Annex 4

ПРОТОКОЛ О НАМЕРЕНИЯХ

Между АНО «Центр экологических инвестиций» и ОАО «Архангельский ЦБК» по вопросам реализации проектов, направленных на сокращение выбросов парниковых газов, с использованием механизмов Киотского протокола

г.Новодвинск Архангельской области 1 февраля 2000 г.

Присутствовали:
от ОАО «Архангельский ЦБК» (АЦБК) – В.И. Белоглазов, Генеральный директор, и Т.В. Соболева, Начальник отдела экологии

от АНО «Центр экологических инвестиций» (ЦЭИ) – М.А. Юлкин, Директор, и Н.Н. Сафонова, Управляющий делами

Тема переговоров: Сотрудничество АЦБК и ЦЭИ в сфере подготовки и реализации инвестиционных проектов с использованием механизмов Киотского протокола.

Результаты переговоров:

Принимая во внимание, что

а) в 1998 г. Российская Федерация подписала Киотский протокол к Рамочной Конвенции ООН об изменении климата (РКИК), который устанавливает для стран Приложения 1 РКИК ограничения на выбросы парниковых газов на период с 2008 по 2012 г.г., а также механизмы для достижения указанных ограничений, в том числе через совместное осуществление проектов по сокращению выбросов парниковых газов (статья 6);

б) по заявлениям официальных лиц, Российская Федерация намерена в самое ближайшее время ратифицировать Киотский протокол и кроме того, разработать правовые и организационные механизмы для его практической реализации в России;

в) Архангельская область и, в частности, АЦБК имеют значительный потенциал для сокращения выбросов парниковых газов за счет энергосбережения и использования местного биотоплива (прежде всего – древесных отходов от лесозаготовки, лесопиления и производства целлюлозно-бумажной продукции), что позволяет привлекать дополнительные средства в рамках Киотского протокола для реализации соответствующих инвестиционных проектов;

г) АЦБК и ЦЭИ имеют многолетний успешный опыт сотрудничества в подготовке и реализации высокоэффективных природоохранных проектов, в том числе по линии Российской программы *организации инвестиций в оздоровление окружающей среды (РПОИ)*;

АЦБК и ЦЭИ договорились о нижеследующем:

1. АЦБК и ЦЭИ выражают намерение активно сотрудничать с целью подготовки и реализации инвестиционных проектов, направленных на сокращение выбросов парниковых газов, с использованием механизмов Киотского протокола;

2. ЦЭИ произведет оценку предлагаемых к реализации на АЦБК инвестиционных проектов с целью определения их влияния на выбросы парниковых газов и, где это практически возможно, подготовит рекомендации по их оформлению в качестве проектов совместного осуществления согласно статье 6 Киотского протокола;

3. АЦБК до конца 2000 г. произведет реконструкцию котла №2 в ТЭС-3 с целью сжигания кородревесных отходов в кипящем слое в качестве первого этапа утилизации образующихся на комбинате отходов биомассы и сокращения выбросов парниковых газов;

4. ЦЭИ выполнит оценку ожидаемых сокращений выбросов парниковых газов от реализации указанного в п.3 проекта и предпримет по согласованию с АЦБК необходимые шаги для оформления данного проекта в качестве проекта совместного осуществления по статье 6 Киотского протокола, имея в виду привлечение средств заинтересованных иностранных инвесторов в качестве источника финансирования проекта или в качестве дополнительного дохода с целью повышения окупаемости проекта и снижения рисков;

5. ЦЭИ окажет АЦБК необходимую методическую и практическую помощь в проведении инвентаризации выбросов парниковых газов, начиная с 1990 г., а также в мониторинге достигнутых фактических сокращений выбросов парниковых газов в результате реализации проектов, в том числе проекта, указанного в п.3 настоящего протокола.

Подписи участников:

от ОАО «Архангельский ЦБК»

Генеральный директор

В.И.Белославов

Начальник Отдела экологии

Т.В.Соболева

от АНО «Центр экологических инвестиций»

Директор

М.А. Юлкин

Управляющий делами

Н.Н.Сафонова

PROTOCOL OF INTENTIONS

Between local non-profit organization "Environmental Investment Center" and OJSC "Arkhangelsk PPM" regarding implementation of projects aimed at greenhouse gases emissions reduction under the mechanisms of the Kyoto Protocol

Novodvinsk, Arkhangelsk region 1st February 2000

Sederunt:
from OJSC "Arkhangelsk PPM" (APPM) – V.I.Beloglazov, General Director, and T.V.Soboleva, Head of Environmental Department

from "Environmental Investment Center" (EIC) – M.A.Yulkin, Director, and N.N.Safonova, Managing Director

Subject of negotiations: Cooperation of APPM and EIC regarding preparation and implementation of investment projects under the mechanisms of the Kyoto Protocol.

Results of negotiations:

Whereas,

a) Russian Federation signed the Kyoto protocol to the United Nations Framework Convention on Climate Change (FCCC) which established limitations for countries listed in Annex I of FCCC for the period from 2008 to 2012 as well as mechanisms to achieve the above mentioned limitations including Joint Implementation Projects on greenhouse gases emissions reduction (Article 6);

b) According to the statements of official establishment Russian Federation plans to ratify the Kyoto Protocol in the nearest future together with development of legal and organizational mechanisms for its practical realization in Russia;

c) The Arkhangelsk region and APPM in particular have a significant potential for greenhouse gases emissions reduction owing to saving energy and local fuel consumption (first of all – wood waste from lumbering, sawing and production of pulp and paper products) that allow to attract additional means under the Kyoto protocol for implementation of the corresponding investment projects;

d) APPM and EIC have successful long-term experience of cooperation in preparation and implementation of highly efficient environmental projects including through National Pollution Abatement Facility (NPAF);

APPM and EIC have agreed on the following:

1. APPM and EIC intend to perform active cooperation for preparation and implementation of investment projects on greenhouse gases emissions reduction under the mechanisms of the Kyoto protocol;
2. EIC will estimate the projects proposed for implementation at APPM to determine their impact on greenhouse gases emissions and will prepare recommendations on their design as Joint Implementation Projects according to Article 6 of the Kyoto protocol where it is practically possible;

3. Till the end of 2000 APPM will reconstruct boiler #2 in TPP-3 for BWW waste combustion in the fluidized bed as the first stage of utilization of the biomass waste produced at the enterprise and GHG emissions reduction;
4. EIC will estimate the predicted GHG emissions reductions resulting from the implementation of the project specified in Item 3 and will make reasonable steps agreed with APPM to register this project as Joint Implementation Project under Article 6 of the Kyoto Protocol stipulating for attraction of interested foreign investors' capital as the source of project financing or as additional income to increase the payback of the project and to decrease risks;
5. EIC will provide APPM with necessary methodical and practical support in performing the GHG emissions inventory beginning from 1990 and in monitoring of achieved actual GHG emissions reductions as a result of projects implementation including the project mentioned in Item 3 of this Protocol.

Signatures of the participants:

OJSC "Arkhangelsk PPM"	ANO "Environmental Investment Center"
General Director	Director
_____V.I.Beloglazov	_____M.A.Yulkin
Head of Environmental Department	Managing Director
_____T.V.Soboleva	_____ N.N.Safonova

Annex 5

RUSSIAN FEDERATION

ENVIRONMENTAL MANAGEMENT PROJECT

NATIONAL POLLUTION ABATEMENT FACILITY

INVESTMENT PROJECT APPRAISAL REPORT

"REDUCTION OF ENERGY CONSUMPTION AT CARDBOARD PRODUCTION AND UTILIZATION OF BARK-WOOD WASTE FROM THE BLEACHED DECIDUOUS PULP LINE AT OJSC "ARKHANGELSK PPM"

Novodvinsk, Arkhangelsk Oblast

Code – TPP 11

Moscow, 2001

FOREWORD

The present Report has been made by the Executive Directorate (ED) of the National Pollution Abatement Facility (NPAF) on the basis of the appraisal results of the Investment Project (IP) **"Reduction of energy consumption at cardboard production and utilization of bark-wood waste from the bleached deciduous pulp line at OJSC "Arkhangelsk PPM"** (Project Code – TPP 11) during appraisal mission to the enterprise-applicant on July 26-27, 2001 (Attachment 1.1).

At preparation of the Appraisal report, the following data were used:

- NPAF Sub-Loan Application for implementation of IP "Reconstruction of press section of KDM-1, bark boiler KM-75-40 of HPP-3 and bark-preparation unit of WPS-3 at OJSC "Arkhangelsk PPM" for the purpose of reduction of adverse environmental impact", 2001;
- Substantiation of Investment Project "Reconstruction of press section of KDM-1, bark boiler KM-75-40 of HPP-3 and bark-preparation unit of WPS-3 at OJSC "Arkhangelsk PPM" for the purpose of reduction of adverse environmental impact", 2001;
- Environmental Impact Statement on Investment Project «Utilization of bark-wood wastes and reduction of energy consumption at cardboard production at OJSC "Arkhangelsk PPM", 2001;
- Other materials made available to the Appraisal Mission (Attachment 1.2), as well as verbal information got by the mission members during negotiations with representatives of state authorities (Attachment 1.3).

The objectives of the Appraisal Mission realization and the Appraisal Report preparation were:

- Specification of initial data and verification of the results of studies for IP Substantiation and Environmental Impact Statement;
- Elaboration of recommendations for the development of design documentation and formulation of major requirements, which fulfillment is necessary for further progress of the Project;
- Determination of basic financial terms and conditions of NPAF Sub-Loan Agreement;
- Determination of basic environmental conditions of the IP Implementation Agreement;
- Elaboration of recommendations for the NPAF Supervisory Board and IBRD on approval and financing the IP.

SUMMARY

Investment Project Title:	**"Reduction of energy consumption at cardboard production and utilization of bark-wood waste from the bleached deciduous pulp line at OJSC "Arkhangelsk PPM"**
Sub-Borrower	Vnesheconombank
Final Borrower	OJSC "Arkhangelsk Pulp-and-Paper Mill"
Branch	Pulp-and-Paper Industry
Brief description of the Investment Project and its benefits	IP envisages the perfection of technological process at cardboard plant (KDM-1), in the bark boiler-house of HPP-3 (boiler KM-75-40) and on bark preparation unit of WPS-3. As a result of IP implementation, use of coal will be reduced by 10.930 t/year and black oil by 38.239 t/year; in the bleached deciduous cellulose line, 300 thousand bark-wood waste will be utilized; air emissions of polluting substances will decrease by 2817,28 t/year and greenhouse gas emissions (CO_2) by 132.773 t/year.
Investment Project implementation period	18 months
Total Project investment costs	17.152 thousand USD

FINANCIAL PLAN, thousand USD

##	Article of costs	Total	NPAF Loan	OJSC "Arkhangelsk PPM"
1	Designing and management of the Project	125,0	-	125,0
2	Equipment	11.383,0	5.225,0	6.158,0
3	Civil and erection works	2.226,0	1.659,0	567,0
4	VAT and import duties	3.418,0	-	3.418,0
	Total	**17.152,0**	**6.884,0**	**10.268,0**

Investment Project Concept

4. The IP Concept consists in procurement of equipment and services for:
   - Reconstruction of KDM-1, which will allow to reduce power and chemicals consumption for cardboard production;
   - Modernization of boiler KM-75-40 at HPP-3 with organization of effective burning of BWW on the fluidized bed, which will enable to completely recycle all BWW formed in WPS-3 and will raise the boiler efficiency;
   - Reconstruction of bark preparation unit in WPS-3 to decrease humidity and to increase the calorific value of BWW.

Investment Project Implementation Objectives

5. The IP implementation objectives are:
   - Recycling of BWW;
   - Reduction of coal and black oil share in the fuel balance of the Mill;
   - Reduction of air emissions of polluting substances;
   - Reduction of power consumption for cardboard production ;
   - Upgrading of out-of-date and worn out basic power and process equipment;
   - Creation of conditions for escalating volumes of cardboard production and increase of its quality without additional environmental load.

6. From the point of view of global environmental effects, the planned complex of technical actions at the OJSC "Arkhangelsk Pulp-and-Paper Mill" may be attributed to the category of measures directed on reduction of greenhouse gas emission and corresponding to the fulfillment of commitments on reduction of the level of greenhouse gas emissions by advanced countries and countries with economy in transition according to the Kyoto Protocol to the UN Framework Convention on Climate Change.

Participants and Organizational and Financial Scheme of IP Implementation

7. The participants of IP implementation are:
   (1) Vnesheconombank, supposing to receive the NPAF Sub-Loan at a rate of 6.884 thousand USD from MOF for on-lending to the Final Borrower - OJSC "Arkhangelsk PPM";
   (2) OJSC "Arkhangelsk PPM" - the Final Borrower responsible for preparation of IP Substantiation, IP implementation and operation of investment objects;
   (3) Suppliers of equipment and construction organizations, selected according to IBRR requirements.

Administrative Support of the Investment Project

8. The IP implementation is supported by the Novodvinsk City and Arkhangelsk Oblast Administrations. The IP Substantiation and Environmental Impact Assessments (EIA) were considered and approved by the Committee on Natural Resources of Arkhangelsk oblast (Attachment 1.4).

Annex 6

MEMORANDUM OF AGREEMENT

BETWEEN AND AMONG

ARCHANGELSK PULP AND PAPER MILL,

ENVIRONMENTAL INVESTMENT CENTER,

AND

ENVIRONMENTAL DEFENSE, INC.

This **MEMORANDUM OF AGREEMENT** is entered into on this 28 day of April 2003.

AMONG : ARCHANGELSK PULP AND PAPER MILL (APPM), having its head office at Novodvinsk, Archangelsk oblast, Russia,

ENVIRONMENTAL INVESTMENT CENTER (EIC), a non-profit organization, having its head office in Archangelsk, Russia,

AND : ENVIRONMENTAL DEFENSE, a non-profit environmental organization, incorporated in New York and having its head office at 257 Park Avenue South, New York City, New York, 10010, United States,

WHEREAS APPM desires to work jointly with ENVIRONMENTAL DEFENSE and EIC for the purpose of designing and implementing, for the benefit of APPM, a pilot greenhouse gas ("GHG") emissions management program as further detailed in the Project Definition,

WHEREAS ENVIRONMENTAL DEFENSE possesses knowledge, expertise and professional competence in the management of GHG emissions and the design and use of emissions trading systems, and

WHEREAS EIC possesses knowledge, expertise and professional competence in conducting inventories of GHG emissions and environmental management;

NOW IT IS AGREED by the Parties hereto:

1. PREAMBLE AND SCHEDULE

The Preamble and Schedule A attached hereto shall form an integral part hereof.

2. DEFINITIONS

2.1. "APPM " shall include for the purpose of this Agreement, where applicable, any company in which APPM owns fifty percent (50%) or more of the voting shares.

2.2. "Information" shall mean information of a technical, scientific or commercial nature, including data, documents, computer software and programs, technology, know-how, inventions, concepts, processes and samples, whether or not acquired through visits or discussions and whether or not covered by intellectual property rights, which is in the possession of or belonging to APPM and relating to estimates of APPM's historic emissions by country and oblast of operation, present emission levels, emissions quantification and estimation methodologies, emission sources, cost estimates of internal reduction options, and economic and financial data relating to the marketing of products arising from demonstration transactions.

2.3. "Project" shall mean the development of a private system for the limitation of APPM's global greenhouse gas emissions through the use of emissions trading as further defined in Schedule A attached hereto.

2.4. "Representatives" shall mean employees, directors, officers, experts, agents, advisors and representatives.

2.5. The "Working Group" shall mean the representatives designated by APPM, EIC and ENVIRONMENTAL DEFENSE to carry out the Project and whose functions are further defined in Schedule A attached hereto.

