DETERMINATION REPORT
INSTITUTE OF ENGINEERING ECOLOGY

DETERMINATION OF THE GREENHOUSE GAS EMISSION REDUCTION DUE TO MODERNIZATION OF OBJECTS OF THE AR CRIMEA WATER COMPLEX AND THE NORTH-CRIMEAN CANAL

REPORT NO. UKRAINE-DET/0915/2013

REVISION NO. 01

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-det/0915/2013

DETERMINATION REPORT: GREENHOUSE GAS EMISSION REDUCTION DUE TO MODERNIZATION OF OBJECTS OF THE AR CRIMEA WATER COMPLEX AND THE NORTH-CRIMEAN CANAL

Date of first issue: 04/04/2013	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Institute of Engineering Ecology	Client ref.: Aleksandr Sigal

Summary:
Bureau Veritas Certification has made the determination of the "Greenhouse gas emission reduction due to modernization of objects of the AR Crimea water complex and the North-Crimean canal" project of Institute of Engineering Ecology located in Autonomous Republic Crimea, Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The determination scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final determination report and opinion. The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the determination process is a list of Clarification and Corrective Action Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies Guidance on criteria for baseline setting and monitoring and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.: UKRAINE-det/0915/2013	Subject Group: JI
Project title: Greenhouse gas emission reduction due to modernization of objects of the AR Crimea water complex and the North-Crimean canal	
Work carried out by: Vyacheslav Yeriomin – Team Leader, Lead Verifier Sergii Verteletskyi – Team member, Verifier	
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer Oleg Skoblyk - Technical Specialist	
Work approved by: Ivan Sokolov - Operational Manager	
Date of this revision: 08/04/2013	Rev. No.: 01 / Number of pages: 62

Bureau Veritas Certification Holding SAS

Indexing terms

☒ No distribution without permission from the Client or responsible organizational unit

☐ Limited distribution

☐ Unrestricted distribution

Table of Contents *Page*

1 INTRODUCTION

Institute of Engineering Ecology has commissioned Bureau Veritas Certification to determine its JI project "Greenhouse gas emission reduction due to modernization of objects of the AR Crimea water complex and the North-Crimean canal" (hereafter called "the project") at Autonomous Republic Crimea, Ukraine.

This report summarizes the findings of the determination of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The determination serves as project design verification and is a requirement of all projects. The determination is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are determined in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reduction units (ERUs).

UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

1.2 Scope

The determination scope is defined as an independent and objective review of the project design document, 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.

The determination is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Determination team

The determination team consists of the following personnel:

Vyacheslav Yeriomin
Bureau Veritas Certification Team Leader, Climate Change Verifier

Sergii Verteletskyi
Bureau Veritas Certification Climate Change Verifier

This determination report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal reviewer

Oleg Skoblyk
Bureau Veritas Certification, Technical Specialist

2 METHODOLOGY

The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a determination protocol was customized for the project, according to the version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of determination and the results from determining the identified criteria. The determination protocol serves the following purposes:

- It organizes, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent determination process where the determiner will document how a particular requirement has been determined and the result of the determination.

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

2.1 Review of Documents

The Project Design Document (PDD) submitted by Institute of Engineering Ecology and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for users of the joint implementation project design document form, Approved CDM methodology and/or Guidance on criteria for baseline setting and monitoring, Kyoto Protocol, Clarifications on Determination Requirements to be Checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Institute of Engineering Ecology revised the PDD and resubmitted it on 05/04/2013.

The determination findings presented in this report relate to the project as described in the PDD version(s) 03.

2.2 Follow-up Interviews

On 01/04/2013 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Krasnoperekopsk department of water industry and Institute of Engineering Ecology were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Krasnoperekopsk department of water industry	➢ Project History ➢ Project approach ➢ Project boundary ➢ Implementation schedule ➢ Organizational Structure ➢ Responsibilities and obligations ➢ Personnel training ➢ Quality control procedures and technologies ➢ Modernization / installation of equipment (records) ➢ Control over metering equipment ➢ System of measurements record-keeping, database ➢ Technical Documentation ➢ Monitoring Plan and procedures ➢ Permits and licenses ➢ Environmental Impact Assessment ➢ Stakeholders' response
CONSULTANT Institute of Engineering Ecology	➢ Baseline methodology ➢ Monitoring plan ➢ Additionality proofs ➢ Calculations of emission reductions ➢ Project design ➢ Legal issues relating to the project ➢ Environmental impacts ➢ Approval by the host party

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination 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 project design.

If the determination team, in assessing the PDD and supporting documents, identifies issues that need to be corrected, clarified or

improved with regard to JI project requirements, it will raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake in the published PDD that is not in accordance with the (technical) process used for the project or relevant JI project requirement or that shows any other logical flaw;

(b) Clarification request (CL), requesting the project participants to provide additional information for the determination team to assess compliance with the JI project requirement in question;

(c) Forward action request (FAR), informing the project participants of an issue, relating to project implementation but not project design, that needs to be reviewed during the first verification of the project.

The determination team will make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the determination.

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

3 PROJECT DESCRIPTION

The main technologies and measures that will be used for modernization of objects of the AR Crimea water complex and the North-Crimean canal and will result in reduction of anthropogenic greenhouse gases emissions, with characteristics of their main technical parameters, are the following:

- Replacement of the obsolete pump equipment by the modern one will enable to considerably reduce power consumption for water pumping.

- Rehabilitation of pump equipment:
    - Turning of pump impellers will enabler to reduce the pump thrust to the optimum, to reduce hydraulic resistance and to reduce specific power consumption for water pumping
    - Rehabilitation of the mechanisms and optimisation of angle of turn blades of pump impellers
    - Replacement of the axis, bearings, the power cable and valves of pump units;
    - Installation of vacuum valves at the siphon spillway will enable to reduce pump thrust and the specific power consumption for water pumping.
- Implementation of frequency controllers at electric drives of pumps will result in considerable electricity saving.

- Replacement and rehabilitation of water supply networks pipes, sealing of control and stop valves etc. will result in the reduction of water losses and will enable to supply the necessary amount of water with less water pumping and thereby to significantly reduce electricity consumption
- Rehabilitation (water leakages removal) and cleaning from silt, vegetation and sediment of the open canals will lead to reduction of water losses, increasing of canal capacity and reduction of hydraulic resistance, which in turn will result in the reduction of necessary amount and hydraulic drop for water pumping, increasing of irrigation system efficiency and thus in reduction of the electricity consumption.
- Rehabilitation of the structure facilities complex of water industry: hydraulic units gauging stations, dams, canals, pipelines, reservoirs, ponds, pumping stations, collector-drainage network, wells, etc., cleaning of the water reservoirs will result in reduction of water losses and hydraulic resistance to its flow that will result in reduction of the necessary amount thrust for water and pumping and thus in reduction of the electricity consumption.
- Installation of the auxiliary transformers as well as rehabilitation of transformer equipment at transformer substations will enable to reduce electricity losses.
- Optimisation of operation modes of electric power supply of pump unit drives will enable to reduce electricity consumption.
- Installation of thyristor converters of "TEP" type provides connection of an engine to power source and disconnection from it with smooth adjustment of voltage and engine speed. The engine takes the average value of the output voltage of the converter, but not the instantaneous value due to the high switching frequency.
- Installation of capacitor units is aimed to compensation of the reactive power of loads of three-phases electric networks consumers with corresponding reduction of energy losses from the power grid.
- Installation of switching modules with vacuum circuit breakers will enable to reduce energy consumption in the power supply network, since they almost don’t consume electricity from the power grid during switching and don’t consume it completely during switching off, provides minimum time for switching operation.
- Switching of coal-operating boiler-houses to the fuel with low carbon content (natural gas) with corresponding replacement of old boilers by the new ones will enable to reduce the GHG emissions.
- Switching of boiler-houses to the renewable resources (wood) with corresponding replacement of old boilers by the new wood-fired ones, and implementation of the local heating systems will enable to eliminate the anthropogenic GHG emissions completely.
-Replacement of the obsolete boilers with low efficiency by the new highly efficient ones will result in efficiency increasing up.
- Rehabilitation and modernization of obsolete but able to work boilers with using various energy saving technologies, including replacement of boiler burners, replacement of heating surfaces of boilers, chemical flushing, etc, will enable to increase their efficiency
- Heat modernization of administrative, industrial and utility buildings including insulation of walls by heat insulating materials, replacement and heat insulation of doors, gates, windows, partial replacement of roofs, additional building of tambour, replacement of single glazing by double glazing, etc., will enable to reduce heat losses and correspondently to reduce the fuel consumption for heating.

- Reduction of losses in heat network (optimisation of routing, replacement and rehabilitation of pipes, sealing of control and stop valves, etc.) will enable to reduce electricity consumption for hot water pumping.
- Replacement of circulatory pumps by the modern ones in the heat system will enable to considerably reduce power consumption.
- Optimisation of operating mode of lightning and implementation of energy efficient lightning devices will enable to reduce up of electricity consumption for lightning
- Implementation of alternative energy sources such solar and wind energy generating units will enable to replace electricity from the state power grid by its own production without fuel consumption
- Operation mode improvement measures will enable to reduce electricity consumption:
    - Realization of optimal operation modes of irrigation system
    - Realization of optimal water levels at canals with motor water-lifting,
    - Optimisation of the operation modes of transformers in the autumn-winter period (disable of unused transformers) to avoid idle running losses,
    - Realization of optimal operation modes of pump stations (constant operation of pump units, first-priority using of pump units with higher efficiency, etc)
    - Realization of pumping units operation in the optimal zone of pressure characteristic,
    - Realization of optimal operation modes of drainage pumping system,
    - Reduction of usage of resistance heating of facilities
- Implementation of modern control, monitoring and automation system as well as installation of modern water (ultrasonic flow meters) and electricity (modern multiple-tariff electricity meters) measurement equipment with allow increasing efficiency of the AR Crimea water complex in general.

All technical data for project equipment are contained in the PDD.

These technologies are already approved but some of them are not widespread. Therefore, there might be some obstacles, which are typical for the implementation of the new technologies and equipment.

These technologies are the most modern thus it is ensured that there is no risk that they will be substituted by any other technologies during at least during the second commitment period, and taking into account the overall economic situation in the country – during another two or three decades as well.

Further, the project activity can be extended due to the above measures at the facilities included in the project.

Identified problem areas applicable to the project description, project participants' responses and Bureau Veritas Certification Conclusions are listed in the Annex A of this Report (Refer to CAR01, CL02)

4 DETERMINATION CONCLUSIONS

In the following sections, the conclusions of the determination are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Determination Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 8 Corrective Action Requests and 2 Clarification Requests.

The number between brackets at the end of each section corresponds to the DVM paragraph.

4.1 Project approvals by Parties involved (19-20)

The Project obtained Letter of Endorsement # 404/23/7 dated 01/02/2013 issued by State Environment Investment Agency of Ukraine.

Bureau Veritas Certification received this letter from the Institute of Engineering Ecology and does not doubt its authenticity.

Written project approvals will be obtained after the submission of this Determination Report to the DFPs of Parties Involved.

Bureau Veritas Certification considers the letters as unconditional in accordance with paragraphs 19 - 20 of the DVM.

Identified problem areas applicable to the project approval by Parties Involved, project participants' responses and Bureau Veritas Certification Conclusions are listed in the Annex A of this Report (Refer to CAR02).

4.2 Authorization of project participants by Parties involved (21)

The participation for each of the legal entities listed as project participants in the PDD is authorized by a Party involved, which is also listed in the PDD, through a written project approval by a Party involved, explicitly stating the name of the legal entity.

