. 406233.033 ПС. Pressure sensor (PS) МИДА-13П - 01 Ex.
Passport. Фб2.784.008-01 ПС. Gas meter ЛГ-К-Ex-200-1600-1,6.
Passport. Rotor gas meter Delta 2050/100 A, Delta 2050/160 A. Schlumberger Industriz.
List of measuring devices which are in operation and subject to inspection, "Ivano-Frankivsktsement".
List of commercial accounting of gas consumption of OJSC "Ivano-Frankivsktsement" (30.09.2009).
Regulations on the metrological service "Ivano-Frankivsktsement (2006).
Milling. Raw materials department.Milling department. Cement shipment. Drying department. Furnace department. Coal department. Dated from 12.10.2009.
Position description of chief metrologist. OJSC "Ivano-Frankivsktsement".
Delivery of АВП for March 2008.
Delivery of АВП for September 2008.
Delivery of АВП for December 2008.
Delivery of АВП for October 2008.
Delivery of АВП for April 2008.
Delivery of АВП for July 2008.
Delivery of АВП for November 2008.
Delivery of АВП for February 2008.
Delivery of АВП for August 2008.
Delivery of АВП for January 2008.
Delivery of АВП for May 2008.
Delivery of АВП for June 2008.
The arrival of coal in stamps for 2008.
The arrival of raw materials in stamps for 2008.
Study programme for engeneerig personnel and workers in the in the maintenance of technological equipment line # 3 (2008).
Programme. Working on-site training at the plant "Ivano-Frankivsktsement".

Programme of the visit to OJSC "Ivano-Frankivsktsement" for for verifying reductions of greenhouse gases emissions according to the JI project "Transfering from the wet to dry cement production method and saving fuel for drying coal at "Ivano-Frankivsktsement" 13.10.2009.
Thermal resistance test protocol МИДА-ДА. Serial number 04416312.
Thermal resistance test protocol ТСМУ-0289 №001 dated from 22.04.2009.
Thermal resistance test protocol ТСМУ-0289 №003 dated from 16.04.2008.
Thermal resistance test protocol ТСМУ-0289. Serial number 066145.
Figure 1. Functional diagram of the commercial account.
Calculation of rationed consumption for March 2008.
Calculation of rationed consumption for September 2008.
Calculation of rationed consumption for December 2008.
Calculation of rationed consumption for October 2008.
Calculation of rationed consumption for April 2008.
Calculation of rationed consumption for July 2008.
Calculation of rationed consumption for November 2008.
Calculation of rationed consumption for February 2008.
Calculation of rationed consumption for August 2008.
Calculation of rationed consumption for January 2008.
Calculation of rationed consumption for May 2008.
Calculation of rationed consumption for June 2008.
Coal consumption in stamps for 2008.
Raw materials consumption in stamps for 2008.
Certificate of SOE "Ivano-Frankivsk Research and Production Centre of Standardization, Meteorology and Certification" on verification of work of measuring devices #1684 / t on 20.08.2009.
Certificate of SOE "Ivano-Frankivsk Research and Production Centre of Standardization, Meteorology and Certification" on verification of work of measuring devices #47 / t on 20.01.2009, valid up to 20.01.2010. Pressure transducer. Type MYDA-DA. Serial number 04416312.
Certificate of SOE "Ivano-Frankivsk Research and Production Centre of Standardization, Meteorology and Certification" on verification of work of measuring devices #47 / t on 23.01.2008, valid up to 23.01.2010. Pressure transducer. Type ТСПУ-0289. Serial number 066145.

Certificate of SOE "Ivano-Frankivsk Research and Production Centre of Standardization, Meteorology and Certification" on verification of work of measuring devices #691 / t on 22.04.2009, valid up to 22.01.2011. Pressure transducer. Type ТСМУ-0289. Serial number 001.
Certificate of SOE "Ivano-Frankivsk Research and Production Centre of Standardization, Meteorology and Certification" on verification of work of measuring devices #752 / t on 18.04.2008, valid up to 18.04.2010. Pressure transducer. Type ТСМУ-0289. Serial number 003.
Certificate of Ivano-Frankivsk Research and Production Centre of Standardization, Meteorology and Certification SOE "Ivano- Frankivskstandartmetrolohiia" #180 of the state metrological attestation dated from 07.11.2007, valid up to 07.11.2011.
Acceptance certificate.Scales Road STRAIN TBA 60-15 НГЗ 60 t, Serial number 69.
Acceptance certificate.Scales Road STRAIN TBA 60-20-18 (8)-Пф-10 (RC3) НГЗ 60 t, Serial number 271.
Certificate #101 of natural gas quality. Dated from 24.12.2008.
Certificate #308 of natural gas quality. Dated from 09.10.2009.
Scheme. Dryer crusher feed (311)
Scheme. Low loop control
Scheme. Raw material handling (112)
Manual control of blinds.
Table. Preparation of coal (2005-2008)
Table of power consumption (2005)
Table of power consumption (2006)
Table of power consumption (2007)
Table of power consumption (2008)
Table. Gas consumption in 2008 by ГРП-1 (Vypal)
Table. Gas consumption in 2008 by ГРП-1 (Vugliarka)
Table. Gas consumption by OJSC "Ivano-Frankivsktsement" for Fabruary 2008.
Table. Results of burnt coal in September 2009.
Table. Cement mills in June 2008. Raw mills #1, #2 in June 2008. Production of sludge by the shift #1 in 2008. Production of sludge by the shift #2 in 2008. Production of sludge by the shift #3 in 2008. Production of sludge by the shift #4 in 2008. Furnace #1 in June 2008. Furnace #2 in 2008. Furnace # 3 in June 2008. Clinker production by the shift #3. Clinker production #4. Coal mill in June 2008. Producing clinker from sludge in 2008. Desiccator (slag) in June 2008. Drying of sawdusts in June 2008. Cement shipment in June 2008.