2.6. The "Parties" shall mean APPM, ENVIRONMENTAL DEFENSE and EIC.

3. SERVICES

3.1. APPM, EIC and ENVIRONMENTAL DEFENSE hereby jointly agree to perform such services as are required of each in carrying out the Project, with due diligence and to the best of their respective abilities.

3.2. Unless otherwise agreed to by the WORKING GROUP, services in carrying out the Project shall be performed only by the Parties and shall not be delegated or subcontracted, whether in whole or in part, to any other party.

4. UNDERTAKINGS AND DECLARATIONS

4.1. APPM, ENVIRONMENTAL DEFENSE, and EIC shall not be responsible or held liable for indirect, punitive, exemplary or consequential damages, including but not limited to loss of profit, loss of investment, loss of product or business interruption.

4.2. APPM assumes no responsibility to third parties for any claim or liability of whatever nature resulting from any act or omission in the performance of the services by ENVIRONMENTAL DEFENSE and its Representatives under this Agreement. ENVIRONMENTAL DEFENSE shall assume all risks related to the execution of its obligations under this Agreement and shall indemnify and hold harmless APPM from all liabilities, damages, claims and legal proceedings arising out of such execution or resulting from its acts or omissions or those of its Representatives.

4.3. ENVIRONMENTAL DEFENSE, APPM, and EIC each are responsible for their personal property as well as that of their Representatives including protection against any loss of property or for any damage caused to it. ENVIRONMENTAL DEFENSE , APPM, and EIC each agree not to make any claim against each other for any such theft or damage.

4.4. In the event any of the Project work is carried out at one of the premises of APPM, then ENVIRONMENTAL DEFENSE, EIC and their Representatives undertake to comply with any regulations governing the activities at such premises and with any other instructions or policies which may be established by APPM in relation to the Project from time to time.

4.5. APPM shall have complete access, without restriction and without unreasonable delay, to all experimental and other results and conclusions arising from the Project and ENVIRONMENTAL DEFENSE and EIC shall provide APPM with detailed progress reports on the Project at regular intervals to be agreed to with APPM.

5. CONFIDENTIALITY

5.1. ENVIRONMENTAL DEFENSE, EIC and APPM agree to keep all Information obtained hereunder (whether written or oral, and whether or not explicitly designated as confidential) as well as all information acquired or developed under this Agreement ("Confidential Information") in strict confidence and further agree not to disclose, directly or indirectly to any third party, nor to use, copy, evaluate or incorporate, within or outside of its business, any of the Confidential Information for any purpose other than that for which it is disclosed under this Agreement.

5.2. ENVIRONMENTAL DEFENSE, EIC, and APPM shall allow access to and disclose such Confidential Information only to those of their Representatives (i) who serve in the Working Group, (ii) who have been properly advised by ENVIRONMENTAL DEFENSE, EIC, or APPM of the confidential nature of the Confidential Information, and (iii) who undertake to comply with ENVIRONMENTAL DEFENSE's, EIC's and APPM's obligations of confidentiality, use and non-disclosure hereunder.

5.3. The obligations of confidentiality, use and non-disclosure referred to above shall not apply to Confidential Information (i) which is or comes legally into the public domain, (ii) which ENVIRONMENTAL DEFENSE, EIC, or APPM can

prove by documentation was previously known to ENVIRONMENTAL DEFENSE, EIC, or APPM, (iii) which is disclosed to ENVIRONMENTAL DEFENSE, EIC, or APPM by a third party who has the legal right to disclose same or (iv) which is required to be disclosed pursuant to any legal or regulatory requirement provided that ENVIRONMENTAL DEFENSE, EIC, or APPM notifies the others prior to disclosure so that each may seek any appropriate remedy.

5.4. Confidential Information is not or does not come within the public domain merely because features of the Confidential Information may be found separately or within a general disclosure in the public domain.

5.5. Within three (3) business days of ENVIRONMENTAL DEFENSE's, EIC's, or APPM's request, or immediately upon termination, ENVIRONMENTAL DEFENSE, EIC, and APPM shall return all Confidential Information and copies thereof as well as any work product incorporating or referring to the Confidential Information, regardless of the storage medium, which may be or have been in each Party's possession, or shall destroy same as instructed by ENVIRONMENTAL DEFENSE, EIC, or APPM and furnish satisfactory proof of destruction.

5.6. ENVIRONMENTAL DEFENSE, EIC, and APPM recognize that improper use of the Confidential Information disclosed hereunder shall cause irreparable damage and agree that ENVIRONMENTAL DEFENSE, EIC, or APPM may take any and all available legal action and shall be entitled to injunctive relief to prevent breaches of this Agreement.

5.7. These obligations of confidentiality shall survive the expiration or early termination of this Agreement for a period of ten (10) years.

6. PRESENTATIONS TO OTHER INTERESTED PARTIES AND PUBLIC RELATIONS

6.1. ENVIRONMENTAL DEFENSE, APPM and EIC agree to consider making periodic presentations on the status of their efforts under this agreement to representatives of other organizations potentially interested in its operation and findings including other companies, business and environmental organizations, and appropriate government authorities. Any such presentations shall be governed by the same obligations of confidentiality contained herein.

6.2. While this agreement remains in effect, neither ENVIRONMENTAL DEFENSE nor EIC nor APPM shall discuss this agreement or the cooperative effort to be carried out pursuant to it with any representative of the print or electronic general interest or trade and specialist media without the joint approval of the co-leaders of the Working Group. APPM and EIC further agree not to refer to ENVIRONMENTAL DEFENSE's participation in this effort in any advertising, marketing, public relations, or point of sale material without the prior written consent of ENVIRONMENTAL DEFENSE.

7. OWNERSHIP

7.1. Proprietary Information, including Intellectual Property and Confidential Information, that was created prior to or independently of the joint efforts contemplated by this Agreement shall remain the exclusive property of the organization which created such Proprietary Information and providing or disclosing such information does not create a right, license or privilege of any kind or nature whatsoever.

7.2. ENVIRONMENTAL DEFENSE, EIC and APPM each guarantees that the other Parties may use, as they deem fit, without any payment, any Information, including any document, mock-up, photograph, computer equipment, concept, method, product, process or anything that each Party, or its subcontractor or any third party produces or provides for the performance of the Project under this Agreement.

7.3. ENVIRONMENTAL DEFENSE, EIC, and APPM shall each ensure compliance with any copyright, patent, license, industrial design, model, brand or any other right related to any Information that it produces or provides or that its subcontractor or a third party produces or provides for the performance of the Project under this agreement.

7.4. Each Party shall be liable for any violation of the rights, whether belonging to that Party, a subcontractor, or a third party, related to Information that Party has produced or provided for the performance of the Project, and shall indemnify the other Parties for capital, interests and expenses from any damage which those other Parties may suffer due to such violation, and shall hold those Parties harmless against any suit, claim or action alleging such violation.

7.5. Ownership of any Proprietary Information, including, without limitation, Intellectual Property such as patents, trademarks, industrial designs, and copyrights, developed during the course of this Agreement shall be negotiated on a case by case basis between and among ENVIRONMENTAL DEFENSE, EIC, and APPM and defined in separate agreements between and among the Parties. In such cases, the Party that does not obtain ownership of the Intellectual Property shall retain license to use such Intellectual Property under terms mutually agreeable to all Parties.

8. ADMINISTRATION

8.1. ENVIRONMENTAL DEFENSE and its Representatives shall be responsible to or communicate with Mr. Dan Dudek concerning the provision of ENVIRONMENTAL DEFENSE services hereunder.

8.2. EIC and its Representatives shall be responsible to or communicate with Mr. Michael Yulkin concerning the provision of EIC services hereunder.

9. EXPENSES

9.1. ENVIRONMENTAL DEFENSE, EIC, and APPM are each responsible for their own respective expenses in connection with the effort described in this memorandum. No co-mingling of funds or other assets of ENVIRONMENTAL DEFENSE with assets of APPM or EIC shall occur pursuant to this agreement.

9.2. In the event that ENVIRONMENTAL DEFENSE, EIC, and APPM determine that the Working Group needs the services of one or more paid consultants outside the these Parties to carry out its work effectively, ENVIRONMENTAL DEFENSE, EIC, and APPM will agree upon the hiring and funding of such outside experts and will agree upon how their work will be directed.

9.3. APPM and EIC understand that ENVIRONMENTAL DEFENSE's performance of the tasks designated pursuant to this agreement is contingent upon ENVIRONMENTAL DEFENSE securing adequate funding.

10. TERM

This Agreement shall be effective as of the date first written above and shall continue for a period of one (1) year from that date ("Term") and therewith terminate unless extended by mutual written agreement.

11. TERMINATION

11.1. Any Party may terminate its participation in this Agreement without cause and at any time upon fifteen (15) day's written notice to the other Parties.

11.2. The expiration or termination of this Agreement shall not relieve any Party of its obligations of confidentiality contained herein.

11.3. Immediately upon termination, ENVIRONMENTAL DEFENSE and EIC shall return to APPM all Information and copies thereof as well as any work, product, data, software, design, record, document or other instrument incorporating or referring to the Project.

12. NOTICES

Notices or other communications by either Party to the other shall be deemed to have been received the next working day if sent by fax or email if emailed using "return receipt feature". In the case of materials to be sent by post, notices shall be deemed to have been received fourteen (14) days after posting by prepaid registered mail to the addresses set out below:

To **ENVIRONMENTAL DEFENSE**:	ENVIRONMENTAL DEFENSE 1875 Connecticut Avenue, NW Suite 600 Washington, DC 20009, USA c/o Alina Averchenkova Fax: +1-202-234-6049
To **APPM**:	ARCHANGELSK PULP AND PAPER MILL 1 Melnikova st., Novodvinsk, Archangelsk oblast, 164900, Russia c/o Vladimir Beloglazov Fax: +7-81852-33777
To **EIC:**	ENVIRONMENTAL INVESTMENT CENTER 63 Prospect Troitzky st., office 49, Arkhangelsk 163061, Russia c/o Michael Yulkin tel/fax +7-8182-64-64-52

A Party may change at any time its address by notice to the other Parties given in accordance with this Section.

13. TRADEMARK

The Parties agree that they will not use each others' name, logo, trademark, or other identifier for any advertising, promotion or any other purpose except with prior written consent of the relevant Parties.

14. ASSIGNMENT

No Party may assign this Agreement or any of its rights and obligations hereunder without the prior written consent of the other Parties, except that APPM may assign this Agreement to any of its affiliated companies without obtaining the other Parties consent.

15. NO RELATIONSHIP

15.1. The Parties agree and acknowledge that this Agreement does not create a partnership, joint venture, or a contract of employment and that

ENVIRONMENTAL DEFENSE, EIC, and APPM are independent entities with distinctly different missions. Each is solely responsible for the supervision of its Representatives participating in this effort. Except as may be specifically provided herein, each organization is free to pursue any activity it wishes outside the scope of this memorandum, including but not limited to media activities, resource management, marketing, fundraising, legislative activities, litigation, research, and policy advocacy activities.

15.2. Nothing in this Agreement shall make any Party the agent or legal representative of any other Party, nor shall it authorize any Party in any other respect to act for and on behalf of the other Parties.

15.3. The Parties expressly recognise that in implementing this Agreement, APPM may enter into contractual relationship with EIC for the purpose of implementing this agreement.

16. NON-WAIVER

The failure of one of the Parties to enforce at any time any of the provisions of this Agreement or any rights in respect hereto shall in no way be considered to be a waiver of such provisions or rights or in any way affect the validity of this Agreement. No waiver of any breach of this Agreement shall be held to be a waiver of any other subsequent breach.

17. GENERAL

17.1. The terms and conditions herein contained and Schedule A constitute the entire agreement between and among the Parties concerning the subject matter hereof. This Agreement cancels and replaces all prior and contemporaneous agreements, representations and discussions, whether oral or written, between the Parties with respect to the subject matter hereof.

17.2. No modification of this Agreement shall be binding upon the Parties unless made in writing and duly executed by the Parties.

17.3. If any provision of this Agreement is held to be invalid or unenforceable, the remaining provisions of this Agreement shall remain in full force and effect.

18. APPLICABLE LAW

This Agreement shall be governed, construed and interpreted according to the laws of ___New York_ and its courts shall have sole jurisdiction.

19. LANGUAGE

This Contract is written in English at the express request of the Parties.

IN WITNESS WHEREOF, duly authorized officers of the Parties hereto have executed duplicate copies of this Agreement.

ENVIRONMENTAL DEFENSE	**EIC**	**APPM**
Signed By Averchenkova		
NAME: Dan Dudek	NAME: Michael Yulkin	NAME: Vladimir Beloglazov
Date: 28.04.03	Date: 280403	Date: 28.04.03

SCHEDULE A

THE PROJECT

PURPOSE OF THE PROJECT:

The Parties will co-operate to develop a private system for the limitation of some, or all, of APPM's global greenhouse gas ("GHG") emissions to be implemented through both company-based reductions and emissions reduction trading, for the purpose of evaluating on a pro-forma basis the potential environmental effects and financial implications of the design and operation of such a system, developing the elements necessary for such a system, initiating transactions to test and demonstrate elements of the system, and identifying and recruiting other companies and organizations to participate in the system.

In conjunction with ENVIRONMENTAL DEFENSE, and EIC, APPM agrees to identify and implement, on a pilot basis, the elements necessary to an environmentally and economically credible system for the limitation of its global greenhouse gas emissions which shall include the trading of emissions reductions. In addition, ENVIRONMENTAL DEFENSE, EIC and APPM will explore the potential for APPM to generate revenues from the operation of such a system through (1) the sale of environmental outputs such as credits, offsets, allowances, or other instruments for marketing atmospheric emissions reductions, (2) the potential for green marketing programs, and (3) reductions produced from supplementary joint implementation investments.

ANTICIPATED PRODUCTS

The principal products of this collaborative Project will be the design and establishment of a private system for the limitation of APPM's global greenhouse gas emissions through the use of emissions trading and shall include necessary constituent elements and agreements, analysis of expected financial and environmental effects of implementing such a system, and demonstration transactions to test and evaluate aspects of the design with a special focus on the role of emissions trading.

To the extent that ENVIRONMENTAL DEFENSE, EIC and APPM believe that the tracking and reporting of actual GHG emissions and emissions reductions are integral to the credibility of the efforts to be undertaken under the auspices of this Agreement, APPM shall seek to enter into an agreement with the Environmental Resources Trust to provide for the tracking and reporting of GHG emissions in connection with these efforts.

In addition, ENVIRONMENTAL DEFENSE, EIC and APPM, either individually or jointly, may prepare for publication or other distribution one or more reports describing the activities, analyses, or conclusions of the Working Group. These reports may include background papers describing existing and potential markets for greenhouse gas reductions, and one or more pro-forma financial and environmental analyses of the feasibility of managing pilot project operations to produce greenhouse gas emissions reductions.

Any such report shall not be published or otherwise distributed while this agreement remains

in effect except in accordance with the approval of the co-leaders of the Working Group. Any such report shall not be published or otherwise distributed after this agreement is no longer in effect (whether by expiration or termination) without affording the other Parties an ample opportunity to review it in a timely manner and to have any contrary views included in the report.

CREATION AND ROLE OF WORKING GROUP

To carry out the effort described in this memorandum, ENVIRONMENTAL DEFENSE, EIC and APPM agree to designate appropriate representatives of their organizations to serve as a Working Group.

The function of the Working Group is to carry out all tasks necessary to accomplish the purposes described above. ENVIRONMENTAL DEFENSE, EIC and APPM shall each designate one person to serve as the co-leaders of the Working Group. Each co-leader shall be responsible for ensuring that the members of the Working Group from his or her organization are kept fully informed of the progress of this cooperative effort, understand its purposes, complete the tasks assigned to them within the time frames agreed upon, and honor any obligations of confidentiality with respect to information made available to the Working Group.