4.3 Baseline setting (22-26)

The PDD explicitly indicates that using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) was the selected approach for identifying the baseline.

On this basis the approach for baseline and monitoring was developed, which can be applied to JI projects in accordance with Annex B of JI Guidelines.

The PDD provides a detailed theoretical description in a complete and transparent manner, as well as justification, that the baseline is established:

a) Identifying and listing alternatives to the project activity on the basis of conservative assumptions and taking into account uncertainties.

b) Identifying the most plausible alternatives considering relevant sectoral policies and circumstances, such as economic situation in the energetic and water supply sectors in Ukraine and other key factors that may affect the baseline. The baseline is identified by screening of the alternatives based on the technological and economic considerations for the project developer, as well as on the prevailing technologies and practices in Ukrainian energy industry at the time of the investment decision.

Alternative 1: Continuation of the existing situation.
There are no barriers for this Alternative.

Alternative 2: Implementation of proposed project activity without JI registration.

Investment barrier: The property in disposal of departments of the AR Crimea water complex and the North-Crimean canal is 100% state-owned. The source of financing for this project activity is the state budget of Ukraine. The project participants doesn't obtain commercial profit from the supplied to consumers water. Also, in accordance with common practice the total electricity consumption is relied on the end-consumers of specified services, so departments of water complex have no incentive to improve the efficiency of the equipment. So, proposed project cannot be considered as commercially profitable activity.

Technological barrier

1. Not all proposed technologies are widely spread already. Qualification of operational personal for implementation of the new technologies may be not sufficient to provide project implementation at time.
2. Efficiency of installed equipment could be lower than it was claimed by producers, or equipment may have substantial defects.

Organisation barriers

The management experience in implementation of JI projects is absent, including international collaboration, determination, verification, registration, monitoring and so on.

Alternative 3: The implementation of the part of the Project measures.
This alternative meets the same barriers as the *Alternative 2* does, but the effectiveness of the partial implementation of the Project measures is

significantly lower (the synergetic effect of the implemented measures is quite high). So, this alternative is technically possible, but not reasonable and feasible.

The alternatives have been identified based on national practice and reasonable assumptions with regard to sectoral legislation and reform, economic situation in the country, availability of materials as technologies and logistics.

The project developer proposed three alternatives to the project activity's measures are:

(c) Taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power and agricultural sectors expansion plans, and the economic situation in the project sector. In this context, the following key factors that affect a baseline are taken into account:

- A comprehensive analysis and an in-depth description of the reform policies and legislation concerning the development and reforming of the Ukrainian energy industry. At this time effective united complex state program for lowering of energy losses in objects of water-supply complexes is absent
- Describing economic situation. AR Crimean water complex is controlled by Ukrainian government and doesn't influence at own economic situation
- It is stated by the project participants that modern technologies and best practices existing in the developed countries are unavailable due to their high cost and necessity of the knowledgeable personnel able to introduce and operate the equipment.

(d) In such a way that emission reduction units (ERUs) cannot be earned for decreases in activity levels outside the project activity or due to force majeure. According to the proposed approach emission reductions will be earned only when electric grids transport electric energy, so no emission reductions can be earned due to any changes outside the project activity.

(e) Taking into account uncertainties and using conservative assumptions such as the following:

- Lower range of parameters is used for calculation of baseline emissions and higher range of parameters is used for calculation of project activity emissions;

- Default values were used to the extent possible in order to reduce uncertainty and provide conservative data for emission calculations.

For more details, please, refer to Section B.1. of the PDD.

Baseline emissions

$$BE=E^{b}_{w}+E^{b}_{f} \quad (1)$$

Where:
E^{b}_{w} – GHG emissions due to the production of electricity that is consumed by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* in terms of the baseline scenario, t CO_2e;
E^{b}_{f} - emissions due to fuel combustion by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* in terms of the baseline scenario, t CO_2 eq.

GHG emissions due to electricity consumption by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* in the terms of the baseline scenario are sum taken over all departments *i* which are included into the project

$$E^{b}_{w} = \Sigma_{i}(W^{r}_{i} \times SEC^{d}_{i} \times EF_{CO2,\ ELEC,cons,y}) \quad (2)$$

Where:
W^{r}_{i} – volume of pumped water by objects of the department *i* in the reported year *y*, ths m^3;
SEC^{d}_{i} – dynamic specific electricity consumption by objects of the department *i* in the reported year *y* in terms of baseline scenario, MWh/ths m^3
$EF_{CO2,\ ELEC,cons,y}$ - carbon emission factor for the electricity consumption in the reported year *y*, t CO2e/MWh

[*i*] – department of the AR Crimea water complex and North-Crimean canal
[*r*] - index related to the reported year.
[b] – index related to the base year

For each department

$$SEC^{d}_{i} = SEC^{b}_{i} \times (1+K_{dw} \times \tau); \quad (3)$$

Where
SEC^{b}_{i} – specific electricity consumption by objects of the department *i* in the base year, MWh/ths m^3
K_{dw} – factor of the average deterioration of the pump equipment efficiency, $year^{-1}$
The factor of of the average deterioration of the pump equipment is adopted at the level of 2.5 % per year (0.025 $year^{-1}$)
τ - duration of operation of the equipment after the base year, years

$$SEC^b_i = EC^b_i / W^b_i \quad (4)$$

Where
EC^b_i - electricity consumption by objects of the department *i* in the base year, MWh
W^b_i – volume of pumped water by objects of the department *i* in the base year, ths m^3

GHG emissions due to fuel consumption by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* in the terms of the baseline scenario are sum taken over all departments *i* which are included into the project

$$E^b_f = \Sigma_i (NCV^b_i \times EF_{CO2,F} \times B^b_i \times K_1 \times (1+K_{df} \times \tau)) \quad (5)$$

Where
B^b_i – amount of fuel consumed by objects of the department *i* in the base year *y*, ths m^3 (t);
NCV^b_i - averaged net calorific value of fuel consumed by objects of the department *i* in the base year *y, G*J/ths m^3(GJ/t)
$EF_{CO2,F,}$ - carbon emission factor for fuel, t CO2e/GJ
K_1 – net calorific value of a fuel change factor

$$K_1 = NCV^b_i / NCV^r_i \quad (6)$$

Where
NCV^b_i – average net calorific value of a fuel consumed by objects of the department *i* in the base year, GJ/ths m^3 (GJ/t)
NCV^r_i - average net calorific value of a fuel consumed by objects of the department *i* in the reported year, GJ/ths m^3 (GJ/t)

K_{df} – factor of the average deterioration of the main boiler equipment efficiency, $year^{-1}$
The K_{df} factor is adopted at the level of 0,5% per year (K_{df} = 0.005 $year^{-1}$)

τ – duration of operation of the equipment after the base year, years.

The amounts of fuel consumption by the objects of all departments of water complex are small, the general emission reductions due to fuel consumption reduction are less than 1250 tonnes of CO_2 per year, and the corresponding changes of the parameter of the amount of fuel consumed B^b_i as a result of adjustment factor K_1 and the changes of total emission reductions are very small; thus for this project for simplification K_1=1 is taken, which is conservative assumption

Thus, the formula (5) turns into the form

$$E^b_f = \Sigma_i (NCV^b_i \times EF_{CO2,F} \times B^b_i \times (1+K_{df} \times \tau)) \quad (7)$$

Identified problem areas applicable to the project baseline establishing, project participants' responses and Bureau Veritas Certification Conclusions are listed in the Annex A of this Report (Refer to CAR03-CAR05)

4.4 Additionality (27-31)

The most recent version of the "Tool for demonstration and assessment of additionality" (Version 7.0.0) approved by the CDM Executive Board was used, in accordance with the JI specific approach, defined in paragraph 2(c) of the annex I to the "Guidance on criteria for baseline setting and monitoring". All explanations, descriptions and analyses are made in accordance with the selected tool.

The PDD provides a justification of the applicability of the approach.
Three alternative scenarios to the project activity were identified and proven to be in compliance with mandatory legislation and regulations taking into account the enforcement in the region and Ukraine. Project developer provides investment analysis, barrier analysis and common practice analysis.

Continuation of existing situation (alternative 1) was chosen as baseline scenario.

The program of AR Crimea water complex and the North-Crimean canal modernization is the program that has predecessors in Ukraine but could not be considered as a common practice.

Additionality is demonstrated appropriately as a result of the analysis using the approach chosen.

4.5 Project boundary (32-33)

The project boundary defined in the PDD, which encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are:

(i) Under the control of the project participants, such as pumping and heat generating equipment, water and heat distributing pipelines of AR Crimea water complex;

(ii) Reasonably attributable to the project such as electric energy consumed by abovementioned objects; and

(iii) Significant, i.e., as a rule of thumb, would by each source account on average per year over the crediting period for more than 1 per cent of the annual

average anthropogenic emissions by sources of GHGs, or exceed an amount of 2,000 tonnes of CO2 equivalent, whichever is lower.

All gases and sources included in the project boundary were explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified and provided in Table B.2 of the PDD.

The delineation of the project boundary and the gases and sources included are appropriately described and justified in the PDD by using Figures B.2, B.3 in section B.3 of the PDD

Identified problem areas applicable to the project boundaries, project participants' responses and Bureau Veritas Certification Conclusions are listed in the Annex A of this Report (Refer to CAR06)

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began, and the starting date is 20/04/2004, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 36 years and 8 months.

The PDD states the length of the crediting period in years and months, which is 5 years or 60 months, and its starting date as 01/01/2008, which is after the date the first emission reductions or enhancements of net removals are generated by the project.

The PDD states that the crediting period for the issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project.

The PDD states that the extension of its crediting period beyond 2012 is subject to the host Party approval, and the estimates of emission reductions or enhancements of net removals are presented separately for those until 2012 and those after 2012 in all relevant sections of the PDD. PDD contains ERUs calculation separately for first commitment period from 01/01/2008 till 31/12/2012 and the second commitment period from 01/01/2013 tilll 31/12/2020.

4.7 Monitoring plan (35-39)

The PDD, in its monitoring plan section, explicitly indicates that the JI specific approach was selected.

The monitoring plan describes all relevant factors and key characteristics that will be monitored, and the period in which they will be monitored, in particular also all decisive factors for the control and reporting of project performance, such as values of pumped water, consumed fuel and electricity per year.

The monitoring plan specifies the indicators, constants and variables that are reliable (i.e. provide consistent and accurate values), valid (i.e. are clearly connected with the effect to be measured), and that provide a transparent picture of the emission reductions or enhancements of net removals to be monitored such as values of pumped water, consumed fuel and electricity per year.

The monitoring plan draws on the list of standard variables indicated in appendix B of "Guidance on criteria for baseline setting and monitoring" developed by the JISC, in appropriate way.

The monitoring plan explicitly and clearly distinguishes:

(i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination, such as coefficients of boiler and pumping equipment deterioration.

(ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination, such as absent.

(iii) Data and parameters that are monitored throughout the crediting period, such as values of pumped water, consumed fuel and electricity per year, fuel net calorific value, emission factors for electricity consumption and fuel, specific electricity and fuel consumption.

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording, such as direct measuring of fuel and electricity consumption, calculations for specific electricity consumption.

The monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate, such as:

Project emissions:

$$PE=E^{r}_{w}+E^{r}_{f} \quad (8)$$

Where:
E^{r}_{w} – emissions due to the production of electricity that is consumed by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y,* t CO_2 eq.;
E^{r}_{f} - emissions due to fuel combustion by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y*, t CO_2 eq.;
[*r*]- index related to the reported year.