Technical certificate of OJSC "Ivano-Frankivsktsement" Weight ВПП ПС - 100 #0203
Technical certificate of OJSC "Ivano-Frankivsktsement" Weight ВПП ПС - 150 #0204
Technical certificate. LOW Feeders management system #8008984.
Technical certificate. Conveyor-type weigher INTECONT PLUS
Technical certificate. Weigh batcher DOSAX D/5.1 #76912.1.
Technical certificate. Weigh batcher DOSIMAT. #76912.
Technical certificate. Weigh batcher SHENCK MTD 1220. V51. #V002169.A01.
Technical certificate. Weigh batcher SHENCK MTD 1220. V51. #V002170.A01.
Technical certificate. Weigh batcher SHENCK MTD 1220. V51. #V002171.B01.
Technical certificate. Continuous weigher MULTIDOS DEL 0820 T9. #BDD 0406.
Technical certificate. Continuous weigher MULTIDOS DEL 0820 T9. #BDD 0407.
Technical certificate. Continuous weigher MULTIDOS DEL 0820 T9. #BDD 0014.
Technical certificate. Continuous weigher MULTIDOS DEL 0820 T9. #BDD 0015.
Technical certificate. Continuous weigher MULTIDOS DEL 1015 T9. #BDD 0405.
Technical certificate. Continuous weigher MULTIDOS DEL 1015 T9. #BDD 0013.
Technical certificate. Continuous weigher MULTIDOS MTD 1015 T9. #V070446.B01.
Technical certificate. Continuous weigher MULTIDOS MTD 1220. #V070447.B01.
Technical certificate. Continuous weigher MULTIDOS MTD 1420 T9. #V070448.B01.
Technical certificate. Coal dust dispenser MULTICELL MTD 640/34. #V007980. A01.
Technical certificate. Coal dust dispenser MULTICELL MTD 640/34. #V007981. A01.
Technical certificate. Coal dust dispenser MULTICOR K40. #V035031 B15 03-2007.
Technical certificate. Coal dust dispenser MULTICOR K40. #V035031 B15 29-2007.
Technical certificate. Coal dust dispenser MULTICOR K40. #V043029 B15 29-2008.
Technical certificate. Coking coal conveyor-type weigher MULTIBELT.

Technological production scheme. FLSmidth. Plant: Ivano-Frankivsktsement.
LLC NPP "GREMPIS. Calculator of gas volume "UNIVERSAL".
Photo - 01 Section switch
Photo - 03 Substation #22
Photo - 04 Substation #23
Photo - 05 Air blast
Photo - 06 Substation #21
Photo - 07 Dryer-crusher #№3820
Photo - 08 Substation #24
Photo - 09 Voltage transformer #1
Photo - 12 Voltage transformer #2
Photo - 13 Substation "Compresorna" Entrance #1
Photo - 14 Entrance #2
Photo - 15 Substation "Pomolna" Entrance #1
Photo - 16 Substation "Compresorna" Entrance #2
Photo - 17 Coal complex transformer #1
Photo - 18 Substation "Pomolna" Entrance #2
Photo - 19 The main drive of the coal mill
Photo - 20 Coal complex transformer #2
Photo - 21 Reserve
Photo - 22 Reserve
Photo - BWVA1 T-торT1. Input switch 110kV Q2. Primary meter.
Photo - BWVA1 T-торT2. Input switch 110kV Q2. Primary meter.
Photo - BWVA2 T-торT1. Input switch 110kV Q2. Duplicate meter.
Photo - BWVA2 T-торT2. Input switch 110kV Q2. Duplicate meter.
Photo - Anamtic weigher ВЛКТ-500 cert. 1380. cert. 1721
Photo - Entrance #1
Photo - Gas meter ЛГ-К-700-00-Ex ТУ У 3.48-05782912-023-95
Photo - Own needs transformer #1
Photo - Own needs transformer #2