The resolution of any disagreements between and among members of the Working Group, need for clarification of this memorandum, or other problems pertaining to the cooperative effort between and among ENVIRONMENTAL DEFENSE, EIC and APPM shall be the responsibility of the co-leaders.

From time to time, ENVIRONMENTAL DEFENSE, EIC or APPM may invite other persons from within or outside their organizations to participate in Working Group activities. Participation by such other persons shall be subject to the approval of the co-leaders.

Annex 7

To Partnership for Climate Action (PCA),
1875 Connecticut Ave NW
Washington, DC 20009
Tel: (202) 387-3500
Fax: (202) 234-6049
Email: pca@environmentaldefense.org
Staff Contact: Jessica Holliday, PCA Manager

Dear Sirs and/or Ladies,

JSC Arkhangelsk Pulp and Paper Mill (APPM), Arkhangelsk oblast, Russia, hereby applies to join the Partnership for Climate Actions (PCA).

We consider that climate change mitigation is one of the first-priority global environmental tasks, and we stand for the soonest enforcement of the Kyoto Protocol which, in our view, provides reasonable prerequisites for drawing business worldwide into GHG reduction activity on the cost efficiency basis. We would also like to contribute to this both by implementing our own climate policy, and by participating in the international climate activity within PCA.

In 2003, inventory of GHG emissions has been carried out at the Mill. Inventory report has been tested and revised by Environmental Defense (EDf) and Environmental Resources Trust (ERT) who considered it quite careful and adequate as well as the Mill's accounting and reporting system for the fuel and other resources use related to GHG emissions. However, following the recommendations provided in the verification report, GHG inventory has been revised and this time made on a year-by-year basis with the year 2002 included.

For the first Kyoto period 2008-2012, APPM has voluntarily taken an obligation not to exceed 2,600,000 tons of CO_2-equivalent per year, which is 12% below the 1990-year level, while at the same time volume of production is deemed to be increased by 8.5% over the 1990-year level. This emission target was declared at COP 9 in Milan, Italy, on December 10, 2003. To provide for this, GHG accounting and management system is now being implemented at the Mill under the supervision of EDf. We also look forward to annually register APPM's GHG emissions with ERT.

We will be pleased to co-operate with PCA members exchanging our views and findings, and sharing benefits from GHG reduction activity on the basis of emission trading and joint implementation.

Sincerely,

Vladimir I. Beloglazov,
General Director (CEO)

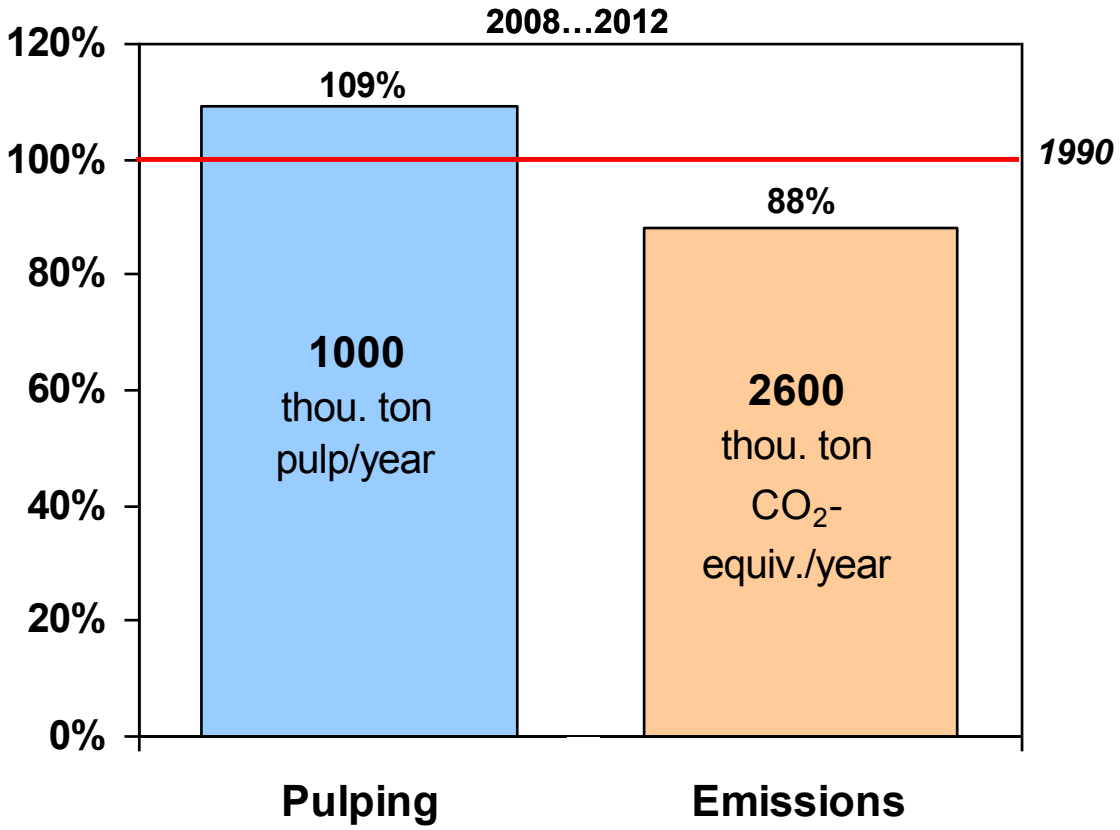
Annex 8

Results of inventory of greenhouse gas emissions at the Arkhangelsk PPM for 1990-2005, t CO_2-eq.

Emissions Category	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
DIRECT EMISSIONS	**2 956 213**	**2 856 885**	**2 656 215**	**2 471 631**	**1 941 130**	**2 074 962**	**2 104 142**	**2 008 128**	**2 030 926**	**2 193 713**	**2 195 859**	**2 076 135**	**1 985 458**	**2 045 947**	**2 160 790**	**2 105 441**
Stationary Fuel Combustion	**2 885 245**	**2 788 087**	**2 589 027**	**2 408 297**	**1 881 145**	**2 018 405**	**2 041 267**	**1 939 419**	**1 969 953**	**2 125 341**	**2 117 984**	**1 998 361**	**1 908 669**	**1 966 587**	**2 072 968**	**2 015 212**
TPP-1	2 551 637	2 438 624	2 210 246	2 095 739	1 549 022	1 646 034	1 663 621	1 581 842	1 597 348	1 773 971	1 794 964	1 717 261	1 696 724	1 737 157	1 825 813	1 800 821
TPP-2	14 713	22 120	36 115	46 832	70 925	58 678	54 964	39 602	43 924	28 354	26 662	30 038	17 938	20 420	11 736	12 489
TPP-3	180 462	204 048	229 822	179 925	193 209	250 226	266 976	254 160	259 469	234 626	205 533	163 790	100 894	111 333	134 739	100 489
Lime kilns	121 456	109 665	98 835	75 216	59 278	58 477	50 767	62 961	69 155	87 028	90 006	86 379	92 505	97 204	100 075	100 721
Other	16 977	13 630	14 009	10 585	8 711	4 990	4 940	854	57	1 362	820	894	609	472	606	691
Mobile Fuel Combustion	**14 797**	**14 018**	**16 027**	**15 778**	**13 649**	**7 813**	**13 324**	**16 721**	**9 937**	**12 601**	**18 131**	**19 962**	**18 742**	**19 119**	**20 365**	**20 824**
Waste Management	**25 787**	**26 702**	**28 704**	**31 200**	**32 350**	**33 173**	**33 686**	**34 919**	**37 408**	**40 702**	**44 579**	**46 852**	**48 849**	**50 985**	**57 215**	**60 000**
Make-up Carbonates	**30 384**	**28 078**	**22 458**	**16 356**	**13 986**	**15 571**	**15 864**	**17 069**	**13 628**	**15 070**	**15 165**	**10 960**	**9 198**	**9 256**	**10 242**	**9 404**
INDIRECT EMISSIONS	**160 796**	**190 723**	**162 177**	**129 716**	**103 643**	**50 665**	**67 116**	**70 980**	**46 161**	**38 702**	**1**	**58**	**9**	**62**	**10**	**18**
EMISSIONS WITH ENERGY EXPORT	**472 954**	**417 451**	**364 093**	**342 624**	**287 626**	**268 644**	**386 789**	**421 566**	**395 531**	**386 651**	**331 120**	**327 327**	**294 878**	**281 599**	**280 850**	**282 723**
Export of Electricity	118 843	68 379	62 945	63 817	72 435	60 066	130 631	110 222	119 174	111 041	65 330	58 158	44 041	44 852	52 451	48 125
Export of Heat	354 111	349 072	301 148	278 808	215 191	208 579	256 158	311 344	276 357	275 610	265 790	269 169	250 837	236 747	228 399	234 598
BIOMASS CO_2 EMISSIONS	***1 221 559***	***1 054 258***	***931 921***	***765 197***	***662 764***	***798 977***	***725 406***	***851 190***	***877 751***	***1 062 731***	***1 089 740***	***1 162 146***	***1 299 198***	***1 391 714***	***1 297 131***	***1 330 032***