GHG emissions due to electricity consumption by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* for the project scenario are sums taken over all departments *i* which are included into the project.

$$E^r_w = \Sigma_I(EC^r_i \times EF_{CO2,\ ELEC,cons,y}) \quad (9)$$

Where:
EC^r_i – electricity consumption by the objects of the department *i* in the reported year *y*, MWh;
$EF_{CO2,\ ELEC,cons,y}$ - carbon emission factor for the electricity consumption in the reported year *y*, t CO2e/MWh
[*i*] – department of the AR Crimea water complex and North-Crimean canal
[*r*]- index related to the reported year.

GHG emissions due to fuel combustion by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* for the project scenario are sums taken over all departments *i* which are included into the project

$$E^r_f = \Sigma_I(B^r_i \times NCV^r_i \times EF_{CO2,F,y}) \quad (10)$$

Where
B^r_i – fuel consumption by the objects of the department *i* in the reported year *y*, ths m^3 (t);
NCV^r_i - averaged net calorific value of fuel consumed by objects of the department *i* in the reported year *y,* MJ/ths m^3(GJ/t)
$EF_{CO2,F,y}$ - carbon emission factor for fuel in the reported year *y*, t CO2e/GJ
[*i*] – department of the AR Crimea water complex and North-Crimean canal
[*r*] - index related to the reported year.

Baseline emissions

$$BE = E^b_w + E^b_f \quad (11)$$

Where:
E^b_w – GHG emissions due to the production of electricity that is consumed by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* in terms of the baseline scenario, t CO2e.;
E^b_f - emissions due to fuel combustion by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* in terms of the baseline scenario, t CO2 eq.;
[*b*] - index related to the base year.

GHG emissions due to electricity consumption by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* in the terms

of the baseline scenario are sum taken over all departments *i* which are included into the project

$$E^{b}_{w} = \Sigma_{I}(W^{r}_{i} \times SEC^{d}_{i} \times EF_{CO2,\ ELEC,cons,y}) \quad (12)$$

Where:
W^{r}_{i} – volume of pumped water by objects of the department *i* in the reported year *y*, ths m^3;
SEC^{d}_{i} – dynamic specific electricity consumption by objects of the department *i* in the reported year *y* in terms of baseline scenario, MWh/ths m^3
$EF_{CO2,\ ELEC,cons,y}$ - carbon emission factor for the electricity consumption in the reported year *y*, t CO2e/MWh

[*i*] – department of the AR Crimea water complex and North-Crimean canal
[*r*] - index related to the reported year.
[b] – index related to the base year

For each department

$$SEC^{d}_{i} = SEC^{b}_{i} \times (1+K_{dw} \times \tau); \quad (13)$$

Where
SEC^{b}_{i} – specific electricity consumption by objects of the department *i* in the base year, MWh/ths m^3
K_{dw} – factor of the average deterioration of the pump equipment efficiency, $year^{-1}$
The factor of of the average deterioration of the pump equipment is adopted at the level of 2.5 % per year (0.025 $year^{-1}$)
τ - duration of operation of the equipment after the base year, years

$$SEC^{b}_{i} = EC^{b}_{i} / W^{b}_{i} \quad (14)$$

Where
EC^{b}_{i} - electricity consumption by objects of the department *i* in the base year, MWh
W^{b}_{i} – volume of pumped water by objects of the department *i* in the base year, ths m^3

GHG emissions due to fuel consumption by the objects of the AR Crimea water complex and the North-Crimean canal departments in the reported year *y* in the terms of the baseline scenario are sum taken over all departments *i* which are included into the project

$$E^{b}_{f} = \Sigma_{I}(NCV^{b}_{i} \times EF_{CO2,\ F} \times B^{b}_{i} \times K_{1} \times (1+K_{df} \times \tau)) \quad (15)$$

Where
B^{b}_{i} – amount of fuel consumed by objects of the department *i* in the base year *y*, ths m^3 (t);

NCV^b_i - averaged net calorific value of fuel consumed by objects of the department *i* in the base year *y,* MJ/ths m^3(GJ/t)
$EF_{CO2,F,y}$ - carbon emission factor for fuel, t CO2e/GJ
K_1 – net calorific value of a fuel change factor

$$K_1 = NCV^b_i / NCV^r_i \quad (16)$$

Where
NCV^b_i – average net calorific value of a fuel consumed by objects of the department *i* in the base year, MJ /ths m^3 (GJ/t)
NCV^r_i - average net calorific value of a fuel consumed by objects of the department *i* in the reported year, MJ /ths m^3 (GJ/t)

K_{df} – factor of the average deterioration of the main boiler equipment efficiency, $year^{-1}$
The K_{df} factor is adopted at the level of 0,5% per year (K_{df} = 0.005 $year^{-1}$)

τ – duration of operation of the equipment after the base year, years.

The amounts of fuel consumption by the objects of all departments of water complex are small, the general emission reductions due to fuel consumption reduction are less than 1250 tonnes of CO_2 per year, and the corresponding changes of the parameter of the amount of fuel consumed B^b_i as a result of adjustment factor K_1 and the changes of total emission reductions are very small; thus for this project for simplification K_1=1 is taken, which is conservative assumption.

Thus, the formula (15) turns into the form

$$E^b_f = \Sigma_i (NCV^b_i \times EF_{CO2,F} \times B^b_i \times (1+K_{df} \times \tau)) \quad (17)$$

Estimated emission reductions for the project activity in a reported year *y*:

$$ER_y = BE_y - PE_y \quad (18)$$

The monitoring plan presents the quality assurance and control procedures for the monitoring process which are mentioned in the section D and Annex 3 of the PDD. This includes, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available on request

The data required to JI monitoring is routinely collected within the normal operations of AR Crimea water industry enterprises therefore the JI monitoring is a part of routine monitoring. The data is complied in shift and day-to-day reports, monthly and year reports, bills, work logbooks and state report form 11-SN.

All main specialists of the departments will be involved into the preparation of monitoring report under coordination of the head of Krasnoperekopsk department.

On the whole, the monitoring plan reflects good monitoring practices appropriate to the project type.

The monitoring plan provides, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources (e.g. official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature etc.) but not including data that are calculated with equations.

The monitoring plan indicates that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project.

Identified problem areas applicable to the project monitoring plan, project participants' responses and Bureau Veritas Certification Conclusions are listed in the Annex A of this Report (Refer to CAR07, CL02).

4.8 Leakage (40-41)

The PDD explicitly states that project activity doesn't cause any leakage.

4.9 Estimation of emission reductions or enhancements of net removals (42-47)

The PDD indicates assessment of emissions or net removals in the baseline scenario and in the project scenario as the approach chosen to estimate the emission reductions or enhancement of net removals generated by the project.

The PDD provides the ex ante estimates of:

(a) Emissions or net removals for the project scenario (within the project boundary), which are 881 292 tonnes of CO_2eq for 01/01/2008-31/12/2012, 1 684 598 tonnes of CO_2eq for 01/01/2013-31/12/2020 and 4 210 860 tonnes of CO_2eq for 01/01/2021-31/12/2040;

(b) Leakage, as applicable, which are 0 tonnes of CO_2eq;

(c) Emissions or net removals for the baseline scenario (within the project boundary), which are 1 141 703 tonnes of CO_2eq for 01/01/2008-31/12/2012, 2 512 252 tonnes of CO2eq for 01/01/2013-31/12/2020, 6 695 620 tonnes of CO_2eq for 01/01/2021-31/12/2040;

(d) Emission reductions or enhancements of net removals adjusted by leakage (based on (a)-(c) above), which are 260 411 tonnes of CO_2eq for 01/01/2008-31/12/2012, 827 654 tonnes of CO_2eq for 01/01/2013-31/12/2020, 2 484 760 tonnes of CO_2eq for 01/01/2021-31/12/2040.

The estimates referred to above are given:

(a) On a yearly basis;

(b) From 01/01/2008 to 31/12/2040, covering the whole crediting period;

(c) On a source-by-source/sink-by-sink basis;

(d) For each GHG gas, which are CO_2

(e) In tonnes of CO_2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol;

The formula used for calculating the estimates referred above, which are described in the section 4.7 of this Determination Report, are consistent throughout the PDD.

For calculating the estimates referred to above, key factors, e.g. local prices for electricity, coal and diesel fuel, available production resources, influencing the baseline emissions and the activity level of the project and the emissions or net removals as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating the estimates referred to above, such as work and laboratory logbooks, work yearly reports, state statistical reports are clearly identified, reliable and transparent.

Emission factors, such as emission factor for electricity consumption, emission factors for coal and diesel fuel, etc, were selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

The estimation referred to above is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The estimates referred to above are consistent throughout the PDD.

The annual average of estimated emission reductions or enhancements of net removals over the crediting period is calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period, and multiplying by twelve.

Identified problem areas applicable to the project estimations of emission reductions, project participants' responses and Bureau Veritas Certification Conclusions are listed in the Annex A of this Report (Refer to CAR08)

4.10 Environmental impacts (48)

The PDD lists and attaches documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party, such as Law of Ukraine "On ecological Expertise" and State Building norms of Ukraine DBN A.2.2-1-2003 "Composition and content of the Environment Impact Assessment (EIA) materials and designing and construction of enterprises, buildings and premises".

The PDD provides conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party, if the analysis referred to above indicates that the environmental impacts are considered significant by the project participants or the host Party.

4.11 Stakeholder consultation (49)

Actual Ukraine legislation doesn't require stakeholders consultations for JI projects. Proposed project was presented to the local authorities and stakeholders by the project owners. Comments were not obtained and will be collected during the determination process

4.12 Determination regarding small scale projects (50-57)

"Not applicable"

4.13 Determination regarding land use, land-use change and forestry (LULUCF) projects (58-64)

"Not applicable"

4.14 Determination regarding programmes of activities (65-73)

"Not applicable"

5 SUMMARY AND REPORT OF HOW DUE ACCOUNT WAS TAKEN OF COMMENTS RECEIVED PURSUANT TO PARAGRAPH 32 OF THE JI GUIDELINES

No comments, pursuant to paragraph 32 of the JI Guidelines, were received

6 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the "Greenhouse gas emission reduction due to modernization of objects of the AR Crimea

water complex and the North-Crimean canal" Project in Autonomous Republic Crimea, Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The determination consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides barrier analysis and common practice analysis, to determine that the project activity itself is not the baseline scenario.

Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The determination revealed two pending issues related to the current determination stage of the project: the issue of the written approval of the project and the authorization of the project participant by the host Party. If the written approval and the authorization by the host Party are awarded, it is our opinion that the project as described in the Project Design Document, Version 03 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

The review of the project design documentation (version 03) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

The determination is based on the information made available to us and the engagement conditions detailed in this report.

7 REFERENCES

Category 1 Documents:
Documents provided by Institute of Engineering Ecology that relate directly to the GHG components of the project.