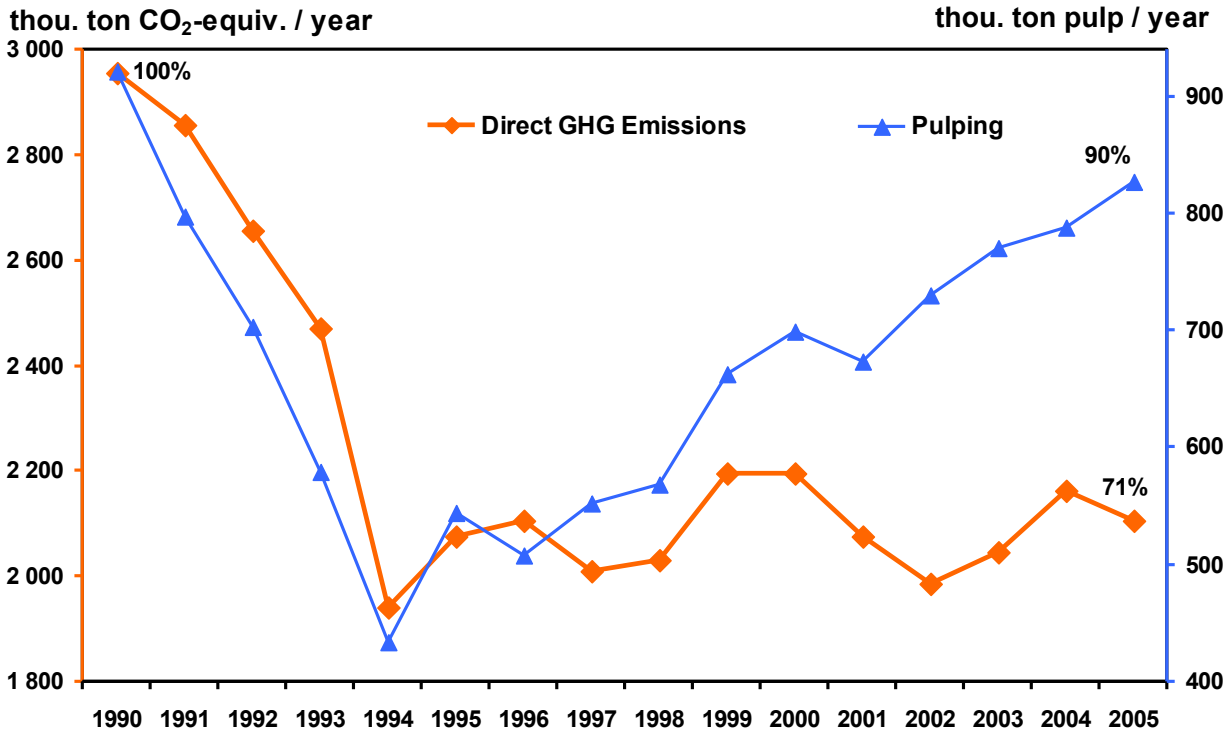
Annex 9

Voluntary "carbon target" of the Arkhangelsk PPM for the period up to 2012



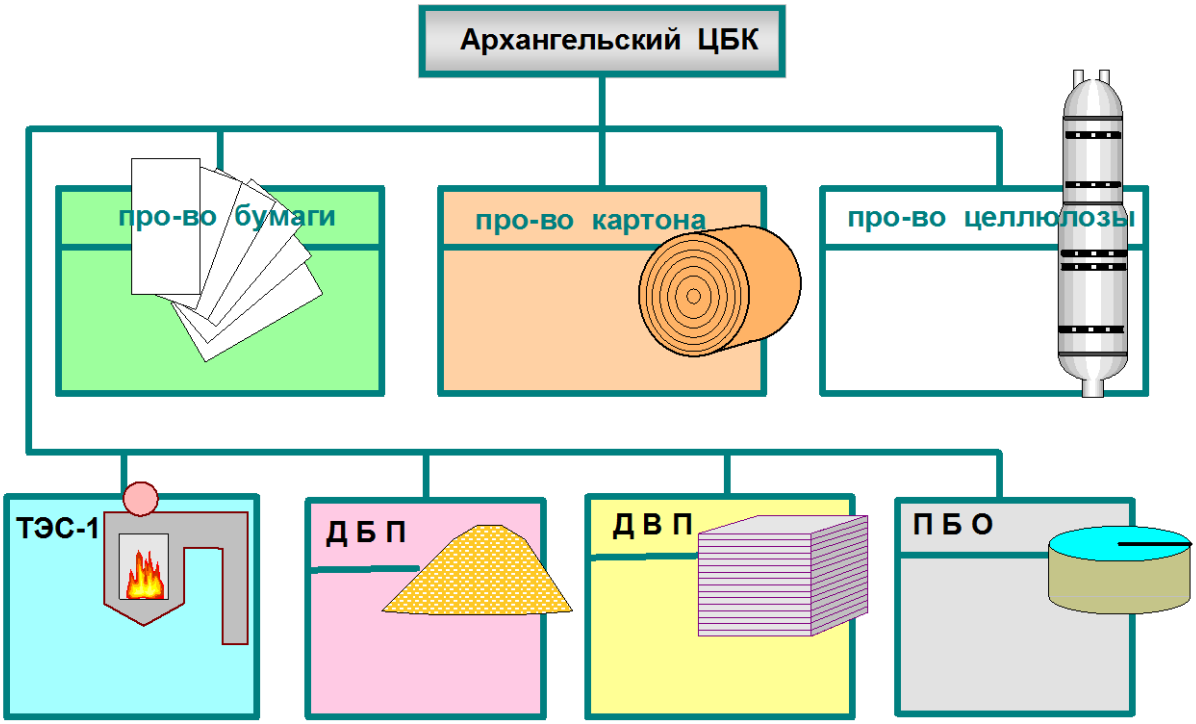
Annex 10

Dynamics of direct greenhouse gas emissions and pulping at the Arkhangelsk PPM



Annex 11

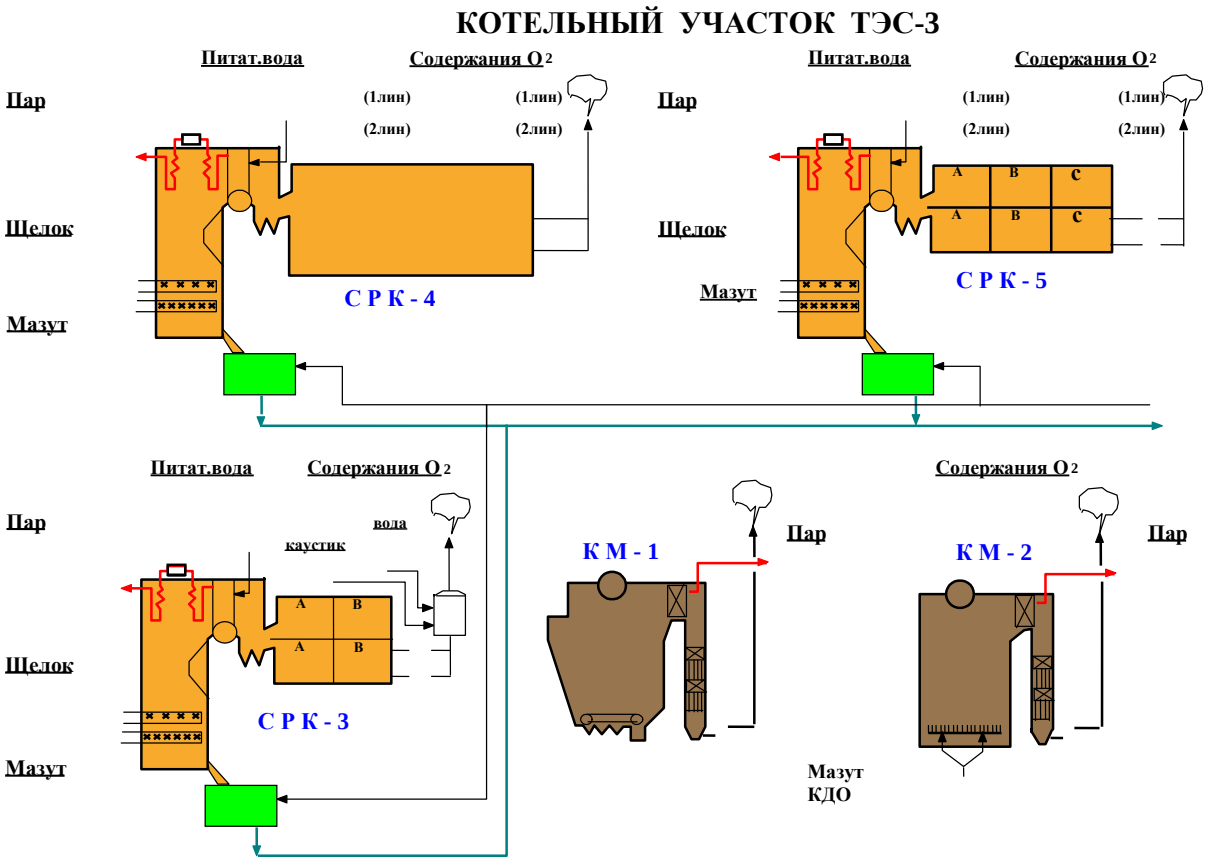
Layout of the principal structural departments of the Arkhangelsk PPM



Russian	English
Про-во бумаги	Paper production
Про-во картона	Cardboard production
Про-во целлюлозы	Cellulose production
ТЭС-1	TPP-1
ДБП	Wood-processing facilities
ДВП	Fiberboard production
ПБО	Biological treatment facilities

Annex 12

Layout of the boiler house of TPP-3 of the Arkhangelsk PPM

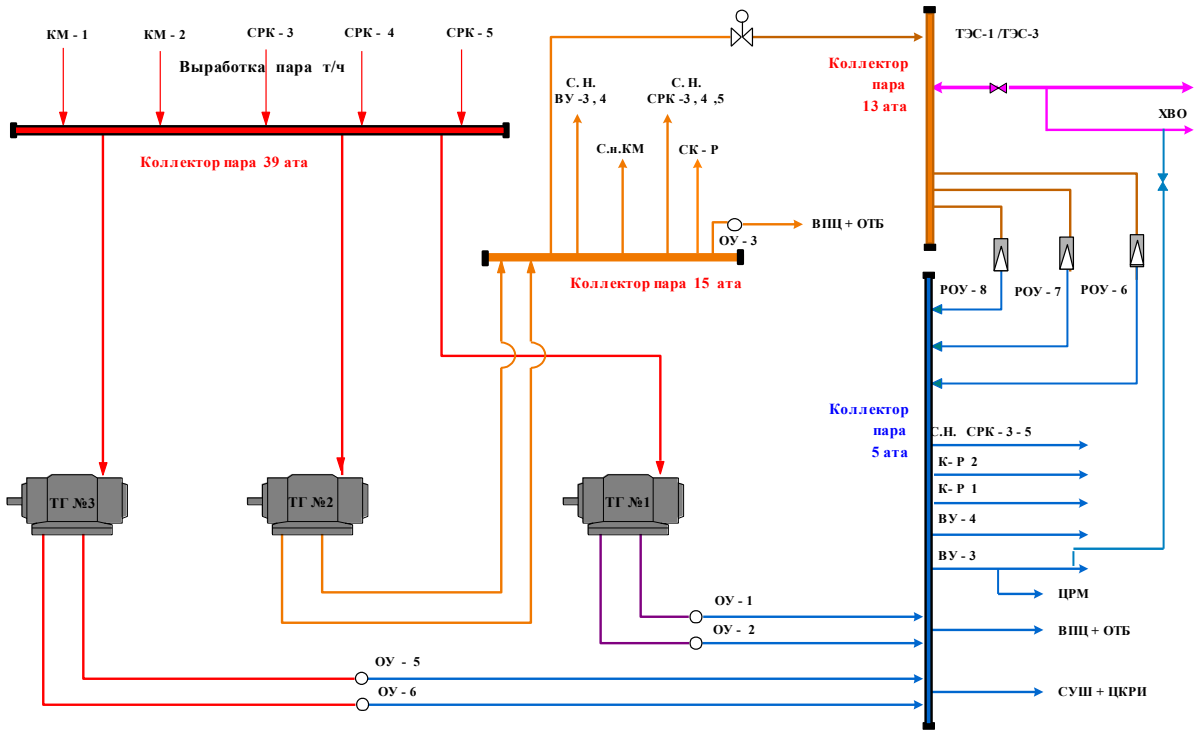


Note: KM-1 is shown before the reconstruction here

Russian	English
КОТЕЛЬНЫЙ УЧАСТОК ТЭС-3	BOILER HOUSE OF TPP-3
Пар	Steam
Щелок	Liquor
Мазут	Fuel oil
Питат. вода	Feed water
Содержание O_2	Content of O_2
СРК-3	RB-3
СРК-4	RB-4
СРК-5	RB-5
КМ-1	KM-1
КМ-2	KM-2
Вода	Water
Каустик	Caustic soda
КДО	BWW
(1лин)	(line 1)
(2лин)	(line 2)

Annex 13

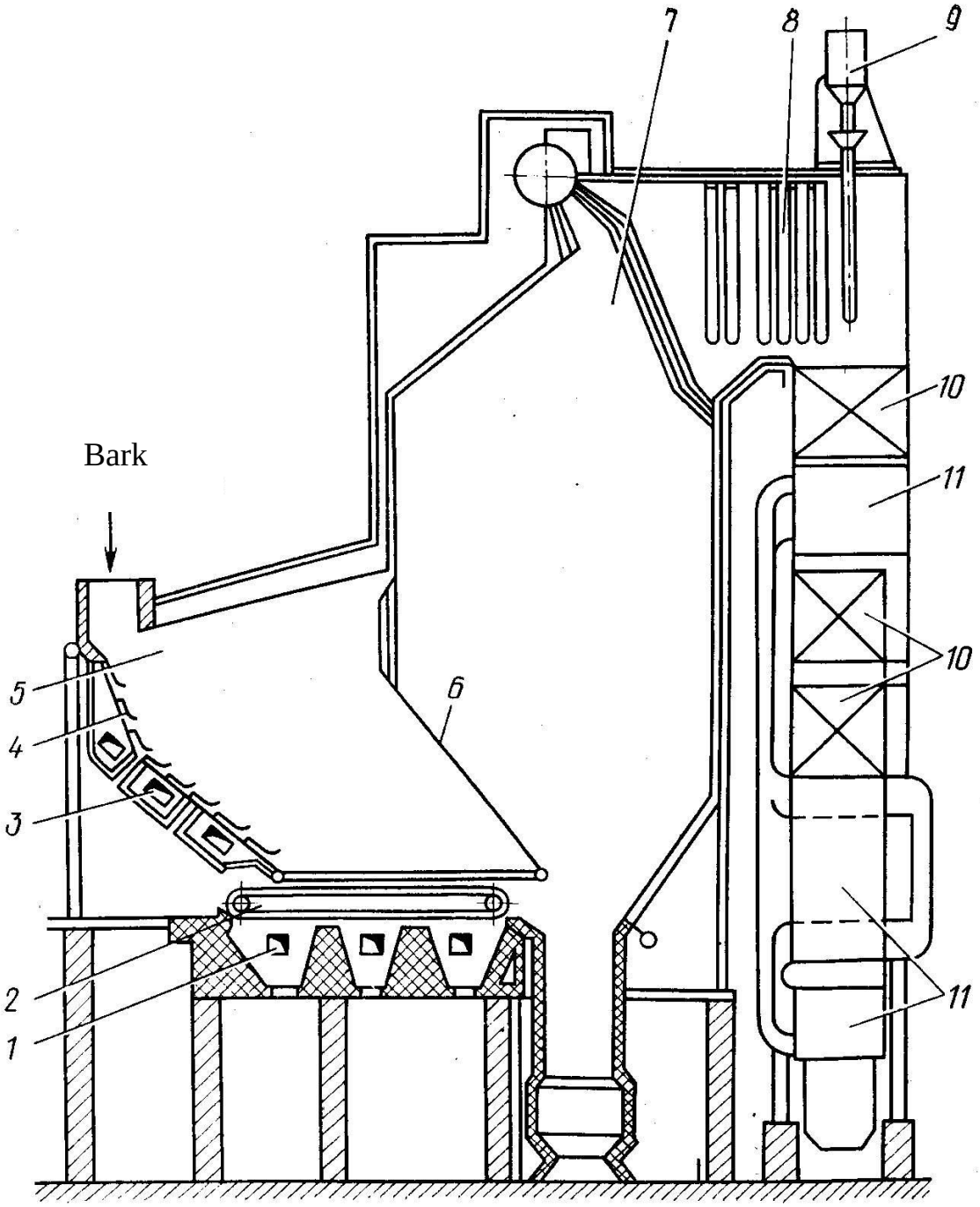
Layout of the turbine house of TPP-3 of the Arkhangelsk PPM



Russian	English
КМ-1	KM-1
КМ-2	KM-2
СРК-3	RB-3
СРК-4	RB-4
СРК-5	RB-5
Коллектор пара 39 ата	Steam collector 39 atm
СРК-3, 4, 5	RB-3, 4, 5
Коллектор пара 13 ата	Steam collector 13 atm
Коллектор пара 15 ата	Steam collector 15 atm
Коллектор пара 5 ата	Steam collector 5 atm
ТГ №1	TG No.1
ТГ №2	TG No.2
ТГ №3	TG No.3
ТЭС-1/ТЭС-3	TPP-1/TPP-3
РОУ-6	PRC-6
РОУ-7	PRC-7
РОУ-8	PRC-8
СРК – 3-5	RB – 3-5

Annex 14

Multi-fuel boiler unit KM-75-40 (before reconstruction)



1 – feeding air under the chain grate, 2 – chain grate, 3 – feeding air under the fixed slanting grate, 4 – slanting boiler grate, 5 – furnace extension, 6 – tubes separating furnace extension from furnace, 7 – furnace, 8 – superheater, 9 – blast cleaning, 10 – water economizer, 11 – air-preheater

Annex 15

Report of TPP-3 of the Arkhangelsk PPM for 2002 according to the statistical form 6-tp "Data on operation of thermal power plant"

FEDERAL STATE STATISTICAL MONITORING
CONFIDENTIALITY IS GUARANTEED BY RECIPIENT OF INFORMATION
Violation of procedure of submitting statistical information, as well as submitting unreliable statistical information, shall entail responsibility determined by Article 13.19 of the Code of Administrative Violations of the Russian Federation of December 30, 2001, No. 195-FZ, and Article 3 of the Russian Federation Law No. 2761-1 of May 13, 1992 "On responsibility for violation of procedure of submitting statistical records"

DATA ON OPERATION OF THERMAL POWER PLANT
for the year 2002

TPP-3

Form No. 6-TP
Established by Decree of the RF State Statistical Committee No. 54 of July 27, 2001, with revisions No. 124 of May 23, 2002, and No. 161 of April 01, 2003.
Annual

To be submitted by:	Submission deadlines:
Power plants and district boiler rooms of RAO Unified Energy System (UES) of Russia and AO Energo, irrespective of their power - to the higher organization.	January 21
Joint stock companies of power engineering and electrification of RAO UES of Russia, and branches of RAO UES of Russia - to the local state statistical authority established by the territorial body of Goskomstat in the republic, area, region, city with federal status; - to the economic department of the holding and subsidiaries of RAO UES of Russia; - to the authority responsible for state regulation in the relevant branch of economy.	February 7
Other power plants with power of at least 500 kW: - to the local state statistical authority established by the territorial body of Goskomstat in the republic, area, region, city with federal status; - to the authority responsible for state regulation in the relevant sector of economy. - to the authority regulating natural monopolies in the relevant sector of economy.	January 21

Name of reporting organization _____								
Postal address _____								
Company code (OKUD)	Code (filled by reporting organization)							
	of reporting organization (OKPO)	of activities (OKVED)	of branch (OKONH)	of territory (OKATO)	of ministry (agency), governing body (OKOGU)	of legal-organization form (OKOPF)	of ownership form (OKFS)	of power plant category
1	2	3	4	5	6	7	8	9
0610095								

Section 1. General information

Codes (OKEI): kW - 214; Gcal/hr - 238; hr - 356

Parameters	Line N	Installed power of power plant for the end of the year			Value and cause of installed power variation	Available power of power plant for the end of the year		Average installed power for the reporting period	
		electric, kW	thermal, Gcal/hr			electric, kW	thermal by turbo-units, Gcal/hr	electric, kW	Thermal by turbo-units, Gcal/hr
			total	incl. on turbo-units					
A	B	1	2	3	4	5	6	7	8
Actually	11	28600	223	223		28600	223	28600	223

Parameters	Line N	Average operating electric power for the reporting period, kW	Hours of using installed annual average electric power, hr (s. 2 col. 1 / s. 1 col. 7) x 1000)	Hours of used annual average thermal power of turbo-units, hr	Maximum load		Technical reasons of limited installed power of power plant
					electric, kW	thermal, Gcal / hr	
A	B	9	10	11	12	13	14
Actually	11	19124	5405	5124	26800	220	

Section 2. Operating data

Codes (OKEI): thous. kW*hr - 246; Gcal - 233

Parameters	Line N	Generated electric power, thous. kW*hr		Thermal power supplied to external consumers, Gcal				Power consumption for own production needs, thous. kW*hr		
		total	Incl. on heating cycle	total (col. 4 + col. 6)	by power plant		by district boiler room of RAO UES of Russia and AO Energo	for power plant		For district boiler room of RAO UES of Russia and AO Energo
					total	incl. spent steam		on electric power generation	of thermal power supply	
A	B	1	2	3	4	5	6	7	8	9
Actually	22	154585	154585	1142610	1142610	1142610		1853	44503	
	23									

Codes (OKEI): thous. kW*hr - 246; g/kW*hr - 510; kg/Gcal - 511

Parameters	Line N	Supplied electric power, thous. kW*hr (col. 7 + col. 8)	Specific consumption of coal equivalent				Specific electric power consumption for own production needs		
			on supplied electric power, g/kW*hr	supplied thermal power, kg/Gcal			on electric power generation (col. 7 / col. 1) x 100	on thermal power supply, kW.ч/Gcal	
				total	for power plant	for district boiler room of RAO UES of Russia and AO Energo		for power plant (col. 8 / col. 4) x 1000	for district boiler room of RAO UES of Russia and AO Energo (col. 9 / col. 6) x 1000
A	B	10	11	12	13	14	15	16	17
Standard	21	x	257,3	230,9	230,9		x	x	x
Actually	22	108229	288,1	226,2	226,2		1,2	38,9	
	23								

18 _____ 19 _____

Section 3. Fuel consumption of coal equivalent for supply of electric and thermal power

Code (OKEI): ton of coal equivalent - 172

Fuel consumption	Line N	By standards for actual supply	Actually	Saved (-); overspent (+); (col. 1 - col. 2)
A	B	1	2	3
Total (line 32 + line 33)	31	256002	289690	-6312
On supplied electric power	32	32172	31178	-994
On supplied thermal power - total (line 34 + line 35)	33	263830	258512	-5318
including: at power plant	34			
at district boiler room of RAO UES of Russia and AO Energo	35			
	36			

Note. Enterprises are not supposed to fill line 23 of section 2 and line 36 of section 3.

Section 4. Fuel balance

Types of fuel	Line N	Unit	Code (OKEI)	Fuel balance for the end of the year	Supply of fuel for a year	Fuel consumption over a year			Balance for the end of the year	Quality of burnt fuel		
						total	including for supply of electric and thermal power			Calorific value (Q*), kcal/kg (kcal/nm^3)	Humidity (W*), %	Ash value (A*), %
							natural	equivalent				
A	B	C	D	1	2	3	4	5	6	7	8	9
Petroleum fuel oil	41	t	168									
including: residual fuel oil	42	t	168			30663	30663	41350	-	9473	3,9	0,05
Liquor of TPP-3	43	t (a.d.m.)	114	×					x			x
						424426	424426	146617	-	1855	23,1	5
Liquor of TPP-2						10632	10632	4673	-	2339	23,8	50,4
Hardwood bark		m^3				148421	148421	38648		2028	50,1	1,7
Plywood waste	44	m^3	168			61593,9	61593,9	15585		2036	50,0	1,9
Coniferous bark						18339	18339	2744		1787	52,8	2,0
Hardwood slivers		m^3				125078	125078	33319		2036	50	1,8
Coal	45	t	168									
Hardwood sawdust	46	m^3	179			11419	11419	3003		1901	52,5	1,9
Coniferous slivers	47	m^3	168			15401	15401	3323		1812	52,8	2,0
Coniferous sawdust	48	m^3	121			1947	1947	42,8		1729	53,9	2,1
Other types of fuel	49											
Total*	50			×	×	×	×	289690	×	×	×	×

---

* Fuel consumption in the "Total" line of col. 5 must be equal to fuel consumption specified in line 31 of col. 2 of section 3.

Director
General of APPM *Beloglazov V.I.* *signature*
(Name) (signature)

Executed by
Senior engineer (PAO) *Zhigleva T.P.* *signature*
(position) (Name) (signature)

6-35-60 (33-38 aux.) January "24", 2003
(telephone number) (date of document)

Annex 16

Characteristics of the main equipment of TPP-1 of the Arkhangelsk PPM (as for July, 2003)

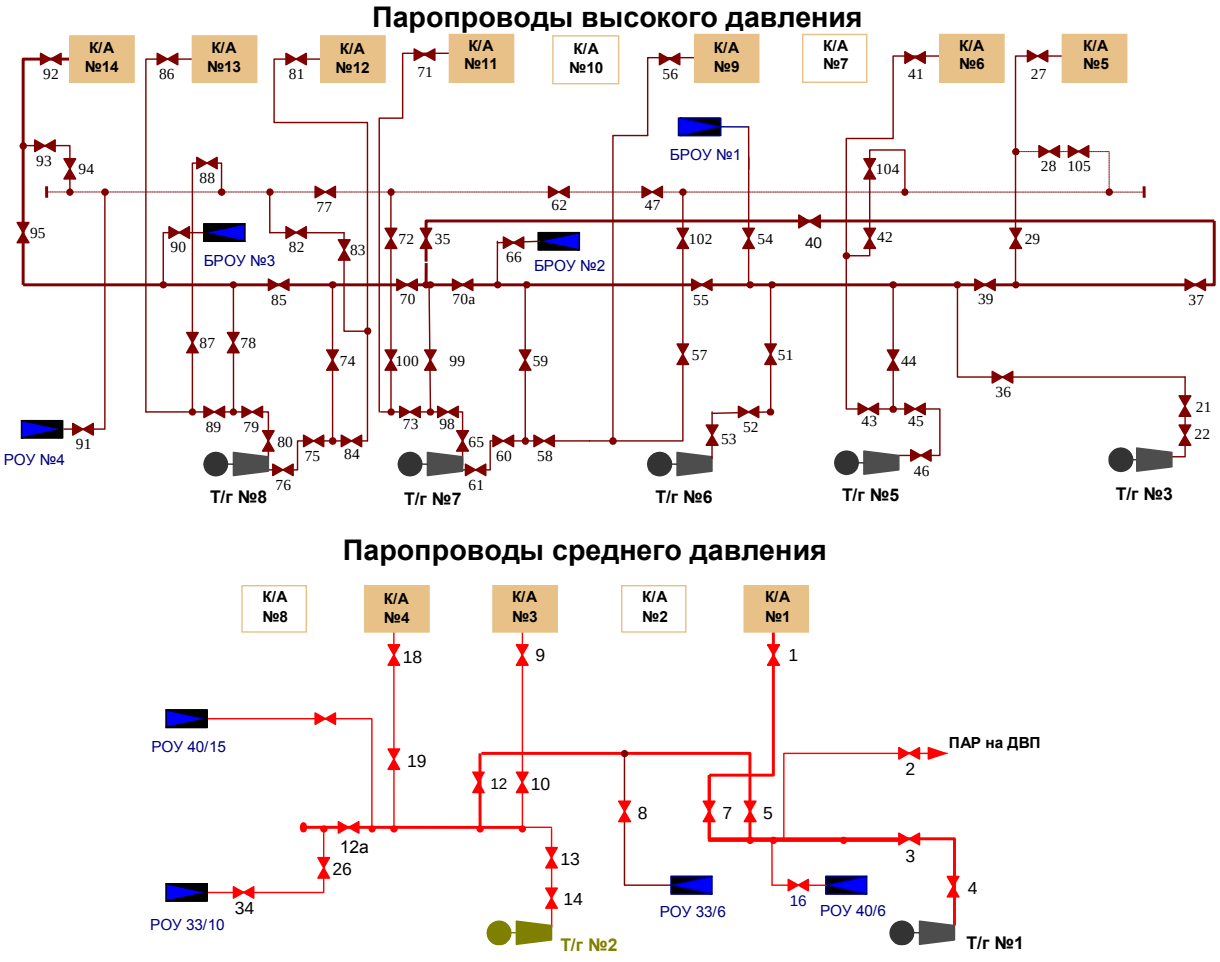
No.	St. No.	Type	Steam capacity (t/hr)	Live steam pressure, kgf/cm^2	Live steam temp., °C	Manufacturer	S/N	Reg. No.	Year of issue	Set in operation on	Type of fuel	Running hours for January 1, 2003	Decommissioned on
1	1	KM-75-40	30	30	400	Belgorod boiler plant	3761	23861	1981	Jun 01,88	Waste wood	98772	
2	2	NZL-40\34	30	34	400	Nevskiy boiler plant	5481	6790	1938	May 01,40	Waste wood		Jan 01, 98
3	3	NZL-60\34	30	34	400	Nevskiy boiler plant	5816	6791	1939	Mar 01,41	Waste wood	383521	
4	4	FShT-75\34	30	30	400	Barnaul boiler plant	6	6792	1946	Dec 01,47	Waste wood	349394	
5	5	BKZ-220-100	220	100	540	Barnaul boiler plant	2102	00484	1990	Dec 22,95	Fuel oil	34497	
6	6	BKZ-220-100	210	100	540	Barnaul boiler plant	1592	23957	1982	Feb 19,90	Coal	86334	
7	7	BKZ-160-100f	140	100	540	Barnaul boiler plant	527	12214	1962	Nov 01,63	Coal		Jan 01, 98
8	8	CKTI-75-39f	75	39	400	Barnaul boiler plant	227	8678	1958	Feb 01,59	Coal		Jan 01, 98
9	9	BKZ-220-100f	185	100	540	Barnaul boiler plant	667	14376	1964	Dec 01,65	Coal		Jun 03, 03
10	10	BKZ-220-9,8-13	220	100	540	Barnaul boiler plant	2319	00542	2001	Apr 28,03	Coal		
11	11	BKZ-220-100f	185	100	540	Barnaul boiler plant	783	14562	1966	Sep 01,67	Coal	211658	
12	12	BKZ-220-100f	185	100	540	Barnaul boiler plant	874	16947	1968	Jan 01,71	Coal	207672	
13	13	BKZ-220-100f	185	100	540	Barnaul boiler plant	993	17751	1970	Dec 01,71	Coal	196050	
14	14	BKZ-220-100f	185	100	540	Barnaul boiler plant	1045	17883	1972	Dec 01,73	Coal	197295	
15	1	PR-6-35\15\5	6 000 kW			Kaluga mechanical plant	8943		1978	Dec 01,78		172849	
16	2	PR-6-35\15\5	6 000 kW			Kaluga mechanical plant	8935		1976	Jun 01,78		131136	
17	3	PR-12-90\15\7	12 000 kW			Kaluga mechanical plant	9435		1990	Apr 22,94		32115	
18	4	VR-6-3	6 000 kW			Sverdlovsk mech. plant	25109		1960	Dec 01,63			Jan 01, 98
19	5	VPT-25-4	25 000 kW			Sverdlovsk mech. plant	27041		1960	Aug 01,62		243970	
20	6	VPT-25-4	25 000 kW			Sverdlovsk mech. plant	27056		1961	Jun 01,63		228911	
21	7	PT-60-90\13	60 000 kW			Leningrad mech. plant	900		1965	Dec 01,65		268173	
22	8	PT-60-90\13	60 000 kW			Leningrad mech. plant	944		1965	Oct 01,67		239078	
23	1	PTVM-100	100 Gcal/hr			Dorogobuzh boiler plant	1469	20538	1973	Jun 01,76	Fuel oil		Jan 01, 98
24	2	PTVM-100	100 Gcal/hr			Belgorod boiler plant	2222	17937	1974	Oct 01,75	Fuel oil	32618	

No.	St. No.	Type	Rated power	Manufacturer	S/N	Reg. No.	Year of issue	Set in operation on	Generator coolant		
1	1	T-6-2	6 000 kW	Lysva			1978	Dec 01,78	Air		
2	2	T-6-2	6 000 kW	Lysva			1976	Jun 01,78	Air	The generator rotor is given to TPP-3	
3	3	T-12-2	12 000 kW	Lysva			1990	Apr 22,94	Air		
4	4	T-2-6-2	6 000 kW	Elektrosila			1961	Dec 01,63	Air		Jan 01, 98
5	5	TVS-30	30 000 kW	Kharkov turbo-generator plant			1960	Aug 01,62	Hydrogen		
6	6	TVS-30	30 000 kW	Kharkov turbo-generator plant			1962	Jun 01,63	Hydrogen		
7	7	TVF-60-2	60 000 kW	Elektrosila			1964	Dec 01,65	Hydrogen		
8	8	TVF-60-2	60 000 kW	Elektrosila			1965	Oct 01,67	Hydrogen		

Water preparation plant – capacity: 750m^3/hr (desalinated)
Central station for collection and treatment of condensate – capacity: 400 m^3/hr
Flow for preparation of chemically treated water for make-up of the heating grid – capacity: 950m3/hr

Annex 17

Layout of live steam pipelines at TPP-1 of the Arkhangelsk PPM



Russian	English
Паропроводы высокого давления	High pressure steam pipelines
Паропроводы среднего давления	Medium pressure steam pipelines
Пар на ДВП	Steam for FB production
К/А	Boiler unit
РОУ	PRC
Т/г	T/g

Annex 18

Report of TPP-1 of the Arkhangelsk PPM for 2002 according to the statistical form 6-tp "Data on operation of thermal power plant"

FEDERAL STATE STATISTICAL MONITORING
CONFIDENTIALITY IS GUARANTEED BY RECIPIENT OF INFORMATION
Violation of procedure of submitting statistical information, as well as submitting unreliable statistical information shall entail responsibility determined by Article 13.19 of the Code of Administrative Violations of the Russian Federation of December 30, 2001, No. 195-FZ, and Article 3 of the Russian Federation Law No. 2761-1 of May 13, 1992 "On responsibility for violation of procedure of submitting statistical records"

DATA ON OPERATION OF THERMAL POWER PLANT
for the year 2002

TPP-1

Form No. 6-TP
Established by Decree of the RF State Statistical Committee No. 54 of July 27, 2001, with revisions No. 124 of May 23, 2002, and No. 161 of April 01, 2003.
Annual

To be submitted by:	Submission deadlines:
Power plants and district boiler rooms of RAO Unified Energy System (UES) of Russia and AO Energo, irrespective of their power - to the higher organization.	January 21
Joint stock companies of power engineering and electrification of RAO UES of Russia, and branches of RAO UES of Russia - to the local state statistical authority established by the territorial body of Goskomstat in the republic, area, region, city with federal status; - to the economic department of the holding and subsidiaries of RAO UES of Russia; - to the authority responsible for state regulation in the relevant branch of economy.	February 7
Other power plants with power of at least 500 kW: - to the local state statistical authority established by the territorial body of Goskomstat in the republic, area, region, city with federal status; - to the authority responsible for state regulation in the relevant sector of economy. - to the authority regulating natural monopolies in the relevant sector of economy.	January 21

Name of reporting organization _JSC Arkhangelsk PPM, TPP-1_____								
Postal address __164900, Arkhangelsk Region, Novodvinsk, Melnikova St, 1								
Company code (OKUD)	Code (filled by reporting organization)							
	of reporting organization (OKPO)	of activities (OKVED)	of branch (OKONH)	of territory (OKATO)	of ministry (agency), governing body (OKOGU)	of legal-organization form (OKOPF)	of ownership form (OKFS)	of power plant category
1	2	3	4	5	6	7	8	9
0610095								

Section 1. General information

Codes (OKEI): kW - 214; Gcal/hr - 238; hr - 356

Parameters	Line N	Installed power of power plant for the end of the year			Value and cause of installed power variation	Available power of power plant for the end of the year		Average installed power for the reporting period	
		electric, kW	thermal, Gcal/hr			electric, kW	Thermal by turbo-units, Gcal/hr	electric, kW	Thermal by turbo-units, Gcal/hr
			total	Incl. on turbo-units					
A	B	1	2	3	4	5	6	7	8
Actually	11	194000	742	683	-	194000	683	194000	683

Parameters	Line N	Average operating electric power for the reporting period, kW	Hours of using installed annual average electric power, hr (s. 2 col. 1 / s. 1 col. 7) x 1000)	Hours of used annual average thermal power of turbo-units, hr	Maximum load		Technical reasons of limited installed power of power plant
					electric, kW	thermal, Gcal / hr	
A	B	9	10	11	12	13	14
Actually	11	130000	4762	2530	137000	426	-

Section 2. Operating data

Codes (OKEI): thous. kW*hr - 246;
Gcal - 233

Parameters	Line N	Generated electric power, thous. kW*hr		Thermal power supplied to external consumers, Gcal				Power consumption for own production needs, thous. kW*hr		
		total	Incl. on heating cycle	total (col. 4 + col. 6)	by power plant		by district boiler room of RAO UES of Russia and AO Energo	for power plant		for district boiler room of RAO UES of Russia and AO Energo
					total	incl. spent steam		on electric power generation	of thermal power supply	
A	B	1	2	3	4	5	6	7	8	9
Actually	22	923891	-	2153,548	2153,548	1727,990	-	60992	93666	-
	23									

Codes (OKEI): thous. kW*hr - 246;
g/kW*hr - 510; kg/Gcal - 511

Parameters	Line N	Supplied electric power, thous. kW*hr (col. 7 + col. 8)	Specific consumption of coal equivalent				Specific electric power consumption for own production needs		
			on supplied electric power, g/kW*hr	supplied thermal power, kg/Gcal			on electric power generation (col. 7 / col. 1) x 100	on thermal power supply, kW.ч/Gcal	
				total	for power plant	for district boiler room of RAO UES of Russia and AO Energo		for power plant (col. 8 / col. 4) x 1000	for district boiler room of RAO UES of Russia and AO Energo (col. 9 / col. 6) x 1000
A	B	10	11	12	13	14	15	16	17
Standard	21	x	356,1	196,8	196,8	-	x	x	x
Actually	22	769 233	355,4	196,6	196,6	-	6,6	43,5	-
	23								

18 _____ 19 _____

Section 3. Fuel consumption of coal equivalent for supply of electric and thermal power

Code (OKEI): ton of coal equivalent - 172

Fuel consumption	Line N	By standards for actual supply	Actually	Saved (-); overspent (+); (col. 1 - col. 2)
A	B	1	2	3
Total (line 32 + line 33)	31	697817	696829	-988
On supplied electric power	32	273913	273382	-531
On supplied thermal power - total (line 34 + line 35)	33	423904	423447	-457
including: at power plant	34	423904	423447	-457
at district boiler room of RAO UES of Russia and AO Energo	35	-	-	-
	36			

Note. Enterprises are not supposed to fill line 23 of section 2 and line 36 of section 3.