/1/ Project Design Document "Greenhouse gas emission reduction due to modernization of objects of the AR Crimea water complex and the North-Crimean canal" version 02 dated 19/03/2013
/2/ Project Design Document "Greenhouse gas emission reduction due to modernization of objects of the AR Crimea water complex and the North-Crimean canal" version 03 dated 05/04/2013
/3/ Excel file "App_1_ARC_W_Objects.xls"
/4/ Excel file "App_2_ARC_W_Pumps.xls"
/5/ Excel file "App_3_ARC_W_Measures.xls"
/6/ ERUs calculation Excel file "App_4-6_ARC_W_Emiss.xls"
/7/ Letter of Endorsement # 404/23/7 dated 01/02/2013 issued by State Environment Investment Agency of Ukraine

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

/1/ Agreement No. 01/2012 dated 27/07/2012 on Cooperation and Joint Activity for realization of the JI project on GHG emission reduction was made between the Krasnoperekopsk DWI, Bakhchysaray IDWI, Dzhankoy DWI, Kirovske IDWI, Krasnohvardiyske IDWI, Lenine IDWI, Nyzhnyohirskyy IDWI, Pervomayske DWI, Pobedne IDWI, Rosdolne IDWI, Saky IDWI, Salgirske IDWI, Sovetskyy DWI, Tayganske IDWI, CCD and NCCD
/2/ Certificate of the Republic Committee on water industry construction and irrigated agriculture of the AR Crimea on re-naming No. 06-26/19 dated 04/12/2012.
/3/ Order of the State Water Resources Agency of Ukraine No. 315 dated 19/12/2004.
/4/ Letter of the Republic Committee on water industry construction and irrigated agriculture of the AR Crimea on the ownership and legal using of property included into the project No. 02-26/500 dated 25/12/2012.
/5/ Protocol of the Rescomvodhosp of the AR Crimea Technical Council meeting dated 16.04.2004
/6/ Statute of the Krasnoperekopsk department of water industry approved by Order of the State Water Resources Agency of Ukraine No. 311 dated 30/12/2011.
/7/ Changes to the Statute of the Krasnoperekopsk department of water industry approved by Order of the State Water Resources Agency of Ukraine No. 311 dated 30/12/2011 "On approvement of the Statute of the Krasnoperekopsk department of water industry", approved by Order of the State Water Resources Agency of Ukraine No. 149 dated 28/03/2012.

/8/ Form #11-SN. Report on results of electricity consumption at Krasnoperekopsk department of irrigation systems to 01/01/2004.

/9/ Form #11-SN. Report on results of electricity consumption at Krasnoperekopsk department of irrigation systems to 01/01/2005.

/10/ Form #11-SN. Report on results of electricity consumption at Krasnoperekopsk department of water industry to 31/12/2005.

/11/ Form #11-SN. Report on results of electricity consumption at Krasnoperekopsk department of water industry (with progressive total) for December 2006.

/12/ Form #11-SN. Report on results of electricity consumption at Krasnoperekopsk department of water industry (with progressive total) for December 2007.

/13/ Form #11-SN. Report on results of electricity consumption at Krasnoperekopsk department of water industry (with progressive total) for December 2008.

/14/ Form #11-SN. Report on results of electricity consumption at Krasnoperekopsk department of water industry (with progressive total) for December 2009.

/15/ Form #11-SN. Report on results of electricity consumption at Krasnoperekopsk department of water industry (with progressive total) for December 2010.

/16/ Form #11-SN. Report on results of electricity consumption at Krasnoperekopsk department of water industry (with progressive total) for December 2011.

/17/ Form #11-SN. Report on results of electricity consumption at Bakhchysaray inter-district department of irrigation systems (with progressive total) for December 2005.

/18/ Form #11-SN. Report on results of electricity consumption at Bakhchysaray inter-district department of water industry (with progressive total) for December 2006.

/19/ Form #11-SN. Report on results of electricity consumption at Bakhchysaray inter-district department of water industry (with progressive total) for December 2007.

/20/ Form #11-SN. Report on results of electricity consumption at Bakhchysaray inter-district department of water industry (with progressive total) for December 2008.

/21/ Form #11-SN. Report on results of electricity consumption at Bakhchysaray inter-district department of water industry (with progressive total) for December 2009.

/22/ Form #11-SN. Report on results of electricity consumption at Bakhchysaray inter-district department of water industry (with progressive total) for December 2010.

/23/ Form #11-SN. Report on results of electricity consumption at Bakhchysaray inter-district department of water industry (with progressive total) for December 2011.

/24/ Form #11-SN. Report on results of electricity consumption at Bakhchysaray inter-district department of water industry (with progressive total) for December

2012.

/25/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of irrigation systems to 01/01/2004.

/26/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of irrigation systems to 01/01/2005.

/27/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of water industry to 01/01/2006.

/28/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of water industry to 01/01/2007.

/29/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of water industry to 01/01/2008.

/30/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of water industry (with progressive total) for December 2008.

/31/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of water industry (with progressive total) for December 2009.

/32/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of water industry (with progressive total) for December 2010.

/33/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of water industry (with progressive total) for December 2011.

/34/ Form #11-SN. Report on results of electricity consumption at Dzhankoy department of water industry (with progressive total) for December 2012.

/35/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of irrigation systems (with progressive total) for December 2003.

/36/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of irrigation systems (with progressive total) for December 2004.

/37/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of irrigation systems (with progressive total) for December 2005.

/38/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of water industry (with progressive total) for December 2006.

/39/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of water industry (with progressive total) for December 2007.

/40/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of water industry (with progressive total) for December 2008.

/41/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of water industry (with progressive total) for December 2009.

/42/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of water industry (with progressive total) for December 2010.

/43/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of water industry (with progressive total) for December

2011.

/44/ Form #11-SN. Report on results of electricity consumption at Kirovske inter-district department of water industry (with progressive total) for December 2012.

/45/ Form #11-SN. Report on results of electricity consumption at Krasnohvardiyske inter-district department of irrigation systems for December 2005.

/46/ Form #11-SN. Report on results of electricity consumption at Krasnohvardiyske inter-district department of water industry (with progressive total) for December 2006.

/47/ Form #11-SN. Report on results of electricity consumption at Krasnohvardiyske inter-district department of water industry (with progressive total) for December 2007.

/48/ Form #11-SN. Report on results of electricity consumption at Krasnohvardiyske inter-district department of water industry (with progressive total) for December 2008.

/49/ Form #11-SN. Report on results of electricity consumption at Krasnohvardiyske inter-district department of water industry (with progressive total) for December 2009.

/50/ Form #11-SN. Report on results of electricity consumption at Krasnohvardiyske inter-district department of water industry (with progressive total) for December 2010.

/51/ Form #11-SN. Report on results of electricity consumption at Krasnohvardiyske inter-district department of water industry (with progressive total) for December 2011.

/52/ Form #11-SN. Report on results of electricity consumption at Krasnohvardiyske inter-district department of water industry (with progressive total) for December 2012.

/53/ Form #11-SN. Report on results of electricity consumption at Lenine inter-district department of irrigation systems (with progressive total) for December 2003.

/54/ Form #11-SN. Report on results of electricity consumption at Lenine inter-district department of irrigation systems (with progressive total) for December 2004.

/55/ Form #11-SN. Report on results of electricity consumption at Lenine inter-district department of water industry (with progressive total) for December 2005.

/56/ Form #11-SN. Report on results of electricity consumption at Lenine inter-district department of water industry (with progressive total) for December 2006.

/57/ Form #11-SN. Report on results of electricity consumption at Lenine inter-district department of water industry (with progressive total) for December 2007.

/58/ Form #11-SN. Report on results of electricity consumption at Lenine inter-district department of water industry (with progressive total) for December 2008.

/59/ Form #11-SN. Report on results of electricity consumption at Lenine inter-

district department of water industry (with progressive total) for December 2009.

/60/ Form #11-SN. Report on results of electricity consumption at Lenine inter-district department of water industry (with progressive total) for December 2010.

/61/ Form #11-SN. Report on results of electricity consumption at Lenine inter-district department of water industry (with progressive total) for December 2011.

/62/ Form #11-SN. Report on results of electricity consumption at Lenine inter-district department of water industry (with progressive total) for December 2012.

/63/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy department of irrigation systems to 01/01/2004.

/64/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy department of irrigation systems to 01/01/2005.

/65/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy inter-district department of water industry to 01/01/2006.

/66/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy inter-district department of water industry to 01/01/2007.

/67/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy inter-district department of water industry to 01/01/2008.

/68/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy inter-district department of water industry to 01/01/2009.

/69/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy inter-district department of water industry to 01/01/2010.

/70/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy inter-district department of water industry to 01/01/2011.

/71/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy inter-district department of water industry to 01/01/2012.

/72/ Form #11-SN. Report on results of electricity consumption at Nyzhnyohirskyy inter-district department of water industry to 01/01/2013.

/73/ Form #11-SN. Report on results of electricity consumption at Pervomayske department of water industry (with progressive total) for December 2004.

/74/ Form #11-SN. Report on results of electricity consumption at Pervomayske department of water industry (with progressive total) for December 2005.

/75/ Form #11-SN. Report on results of electricity consumption at Pervomayske department of water industry (with progressive total) for December 2006.

/76/ Form #11-SN. Report on results of electricity consumption at Pervomayske department of water industry (with progressive total) for December 2007.

/77/ Form #11-SN. Report on results of electricity consumption at Pervomayske department of water industry (with progressive total) for December 2008.

/78/ Form #11-SN. Report on results of electricity consumption at Pervomayske department of water industry (with progressive total) for December 2009.

/79/ Form #11-SN. Report on results of electricity consumption at Pervomayske department of water industry (with progressive total) for December 2010.

/80/ Form #11-SN. Report on results of electricity consumption at Pervomayske department of water industry (with progressive total) for December 2011.

/81/ Form #11-SN. Report on results of electricity consumption at Pervomayske department of water industry (with progressive total) for December 2012.

/82/ Form #11-SN. Report on results of electricity consumption at Pobedne inter-district department of collector-drainage systems (with progressive total) for December 2004.

/83/ Form #11-SN. Report on results of electricity consumption at Pobedne inter-district department of collector-drainage systems (with progressive total) for December 2005.

/84/ Form #11-SN. Report on results of electricity consumption at Pobedne inter-district department of collector-drainage systems (with progressive total) for December 2006.

/85/ Form #11-SN. Report on results of electricity consumption at Pobedne inter-district department of collector-drainage systems (with progressive total) for December 2007.

/86/ Form #11-SN. Report on results of electricity consumption at Pobedne inter-district department of collector-drainage systems (with progressive total) for December 2008.

/87/ Form #11-SN. Report on results of electricity consumption at Pobedne inter-district department of collector-drainage systems (with progressive total) for December 2009.

/88/ Form #11-SN. Report on results of electricity consumption at Pobedne inter-district department of collector-drainage systems (with progressive total) for December 2010.

/89/ Form #11-SN. Report on results of electricity consumption at Pobedne inter-district department of collector-drainage systems (with progressive total) for December 2011.

/90/ Form #11-SN. Report on results of electricity consumption at Pobedne inter-district department of collector-drainage systems (with progressive total) for December 2012.

/91/ Form #11-SN. Report on results of electricity consumption at Rosdolne department of irrigation systems (with progressive total) for December 2003.

/92/ Form #11-SN. Report on results of electricity consumption at Rosdolne department of irrigation systems (with progressive total) for December 2004.

/93/ Form #11-SN. Report on results of electricity consumption at Rosdolne inter-district department of water industry (with progressive total) for December 2005

/94/ Form #11-SN. Report on results of electricity consumption at Rosdolne inter-district department of water industry (with progressive total) for December 2006

/95/ Form #11-SN. Report on results of electricity consumption at Rosdolne inter-district department of water industry (with progressive total) for December 2007

/96/ Form #11-SN. Report on results of electricity consumption at Rosdolne inter-district department of water industry (with progressive total) for December 2008

/97/ Form #11-SN. Report on results of electricity consumption at Rosdolne inter-district department of water industry (with progressive total) for December

2009

/98/ Form #11-SN. Report on results of electricity consumption at Rosdolne inter-district department of water industry (with progressive total) for December 2010

/99/ Form #11-SN. Report on results of electricity consumption at Rosdolne inter-district department of water industry (with progressive total) for December 2011

/100 Form #11-SN. Report on results of electricity consumption at Rosdolne inter-district department of water industry (with progressive total) for December 2012

/101 Form #11-SN. Report on results of electricity consumption at Saky department of irrigation systems (with progressive total) for December 2003.