Section 4. Fuel balance

Types of fuel	Line N	Unit	Code (OKEI)	Fuel balance for the end of the year	Supply of fuel for a year	Fuel consumption over a year			Balance for the end of the year	Quality of burnt fuel		
						total	including for supply of electric and thermal power			Calorific value (Q*), kcal/kg (kcal/nm^3)	Humidity (W*), %	Ash value (A*), %
							natural	equivalent				
A	B	C	D	1	2	3	4	5	6	7	8	9
Petroleum fuel oil	41	t	168									
including: residual fuel oil	42	t	168	3953,712	100597,809	97909,7	49079	66419	6641,821	9473	3,9	0,05
Gas	43	thous. m^3	114	×					×			×
Coals(total), including	44	t	168	51434	696627,7	727831,4	727831,4	573686	20223,8	5517	6,4	22,0
Kuznetsk coal		t		-	15926,2	13122,9	13122,9	10208	2803,3	5445		
Vorkuta coal		t		51434	680701,5	714708,5	714708,5	563478	17420,5	5519		
incl. bituminous coal	45	t	168									
Peat - total	46	t (specified humidity)	179									
Shale - total	47	t	168									
Firewood	48	packed m^3	121	-	294657,5	294657,5	294657,5	56724	-	1347	54,5	2,4
Other types of fuel	49											
Total*	50			×	×	×	×	696829	×	×	×	×

---

* Fuel consumption in the "Total" line of col. 5 must be equal to fuel consumption specified in line 31 of col. 2 of section 3.

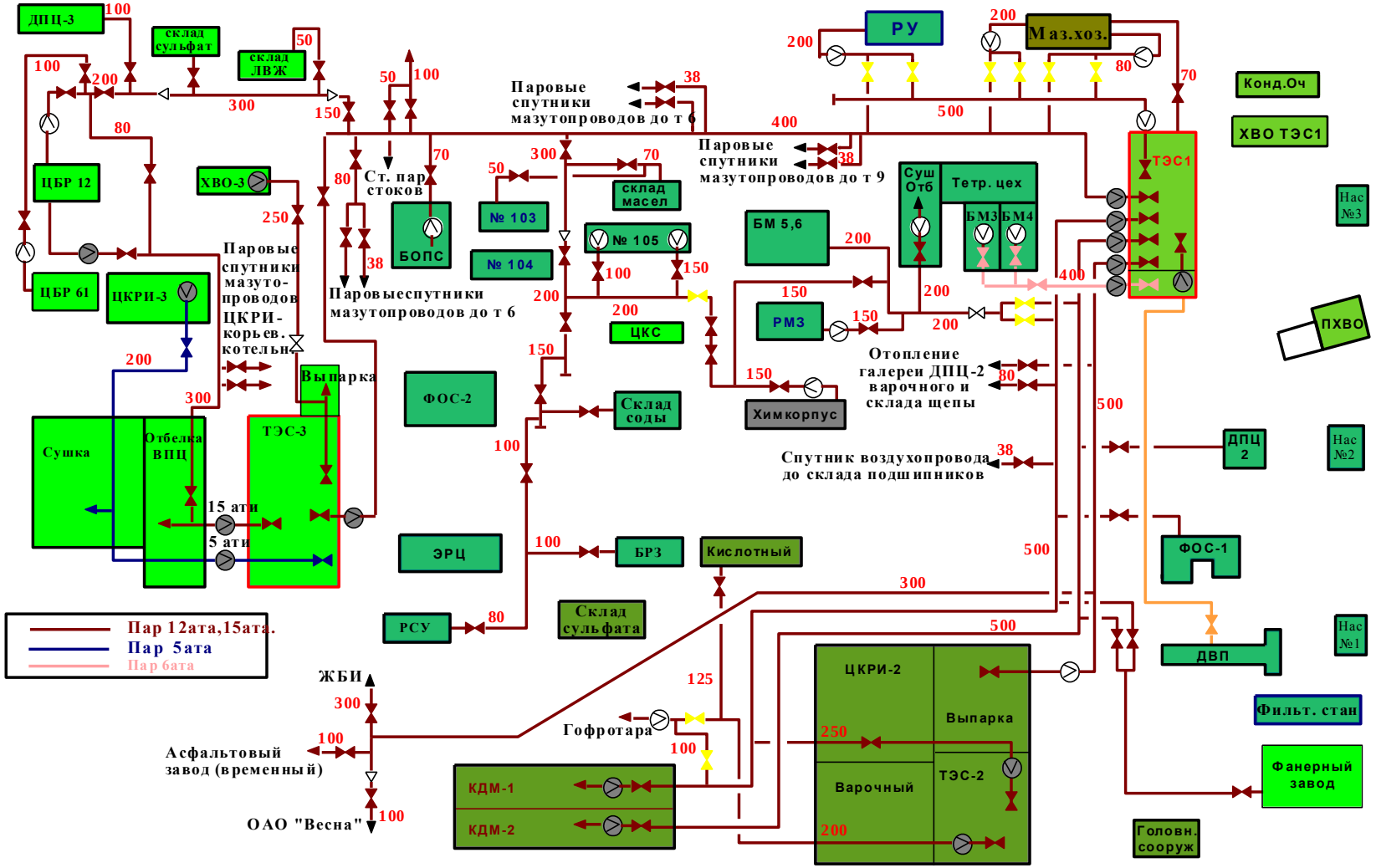
Director
General of APPM *Beloglazov V.I.* *signature*
(Name) (signature)

Executed by
Deputy Head of Production and Technical Department of TPP-1 *Bykova K.A.* *signature*
(position) (Name) (signature)

4-23-80 January "16", 2003
(telephone number) (date of document)

Annex 19

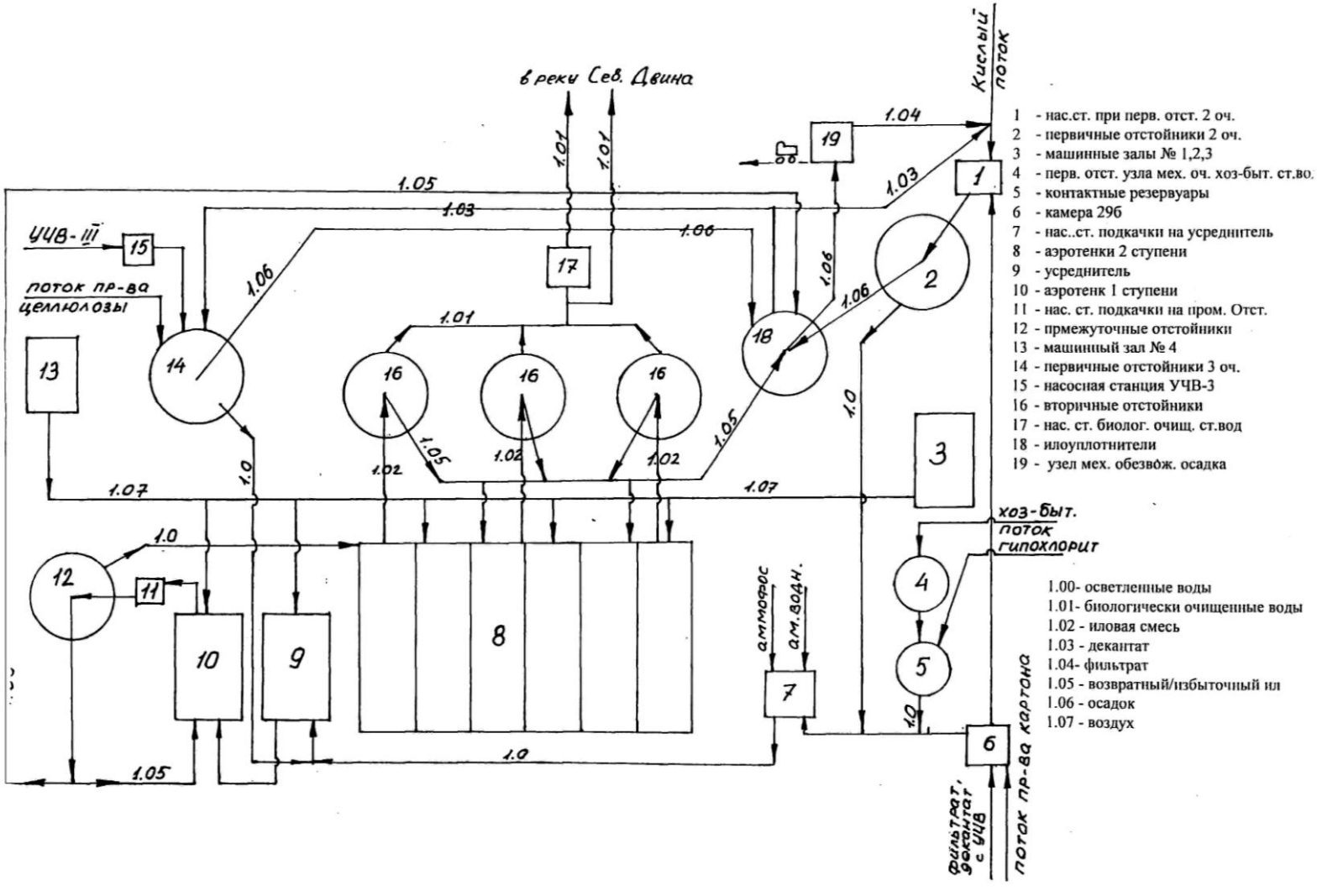
Layout of steam supply of the Arkhangelsk PPM



Russian	English
ДПЦ-2, 3	WPS-2, 3
Склад сульфата	Sulfate storage
Сушка	Drying
Отбелка	Bleaching
ТЭС-1	TPP-1
ТЭС-2	TPP-2
ТЭС-3	TPP-3
Паровые спутники мазутопроводов	Steam tracers of fuel oil pipelines
Склад соды	Soda storage
Кислотный	Acid shop
Гофротара	Corrugated packaging
Асфальтовый завод (временный)	Asphalt plant (temporary)
ОАО «Весна»	JSC Vesna
ЖБИ	Concrete product plant
Пар 5 ата, 6 ата, 12 ата, 15 ата	Steam 5 atm, 6 atm,12 atm, 15 atm
Варочный	Digester house
Выпарка	Evaporation
Хим. корпус	Chemical block
Фильт. стан	Filtering station
Фанерный завод	Plywood manufacturing plant
ДВП	Fiberboard production
Нас №1, №2, №3	Pump No. 1, No. 2, No. 3
Головн. сооруж	Headworks
Склад масел	Oil storage
Маз. хоз.	Fuel oil farm
Спутник воздухопровода до склада подшипников	Steam tracer of air pipe to the warehouse of bearings
Отопление галереи ДПЦ-2 варочного и склада щепы	Heating of the gallery of WPS-2, digester house and chip storage

Annex 20

Layout of waste water biological treatment facilities at the Arkhangelsk PPM



Russian	English
Поток пр-ва целлюлозы	Cellulose production flow
В реку Сев. Двина	To the Northern Dvina river
Кислый поток	Acid flow
Аммофос.	Ammophos
Ам.водн.	Amm. water
Хоз-быт. поток	Household waste flow
Гипохлорит	Hypochlorite
Фильтрат, декантат	Filtrate, decantate
Поток пр-ва картона	Cardboard production flow

1	Pumping station of the 2nd stage primary settling tanks
2	2nd stage primary settling tanks
3	Turbine rooms No. 1, 2, 3
4	Primary settling tanks of the household waste water mechanical treatment unit
5	Contact tanks
6	Chamber 29b
7	Pumping station for charging the balancing tank
8	2nd stage aerotanks
9	Balancing tank
10	1st stage aerotank
11	Pumping station for charging the intermediate settling tanks
12	Intermediate settling tanks
13	Turbine room No. 4
14	3rd stage primary settling tanks
15	Pumping station
16	Secondary settling tanks
17	Pumping station of the waste water biological treatment facilities
18	Concentration tanks
19	Sludge mechanical dehydration unit

1.00	Clarified waste water
1.01	Biologically treated waste water
1.02	Mixed sludge
1.03	Decantate
1.04	Filtrate
1.05	Recycle/excessive sludge
1.06	Residue
1.07	Air

Annex 21

Information on a new industrial waste landfill of the Arkhangelsk PPM and on the amount of dumped waste for the year 2004

On January 01, 2004, a new landfill for industrial waste and solid household waste was set in operation. The landfill has a square shape and is located in the northern part of the industrial site, covering an area of 22.5 hectares. The landfill is constructed according to the design developed on agreement with ZAO Arkhgiprobum and coordinated with the supervisory bodies. The design was highly appreciated by environmental inspection experts.
In 2004, the landfill received the following types of waste *(appendix 1)*. The waste left after processing of natural clear wood was used on the landfill as a material to ensure the load-carrying capacity of the landfill surface.

Appendix 1

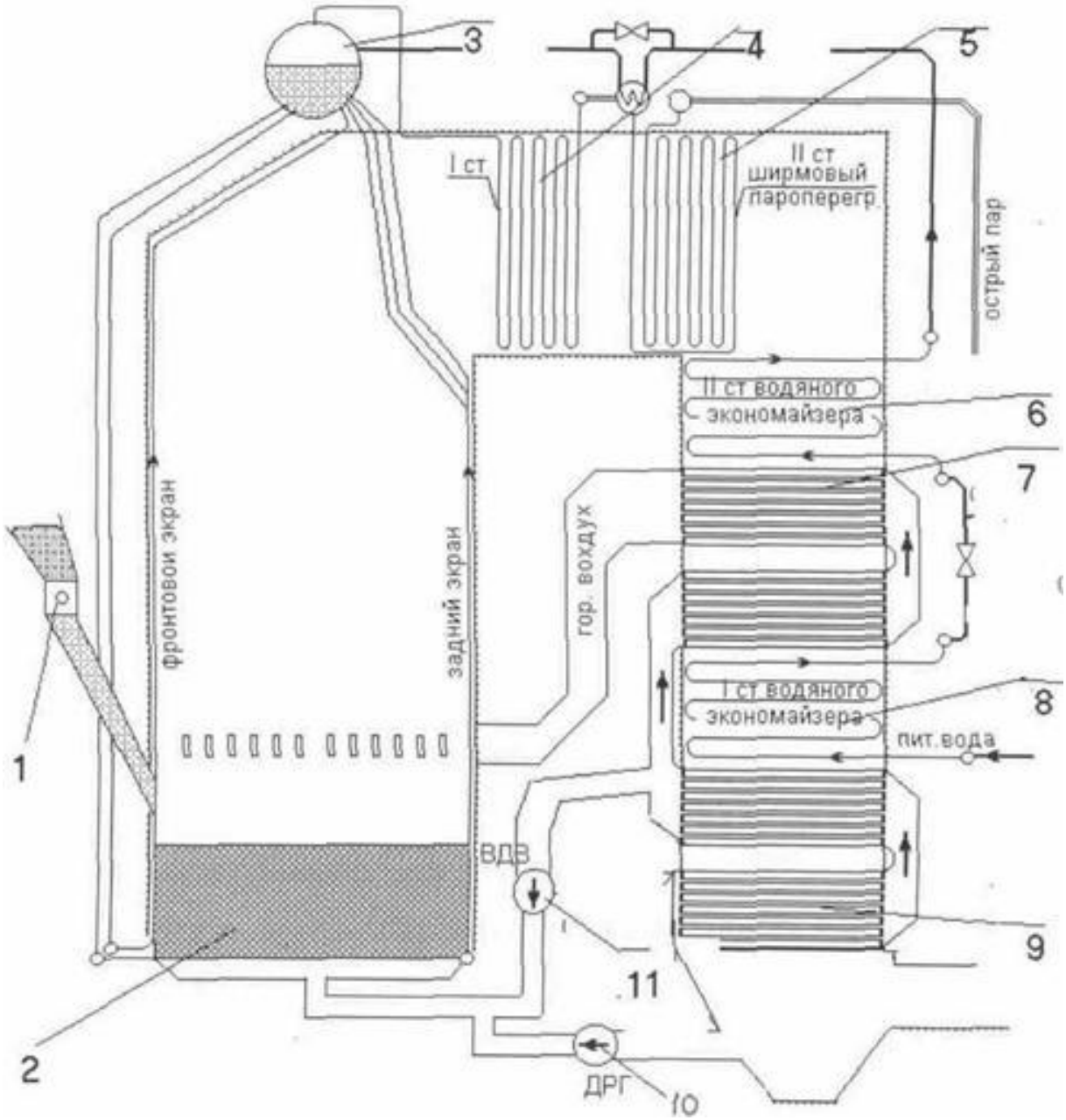
Industrial and household products placed on the landfill of JSC Arkhangelsk PPM

No.	**Type of waste**	Hazard class	Amount in tons (actually, for 2004)
1	Filling flux	3	2.4
2	Street cleaning waste	4	955.61
3	Flue cinder	4	2.27
4	Household garbage (unsorted)	4	138.0
5	Medical waste	4	0.046
6	Mineral fiber (thermal insulation) waste	4	60.8
7	Slime produced by cleaning of tube-rolling mill separators	4	2.9
8	Sulfur melting slime	4	63
9	Slime left after cleaning of industrial sewage channels	4	14.0
10	Industrial garbage	4	14094.635
11	Grit and powder produced by grinding ferrous metals	4	7.761
12	Waste wood (undercooked)	4	2314.1
13	Waste of liming (fresh alkali)	4	2069.1
14	Spent molding land	4	225.7
15	Scrapped refractory products	4	1.3
16	Ion-exchange resins for drinking water hardness removal	5	0.8
17	Uncontaminated rubber products, which have lost their useful properties	5	14.93
18	Waste left after processing of natural clear wood	5	177515.56
19	Waste (sludge) left after mechanical and biological treatment of waste water	5	250187.5
20	Construction waste	5	18022.28
21	Welding electrode cinders	5	1.35
	Total:		***465 694.042***

Head of environment and labor protection administration *(signature)* ***V.B. Ananyin***

Annex 22

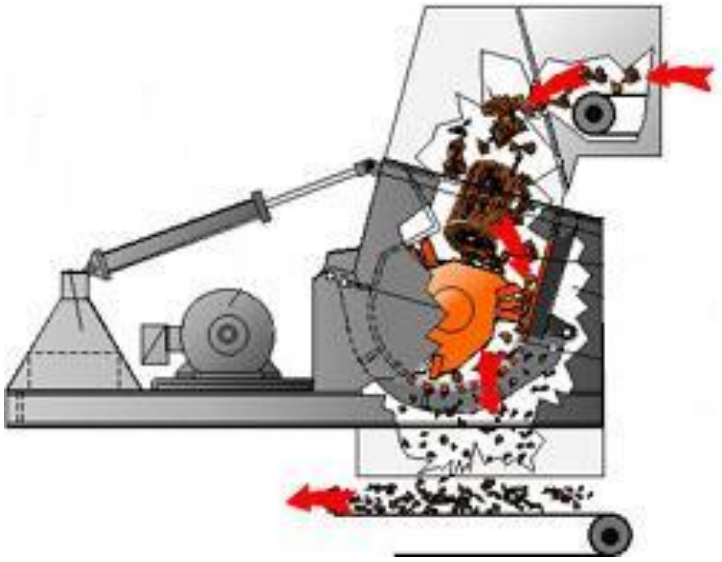
Boiler unit KM-75-40S with a fluidized bed



1 – bark feeder; 2 – quartz sand; 3 – boiler drum; 4 – 1st stage of superheater; 5 – 2nd stage of superheater; 6 – 2nd stage of water economizer; 7 – 2nd stage of air-preheater; 8 – 1st stage of water economizer; 9 – 1st stage of air-preheater; 10 – recirculation smoke exhauster; 11 – high pressure fan.

Annex 23

Saalasti's bark-wood waste crusher

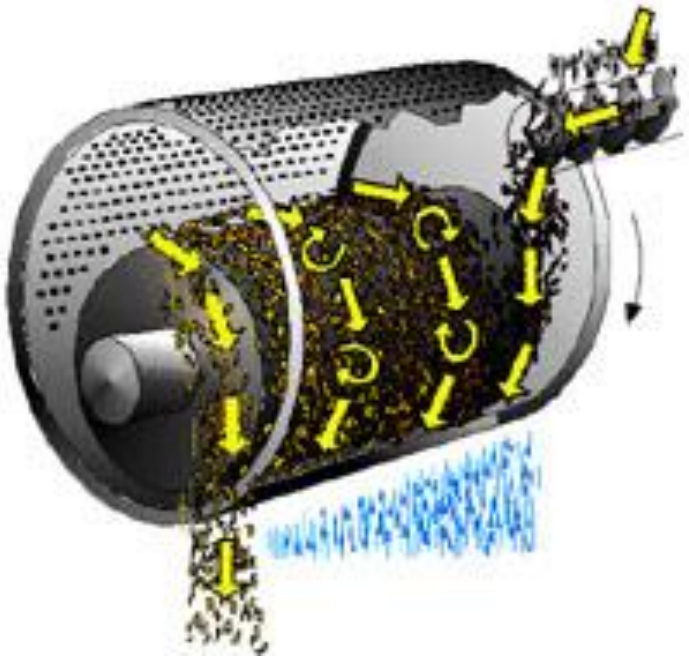


The Saalasti 0912 crusher has just one moving part – its rotor made of hard steel. The waste is crushed between the rotor and the counter-knife. Further on, the waste is screened through the grate located under the rotor. The holes in the grate only let pieces of a determined size fall on the transporter. Dimensions of the bark fragments may be adjusted within the range of 15 to 150 mm.

In conventional crushers, large pieces of metal getting incidentally into the crusher may cause serious problems. The Saalasti crusher has the best protection against similar overloads, as it is equipped with special shear pins. Should large pieces of metal get into the machine, the shear pins are broken and relieve both the counter-knife and the grate. As a result, all the crusher's principal parts remain undamaged.

Annex 24

Saalasti's bark press Bark Master



The Bark Master bark press is designed to reduce humidity of wet waste wood. The press is supplied to saw-mills in many countries. Today, Saalasti is the world's leader on the market of presses of this kind.

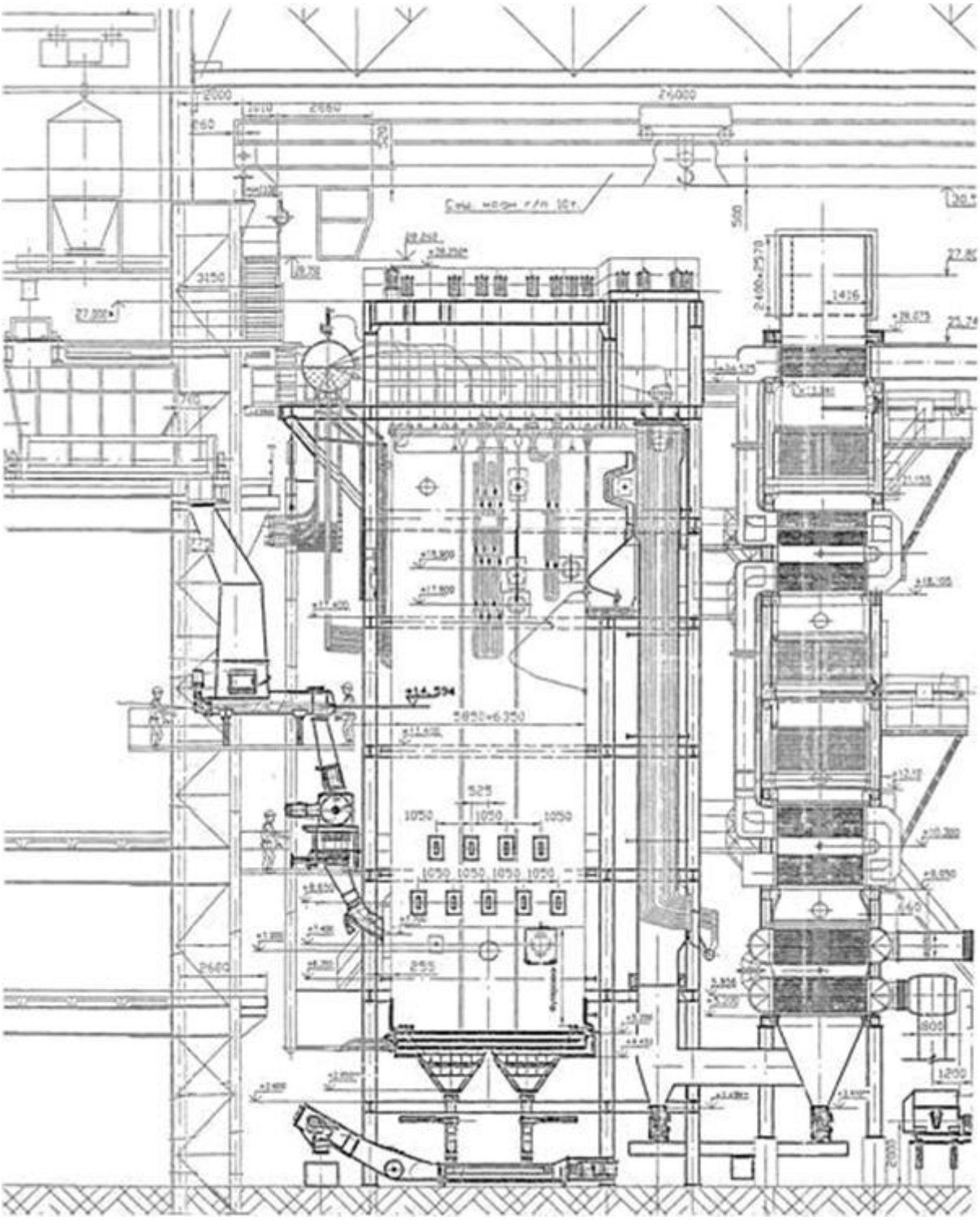
The press was thoroughly designed and made of strong metals with high resistance to wear and damage from hard inclusions (stones, metal pieces, etc.). Operating the press does not require the operator to be present all the time. Variations in the quality composition of the delivered ground waste does not affect the quality of the press operation. The press maintenance requires only the minimum of funds and is mostly limited to checks and adjustments.

Efficient moisture removal is achieved due to using a patented multi-press method. The pre-ground fuel is dehydrated between a perforated drum and a massive roller rotating inside the drum with the same peripheral velocity.

The worm feeder delivers the raw material into the press, where it is dewatered and mixed several times. With each roller revolution, the fuel becomes drier. The flows of liquid get out through external conic drilled holes in the drum. The dewatered ground fuel is a dry homogenous mass with lower humidity, compared to many other bark presses.