/102 Form #11-SN. Report on results of electricity consumption at Saky department of irrigation systems (with progressive total) for December 2004.

/103 Form #11-SN. Report on results of electricity consumption at Saky department of irrigation systems (with progressive total) for December 2005.

/104 Form #11-SN. Report on results of electricity consumption at Saky inter-district department of water industry (with progressive total) for December 2006.

/105 Form #11-SN. Report on results of electricity consumption at Saky inter-district department of water industry (with progressive total) for December 2007.

/106 Form #11-SN. Report on results of electricity consumption at Saky inter-district department of water industry (with progressive total) for December 2008.

/107 Form #11-SN. Report on results of electricity consumption at Saky inter-district department of water industry (with progressive total) for December 2009.

/108 Form #11-SN. Report on results of electricity consumption at Saky inter-district department of water industry (with progressive total) for December 2010.

/109 Form #11-SN. Report on results of electricity consumption at Saky inter-district department of water industry (with progressive total) for December 2011.

/110 Form #11-SN. Report on results of electricity consumption at Saky inter-district department of water industry (with progressive total) for December 2012.

/111 Form #11-SN. Report on results of electricity consumption at Salgirske department of irrigation systems (with progressive total) for December 2003.

/112 Form #11-SN. Report on results of electricity consumption at Salgirske department of irrigation systems (with progressive total) for December 2004.

/113 Form #11-SN. Report on results of electricity consumption at Salgirske department of irrigation systems (with progressive total) for December 2005.

/114 Form #11-SN. Report on results of electricity consumption at Salgirske inter-district department of water industry (with progressive total) for December 2006.

/115 Form #11-SN. Report on results of electricity consumption at Salgirske inter-district department of water industry (with progressive total) for December 2007.

/116 Form #11-SN. Report on results of electricity consumption at Salgirske inter-district department of water industry (with progressive total) for December 2008.

/117 Form #11-SN. Report on results of electricity consumption at Salgirske inter-district department of water industry (with progressive total) for December

2009.

/118 Form #11-SN. Report on results of electricity consumption at Salgirske inter-district department of water industry (with progressive total) for December 2010.

/119 Form #11-SN. Report on results of electricity consumption at Salgirske inter-district department of water industry (with progressive total) for December 2011.

/120 Form #11-SN. Report on results of electricity consumption at Salgirske inter-district department of water industry (with progressive total) for December 2012.

/121 Form #11-SN. Report on results of electricity consumption at Sovetskyy department of irrigation systems (with progressive total) for December 2004.

/122 Form #11-SN. Report on results of electricity consumption at Sovetskyy department of irrigation systems (with progressive total) for December 2005.

/123 Form #11-SN. Report on results of electricity consumption at Sovetskyy department of water industry (with progressive total) for December 2006.

/124 Form #11-SN. Report on results of electricity consumption at Sovetskyy department of water industry (with progressive total) for December 2007

/125 Form #11-SN. Report on results of electricity consumption at Sovetskyy department of water industry (with progressive total) for December 2008

/126 Form #11-SN. Report on results of electricity consumption at Sovetskyy department of water industry (with progressive total) for December 2009

/127 Form #11-SN. Report on results of electricity consumption at Sovetskyy department of water industry (with progressive total) for December 2010

/128 Form #11-SN. Report on results of electricity consumption at Sovetskyy department of water industry (with progressive total) for December 2011

/129 Form #11-SN. Report on results of electricity consumption at Sovetskyy department of water industry (with progressive total) for December 2012

/130 Form #11-SN. Report on results of electricity consumption at Connecting canal department (with progressive total) for December 2003.

/131 Form #11-SN. Report on results of electricity consumption at Connecting canal department (with progressive total) for December 2004.

/132 Form #11-SN. Report on results of electricity consumption at Connecting canal department (with progressive total) for December 2005.

/133 Form #11-SN. Report on results of electricity consumption at Connecting canal department (with progressive total) for December 2006.

/134 Form #11-SN. Report on results of electricity consumption at Connecting canal department (with progressive total) for December 2007.

/135 Form #11-SN. Report on results of electricity consumption at Connecting canal department (with progressive total) for December 2008.

/136 Form #11-SN. Report on results of electricity consumption at Connecting canal department (with progressive total) for December 2009.

/137 Form #11-SN. Report on results of electricity consumption at Connecting canal department (with progressive total) for December 2010.

/138 Form #11-SN. Report on results of electricity consumption at Connecting canal department (with progressive total) for December 2011.

/139 Form #11-SN. Report on results of electricity consumption at Connecting canal

department (with progressive total) for December 2012.

/140 Form #11-MTP. Report on results of consumption of fuel, heat energy and electricity by the North-Crimean canal department for January – December, 2004.

/141 Form #11-MTP. Report on results of consumption of fuel, heat energy and electricity by the North-Crimean canal department for January – December, 2005.

/142 Form #11-MTP. Report on results of consumption of fuel, heat energy and electricity by the North-Crimean canal department for January – December, 2006.

/143 Form #11-MTP. Report on results of consumption of fuel, heat energy and electricity by the North-Crimean canal department for January – December, 2007.

/144 Form #11-MTP. Report on results of consumption of fuel, heat energy and electricity by the North-Crimean canal department for January – December, 2008.

/145 Form #11-MTP. Report on results of consumption of fuel, heat energy and electricity by the North-Crimean canal department for January – December, 2009.

/146 Form #11-MTP. Report on results of consumption of fuel, heat energy and electricity by the North-Crimean canal department for January – December, 2010.

/147 Form #11-MTP. Report on results of consumption of fuel, heat energy and electricity by the North-Crimean canal department for January – December, 2011.

/148/ Form #11-MTP. Report on results of consumption of fuel, heat energy and electricity by the North-Crimean canal department for January – December, 2012.

/149/ The technical report on energy audit of PS No. 136 of Krasnoperekopsk DWI realized by the GE "Vodenergoremnaladka" dated 05.04.2005

/150/ Technical report on energy audit of PS No. 726 of Krasnoperekopsk DWI realized by the GE "Vodenergoremnaladka" dated 12.04.2005

/151/ Technical Report "Realization of energy audit and development of energy-saving measures at the pump stations of Connecting canal Department" realized by the IWPI NASU dated 31.10.2012

/152/ Agreement No. 1 on test of accounting scheme of electricity dated 20.01.2012, between Rosdolne IDWI and Rosdolne DEN

/153/ Agreement No. 290 on test of accounting scheme of electricity dated 12.08.2012, between Rosdolne IDWI and Rosdolne DEN

/154/ Materials for the Technical Council of Republic Committee on water industry of the AR Crimea "Application of solar power units for water industry organizations of Crimea", November 2012

/155/ Certificate of heating hot water gas boiler "Zhytomyr" produced by JSC "Ahroteplomash" of boiler-house of Dzhankoy DWI, 1 Melioratoriv str.

/156/ Certificate of heating gas boiler "AOGV-96» No. 056214, of boiler-house of Saky IDWI, 11a Promuslova str.

/157/ Certificate of electricity meter CE6803V type No. 028285 at the PS No. 319 of

Saky IDWI

/158/ Certificate of electricity meter CE6803V type No. 008656 at the PS No. 190 of Dzhankoy DWI

/159/ Certificate of electricity meter ”Energy-9” No. 8989 at the PS No. 166 Dzhankoy DWI

/160/ Certificate of electricity meter "Energy-9” No. 9489 at the PS No. 165 of Dzhankoy DWI

/161/ Certificate of electricity meter "Energy-9” No. 9763 at the PS No. 183 of Dzhankoy DWI

/162/ Certificate of ultrasonic flowmeter URZh2KM No. 5294 at the PS No. 165 of Dzhankoy DWI

/163/ Certificate of current transformer T-0,66-1 No. 05185 at the PS No. 333 of Rosdolne IDWI

/164/ Certificate of capacitor unit UKM-400 in the PS of Rosdolne IDWI

/165/ Certificate of power transformers "OM-16/35 U1” No. 11264 at the PS of Rosdolne IDWI

/166/ Certificate of calibration flowmeter "Dnepr-7” No. 2771 at the PS of Krasnohvardiyske IDWI

/167/ Certificate of calibration flowmeter “UVR-011” No. 2405 at the PS No. 51 of Krasnoperekopsk DWI

/168/ Photo of 5 pumps OV-2-110 at the PS No. 5 of Krasnohvardiyske IDWI

/169/ Photo of the thyristor converter "TEP 320/115-1122-VSD-1P1-0 UHL4" produced by the JSC" Zaporizhzhya Electric Apparatus Plant " at the PS No. 5 of Krasnohvardiyske IDWI

/170/ Photos of switching module with vacuum breaker BB / TEL type No. 089653 produced by "Tauris Electric Ukraine" on traction substation Maryanivka of Krasnohvardiyske IDWI

/171/ Journal of work of the PS No. 333 of Rosdolne IDWI for 2013

/172/ Act of putting into operation of power transformer TM 100/35/04 dated 15.12.2010 at the PS No. 318 of Saky IDWI

/173/ Act of putting into operation of 3 power transformers TM 25/35/04 and TM 20/75/04 dated 17.12.2009, at the PS No. 308, 36, 39 of Saky IDWI

/174/ Act of putting into operation of power transformer TM 20/35/023 dated 03.03.2011, at the PS No. 295 of Saky IDWI

/175/ Act of putting into operation of power transformer TM 20/35/023 dated 24.01.2012, at the PS No. 123 Saky IDWI

/176/ Act of putting into operation of the soft start unit 250 kW No. 10442796 dated 31.08.2010, at the PS No. 158 of Krasnoperekopsk DWI

/177/ Act of putting into operation of motor speed controller No. 10442780 dated 31/08/2010, on the No. 158 NA of Krasnoperekopsk DWI

/178/ Act of putting into operation of electric EKT4D1-500-50 UHL4 No. 10442964 dated 20.08.2012, at the PS No. 161 of Krasnoperekopsk DWI

/179/ Act of putting into operation of electric EKT4D1-250-50 UHL4 No. 10442968 dated 16.08.2012, at the PS No. 72 of Krasnoperekopsk DWI

/180/ Act of putting into operation of electric drive EKT4D1-320-50 UHL4 No. 10442965 dated 14.08.2012, at the PS No. 51 of Krasnoperekopsk DWI

/181/ Act of putting into operation of transformer OMP-4/10-023 No. 10412579

dated 25.02.2011, on the GTS PP-1 PK-0 of Krasnoperekopsk DWI

/182/ Act of putting into operation of transformer OMP-4/10-023 No. 10412580 dated 09.08.2009, on the GTS RMZ PK-30 of Krasnoperekopsk DWI

/183/ Acceptance certificate No. 13 of reactive power compensation unit AKKM 4-0-300 dated 17.10.2011, at the PS No. 161 of Krasnoperekopsk DWI

/184/ Acceptance certificate No. 12 of reactive power compensation unit AKKM 4-0-300 dated 17.10.2011, at the PS No. 159 of Krasnoperekopsk DWI

/185/ Acceptance certificate No. 11 of reactive power compensation unit AKKM 4-0-300 dated 17.10.2011, at the PS No. 158 of Krasnoperekopsk DWI

/186/ Act of putting into operation of water assessment point at the PS No. 8 of Krasnohvardiysk IDWI dated 13.04.2011

/187/ Act of putting into operation of water assessment point at the PS No. 5 of Krasnohvardiysk IDWI dated 13.04.2011

/188/ Acceptance certificate of the gas supply object dated 21.01.2010, Krasnoperekopsk DWI, 6 Third Promuslova str.

/189/ The act of realization works on rehabilitation of condenser unit UKLN-0,38-300 dated 13.11.2012, at the PS No. 309 of Saky IDWI

/190/ The act of realization works on rehabilitation of condenser unit UKLN-0,38-300 dated 06.12.2012, at the PS No. 305 of Saky IDWI

/191/ The act of realization works on rehabilitation of condenser unit UKLN-0,38-300 dated 10.10.2012, at the PS No. 308 of Saky IDWI

/192/ Guidelines for use of water boiler "KEO-320" No. 2726 on Poltava OS of Krasnohvardiysk IDWI

/193/ Plan of organizational and technical measures to energy resources saving and measures for their payment in 2013 at Saky IDWI

/194/ Information on electricity tariffs without VAT for September 2012 of Rosdolne IDWI

/195/ Report of Dzhankoy DWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2008.

/196/ Report of Dzhankoy DWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2009.

/197/ Report of Dzhankoy DWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2010.

/198/ Report of Dzhankoy DWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2011.

/199/ Report of Dzhankoy DWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2012.

/200/ Report of Krasnoperekopsk DWI on execution of works and measures for fuel and energy saving and corresponding funds saving during 2008.

/201/ Report of Krasnoperekopsk DWI on execution of works and measures for fuel and energy saving and corresponding funds saving during 2009.

/202/ Report of Krasnoperekopsk DWI on execution of works and measures for fuel

and energy saving and corresponding funds saving during 2010.

/203/ Report of Krasnoperekopsk DWI on execution of works and measures for fuel and energy saving and corresponding funds saving during 2011.

/204/ Report of Krasnoperekopsk DWI on execution of works and measures for fuel and energy saving and corresponding funds saving during 2012.

/205/ Report of Lenine IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2008.

/206/ Report of Lenine IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2009.

/207/ Report of Lenine IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2010.

/208/ Report of Lenine IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2011.

/209/ Report of Lenine IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2012.

/210/ Summary on organizing-technical measures for fuel and energy saving and corresponding funds saving during 4 quarter with progressive total in 2008 for Krasnohvardiysk IDWI

/211/ Summary on organizing-technical measures for fuel and energy saving and corresponding funds saving during 4 quarter with progressive total in 2009 for Krasnohvardiysk IDWI

/212/ Summary on organizing-technical measures for fuel and energy saving and corresponding funds saving during 4 quarter with progressive total in 2010 for Krasnohvardiysk IDWI

/213/ Summary on organizing-technical measures for fuel and energy saving and corresponding funds saving during 4 quarter with progressive total in 2011 for Krasnohvardiysk IDWI

/214/ Summary on organizing-technical measures for fuel and energy saving and corresponding funds saving during 4 quarter with progressive total in 2012 for Krasnohvardiysk IDWI

/215/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving in 2008 for Bakhchysaray inter-district department of water industry during January 1 – December 31, 2008.

/216/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving in 2009 for Bakhchysaray inter-district department of water industry during January 1 – December 31, 2009.

/217/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving in 2010 for Bakhchysaray inter-district department of water industry during January 1 – December 31, 2010.

/218/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving in 2011 for Bakhchysaray inter-district department of water industry during January 1 – December 31, 2011.

/219/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving in 2012 for Bakhchysaray inter-district department of water industry during January 1 – December 31, 2012.

/220/ Report of Kirovske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2008.

/221/ Report of Kirovske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2009.

/222/ Report of Kirovske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2010.

/223/ Report of Kirovske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2011.

/224/ Report of Kirovske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2012.

/225/ Report of Nyzhnyohirskyy IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during 2008 (quarterly).

/226/ Report of Nyzhnyohirskyy IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during 2009 (quarterly).

/227/ Report of Nyzhnyohirskyy IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during 2010 (quarterly).

/228/ Report of Nyzhnyohirskyy IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during 2011 (quarterly).

/229/ Report of Nyzhnyohirskyy IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during 2012 (quarterly).

/230/ Measures for energy saving for project realization at Tayganske IDWI for 2012.

/231/ Report of Pobedne inter-district department of collector-drainage systems on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2008 – 31/12/2008.

/232/ Report of Pobedne inter-district department of collector-drainage systems on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2009 – 31/12/2009.

/233/ Report of Pobedne inter-district department of collector-drainage systems on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2010 – 31/12/2010.

/234/ Report of Pobedne inter-district department of collector-drainage systems on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2011 – 31/12/2011.

/235/ Report of Pobedne inter-district department of collector-drainage systems on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2012 – 31/12/2012.

/236/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2008 – 31/12/2008 at

Sovetskyy DWI.

/237/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2009 – 31/12/2009 at Sovetskyy DWI

/238/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2010 – 31/12/2010 at Sovetskyy DWI

/239/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2011 – 31/12/2011 at Sovetskyy DWI

/240/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 01/01/2012 – 31/12/2012 at Sovetskyy DWI

/241/ Report of Salgirske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2008.

/242/ Report of Salgirske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2009.

/243/ Report of Salgirske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2010.

/244/ Report of Salgirske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2011.

/245/ Report of Salgirske IDWI on execution of works and measures for fuel and energy saving and corresponding funds saving during January 1 – December 31, 2012.

/246/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 2008 at Saky IDWI.

/247/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 2009 at Saky IDWI.

/248/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 2010 at Saky IDWI.

/249/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 2011 at Saky IDWI.

/250/ Report on execution of organizing-technical measures for fuel and energy saving and corresponding funds saving during 2012 at Saky IDWI.

/251/ Execution of schedule of organizing-technical measures for fuel and energy saving and corresponding funds saving during 2008 at Rosdolne IDWI.

/252/ Execution of schedule of organizing-technical measures for fuel and energy saving and corresponding funds saving during 2009 at Rosdolne IDWI.

/253/ Execution of schedule of organizing-technical measures for fuel and energy saving and corresponding funds saving during 2010 at Rosdolne IDWI.

/254/ Execution of schedule of organizing-technical measures for fuel and energy saving and corresponding funds saving during 2011 at Rosdolne IDWI.

/255/ Execution of schedule of organizing-technical measures for fuel and energy

saving and corresponding funds saving during 2012 at Rosdolne IDWI.

/256/ Report of Connecting canal department on execution of works and measures for fuel and energy saving and corresponding funds saving during 01/01/2008 – IV quarter, 2008.

/257/ Report of Connecting canal department on execution of works and measures for fuel and energy saving and corresponding funds saving during 01/01/2008 – IV quarter, 2009.

/258/ Report of Connecting canal department on execution of works and measures for fuel and energy saving and corresponding funds saving during 01/01/2008 – IV quarter, 2010.

/259/ Report of Connecting canal department on execution of works and measures for fuel and energy saving and corresponding funds saving during 01/01/2008 – IV quarter, 2011.

/260/ Report of Connecting canal department on execution of works and measures for fuel and energy saving and corresponding funds saving during 01/01/2008 – IV quarter, 2012.

/261/ Execution of schedule of organizing-technical measures for fuel and energy saving and corresponding funds saving during IV quarter, 2008 at Pervomayske department of water industry.

/262/ Execution of schedule of organizing-technical measures for fuel and energy saving and corresponding funds saving during IV quarter, 2009 at Pervomayske department of water industry.

/263/ Execution of schedule of organizing-technical measures for fuel and energy saving and corresponding funds saving during IV quarter, 2010 at Pervomayske department of water industry.

/264/ Execution of schedule of organizing-technical measures for fuel and energy saving and corresponding funds saving during IV quarter, 2011 at Pervomayske department of water industry.

/265/ Execution of schedule of organizing-technical measures for fuel and energy saving and corresponding funds saving during IV quarter, 2012 at Pervomayske department of water industry.

Persons interviewed:

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

/1/ Vladyslav Maslianyk – Krasnoperekopsk DWI, Head of Department
/2/ Roman Novachok - Krasnoperekopsk DWI, Chief Engineer
/3/ Sergiy Petryk – Dzhankoy DWI, Head of Department
/4/ Yurii Savvateev – Krasnogvardiyske DWI, Head of Department
/5/ Sergiy Horodnichev – Pervomayske DWI, Head of Department
/6/ Heorgiy Sunder – CCD, Head of Department
/7/ Oleg Bryazkin - CCD, Chief Engineer
/8/ Mykola Truhan – Rosdolne IDWI, Head of Department
/9/ Yuriy Shcherbakov - Rosdolne IDWI, Chief Engineer
/10/ Hrygoriy Yusko – Saky IDWI, Head of Department
/11/ Dmytro Paderno – Institute of Engineering Ecology, Deputy Director

1. o0o -

APPENDIX A: DETERMINATION PROTOCOL

Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
General description of the project				
Title of the project				
-	Is the title of the project presented?	The title of project is "Greenhouse gas emission reduction due to modernization of objects of the AR Crimea water complex and the North-Crimean canal"	OK	OK
-	Is the sectoral scope to which the project pertains presented?	1. Energy industries (renewable-/non renewable sources) 3. Energy demand	OK	OK
-	Is the current version number of the document presented?	The current PDD version is 03	OK	OK
-	Is the date when the document was completed presented?	The PDD version 03 dated 05/04/2013	OK	OK
Description of the project				
-	Is the purpose of the project included with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	The purpose of project is reduction of GHG emission by modernization of pumping and boiler equipment, canal and pipe networks rehabilitation, installation of new frequency controllers and measuring devices, solar modules etc. a) Situation existing prior to the project starting date. Technical policy of Crimean DWIs consists in keeping project equipment in working b) Baseline scenario consists in continuation of existing situation c) Project scenario – list of project measures which can be implemented is provided in the section A.2 *CAR01* Please correct section A.2 of the PDD that it doesn't exceed	CAR01	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Is the history of the project (incl. its JI component) briefly summarized?	The project history is briefly summarised in the section A.2	OK	OK
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	The Krasnoperekopsk DWI from Ukraine and Imex Energo, Sp. z o.o. from Poland are listed as project participants *CL01* The Krasnoperekopsk DWI is indicated as the project participant. The PDD contains list of all Crimean DWI, which is indicated as a places of project implementation. Please clarify relations between Krasnoperekopsk DWI and another entities	CL01	OK
-	Is the data of the project participants presented in tabular format?	The data of the project participants are presented in the tabular format	OK	OK
-	Is contact information provided in Annex 1 of the PDD?	The data on project participants are provided in the Annex 1 of the PDD	OK	OK
-	Is it indicated, if it is the case, if the Party involved is a host Party?	The Host Party is not the Party Involved	OK	OK
Technical description of the project				
Location of the project				
-	Host Party(ies)	Ukraine	OK	OK
-	Region/State/Province etc.	Autonomous Republic Crimea	OK	OK
-	City/Town/Community etc.	The objects of project implementation are situated at whole Crimean territory	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	The data of project objects location is provided in the section A.4.1.4	OK	OK
Technologies to be employed, or measures, operations or actions to be implemented by the project				
-	Are the technology(ies) to be employed, or measures, operations or actions to be implemented by the project, including all	The technologies has been employed are listed in the section A.4.2 of the PDD	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	relevant technical data and the implementation schedule described?			
Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances				
-	Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	The project measures will increase energy efficiency of the state irrigation system AR Crimea State complex, to supply the same water amount with lower energy consumption	OK	OK
-	Is it provided the estimation of emission reductions over the crediting period?	The estimations of the emission reductions are 260 411 tonnes of CO_2 equivalent during the 01/01/2008-31/12/2012, 827 654 tonnes of CO_2 equivalent during the 01/01/2013-31/12/2020, 2 484 760 tonnes of CO_2 equivalent during the 01/01/2021-31/12/2040	OK	OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO2e?	The estimated annual reductions for the chosen crediting period is provided in tCO_2 equivalent	OK	OK
-	Are the data from questions above presented in tabular format?	The data on questions above are provided in the tabular format	OK	OK
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	The length of crediting period from 01/01/2008-31/12/2012 is indicated in 5 years or 60 months	OK	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	The estimates of total, the annual and average annual emission reductions are provided in tonnes of CO_2 equivalent	OK	OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	*CAR02* Please provide written approvals from the DFPs of both Parties Involved	CAR02	Pending
19	Does the PDD identify at least the host Party as a "Party involved"?	The PDD identifies the Host Party as Party involved	OK	OK
19	Has the DFP of the host Party issued a written project approval?	See section 19 of this protocol	-	-
20	Are all the written project approvals by Parties	See section 19 of this protocol	-	-