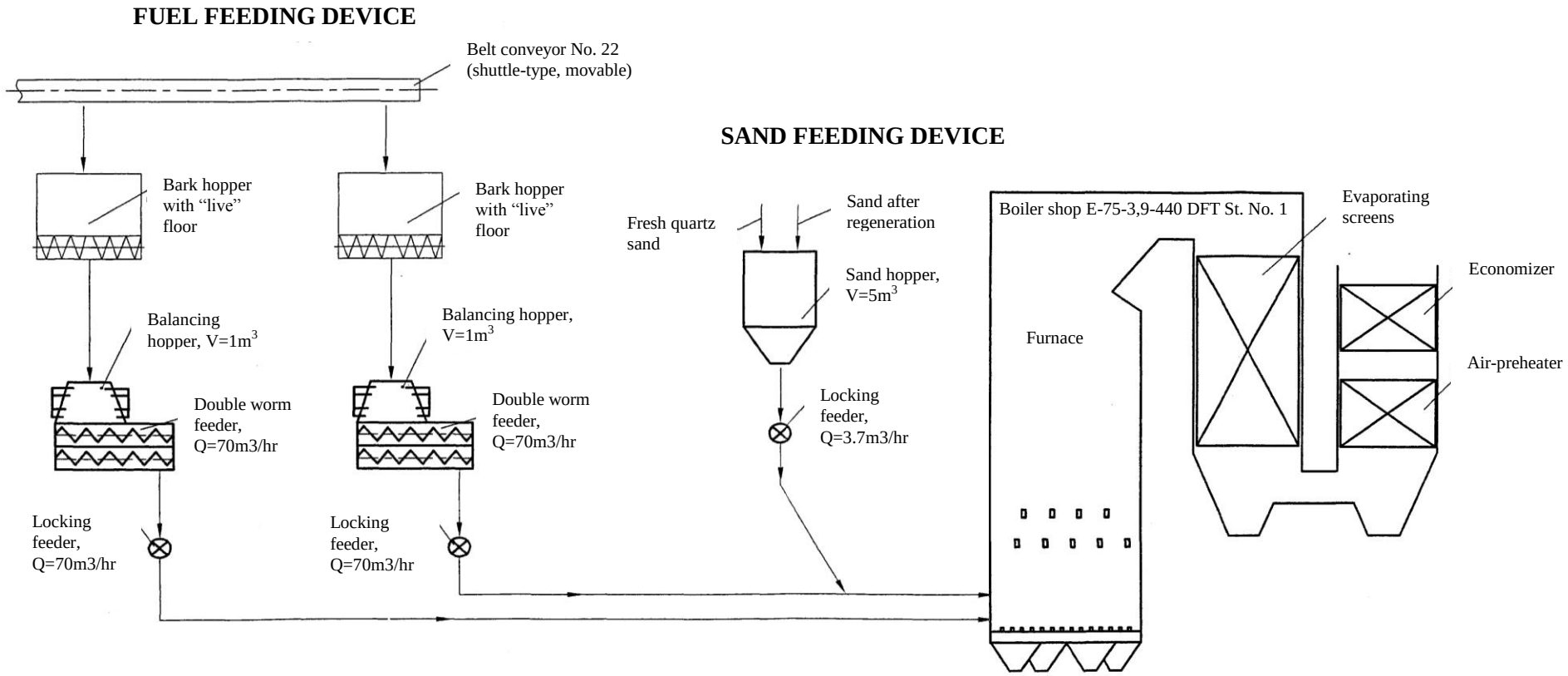
Annex 25

Boiler unit E-75-3.9-440 DFT



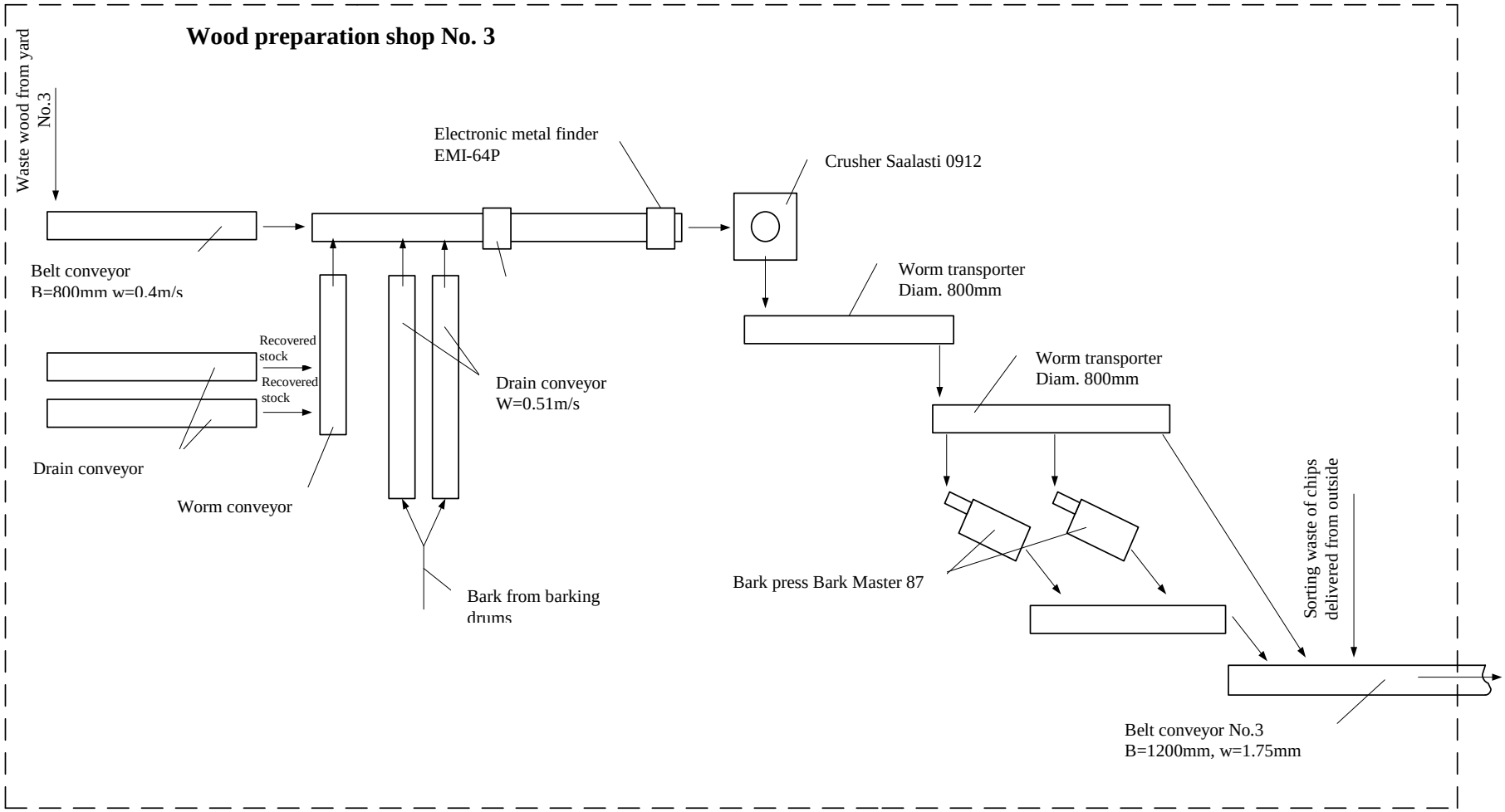
Annex 26

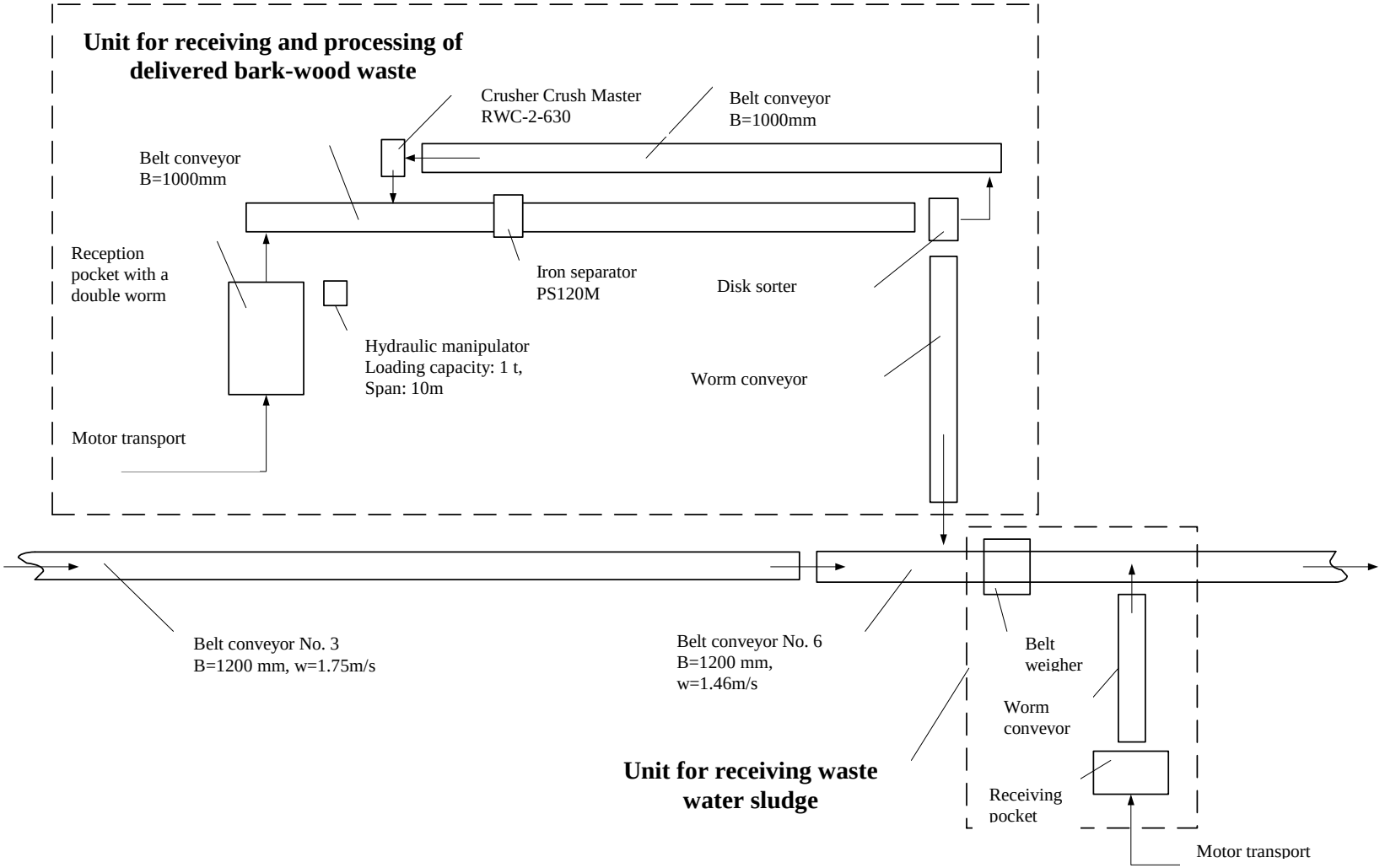
Basic flow chart of feeding fuel and sand to the furnace of boiler E-75-3.9-440 DFT

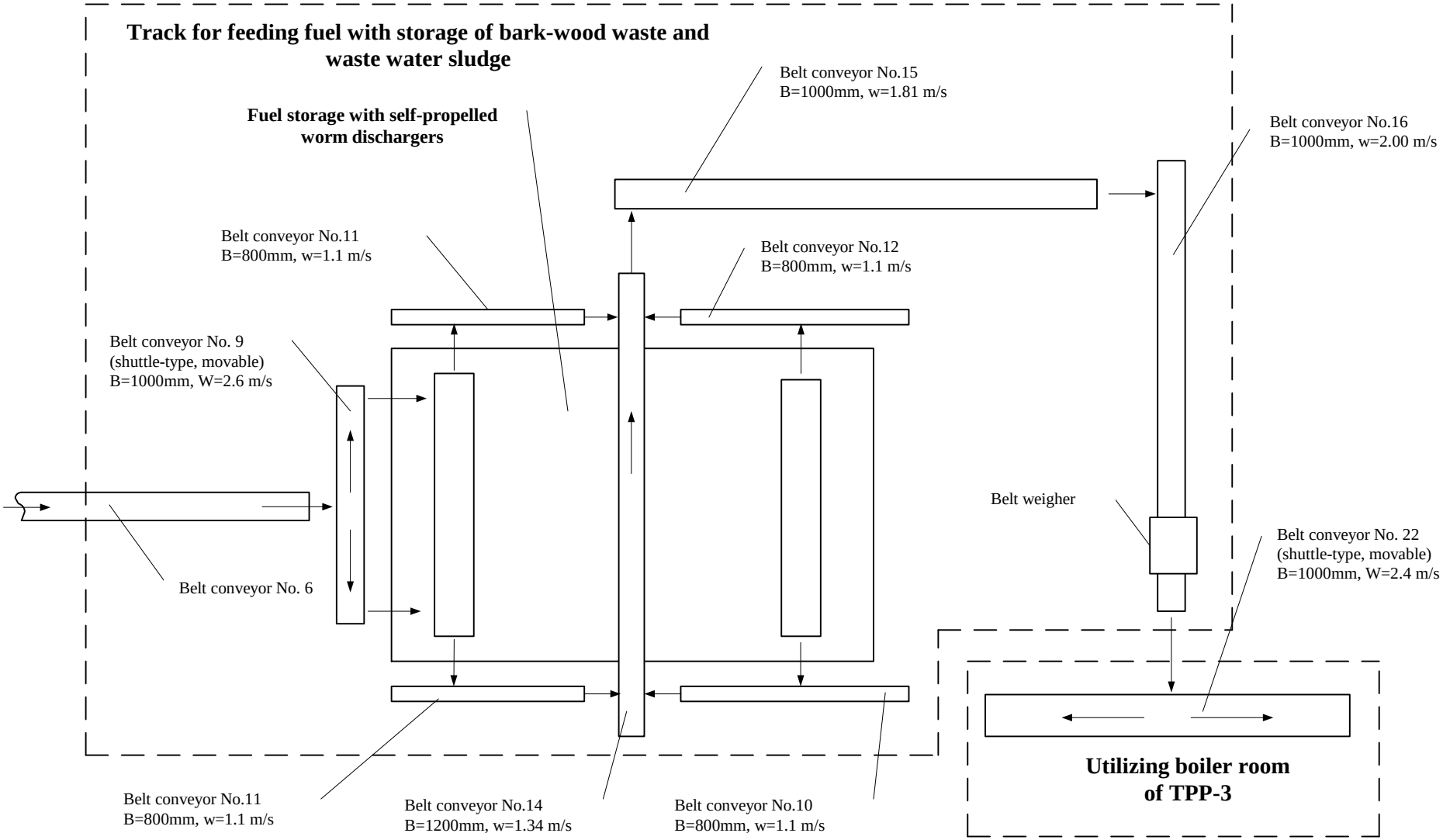


Annex 27

Basic flow chart of feeding fuel into the utilizing boiler room of TPP-3




Unit for receiving and processing of delivered bark-wood waste
Crusher Crush Master RWC-2-630
Belt conveyor B=1000mm
Belt conveyor B=1000mm
Reception pocket with a double worm
Iron separator PS120M
Disk sorter
Hydraulic manipulator Loading capacity: 1 t, Span: 10m
Worm conveyor
Motor transport
Belt conveyor No. 3 B=1200 mm, w=1.75m/s
Belt conveyor No. 6 B=1200 mm, w=1.46m/s
Belt weigher
Worm conveyor
Unit for receiving waste water sludge
Receiving pocket
Motor transport


Track for feeding fuel with storage of bark-wood waste and waste water sludge
Fuel storage with self-propelled worm dischargers
Belt conveyor No.15
B=1000mm, w=1.81 m/s
Belt conveyor No.16
B=1000mm, w=2.00 m/s
Belt conveyor No.11
B=800mm, w=1.1 m/s
Belt conveyor No.12
B=800mm, w=1.1 m/s
Belt conveyor No. 9
(shuttle-type, movable)
B=1000mm, W=2.6 m/s
Belt weigher
Belt conveyor No. 22
(shuttle-type, movable)
B=1000mm, W=2.4 m/s
Belt conveyor No. 6
Utilizing boiler room of TPP-3
Belt conveyor No.11
B=800mm, w=1.1 m/s
Belt conveyor No.14
B=1200mm, w=1.34 m/s
Belt conveyor No.10
B=800mm, w=1.1 m/s

The unit for receiving BWW comprises a 50 m^3 hopper equipped with two worm dischargers supplied by Raumaster Oy, with capacity of 50 to 250 packed m^3/hr, and provides for receiving BWW from chip trucks.

The crushing unit is equipped with a hydraulic Crush Master RWC-2-600 rotor crusher with capacity of 5 to 50 packed m^3/hr. Large waste is fed to the crusher with a manipulator, and the screenings are transferred by a belt conveyor. The crushing unit equipment is supplied by Raumaster Oy.

Delivery of bark from the receiving unit, and delivery of ground wood from the crushing unit to sorting is to be carried out with a 1000 mm belt conveyor. To remove metal objects out of the waste wood flow, a PS-120M iron separator is to be installed.

The sorting unit is equipped with a disk sorter supplied by LLC Soyuzlesmontazh (Vologda). The small fraction of bark, which requires no grinding, falls through the sorting slots and are transferred by a worm transporter to belt conveyor No. 6. The large fraction is transferred by the return belt conveyor for additional grinding.

The processing chart of the unit for receiving WWS looks as follows. WWS is delivered from filter-presses of the biological treatment station by dump-trucks. WWS consumption is 4 to 20 wet t/hr. The sludge is unloaded into the receiving hopper, its lower part equipped with four dosing worms. At the output of the dosing worms, there is a slanting worm conveyor for delivering sludge to conveyor No. 6, with a belt weigher for ensuring the BWW/WWS ratio within the range from 8/1 to 4/1, respectively. The worms of the receiving hopper are equipped with geared motors enabling variation of rotating speed, thus adjusting the amount of the fed WWS.

The BWW/WWS mixture comes to the buffer storage with self-propelled worm unloaders, and then goes through the belt weigher and is distributed to receiving hoppers of the TPP-3 utilizing boilers.