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	involved unconditional?			
Authorization of project participants by Parties involved				
21	Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through: − A written project approval by a Party involved, explicitly indicating the name of the legal entity? or − Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?	The authorisation of legal entities, which was indicated as project participants will be provided by Project written approvals, issued by DFPs of Parties involved. Also, see section 19 of this Protocol	Pending	Pending
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline? − JI specific approach − Approved CDM methodology approach	The PDD states that JI specific approach was used for baseline identification	OK	OK
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	The PDD provides a detailed theoretical information in a complete and transparent manner	OK	OK
23	Does the PDD provide justification that the baseline is established: (a) By listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one? (b) Taking into account relevant national and/or sectoral policies and circumstance? − Are key factors that affect a baseline taken into account?	The PDD provides justification of the established baseline: (a) By listing and describing three plausible future scenarios, based on conservative assumptions and selecting the most plausible one (b) Taking into account relevant national and sectoral policies and circumstances (c) In transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors (d) Taking into account the uncertainties and using	CAR03 CAR04	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, date sources and key factors? (d) Taking into account of uncertainties and using conservative assumptions? (e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure? (f) By drawing on the list of standard variables contained in appendix B to "Guidance on criteria for baseline setting and monitoring", as appropriate?	conservative assumptions (e) In such way that ERUs cannot be earned for decreases in activity levels outside the project or force majeure (f) By drawing on the list of standard variables contained in tha Appendix B to "Guidance on criteria for baseline setting and monitoring" *CAR03* CDM methodology AM0020 doesn't assume deterioration of pumping equipment during the base period and period of ERUs generation, so proposed lowering of equipment characteristics is not conservative. Also, calculations of base period for 2004-2007 years are based on deterioration coefficients, without real data from project object, and cannot be considered as conservative. In another way please clearly describe elaboration of the next values: - Lowering coefficient 2.5% for main pumping equipment - Lowering coefficient 0.5% for heat generating equipment - Lower border of this coefficient (in another words – when abovementioned equipment degradation will be stopped) *CAR04* Please add in the section B.1 formulae described baseline calculations		
24	If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements or combinations together with the elements	There are no selected elements of approved CDM methodologies	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	supplementary developed by the project participants in line with 23 above?			
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	The emission factors used for calculations are in line within National GHG Inventory Report for 1990-2010 years *CAR05* Please provide reference on emission factors values and sources in the section B.1	CAR05	OK
Approved CDM methodology approach only_Paragraphs 26(a) – 26(d)_Not applicable				
Additionality				
JI specific approach only				
28	Does the PDD indicate which of the following approaches for demonstrating additionality is used? (a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; (c) Application of the most recent version of the "Tool for the demonstration and assessment of additionality. (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board".	The PDD indicates that approach (c) Application of the most recent version of the "Tool for the demonstration and assessment of additionality" (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board was used for additionality demonstration	OK	OK
29 (a)	Does the PDD provide a justification of the	The PDD provides a justification of the approach applied with	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	applicability of the approach with a clear and transparent description?	clear and transparent description		
29 (b)	Are additionality proofs provided?	The additionality proofs are provided	OK	OK
29 (c)	Is the additionality demonstrated appropriately as a result?	The additionality was demonstrated appropriately		
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	The "Tool for the demonstration and assessment of additionality" version 7.0.0 was correctly applied for additionality demonstration	OK	OK
Approved CDM methodology approach only_ Paragraphs 31(a) – 31(e)_Not applicable				
Project boundary (applicable except for JI LULUCF projects				
JI specific approach only				
32 (a)	Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?	The PDD describes project boundaries encompassing all anthropogenic emission sources of GHGs, which are: (i) Under control of the project participants, such as boiler and pumping equipment, water and heat pipelines (ii) Reasonable attributable to the project (iii) Significant	OK	OK
32 (b)	Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above?	*CAR06* Please include installed in project frames solar modules in the project boundaries	CAR06	OK
32 (c)	Are the delineation of the project boundary and the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	The delineation of the project boundary and the gases and sources included are appropriately described and justified in the PDD by using a figures B.2, B.3 in the section B.3	OK	OK
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified?	The all gases and sources inclusion are explicitly stated and the exclusion of gases and sources to the baseline and project are appropriately justified	OK	OK
Approved CDM methodology approach only_Paragraph 33_ Not applicable				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began?	The PDD states the starting date of the project activity as 20/04/2004, as the date when decision of JI project implementation was accepted	OK	OK
34 (a)	Is the starting date after the beginning of 2000?	The 20/04/2004 is after the beginning of 2000	OK	OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	The PDD states the project operation lifetime in 36 years and 8 months or 440 months from 01/05/2004 till 31/12/2040	OK	OK
34 (c)	Does the PDD state the length of the crediting period in years and months?	The PDD states the length of crediting period in 13 years (156 months)	OK	OK
34 (c)	Is the starting date of the crediting period on or after the date of the first emission reductions or enhancements of net removals generated by the project?	The crediting period starting date 01/01/2008 is after the date when the first emission reductions were generated	OK	OK
34 (d)	Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project?	The PDD states that the crediting period for ERUs generation starts after the 2008 beginning and doesn't extend beyond the project operation lifetime	OK	OK
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of emission reductions or enhancements of net removals presented separately for those until 2012 and those after 2012?	PDD states that the project crediting period may be extended after the 2012 in case of the Host Party approval	OK	OK
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? − JI specific approach − Approved CDM methodology approach	The PDD states that the JI specific approach was used	OK	OK
JI specific approach only				
36 (a)	Does the monitoring plan describe:	The monitoring plan describes all relevant factors and key	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	− All relevant factors and key characteristics that will be monitored? − The period in which they will be monitored? − All decisive factors for the control and reporting of project performance?	characteristics that will be monitored, such as quantities of consumed fuel and electricity, pumped water. These relevant factors are monitored on yearly basis		
36 (b)	Does the monitoring plan specify the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	The monitoring plan specifies the indicators, constants and variables, that are reliable and provide transparent picture of the emission reductions	OK	OK
36 (b)	If default values are used: − Are accuracy and reasonableness carefully balanced in their selection? − Do the default values originate from recognized sources? − Are the default values supported by statistical analyses providing reasonable confidence levels? − Are the default values presented in a transparent manner?	Monitoring plan uses carbon emission factors as default values. Values of carbon emission factors are in line within the National GHG Inventory Report, which is approved by national DFP	OK	OK
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	The monitoring plan provides justification of provided by project participants values selections	OK	OK
36 (b) (ii)	For other values, − Does the monitoring plan clearly indicate the precise references from which these values are taken? − Is the conservativeness of the values provided justified?	The monitoring plan provides sources for all data used	OK	OK
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if	*CAR07* Please provide descriptions of the procedures followed if	CAR07	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	expected data are unavailable?	expected data are unavailable		
36 (b) (iv)	Are International System Unit (SI units) used?	Some units of International System Unit (SI units) are used	OK	OK
36 (b) (v)	Does the monitoring plan note any parameters, coefficients, variables, etc. that are used to calculate baseline emissions or net removals but are obtained through monitoring?	The monitoring plan uses some parameters that used for baseline calculations but are obtained through monitoring	OK	OK
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	Usage of parameters, coefficients, variables is consistent between the baseline and the monitoring plan	OK	OK
36 (c)	Does the monitoring plan draw on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring"?	The monitoring plan was drawn on in line with appendix B of "Guidance on criteria for baseline setting and monitoring"	OK	OK
36 (d)	Does the monitoring plan explicitly and clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored throughout the crediting period?	The monitoring plan are clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination (iii) Data and parameters that are monitored throughout the crediting period	OK	OK
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	*CL02* Please clarify source of dynamic electricity consumption in the section 3 of the table D.1.1.3 and more detailed data sources in the sections 4 and 5 of the table D.1.1.3	CL02	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (f)	Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate?	The monitoring plan elaborates all formulae used for calculation of baseline and project emissions in appropriate way	OK	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	The underlying rationale of the formulae are explained	OK	OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	The variables, equation formats, subscripts are consistent throughout the PDD	OK	OK
36 (f) (iii)	Are all equations numbered?	All equations are numbered	OK	OK
36 (f) (iv)	Are all variables, with units indicated defined?	Yes, all variables with units are defined	OK	OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	The conservativeness of the proposed algorithms are justified	OK	OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	Yes.	OK	OK
36 (f) (vi)	Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline ensured?	The consistency between the elaboration of the baseline scenario and procedure of baseline emissions calculations is ensured	OK	OK
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	All parts of algorithms that are not self-evident is explained	OK	OK
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	The monitoring procedures in routine for Ukrainian Industry at all	OK	OK
36 (f) (vii)	Are references provided as necessary?	Necessary references are provided	OK	OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	The implicit and explicit key assumptions are explained in transparent manner	OK	OK
36 (f) (vii)	Is it clearly stated which assumptions and procedures have significant uncertainty	Section D.2 of the PDD states that monitoring procedures and parameters have low level of uncertainty	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	associated with them, and how such uncertainty is to be addressed?			
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?	Section D.2 of the PDD states that monitoring procedures and parameters have low level of uncertainty	OK	OK
36 (g)	Does the monitoring plan identify a national or international monitoring standard if such standard has to be and/or is applied to certain aspects of the project? Does the monitoring plan provide a reference as to where a detailed description of the standard can be found?	The monitoring plan is a part of routine monitoring, provided by actual Ukraine industry rules	OK	OK
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	The statistical techniques are not used in this project	OK	OK
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	The quality control and quality assurance procedures for monitoring process are provided in the section D.2 of the PDD	OK	OK
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	Annex 3 of the PDD clearly identify the responsibilities and the authorities regarding the monitoring activities	OK	OK
36 (k)	Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? If it is a JI LULUCF project, is the good practice guidance developed by IPCC applied?	The elements of monitoring plan is similar with monitoring plan of implemented in Ukraine at PJSC “Infoxvodocanal” and JSC “Chernigivteplocomunenergo” JI projects	OK	OK
36 (l)	Does the monitoring plan provide, in tabular	The monitoring plan provides in tabular form a complete	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources but not including data that are calculated with equations?	compilation of monitored data but not including data that are calculated with equations		
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project?	The monitoring plan indicates in the section D.1.5 that the data monitored and required for ERUs calculations will be kept two years after the last ERUs transfer	OK	OK
37	If selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants in line with 36 above?	Selected elements of approved CDM methodology AM0020 were used in appropriate way	OK	OK
Approved CDM methodology approach only_Paragraphs 38(a) – 38(d)_Not applicable				
Applicable to both JI specific approach and approved CDM methodology approach_Paragraph 39_Not applicable				
Leakage				
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?	The PDD states that the project activity doesn't associate with on-site transportation of fuel, electric energy or another energy resources	OK	OK
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	See section 40(a) of this protocol	OK	OK
Approved CDM methodology approach only_Paragraph 41_Not applicable				
Estimation of emission reductions or enhancements of net removals				
42	Does the PDD indicate which of the following approaches it chooses?	The PDD indicates that the approach (a) assessment of emissions in the baseline scenario and in the project	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions	scenario		
43	If the approach (a) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emissions or net removals for the project scenario (within the project boundary)? (b) Leakage, as applicable? (c) Emissions or net removals for the baseline scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?	The PDD provides estimates of: a) Estimations of the project scenario, which is 881 292 tCO_2e for 01/01/2008-31/12/2012, 1 684 598 tCO_2e for 01/01/2013-31/12/2020, and 4 210 860 tCO_2e for period 01/01/2021-31/12/2040 b) Leakages, which are absent c) Estimations of baseline scenario, which is 1 141 703 tCO_2e for 01/01/2008-31/12/2012, 2 512 252 tCO_2e for 01/01/2013-31/12/2020, 6 695 620 tCO_2e for 01/01/2021-31/12/2040 d) Emission reductions, adjusted by leakages, which is 260 411 tCO_2e for 01/01/2008-31/12/2008, 827 654 tCO_2e for 01/01/2013-31/12/2020, 2 484 760 tCO_2e for 01/01/2021-31/12/2040	OK	OK
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emission reductions or enhancements of net removals (within the project boundary)? (b) Leakage, as applicable? (c) Emission reductions or enhancements of net removals adjusted by leakage?	The approach 42(a) was chosen	OK	OK
45	For both approaches in 42 (a) Are the estimates in 43 or 44 given: (i) On a periodic basis? (ii) At least from the beginning until the end of the crediting period? (iii) On a source-by-source/sink-by-sink basis?	The estimates are provided: (a) (i) on yearly basis (ii) from the 01/01/2008 till 31/12/2040 (iii) on a source-by-source/sink-by-sink basis (iv) for each GHG which is CO2 (v) in tonnes of CO2 equivalent (b) The formulae used for the estimate calculations are	CAR08	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(iv) For each GHG? (v) In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol? (b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD? (c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as appropriate? (d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent? (e) Are emission factors (including default emission factors) if used for calculating the estimates in 43 or 44 selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice? (f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner? (g) Are the estimates in 43 or 44 consistent throughout the PDD? (h) Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or	consistent throughout the PDD (c) The key factors influencing the baseline emissions and the activity (d) The data sources used for estimates calculations are clearly identified, reliable and transparent (e) The emission factors used for estimates calculations are used by carefully balancing accuracy and reasonableness and the choice of them are appropriately justified (f) The estimations in the section E of the PDD and in the section 43 of this report are based on conservative assumptions and the most plausible scenarios in a transparent manner (g) The estimates in the 43 are consistent throughout the PDD (h) The annual average of estimated emission reductions is calculated by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve *CAR08* Please add annual average values of emission reductions for periods 2008-2012, 2013-2020, 2021-2040 in the section E.6 of the PDD		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
46	If the calculation of the baseline emissions or net removals is to be performed ex post, does the PDD include an illustrative ex ante emissions or net removals calculation?	The calculations for 2008-2012 are provided ex post. PDD contains ex ante calculations for 2013-2040 years	OK	OK
Approved CDM methodology approach only_Paragraphs 47(a) – 47(b)_Not applicable				
Environmental impacts				
48 (a)	Does the PDD list and attach documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	The PDD lists the documentation on the project environment impact analysis, including transboudary impact analysis, in accordance with the required Ukrainian procedure.	OK	OK
48 (b)	If the analysis in 48 (a) indicates that the environmental impacts are considered significant by the project participants or the host Party, does the PDD provide conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party?	Provided analysis indicates that project environmental impacts is considered as insignificant and proposed project will have positive impact on environmental.	OK	OK
Stakeholder consultation				
49	If stakeholder consultation was undertaken in accordance with the procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom comments on the projects have been received, if any? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?	Actual Ukraine legislation doesn't required stakeholders consultations for JI projects. Proposed project was presented to the local authorities and stakeholders by the project owners. Comments were not obtained and will be collected during the determination process	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Determination regarding small-scale projects (additional elements for assessment)_Paragraphs 50 - 57_Not applicable				
Determination regarding land use, land-use change and forestry projects _Paragraphs 58 – 64(d)_Not applicable				
Determination regarding programmes of activities_Paragraphs 66 – 73_Not applicable				

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
CAR01 Please correct section a.2 of the PDD that it doesn't exceed two pages	-	This is corrected in PDD version 03.	The issue is closed
CAR02 Please provide written approvals from the DFPs of both Parties Involved	19	According to the approved procedures, the written approval from the DFP of the Host Party will be issued after submission of the determination report to it. The written approval from the DFP of the second involved Party will be issued after submission of information on the determination report to it.	Pending

CAR03 CDM methodology AM0020 doesn't assume deterioration of pumping equipment during the base period and period of ERUs generation, so proposed lowering of equipment characteristics is not conservative. Also, calculations of base period for 2004-2007 years are based on deterioration coefficients, without real data from project object, and cannot be considered as concervative. In another way please clearly describe elaboration of the next values: - Lowering coefficient 2.5% for main pumping equipment - Lowering coefficient 0.5% for heat generating equipment - Lower border of this coefficient (in another words – when abovementioned equipment degradation will be stopped)	23	For heat generating equipment (boilers) the efficiency reduction, as assessed in regulatory documents ["Interbranch Norms of fuel consumption for heating boilers operating in Ukraine", Kyiv, 2001; - *http://budstandart.ua/read/document_body/id/3091126*], in case of proper current technical maintenance of this equipment ranges from 0.19% (for large KVGM type boilers) to 0.44% (for majority of 0.5 – 3.15 MW boilers) per year. The Crimean WIDs for their own needs operate small boilers of 0.05 – 0.5 MW, for which the efficiency reduction is even larger. The routine maintenance of heat generating equipment is not performed at the appropriate level in Ukraine, and therefore it is obvious that the real decreasing of the efficiency is much more, and in general can be over 1% per year for heat supply systems including boilers and networks. According to the conservative approach, the baseline was constructed based on the average efficiency decreasing of the heating equipment at 0.5% per year. Such specific approach was already used in a number of the already determined and registered JI projects ("Rehabilitation of the Heat and Water Supply Systems in	The issue is closed

		Vinnytsia Region", "Rehabilitation of the Heat and Water Supply Systems in Lutsk city" etc.). For pump equipment such reduction of efficiency is not defined in the regulations, however since this equipment includes moving and rotary parts, its wear and corresponding efficiency reduction should be more that for static equipment such as boilers. In a number of the already determined and registered JI projects (**"**Development and improvement of water supply system, drainage system and wastewater treatment of "Infox Ltd." branch of "Infoxvodokanal"**,** **"**Development and Improvement of Water Supply System, Drainage System and Wastewater Treatment of City Communal Enterprise "Mykolayivvodokanal"", as well as several JI projects on Rehabilitation of HPPs, etc.), the JI specific approach based on historical data linearized with the least main squares method was used for baseline setting. Application of the above specific approach in this project has led for different WIDs to the values of the efficiency reduction coefficient in a range of 2.5 to 10.5 % per year.	

		According to the Resolution of the Supreme Council of the AR Crimea "On the program of water complex development of the AR Crimea till 2015» № 1121-4/04 dated 17.11.2004, in comparison with 1990 the volume of water used in the Crimea decreased by 61 percent, while the volume of water losses during its transport actually has not changed, as a result of physical deterioration of inter-farm and farm irrigation networks as a whole. Recalculation of this information in terms of the efficiency reduction coefficient has led to its value of in average 2.7 % per year. Thus, according to the conservative approach, the baseline was constructed based on the average efficiency decreasing of the main pumping equipment at the lowest value from these data seemed reasonable – that is 2.5% per year. As to the limit of the abovementioned equipment degradation:	

		As it is stated in the abovementioned registered JI projects "Development and improvement of water supply system, drainage system and wastewater treatment of "Infox Ltd." branch of "Infoxvodokanal", etc., “Based on the opinion of leading specialists of the Ukrainian Water Association, where it is stated that when the efficiency of the pumping plant is lower than 50% the use of electric energy and water pumping becomes irrational, and thus, it is a lowest level of pumping plant operation, which must be constantly maintained and modernized. Thus, when efficiency of a pumping plant decreases to 49%, linear increase in the baseline specific rate of electric energy consumption will be stopped and fixed until the end of the calculation of greenhouse gas emissions on condition of carrying out of routine and capital repairs at pumping plants...”.	

		With taking into account that efficiency of the new pumps is typically 90-92%, the time interval for efficiency degradation is 16-17 years. With starting of the project activity in 2004-2006 for different WIDs, this time interval will be depleted in 2020-2023. According to the conservative approach, the shortest - 2020 - is taken, that therewith coincides with the end of the second Kyoto commitment period For heating equipment such time interval for efficiency degradation is much longer, but according to the conservative approach the same one - 2020 - is taken.	
CAR04 Please add in the section B.1 formulae described baseline calculations	23	The formulae describing baseline calculations are presented in details in Section D.1.1.; this is specially pointed out in Section B.1 of PDD version 03. Adding of these formulae in Section B.1 would need also the detailed description; however both the formulae and such description are provided in Section D.1.1., thus the complete doubling seems be inexpedient.	The issue is closed
CAR05 Please provide reference on emission factors values and sources in the section B.1	25	Emission factors values for the base year are not referenced in the section B.1 since they are not used in further calculations	The issue is closed

CAR06 Please include installed in project frames solar modules in the project boundaries	32(a)	Installation of the alternative energy sources (solar and wind energy units) is included into the project boundaries in Section B.3 of the PDD version 03.	The issue is closed
CAR07 Please provide descriptions of the procedures followed if expected data are unavailable	36 (b) (iii)	Descriptions of the procedures followed if expected data are unavailable are provided in Section D.1 at page 37 of the PDD.	The issue is closed
CAR08 Please add annual average values of emission reductions for periods 2008-2012, 2013-2020, 2021-2040 in the section E.6 of the PDD	45	This information is added in section E.5 of the PDD version 03.	The issue is closed
CL01 The Krasnoperekopsk DWI is indicated as the project participant. The PDD contains list of all Crimean DWI, which is indicated as a places of project implementation. Please clarify relations between Krasnoperekopsk DWI and another entities	-	Krasnoperekopsk DWI acts as Project Applicant and Supplier of GHG emission reductions on behalf of all involved Crimean DWIs – participants of the Agreement on Cooperation and Joint Activity No. 01/2012 dated 27.07.2012. Copy of this Agreement is provided to AIE.	The issue is closed
CL02 Please clarify source of dynamic electricity consumption in the section 3 of the table D.1.1.3 and more detailed data sources in the sections 4 and 5 of the table D.1.1.3	36(e)	This is clarified in PDD version 03.	The issue is closed